



**Critical Assessment of the Role and the Response of the African Union and Sub-regional Intergovernmental Organizations in Combating Climate Change**

**Submitted in Partial Fulfillment of the Requirements of the Degree LLM in Public International Law**

**Addis Ababa University, College of Law and Governance Studies**

**By- Atikilt Fetene**

**Advisor-Mulugeta Mengist (PhD)**

**March 2013**

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**International Law**

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**March 2013**

## **Declaration**

I, Atikilt Fetene, do solemnly declare that the work presented in this thesis is original. It has never been presented to any other university or academic institution. Where someone's work has been used, due acknowledgment has been given. In this regard, I declared this work as originally mine. I accordingly present this work in partial fulfillment of the requirement for the award of the LLM Degree in Public International Law at the Addis Ababa University.

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**APPROVED BY THE BOARD OF EXAMINERS**

**Title:**

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**By**

**Atikilt Fetene**

**Submitted in Partial Fulfillment of the Requirements of the LLM Degree in Public  
International Law**

Dr. Mulugeta Mengist

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March, 2013

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## ተባረኩ!!!

አትክልት ፈጠነ

## **Abstract**

*Africa is the continent which contributes least to global emissions of greenhouse gases-yet is the most vulnerable to its effects of reducing agricultural production, food security, increased flooding and drought, widespread diseases, availability of water, and conflict over scarce land and water resources. The fact that Africa is regarded as one of the most vulnerable continents in terms of climate change means that Africa needs to take some initiatives to combat the adverse impacts of climate change. The continent's particular vulnerability will be exacerbated unless urgent action is taken. This thesis is conducted to identify the actual and potential impacts of climate change in Africa, international climate change negotiations and how and to what extent these international negotiations have been protecting the interests of Africa. Specifically, the thesis aims to identify the roles and responses of the African Union and sub-regional intergovernmental organizations in combating climate change. To gather the needed data, exploratory method of research is used to explore international climate change regimes, climate change regimes of the African Union and sub-regional intergovernmental organizations, decisions and declarations of the African Union, programs and projects implemented by the African Union, sub- regional intergovernmental organizations and individual African states. The results showed that the African Union, as a pan African institution, responds to avert the catastrophes of climate change by enacting its own climate change regimes, acceding to the UNFCCC and Kyoto Protocol, developing its common position to climate change. The African Union also responds to climate change in partnership with various multilateral and bilateral organizations. On the other hand, sub- regional intergovernmental organizations also play a key role in combating climate change. However, the responses of the African Union and sub-*

*regional intergovernmental organizations is mainly hampered by member states' conflicting needs and interests, lack of clear relationship between the African Union and sub- regional intergovernmental organizations, regional power house and the existence of various policy gaps at the national and sub- regional levels. So, sub- regional intergovernmental organizations and individual African states should harmonize interests and needs with that of the African Union. African governments should integrate climate change issues into economic planning and management at both national levels and should enhance coordination among them. Measures should also be taken to link the continent's common position and the prevailing regional, sub- regional and national policies, strategies, practices and programs. African states should also combat corruption; enhance accountability and transparency to use the climate financing funds for the purposes they are meant for. In addition, African governments have to establish and sustain credible institutions to address climate change issues on the continent.*

**Key words:** *climate change, international climate change negotiations, African Union, sub- regional intergovernmental organizations*

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## **Acronyms**

AAP	African Adaptation Programme
AAU	Assigned Amount Units
AfDB	African Development Bank
AFOLU	Agriculture, Forest and Land Use
AGF	African Green Fund
AIACC	Assessments of Impacts and Adaptation to Climate Change
AMCEN	African Ministerial Conference on the Environment
AMMA	African Monsoon Multidisciplinary Analysis
AMU	Arab Maghreb Union
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
AU	African Union
AUC	African Union Commission
AWG	Ad Hoc Working Group
AWG-LCA	Ad Hoc Working Group on Long Term Cooperative Action
BAP	Bali Action Plan
CBDR	Common but Differentiated Responsibility
CBFF	Congo Basin Forest Fund
CBFP	Congo Basin Forests Partnership
CCAA	Climate Change Adaptation in Africa
CCAAP	Climate Change Adaptation in Africa Programme
CCCU	Climate Change Coordination Unit
CDI	Centre for Development Innovation
CDM	Clean Development Mechanism

CEN-SAD	Community of Sahel-Saharan State
CERs	Certified Emission Reduction Units
CFCs	Chlorofluorocarbons
CO <sub>2</sub>	Carbon Dioxide
COMESA	Common Market for Eastern and Southern Africa
COP	Conference of Parties
CTF	Clean Technology Fund
DFID	Department of International Development
DMC	Drought Monitoring Center
DRR	Disaster Risk Reduction
EAC	East African Community
EACCCP	East African Community Climate Change Policy
ECCAS	Economic Community of West African States
EIAs	Environmental Impact Assessments
EU	European Union
FAO	Food and Agricultural Organization
FCPF	Forest Carbon Partnership Facility
GCCA	Global Climate Change Alliance
GCOS	Global Climate Observatory System
GEF	Global Environment Fund
GGWSSI	Great Green Wall for the Sahara and the Sahel Initiative
GHGs	Greenhouse gases
GIEC	Intergovernmental Group of Experts on Climate Evaluation
GWP	Global Water Partnership
H <sub>2</sub> O	Water

HFCs	Hydro fluorocarbons
HOAREC/N/	Horn of Africa Regional Environment Center and Network
IDRC	International Development Research Centre
IFAD	International Fund for Agricultural Development
IFRC	International Federation of Red Cross and Red Crescent Societies
IGAD	Intergovernmental Authority on Development
IGADDD	Intergovernmental Authority on Drought and Development
IPCC	Intergovernmental Panel on Climate Change
ICPAC	IGAD Climate Prediction and Application Center
JI	Joint Implementation
KACCAL	Kenya Adaptation to Climate Change in Arid and semi-Arid Lands
KP	Kyoto Protocol
LDCF	Least Developed Countries' Fund
LDCs	Least Developed Countries
MDGs	Millennium Development Goals
MOP	Meeting of Parties
MRV	Monitoring, Reporting and Verification
NAPAS	National Adaptation Programmes of Action
NAPs	National Adaptation Plans
NCCAP	Netherlands Climate Change Assistance Program
NMHSs	National Meteorological and Hydrological services
N <sub>2</sub> O	Nitrous Oxide
OAU	Organization of African Unity
OECD	Organization for Economic Cooperation and Development
OFAC	Observatory for the Forests of Central Africa

OPEC	Organization of the Petroleum Exporting Countries
OSS	Sahara and Sahel observatory
PFCs	Per fluorocarbons
PROBEC	Programme for Basic Energy and Conservation
QUERCS	Quantified Emission Reduction Commitments
RAF	Resource Allocation Framework
RECs	Regional Economic Communities
REDD	Reducing Emissions from Deforestation and Degradation
REDD+	Reducing Emissions from Deforestation and Forest Degradation
REMA	Rwanda Environment Management Authority
RIPRESCA	Interdisciplinary and participatory Research on the West African Ecosystems, climate, and Societies Programme
SADC	Southern African Development Community
SARCOF	Southern Africa Regional Climate Outlook Forum
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Technical Advice
SCCF	Special Climate Change Fund
SO <sub>2</sub>	Sulphur dioxide
SWAC	Sahel and West Africa Club
TICAD	Tokyo International Conference on African Development
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environmental Programme
UNIDO	United Nations Industrial Development Organization
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change

WFP	World Food Programme
WIFA	Weather Information for All
WMO	World Meteorological Organization

## CHAPTER ONE

### 1. GENERAL FRAMEWORK OF THE RESEARCH

#### 1.1. Background of the Study

Climate change has become one of the biggest challenges facing the planet and is viewed as a leading human and environmental crisis of the 21<sup>st</sup> century.<sup>1</sup> Since it emerged as an international issue, the international community has responded in many ways to address climate change.<sup>2</sup> The adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 was viewed as an important first step in bringing about significant action in addressing climate change.<sup>3</sup> The Kyoto Protocol to the UNFCCC was negotiated as the first step towards implementing the UNFCCC. Recognizing that the emission reductions for the Kyoto Protocol were set for a period that would end in 2012, the 2007 UN climate change conference in Bali adopted the “Bali Road Map” as a framework for negotiations over the post-2012 climate change regime.<sup>4</sup> Among the two tracks of negotiations established under the Bali conference, the second track, a track by which UNFCCC parties would seek agreement on GHGs mitigation targets or actions for all parties was called the Bali Action Plan, and the deadline for the conclusion of its negotiations was the December 2009 meeting in Copenhagen, Denmark.<sup>5</sup> Unable to reach a consensus, the delegations finally came up with the Copenhagen Accord, which is not a legally binding international agreement. Following Copenhagen, the next climate conference of the UNFCCC was held in Cancun, Mexico from 29 November to 11 December 2010. In December 2011, parties to the UNFCCC adopted the Durban Platform for Enhanced Action, which

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<sup>1</sup> Debay Taddesse;2010, *The Impacts of climate change in Africa*, The Institute for Security Studies, available at [http:// www.issafrica.org/uploads/Paper220.pdf](http://www.issafrica.org/uploads/Paper220.pdf), last accessed on 14 June, 2012

<sup>2</sup> Daniel Bodansky and et el; 2010, *The Evolution of multilateral regimes: Implications for climate change*, Pew Center on Global Climate Change: available at, <http://www.c2es.org/publications/evolution-multilateral-regimes-implications-climate-change>: 12, last accessed on 13 June, 2012

<sup>3</sup> Emily C. Barbour;2010, *International Agreements on Climate change: selected Legal Questions*, congressional Research Service, available at [http:// www.crs.gov](http://www.crs.gov), last accessed on 10 June, 2012

<sup>4</sup> Ibid

<sup>5</sup> Ibid

launched a new round of negotiations aimed at developing “a protocol, another legal instrument or an agreed outcome with legal force” for the post-2020 period.<sup>6</sup>

Climate change challenges are more pronounced and significant for African continent.<sup>7</sup> Africa is the continent which contributes least to global emissions of greenhouse gases, yet the most vulnerable to its effects, particularly due to its high dependence on rain-fed agriculture, widespread poverty and weak capacity to adapt. The effects of climate change reduced agricultural production, worsened food security, increased flooding and drought, spreading diseases and an increased risk of conflict over scarce land and water resources are already evident.<sup>8</sup>

Owing to the vulnerability of the African continent and on account of seeking solutions for Africa by Africans, the African Union and sub-regional intergovernmental organizations are required to play a role in combating climate change and respond to the impacts of climate change in various ways. It is against this background that the research will try to critically assess the role and response of the African Union and sub-regional intergovernmental organizations in climate protection.

## **1.2.Statement of the Problem**

Although climate change is affecting all countries of the world, no continent will be struck as severely by climate change as Africa. The continent is particularly affected because the environment of African countries have a special attachment with the climate, and the livelihoods of their inhabitants are largely dependent on the utilization of land-based resources as well as on the freshwater and revering systems as sources of potable water, fish and transport. As a result of this the African continent is particularly vulnerable to the effects of climate change.<sup>9</sup>

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<sup>6</sup> Daniel Bodansky, 2012, *The Durban Platform Negotiations: Goals and Options*, available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2102994](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2102994), last accessed on 08 June, 2012.

<sup>7</sup> APF (Africa Partnership Forum) Support Unit, 2007, *Climate Change and Africa; 8th Meeting of the Africa Partnership Forum, Berlin, Germany*.

<sup>8</sup> Ibid

<sup>9</sup> Boko, M., I. Niang, A. Nyong, C. Vogel, A. Githeko, M. Medany, B. Osman-Elasha, R. Tabo and P. Yanda, 2007: Africa. Climate change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge UK, 433-467.

These impacts are already having adverse effects on food security, sustainable water supply and extreme weather events are causing floods, droughts and threats of desertification. Extreme weather or climate events affect vulnerability to future extreme events by modifying resilience, coping capacity, and adaptive capacity. The character and severity of impacts from climate extremes depend not only on the extremes themselves but also on exposure and vulnerability.<sup>10</sup> In addition, these impacts are likely to be exacerbated by the lack of financial and technical means to reduce their vulnerability to global climate change.

To avert the consequences of climate change in order to avoid a future catastrophe, the African Union, individual African states and sub-regional intergovernmental organizations have responded in various ways.

As part of their response, all African states have ratified major climate change regimes, particularly the UNFCCC and the Kyoto Protocol though it is only in the last couple of years that African states have organized themselves and that they have begun to confer before and during the UNFCCC annual conferences of signatory countries.

The African Union has also responded to sound the climate change alarm in various ways by enacting its climate change policies and regimes, adopting international climate change regimes and having cooperation with a variety of actors on climate change issues.

Regional Economic Communities and various sub-regional intergovernmental organizations have been very active in addressing climate change issues. African governments have progressed in addressing climate change and related issues. The African Union has also succeeded in presenting the African position on climate change. However, significant gaps remain at the regional level in effectively managing consensus and divergence remains challenging. Divergent priorities among African countries threaten the potentials of the African Union to wield influence in international climate politics.

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<sup>10</sup> IPCC, 2012: Summary for Policymakers. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (Eds)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK, and New York, N, USA, PP.1-19., available at <http://www.ipcc-wg2.gov/SREX/report>, last accessed on 11 march 2013

In order to effectively address climate change issues, sub-regional intergovernmental organizations and individual states have yet to harmonize their response to climate change with that of the African Union. The African Union also needs to address divergence factors in lieu of international negotiations. The African Group of Negotiators, which is an active participant in the UNFCCC negotiations and speaks on behalf of the combined concerns of countries located within the African continent and is the only UN regional group serving as an active forum for African countries to pursue their specific interests<sup>11</sup> will also then be better prepared when diverging circumstances threaten to disintegrate its common positions.

This research is intended to contribute towards assessing the role and response of the African Union and sub-regional intergovernmental organizations in combating climate change.

### **1.3. Objectives of the Study**

#### **1.3.1. General Objectives**

This study has the following general objectives:-

- To explore the roles played by and the responses of the African Union in combating climate change.
- To explore the roles played by and the responses of sub-regional intergovernmental organizations in combating climate change

#### **1.3.2. Specific Objectives**

This study has the following specific objectives:-

- To assess the causes, impacts and consequences of climate change on Africa
- To explore international regimes and negotiations addressing climate change
- To assess the roles played by international regimes and negotiations of climate change in protecting the interests of Africa
- To analyze prospects and challenges of the African Union and sub-regional intergovernmental organizations in combating climate change

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<sup>11</sup> UNEP Guide for Negotiators of Multilateral Environmental Agreements, available at, <http://www.unep.org/DEC/docs/Guide%20for%20Negotiators%20of%20MEAS.pdf>. Last accessed on 09 march 2013

- Providing some concrete mechanisms for the AU and RECs in combating climate change effectively and adequately

#### **1.4. Significance of the Study**

Since climate change is one of the global challenges which hits Africa severely owing to its vulnerability, this study could serve as a springboard for other potential researchers to conduct further study in the area. This could contribute a lot for combating the catastrophes of climate change in Africa.

#### **1.5. Research Questions**

- 🚩 How and to what extent the international climate change negotiations have been protecting the interests of Africa?
- 🚩 What are the responses and the roles played by the African Union to combat climate change?
- 🚩 What are the responses and the roles played by individual African states in addressing climate change issues?
- 🚩 What are the roles played by the sub-regional intergovernmental organizations in addressing climate change issues?
- 🚩 What should be done to harmonize the divergent interests of individual African states, sub-regional organizations with that of the AU which in its turn enables to address issues of climate change to avert the catastrophes of climate change?

#### **1.6. Scope and Limitation of the Study**

This research aims to explore and provide a clear picture of the role and response of the African Union and sub-regional intergovernmental organizations in combating climate change which hits Africa in a more severe way than any other continent. To this end, the research makes a critical look at existing international climate change regimes adopted by the African states, various climate change policies, declarations and laws enacted by the AU and sub-regional intergovernmental organizations under the umbrella of the African Union, policies of individual African states and other efforts done by the AU in cooperation with several actors working on climate change issues.

The limitation of this study is concerning the availability of literatures. Though significant amount of scholarly work has been written in the area of climate of change, literatures on the area of the responses of the AU and RECs are very few in number which forced the author to concentrated on few references.

## **1.7. Research Methodology**

This study is descriptive, narrative and analytical. It describes the causes, impacts of climate change, major international climate change regimes and negotiations addressing climate change. It narrates and analyzes the responses of the AU and RECs in combating climate change.

Extensive desk research has been carried out in the existing literature through published and unpublished books, journal articles, official reports, decisions, declarations and scholastic resources.

The primary sources reviewed in this study are mainly basic legal instruments of the UN, such as the UNFCCC, Kyoto Protocol, Bali Action Plan, Copenhagen Accord, Cancun Agreements, the Durban Platform for Enhanced Action and the main decisions and declarations of the AU, such as the Constitutive Act of the AU, the Algiers declaration on climate change, the Nairobi Declaration on the African process for combating climate change, the AU declaration on climate change and development as well as programs and policies of RECs. Various meetings and communiqués have also been important sources. The AU and UN websites are somewhat informative and contain most of these important documents.

## **1.8. Outline of the Study**

This study has four chapters. The First Chapter deals with the background and basic structure of the study including the objective, the significance, methodology, and limitations of the study.

Chapter Two presents the causes, evidences and impacts of climate change on Africa, major international climate change agreements and negotiations addressing climate change.

Chapter Three provides the responses of the AU and sub-regional intergovernmental organizations in combating climate change. After systematically providing on the responses of

the AU and RECs, the chapter will end up by providing the prospects and challenges of the AU and RECs in their efforts of combating climate change.

Chapter Four presents the author's conclusion and gives recommendations on how the AU and RECs should respond and tackle the catastrophes of climate change.

## CHAPTER TWO

### 2. CLIMATE CHANGE: UNDERSTANDING, CAUSES, EVIDENCE OF THE CHANGE, AND IMPACTS ON AFRICA: A REVIEW OF EXISTING LITERATURE

#### 2.1. Understanding Climate, Climate Change and Variability

Climate is a long term average weather conditions (usually taken over a period of more than 30 years as defined by the World Meteorological Organization (WMO)) of a region including typical weather patterns such as the frequency and intensity of storms, cold spells, and heat waves.<sup>12</sup>

IPCC defines climate change as any change in climate over time, whether due to natural variability or as a result of human activity.<sup>13</sup>

Whereas the United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as : “a change on climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods”.<sup>14</sup>

Climate variability refers to variations in the mean state and other statistics, for instance, standard deviation or the occurrence of extreme events of the climate on all temporal and spatial scales beyond that of individual weather events.<sup>15</sup> Variability may be due to natural external processes outside the earth system, or to natural or anthropogenic internal forcing.<sup>16</sup>

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<sup>12</sup> CCI FAQs/WMO, available at <http://www.wmo.int/programmes/wcp/cc>, last accessed on 13 June 2012

<sup>13</sup> Observed changes in climate and their effects-IPCC, available at <http://www.ipcc.ch/./mains1.html>, last accessed on 13 June 2012

<sup>14</sup> Article 1 of the United Nations Framework Convention on Climate Change (UNFCCC)

<sup>15</sup> IPCC Third Assessment Reports, Working Group II: Impacts, Adaptation and Vulnerability, Annex B, Glossary of Terms, available at <http://www.ipcc.ch/ipccreport/tar/wg2>, last accessed on 13 June 2012

<sup>16</sup> Ibid

## 2.2. Causes of Climate Change and Variability

Climate change is basically caused by natural and anthropogenic factors, which are also known as climate forcing.<sup>17</sup> In other words, these range of factors that lead to changes in climate can be either internal to the climate system or external deriving from human activities.

### 2.2.1. Natural Causes of the Climate System

The climate system is driven by the sun's energy and regulated by natural processes and cycles in the earth system which basically includes the carbon cycle and greenhouse effect, orbital cycles, ocean currents that distribute warmer and colder water around the globe, and atmosphere-ocean interactions that moderate temperature.<sup>18</sup> The natural forcings are divided into two: external forcings and internal forcings. The external forcings are essentially linked to changes in the orbital parameters of the earth that control the intensity and location of incident solar radiation, and fluctuations in solar energy whereas internal forcings comprise all those changes that occur within the Earth system itself, in particular volcanic activity, fluctuations in ocean circulations and large-scale changes in the marine and terrestrial biosphere or in the cryosphere.<sup>19</sup> Some of the natural causes of climate change include the following:

#### A) Earth's Orbital Changes

The earth makes one full orbit around the sun each year tilting at an angle of 23.5° to the perpendicular plane of its orbital path.<sup>20</sup> Changes in the tilt of the earth can lead to small but climatically important changes in the strength of the seasons, more tilt means warmer summers and colder winters; less tilt means cooler summers and milder winters. Slow changes in the earth's orbit lead to small but climatically important changes in the strength of the seasons over

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<sup>17</sup> Climate change and Variability-Athena Global, available at <http://www.athenaglobal.com/pdf>, last accessed on 13 May 2012

<sup>18</sup> African Ministerial Conference On Climate Change (AMCEN); 2011, *Addressing Climate Change Challenges in Africa*; A practical Guide towards Sustainable Development, [http://www.unclearn.org/sites/www.unclearn.org/.../unep\\_guidebook.pdf](http://www.unclearn.org/sites/www.unclearn.org/.../unep_guidebook.pdf) p.4

<sup>19</sup> Basics of Climate Science- Natural Forcings of the Climate System, available at <http://www.know.climateofconcern.org/index.php>, last accessed on 08 March, 2012.

<sup>20</sup> Causes of climate change, available at <http://www.climatechangechallenge.org>, last accessed on 12 May, 2012.

tens of thousands of years.<sup>21</sup> Climate feedbacks amplify these small changes, thereby producing ice ages.<sup>22</sup>

### **B) Solar Variations**

The sun is the primary source of energy for the earth's climate system. Although sun's energy output appears constant from an everyday point of view, small changes over an extended period of time can lead to climate change.<sup>23</sup> As the sun is the fundamental source of energy that is instrumental in our climate system, it would be reasonable to assume that changes in the sun's energy output would cause the climate to change.<sup>24</sup>

### **C) Volcanic Eruptions**

When a volcano erupts, it throws out large volumes of sulphur dioxide (SO<sub>2</sub>), water vapor, dust, and ash into the atmosphere thereby influencing climatic patterns for years by increasing planetary reflectivity causing atmospheric cooling.<sup>25</sup> Volcanoes produce tiny particles called aerosols which in their turn reflect solar energy back into space and thereby creating a cooling effect on the world.<sup>26</sup> The greenhouse gas, carbon dioxide is also produced though insignificant when compared to emissions created by humans.

### **D) Ocean Current**

The oceans are major components of the climate system. Ocean current is all about a continuous movement of ocean water generated by various forces such as waves, wind, temperature and the like. Ocean currents move vast amounts of heat across the planet.<sup>27</sup> Winds push horizontally against the sea surface and drive ocean current patterns. Interactions between the ocean and atmosphere can also produce phenomenon such as El- Niño which occur every 2 to 6 years.<sup>28</sup>

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<sup>21</sup> World Colleges Information, available a <http://www.worldcolleges.info/staffdetails/description.php?arid=182&staffid=20g&arts=6&art=1> , last accessed on 08 march 2013.

<sup>22</sup> Ibid, glacial ages or ice ages is a period of long-term reduction in the temperature of Earth's surface.

<sup>23</sup> Ibid

<sup>24</sup> Ibid

<sup>25</sup> Ibid

<sup>26</sup> Ibid

<sup>27</sup> Ibid

<sup>28</sup> Ibid

Deep ocean circulation of cold movement of warm water from the equator back towards the poles. Without this movement the poles would be colder and the equator warmer.<sup>29</sup> The oceans play an important role in determining the atmospheric concentration of CO<sub>2</sub> into or out of the atmosphere.<sup>30</sup>

### **E) Internal Oscillations of the Climate System**

Even in the absence of any external influence, the climate system fluctuates naturally on time-scales from months to thousands of years.<sup>31</sup> There are several well-known natural fluctuations which basically includes the El-Nino-southern oscillation, the pacific decadal Oscillation and North Atlantic Oscillation.<sup>32</sup>

El Nino-southern oscillation is one of the best-known internal fluctuations of the climate system.<sup>33</sup> It occurs on time-scales of 3 to 8 years and involves a well defined life cycle of warming and cooling in the central tropical Pacific Ocean with associated shifts in surface pressure patterns (the Southern Oscillation) and in the tropical walker circulation. During an El Nino event, changes tend to occur in several climate variables, such as precipitation.<sup>34</sup>

Another internal oscillation is the pacific decadal oscillation which affects the climate at the decadal cycle and influences the climate over several decades.<sup>35</sup>

The North Atlantic oscillation on the other hand is a major climate fluctuation in the North Atlantic ocean, involving a large scale atmospheric oscillation between the subtropical high-pressure belt and the belt of polar lows in the northern hemisphere.<sup>36</sup> This oscillation tends to remain in one phase for several years before changing to the other, each phase having different impacts on weather and climate in the North Atlantic and surrounding continent.<sup>37</sup>

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<sup>29</sup> World Colleges Information, Supra Note at 21

<sup>30</sup> Ibid

<sup>31</sup> The Greenhouse effect and climate system, available at [http://www.reefrelief.org/wp-content/uploads/climate\\_greenhouse2.pdf](http://www.reefrelief.org/wp-content/uploads/climate_greenhouse2.pdf), last accessed on 12 June, 2012

<sup>32</sup> Ibid

<sup>33</sup> Ibid

<sup>34</sup> Id, P. 29

<sup>35</sup> Id, P.14

<sup>36</sup> Ibid

<sup>37</sup> Ibid

### 2.2.2. Anthropogenic Greenhouse Gases

Human activities contribute to climate change by causing changes in Earth's atmosphere in the amounts of greenhouse gases, aerosols (small particles), and cloudiness.<sup>38</sup>

The presence of GHGs in the atmosphere is a natural component of the climate system and helps to maintain the earth as a habitable planet.<sup>39</sup> GHGs are relatively transparent to incoming solar radiation, allowing the sun's energy to pass through the atmosphere to the surface of the earth. The energy is then absorbed by the earth's surface used in processes like photosynthesis, or emitted back to space as infrared radiation.<sup>40</sup> Some of the emitted radiation passes through the atmosphere and travels back to space, but some is absorbed by greenhouse gas molecules and then reemitted in all directions.<sup>41</sup> The effect of this is to warm the earth's surface and the lower atmosphere. Water vapor (H<sub>2</sub>O) and Carbon dioxide (CO<sub>2</sub>) are the two largest contributors to the greenhouse effect. Methane (CH<sub>4</sub>), Nitrous Oxide (N<sub>2</sub>O), Chlorofluorocarbons (CFCs) and other greenhouse gases are present only in trace amounts, but can still have powerful warming effects due to their heat trapping abilities and their long residence time in the atmosphere.<sup>42</sup>

Significant increases in all of these gases have occurred in the industrial era. All of these increases are attributable to human activities.<sup>43</sup>

- CO<sub>2</sub> is the most significant greenhouse gas released by human activities, mostly through fossil fuel use in transportation, building heating and cooling and the manufacture of cement and other goods. Deforestation releases CO<sub>2</sub> and reduces its uptake by plants. Carbon dioxide is also released in natural processes such as the decay of plant matter and it is the main contributor to climate change.<sup>44</sup>

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<sup>38</sup> IPCC, 2007: *The physical Science Basis. Contribution of Working Group to the Fourth Assessment Report of the Intergovernmental panel on climate change* [Solomon, S.D. Qin, M.manning, Z.chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (Eds.)]. Cambridge University press, Cambridge, United Kingdom and New York, NY, USA. frequently Asked Questions.

<sup>39</sup> What Causes Climate Change? Available at <http://www.ccir.ciesin.columbia.edu/nyc/pdf/q1a.pdf>, last accessed on 09 March 2013.

<sup>40</sup> The Greenhouse effect and climate change, Supra Note at 31

<sup>41</sup> Ibid

<sup>42</sup> Ibid

<sup>43</sup> Ibid

<sup>44</sup> Climate change Fact Sheet, *facts about climate change*, available at [www.thegreatwarming.com/pdf/ClimateChangeFactSheet.pdf,last](http://www.thegreatwarming.com/pdf/ClimateChangeFactSheet.pdf,last) accessed on 6 June, 2012.

- Methane has increased as a result of human activities related to agriculture, natural gas distribution and landfills. Methane is also released from natural processes that occur, for example in wetlands.<sup>45</sup>
- Nitrous Oxide (N<sub>2</sub>O) can be found naturally in the environment but human activities are increasing the amounts. Human activities such as fertilizer use and fossil fuel burning emit Nitrous Oxide.<sup>46</sup>
- Halocarbons are a family of chemicals that include CFCs and other human-made chemicals that contain chlorine and fluorine.<sup>47</sup>

Halocarbon gas concentrations have increased primarily due to human activities which were used extensively as refrigeration agents and in other industrial processes before their presence in the atmosphere were found to cause stratospheric ozone depletion.<sup>48</sup>

- Water Vapor is the most abundant and important greenhouse gas in the atmosphere. However, human activities have only a small direct influence on the amount of atmospheric water vapor. Indirectly, humans have the potential to affect water vapor substantially by changing climate. For example, a warmer atmosphere contains more water vapor.<sup>49</sup> Human activities also influence water vapor through CH<sub>4</sub> emissions, because CH<sub>4</sub> undergoes chemical destruction in the stratosphere, producing a small amount of water vapor.<sup>50</sup>
- Aerosols are small particles present in the atmosphere with widely varying size, concentration and chemical composition. Some aerosols are emitted directly into the atmosphere while others are formed from emitted compounds. Aerosols contain both naturally occurring compounds and those emitted as a result of human activities. Fossil fuel and biomass burning have increased aerosols containing sulphur compounds, organic compounds and black carbon (Soot).<sup>51</sup> Human activities such as surface mining and industrial processes have increased dust in the atmosphere. Natural aerosols include

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<sup>45</sup> Climate change Fact Sheet, *facts about climate change*, supra Note at 44

<sup>46</sup> Ibid

<sup>47</sup> Ibid

<sup>48</sup> The Greenhouse effect and climate change , Supra Note at 31

<sup>49</sup> IPCC, 2007, Supra Note at 38

<sup>50</sup> Ibid

<sup>51</sup> Ibid

mineral dust released from the surface, sea salt aerosols, biogenic emissions from the land and oceans and sulphate and dust aerosols produced by volcanic eruptions.<sup>52</sup>

Generally, when agriculture as a contributor to causes of climate change is seen, according to the Intergovernmental panel on Climate change the three main causes of the increase in greenhouse gases observed over the past 250 years have been fossil fuels, land use, and agriculture.<sup>53</sup> Agriculture has been shown to produce significant effects on climate change are when agriculture alters the earth's land cover, which can change its ability to absorb or reflect heat and light. Land use change such as deforestation and desertification together with use of fossil fuels, are the major anthropogenic sources of CO<sub>2</sub>.<sup>54</sup>

As far as deforestation as a contributor to the cause of climate change is concerned, rainforests every year help to absorb almost 20% of manmade CO<sub>2</sub> emissions therefore deforestation can be released as a major contributor to the causes of climate change. Cutting down rainforests faster than they can be replaced has a devastating effect on the carbon emission cycle producing an extra 17% of green house gases.<sup>55</sup>

### **2.3. Evidence for Climate Change in Africa**

Trends in temperature, rainfall, sea level rise, precipitation patterns, and trends in extreme climate events are evidences which show that the climate is changing in Africa and the whole world.

#### **Trends in Temperature**

There is already evidence that Africa is warming faster than the global average and this is likely to continue. Most parts of Africa experiences temperature increase of about 0.7<sup>0</sup>c in the last century.<sup>56</sup> On regional scales, observation shows increases in temperature over the Sahel, tropical forests, southern Africa, eastern Africa and North Africa.<sup>57</sup> The temperature of African tropical forest increase by 0.29<sup>0</sup>c since 1960, and that of Sahel increased by 0.2<sup>0</sup>c-0.3<sup>0</sup>c during the 1990s.

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<sup>52</sup> IPCC, 2007, Supra Note at 38

<sup>53</sup> The climate change challenge, Supra Note at 3

<sup>54</sup> Ibid

<sup>55</sup> AMCEN, Supra Note at 18, P. 4

<sup>56</sup> Id, P.5

<sup>57</sup> Ibid

Researchers also reported that significant increasing temperature trends in all African regions during the past two decades (1995-2010).<sup>58</sup> In southern Africa, increase in temperature between 0.1-2<sup>0</sup>c was reported for the period 1990-1995. A temperature increase of between 0.2-0.3<sup>0</sup>c was reported for eastern Africa. On local scales, temperature decreases have been observed in Cameroon and in parts of Malawi, Senegal and Nigeria. It is also found that a temperature increase in Tripoli, Libya, but a temperature decrease in Alexandria, Egypt.<sup>59</sup>

More recently, WMO reported that 2010 was the warmest year on record in Africa, particularly, for West Africa, the Saharan/ Arabian region, and the Mediterranean.<sup>60</sup> The year was exceptionally warm in most of Africa. Temperatures averaged over Africa were 1.29<sup>0</sup>c above the long-term average, breaking the previous record by 0.35<sup>0</sup>c.<sup>61</sup> All twelve months of 2010 were especially exceptional in the northern half of the continent (extending into the Arabian Peninsula), where the Saharan/ Arabian region was 2.2<sup>0</sup>c above normal, 0.89<sup>0</sup>c above the previous record and the largest annual anomaly ever recorded for any sub-region outside the Arctic.<sup>62</sup> The Mediterranean region also had its warmest year on record with Tunisia equaling its previous warmest year.<sup>63</sup>

### **Trends in Rainfall**

In general, Africa has been drier in the last few decades; however, while some regions have experienced a decrease in rainfall, some have experienced an increase in rainfall. For instance, rainfall has decreased in the horn of Africa, in Botswana, Zimbabwe, the Transvaal, and in the Sahel during the period from 1961 to 1990, but significant increase in rainfall is reported for South Africa.<sup>64</sup>

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<sup>58</sup> AMCEN, Supra Note at 18, P. 5

<sup>59</sup> Id at 7

<sup>60</sup> Ibid

<sup>61</sup> Ibid

<sup>62</sup> Ibid

<sup>63</sup> Ibid

<sup>64</sup> Id at 8

## Sea-Level Rise

Sea-level rose 5-8 inches during the 20<sup>th</sup> century a result of both the melting of glaciers and the expansion of water through increasing heat.<sup>65</sup> Mountain glaciers have become much smaller during the past century, especially those in low- latitude locations like Mount Kenya in Africa.<sup>66</sup>

## Trends in Extreme Climatic Events

While decreases in precipitation may lead to drought, increases in precipitation can lead to floods. In Africa, the frequency and severity of droughts and floods have increased over the past 30 years.<sup>67</sup>

As far as drought as one of the extreme climatic events is concerned, African countries were identified as having the highest vulnerability to drought. The African Sahel, situated at the Southern fringe of the Sahara desert and stretching from the West African coast to the East African highlands, is particularly prone to drought. Droughts have particularly affected the Sahel, the horn of Africa and Southern Africa since the end of 1960s.<sup>68</sup> Droughts have increased in frequency and intensity in east Africa, where frequent droughts have occurred in each decade over the past 50 years in the region. The East African drought of 2011 is proving to be one of the worst that Ethiopia has faced in 50 years. In the central Africa droughts have become more frequent since the late 1960s.<sup>69</sup>

When floods as another extreme of climatic event are concerned, warmer temperatures cause more evaporation of water, which as part of the water cycle eventually leads to increased precipitation. Floods are recurrent in some countries of Africa; even communities located in dry

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<sup>65</sup> Global climate change, 2007, Resources to environmental literacy/ by environmental literacy council and National Teachers' Association, NSTA press, USA, P13

<sup>66</sup> IPCC, 2007, Supra Note at 38

<sup>67</sup> AMCEN, Supra Note at 18, P. 5,

<sup>68</sup> Background Paper on Impacts, vulnerability and Adaptation to climate change in Africa, for the African workshop Adaptation Implementation of Decision 1/ cp.10 of the UNFCCC convention, Accra, Ghana, 21-23 September, 2006, p17 available at

[http://www.unfccc.int/.../adaptation/.../200609\\_background\\_african\\_wkshp.pdf](http://www.unfccc.int/.../adaptation/.../200609_background_african_wkshp.pdf), last accessed on 12 May, 2012

<sup>69</sup> AMCEN, Supra Note at 18, p.8

areas have been affected by floods. The years 2000 and 2001 witnessed a huge flooding event in Mozambique particularly along the Limpopo, Save and Zambezi valleys.<sup>70</sup>

An increase in rainfall also leads to one of the extreme climatic events, namely, flooding. The African floods of 2007 that occurred across the Sahel of Africa in the summer of 2007 were caused by the heavy rainfall and thunderstorms within the rain belt of the ITCZ which was further north than usual.<sup>71</sup>

#### **2.4. Africa's Contribution to Climate Change**

The African people and African ecosystems with their unique biodiversity will be the major victims of global climate change.<sup>72</sup> Although Africa is the continent least responsible for climate change by contributing less than four percent of the world's total emission of greenhouse gases and thereby has no significant contribution for global warming, it is particularly vulnerable to the effects of climate change.<sup>73</sup>

Africa's contribution to greenhouse gases is minimal mainly because the emissions of these gases have an attachment with industrial development of countries. In other words, the more industrially developed the countries are, the bulk of the anthropogenic GHGs will be accumulated in the atmosphere. And as Africa's involvement in industrial activities is minimal, the level of anthropogenic greenhouse gases is negligible which makes the continent the least responsible for climate change. This minimal contribution in its turn has an implication to view fair burden sharing arrangements as a critical issue. Accordingly, African leaders in various negotiations have demanded the deeper cuts in GHGs emissions by developed countries and

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<sup>70</sup> AMCEN, Supra Note at 18, p.8

<sup>71</sup> Gordon Conway, 2008, *The Science of climate change in Africa: impacts and Adaptation*, Department for International Development, UK, available at <http://www.elsenburg.com/trd/globalwarm/downloads/science.pdf>, p.21, last accessed on 12 May, 2012

<sup>72</sup> Barbara UnumBig and Stephan Cramer, 2008, *Climate change in Africa*, GIGA FOCUS (GERMAN INSTITUTE OF GLOBAL AND AREA STUDIES), p.3 available at <http://www.giga-hamburg.de/giga-focs>, last accessed on 15 May, 2012

<sup>73</sup> APF (Africa Partnership Forum) & NEPAD, 2007, *Climate Change and Africa*; 8th Meeting of the Africa Partnership Forum, Berlin, Germany, p.3, available at <http://www.oecd.org/site/africapartnershipforum/>, last accessed on 15 May, 2012

respect the “polluter pays” and “differentiated responsibilities” principles provided for the UNFCCC and the Kyoto Protocol.<sup>74</sup>

#### **2.4.1. Carbon Dioxide Emissions**

Africa’s contribution to climate change from fossil energy and transport sources in the context is only worth a foot note:

- ✓ Africa’s CO<sub>2</sub> emissions, predominantly from the energy and transport industries, amount to approximately 650 million tons per annum. The main sources are power generation from coal in South Africa (approximately 350 million tons) and gas flaring in the Niger Delta (approximately 100 million tons).
- ✓ The annual per capita emissions of CO<sub>2</sub> in sub Saharan Africa are put approximately one ton.
- ✓ These CO<sub>2</sub> emissions are, however, unequally distributed.

The largest share (approximately 95%) of Africa’s total CO<sub>2</sub> emissions emanate from 15 countries, which emit over 10 million tons respectively. Among them are the OPEC members; Nigeria and Angola, as well as the primary agrarian economies of Ethiopia, Ghana and the Ivory Coast

- ✓ The majority of African countries emit only minimal quantities of 0.1-0.3 tons of CO<sub>2</sub> per inhabitant. The low CO<sub>2</sub> emissions from technical sources are a direct result of Africa’s low level of industrial development. The only exceptions are the termination of gas flaring in Nigeria and Angola, as well as the reorientation of power generation in South Africa to energy sources which emit less CO<sub>2</sub> than Coal.<sup>75</sup>

#### **2.4.2. Emissions Resulting From Deforestation**

The small amount of CO<sub>2</sub> emissions from technical sources contrasts with the larger net emissions of CO<sub>2</sub> which result from rapid deforestation.<sup>76</sup> This is true for the twelve densely wooded countries of equatorial Africa, whose corresponding annual emissions are estimated at

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<sup>74</sup> Africa Partnership Forum (2007), Climate Change and Africa, Paper prepared for the 8<sup>th</sup> meeting of the Africa partnership forum, Berlin, Germany, 22-23 may 2007.

<sup>75</sup> Barbara UnumBig and Stephan Cramer, Supra Note at 2

<sup>76</sup> Ibid

approximately 1.1 billion tons.<sup>77</sup> The stock of CO<sub>2</sub> stored by African forests amounts to approximately 60 billion tons, about as much as that of all OECD countries put together, including densely wooded members such as Russia and the U.S.A. A higher quantity is only stored in the forests of the Amazon Basin.<sup>78</sup>

According to the Food and Agriculture Organization (FAO), Africa's forests shrink at the alarming rate of approximately one percent per annum. Other studies assume rapid economic over-exploitation and the quick thinning of forests for fire wood. The biomass stored in the forests is decreasing- and the emissions of CO<sub>2</sub> from forests are increasing- a disastrous development for both Africa and the global climate.<sup>79</sup>

As will be mentioned later, at the climate change conference in Bali, the issues of deforestation and forest conservation came back onto the agenda of international climate policy. The world has now realized that a coherent climate strategy is impossible without an end to global deforestation.<sup>80</sup> Rainforests are on the one hand a huge storehouse for atmospheric carbon. On the other hand, deforestation sets free huge quantities of CO<sub>2</sub>. With proper protection of the African forests, the continents' emissions would be compensated for many times over and, additionally, an important contribution to the fixation of carbon in forests at the global level would be made.<sup>81</sup>

### **Land Use Changes**

Land use changes (such as deforestation, desertification, and urbanization) also increase the atmospheric temperature. For instance, deforestation would increase the amount of CO<sub>2</sub> in the atmosphere, because when forests (which act as major carbon store) are cleared and the trees are either burnt or rot, the stored carbon is released as CO<sub>2</sub> in the atmosphere. Generally, land use changes remove the vegetation cover that absorbs the shortwave radiation, thereby, leading to global warming.<sup>82</sup> For developmental purposes, people cut down trees for economic purpose: to expand cities, build houses, and create-large scale farming. The Band of West African forests

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<sup>77</sup>Barbara UnumBig and Stephan Cramer, Supra Note at 2

<sup>78</sup> Ibid

<sup>79</sup> Ibid

<sup>80</sup> Ibid

<sup>81</sup> Ibid

<sup>82</sup> Id at 12

that once extended from Guinea to Cameroon is virtually gone. Deforestation has been most severe in Nigeria, where more than 410,000 hectares of forest are lost to desertification annually.<sup>83</sup> Within 2000 and 2005, Ghana has lost an average of 115,000 hectares of forest per year, which amount to 2 percent of the country's land. In general, over the last 15 years, West Africa has lost almost 12 million hectares.<sup>84</sup>

## **2.5. IMPACTS OF CLIMATE CHANGE ON AFRICA**

The actual and potential impacts of changes in climate are large and wide ranging, affecting many aspects of people's everyday lives.<sup>85</sup>

### **2.5.1. Sea-level Rise**

Sea levels rise around the globe as a result of global warming. The primary cause, at least in the near term, is the thermal expansion of the oceans which results from rising oceanic temperatures. This will deliver a rise of about half a meter by the end of this century.<sup>86</sup>

Africa is likely to be as damaged by rising sea levels as many small islands or delta regions such as the Ganges- Brahmaputra and the Mekong Rivers. The most extensive inundation is likely to be in the Nile Deltas. A one meter rise would affect some 6 million people.<sup>87</sup>

There are also likely to be severe consequences along the West African Coast. Banjul, the capital city of Gambia could be completely submerged in the next 50 years or so.<sup>88</sup>

In Ghana, the coastal zone occupies less than 7 percent of the land area but contains 25 percent of the population and so even small rises could have damaging physical consequences on the economy which include permanent connections of lagoons to sea, penetration of salt water inland, increased coastal erosion, salinization of fresh water lagoons and aquifers, increased

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<sup>83</sup> AMCEN, Supra Note at 18, P. 11

<sup>84</sup> Ibid

<sup>85</sup> Gordon Conway, Supra Note at 71, P. 9

<sup>86</sup> Ibid

<sup>87</sup> Ibid

<sup>88</sup> Ibid

depth of water table in coastal areas, destruction of wetlands and associated industries, accelerated loss of the capital, Accra.<sup>89</sup>

### **2.5.2. Glacier Melting**

The Glaciers on Mount Kilimanjaro in Tanzania are melting fast and are expected to have disappeared by 2020.<sup>90</sup> However, the major change in hydrology on the mountain and its environs is not due to the glacier melt but to the dramatic shift, as a result of climate change, in the vegetation zones on the mountain.<sup>91</sup>

### **2.5.3. Floods and Droughts**

Floods could become more common in Africa, in part because some regions will experience higher rainfalls, but even in drier regions there is likely to be a higher frequency of more intense down pours, which may create flooding. One-third of the people in Africa lives in drought-prone areas and are vulnerable to the impacts of droughts. Droughts have mainly affected the Sahel, the Horn of Africa and the Southern Africa; particularly since the end of the 1960s.<sup>92</sup> Heavy flooding is seen in 2007 in both eastern and western Africa.<sup>93</sup>

There are many direct and indirect consequences of floods basically including: immediate deaths and injuries from drowning; non-specific increases in mortality, infectious diseases example increased malaria, exposure to toxic substances and the like.<sup>94</sup>

Perhaps of even greater importance for Africa will be the rising incidence of droughts, both short and long-term. The world wide percentage of land in drought has risen dramatically in the last 25 years.<sup>95</sup> One third of the people in Africa live in drought prone areas and the IPCC estimates

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<sup>89</sup> Gordon Conway, Supra Note at 71, P.9

<sup>90</sup> Ibid

<sup>91</sup> Id at 10

<sup>92</sup> IPCC Fourth Assessment Report: Climate Change 2007: Working Group II: Impacts, Adaptation and Vulnerability, available at <http://www.ipcc.ch/./ch9s9-2.html> last accessed on 09 March 2013

<sup>93</sup> Gordon Conway, Supra Note at 71, P.9

<sup>94</sup> Ibid

<sup>95</sup> Ibid

that, by the 2080s, the proportion of arid and semi-arid lands in Africa is likely to increase by 5.8 percent.<sup>96</sup>

Recurrent floods are also common in some parts of Africa. It is linked in some countries with ENSO events. When such events occur, important economic and human losses result particularly in Mozambique, 2003; Obasi, 2005. Even countries located in dry areas (Algeria, Tunisia, Egypt, and Somalia) have not been flood free.<sup>97</sup> Many of the consequences are similar to those for floods, but the most significant impacts in Africa are likely to be on agricultural production.

#### **2.5.4. Impacts of Climate Change on Water Resources**

Water resources in particular comprise one sector that is highly dependent on and influenced by climate change. A number of countries in Africa already experience considerable water stress as a result of insufficient and unreliable rainfall. Climate change is real, and its impact is already being felt. It has affected the people of Africa and its food systems that are vulnerable.<sup>98</sup>

There are a dozen major river basins in Africa. The impacts of climate change are likely to vary depending on the rainfall regime within each basin.<sup>99</sup>

In river basins with low rainfall (400mm a year) there is virtually no perennial drainage; those that receive 400-1000mm of rain, experience an unstable drainage regime that varies greatly with rainfall; basins with more than 1000mm have a slight increase in drainage with increasing rainfall.<sup>100</sup>

The intermediate unstable zone is likely to experience the greatest impacts from climate change.<sup>101</sup>

Most of southern Africa lies in either the unstable or the dry region. The Orange River, the fifth largest river in Africa and one of the 50 largest ones in the world, is likely to be severely affected. The river has run dry in the past and has experienced very low flows in recent years.<sup>102</sup>

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<sup>96</sup> IPCC Fourth Assessment Report, Supra Note at 92

<sup>97</sup> Ibid

<sup>98</sup> Debay Tadesse, Supra Note at 1

<sup>99</sup> Gordon Conway, Supra Note at 71, P.11

<sup>100</sup> Ibid

<sup>101</sup> Id at 11

<sup>102</sup> Ibid

On the other hand, rivers in eastern Africa may experience increased drainage density because of higher predicted rainfall. The flow of the Nile is difficult to assess and current models vary considerably in their prediction but some of the headwaters may experience greater rainfall.<sup>103</sup>

Water scarcity thresholds are based on estimates of the water requirements for domestic, agricultural, industrial and energy sectors and the needs of the environment.<sup>104</sup>

It is estimated that nearly 51 percent of the population in sub-Saharan countries lack access to a supply of safe water and 41 percent lack adequate sanitation.<sup>105</sup> Nearly 330 million of these people live in rural areas and as a result of this, rural populations are burdened to a greater extent by preventable water and sanitation related diseases and suffer greater deprivation from women and children not attending school or engaging in economic activities due to the time and effort needed to fetch water. In almost all rural communities in Africa, it is primarily women and girls, who collect water, protect water sources, maintain water system, and store water.<sup>106</sup> Women spend a significant amount of time with these activities and they also determine the use of water. Without access to sufficient and reliable water for productive uses in and around the house hold, people are excluded from a range of options that would otherwise enable them to secure their sources of food and income.<sup>107</sup>

The water sector is strongly influenced by, and sensitive to, changes in climate (including periods of prolonged climate variability).<sup>108</sup> About 25% of the contemporary African population experiences high water stress while 69% of the population lives under conditions of relative water abundance.<sup>109</sup> However, this relative abundance does not take into account other equally important factors such as access to clean drinking water and sanitation, which effectively reduces the quantity of fresh water available for human use.<sup>110</sup> Specifically, 14 countries in Africa are already experiencing water stress; another 11 are expected to join them by 2025, at which time

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<sup>103</sup> Gordon Conway, *Supra Note* at 71, P.11

<sup>104</sup> *Ibid*

<sup>105</sup> *Ibid*

<sup>106</sup> AMCEN, *Supra Note* at 18, P.25

<sup>107</sup> *Ibid*

<sup>108</sup> *Ibid*

<sup>109</sup> *Ibid*

<sup>110</sup> *Ibid*

nearly 50 percent of Africa's predicted population of 1.45 billion people will face water stress or scarcity.<sup>111</sup>

The impacts of climate change including changes in temperature, precipitation and sea levels are expected to have severe consequences for the availability of water in Africa.<sup>112</sup> This is of particular concern to Africa, where much of the population relies on surface water for their different livelihoods activities.<sup>113</sup> Currently, more than 30% of the people in Africa live in drought prone areas mainly in the Sahel, the horn of Africa and southern Africa.<sup>114</sup> A 3<sup>0</sup>c temperature increase could lead to 0.4-1.8 billion or more people at the risk of water stress.<sup>115</sup> Reduction in water quantity will lead to a reduction in water quality and associated impacts on health, biodiversity etc. Rainfall variability is expected to increase in semi-arid and arid areas in Africa, coupled with increasing temperature this is expected to negatively impact the water supply in many parts of Africa.<sup>116</sup>

### **2.5.5. Impact of Climate Change on Agriculture**

Agricultural production in many parts of Africa are affected by natural climate variability and are likely to be severely compromised by climate change, in particular by increasing high temperature and the greater incidence of drought.<sup>117</sup> A decrease in the area suitable for agriculture and in the length of growing seasons and yield potential, particularly along the margins of arid and semi-arid areas adversely affect food security and exacerbate malnutrition in Africa.<sup>118</sup> As a result of high temperature near flowering crops such as wheat, fruit trees, ground nut and soya bean are seriously affected.<sup>119</sup> Such extreme weather is likely to become more frequent with global warming and create high annual variability in crop production. But more

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<sup>111</sup> AMCEN, Supra Note at 18, P.25

<sup>112</sup> Ibid

<sup>113</sup> Ibid

<sup>114</sup> Ibid

<sup>115</sup> Ibid

<sup>116</sup> Ibid

<sup>117</sup> Gordon Conway, Supra Note at 71, P. 11

<sup>118</sup> Ibid

<sup>119</sup> Ibid

prolonged high temperatures and periods of drought will force large regions of marginal agriculture out of production.<sup>120</sup>

The maize crop over most of southern Africa already experiences drought stress on annual basis. This is likely to get worse with climate change and extend further southwards, perhaps making maize production in many parts of Zimbabwe and South Africa very difficult, if not impossible.<sup>121</sup>

Africa's agriculture is, moreover, a highly sensitive sector with regard to the climate, because of the prevalence of rain fed agriculture.<sup>122</sup> The projections of IPCC shows that climate change will shorten the cultivation phases, and thus more land will drop out of production due to water scarcity.<sup>123</sup> The projections also showed that drought-prone areas of Africa to be particularly vulnerable to food shortages due to a reduction in the land area suitable for agriculture.<sup>124</sup>

If land use is constantly restricted as a result of climate change (shift in seasons, water scarcity due to the steady drop in rainfall), this will have negative implication on employment and productivity in the agrarian sector and directly on the lives of a greater part of the African rural population.<sup>125</sup> Approximately 70 percent of the population lives from agriculture and 40 percent of all African exports derive from agriculture.<sup>126</sup> The IPCC estimates that the decline in production could reach more than 50 percent in some countries by 2020, and that the income from agricultural production could drop by up to 90 percent by 2100.<sup>127</sup> Small-scale farmers will be most affected.<sup>128</sup> The food security of the entire continent will be impaired, and this may lead to increased dependency on food imports.<sup>129</sup>

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<sup>120</sup> Barbara UnumBig and Stefan Cramer , Supra Note at 72

<sup>121</sup> Ibid

<sup>122</sup> Ibid

<sup>123</sup> Findings of the IPCC Fourth Assessment Report: Climate Change Impacts, available at <http://www.ucsusa.org> last accessed on 07 March 2013

<sup>124</sup> Ibid

<sup>125</sup> Barbara UnumBig and Stefan Cramer , Supra Note at 72

<sup>126</sup> Ibid

<sup>127</sup> Ibid

<sup>128</sup> Id at 4

<sup>129</sup> Ibid

## 2.5.6. Impacts of Climate Change on Health

Climate change has a wide range of actual and potential impacts on health. High temperatures can have a direct effect on human health. Diseases carried by insects and other vectors are especially susceptible to the effects of climate change. For example, the geographical distribution and rate of development of mosquitoes are highly influenced by temperature, rainfall and humidity.<sup>130</sup> One mosquito species that carries malaria- *Anopheles arabiensis*- has been for the first time in the central highlands of Kenya.<sup>131</sup> Increased temperatures and prolonged rainy seasons may extend the transmission period of the disease.<sup>132</sup>

In general, the range of malaria carrying mosquitoes and malaria are expected to extend into higher elevations particularly above 1000m. There have been resurgences of malaria in the highlands of east Africa in recent years.<sup>133</sup> Studies show that the temperature in the East Africa highlands has risen by 0.5<sup>0</sup>c since 1980- much faster than the global average- and that this has been accompanied by a sharp increase in mosquito populations.<sup>134</sup> The increased warmth may accelerate mosquito larval development.

The incidence of Dengue, another mosquito-borne disease (carried principally by *Aedes aegypti*) is also likely to increase. Recent models based on predicted rises in relative humidity show a considerable expansion of the geographical range of the disease, particularly through central and Eastern Africa.<sup>135</sup>

Other infectious diseases that may also increase in range and intensity include water- borne diseases such as cholera and other diarrheal diseases, rodent-borne diseases, meningococcal meningitis, Ross River virus and Rift valley fever.<sup>136</sup>

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<sup>130</sup> Barbara UnumBig and Stefan Cramer, *Supra Note* at 72

<sup>131</sup> The Science of Climate Change in Africa: Impacts and Adaptation, available at <http://www.workspace.imperial.ac.uk> last accessed on 10 March 2013

<sup>132</sup> *Ibid*

<sup>133</sup> Gordon Conway, *Supra Note* at 71, P. 13

<sup>134</sup> *Ibid*

<sup>135</sup> *Ibid*

<sup>136</sup> *Ibid*

### 2.5.7. Impact on Food Security

The impacts of climate change- sea level rise, droughts, flood, rainfall variation and the like push millions of Africans into malnutrition.<sup>137</sup> A variety of climatic and non-climatic processes influence flood processes, resulting in river floods, flash floods, urban floods, sewer floods, glacial lake outburst floods and coastal floods.<sup>138</sup> Heavy precipitation events are projected to become more frequent in most regions throughout the 21<sup>st</sup> century.<sup>139</sup>

Long-term changes in the patterns of temperature and precipitation that are part of climate change are expected to shift production season, alter productiveness, and modify the set of feasible crops.<sup>140</sup> Where these impacts encounter limited adaptive capacity and unsustainable resource management practices, the consequences are wider and more persistent food insecurity.<sup>141</sup> Currently, most African countries are net importers, with over 50 percent and between 25 and 50 percent of the food requirement of North Africa and sub-Saharan African imported.<sup>142</sup>

Food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food for an active and healthy life.<sup>143</sup>

Climate change will affect different dimensions of food security- including food availability (i.e. Production and trade, stability of food supplies, access to food and food utilization.<sup>144</sup> Agriculture is important dimension to food security both in terms of producing food that people eat and providing the primary source of livelihood for over 80 percent of Africa's total work force.<sup>145</sup> If agricultural production in the low income developing countries is affected severely by

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<sup>137</sup> Debay Taddesse, Supra Note at 1

<sup>138</sup> Ibid

<sup>139</sup> Ibid

<sup>140</sup> The Africa, Climate Change, Environment and Security (ACCES), 2010, Climate change and security in Africa Vulnerability Discussion Paper, available at <http://www.preventionweb.net/english/professional/publications/v.php?id>. p. 18, last accessed on 12 June, 2012

<sup>141</sup> Ibid

<sup>142</sup> Ibid

<sup>143</sup> World Health Organization (WHO)/ Food Security, available at <http://www.who.int/./en/> last accessed on 08 March 2013

<sup>144</sup> Simon Anderson and et el, 2010, *The Impacts of climate change on food security in Africa: A synthesis of policy Issues for Europe*, International Institute for Environment and Development

<sup>145</sup> Debay Taddesse, Supra Note at 5

climate change, the numbers of rural poor people that will be put at risk due to vulnerability to food insecurity will surge.<sup>146</sup>

The impact of climate change on Africa's food security will be most significant because of the dependence of much of the continent on rain fed agriculture and, in several cases, on production of single crops, such as coffee in Uganda, which could be profoundly affected by climate change.<sup>147</sup>

The impact on food security in Africa is two-fold: first, the failure of export crops such as cocoa, flowers or coffee causes trade imbalances which greatly restrict African access to international agricultural markets; second, subsistence agriculture becomes less capable of responding to local needs, particularly as populations rise. Moreover, advanced agricultural producers can adapt quickly to the impact of climate change, producing new crops which may crowd out African exports to developed nations.<sup>148</sup> In short, African agriculture is not able to adapt nimbly to changes in international commodity trade. These will exacerbate rural poverty, particularly since approximately two-thirds of Africans are dependent upon agriculture.<sup>149</sup> Africa appears likely to contribute less to global agricultural production and to be unable to assure food security for its own population.<sup>150</sup>

### **2.5.8. Impacts on Biodiversity and Ecosystems**

Africa comprises a wide variety of ecosystems, including savannahs and tropical forests, montane ecosystems, coral reefs and great inland lakes and rivers.<sup>151</sup> These contain about one fifth of all known species of plants, mammals and birds, and one- six of amphibians and reptiles.<sup>152</sup>

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<sup>146</sup> Debay Taddesse, Supra Note at 5

<sup>147</sup> The Centre For International Governance Innovation (CIGI) Report, 2009, *Climate change challenges: Adaptation, mitigation and governance challenges*, available at <http://www.cigionline.org/sites/.../Climate%20Change%20in%20Africa> p.22, last accessed on 16 June, 2012

<sup>148</sup> Ibid

<sup>149</sup> Ibid

<sup>150</sup> Ibid

<sup>151</sup> Gordon Conway, Supra Note at 71, P. 13

<sup>152</sup> The Centre For International Governance Innovation (CIGI) Report, Supra Note at 147

As a result of climate change, it is suggested that globally approximately 15-40% of land plant and animal will become extinct by 2050.<sup>153</sup> In Africa, the ecosystems of dry and sub-humid lands are particularly at risk because small changes in temperatures and rainfall patterns can have deleterious impacts on the variability of plants and animals.<sup>154</sup> For instance, the succulent semi-desert region of the west coast of South Africa and Namibia known as the Karoo is home to about 3000 species of plants that occur nowhere else.<sup>155</sup> A large fraction of the world's succulent flora lives in the Karoo thriving on its unique dry, winter rainfall climate.<sup>156</sup> The region is likely to shrink or completely disappear as a result of climate change.<sup>157</sup>

Many animal species would also be affected, including some of the mammals of the African national parks.<sup>158</sup> Overall between 25-40% of animals in sub-Saharan African national parks are endangered.<sup>159</sup>

Marine ecosystems are particularly vulnerable. Coral reefs off the African coasts are at risk.<sup>160</sup> More generally, such ecosystems are likely to suffer damages from increasing acidification as a direct consequence of increased CO<sub>2</sub> concentrations.<sup>161</sup>

On land, perhaps one of the biggest losses with most widespread consequences will be of forests, particularly along the edge of the Congo Basin, driven by logging, both legal and illegal, and by increasing aridity.<sup>162</sup>

Biodiversity is an important resource for African people. Uses are consumptive (food, fiber, fuel, shelter, medicine, wildlife trade) and non-consumptive (ecosystem services and the economically important tourism industry).<sup>163</sup> Given the heavy dependence on natural resources in Africa, many

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<sup>153</sup> The Centre For International Governance Innovation (CIGI) Report, Supra Note at 147

<sup>154</sup> Ibid

<sup>155</sup> Ibid

<sup>156</sup> Gordon Conway, Supra Note at 71, P.13

<sup>157</sup> Ibid

<sup>158</sup> Ibid

<sup>159</sup> Ibid

<sup>160</sup> Ibid

<sup>161</sup> Ibid

<sup>162</sup> Ibid

<sup>163</sup> Paul V. Desanker, 2010, *Impact of climate change on life in Africa*, Centre for African Development Solutions, Johannesburg, South Africa, available at [www.panda.org/climate](http://www.panda.org/climate), P.3, last accessed on 18 June, 2012

communities are vulnerable to the biodiversity loss that could result from climate change.<sup>164</sup> Climate change does also have an impact on animals' biodiversity. Africa occupies about one-fifth of the global land surface and contains about one –fifth of all known species of plants, mammals, and birds in the world, as well as one six of amphibians and reptiles.<sup>165</sup>

Climate change has already affected the marine animals of Africa.<sup>166</sup> Damages to coral reef systems have far reaching implications for fisheries, food security, tourism and overall marine biodiversity.<sup>167</sup>

As far as impacts of climate change on plants biodiversity is concerned, Africa's biodiversity is concentrated in several unique native environments.<sup>168</sup> The Cape Floral Kingdom (fynbos), which occupies only 37,000 square kilometers at the Southern tip of Africa, has 7,300 plant species of which 68 percent occur nowhere else in the world.<sup>169</sup> The Adjacent succulent Karoo biome contains an additional 4,000 species, of which 2,500 are native.<sup>170</sup> These two floral biodiversity hot spots occur in winter rainfall regions and would be threatened by a shift in rainfall seasonality.<sup>171</sup> For instance, a reduction in winter rainfall or an increase in summer rainfall would alter the fire regime that is critical to the life cycle in the fynbos.<sup>172</sup>

Other important floral regions affected by global warming include Madagascar, the mountains of Cameroon, and the island-like Afro-montane habitats that stretch from Ethiopia to South Africa at altitudes above 2,000 meters.<sup>173</sup> Montane centers of biodiversity are particularly threatened by increases in temperature because many contain isolated plant populations with no possibility of migration. Several thousand species of plants are potentially affected.<sup>174</sup>

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<sup>164</sup> Paul V. Desanker, *supra* Note at 163, P.3

<sup>165</sup> *Id.*, at 4

<sup>166</sup> *Ibid*

<sup>167</sup> *Ibid*

<sup>168</sup> *Ibid*

<sup>169</sup> *Ibid*

<sup>170</sup> *Ibid*

<sup>171</sup> *Ibid*

<sup>172</sup> *Ibid*

<sup>173</sup> *Ibid*

<sup>174</sup> *ibid*

### 2.5.9. Impacts on Migration

Climate change has an impact on human migration, large mammal migration, and plant migration.<sup>175</sup> Semi-arid areas of the Sahel, the Kalahari, and Karoo historically have supported nomadic societies that migrate in response to annual and seasonal rainfall variations.<sup>176</sup> Nomadic pastoral systems are intrinsically able to adapt to fluctuating and extreme climates-provided they have sufficient scope for movement and other necessary elements in the system remain in place.<sup>177</sup> However, the prolonged drying trend in the Sahel since the 1970s has demonstrated the vulnerability of such groups to climate change: they cannot simply move their axis of migration when the wetter end already is densely occupied and permanent water points fail at the drier end. The result has been widespread loss of human life and livestock, and substantial changes to the social system.<sup>178</sup>

As far as bird migration is concerned, about one-fifth of African bird species migrate on a seasonal basis within Africa and an additional one-tenth migrate annually between Africa and the rest of the world.<sup>179</sup> One of the main intra-Africa migratory patterns is flown by waterfowl, which spend the austral summer in Southern Africa and winter in central Africa.<sup>180</sup> Pale arctic migrants spend the austral summer in locations such as Lange baan Lagoon, near Cape Town, and the boreal summer in the wetlands of Siberia.<sup>181</sup> If climatic conditions or specific habitat conditions at either end of these migratory routes change beyond the tolerance of the species involved, significant losses of biodiversity could result.<sup>182</sup>

Climate change also has an impact on large mammal migration.<sup>183</sup> The vast herds of migratory ungulates Rhines, swine, and elephants among others- in east and southern Africa remain distinguishing ecological characteristics of the continent.<sup>184</sup> A major migratory system is located in the Serengeti area of Tanzania and the Massai- Mara region of Kenya. Reduced large-mammal

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<sup>175</sup> Paul V. Desanker, *supra* Note at 163, P.5

<sup>176</sup> *Ibid*

<sup>177</sup> *Ibid*

<sup>178</sup> *Id* at 4

<sup>179</sup> *Ibid*

<sup>180</sup> *Ibid*

<sup>181</sup> *Id* at 5

<sup>182</sup> *Ibid*

<sup>183</sup> *Ibid*

<sup>184</sup> *Ibid*

migratory systems persist in the Kalahari (Botswana, South Africa, and Namibia) and Etosha (Namibia) areas of southern Africa.<sup>185</sup> Typical migrations involve regular movement between dry-season and wet-season grazing areas, and are therefore sensitive to climate change. The impacts of climate change on these systems are uncertain, but they could be compromised by climate change in the presence of additional land use pressures.<sup>186</sup>

Climate change does also have an impact on plant migration.<sup>187</sup> As the climate changes, plants will naturally attempt to adapt by migrating, assuming the landscape is not too fragmented.<sup>188</sup> However, given that most of the land in Africa is inhabited by humans, not all species will be able to migrate.<sup>189</sup> From a conservation management perspective, this indicates that creating avenues of migration for critical plant groups (in either direction of the climate gradient) might be a useful hedge, against destructive changes in climate.<sup>190</sup> Unfortunately for some regions such as the fynbos, which is at the edge of the continent, there are limited options for migration.<sup>191</sup>

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<sup>185</sup> Paul V. Desanker, *supra* Note at 163, P.3

<sup>186</sup> *Ibid*

<sup>187</sup> Oli Brown and et al (2007), *Climate change as the 'New' security threat: Implications for Africa*, Blackwell Publishing Ltd, available at [www.iisd.org/pdf/2007/climate\\_security\\_threat\\_africa.pdf](http://www.iisd.org/pdf/2007/climate_security_threat_africa.pdf), p.1148, last accessed on 18 July, 2012

<sup>188</sup> *Ibid*

<sup>189</sup> *Ibid*

<sup>190</sup> *Ibid*

<sup>191</sup> *Ibid*

### 2.5.10. Climate Change and Violent Conflicts

The impact of climate change on security and violent conflicts is manifested in one way or another. The link between climate change and conflict is indirect-climate change can contribute to natural resources scarcity, which in turn exacerbate conflict.<sup>192</sup>

The variability in rainfall and the accompanying droughts have forced pastoral communities to change routes and watering holes, leading them to new and potentially unfriendly areas which in its turn may create a conflict with the people living there.<sup>193</sup>

With increased scarcity of usable land and water resources, impoverishment will continue. This is particularly predicted for North Africa.<sup>194</sup>

Conflicts around scarce resources (water) and migration (for example, as a result of drought) could become more frequent and could intensify due to climate change.<sup>195</sup> With regard to already smoldering conflicts, the repercussions from climate change-alongside other factors- could have an escalating effect.<sup>196</sup>

Climate change creates an alternative path to scarcity and collapse.<sup>197</sup> First, volatile weather patterns swinging between extremes, coupled with changes in rainfall and temperature, have the capacity to reshape the productive landscape of entire region and to exacerbate food, water and energy scarcities, as envisaged in traditional models.<sup>198</sup> Second, climate change could contribute to destabilizing, unregulated population movements, most of which will be internal, but the ripple effects of which will be felt beyond national boundaries.<sup>199</sup> Third, more extreme conditions may lead to more natural disasters, stretching from the resources and coping capacity

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<sup>192</sup> Oli Brown and et el Supra Note at 187

<sup>193</sup> The Centre For International Governance Innovation (CIGI) Report, Supra Note at 147

<sup>194</sup> Barbara UnumBig and Stefan Cramer, Supra Note at 72

<sup>195</sup> Ibid

<sup>196</sup> Ibid

<sup>197</sup> Ibid

<sup>198</sup> Ibid

<sup>199</sup> Ibid

of developing countries.<sup>200</sup> Finally, extreme weather events and climate-related disasters will trigger short-term disease spikes but will also have longer-term become more wide spread.<sup>201</sup>

When conditions of scarcity arise, through either increased consumption or environmental change, competition may emerge between users of scarce resources. Specific incidents that occur during this competition may give rise to a state of conflict between rival user groups.<sup>202</sup>

Given the history of resource and political conflicts in Africa, climate change could aggravate territorial and border disputes and complicate conflict resolution and mediation process.<sup>203</sup>

Constraints on water availability are a growing concern in Africa, and climate change will exacerbate this situation.<sup>204</sup> Conflicts over water resources will have implications for both food production and peoples' access to food in conflict zones.<sup>205</sup>

Declining water resources and diminishing arable land are already intensifying competition for these resources and creating tensions among displaced populations.<sup>206</sup> Armed conflicts and intensified national security concerns minimize the capacity to cope with climate change.<sup>207</sup>

Hence, climate change is best thought of as an aggravating factor or triggering places where some of the characteristic ingredients for conflict already exists.<sup>208</sup> The Darfur conflict was a typical example of climate change induced conflict in Africa.<sup>209</sup> The combination of decades of drought, desertification, and overpopulation are among the contributing factors that led nomads searching for water to drive their livestock south into regions mainly occupied by farming communities.<sup>210</sup> Eventually, tensions between the two groups escalated into conflict.<sup>211</sup>

On June 2007, the United Nations Secretary General Ban Ki Moon released a statement in which he proposed that the impact of climate change is directly related to the Darfur conflict, as

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<sup>200</sup> Oli Brown and et el (2007), Supra Note at 187

<sup>201</sup> Ibid

<sup>202</sup> Ibid

<sup>203</sup> Debay Taddesse, Supra Note at 1, P.7

<sup>204</sup> Ibid

<sup>205</sup> Ibid

<sup>206</sup> Id, P.8

<sup>207</sup> Ibid

<sup>208</sup> AMCEN, Supra Note at 18, P.48

<sup>209</sup> Ibid

<sup>210</sup> Ibid

<sup>211</sup> Ibid

desertification has added significantly to the stress on the livelihoods of pastoralist societies, forcing them to move south to find pasture.<sup>212</sup>

In the Ilemi triangle, a disputed territory that sits where the border of South-Eastern Sudan joins with North-western Kenya and south western Ethiopia the problem is very similar.<sup>213</sup> Due to climate change the pastoralists had to cross over into each other's grazing grounds thereby disrupting the traditional co-existence in this Trans border region and resorting to armed conflicts.<sup>214</sup> Climate change also has its bearings on the cultural traditions of pastoralist of communities in the horn of Africa, more specifically on the initiation of young warriors.<sup>215</sup>

### **2.5.11. Impacts of Climate Change on Energy**

Climate change presents additional challenges to Africa-at a time when it is already hard hit by high oil prices. Climate change, through changing and more erratic rainfall, has severely affected the generation capacity of hydroelectric power dams in both Eastern and Western Africa forcing countries to spend their limited resources on adding emergency generation capacity, relying mainly on coal-or fuel based systems thus aggravating greenhouse gas emissions.<sup>216</sup>

Africa is thus faced both with the challenge of increasing access to energy, and the opportunity to exploit the large potential for development of its clean energy sources. There is enormous untapped renewable energy potential-especially hydroelectric power, geothermal energy, solar and wind power, as well as more improved energy efficiency, and more efficient use of biomass. Climate change and carbon finance thus provide Africa with the incentives to develop clean energy, and in particular hydroelectric power. Greater access to finance and regional cooperation are both crucial for exploiting this potential.<sup>217</sup>

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<sup>212</sup> AMCEN, Supra Note at 18, P.48

<sup>213</sup> Id at 49

<sup>214</sup> Ibid

<sup>215</sup> Ibid

<sup>216</sup> The African Partnership Forum (APF), Supra Note at 7

<sup>217</sup> Ibid

## 2.6. Mechanisms of Combating Climate Change

### 2.6.1. Adaptation to Climate Change in Africa

The UNFCCC provides that adaptation is a process through which societies make themselves better able to cope with uncertain future.<sup>218</sup> Adapting to climate change entails ‘taking the right measures to reduce the negative effects of climate change (or exploit the positive ones) by making the appropriate adjustments and changes.’<sup>219</sup> The Intergovernmental Panel on Climate Change (IPCC) defines adaptation 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’.<sup>220</sup>

Adaptation aims at reducing vulnerability to climate change and vulnerability of communities, regions and nations to climate variability.<sup>221</sup>

The African continent contains the poorest and least developed nations of the world with low per capita GDP and life expectancy and high infant mortality.<sup>222</sup> The high vulnerability of Africa is attributed to a large extent to its low adaptive capacity, not just the prevailing climate. Its’ deteriorating ecological base, widespread poverty, inequitable land distribution, a high dependence on the natural resource base and the ravages of HIV/AIDS and other factors explain the very low adaptive capacity.<sup>223</sup> Improving adaptive capacity is important in order to reduce vulnerability to climate change.

Requirements for adaptation among other things include institutional, financial, social and physical and infrastructure requirements.<sup>224</sup> As far as institutional requirements are concerned, in order to reduce vulnerability institutional arrangements are important in enhancing entitlement and access to resources for adaptation.<sup>225</sup> Institutions help to create information and conditions as well as taking steps that will help to reduce vulnerability to climate risks or to exploit

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<sup>218</sup> The United Nations Framework Convention on Climate Change, <http://unfccc.int/resouce/docs/tp/tp3.pdf>

<sup>219</sup> Ibid

<sup>220</sup> Annex B. Glossary of Terms-IPCC, available at <http://www.ipcc.ch/./tar-ipcc-terms-en.pdf> last accessed on 08 March 2013

<sup>221</sup> IPCC, 2007, Supra Note at 92

<sup>222</sup> Supra Note at Background paper on impacts, vulnerability and adaptation to climate change in Africa

<sup>223</sup> Ibid

<sup>224</sup> AMCEN, supra Note at 18, P.54

<sup>225</sup> Ibid

opportunities. Governments as institutions have an important potential role in helping people to build their adaptive capacity through strengthening adaptation.<sup>226</sup> Ensuring access to high quality information about the impacts of climate change and carrying out vulnerability assessments, increasing the resilience of livelihoods and infrastructure, improving governance, empowering communities and the like are to be considered as some of the measures necessary for strengthening adaptation.<sup>227</sup>

Physical and infrastructure requirement is also taken as one of the requirements for adaptation. The poor state of infrastructure in most African countries is widely known as one of the major factors increasing the vulnerability of the continent.<sup>228</sup> Poor infrastructure is negatively impacting basic needs for the African citizen including clean water, energy, health, education, access to markets and investment.<sup>229</sup> Access to infrastructure services is crucial to facilitate economic growth and poverty alleviation particularly in poor low-income countries, which in its turn enhances adaptive capacity.<sup>230</sup>

The secretariat of the UNFCCC estimates that USD 220 million per year will be required by African countries to adapt to climate change by the year 2030.<sup>231</sup> As will be mentioned later, the UNFCCC states that developed countries are under a legal obligation to provide financial resources to African countries to adapt to climate change.<sup>232</sup> Some proposals for adaptation measures include Global Environmental Facility, the Adaptation Fund, the Least Developed Countries Fund, the Special Climate Change Fund, and Bilateral, Regional and other multilateral channels.<sup>233</sup>

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<sup>226</sup> AMCEN, *Supra* Note at 18, P. 51

<sup>227</sup> *Ibid*

<sup>228</sup> *Ibid*

<sup>229</sup> *Ibid*

<sup>230</sup> *Ibid*

<sup>231</sup> *Ibid*

<sup>232</sup> *Ibid*

<sup>233</sup> Debay Taddesse, *supra* Note at 1, P.9

## 2.6.2. Mitigation of Climate Change

Mitigation, or the reduction of emissions of GHG, is an essential part of the global response to addressing climate change.<sup>234</sup> Strong commitments to emission reductions by developed countries, and incentives for major developing countries to cut emissions, will be key to minimizing the negative impacts of climate change on Africa.<sup>235</sup>

For Africa, climate change debate has primarily focused on adaptation rather than mitigation as historically Africa's contribution to global GHG emissions has been small, where as the African continent has been identified to be the worst affected by the impacts of climate change.<sup>236</sup>

For Africa, climate change mitigation considerations are anchored on Article 3 of the UNFCCC, i.e., the principle of equity and of “Common but Differentiated Responsibilities and respective capabilities”.<sup>237</sup> The CBDR principle recognizes the historical differences in contributions by developed and developing country parties to GHGs concentrations in the atmosphere, and also takes cognizance of differences in their respective economic and technical capacity to tackle mitigation.<sup>238</sup>

Even if the developed world takes on responsibilities for absolute cuts in emission of 60-80% by 2050, developing countries must take significant action too, in order to avoid temperature increases above 2.0- 2.4<sup>0</sup>c.<sup>239</sup> Furthermore, though Africa needs to develop economically to meet her priority of eradicating poverty, developing along a cleaner energy path moving towards low carbon development will be necessary in order to maintain economic competitiveness in a global economy.<sup>240</sup> Therefore, mitigation is an opportunity for Africa as there are many environmental, social and economic benefits from shifting towards low carbon development paths and the ‘green

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<sup>234</sup> Africa partnership Forum (2007), supra Note at 3

<sup>235</sup> AMCEN, Supra Note at 18, P.84

<sup>236</sup> Ibid

<sup>237</sup> Ibid

<sup>238</sup> Ringius, L., Frederickson, P. & Birr-Pedersen, K. 2002: *Burden Sharing in the context of Global Climate Change. A North-South Perspective*. National Environmental Research Institute, Denmark. 90PP.-NERI Technical Report No. 424, available at [http://www.technical-reports.dmu.dk/1\\_viden/2\\_publications/3-fragrapporter/rapporter/FR424.pdf](http://www.technical-reports.dmu.dk/1_viden/2_publications/3-fragrapporter/rapporter/FR424.pdf) last accessed on 07 March 2013

<sup>239</sup> AMCEN, Supra Note at 12, P.84

<sup>240</sup> Debay Tadesse, supra Note at 1, P.10

economy' is seen as an opportunity for job creation and developing new markets- both attractive for Africa.<sup>241</sup>

The quality of the environment continues to decline in many parts of Africa.<sup>242</sup> The continent's last great forests are disappearing; rangelands in the Sahel are rapidly being turned into desert; and there seem to be few, if any, parts of the continent that are immune to this general trend of decline.<sup>243</sup> Actions aimed at alleviating the consequences of deforestation and forest degradation have been considered in future positive incentive mechanisms for emission reductions taking into account the role of forested areas in the regulation of the global climate system, as well as the beneficiaries of land development efforts to ensure the maintenance of forest areas and the implementation of sustainable agriculture.<sup>244</sup> In addition, deforestation caused by illegal logging, the felling of trees for firewood and charcoal for cooking, and 'slash and burn' farming practices have reduced biodiversity in Africa and weakened the continent's ability to adapt to climate change.<sup>245</sup> The major portion of carbon dioxide release in Africa is contributed by burning fossil fuels and the conversion of tropical forest to facilitative agricultural production, as well as lumber cutting for domestic and international industry.<sup>246</sup> Yet this situation reflects the reality of energy insecurity in Africa in terms of increasing demand due to population growth and dwindling supplies of traditional fossil fuels.<sup>247</sup>

### **2.6.3. Financing for Climate Change in Africa**

As mentioned above, Africa contributes less than 4% of the total global GHG emission, but it is among the most vulnerable to climate change and has a very low adaptive capacity to adapt to its effects. Voluntary contributions by developed countries will not be enough to meet Africa's adaptation needs since it depends on the willingness of developed countries and as a result they may suspend it anytime they want to do so. This makes climate change financing a critical issue.

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<sup>241</sup> Towards a Green Economy, Pathways to Sustainable Development and Poverty Eradication, A Synthesis for Policymakers, available at [http://www.unep.org/./GER\\_synthesis\\_en.pdf](http://www.unep.org/./GER_synthesis_en.pdf), last accessed on 08 March 2013

<sup>242</sup> AMCEN, Supra Note at 12, P.84

<sup>243</sup> Ibid

<sup>244</sup> Ibid

<sup>245</sup> Ibid

<sup>246</sup> Ibid

<sup>247</sup> Debay Taddesse, Supra Note at 1, P.10

Africa is likely to require between US\$ 20-30 billion per annum adaptation costs over the next 10 to 20 years to reduce its climate vulnerability to an acceptable level.<sup>248</sup>

In addition to adaptation, mitigation to climate change, technology development and transfer, capacity development need finance and Africa particularly needs the climate change finance because of its poverty.<sup>249</sup> As a result of this, several financial mechanisms are available to them to support their responses to climate change and these channels are increasing at alarming rate.

The climate change UNFCCC instruments on capacity building, finance and technology transfer have presented the main opportunities for the participation of developing countries, particularly Africa with its 33 LDC members, in the implementation of climate change convention.<sup>250</sup>

From the Marrakech Accords, developing countries including Africa can access funding, for the implementation of the convention.<sup>251</sup> The funding is provided by Annex II<sup>252</sup>, and other parties included in Annex I that are in a position to do so through channels like Global Environment Facility replenishment; the Special Climate Change Fund to be established under this decision; The Least Developed Countries Fund to be established under this decision; and bilateral and multilateral sources.<sup>253</sup> This funding is used to help to finance activities, programs and measures, relating to climate change.

Under the Bali Action, developing countries including Africa are opportune to participate in the consultations between the Global Environmental Facility (GEF), interested parties, international financial institutions, other relevant multilateral institutions and representatives of the private financial community with the objective to elaborate a strategic program to scale up the level of investment for technology transfer to help developing countries address their needs for environmentally sound technologies.<sup>254</sup> The GEF is the largest public funder of projects to improve the global environment. It unites 182 countries in partnership with international

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<sup>248</sup> The costs of Adaptation to Climate Change in Africa, 2011, available at <http://www.afdb.org/fileadmin/uploads/afdb> last accessed on 02 march 2013

<sup>249</sup> AMCEN, Supra Note at 18, P.131

<sup>250</sup> Ibid

<sup>251</sup> Ibid

<sup>252</sup> Annex II are Annex I countries without the countries with Economies in Transition (EIT); Annex I countries are developed nations and nations with Economies in Transition (EIT); Non- Annex I countries are developing countries

<sup>253</sup> AMCEN, Supra Note at 12, P.131

<sup>254</sup> Ibid

institutions, civil society organizations (CSOs), and the private sector to address global environmental issues while supporting national sustainable development initiatives.<sup>255</sup>

The Copenhagen Accord provides opportunities for developing countries particularly Africa to access financial support, capacity building and technology transfer from developed country parties.<sup>256</sup> Under the Fast Track Initiative, developing countries will access new and additional resources, including forestry and investments through international institutions, approaching USD 30 billion for the period 2010-2012 with balanced allocation between adaptation and mitigation.<sup>257</sup> Funding for adaptation is prioritized for the most vulnerable developing countries, such as the least developed countries, Small Island developing states and Africa.<sup>258</sup> In the context of meaningful mitigation actions and transparency on implementation, developing countries will benefit from developed countries commitment to a goal of mobilizing jointly USD 100 billion a year by 2020 to address the needs of developing countries.<sup>259</sup>

Under the Cancun Agreements a significant portion of the funding arising from and after the Copenhagen Accord should flow through the Green Climate Fund<sup>260</sup> which is to be designated as an operating entity of the financial mechanism of the convention, with governance and other arrangements being negotiated.<sup>261</sup>

## **2.7. Overview of Major International Regimes and Negotiations Addressing Climate Change**

Since climate change emerged as an international issue roughly 25 years ago, the international response has in many ways developed in one way or another.<sup>262</sup> Formal international negotiations to address climate change were launched in December 1990. Major international regimes and negotiations addressing climate change are discussed in the following sections:

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<sup>255</sup> What is the GEF/Global Environmental Facility, available at <http://www.thegef.org/gef/whatisgef>, last accessed on 08 March 2013.

<sup>256</sup> The Copenhagen Accord, available at <http://www.unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf>, last accessed on 18 February 2013.

<sup>257</sup> Ibid

<sup>258</sup> Ibid

<sup>259</sup> Ibid

<sup>260</sup> The GCF which is established at the COP 16 will support projects, programmes, policies and other activities in developing country parties

<sup>261</sup> The Cancun Agreements, available at <http://www.unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>, last accessed on 18 February 2013

<sup>262</sup> Daniel Bodansky, *Supra Note* at 13

### 2.7.1. THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

The UNFCCC is the first chapter in the evolution of climate change regulation serving as a constitution like document guiding intergovernmental cooperation on this issue.<sup>263</sup> Rather than establishing binding limits on GHGs emission for any countries, the UNFCCC as its name indicates, forms a framework for further action and cooperation on the issue of climate change.<sup>264</sup>

It was in 1992 that the UNFCCC adopted with the objective of “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”<sup>265</sup> As an interim step, the UNFCCC imposed a non-binding goal of reducing greenhouse gas emissions by industrialized countries (the so-called Annex I countries) to their 1990 levels by the year 2000.<sup>266</sup> Signed initially by 161 nations, the UNFCCC entered into force in January, 1994 after being ratified by 50 countries (including the United States). As of May 2011, the UNFCCC has 194 parties, more than any other international environmental agreement.<sup>267</sup>

Precautionary principle<sup>268</sup>, which provides that where there are “threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing precautionary measures” and “Common but Differentiated Responsibilities and Respective Capabilities<sup>269</sup>,” reflecting a view that developed countries bear a greater historical responsibility for the accumulation of GHG emissions and have greater capacity to take action are the basic guiding principles of the UNFCCC.<sup>270</sup> By virtue of the latter principle, the Parties are divided

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<sup>263</sup> Kyle W. Danish, 2007, *An Overview of the International Regime Addressing Climate Change*, volume 7, article 5, issue 2, winter 2007: climate law report 2007;10 available at <http://www.digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article> , last accessed on 18 July, 2012.

<sup>264</sup> Ibid

<sup>265</sup> Article 2 of the UNFCCC

<sup>266</sup> International Environmental Agreements: Politics, Law and Economics 3: 351, 2003. Kluwer Academic Publishers. Printed in the Netherlands. available at [http://www.hks.harvard.edu/m-rcbg/eephu/barrett\\_stavins.pdf](http://www.hks.harvard.edu/m-rcbg/eephu/barrett_stavins.pdf), last accessed on 12 July, 2012.

<sup>267</sup> Ibid

<sup>268</sup> Article 3, sub article 3 of the UNFCCC

<sup>269</sup> Article 3, sub article 1 of the UNFCCC

<sup>270</sup> Article 3 of the UNFCCC

into two main groups: the Annex I countries, which comprise primarily developed countries and the non-Annex I countries, which comprise primarily developing countries.<sup>271</sup>

In setting forth commitments under the treaty, the UNFCCC makes certain commitments general to all Parties, but also assigns certain additional obligations to the Annex I Parties.<sup>272</sup>

The UNFCCC provides that all Parties will develop and submit national inventories of emissions by sources and removals by sinks, implement national plans that include measures to mitigate climate change, promote and cooperate in technology transfer, and encourage and assist in scientific research on climate change.<sup>273</sup> Each Party is required to submit “national communications” reporting on its progress in meeting these various commitments.<sup>274</sup>

The Convention also states that the extent to which developing country Parties effectively implement their commitments will depend on the level of assistance from developed countries.<sup>275</sup>

The UNFCCC outlines certain commitments only relevant to Annex I Parties. Accordingly, it is only Annex I Parties that are obliged to adopt national policies to mitigate climate change and to report on the progress of these policies “with the aim of” returning emissions to their 1990 levels.<sup>276</sup> Despite the fact that this commitment became a “soft” commitment and parties thereby generally have not met this target, the 1990 emissions “baseline” became a touchstone for the development of binding emissions limits under the Kyoto protocol.<sup>277</sup>

Annex II parties are those parties to the UNFCCC listed in Annex II of the convention and are parties made up of members of the Organization for Economic Cooperation and Development (OECD). A special and clear obligation is imposed on Annex II countries to provide financial resources to enable developing countries to undertake emissions reduction activities under the convention and to help those particularly vulnerable countries adapt to adverse effects of climate change. They must also ‘take all practicable steps’ to promote the development and transfer of environmentally friendly technologies to EIT parties and developing countries.<sup>278</sup>

An institutional framework of the UNFCCC mainly comprise of the following bodies:

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<sup>271</sup> Kyle W. Danish, *Supra* Note at 262, P. 11

<sup>272</sup> *Ibid*

<sup>273</sup> Article 4 of the UNFCCC

<sup>274</sup> Article 12 of the UNFCCC

<sup>275</sup> Article 4.7 of the UNFCCC

<sup>276</sup> Article 4.2 of the UNFCCC

<sup>277</sup> Kyle W. Danish, *Supra* Note at 262, P. 11

<sup>278</sup> Article 4.3 of the UNFCCC

The Conference of Parties (COP) is the supreme body of the convention whose basic mandate is reviewing the implementation of the convention and any related legal instruments that the COP may adopt, and shall make within its mandate, the decisions necessary to promote the effective implementation of the convention.<sup>279</sup>

The Subsidiary Body for Scientific and Technological Advice (SBSTA) is a body established to provide the COP and, as appropriate, its other subsidiary bodies with timely information and advice on scientific and technological matters relating to the convention.<sup>280</sup>

The Subsidiary Body for Implementation (SBI) is established to assist the COP in the assessment and review of the effective implementation of the convention.<sup>281</sup>

### **2.7.2. THE KYOTO PROTOCOL**

The Kyoto Protocol, a protocol to the UNFCCC, is the current apogee of international efforts to address global climate change and a significant milestone in the evolution of international environmental law generally.<sup>282</sup>

The Parties to the Framework Convention determined that a more forceful international response to the threat of climate change was needed, leading to a commitment to develop a protocol with binding emission limits. Consistent with the principle of “Common but Differentiated Responsibilities,” it was agreed that such limits should apply only to the developed country Parties.<sup>283</sup>

Subsequent negotiations resulted in the Kyoto Protocol, which was adopted by the Parties at UNFCCC COP-3 at Kyoto in 1997.<sup>284</sup>

The Kyoto Protocol sets forth binding emission limits for developed country parties for the period of 2008-2012.<sup>285</sup> Parties effectively have full discretion in developing national measures

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<sup>279</sup> Article 7 of the UNFCCC

<sup>280</sup> Article 9 of the UNFCCC

<sup>281</sup> Article 10 of the UNFCCC

<sup>282</sup> Kyle W. Danish, *Supra* Note at 262, P.11

<sup>283</sup> Berlin Mandate-United nations Framework Convention on Climate Change, Report of the COP on its first session, held at Berlin from 28 March to 7 April 1995, available at <http://www.unfccc.int/./07a01.pdf>, last accessed on 11 march 2013

<sup>284</sup> Kyle W. Danish, *Supra* Note at 262, P.11

<sup>285</sup> Article 3 of the Kyoto Protocol

to meet their limits.<sup>286</sup> Furthermore, they can take advantage of certain “flexible mechanisms,” which offer market-based approaches for achieving emission reductions across borders.<sup>287</sup>

The Protocol has a compliance system having a compliance committee which is made up of two branches. The facilitative branch aims to provide advice and assistance to parties in order to promote compliance, whereas the enforcement branch has the responsibility to determine consequences for parties not meeting their commitments.<sup>288</sup>

As far as emission limits are concerned, the binding quantified emission limitation and reduction commitments apply only to Annex I parties under the UNFCCC.<sup>289</sup> The commitments vary on a Party-by-Party basis and are calculated, with some variations, with reference to each Party’s 1990 emissions level.<sup>290</sup> Each Annex I Party must meet its commitment as an annual average during the period 2008–2012, which is referred to as the “first commitment period.”<sup>291</sup> At negotiations Annex I parties collectively agreed to reduce to a 5.2 percent reduction below their 1990 emissions levels, which finally led to the collective emission reduction to 4.2 percent below their 1990 emissions level since U.S. has not ratified the treaty.<sup>292</sup>

Under the Protocol Annex I countries commit themselves to a reduction of a “basket” of six GHGs: Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous Oxide (N<sub>2</sub>O), Hydrofluorocarbons (HFCs), Per fluorocarbons (PFCs), and Sulfur Hexafluoride (SF<sub>6</sub>).<sup>293</sup>

The Intergovernmental Panel on Climate Change (IPCC) determined the “global warming potential” of each of these types of GHGs relative to Carbon Dioxide. The Protocol expresses each Party’s limit in the form of a “Carbon Dioxide equivalent” in tons of GHG emissions.<sup>294</sup> In addition, for HFCs, PFCs, and SF<sub>6</sub>, the Protocol allows the use of 1995 as a base year, easing the stringency of requirements for those GHGs.<sup>295</sup>

The most important innovation of the Kyoto Protocol is the establishment of the “flexible mechanisms”, such as emissions trading system, Joint Implementation, and Clean Development

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<sup>286</sup> Article 10(1) of the Kyoto Protocol

<sup>287</sup> *Ibid*

<sup>288</sup> Compliance Mechanism to the Kyoto Protocol, available at <http://www.unfccc.int/kyotoprotocol/compliance>, last accessed on 07 March 2013

<sup>289</sup> Kyle W. Danish, *Supra Note* at 262, P.11

<sup>290</sup> *Id* at 12

<sup>291</sup> *Ibid*

<sup>292</sup> *Id* at 13

<sup>293</sup> Annex I of the Kyoto Protocol

<sup>294</sup> Article 3(7) of the Kyoto Protocol

<sup>295</sup> Article 3(8) of the Kyoto Protocol

Mechanism (CDM) that can be used by Annex I Parties in meeting their emission limitation commitments.<sup>296</sup>

Emission Trading allows Annex I parties to trade their emissions or Assigned Amount Units (AAUs) with one another.<sup>297</sup> This is because parties are not allowed to emit exceeding their assigned amount at the end of the commitment period and at the same time the marginal cost of abating emissions differs among countries.<sup>298</sup>

To address the risk of overselling, the Protocol provides that an Annex I Party may not engage in trades that would bring its holdings of AAUs or other Kyoto credits below the level of its “commitment period reserve,” a limit calculated for each Annex I Party.<sup>299</sup> For most Parties, the commitment period reserve precludes the sale of all but ten percent of their initial allotment of AAUs.

Unlike the emission trading system, Joint Implementation (JI) and Clean Development Mechanism (CDM) are project based mechanisms which generate emission reduction from projects.<sup>300</sup>

In a JI transaction, an Annex I Party invests in a project in the country of another Annex I Party, presumably because the cost of achieving such reductions is lower in the host country than in the investing country.<sup>301</sup> The host Annex I Party then transfers a corresponding portion of its assigned amount to the investing Annex I Party in the form of Emission Reduction Units (“ERUs”). The investing Annex I Party can add these ERUs to its Assigned amount. ERUs may be earned only for reductions or removals occurring during the 2008–2012 commitment period.<sup>302</sup>

Another flexibility mechanism provided by the protocol is Clean Development Mechanism. Through the CDM, Annex I governments (and companies or other persons authorized by them) can earn certified emission reductions (“CERs”) by investing in emission reduction projects in non-Annex I countries.<sup>303</sup> What sets CDM apart from JI is that, while the CDM provides a

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<sup>296</sup> Article 3(8) of the Kyoto Protocol

<sup>297</sup> Article 17 of the Kyoto Protocol. Emission trading is a market-based scheme for environmental improvement that allows parties to buy and sell permits for emissions or credits for reductions in emissions of certain pollutants.

<sup>298</sup> Kyle W. Danish, *Supra* Note at 262, P. 8

<sup>299</sup> *Ibid*

<sup>300</sup> *Ibid*

<sup>301</sup> *Ibid*

<sup>302</sup> *Ibid*

<sup>303</sup> Article 12 of the Kyoto Protocol

mechanism designed to encourage production of emission reductions in non-Annex I Parties, the JI encourages production of emission reductions in Annex I Parties which in its turn makes the CDM the primary mechanism for involvement of developing countries during the Kyoto Protocol's first commitment period.<sup>304</sup>

CDM projects, like JI projects, are required to achieve reductions in emissions that are "additional to any that would occur in the absence of the certified project activity."<sup>305</sup> Participation in each project must be voluntary and approved by each Kyoto Party involved. Governments have established "Designated National Authorities" to approve projects and project participants.<sup>306</sup> The protocol also adds an overlying "purpose" for CDM projects that is additional to climate change mitigation: to assist non-Annex I Parties in "achieving sustainable development;" the determination of which is left to host country Designated National Authorities.<sup>307</sup>

As far as the compliance system is concerned, the Protocol has a compliance system that is more robust than that of any other international environmental agreement and has introduced a number of innovations to international law generally.<sup>308</sup> The Protocol's compliance system includes mechanisms to generate information about performance, mechanisms to facilitate compliance, and mechanisms to deter non-compliance through penalties.<sup>309</sup>

Detailed rules for the implementation of the Kyoto Protocol were adopted and called the Marrakech Accords.<sup>310</sup>

### **2.7.3. The Bali Road Map**

In December 2007, 192 nations participating as Parties to the UNFCCC met in Bali, Indonesia and adopted the Bali Action Plan (BAP) to negotiate (parallel to a process under the Kyoto Protocol) new GHG mitigation actions and other commitments for the post-2012 period.<sup>311</sup>

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<sup>304</sup> Kyle W. Danish, *Supra* Note at 262, P. 8

<sup>305</sup> *Ibid*

<sup>306</sup> *Ibid*

<sup>307</sup> *Ibid*

<sup>308</sup> *Ibid*

<sup>309</sup> *Ibid*

<sup>310</sup> *Ibid*

<sup>311</sup> Antonio G.M. La Vina, Lawrence Ang & Joanne Dulce, 2010, *The Cancun Agreements: Do they advance global cooperation on climate change?*, foundation for international environmental law and development, (2010), p.2 available at [http://www.field.org.uk/.../the\\_cancun\\_agreements\\_lavina\\_ang\\_dulce](http://www.field.org.uk/.../the_cancun_agreements_lavina_ang_dulce), last accessed on 19 July, 2012

After the 2007 United Nations Conference on Bali in Indonesia in December 2007, the participating nations adopted the Bali Road Map as a two year process to finalize a binding agreement in 2009 in Copenhagen.<sup>312</sup> The conference encompasses meetings of several bodies, including the 13<sup>th</sup> conference of the parties to the United Nations Framework Convention on Climate Change (COP13) and the third meeting of the parties to the Kyoto Protocol (MOP3 or CMP3).<sup>313</sup>

The Bali Road Map includes the Bali Action Plan (BAP) that was adopted by Decision 1/CP.13 of the COP-13.<sup>314</sup> The Bali Action Plan stipulates a two-track approach to negotiations and two Parallel processes of formal negotiations.<sup>315</sup> One aims at renegotiating emission reductions by industrialized countries under the Kyoto Protocol.<sup>316</sup> This “Kyoto track” was launched in December 2005 and conducted in the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP).<sup>317</sup> The second, “Convention track” is a broader reconsideration of long-term commitments by all countries, including developing countries. It was launched in December 2007 and negotiations take place in the Ad Hoc Working Group on Long-Term Cooperative Action (AWG-LCA).<sup>318</sup>

The Conference of Parties decided to launch a comprehensive process to enable the implementation of the convention through long-term cooperative action, now, up to and beyond 2012, by addressing the called pillars or building blocks, namely on areas of mitigation, adaptation, finance, technology and shared vision of long-term goals.<sup>319</sup>

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<sup>312</sup> Antonio G.M. La Vina, Lawrence Ang & Joanne Dulce, *Supra Note* at 303

<sup>313</sup> *Ibid*

<sup>314</sup> UNFCCC (2007a): Bali Action Plan. Decision1/CP13, available at, [http://www.unfccc.int/files/meetings/cop\\_13/application/pdf/cp\\_bali\\_action.pdf](http://www.unfccc.int/files/meetings/cop_13/application/pdf/cp_bali_action.pdf). Last accessed on 19 July, 2012

<sup>315</sup> *Ibid*

<sup>316</sup> *Ibid*

<sup>317</sup> Radoslav S. Dimitrov (2010), *Inside UN Climate Change Negotiations: The Copenhagen Conference*, Review of Policy Research(RPR), vol.27, Number 6, available at <http://www.politicalscience.uwo.ca/.../Dimitrov/climate%20negotiations%20RPR>, p. 799, last accessed on 25 June, 2012

<sup>318</sup> *Ibid*

<sup>319</sup> APF (Africa Partnership Forum), 2009: *Climate Challenges to Africa: from Bali to Copenhagen*, 12<sup>th</sup> meeting of the Africa partnership forum, Rome, Italy, p.1 available at <http://www.Africapartnershipforum.org>, last accessed on 15 June 2012

As far as a shared vision for long-term cooperative action is concerned, it is based on the following key principles: (i) developed countries taking the lead on emission reductions; (ii) developing countries, and in particular emerging economies, agreeing to contribute to the global mitigation effort; (iii) special attention being paid to the least-developed countries which need to pursue their sustainable development and should not be subjected to mitigation commitments; and (iv) developed countries providing predictable additional financing, technical and capacity building support to help developing countries adapt to climate change and contribute to greenhouse gas emissions.<sup>320</sup>

Mitigation is also another key item for negotiation, mainly embodying emission reduction by all developed countries and efforts by developing countries along the principle of ‘Nationally Appropriate Mitigation Actions’; policies and practices aiming at encouraging emission Reductions from Deforestation and forest Degradation and the sustainable management of forests in developing countries; and sector-specific actions for mitigation; and using market mechanisms as a means, among others, to promote mitigation actions.<sup>321</sup>

Adaptation as a building block of the negotiation demands international cooperation to support implementation of adaptation actions that include risk management and risk reduction strategies; On technology development and transfer: scaling up of technology development and transfer to developing countries and cooperation on research and development; and On the provision of financial resources: Improved access to adequate, predictable and sustainable financial resources for developing countries, including innovative financing mechanisms; and Support for capacity-building, in particular for the most vulnerable developing countries.<sup>322</sup>

#### **2.7.4. The Copenhagen Accord**

Nine rounds of global negotiations took place between Bali and Copenhagen. Between December 2007 and December 2009, AWG-LCA and AWG-KP held sessions in Bonn, Accra, Poznan, Bangkok, and Barcelona. Two long years of multilateral discussions came to an end and world leaders come up with the Copenhagen Accord.<sup>323</sup>

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<sup>320</sup> The Bali Road Map, available at <http://www.unfccc.int/./6072.php>, last accessed on 12 May 2012

<sup>321</sup> Ibid

<sup>322</sup> Radoslav S. Dimitrov, Supra Note at 309

<sup>323</sup> Outcomes of the Copenhagen Climate conference, available at [www.urengo.com/content/287/outcomes](http://www.urengo.com/content/287/outcomes), last accessed on 12 August, 2012

However, the Copenhagen Accord is a non-binding political declaration that fails to provide a successor to the Kyoto Protocol.<sup>324</sup>

As far as the content of the Copenhagen Accord is concerned, it tries to address all of the main elements under negotiation including, mitigation, adaptation, finance, technology and verification in an inelegant and extremely brief manner. The text embodies the following elements:

- Sets a long-term inspirational goal of limiting temperature rise below 2° C.
- establishes a process for recording the mitigation targets and actions of both developed and developing countries;
- puts significant new money on the table for climate-change mitigation and adaptation by developing countries, including “fast start” money for the 2010-2012 period “approaching” \$30 billion and a goal of mobilizing \$100 billion per year by 2020;
- provides for “international consultation and analysis” of developing country actions, plus fuller monitoring, reporting, and verification of actions that receive international support as well as developed country targets and financing.<sup>325</sup>

However, the Copenhagen Accord is weak for the following reasons. First, it does not include any binding emissions reduction target and leaves it up to developed countries themselves to list their individual commitment by 2020 in the Annex to the Accord by 30 January 2010.<sup>326</sup> Second, the pledges that have been made thus far do not put us on a realistic pathway towards limiting temperature increase to 2°C (a goal that some think is itself inadequate to avert dangerous climate change). Third, the pledges made pursuant to the Copenhagen Accord are not legally-binding. Finally, the legal status of the Copenhagen Accord is unclear, particularly given the decision by the Conference of the Parties (COP) merely to “take note of” rather than “adopt” it.<sup>327</sup>

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<sup>324</sup> Outcomes of the Copenhagen Climate conference, Supra Note at 323

<sup>325</sup> The Copenhagen Accord, available at <http://www.unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf>, last accessed on 08 arch 2013

<sup>326</sup> Outcomes of Copenhagen conference, Supra Note at 323

<sup>327</sup> Daniel Bodansky, 2010, Supra Note at 2

### 2.7.5. The Cancun Agreements

The Cancun conference was a combination of six different meetings of the Convention and its Kyoto Protocol.<sup>328</sup> The most important of these was the Conference of Parties (COP) of the Convention, the Meeting of the Parties of the Kyoto Protocol (CMP), and the sessions of the two ad hoc working groups on long-term cooperative action (AWG-LCA) and on the further commitments of Annex I parties in the Kyoto Protocol (AWG-KP) which were created by the Bali Action Plan.<sup>329</sup>

It was on December 11, 2010 in Cancun, Mexico that parties agreed and come up with the Cancun Agreements which represent key steps forward in capturing plans to reduce greenhouse gas emissions and to help developing nations protect themselves from climate impacts and build their own sustainable futures.<sup>330</sup>

Highlights of the Cancun Agreement on climate change include:

- The establishment of a new Green climate fund to help poor countries cope with climate change.<sup>331</sup>

In Copenhagen, countries pledged up to \$100 billion per year in new financing for climate related aid.<sup>332</sup> The new guidance on the Green climate fund sets forth principles for prioritizing and governing this aid, emphasizing both mitigation and adaptation.<sup>333</sup>

- The establishment of a new technology mechanism

The Cancun Agreements introduce a new and potentially interesting approach by creating an international technology mechanism that seeks to facilitate the process of clean technology knowledge sharing among all countries with a particular focus on developing countries.<sup>334</sup>

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<sup>328</sup> Martin Khor, 2011, *Complex implications of the Cancun Climate Conference*, CLIMATE POLICY BRIEF, no. 5, available at <http://www.southcentre.org>, last accessed on 18 June, 2012

<sup>329</sup> Ibid

<sup>330</sup> UNFCCC: Cancun Agreements (2011), available at [www.cancun.unfccc.int/](http://www.cancun.unfccc.int/), last accessed on 20 July, 2012

<sup>331</sup> UNFCCC, Ad Hoc Working Group on Long-term Cooperative Action, Thirteenth session, Cancun, Mex. Nov.29-Dec.10, 2010, outcome of the work of the Ad Hoc Working Group on Long-Term Cooperative Action under the convention, UN Doc. UNFCCC/AWGLCA/2010?1.7(Dec10, 2010), available at <http://www.unfccc.int/resource/docs/2010/awglca13/eng/107.pdf>

<sup>332</sup> UNFCCC, 15<sup>th</sup> COP, Copenhagen, Den. Dec 7-19, 2009, Copenhagen Accord, 2/CP.15, in part Two: Action Taken, UN. Doc.FCCC/CP/2009/11/Ad1(Mar. 30, 2010), available at <http://www.unfccc.int/resource/docs/2009/COP15/eng/11201.pdf>.

<sup>333</sup> The Cancun Agreement on Climate change, available at <http://www.Brookings.edu/research/opinion>, last accessed on 18 June, 2012

- Agreement on a framework to Reduce Deforestation

Approximately 20 percent of the global Carbon Dioxide emissions derive from forest clearing and other land use changes; and deforestation provisions have been under serious negotiations since the Bali meetings of 2006.<sup>335</sup> These provisions have become known as REDD+ (Reducing Emissions from Deforestation and Forest Degradation, as well as other measures such as conservation and soil management).<sup>336</sup> The Cancun Agreements provide guidelines for developing countries to identify and implement REDD+ actions that could reduce greenhouse gas emissions from deforestation and land use change, and encourage developed countries to assist in this process.<sup>337</sup>

- A goal of keeping global temperature rise under 2<sup>0</sup>c.

The Cancun Agreements go further in suggesting that the international community consider setting a more stringent goal of 1.5<sup>0</sup>c based on newer scientific information<sup>338</sup>

- Agreement on Monitoring, Reporting and Verification (MRV)

According to the agreement on MRV, Countries that fund domestic mitigation independently will not be subject to international MRV but will report their own progress, following a standard tradition in international law.<sup>339</sup> However, countries that received international support for their mitigation would be subject to international verification. To assuage the concerns of those interested in more robust MRV for domestic actions, the agreements also establish a system of biennial “ International Consultations and Analysis”(ICA) whereby information will be shared in an international forum that includes technical experts and representatives from the party concerned and will lead to a report.<sup>340</sup>

- CCS and standardized Baselines in the CDM

CDM under the Kyoto Protocol allows projects in developing countries to receive carbon credits for reducing emissions below a business-as-usual baseline. Here, CDM projects were primarily in industrial processes, renewable energy and energy sufficiency. The Cancun Agreements expand this set to include carbon dioxide capture and storage (CCS) in geological formations, a

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<sup>334</sup> UNFCCC, Ad Hoc Working Group on Long-term Cooperative Action, Supra Note at 331

<sup>335</sup> Ibid

<sup>336</sup> Ibid

<sup>337</sup> Ibid

<sup>338</sup> Ibid

<sup>339</sup> Ibid

<sup>340</sup> Ibid

decision which will probably have some major implications for both the availability of credits and the more constructive participation of certain oil and gas producing countries (Saudi Arabia and Qatar were among the chief sponsors of this proposal). Another potentially useful change to the CDM could come from the decision to allow the so-called “standardized baselines”, which should reduce transaction costs in a number of project categories where such costs have been prohibitively high.<sup>341</sup>

- An ambitious agreement on Mitigation which would include both developed and developing countries;<sup>342</sup>

As far as mitigation targets for developed countries are concerned, the Cancun Agreements recognize that developed countries had put forward quantified economy-wide emission reduction targets or pledges in Copenhagen, and therefore takes note of them in a registry.<sup>343</sup>

On mitigation actions for developing countries, the Cancun Agreements also take note of the NAMAs pledged by developing nations in Copenhagen, anchoring these actions to a UNFCCC agreement.<sup>344</sup>

- Operationalizing an Adaptation Mechanism

The Cancun Agreements create a new Climate Adaptation Framework and an associated Adaptation Committee. Together, these committees raise the importance of adaptation within the UNFCCC, and should make possible a more coherent, action-oriented treatment of adaptation.<sup>345</sup>

The Framework identifies a broad set of priority areas for action, while the committee will identify gaps in action, highlight good practices, and make recommendations on the unmet needs.<sup>346</sup>

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<sup>341</sup> UNFCCC, Ad Hoc Working Group on Long-term Cooperative Action, Supra Note at 331

<sup>342</sup> Ibid

<sup>343</sup> Antonio G.M. La Vina, Lawrence Ang & Joanne Dulce (2010), The Cancun Agreements: Do they advance global cooperation on climate change? P.6 <http://www.field.org.UK>

<sup>344</sup> Ibid

<sup>345</sup> WRI 2010. *Reflections on the Cancun Agreements*: WRI Working Paper, Washington DC: World Resources Institute. [http://pdf.wri.org/reflections\\_on\\_cancun\\_agreements.pdf](http://pdf.wri.org/reflections_on_cancun_agreements.pdf), last accessed on last accessed on 18 June, 2012

<sup>346</sup> Ibid

- Transparency and Reporting

The Cancun Agreements create a new standard for transparency in which all major economies, including the United States and China, as countries will report on the progress they are making in meeting their national climate targets or actions.<sup>347</sup>

Developed countries have agreed to enhance reporting of their support to developing countries in the form of finance, technology and capacity building. In return, developing countries have agreed to strengthen reporting on their mitigation actions and to accept “international consultation and analysis” of these actions.<sup>348</sup> This will include not just reporting on the list of mitigation actions they wish to undertake, as was presented in the Copenhagen Accord, but also a review of the effect of these actions, along with the domestic provisions and timeline for implementation of these actions.<sup>349</sup>

#### **2.7.6. THE DURBAN PLATFORM FOR ENHANCED ACTION**

The 17<sup>th</sup> session of the conference of the parties to the UNFCCC (COP 17) and the 7<sup>th</sup> session of the conference of the parties serving as the meeting of the parties to the Kyoto Protocol (CMP7) held in Durban, South Africa, from 28<sup>th</sup> November to 11<sup>th</sup> December 2011 each produced landmark decisions.<sup>350</sup>

While the COP 17 created the Ad hoc Working Group on the Durban Platform for Enhanced Action with the mandate to negotiate a “Protocol, another legal instrument or an agreed outcome with legal force” that closes the gap in ambition left by the pledges made under the Cancun Agreements to reach the goal to limit global warming to 2<sup>0</sup>c compared to pre-industrial levels and encompasses all parties, CMP7 concluded with an agreement to create a second commitment period of the Kyoto Protocol that will run either 2017 or 2020.<sup>351</sup>

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<sup>347</sup> UNFCCC, Ad Hoc Working Group on Long-term Cooperative Action, Supra Note at 331

<sup>348</sup> Ibid

<sup>349</sup> Ibid

<sup>350</sup> CP17/CMP7 Publications: Durban Debrief- Climate Focus, [www.climatefocus.com](http://www.climatefocus.com), last accessed on last accessed on 18 June, 2012

<sup>351</sup> Durban Platform for Enhanced Action-UNFCCC, available at <http://www.unfccc.int/resource/docs/2011/COP17/eng/l10.pdf>, last accessed on 25 June 2012

For the first time, all major nations- developed and developing- have agreed to a road map that would combat climate change by reducing greenhouse gas emissions via an “outcome with legal force” that wouldn’t come into effect before 2020.<sup>352</sup>

The Durban Platform for Enhanced Action provides a clear mandate to negotiate a new climate change agreement that will cover all parties.<sup>353</sup> In other words, the decision does not distinguish between developed/Annex I or developing/ non-Annex I countries. Negotiations on the new agreement are to start in the first half of 2012, be finalized in 2015, and the agreement is to come into effect from 2020.<sup>354</sup>

The Durban conference basically comes up with the following outcomes:

The governance structure of the Green Climate Fund was approved and a decision passed to rapidly operationalize it.<sup>355</sup>

Progress was made on an incentive framework for Reduced Emissions of Deforestation and Forest Degradation (REDD+) with formal recognition that multiple sources and channels, including market-based approaches, may support REDD+. Further guidance was provided on safeguards and reference emission levels/reference levels.<sup>356</sup>

A pilot registry for Nationally Appropriate Mitigation Actions is to be developed and finalized by CP18. The main function of the registry is recording of NAMAs seeking international support and facilitating matching NAMAs with support available by providing and directing information to parties.<sup>357</sup>

Adaptation acquired a prominent role in Durban as an area of importance for Africa.<sup>358</sup> A number of important decisions on adaptation were taken, the most relevant being agreement on the GCF as a future source of finance.<sup>359</sup> Aside from this, there were decisions on National

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<sup>352</sup> Climate Talks Consensus: All Countries Should Cut Greenhouse Gas Emissions--In Future, available at <http://www.scientificamerican.com/article.cfm?id=>, last accessed on 25 June 2012

<sup>353</sup> Durban Debrief –Climate Focus, Supra Note at 341

<sup>354</sup> Ibid

<sup>355</sup> Launching of the Green Climate Fund, available at [http://www.unfccc.int/files/meetings/durban.nov\\_2011/decisions/application/pdf/COP17/gcf.pdf](http://www.unfccc.int/files/meetings/durban.nov_2011/decisions/application/pdf/COP17/gcf.pdf), last accessed on 26 June 2012

<sup>356</sup> REDD+: Safeguards and reference levels, available at <http://www.unfccc.int/files/meetings/durbannove2011/decisions/application/pdf/cop17safeguards.pdf>, last accessed on 26 June 2012

<sup>357</sup> Climate Talks Consensus, Supra Note at 343

<sup>358</sup> Ibid

<sup>359</sup> Ibid

Adaptation Plans (NAPs), the Adaptation Committee, and progress on the SBI agenda on “loss and damage”.<sup>360</sup>

Negotiations on land use, land-use change and forestry in developed countries concluded with accounting for forest management and harvested wood products becoming mandatory, while a new optional accounting category was created for wetlands.<sup>361</sup>

Decisions concerning the Clean Development Mechanism covered equitable distribution of projects, simplification and governance, though agreement could not be reached on an appeal mechanism for decisions of the CDM Executive Board.<sup>362</sup>

In their decision on Joint Implementation, Parties failed to agree on the continuation of the mechanism after 2012 as well as on the proposals for a new design of the JI Guidelines, postponing both decisions to CMP8.<sup>363</sup>

Agriculture was formally included as separate agenda item on the agenda of the Subsidiary Body for Technical Advice.<sup>364</sup> After many failed attempts at getting agriculture recognized, as an issue in its own right under the UNFCCC (largely due to trade concerns and it being packaged with the controversial discussions on bunker fuels) countries agreed at CP17 to put agriculture officially on the SBSTA agenda. Parties are invited to submit views on issues related to agriculture, to begin discussions at SBSTA 36.<sup>365</sup>

As far as the future of the Kyoto Protocol is concerned, Parties agreed on a second commitment period for the Kyoto Protocol that will run from 2012 until 2017 or 2020. Important details including quantified emission reduction objectives and amendments to the Kyoto Protocol were left for CMP8 to decide.<sup>366</sup>

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<sup>360</sup> Climate Talks Consensus, Supra Note at 343

<sup>361</sup> Land use, land use change and forestry, available at [http://www.unfccc.int/files/meetings/durban\\_nov\\_2011/decisions/application/pdf/awgkp/-lulucf.pdf](http://www.unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/awgkp/-lulucf.pdf), last accessed on 25 June 2012

<sup>362</sup> Further guidance relating to the clean development mechanism, available at [http://www.unfccc.int/files/meetings/durban\\_nov\\_2011/decisions/application/pdf/cmp7\\_cdmguidance.pdf](http://www.unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cmp7_cdmguidance.pdf), last accessed on 26 June 2012

<sup>363</sup> Durban debrief, Supra Note at 344

<sup>364</sup> Ibid

<sup>365</sup> Ibid

<sup>366</sup> Guidance on the implementation of Article 6 of the Kyoto Protocol, available at [http://www.unfccc.int/files/meetings/durban\\_nov\\_2011/decisions/application/pdf/CMP7\\_guidanc\\_article6.pdf](http://www.unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/CMP7_guidanc_article6.pdf), last accessed on 26 June 2012.

### 2.7.7. Doha Climate change Conference

The 18<sup>th</sup> session of the Conference of the Parties to the UNFCCC and the 8<sup>th</sup> session of the Conference of Parties serving as the Meeting of the Parties to the Kyoto Protocol opened on Monday, 26 November and continued until Saturday, 8 December 2012 at the Qatar National Convention Center in Doha, Qatar.<sup>367</sup>

Negotiations in Doha focused on ensuring the implementation of agreements reached at previous conferences.<sup>368</sup> Having been launched at CMP1 in 2005, the AWG-KP terminated its work in Doha.<sup>369</sup> The parties also agreed to terminate the AWG-LCA and negotiations under the Bali Action Plan.<sup>370</sup> The Doha Conference produced a package of documents collectively titled, The Doha Climate Gateway.<sup>371</sup> The documents collectively contained an eight year extension of the Kyoto Protocol until 2020 limited in scope to only 15% of the global carbon dioxide emissions.<sup>372</sup> Key elements to the outcome also included agreement to consider “Loss and Damage.”<sup>373</sup> Loss and damage is first articulated at the 2012 conference and in part based on the agreement that was signed at the 2010 United Nations Climate Change Conferences in Cancun.<sup>374</sup> It introduces the principle that countries vulnerable to the effects of climate change may be financially compensated in future by countries that fail to curb their emissions.<sup>375</sup> The proposed new Loss and Damage mechanism is held up as an example of the success of the diplomatic process.<sup>376</sup> Until Doha rich nations have agreed finance to help developing countries to get clean energy and adapt to climate change, but they have stopped short of accepting

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<sup>367</sup> The Doha Climate Change Conference-November 2012, available at <http://www.unfccc/./6815.php>, last accessed on 18 December 2012

<sup>368</sup> Summary and Analysis of the Doha Climate Change Conference, available at <http://www.iisd.ca/vol12/enb12567e.html>, last accessed on 18 December 2012

<sup>369</sup> Ibid

<sup>370</sup> Ibid

<sup>371</sup> Ibid

<sup>372</sup> “UN Climate Conference throws Kyoto a lifeline”, The Globe and Mail, available at <http://www.echsar.com>, last accessed on 18 December 2012

<sup>373</sup> Climate conference: what Doha did/ The Economist, available at <http://www.economist.com/>, last accessed on 28 December 2012

<sup>374</sup> COP18: Outcomes of the Doha Climate Talks, available at <http://www.iied.org/cop18-outcomes-doha-climatetalks>, last accessed on 28 December 2012

<sup>375</sup> Ibid

<sup>376</sup> “Climate talks: UN forum extends Kyoto Protocol, Promise compensation.”, available at <http://www.bbc.co.uk/news>, last accessed on 28 December 2012

responsibility for damage caused by climate change elsewhere.<sup>377</sup> But in Doha that broad principle was agreed. The conference also made little progress towards the funding of the Green Climate Fund.<sup>378</sup> In Doha governments endorsed the selection of the South Korean city of Songdo as the location of the Green Climate Fund and the work plan of the Standing Committee on Finance.<sup>379</sup> The Green Climate Fund is expected to start its work in Songdo in the second half of 2013, which means that it can launch activities in 2014.<sup>380</sup>

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<sup>377</sup> Climate talks: UN forum extends Kyoto Protocol, Promise compensation, Supra Note at 376

<sup>378</sup> Ibid

<sup>379</sup> Doha Outcome: Kyoto Protocol Lives, Global Climate Deal by 2015, available at <http://www.ens-newswire.com/2012/12/08/doha.outcome>, last accessed on 28 December 2012

<sup>380</sup> Ibid

## CHAPTER THREE

### 3. THE RESPONSE OF THE AFRICAN UNION AND SUB-REGIONAL INTERGOVERNMENTAL ORGANIZATIONS TO CLIMATE PROTECTION

#### 3.1. Overview

The African continent is one of the most vulnerable of all regions to the consequences of climate change. The vulnerability and low capacity to adapt to the effects of climate change hamper the achievement of the MDGs and development of the African states.<sup>381</sup> This in its turn highly affects the rights of African people; mainly the right to life, adequate food, water, health, housing and the impact also extends to threatening the security of the continent.<sup>382</sup> Thus, climate change contributes to the further marginalization of the African continent.

Africa had contributed to less than four percent of the global greenhouse gas emissions. However, this negligible amount does not make Africa immune from being hit by the adverse impacts of climate change as climate change knows no boundary. In other words, African states should be active participants to hamper the adverse impacts of climate change despite the fact that they have not contributed to the threat that they face. This is mainly because African states are the most vulnerable and have the most to lose. Therefore, capacity building pursuant to adaptation among other mechanisms of combating climate change can help the African continent for the prevention of further menace on the continent.

To combat the adverse impacts of climate change, the African Union (AU), sub-regional organizations of Africa, and individual African states play their own role individually and in cooperation between and among themselves and with various multilateral and regional organizations.

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<sup>381</sup> Impacts of climate change on Millennium Development Goals, available at <http://www.cana.net.au> , last accessed on March 10, 2013

<sup>382</sup> Human Rights and Climate Change: A Review of the International Legal Dimensions <http://siteresources.worldbank.org/INTLAWJUSTICE/Resources/HumanRightsAndClimateChange.pdf>, last accessed on 09 March 2013

### 3.2. The Response of the African Union (AU) to Climate Change

The AU is an organization in which the common good of the continent is advanced and promoted.<sup>383</sup> African leaders view regional integration as a response to the challenges of globalization and the marginalization of the African continent. African states previously experimented with the idea of pan- African regional cooperation pursuant to common interests by establishing the Organization of African Unity (OAU) in May 1963 in Addis Ababa. The eradication of colonialism was one of the most important purposes of the OAU. Following the end of the cold war and the fall of the apartheid, the OAU has achieved its objectives successfully and there comes the necessity of reforming the OAU. Accordingly, the OAU Assembly of Heads of State and Government convened on 8 and 9 September 1999 in Sirte, Libya, to establish the African Union. The Constitutive Act of the AU was signed on 11 July 2000 in Lome, Togo, and entered into force on 26 May 2001. The AU was officially inaugurated on 9 July 2002 in Durban, South Africa.<sup>384</sup>

The AU emerged in the context of globalization and was established to confront the various challenges faced by the continent.

The AU is the appropriate regional organization to facilitate the development of a common African position on climate change. This is in line with the objectives of the AU amongst others to promote and defend African common positions; establish the required conditions to enable the African continent to take its rightful place in international negotiations; to encourage international cooperation.<sup>385</sup>

In line with the objectives of the African Union as a regional organizations to cooperate pursuant to a common African Position on climate change with the goal of strengthening the voice of the African continent pertaining to negotiations and in accordance with the provision of African solutions to the African problems, the AU has responded in various ways to hamper the adverse impacts of climate change. Accordingly, the AU has played its role by enacting its climate change regimes, declarations and decisions passed by its organs. The AU also became party to

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<sup>383</sup> Werner scholtz, *The promotion of regional environmental security and Africa's common position on climate change*, The African Human Rights Law Journal, Vol.10, No.1, 2010, p.7

<sup>384</sup> Ibid

<sup>385</sup> Article 3(d) of the Constitutive Act of the African Union

the UNFCCC and Kyoto Protocol and this in its turn enable the AU to effectively negotiate in future rounds of negotiations in its own right. Furthermore, the AU has responded to catastrophes of climate change having cooperation with multilateral and regional organizations and individual states.

### **3.2.1. Climate Change Regimes, Declarations, and Decisions of the AU**

Unlike its environmental regime, the AU's efforts to introduce and maintain a climate change regime are a relatively recent development.

#### **A. The Action Plan of the Environment Initiative of the New Partnership for Africa's Development (NEPAD) (2003)**

Adopted as an official AU programme, the New Partnership for Africa's Development (NEPAD) Base Document was one of the first AU statements on the role of the environment.<sup>386</sup> The environment initiative affirms the concerns of Africa regarding climate change since it is one of the eight priority programs. In other words, monitoring and regulating the impacts of global climate change is one of the targeted sub-themes of the environment initiative.<sup>387</sup>

NEPAD is an important regional forum which promotes projects and action plans relevant to climate change. Within the framework of NEPAD, the Action Plan of the Environment Initiative affirms the continent's concern vis-à-vis the challenges posed by climate change, and provides for climate change as one of the core priority areas to be addressed by the continent's leadership. On the realization that climate change poses a key challenge to environmental sustainability, biodiversity, and food security in Africa, through its climate change and natural resources management program, NEPAD provides a platform on which the continent's players share knowledge and experiences in addressing the fast creeping threat.<sup>388</sup>

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<sup>386</sup> Jo-Ansie Van Wyk, *The African Union's response to climate changes and security*, Institute for security studies, Pretoria, South Africa p. 11, available at <http://www.isn.ethz.ch/isn/Digital-Library/Publications>, Last accessed on 20 August 2012

<sup>387</sup> Environment Action Plan-NEPAD, available at <http://www.nepad.org/system/files/environment%20Action%20plan.pdf>, Last accessed on 20 August 2012

<sup>388</sup> Jarso, James Forole. *Africa and the Climate Change Agenda: Hurdles and Prospects in Sustaining the Outcomes of the Seventh African Development Forum*. *Sustainable Development Law & Policy* 11, no. 2 (2011): 38-44, 86-89.

The AU and NEPAD prepared the African Action Plan 2010-2015: Advancing regional and continental integration in Africa. It contains strategic objectives for combating the negative impacts of climate change.<sup>389</sup>

### **B. Declaration of the AU on Climate Change and Development (2007)**

It was only by 2007 that the AU adopted a common view on climate change by its eighth African Union summit which was held in Addis Ababa, Ethiopia.<sup>390</sup>

In its 2007 Declaration on Climate Change and Development in Africa, AU member states committed themselves to: ratifying the Kyoto Protocol in Africa; strengthening the effective participation of African countries in the negotiations on the future of the UNFCCC and Kyoto Protocol processes; funding and promoting science and technology on climate change; promoting the integration of climate change and climate change adaptation strategies into the national and sub-regional development policies, programmes and activities of member states. In other words, the Assembly urges member states and Regional Economic Communities (RECs) in collaboration with the private sector, civil society and development partners to integrate climate change considerations into development strategies and programs at national and regional levels by improving public awareness of climate change; calling for streamlining of the funding mechanisms of the Global Environment Facility (GEF) to include the vulnerability index in the Resource Allocation Framework (RAF) formula to improve the access of African states to GEF financial resources; improving cooperation between National Meteorological and Hydrological Services (NMHSs), Regional Climate Centers (RCC), and Regional Economic Communities (RECs); calling on developed countries to deliver on their climate change commitments such as polluter pays principle, the reduction of greenhouse gas emissions and differentiated responsibilities.<sup>391</sup>

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<sup>389</sup> NEPAD, Review of the Implementation of the Action Plan of the NEPAD Environment Initiative, available at <http://www.africasd.iisd.org>, Last accessed on 12 June 2012

<sup>390</sup> Werner Scholtz, Supra Note at 360, P.10

<sup>391</sup> Declarations on climate change and Development in Africa, in Decisions and declarations, Assembly/AU/Decl.4(VIII), available at [http://www.africa-union.org/root/AUconferences/past/2007/January/summit/doc/decisions%20and%20declarations%20\\_%208th%20Ordinary%20session%20of%20the%20Assembly.pdf](http://www.africa-union.org/root/AUconferences/past/2007/January/summit/doc/decisions%20and%20declarations%20_%208th%20Ordinary%20session%20of%20the%20Assembly.pdf), Last accessed on 12 June 2012

The AU has been increasingly active following its first summit on climate change in January 2007. This was also the year that the Africa bloc released a statement entitled African position on climate change at the UN commission on sustainable development. This highlighted the importance of finance, technology transfer, and capacity building in supporting and increasing Africa's ability to adapt to climate change.<sup>392</sup>

### **C. The Algiers Declaration on Climate Change**

The twelfth session of the Assembly in February 2009 approved the Algiers Declaration on Climate Change (Algiers Declaration).<sup>393</sup> Apart from the approval of the Algiers Declaration, the Assembly emphasized the need for international climate change negotiations to give Africa an opportunity to demand compensation for the damage caused by global warming.<sup>394</sup>

African Heads of State and Governments, thus, approved Algiers Declaration on Climate Change as African common position to serve as platform in the process of negotiations on the new world climate regime after 2012. Furthermore, the Assembly emphasized that global carbon trading mechanisms emerging from the COP15 negotiations should give African states the opportunity to demand compensation for damage caused to the economies of these states by climate change. The Assembly approved the decision that a single delegation should represent African states. The Assembly mandated the AU Commission to work out ways in which such representation could be achieved. The commission accordingly submitted its recommendations to the Assembly.<sup>395</sup> The thirteenth ordinary session in the Sirte, Libya, among other things established the conference, July 2009, of African Heads of States and Governments on Climate Change (CAHOSCC).<sup>396</sup> The Assembly authorized the accession of the AU to the UNFCCC and Kyoto Protocol. Furthermore, the summit urged CAHOSCC, AU ambassadors and African negotiators

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<sup>392</sup> Lesley Masters; 2010, Africa climate change and Copenhagen: A post-Mortem, Institute for Global Dialogue, Issue 91/February 2010, available at. <http://www.igd.org.za/>, last accessed on 05 July 2012

<sup>393</sup> The Algiers Declaration on Climate Change, Decision on the Implementation of the Decision on the African Common Position on Climate change, May 25-29, 2009, AU Doc. EX.CL/525(XV), available at [http://www.unep.org/roa/Amcen/Amcen\\_events/3rd\\_ss/Docs/AU\\_summit\\_decision\\_implementation.pdf](http://www.unep.org/roa/Amcen/Amcen_events/3rd_ss/Docs/AU_summit_decision_implementation.pdf), Last accessed on 12 June 2012

<sup>394</sup> Jarso, James Forole. Supra Note at 365, p.38

<sup>395</sup> Werner Scholtz, supra Note at 360, P.10

<sup>396</sup> Members of the CAHOSCC consist of Ethiopia, Algeria, the Republic of Congo, Kenya, Mauritius, Mozambique, Nigeria, Uganda, the AU chairperson, the Chairperson of the AU Commission, and the Chairperson of AMCEN

to make use of the approved African common position on climate change. The CAHOSCC, thus, will be the only African delegation at international meetings on climate change.<sup>397</sup>

As far as the common African position on climate change is concerned, it is based on the pillars of the Bali Action plan, namely, adaptation, mitigation, financing, and technology transfer. It embodies the shared vision of Africa concerning climate change, which emphasizes that a climate regime must be ‘inclusive, fair and effective’ and that it should recognize that a solution to the problem will only be possible if it is undertaken in the context of ‘developing states’ need for development space’.

As far as issue of adaptation is concerned, the vulnerability of the continent and the need for international cooperation in this regard is taken into account. The common position calls for the establishment of an Adaptation Action Programme that must be country-driven. This programme must provide ‘scaled-up new, additional, adequate, predictable and sustainable financial, technological and capacity building support’ to address the key areas of the programme. The target for financial adaptation support to developing states should be at least \$67 billion per annum by 2020. Adaptation as such is not a controversial issue since consensus exists that it should be a priority in the post-2012 regime.<sup>398</sup>

In relation to mitigation, the document proposes the maintenance of a ‘firewall’ between mitigation actions by developed states and developing states.<sup>399</sup> The African position clearly states that developed states have mitigation commitments and developing states mitigation actions. Thus, only developed states should incur quantified emission reduction commitments.<sup>400</sup> Though the US wanted the distinguishing of states as developed, more advancing developing states and developing states, the African group refuses to differentiate between advanced developing states and developing states. In accordance with the African proposal, ‘the aggregate

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<sup>397</sup> Workshop report; 2009, *Climate change and Transboundary water resources in Africa*, Mombasa, Kenya, available at <http://www.hawk.ethz.ch/serviceengine/Files/.../30+September+2009.pdf>, Last accessed on 12 June 2012

<sup>398</sup> Werner Scholtz Supra Note at 360 , P.14

<sup>399</sup> Ibid

<sup>400</sup> Id, p15

number is for all developed states, regardless of whether they have ratified the Kyoto Protocol or not.<sup>401</sup>

In accordance with the viewpoint of the African group, developing states will not be encumbered with quantified emission reduction commitments.<sup>402</sup>

The African position makes provision for mitigation in order to cater for the industrialization of African states. This is important for the promotion of continental sustainable development, having adaptation as a key priority.<sup>403</sup>

The African Group furthermore supports the creation of an enhanced financial mechanism as proposed by the G77 and china. The source of funding will be developed states through the realization of their commitment under article 4.3 of the UNFCCC.<sup>404</sup>

In relation to forestry, the common position is in favor of a REDD-plus mechanism that should accommodate ‘different national circumstances and respective capabilities’. Funds should be ‘adequate, predictable and sustainable’ from a variety of sources, which include global carbon markets.<sup>405</sup>

#### **D. Nairobi Declaration on the African process for Combating Climate Change**

In February 2010, the Assembly requested the CAHOSCC to establish a streamlined single negotiating structure at both ministerial and expert levels.<sup>406</sup> Within the context of the AU, the African Ministerial Conference on the Environment (AMCEN) has served as a forum for the continent’s environmental ministers to build an African common position.<sup>407</sup> In other words, the AMCEN has played an important role in the African response to climate change. The work of AMCEN is primarily based on decision two on climate change, made at its 12<sup>th</sup> session in Johannesburg. This consists of two parts: Africa’s preparations for the development of a common position on climate change and a comprehensive framework of climate change

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<sup>401</sup> Werner Scholtz Supra Note at 360 , P.14

<sup>402</sup> Ibid

<sup>403</sup> Id , P.17

<sup>404</sup> Ibid

<sup>405</sup> Ibid

<sup>406</sup> Jarso, James Forole. Supra Note at 365, P.39

<sup>407</sup> Lesley Masters, Supra Note at 369, P.2

programmes. The first part is concerned with the involvement of negotiators from African states in regional consultative meetings that must lead to the development of a common position on climate change as well as capacity buildings of negotiators. The second part of the deliberation of AMCEN involves sub-regional meetings of experts and negotiators aimed at a better understanding of the issues concerned with the negotiators under the UNFCCC and Kyoto Protocol and the preparation of the framework of African climate change programmes.<sup>408</sup> It is in particular the third special session of the AMCEN held in Nairobi on 29 May 2009 that marked a decisive event in the response of Africa to the threats of global climate change. This meeting was significant since it was the first meeting of the African Group of Negotiators with AMCEN and the first meeting of the African high level expert panel on climate change.<sup>409</sup>

Thus, in May 2009, African ministers of the Environment adopted the Nairobi Declaration on the African process for combating climate change, which in its turn serves as a unified expression of the African continent's resolve to be part of the solution to the climate change challenge.<sup>410</sup> The aim was towards a shared vision on climate change in Copenhagen, highlighting the urgent need to support African countries in their efforts to address the reduction of emissions and recognizing the role of African forests in the survival of communities' economies and the stabilization of the climate. In the Declaration ministers declared their resolve inter alia:<sup>411</sup>

- ✚ To agree that the African common position forms the basis for negotiations by the African group during the negotiations on a new climate change regime and should take into account the priorities for Africa on sustainable development, poverty reduction and achievement of the Millennium Development Goals;<sup>412</sup>
- ✚ To encourage the establishment of a fund to reward or provide incentives for reducing emissions through sustainable land management practices, including forest conservation, sustainable land management, the avoidance of deforestation, afforestation and sustainable agriculture;<sup>413</sup>

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<sup>408</sup> Werner Scholtz, supra Note at 360, P.12

<sup>409</sup> Lesley Masters, Supra Note at 369, P.2

<sup>410</sup> The Nairobi Declaration on the African process for combating climate change, available at <http://www.unep.org/roa/Amcen/Amcen.../nairobi-declaration-2009.pdf>, Last accessed on 12 June 2012

<sup>411</sup> Ibid

<sup>412</sup> Ibid

<sup>413</sup> Ibid

- 🚩 To integrate climate change adaptation measures into national and regional development plans, policies and strategies and, where appropriate with a view to ensuring adequate adaptation to climate change;<sup>414</sup>
- 🚩 To agree that climate change mitigation efforts and actions aimed at alleviating the consequence of deforestation and forest degradation should be considered in future positive incentive mechanisms for emission reduction, taking into account the role that African forested areas, in particular those of the Congo Basin, play in regulating the global climate system;<sup>415</sup>
- 🚩 To agree that other mitigation measures being identified such as additional measures to complement the United Nations' collaborative programme on Reducing Emissions from Deforestation and Forest Degradation in developing countries, including afforestation and sustainable agriculture and land-use management, should be vigorous, realistic and flexible to ensure the effective participation of African countries, especially small holder land users;<sup>416</sup>
- 🚩 To urge the secretariats of the RIO conventions to ensure that synergies between climate change and efforts to combat land degradation, desertification and biodiversity loss are optimized to take advantage of gains made through these actions, particularly in Africa;<sup>417</sup> and
- 🚩 To mandate the president of the African Ministerial Conference on the Environment to present Africa's common negotiating position on a comprehensive international climate change regime beyond 2012 in addition to the conceptual framework of African climate change programmes to the Executive council of the African Union.<sup>418</sup>

In general, the Nairobi Declaration emphasizes the major challenges and opportunities that the African negotiators face.<sup>419</sup> The Declaration highlights the priorities for Africa, which includes adaptation, capacity building, financing and technology development and transfer and it urges the international community to base increased support for the continent on these priorities.<sup>420</sup> It

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<sup>414</sup> The Nairobi Declaration on the African process for combating climate change, supra Note at 410

<sup>415</sup> Ibid

<sup>416</sup> Ibid

<sup>417</sup> Ibid

<sup>418</sup> Ibid

<sup>419</sup> Ibid

<sup>420</sup> Ibid

affirms the importance of the adopted common position on climate change and need to establish a ‘Comprehensive framework of African climate change programmes’. The Nairobi meeting also resulted in the updated Algiers Declaration, which served as a reference document for the African negotiators at the AWG-KP9 and the AWG-LCA6 held in Bonn from 1 to 12 June 2009.<sup>421</sup>

### **3.2.2. The AU’s Response to Climate Change in Collaboration with Regional and Global Institutions**

Parallel to the aforementioned responses of the AU to climate change, are the responses through a number of regional and global institutions cooperation to strengthen the response to climate change.<sup>422</sup>

Regional institutions whose work address the climate change agenda include the African Development Bank (AfDB), NEPAD, the AU Conference of Energy Ministers (CEMA), and the AU commission. Within the growing normative and institutional framework, a host of climate change adaptation and mitigation programmes are currently running in the region. These include: the climate for development in Africa (ClimDev- Africa) programme; the Great Green Wall for the Sahara and the Sahel Initiative (GGWSSI); the Climate Change Adaptation in Africa programme (CCAAP); and the African Adaptation programme (AAP).<sup>423</sup>

Furthermore, the response to the climate change is given in collaboration with external actors like the EU, individual states and civil society organizations.

#### **A. The African Development Bank**

The African Development Bank is Africa’s multilateral development bank. Founded in 1964, it is part of the larger African Development Bank Group, which also includes the African

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<sup>421</sup> Werner Scholtz, *Supra Note* at 347, p.13

<sup>422</sup> <http://unfccc.int/files/press/backgrounders/application/factsheetafrica.pdf>, last accessed on 19 July 2012

<sup>423</sup> Jarso, James Forole. *The East African Community and the Climate Change Agenda: An Inventory of the Progress, Hurdles, and Prospects*. Sustainable Development Law & Policy 12, no. 2 (2012): 19-24, 56-62.

Development Fund and the Nigerian Trust Fund. Its membership comprises seventy-seven states including the fifty four AU member states and twenty four non-African countries.<sup>424</sup>

The Bank assists African countries in building their capacity to tap carbon finance and reduce the cost of clean energy development to get more benefits from global carbon finance flows. A significant part of these efforts is developing a clean energy investment framework, a project involving the World Bank and regional banks in Africa.<sup>425</sup>

## **B. The World Bank**

The World Bank Group along with other development partners offered strong support to an early action initiative led by the African Union (AU) and the New Partnership for Africa's Development (NEPAD) in December 7, 2011, that would rapidly refocus support to agriculture that strengthens food security, as well as climate change adaptation and mitigation.<sup>426</sup>

The early action effort on African climate-smart Agriculture is a response to a call by African government eager to incorporate climate-smart agriculture systems, techniques and policies into existing national and regional agriculture strategies in order to strengthen resilience to climate change. The goal is help donors to collectively and effectively channel support to existing programs.<sup>427</sup>

The effort calls for scaling up action on, and support for, climate smart agriculture<sup>428</sup> investments under the Comprehensive Africa Agriculture Development Programme (CAADP), which is an approach to planning and implementing country agricultural development strategies that has been endorsed across Africa, with a view toward supporting implementation of the AU-NEPAD Agriculture and climate change Framework.<sup>429</sup>

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<sup>424</sup> The African Development Bank, available at <http://www.afdb.org/en/about-us/african-development-bank-afdb>, Last accessed on 12 June 2012

<sup>425</sup> Jarso, James Forole, supra Note at 372

<sup>426</sup> Press release, World Bank supports 'call to Action' on Climate-Smart Agriculture available at, <http://climatechange.worldbank.org>, last accessed on 23 August 2012

<sup>427</sup> Press release of the World Bank, supra Note at 374

<sup>428</sup> Climate Smart Agriculture (CSA) is a "triple win" for agriculture, climate and food security. Climate smart farming techniques would increase farm productivity and incomes and makes agriculture more resilient to climate change, while also contributing to the efforts of addressing climate change issues.

<sup>429</sup> Ibid

Early action would include support for technical assistance such as screening existing agriculture plans to ensure they are “climate-smart”, as well as integrating climate resilience and mitigation into ongoing activities, and scaling up support to investments that are already climate-smart and pilot investment to test new approaches. The initiative aims to support countries efforts to implement national agriculture and food security investment plans and strengthen their emphasis on climate change.<sup>430</sup>

Across Africa, the World Bank has increased investments in agriculture to an average of \$1 billion a year since 2008. Under the Comprehensive Africa Agriculture Development Program, the Bank is already working with the African Union to boost yearly public investment in agriculture to ten percent of the national budget or more in participating countries.<sup>431</sup>

Furthermore, the World Bank’s support to Africa, vis-à-vis climate change includes, among other things, its Forest Carbon Partnership Facility (FCPF). A US \$250 million facility, the FCPF is intended to encourage investment to stop deforestation and minimize the impacts of climate change in return for access to carbon credits.<sup>432</sup>

### **C. Climate Information for Development Needs: An Action Plan for Africa (ClimDev Africa)**

The African Union, the UN Economic Commission for Africa (UNECA) and Global Climate Observatory System (GCOS) have jointly developed a ten year programme ‘Climate Information for Development Needs: an Action plan for Africa: This programme addresses four principal gaps in integrating climate to development policy: i) the gap in raising awareness for broad ownership, support and communication to adapting to climate variability and change; ii) the gap in climate risk management for strategic planning and disaster risk reduction; iii) climate-based services support to governments, to the private sector and civil society; and iv) observations, data management and infrastructure to provide essential data to cover the first three gaps.<sup>433</sup>

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<sup>430</sup> Press release of the World Bank, Supra Note at 427

<sup>431</sup> Ibid

<sup>432</sup> Jo- Ansie van WYK, supra Note at 365, P.16

<sup>433</sup> *Climate information for development needs-WMO*, available at, <http://www.wmo.int/pages/prog/gcos/publications/gcos-108.pdf>. last accessed on 27 June 2012

#### **D. The Great Green Wall for the Sahara and the Sahel Initiative (GGWSSI)**

The Green Wall Sahara Initiative was initiated by the African Union in collaboration with ECA, FAO, UNEP, UNCCD, CEN-SAD and OSS.<sup>434</sup> It was launched in December 2006. The African Heads of State and Government in their January 2007 summit adopted the decision on the implementation of the initiative. The Programme aims to slow the advance of the Sahara desert, to enhance environmental sustainability, and control land degradation, promote integrated natural resources management, conserve biological diversity, and contribute to poverty reduction and job creation.<sup>435</sup>

#### **E. IDRC and DFIC (2006)**

In 2006, the Canadian International Development Research Center (IDRC) and the United Kingdom Department for International Development launched the Climate Change Adaptation in Africa (CCAA) programme with funding amounting to Canadian \$65 million, the CCAA aims to establish a sustainable African institution on climate change adaptation that responds to African needs.<sup>436</sup> The main aim of the CCAA is to improve the capacity of African people and institutions to adapt to climate change in ways that benefit the most vulnerable. In order to do so, the CCAA supports a range of activities that build research capacity and provide evidence to strengthen adaptation plans and policies.<sup>437</sup>

There are various ways in which the program is trying to increase the engagement of stakeholders and improve the communication of climate information. Firstly, an action research approach is taken on adaptation which links communities, researchers, development agents and policy makers in a shared process of testing new and existing adaptation strategies. Furthermore, the CCAA supports a learning-by-doing approach as well as a range of communication and dissemination activities to see knowledge on adaptive practice shared widely. Finally, monitoring and evaluation of the program takes place on the basis of ‘outcome mapping’, a tool

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<sup>434</sup> Background paper on Africa and Climate change;2008, the tenth meeting of the African partnership Forum (APF), Tokyo, Japan, available at <http://www.oecd.org/.../africapartnershipforum/>, Last accessed on 25 May 2012

<sup>435</sup> Ibid

<sup>436</sup> Jo- Ansie van WYK, supra Note at 350, P. 16

<sup>437</sup> Climate change Adaptation in African Agriculture, 2008, by Stockholm Environment Institute, p.24, available at <http://www.climatechange.org> . Last accessed on 12 June 2012

developed by IDRC to assess changes in behavior, actions and activities of the people who are directly involved in the project.<sup>438</sup>

In 2008, the CCAA and the African Academy of science and the University of Dar Es salaam's Institute of Resource Assessment established the African Climate change fellowships.<sup>439</sup>

#### **F. The Yokohama Declaration (2008)**

The Heads of State and Government, and delegations of Japan and 51 African countries, together with the representatives of 34 other countries, 75 international and regional organizations, and representatives of the private sector, academic institutions and civil society organizations from both Africa and Asia, met in Yokohama, Japan from 28 to 30 May, 2008, for the Fourth Tokyo International Conference on African Development-TICAD IV.<sup>440</sup>

The participants at TICAD IV:

- ✚ Noted that African countries, which emit the least and embrace the Congo Basin, considered as the second largest ecological “lung” in the world, have generally been extremely vulnerable to the negative effects of climate change, including increased environmental degradation, deforestation, loss of biodiversity, and droughts and desertification that further threaten food security and health, as well as to increasingly frequent extreme weather patterns. African countries continue to be inadequately equipped in terms of their mitigation and adaptation capacities.<sup>441</sup>
- ✚ Recognized the need to assist Africa to enhance environment protection initiatives and welcomed the initiatives taken by Africans themselves including the international solidarity conference on climate change strategies for African and Mediterranean regions held in Tunisia in November 2007. African countries appreciated Japan's “Cool Earth Promotion Programme” and acknowledged Japan's efforts in seeking to develop an international framework looking beyond the first steps taken in the current Kyoto protocol on greenhouse gas emissions. In this regard, the participants welcomes the

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<sup>438</sup> Climate change Adaptation in African Agriculture, Supra Note at 387

<sup>439</sup> Jo- Ansie van WYK, Supra Note at 350 , P.16

<sup>440</sup> The Yokohama Declaration towards a vibrant Africa, 30 may, 2008, p.1, available at <http://www.mofa.go.jp/region/africa/ticad/ticad4/initiative.pdf>, Last accessed on 18 August 2012

<sup>441</sup> The Yokohama Declaration Supra Note at 390

announcement by the government of Japan, in January 2008, of its intention to establish a “Cool Earth Partnership” with US \$10 billion financial mechanism on the basis of policy consultations between Japan and developing countries- including African countries to address the effects of climate change and to modernize their industries, by way of technology transfer, to render them more energy efficient and more environment friendly.<sup>442</sup>

The African Adaptation Program (AAP) was established under the Japan-UNDP Joint framework for building partnership to address climate change in Africa, which was launched at the fourth Tokyo International Conference on African Development (TICAD IV), organized in Yokohama, Japan in May 2008. The US \$ 92.1 million programme, funded by the Government of Japan is implemented by UNDP in partnership with the United Nations Industrial Development organization (UNIDO), the United Nations Children’s Fund (UNICEF) and the World Food Programme (WFP).<sup>443</sup>

### **G. Gleneagles G8 Communiqué on Africa, Climate Change, Energy and Sustainable Development**

G8 countries began to discuss the impacts of climate change in Africa in Evian (2003) by agreeing to strengthen international cooperation on global earth observations with a view to developing fully operational regional climate centers in Africa through the Global Climate Observing Systems (GCOS).<sup>444</sup> At Gleneagles (2005), G8 countries action plans shifted to a broader approach of energy efficiency, clean technology and support for adaptation. The proposed package includes improvement to energy efficiency; harnessing funding for clean technology in developing countries; support for development of market for clean energy technologies and to increase their availability in developing countries; and helping vulnerable communities adapt to the impact of climate change.<sup>445</sup>

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<sup>442</sup> The Yokohama Declaration Supra Note at 390

<sup>443</sup> UNDP and the Japan International Cooperation Agency(JICA)(2010), Africa Adaptation Programme(AAP), available at <http://www.adaptationlearning.net/africa.adaptation-programme-aap> , last accessed on 21 June, 2012

<sup>444</sup> G8 Gleneagles Agreement on Climate change, clean Energy and Sustainable Development, available at <http://www.commit4africa.org/declarations/499/-G8/climate%20change>, Last accessed on 12 June 2012

<sup>445</sup> Africa partnership Forum, 2007, *Climate change and Africa*, 8<sup>th</sup> meeting of the Africa partnership Forum, Berlin, Germany, available at <http://www.oecd.org/site/africapartnershipforum/>, Last accessed on 24 June 2012

Progress in the implementation of G8 commitment has been modest. On financing the transition to cleaner energy, the World Bank and the AfDB are jointly developing a framework to accelerate the adoption of a cleaner, more efficient energy production and use. The recent adoption of an ‘Action plan for Africa on climate information for Development Needs (or ClimDev Africa) is a culmination of a multiyear effort by the GCOs –UNECA- African Union partnership to address gaps in mainstreaming adaptation into policy.<sup>446</sup>

#### **H. Tunis Declaration to the International Solidarity: Face to Climate Change**

International solidarity conference on climate change strategies for African and Mediterranean regions was held in Tunis, Tunisia, 18-22, November 2007. In the Conference, ministers from African and the Mediterranean regions declared that they will: reinforce capacities for public information and sensitization, at all levels, about the effects of climate change, and ensure their incorporation within adaptation and mitigation programs; endeavor to promote renewable energies and energy efficiency in all sectors in order to attenuate the negative effects of climate change. Moreover, ministers from African and the Mediterranean regions declared that they will: endeavor to incorporate climate change adaptation within development strategies; strive to make sure developing countries in Africa are capable of reducing their vulnerability to climate change, and of defining national adaptation strategies, on the basis which will take the necessary adaptation measures to be integrated within their national and sector-based projects; develop capacity and mobilize all human means and the necessary structures, at all levels, for elaborating and implementing climate change adaptation strategies; strengthen expertise, cooperation and solidarity for prevention and action against climate extremes in the most vulnerable countries; develop more efficient mechanism of cooperation and support in order to enhance African countries’ integration and Adaptation to climate change.<sup>447</sup>

As far as financial assistance and technology transfer are concerned, ministers from African and Mediterranean regions declared that they will implement programs for the transfer of appropriate technologies to the peoples who need them to elaborate national development strategies.<sup>448</sup>

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<sup>446</sup> Africa partnership Forum, supra Note at 445

<sup>447</sup> Tunis Declaration for the International Solidarity: Face to climate change, available at [http://www.mdptunisie.tn/fr/conference/images/.../declaration\\_tunis\\_en.pdf](http://www.mdptunisie.tn/fr/conference/images/.../declaration_tunis_en.pdf), Last accessed on 12 June 2012

<sup>448</sup> Ibid

## I. Africa –EU Partnership on Climate Change

In addressing the issue of climate change, Africa has engaged in a partnership with the European Union which can provide for a dialogue, cooperation and exchange on concrete actions to respond to climate change.<sup>449</sup> The Africa-EU Declaration on Climate Change of 2008 is a typical example of this partnership.

Climate change is one of the thematic partnerships of the Joint Africa-EU partnership. The African continent is particularly vulnerable to climate change though climate change knows no boundary and thus affects all. Food security, sustainable water supply and extreme weather phenomena (floods, drought desertification) are major issues that require and Africa-EU joint effort. The partnership aims at supporting a continental pan-African approach and response to climate challenges. It is spelled out through concrete flagship initiatives and within the current negotiations for a global and comprehensive post 2012 climate agreement. The two overarching priorities in the 2008-2012 Action plan of this partnership are: building a common agenda on climate change policies and cooperation and fighting against land degradation and aridity including the Green Wall for the Sahara Initiative.<sup>450</sup>

The EU-Africa partnership aims at reducing the impact of climate change on African populations and on their environment. In particular, enhanced sustainable land management should help to increase economic growth and improve livelihoods of African rural populations, with limited access to water and victims of food price volatility will especially benefit from the partnership work.<sup>451</sup>

The Joint EU-Africa Declaration on Climate Change adopted on December 2008 in Addis Ababa has provided concrete opportunities for cooperation and dialogue in relation to the negotiations in the run-up to the Copenhagen conference. This is continuing in the run-up to the Cancun conference and beyond.<sup>452</sup>

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<sup>449</sup> Climate change/ Africa and Europe in partnership, available at <http://www.africa-eu-partnership.org>, Last accessed on 12 June 2012

<sup>450</sup> European Union, Background, EU-African Summit (Tripoli, 29-30 November 2010, available at <http://www.europecouncil.europa.eu> , last accessed on 15 June 2012

<sup>451</sup> Ibid

<sup>452</sup> Ibid

Among other things, the EU provides significant support to African countries to help them adapt to the consequences and mitigate the risks of climate change. One of the key initiatives is “support to the Global Climate Change Alliance (GCCA)”, a program covering all of sub-Saharan Africa, as well as all Caribbean and Pacific countries. € 40 million of tenth European Development Fund have been allocated under this initiative to improve political dialogue on climate change, to foster a better exchange of knowledge and experiences in addressing its impacts and to provide concrete financial support for adaptation and mitigation measures. This regards especially water and agriculture sectors, forest degradation, investments to reduce CO<sub>2</sub> emissions, disaster reduction and other sectors linked to human welfare.<sup>453</sup>

€16 million of this program are specifically earmarked for Africa, to support: “ClimDev Africa”, a continental initiative which aims at increasing the climate resilience of Africa’s population while addressing the need for improved climate information in Africa and strengthening the use of such information by decision makers. Under ClimDev the EU is supporting the establishment of the African climate policy center at the UN-Economic Commission for Africa in Addis Ababa and the ClimDev Africa Special Fund to be managed by the African Development Bank.<sup>454</sup>

### **3.3. The Response of Sub- regional Intergovernmental Organizations to Climate Protection**

#### **3.3.1. General Overview of Sub- regional Intergovernmental Organizations**

The Marginalization of Africa in the global economic and political decision making systems made it for a long time difficult to make its voices internationally heard. The dawn of Regional Economic Communities, here in after called RECs in Africa can be traced back to the 1960s, when the United Nations (UNECA) encouraged African states to incorporate single economies into sub-regional systems with the ultimate objective of creating a single economic union on the African continent. In order to realize this aim, the organization of African Unity (OAU), predecessor of the African Union (AU) identified the need to enhance regional integration within the organization, recognizing that each country on its own would have little chance of, inter alia,

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<sup>453</sup> European Union, Background, EU-African Summit, Supra Note at 450

<sup>454</sup> AMCEN, Supra Note at 18, P. 194

attracting adequate financial transfers and the technology needed for increased economic development.<sup>455</sup>

Africa has, since then, taken various steps towards enhancing the process of economic and political integration on the continent. The Abuja Treaty, which was adopted in June 1991, came into force in 1994. Since then 52 out of the 53 AU member states have signed the Treaty while 49 have ratified it. Meanwhile, several RECs have been established on the continent. At the seventh ordinary session of the AU's Assembly of Heads of State and Government in Banjul, The Gambia, in July 2006, the AU officially recognized eight such communities: The Arab Maghreb Union (AMU or UMA), The Community of Sahel-Saharan States (CEN-SAD), The Common Market for Eastern and Southern Africa (COMESA), The East African Community (EAC), The Economic Community of Central African States (ECCAS), The Economic Community of West African States (ECOWAS), The Intergovernmental Authority on Development (IGAD), The Southern African Development Community (SADC).<sup>456</sup>

RECs can enhance regional cooperation to collectively increase bargaining power during international climate change negotiations. At first glance it appears that climate change is not within the RECs' focal range. However, all RECs have, at least in one way or another incorporated into their treaties as the interrelationship between climate change and economic development has become closer over the past few years.

### **3.3.2 The East African Community (EAC)**

#### **Background**

It was in 1967 that Uganda and Tanzania formalized socio-economic ties by heralding a cooperation-based integration framework-the first East African Community. It was finally re-launched in 2001 after the dissolution of the previous cooperation Treaty in 1977.<sup>457</sup>

Having its members of Burundi, Kenya, Rwanda, Uganda and Tanzania, the EAC was primarily established to “develop policies and programmes aimed at widening and deepening cooperation

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<sup>455</sup> AMCEN, Supra Note at 18, P. 194

<sup>456</sup> Atieno Ndomo, 2009, *Regional Economic Communities in Africa*, available at [http://www.gtz.de/wbf/4tDx9kw63gma/RECs\\_Final\\_Report.pdf](http://www.gtz.de/wbf/4tDx9kw63gma/RECs_Final_Report.pdf), Last accessed on 27 July 2012

<sup>457</sup> Ibid

among the partner states in political, economic, social and cultural fields, research and technology, defense, security and legal and judicial affairs, for their mutual benefit.”<sup>458</sup>

The EAC exists to ensure sustainable growth and development in the partner states. It recognizes that “a clean and healthy environment is a prerequisite for sustainable development.” This mandate guides the implementation of a climate change agenda in the sub-region.<sup>459</sup>

### **Climate Change in East Africa**

Climate change has posed one of the biggest impediments to the sub-region’s realization of sustainable growth and development. Food security is highly worsened in the sub-region following the recurrent floods and droughts which in their turn result in failure of harvests, massive livestock deaths, malnutrition and nutrition related ailments. Impacts on human security, health’s of millions of the inhabitants, the sustainability of the ecosystem are some of the basic impacts of climate change which are manifested in the sub-region in one way or another.<sup>460</sup>

As far as the evidence of the climate change is concerned, some of the clearly shown evidences of the sub-region include the iconic snowcaps on mounts Kilimanjaro, Kenya and Ruwenzori are disappearing, posing significant threat to downstream ecosystems and livelihoods. Furthermore, rivers are continually running dry, threatening the lives of both human and wildlife populations. With rising sea levels, the sub-region continues to experience varying extents of coastal erosion, destruction of mangrove forests, and submergence of small Islands.<sup>461</sup>

### **The EAC and the Climate Change Agenda**

#### Normative Progress within the EAC Framework

A discourse on climate change within the EAC framework should commence with an understanding of the relevant provisions of the EAC treaty. These provisions task the EAC and, by extension, the partner states to take measures to preserve and protect the environment. The Treaty stressed the need for Environmental Impact Assessments (“EIAs”) for all development

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<sup>458</sup> Jarso, James Forole. “The East African Community and the Climate Change Agenda: An Inventory of the Progress, Hurdles, and Prospects.” *Sustainable Development Law & Policy* 12, no. 2 (2012): p.19

<sup>459</sup> AMCEN, *Supra* Note at 18, P.20

<sup>460</sup> Jarso, James Forole. *Supra* Note at 419

<sup>461</sup> *Ibid*

projects with potential to affect the environment. Over the years, in response to the challenges created by climate change, the EAC has taken numerous steps to enhance regulatory regimes on environmental protection. These include:

### **The Protocol on Environment and Natural Resources Management**

In October 1998, even before the EAC was re-established the initial three partner states created a Memorandum of Understanding to govern mutual cooperation in matters relating to environmental management. Upon re-establishment of the EAC, the Treaty preserved this ad hoc arrangement. Further, the Treaty allowed partner states to enact new protocols to promote the treaty's mandate. In April 2006, the EAC's council of minister's adopted the protocol on environment and natural resources management, formalizing the Memorandum of Understanding.<sup>462</sup>

The purpose of the Protocol is to promote "cooperation among the partner states in the management of the environment and natural resources within their jurisdiction. It applies to the management of transboundary resources, biodiversity, forest and tree resources, water resources, wetland resources, coastal and marine resources, energy resources, mountain ecosystems, and rangelands. Its application also extends to fight desertification and mitigation of the effects of droughts. More importantly, the protocol applies to mitigation of the effects of climate change. So far, all EAC partner states have ratified the protocol save Tanzania, which is reportedly "in the process of finalizing the ratification of the protocol". Once in force, the protocol has potential to provide a normative framework and boost the sub-region's climate change agenda.<sup>463</sup>

### **The EAC Common Position on Climate Change**

To facilitate effective participation in the ongoing regional and international climate change negotiations, the EAC has adopted a common position on climate change negotiations culminating after roundtable meetings convened in all five partner states. The position which is aligned with the five pillars of the Bali Action Plan, prioritize adoption of the five pillars. Other

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<sup>462</sup> James Forole, *Supra* Note at 419

<sup>463</sup> *Ibid*

areas of focus are mitigation, technology development and transfer, capacity building and financing.<sup>464</sup>

### **The EAC Climate Change Policy Framework**

In April 2011, the ninth extraordinary summit adopted and approved the Declaration on Food security and climate change, the EAC climate change policy, and the EAC Food Security Action Plan, 2010-2015.<sup>465</sup> The process for the development of the East African Community Climate Change Policy (EACCCP) was initiated in response to a directive by the eleventh East African Community Heads of State summit held on 20<sup>th</sup> November 2009 in Arusha, Tanzania. The summit directed the development of a regional climate change policy and strategies to urgently respond to the adverse impacts of climate change, including addressing the challenges of food insecurity as a result of the extreme climatic conditions to address the adverse impacts of climate change, including addressing the challenges of food insecurity as a result of the extreme climatic conditions associated with climate change. The aim of the policy is to address the adverse impacts of climate change in the increasing threats of the negative impacts of climate change in national and regional development targets and goals. Among other things the policy is consistent with the UNFCCC and important principles of international environmental law.<sup>466</sup>

The overall objective of the EAC climate change policy is to guide partner states and other stakeholders on the preparation and implementation of collective measures to address climate change in the region while assuring sustainable social and economic development.<sup>467</sup>

The policy prescribes statements and actions to guide climate change adaptation and mitigation to reduce the vulnerability of the region and enhance adaptive capacity and build socio-economic resilience of vulnerable populations and ecosystems.<sup>468</sup>

In view of the high vulnerability of the region to the impacts of climate change, with one emerging associated challenges, especially food security, adaptation to climate change, is of priority to the EAC region.<sup>469</sup>

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<sup>464</sup> James Forole, Supra Note at 419

<sup>465</sup> Id , p.21

<sup>466</sup> The East African Community climate change policy, available at <http://www.eac.int>, p.4, , last accessed on 09 July 2012

<sup>467</sup> Id ,p.5

<sup>468</sup> Ibid

The policy is founded on the three key pillars, namely, adaptation, mitigation and climate change research (monitoring, detection, attribution and prediction). The pillars will be supported by the following critical capacity building areas; technology development and transfer; finance; education, training and public awareness; and information and knowledge management systems.<sup>470</sup>

Apart from the aforementioned three pillars, the EACCCP aims at implementing urgent and immediate adaptation priorities identified in the National Adaptation Programmes of Action (NAPAs), National Adaptation Plans (NAPs) and climate change strategies. Adaptation priorities will include strengthening meteorological services and improving early warning systems; disaster risk management through risk reduction, preparedness, mitigation and reconstruction; scaling up of efficient use of water and energy resources; irrigation; climate proofing social infrastructure; and reducing climate sensitive vector and water borne diseases.<sup>471</sup>

In May 2011, the EAC secretariat convened the multi-sectoral meeting on food security and climate change to facilitate expert deliberation on the modalities of implementing these documents. The eventual outcome was the adoption of the EAC climate change master plan. Together with the EAC climate change policy, the master plan provides a number of guidelines that partner states and other stakeholders can use in the preparation and implementation of collective measures to address climate change.<sup>472</sup>

### **Climate Change Programming in EAC**

Climate change has, to a large extent, been mainstreamed in all programs of the EAC. In fact, the EAC recently adopted five year development plan recognizing climate change as a threat to EAC development, calling for “climate sensitive planning.” With the growing body of normative instruments relevant to the climate change agenda, it can only envisaged that climate related issues will only be further mainstreamed in the EAC’s operations.<sup>473</sup>

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<sup>469</sup> James Forole, *Supra Note* at 419

<sup>470</sup> *Ibid*

<sup>471</sup> *Ibid*

<sup>472</sup> *Ibid*

<sup>473</sup> *Ibid*

Externally, the EAC has partnered with other Regional Economic Communities (RECs). In December 2011, in partnership with the Common Market for Eastern and Southern Africa (COMESA) and the Southern Africa Development Community (SADC), the EAC launched a joint five year programme on climate change Adaptation and mitigation. The initiative funded by the Royal Government of Norway, the European Union Commission and UK's Department of International Development (DFID) was launched on the sidelines of 17<sup>th</sup> conference of the parties to the United Nations Framework Conventions on Climate Change in Durban, South Africa.<sup>474</sup>

### **EAC Institutions Relevant to Climate Change**

In tandem with the search for an appropriate normative framework, the EAC embarked on the establishment of specialized institutions to coordinate climate change actions within the sub-regional framework. In December 2010, the council of ministers established the Climate Change Coordination Unit (CCCU) under the EAC secretariat and appointed a unit coordinator. Since that time, the unit has been instrumental in driving the sub-regions climate change agenda, working closely with other EAC institutions.<sup>475</sup>

Furthermore, the EAC summit endorsed the establishment of EAC climate change Fund in December 2010 since adequate financial support to actualize its objectives is required just like any climate change initiative. The fund has the potential to enhance climate change adaptation and mitigate actions in the sub-region.<sup>476</sup>

In addition to the responses given by the EAC, member states under the umbrella of the EAC have put in place initiatives on climate change having a general or specific coverage.

Among the member states found under the umbrella of the sub-region, various normative and institutional mechanisms to tackle the catastrophes of climate change are implemented by Kenya. The climate change Action Plan, the Africa Adaptation programme, the Kenya Adaptation to Climate Change in Arid and Semi-Arid Lands (KACCAL); and the Market transformation for efficient biomass and stoves are some of the typical examples of implementing projects for

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<sup>474</sup> James Forole, Supra Note at 419 , P.23

<sup>475</sup> Ibid

<sup>476</sup> Ibid

addressing climate change in Kenya. Five fully registered Clean Development Mechanisms (CDM) projects were established in the country.<sup>477</sup>

As far as the initiatives of the other four Least Developed Countries (LDCs) of the sub-region are concerned, Burundi, Rwanda, Tanzania and Uganda have also developed initiatives as a response to climate change. These member countries have developed their National Adaptation Programmes of Action (NAPAs) as a way to implement climate change agenda. Moreover, they have developed various normative tools on the climate change agenda by adopting various international agreements relevant to climate change including the UNFCCC and Kyoto Protocol.<sup>478</sup>

The Rwanda Environment Management Authority (REMA) is an instance which oversees CDM projects. Uganda has an even more elaborate institutional framework for advancing the climate change agenda. Within their respective normative frameworks, the LDCs are currently implementing a number of CDM projects: Uganda has the lion's share with five- a series of reforestation projects targeting the Nile Basin; Rwanda follows with threes, while Tanzania has one. Burundi has none at the moment. Further, alongside Kenya, Tanzania and Rwanda are participating in the AAP while Uganda is in the process of incorporating climate change in the national education curriculum.<sup>479</sup>

### **3.3.3. Southern Africa Development Community (SADC)**

#### **Background**

The Southern Africa Development Community, here in after called SADC, as intergovernmental organization, was established by the SADC Treaty of 1992. The Treaty came into force in 1993 after the requisite two-thirds of the member states ratified. It seeks to achieve development and economic growth, alleviate poverty, enhance the standard and quality of the people of the people of Southern Africa and support the socially disadvantaged through regional integration. These objectives are to be achieved through increased regional integrating, built on democratic principles and equitable and sustainable development. The SADC member states include Angola,

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<sup>477</sup> James Forole, Supra Note at 419 , P.23

<sup>478</sup> Ibid

<sup>479</sup> Ibid

Botswana, the Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.<sup>480</sup>

### **Climate Outlook of SADC**

The Climatic condition of the SADC region varies spatially from arid in the west through semi-arid and temperate areas in central zones to semi-arid in the east, with a few sub-humid areas in the central region. However, closer to the equator in Angola, DRC and Coastal Tanzania, the climate is largely humid.<sup>481</sup>

The sub-region has been experiencing an increase in temperature, frequent droughts, and downward trend in rainfall in some parts of the sub-region. The extreme climatic events are negatively impacting the inhabitants and economies of the sub-region. The decreased agricultural production exacerbates the food insecurity on the other hand and the economies of the sub-region on the other hand.<sup>482</sup>

Apart from the crop failure, the extreme climate events also resulted in death of cattle herds that ultimately exacerbate the food insecurity.

The climate variability also seriously affects the economic growth of countries in the sub- region and the attainment of MDGs.<sup>483</sup>

### **SADC and Climate Change Agenda**

To-date all the countries in the sub-region have ratified both the UNFCCC and the Kyoto Protocol. All SADC countries except for Angola, have submitted their Initial National Communications (INCs). The Least Developed Countries in the sub-region that have National

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<sup>480</sup> Nyasha E. chischakwe, 2010, Southern Africa Sub-regional Framework on climate change programme Report, p.5, available at [http://www.fes.de/afrika/content/downloads/Final\\_FULL\\_BOOK.pdf](http://www.fes.de/afrika/content/downloads/Final_FULL_BOOK.pdf), Last accessed on 02 August 2012

<sup>481</sup> Nyasha E. chischakwe , Supra Note at 441, P. 10

<sup>482</sup> Ibid

<sup>483</sup> Ibid

Adaptation Programmes of Action (NAPAs) in place are DRC, Lesotho, Madagascar, Malawi, Mozambique, Tanzania and Zambia.<sup>484</sup>

In order to avert the catastrophes of climate change, a number of projects and initiatives on climate change are being implemented in the sub-regional as well as national level. Some of the basic sub- regional intergovernmental programmes on climate change in SADC include the following:

### **The SADC Drought Monitoring Center (DMC)**

The SADC Drought Monitoring center is an institution of SADC comprising of fifteen members which was established in 1989. Since the SADC countries experience recurrent climate extremes mainly by droughts and floods with their negative impact on socio-economic development of member states, the establishment of the DMC has an important role to combat the extreme climatic events of the sub- region in one way or another.

The main objective of the SADC DMC 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 center has played an important role in providing the sub- region with weather and climatic advisories and more importantly, timely early warning on droughts, floods and other extreme climate related events.<sup>485</sup>

### **Southern Africa Regional Climate Outlook Forum (SARCOF)**

This forum 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.<sup>486</sup>

### **SADC Task Force for Monitoring Weather conditions**

This task force 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

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<sup>484</sup> Nyasha E. chischakwe, Supra Note at 441, P.17

<sup>485</sup> Ibid

<sup>486</sup> Id, p.13

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.<sup>487</sup>

### **SADC Regional Early Warning System**

This 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, analyze and disseminate early warning information at country level.<sup>488</sup>

### **SADC Regional Remote Sensing Unit**

The unit is a centre of technical expertise facilitating training programmes and technical support in the field of Remote sensing, Agro-meteorology and GIS in support of early warning for food security, natural resources management and disaster management.<sup>489</sup>

### **SADC Groundwater and Drought Management Project**

The objective of the project is 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 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.<sup>490</sup>

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<sup>487</sup> Nyasha E. chischakwe, Supra Note at 441, P.17

<sup>488</sup> Ibid

<sup>489</sup> Ibid

<sup>490</sup> Ibid

## **PROBEC (Programme for Basic Energy and Conservation)**

The PROBEC (Programme for Basic Energy and Conservation) is a SADC project implemented by the German Agency for Technical Cooperation (GTZ). It is the only SADC project that focuses on energy security and supply for low income households.<sup>491</sup>

PROBEC promotes improved energy solutions through market development and policy support. It aims to ensure that low-income population groups satisfy their energy requirements in a socially and environmentally sustainable manner. It targets thermal energy needs of rural and urban households, as well as small business and institutions using biomass energy (wood fuel, agricultural residues) for thermal processes.<sup>492</sup>

The results of PROBEC interventions undertaken thus far have shown that with a comprehensive package of solutions, it is feasible to attain multiple, long-lasting, environmental, economic and social benefits. Families and small businesses benefit financially from savings, health is improved through minimized indoor air pollution, nationally there are savings of foreign exchange for energy imports, and globally, the use of bio fuels, reduces net emissions of greenhouse gases, as well as optimizing timber and non-timber products.<sup>493</sup>

PROBEC is currently active in Lesotho, Malawi, Mozambique, Tanzania, South Africa, and Zambia and is developing new programmes for Swaziland, Botswana, Democratic Republic of Congo, Angola, Madagascar and Namibia.<sup>494</sup>

There are three components to PROBEC interventions: efficient use of energy devices which aims to improve energy efficiency and resource use for existing household and institutional stoves, as well as developing alternative renewable technology solutions to improve access to basic energy for low income groups. Another component is giving policy advice which aims to cooperate with relevant government departments, ministers and organizations working in energy deficiency, poverty reduction and bio fuel development. Selected activities are developing strategy document, stakeholder lobby, awareness raising and supporting implementation of basic

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<sup>491</sup> Programme for basic Energy and Conservation available at <http://www.enviroopaedia.com>, last accessed on 01 July 2012

<sup>492</sup> Ibid

<sup>493</sup> Ibid

<sup>494</sup> Ibid

energy operational plans with a pro-poor focus. Research into bio fuel is the third component of PROBEC interventions which aims to developing on biomass and bio fuel support social and environmentally sustainable production of bio fuels in line with international consensus, deepen the knowledge on socio-economic aspects of bio fuel production and analyze the pro-poor aspects of bio fuel production in sub-Saharan Africa.<sup>495</sup>

### **SADC Protocol on Forestry**

SADC developed a protocol on Forestry. Article 3 of the protocol is relevant for establishing a legal framework for climate change actions. It states that ‘state parties shall cooperate by: 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 and the like.’<sup>496</sup>

In addition to sub-regional intergovernmental initiatives, civil society driven sub-regional programmes on climate change are developed in the sub-region. Some of the basic civil society driven sub-regional programmes on climate change include the following:

#### **i) Assessments of Impacts and Adaptations to Climate Change (AIACC) project**

The project focuses on linkages between AIACC regional studies and National Communications to the United Nations Framework Convention on Climate Change. Some of the activities include: vulnerability and adaptation assessments; integrated assessments of food security, land use, land cover; Food security, water, land use vulnerabilities and adaptation; Benefit-cost analysis of adaptation responses; Human health, climate change, and adaptive responses; Impacts of climate change on tourism and the coastal/ marine; environment and adaptation strategies.<sup>497</sup>

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<sup>495</sup> Programme for basic Energy and Conservation, Supra note at 491

<sup>496</sup> REVIEW OF THE IMPLEMENTATION OF THE ACTION PLAN OF THE NEPAD ENVIRONMENT INITIATIVE, AMCEN/14/REF/2, available at <http://www.unep.org>, Last accessed on 02 August 2012

<sup>497</sup> Nyasha E. chischakwe, Supra Note at 441, p.18

**ii) Oxfam Australia Programme on Climate Adaptation**

The project focuses on the following activities: providing emergency humanitarian support; helping poor communities adapt to climate change; campaigning for strong global action on climate change helping women cope with climate change. This program is funded by Oxfam Australia; the project has activities in South Africa, Malawi, Mozambique and Zimbabwe.<sup>498</sup>

**iii) International Federation of Red Cross and Red Crescent Societies (IFRC)**

The disaster management programme focuses on: building strong early warning and early action capacities at national and provincial levels; helping national and provincial authorities to improve the national disaster management framework (national disaster response plan) and address issues related to climate change and climate adaptation; community based disaster risk reduction initiatives that will include community preparedness for floods, volcanic eruption and epidemics (cholera); building community resilience to food insecurity will also be a large component of the disaster management program.<sup>499</sup>

**iv) CLIMTRAIN Project- Climate Change Mitigation and Adaptation**

The project focuses on agriculture and rural development eradicating rural poverty in developing countries through: strengthening in house knowledge on climate change issues in the context of rural development; sharing knowledge by developing training materials not only to be used internally, but also disseminated externally to IFAD stakeholders; build new partnerships on climate change with other United Nation's institutions and development actors, as well as reinforcing existing networks. The project is donated by IFAD.<sup>500</sup>

**v) Capacity Development and Knowledge Management- Cap-Net**

Cap-Net is an international network for capacity building in IWRM. It is made up of a partnership of autonomous international, regional and national institutions and networks

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<sup>498</sup> Nyasha E. chischakwe, Supra Note at 441, p.18

<sup>499</sup> International federation of Red Cross and Red Crescent societies, available at <http://www.ifrc.org>, last accessed on 16 September 2012

<sup>500</sup> CLIMTRAIN projects-climate change adaptation and mitigation, available at <http://www.ifad.org/climatetratin/workshops/index.htm>, last accessed on 09 June 2012

committed to capacity building in the water sector. One of its key focus areas is capacity building for climate change adaptation and Hydro climatic disasters.<sup>501</sup>

**vi) Climate Change Mitigation and Adaptation- Southern Africa Project**

The overall objective is to increase the knowledge about climate change and its consequences. The aim is to provide methods for identification of vulnerable sectors in the society, both in a national and an international perspective. The project is donated by SIDA.<sup>502</sup>

National climate change programmes are also implemented to combat the catastrophes of climate change by member countries under the umbrella of SADC member states. Among other things governments of countries in the sub-region being state parties to the UNFCCC and Kyoto Protocol have undertaken certain mandatory activities pursuant to its obligations under the convention. These include participation in the UNFCCC processes-initial communication-GHG inventories; mitigation and adaptation measures; and the development of National Adaptation Programmes of Action.<sup>503</sup>

**3.3.4. Economic Community of Central African States (ECCAS)**

**Background**

The Economic Community of Central African States, here in after called ECCAS was established in 1983 with the framework of the African Economic Community (AEC) and seeks to create a common market for central African states. Angola, Burundi, Cameroon, Central African Republic (CAR), Chad, Democratic Republic of Congo (DRC), Republic of Congo, Equatorial Guinea, Gabon and Sao Tome and Principe are member countries found under the umbrella of the ECCAS.<sup>504</sup>

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<sup>501</sup> Capacity Development and Knowledge management- Cap-Net, available at <http://www.cap-net.org> , last accessed on 09 June 2012

<sup>502</sup> Climate Change Adaptation and Mitigation, available at <http://www.smhi.se/en> , last accessed on 12 July 2012

<sup>503</sup> Nyasha E. chischakwe ,Supra Note at 441

<sup>504</sup> Regional economic Communities in Africa, P.34, available at [http://www.africa-union.org/about\\_au/Abrecs.htm](http://www.africa-union.org/about_au/Abrecs.htm), Last accessed on 16 July 2012

## **Climate Outlook of ECCAS**

The Central African sub- region is a region of contrasts. It spans a number of different climates: Saharan desert in the far north, Savannahs in the north and south, glaciers in the east. As far as ecosystem is concerned, it is the second largest expanse of tropical rainforest in the Congo River Basin.<sup>505</sup>

Similar to other regions of Africa, the countries of Central Africa are understood to be vulnerable to the potential impacts of climate change due to their level of development and dependency on climate sensitive economic activities. Though the impacts of climate change are expected to be less extreme in middle Africa than in other parts of the continent and the region is generally seen as being of relatively lower climate risk, the sub- region is not totally immune from the impacts of climate change so that the sub-region has experienced and also likely to experience agricultural losses, increase in precipitation, sea level rises that lead to coastal flooding, adverse health impacts are expected for central Africa.<sup>506</sup> These demands for the sub- region to take climate change initiatives to tackle the future catastrophes of climate change.

## **ECCAS and the Climate Change Agenda**

The countries of Central Africa are members of several different intergovernmental organizations engaged to varying degrees in collaborative response to climate change. All countries in the sub-region are members of the ECCAS. However, ECCAS is not at present undertaking any specific regional actions on climate change adaptation. Cameroon, CAR, Chad, Republic of Congo, Gabon, Equatorial Guinea, DRC and STP are also members of the Central African Forests Commission (COMIFAC). Composed of participating African countries forestry ministers, COMIFAC coordinates initiatives and actions related to the conservation and sustainable management of the Congo Basin Forests. Through the COMIFAC project, all countries in the sub-region except Angola are participating in research on climate change scenarios for the Congo Basin.<sup>507</sup>

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<sup>505</sup> Alec Crawford and et al;2011, Review of Current and Planned Adaptation Action: middle Africa, International Institute for development available at <http://www.adaptationpartnership.org/> , last accessed on 02 August 2012

<sup>506</sup> Ibid

<sup>507</sup> Ibid

### **a) Climate Change Adaptation**

The Economic Community of Central Africa States (ECCAS) has established a sub- regional center for DRR in the Republic of Congo and is presently developing a sub- regional strategy.<sup>508</sup>

### **b) Regional Observatory Body on Forests**

The Observatory for the Forests of Central Africa (OFAC) is an initiative of multiple members of the Congo Basin Forests Partnership (CBFP) that aims to pool knowledge and available data necessary to monitor the ecological, environmental, and social aspects of Central Africa's forests.<sup>509</sup>

### **c) Other Initiatives**

ECCAS, COMIFAC, NGOs and other organizations with the support from international/ bilateral organizations are carrying out activities on climate change.<sup>510</sup>

Here current regional actions in Central Africa include:

#### **Altering the Climate of Poverty under the Climate Change: the Forests of the Congo Basin**

Cameroon, CAR and the DRC are participating in this project, co-financed by the International Development Research Center (IDRC) and the United Kingdom's Department for International Development (DFID) through the CCAA program. This research and policy formation project aims to underscore the importance of the Congo Basin Forests in climate change adaptation efforts and relies on community participation and perspectives in all three countries to develop appropriate forest management strategies.<sup>511</sup>

Central African countries are also participating in two programs being implemented across Africa. Cameroon, Republic of Congo, Gabon and Sao Tome and Principe are participating in the program, "supporting Integrated and Comprehensive Approaches to climate change adaptation in Africa," or the African Adaptation Program (AAP), a multinational, US\$92.1 million initiative launched in 20 African countries by the Japan International Cooperation

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<sup>508</sup> Review of the Implementation of the Action Plan of NEPAD Environment Initiative, Supra Note at 457

<sup>509</sup> Ibid

<sup>510</sup> Ibid

<sup>511</sup> Id , p.16

Agency in 2008. National Projects under the program are designed to address key vulnerabilities identified in each country's National communications or NAPs.<sup>512</sup>

In Cameroon, the focus is on ensuring that the country has the institutional, individual and systemic capacity to address climate change risks and opportunities and risks through a national approach to adaptation. In the Republic of Congo, the project is working to support integrated and comprehensive approaches to climate change adaptation in the country, with a focus on the health, economy, agriculture, water and energy sectors.<sup>513</sup>

In Gabon, the program is supporting institutional capacity for better adaptation in the country's coastal zones, which were identified in the National communication as the country's key area of vulnerability. Finally, in Sao Tome and Principe, the initiative is focused on capacity building and leadership, with a geographic focus on both the coastal zones and the northern part of the country.<sup>514</sup>

### **Climate Change Scenarios for the Congo Basin**

The project aims to provide national and regional decision makers with climate change scenarios that have been calculated specifically for the Congo Basin, which will enable them to adapt natural resources management strategies to climate change. The project type is research and the focus area is climate information services.<sup>515</sup>

### **Climate proofing Energy Systems: Vulnerability- Adaptation-Resilience**

The objective was to develop a methodology and indicators in order to evaluate the vulnerability of energy systems to climate change and to adapt to climate change.<sup>516</sup>

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<sup>512</sup> Alec Crawford and et al Supra Note at 466, p.16

<sup>513</sup> Ibid

<sup>514</sup> Alec Crawford and et al Supra Note at 466, p.16

<sup>515</sup> Id, p.18

<sup>516</sup> Id, p.19

### **3.3.5. The Intergovernmental Authority on Development (IGAD)**

#### **Background**

The Intergovernmental Authority on Development, here in after called IGAD sub- region comprising the seven countries of Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan and Uganda was initially created as the Intergovernmental Authority on Drought and Development (IGADD) to coordinate the efforts of the member states in combating desertification and promoting efforts to mitigate the effects of drought. In addition to handling desertification and drought issues, the Authority also provided a regular forum for policy and decision makers of the member countries to tackle other emerging regional and international challenges. Realizing this potential, the Heads of States and Governments at an extraordinary summit on 18 April 1995 resolved to revitalize the authority and expand its mandate to cover political and economic issues. Consequently, the Authority was renamed the Intergovernmental Authority on Development in 1996 and the Agreement establishing IGAD was amended accordingly.<sup>517</sup>

#### **Climate change outlook of IGAD**

The sub-region is vulnerable to the catastrophes of climate change mainly because member countries are dependent on rain-fed agriculture and the practice of overgrazing, poor cultivation practices and land fragmentation add to its susceptibility which in its turn negatively affects agricultural production and consequently the GDP of members and thereby make members incapable to adapt and highly vulnerable to the impacts of climate change. The aridness or semi-aridness of the 80% of the sub-region and the fact that all the countries in the sub- region are less developed worsened the situation.<sup>518</sup>

The manifestations of climate change in the IGAD sub-region evidenced that climate change is real in the sub-region. The dramatic disappearance of tropical mountain glaciers cover, such as Mount Kenya, which has been attributed partly to global warming, is one of these evidences.<sup>519</sup>

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<sup>517</sup> Raki Bhavavnani and et al, 2008, Report on the status of Disaster Risk Reduction in the sub Saharan Africa Region, available at <http://www.gfdr.org/gfdr/sites/gfdr.org/files/publication/AFR.pdf>, Last accessed on 12 July 2012

<sup>518</sup> Workshop Report , 2009, Climate Change and Transboundary Water Resource Conflict in Africa, p.77, Mombasa, Kenya

<sup>519</sup> Ibid

There are also frequent occurrences of droughts and floods, and therefore shifts in the grazing patterns of pastoral communities, changes in human settlements and movement, and increasing wild life-human conflict over resources. Floods and droughts associated with extreme climatic events lead to: loss of lives and property, as well as loss of livelihood, resulting from famine; economic losses because of the decrease in hydropower generation and in agricultural production and pastureland for pastoralists; damaged infrastructure, displaced people, increase in vector borne disease and the like.<sup>520</sup>

### **Climate Change Agenda and the IGAD Sub-region**

To avert the catastrophes of climate change, IGAD as a sub-regional intergovernmental organization respond to the climate change in one way or another. In order to do so, IGAD has developed various institutional and normative frameworks as mentioned below:

#### **IGAD Climate Prediction and Application Center (ICPAC)**

The issue of climate change in the IGAD sub- region is handled by the IGAD Climate Prediction and Application Centre (ICPAC).<sup>521</sup> The ICPAC is a specialized institution of the IGAD charged with the responsibility of coordinating all regional climate risk reduction related issues in the sub-region. The mission of ICPAC is to provide climate information, prediction, timely early warning for applications in support of environmental management, disaster risk reduction and sustainable management in the sub-region. ICPAC also supports capacity building and pilot demonstration activities including integration of indigenous knowledge in climate risk reduction activities.<sup>522</sup>

#### **Disaster Risk Management programme**

IGAD has developed a regional strategy to strengthen sub- regional preparedness and response capabilities, which incorporate a regional programme for disaster risk management. The program aims at disaster mitigation through capacity development and enhancement. Specific objectives include: i) facilitating the development and effective implementation of policy and legislative policy frameworks and program interventions among member states; ii) strengthening

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<sup>520</sup> Climate change and trans boundary water resource conflicts, Supra Note at, P.78

<sup>521</sup> Raki Bhavavnani, Supra Note at 478, P.20

<sup>522</sup> Ibid

community participation in disaster issues; iii) establishing a sub-regional mechanism; and iv) promoting international cooperation. IGAD is also planning to facilitate capacity building of national governments for DRR in line with the HFA priorities and has developed a manual for training in DRR with the support of UNISDR.<sup>523</sup>

#### **A. Global Water Partnership**

The Global Water Partnership (GWP) has its sub- regional head quarters in Uganda and its function is to establish a working partnership stakeholders involved in water management , that is, government agencies, public institutions, private companies, professional organizations, multilateral development agencies and others committed to the Dublin- Rio principles. Within East Africa, it helps in getting solutions for specific water related challenges in the particular countries. Among its linkages is: Eritrea water partnership, Ethiopia water partnership, Kenya water partnership, Sudan water partnership, Uganda water partnership, and Burundi water partnership.<sup>524</sup>

#### **B. Horn of Africa Regional Environment Centre and Network (HOAREC/N)**

HOAREC/N is an initiative of the science faculty of the Addis Ababa University.<sup>525</sup>The HOA-REC (the Horn of Africa Regional Environment Centre) serves as the secretariat for the Horn of Africa Regional Environment Network (HOA-REN) and as the facilitator of cooperation between member organizations and other environmental actors, including private sector and government. Horn of Africa Regional Environment Network (HOA-REN) is a network of members and partners consisting of environmental CBOs, NGOs, and higher learning institutions from six countries in the Horn of Africa. Members of the network are endogenous civil society organizations and higher learning and research institutes. Partners of the network consist mainly of non-endogenous (international organizations) working on environmental issues in the sub-region.<sup>526</sup>

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<sup>523</sup> Raki Bhavavnani, Supra Note at 478, P.20

<sup>524</sup> Review of the Implementation of NEPAD Environment Initiative Action Plan Supra Note at 457

<sup>525</sup> Ibid

<sup>526</sup> Horn of Africa Regional Environment Centre and Network, <http://www.hoarec.org/> , last accessed on 23 August 2012

### **C. Weather Information For All (WIFA)**

This sub-regional project focuses on evaluating the impact of new weather and climate services for fisheries and farmers in the Lake Victoria region of Kenya, Tanzania and Uganda.

### **D. The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA)**

The ASARECA is a sub- regional not- for association established in 1994 by ten member countries represented by their national agricultural research for development institutes. The ten member countries are: Burundi, Democratic Republic of Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania, and Uganda. Now South Sudan joined the ASARECA family, making the number of members to eleven.<sup>527</sup> This organization is implementing actions aimed at predicting climate change induced vulnerability of African Agricultural systems to major insect pests through advanced insect phenology modeling, and decision aid development and testing of strategies to reduce climate vulnerability of poor farm households in East Africa through innovations in potato and sweet potato technologies and enabling policies, (ILRI), mapping climate vulnerability and poverty in Africa.<sup>528</sup>

At the national level, member states of IGAD respond in various ways to avert the catastrophes of climate change in one way or another. Ethiopia for instance has developed climate initiatives and programmes under the umbrella of IGAD. Some of the initiatives include,

- **Climate Change Research Group-** the climate change Research Group was established within the environmental science department of Addis Ababa University. Its role is to monitor long term patterns of extreme climatic events.
- **Integrating Climate change Adaptation into Policies**

A consortium of Wageningen UR partners, in which the wageningen UR center for Development Innovation (CDI) takes part, is contributing towards the mainstreaming of climate change adaptation into the sustainable development agenda of Ethiopia. It focuses on the capacities and

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<sup>527</sup> Horn of Africa Regional Environment Centre and Network, Supra Note at 487

<sup>528</sup> Review of the Implementation of NEPAD Environment Initiative, Supra Note at 457

knowledge that are required need to better integrate climate change adaptation responses into policy processes of agriculture, rural development and natural resources management.<sup>529</sup>

Other initiatives on Climate change adaptation include the national adaption program implemented by Ethiopia. Ethiopia has implemented several projects aimed at addressing the impacts of climate change. These projects are implemented in the agriculture, water and human health sector; and focus on soil and water conservation, fertility improvement, food control, income generation, institutional strengthening and capacity building, improving animal genotype and health. Some of the projects contained community- oriented components and or activities that offer success stories.<sup>530</sup>

### **3.3.6. Economic Community of West African States (ECOWAS)**

#### **Background**

The Economic Community of West African States, here in after called ECOWAS was established in 1975 by the Treaty of Lagos (the Treaty of ECOWAS) to promote cooperation and achieve market integration. It has 15 members: Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. Its main objective is to promote regional economic cooperation and meet new developmental challenges.<sup>531</sup>

#### **Climate Change Outlook of ECOWAS**

Climate change is also a concern for West Africa. The sub-region is among the most vulnerable sub- regions to the climate change due to its climate characteristics and socio-economic situation. Climate change hence brings numerous challenges to development objectives of the sub- region including food security, poverty reduction and environmental sustainability. West African governments have started developing strategies for climate change adaptation and mitigation

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<sup>529</sup> Review of the Implementation of NEPAD Environment Initiative, Supra Note at 457

<sup>530</sup> Ibid

<sup>531</sup> Regional Economic communities in Africa, Supra Note at 452

evidenced by the emergence of a wide range of climate change programmes and projects at the sub-regional and national level.<sup>532</sup>

## **ECOWAS and the Climate Change Agenda**

To avert the catastrophes of climate change in the sub- region which have been experienced and are likely to experience, ECOWAS has responded in various ways by implementing several climate change initiatives, programs and policies. Some of the basic responses include the following:

### **A. ECOWAS DRR Policy**

The ECOWAS in early 2007 approved a sub- regional common policy and mechanism for DRR. ECOWAS is starting to address DRR, focusing on strategy, policy and development of legal frameworks. A sub- regional Action Programme to combat Desertification in West Africa and Chad contains guidelines for desertification control policies, strategies and actions at the sub-regional and national levels. The community has also developed a sub- regional common Agriculture policy and a sub-regional program for food security. Using these programs as a base, ECOWAS has developed a sub- regional policy for DRR which was approved by its summit in February 2007 and is now preparing to develop an implementation program.<sup>533</sup>

### **B. The Interdisciplinary and Participatory Research on the West African Ecosystems, Climate, and Societies Programme (RIPECSA)**

The RIPECSA project is a “*priority solidarity fund*” financed by the French ministry of foreign affairs. A founding workshop took place in Bamako from 4-6 February 2007. The purpose of this project is to develop a scientific foundation for policies on adaptation to climate change that may be accepted by governments and societies. It, therefore, aims to establish relations between scientists, political decision-makers and the people. It mainly includes two types of projects: projects known as targeted projects, which aim to strengthen the data base and monitoring system established by African Monsoon Multidisciplinary Analysis (AMMA) in order to better study climate variability and projects for which tenders will be made focusing on specific aspects

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<sup>532</sup> Rocio Heraldo, 2011, Climate change in West Africa: Key issues, Dakar, Senegal available at [http://www.southernvoices.net/.../CLIMATE\\_CHANGE\\_IN\\_WEST\\_AFRICA.pdf](http://www.southernvoices.net/.../CLIMATE_CHANGE_IN_WEST_AFRICA.pdf), accessed on 27 June 2012

<sup>533</sup> Report on the status of Disaster Risk Reduction in the sub Saharan Africa region, Supra Note at 465

linked to impacts of an adaptation to climate change. The projects are implemented by the IRD with support from cnrs-Insu and meteo France.<sup>534</sup>

### **C. CLIMAG West Africa**

This project is a network for the harmonization of climate forecasts to mitigate the impacts of global changes in the Sudano- Sahelian area of West Africa. Its objective is to contribute to the optimization and harmonization of efforts to reduce food insecurity and agro ecosystem vulnerability due to the interacting impacts of global climate change, resource degradation and seasonal climate fluctuations in the Sudano Sahelian area of West Africa.<sup>535</sup>

Climate change initiatives are also undertaken at the national level. One of the prominent achievements is that of Ghana. Some of the initiatives of Ghana include the following:

### **D. Netherlands Climate Change Assistance Programme (NCCAP)**

The emphasis of this programme is on studies in the area of adaptation, with a specific focus on examining the linkages between poverty and climate change and the consequences of climate change on the livelihood systems of poor communities. The ultimate objective is to formulate climate change policies that are consistent with the Ghana poverty reduction strategy, thus facilitating the main streaming of these policies into the district as well as national development plans.<sup>536</sup>

### **E. Climate change Adaptation Framework**

The Government of Ghana is putting in place a national climate change adaptation framework aimed at: strengthening the national resilience to disasters, and establishing proactive and effective risk reduction measures. However, national efforts have mainly concentrated on disaster and emergency responses.<sup>537</sup>

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<sup>534</sup> Report on the existing institutional Framework in relation to climate change in west and Central Africa, Climate change Adaptation in Africa, Dakar, 2007, p.29, available at <http://www.idl-bnc.idrc.ca/dspace/bitstream/10625/36418/1/127681.pdf>, Last accessed on 23 August 2012

<sup>535</sup> Report on the existing institutional Framework in relation to climate change in west and Central Africa, Supra Note at 495

<sup>536</sup> Review on the Implementation of the NEPAD Environment Action plan Supra Note at 457

<sup>537</sup> Ibid

## **F. Hyogo Framework of Action**

Ghana has reported progress under the United Nations Hyogo Framework of Action. Some of the achievements include: Launching of national platform and regional platforms to assist coordination of DRR at sector level; review of national policy on DRR; Development of tools and training for mainstreaming DRR into national and district development plans; building guidelines for flood prone areas; country wide hazard mapping; review of the National contingency plan; Strengthened national capacity to coordinate emergency response; development of District Disaster management plans; public awareness and advocacy campaigns; and Assessment of current knowledge of DRR into curricula.<sup>538</sup>

UNDP and UNHABITAT- UNDP in collaboration with UNHABITAT and “Housing the Masses” (NGO) developed a model for sustainable low-income housing for water and fire related Disaster prone areas.<sup>539</sup>

### **3.3.7. Common Market for Eastern and Southern Africa (COMESA)**

#### **Background**

The Common Market for Eastern Southern Africa (COMESA) was established in 1994 being the successor to the preferential Trade Area (PTA) for Eastern and Southern Africa established in 1981. It has 21 members: Angola, Burundi, Comoros, the DRC, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya, Madagascar, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia, and Zimbabwe.<sup>540</sup>

The mandate of COMESA is to create a fully integrated and internationally competitive REC in which people enjoy high and rising standards of living, peace, political and social stability and in which goods, services, capital and labor move freely across borders.<sup>541</sup> It is the largest Regional Economic Community in Africa.

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<sup>538</sup> Review on the Implementation of the NEPAD Environment Action plan Supra Note at 457

<sup>539</sup> Ibid

<sup>540</sup> Regional Economic Communities in Africa, p.30 Supra Note at 452

<sup>541</sup> Ibid

## **Climate Change Outlook of COMESA**

Both the East African region and the Southern African region demonstrate evidences of climate change though there is spatial and temporal variation among member countries under the umbrella of the sub- region. Greater warming due to an increase in temperature, rainfall patterns vary significantly, both spatially and temporally in the sub- region, frequency, intensity and severity of droughts have increased, particularly in the East Africa sub-region is manifested.

In the sub- region of East and Southern Africa, the potential effects of climate change will be compounded by the sub- region's high poverty levels, weak infrastructure, poor natural resources management and dependence on rain fed agriculture.<sup>542</sup>

As a result of climate change, the region could see net reductions of more than ten per cent in the production of maize and other major crops such as Sorghum, Millet, Sugar Cane and Wheat. In addition, water related problems, already serious in the region, are likely to worsen as a result of climate change in the sub- region. Intense rainfall events will increase the incidence of flooding in many areas. At the same time, reduced run-off will exacerbate water stress and reduce the quality and quantity of water available for domestic and crop and livestock use. Experts predict that Southern Africa will become drier, and that rainfall will increase in parts of East Africa. Drought prone areas of Botswana, Ethiopia, the Sudan, and Zimbabwe are likely to become more humid areas of the United Republic of Tanzania or Zambia.<sup>543</sup>

There are already signs that drought is becoming more common and more prolonged in the dry lands of Southern Africa, and drought incidence is expected to increase as a result of higher temperature and reduced rainfall.<sup>544</sup>

## **COMESA and the Climate Change Agenda**

Climate change is a major threat to sustainable growth and development and the Millennium Development Goals (MDGs) of Africa in general and COMESA in particular. To tackle the climate change catastrophes and to attain the level of growth and development and the realization

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<sup>542</sup> Addressing Climate change in East and Southern Africa, 2011, IFAD, available at <http://www.ifad.org/climate/> , last accessed on 21 July 2012

<sup>543</sup> Ibid

<sup>544</sup> Ibid

of the MDGs, COMESA being a building bloc of the AU and in a response to a call by the AU for the integration of climate change adaptation into national and sub- regional development policies and programmes, has developed a Comprehensive Climate Change 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 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).<sup>545</sup>

The overarching goal of the COMESA climate initiative is to attribute to the establishment of sustainable landscapes and livelihoods, including adaptation and mitigation to climate change. the specific objectives of the initiative are to assist decision makers, project developers and managers with the mechanisms to measure and monitor carbon sequestration, other greenhouse gases, and related co-benefits for LULUCF projects in different landscaped ( the measurement and monitoring tools being available also more general use in landscape management); identify “better practices” for sustainable land management, LULUCF activities, and related livelihood strategies in different landscapes; identify land use options that can better achieve human development and sustainability goals, while also assisting stakeholders to better understanding the tradeoffs involved in decisions concerning climate agriculture, land use and livelihoods; Find finance from donor resources and develop the private sector carbon market for land use and land use change projects in East and Southern Africa.<sup>546</sup>

The climate Initiative is divided in two parts; the first directed to Frameworks and tools and the second to Applications and learning.<sup>547</sup>

The Frameworks and Tools arm of the project will include components on measuring and monitoring, best practices, institutions and policies. The measuring and monitoring component will resolve existing difficulties associated with measuring carbon sequestration in agro forestry systems-including sequestration in vegetation and soils- and with monitoring sequestration over the long term. A best practices tool box will bring together in an easily accessible format existing

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<sup>545</sup> COMESA Climate Initiative, available at <http://www.programmes.comes.int/index>, last accessed on 24 August 2012

<sup>546</sup> Ibid

<sup>547</sup> Ibid

knowledge and experience about agro forestry and other sustainable livelihoods that support climate change mitigation and adaptation. This arm is already substantially financed through the Global Environmental Facility (GEF) and World Bank.<sup>548</sup>

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 Group for climate, Agriculture, Forests, 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; financial instruments components that will support the establishment of an African carbon fund to invest in carbon credits for LULUCF activities; and a learning and outreach strategy.<sup>549</sup>

The COMESA Climate Initiative is put forward as an integral part of CAADP, whose purpose is to extend the area under sustainable land management and reliable water control systems, focusing on soil fertility, the moisture-holding capacity of soils, and an extension of the area under (small scale) irrigation in order to raise output on a sustainable basis and contribute to the reliability of food supplies.<sup>550</sup>

The TerrAfrica process represents an important complement and support to CAADP. It was launched by the Global Environment Facility (GEF) and World Bank to support and strengthen the implementation of the UNCCD, CAADP and the NEPAD Action Plan for the Environment. Its mission is to restore soil fertility in a large part of the African continent, helping boost food security, increase farm incomes, maintain ecosystem services, and engage local communities in better managing their lands.<sup>551</sup>

COMESA, for its part, has developed partnership arrangements with the world Agro forestry center (ICRAF) and worldwide Fund for Nature (WWF) to support its work related to CAADP. Many international conservation and development organizations have designed new projects and

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<sup>548</sup> COMESA Climate Initiative, Supra Note at 506

<sup>549</sup> Ibid

<sup>550</sup> Ibid

<sup>551</sup> Ibid

launched major new initiatives to address issues of biodiversity loss, deforestation, land degradation, agricultural productivity and climate change.<sup>552</sup>

### **COMESA-EAC-SADC**

The programme on climate change Adaptation in the COMESA-EAC-SADC region is a five year initiative that started in 2010 that aims to inject Africa's unified position on climate change into the post 2012 United Nations Framework Convention on Climate Change (UNFCCC) global agreement so as to unlock resources for promoting strategic interventions that sustain productivity and livelihood improvements for millions of climate vulnerable people in the sub-region. The programme is linked to the AU-NEPAD climate change Adaptation-mitigation framework and its investment platform for climate smart Agriculture.<sup>553</sup>

In the COMESA-EAC-SADC region, climate change effects include increased frequency of extreme weather events, flooding, storms, and droughts.<sup>554</sup>

Vulnerability to climate change is considered to be highest in the ESA region due to social, economic and environmental conditions that amplify susceptibility to negative impacts and contribute to low capacity to cope with and adapt to climate hazards.<sup>555</sup>

The three RECS have identified primary actions with regard to “forest systems” to maximize carbon benefits, to mitigate climate change, to reduce the region's vulnerability to climate change, to safeguard agricultural and economic productivity, and to improve livelihoods and reduce poverty. These actions are in fact interdependent and fundamentally inseparable. Addressing the linkages between Agriculture, Forest, and Land Use (AFOLU) and Reduced Emissions from Deforestation and Degradation (REDD) is being advanced under the African climate solution.<sup>556</sup>

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<sup>552</sup> Programme on climate change Adaptation and mitigation in the Eastern and Southern Africa (COMESA-EAC-SADC) region, 2011, available at <http://www.gcca.eu>, last accessed on 09 August 2012

<sup>553</sup> Ibid

<sup>554</sup> Ibid

<sup>555</sup> Ibid

<sup>556</sup> Ibid

The programme's overall objective is: "impacts of climate change in the COMESA-EAC-SADC region are addressed through successful adaptation and mitigation actions which also build economic and social resilience for present and future generations."<sup>557</sup>

The programme purpose is "COMESA-EAC-SADC" member states enabled to increase investments in climate resilient and carbon efficient agriculture and its linkages to forestry, land use and energy practices by 2016."<sup>558</sup>

The specific objectives of the programme are: to contribute to the adoption of key elements of the African climate solution and mainstreaming of climate solutions and mainstreaming of climate change in national planning; to support member states to access adaptation funds and other climate changes financing sources and mechanisms through national investment frameworks for climate adaptation in agriculture, forestry and other land uses; to enhance adoption of climate smart conservation Agriculture in COMESA-EAC-SADC region; to strengthen capacity in national research and training institutions and implementation of research programs; to implement climate vulnerability assessments and analysis; to apply mitigation solutions in the COMESA-EAC-SADC region with carbon trading benefits; to establish a regional catalytic facility to support investments in national climate smart agricultural programs.<sup>559</sup>

COMESA, SADC and EAC are among the eight building blocs recognized by the African Union and constitute a joint membership of half of the African countries and have 51 percent of the total African countries and have 51 percent of the total African population. Their decision to work together on important issues such as climate change therefore speaks volumes.<sup>560</sup>

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<sup>557</sup> COMESA Climate Initiative, Supra Note at 506

<sup>558</sup> Ibid

<sup>559</sup> Ibid

<sup>560</sup> Ibid

### **3.3.8. The Community of Sahel-Saharan States (CEN-SAD)**

#### **Background**

The Community of Sahel- Saharan states, CEN-SAD was created by Treaty on February 1998. Since 2008 it has brought together twenty eight member countries from North, West, Central and East Africa.<sup>561</sup>

#### **Climate Outlook of the CEN-SAD**

The Community of Sahel-Saharan is severely hit by the impacts of climate change. Inter-annual rainfall variability dominantly in a reduction amount of rainfall with recent drying is becoming a feature of the climate of the CEN-SAD sub-region which in its turn affects the livelihood of the inhabitants.

The Africa Sahel, situated at the southern fringe of the Sahara desert and stretching from the West African Coast to the East African highlands is particularly prone to drought. Droughts have particularly affected the Sahel since the end of the 1960s.<sup>562</sup>

Atmospheric dust is a major element of the Saharan and Sahelian environments. The Sahara is the world's largest source of airborne mineral dust. Human impacts like overgrazing and deforestation are contributing factors to the increase in dust storms. Atmospheric dust, in the form of dust and sand storms, can have negative impacts on agriculture, infrastructure and health in Saharan and Sahelian environments.

#### **Climate Change Agenda and the CEN-SAD**

To address the impacts of climate change in the community of the Sahel and Saharan sub-region, a number of initiatives are undertaken unilaterally and in cooperation with a number of organizations. These initiatives include the following:

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<sup>561</sup> Wafa Essahli, the Role and experiences of CEN-SAD in managing Climate change and transboundary water resource conflicts in the CEN-SAD region, p.89, available at <http://www.hawk.ethz.ch/serviceengine/Files/.../30+September+2009.pdf>, Last accessed on 13 July 2012

<sup>562</sup> Gordon Conway, Supra Note at 71

## **The Green Wall Sahara Initiative**

The Green Wall Sahara Initiative was initiated by the African union (AU) in collaboration with ECA, FAO, UNEP, UNCCD, CEN-SAD and OSS. The program stretches from Mauritania to Djibouti, covering all the countries in the Africa Sahara region. The programme aims to slow the advance of the Saharan Desert, to enhance sustainability, and control land degradation, promote integrated natural resources management, conserve biological diversity, and contribute to poverty reduction and job creation.<sup>563</sup>

## **Permanent Interstate Committee for Drought Control in the Sahel (CILSS)**

CILSS was originally founded in 1973 by nine countries in the Sahelian belt (Burkina Faso, Cape Verde, Chad, The Gambia, Guinea Bissau, Mali, Mauritania, Niger, and Senegal) to combat desertification in the Sahel with a strong focus on food security. Its mandate is to seek food security and fight drought and desertification, to achieve a new ecological balance in the Sahel. CILSS includes six major programmes focusing on: food security policies and strategies, policies and strategies on natural resource management and controlling desertification, agro-hydro-meteorological information, and training on the foregoing topics, agro-socio-economic research and population development research.<sup>564</sup>

CILSS has a strategic framework on sustainable food security in the Sahel, which it adopted in 2002, and a sub- regional action programme to control desertification in West Africa and Chad. CILSS has two affiliated institutions: AGRHYMET, based in Niamey, and the Sahel Institute (INSAH). CILSS is a member with observer status of the conventions on the fight against desertification and climate change. It recognizes the food security risks posed by climate change.<sup>565</sup>

## **Sahel and West Africa Club (SWAC)**

The Sahel Club was founded in 1976 by the OECD. It initially included the Sahelian countries but later was extended in 2001 to cover all of the countries in the sub-region, plus Chad and

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<sup>563</sup> AU/NEPAD background paper on Africa and Climate change, Supra Note at 385

<sup>564</sup> Report on the Existing Institutional Framework in relation to climate change in West and Central Africa, Supra Note at 482, P.16

<sup>565</sup> Ibid

Cameroon, thereby growing to a total of 17 countries taking the name of Sahel and West Africa Club. It serves as a bridge between the Countries of the sub-region and the OECD.<sup>566</sup>

### **The Sahara and Sahel Observatory (OSS)**

OSS is an independent international organization founded in 1992. Its members include nine west and central Africa countries: Burkina Faso, Cape Verde, Chad, The Gambia, Guinea Bissau, Mali, Mauritania, Niger and Senegal as well as two sub- regional organizations: CILSS and CEN-SAD. Its original mission was to serve as a platform for North-South-South cooperation to combat desertification and poverty in Africa. In order to achieve this, it is intended to implement Agenda 21 and the Convention to combat desertification. OSS's strategy for 2010 extended its areas of interest to include NEPAD, the Johannesburg plan of action and the other international environmental convention. In this framework, OSS has developed, as part of its scientific and technical focus and its environmental monitoring programme, a component on "climate change, drought and desertification" that will act on two levels: assessing ecosystem vulnerability to the impacts of climate change, and adaptation to climate change. Over the medium term, plans have also been made to develop drought early warning systems and climate modeling. The organization has acquired experience in joint management of shared aquifers and ecological monitoring systems through ROSELT (Long Term Ecological Monitoring Observatories Network; especially in Mali and Niger). More generally, OSS intends to develop an African space for research and development, particularly on desertification issues, in order to integrate scientific experiences into development activities.<sup>567</sup>

### **3.3.9. The Arab Maghreb Union (UMA)**

#### **Background**

The Arab Maghreb Union is a sub- regional intergovernmental union of the five Maghreb countries in Northern Africa: Algeria, Libya, Mauritania, Morocco and Tunisia, which was created in 1989 in Marrakesh (Morocco).

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<sup>566</sup> Report on the Existing Institutional Framework in relation to climate change in West and Central Africa, Supra Note at 482, P.16

<sup>567</sup> Ibid

## **Climate Outlook of the UMA Sub-region**

The Maghreb sub- region, the environmental resources of which already show signs of severe degradation, is yet to experience more intensely the adverse impacts of climate change. It is probably one of the hardest hit areas in terms of food insecurity, water stress, and extreme climate events such as floods and droughts. Reports of the World Bank and UNEP shows that the sub-region is highly vulnerable to rising sea levels and the sub- region is highly vulnerable to rising sea levels and the sub-region is highly hit by migratory pressures and social unrest due to degradation of natural resources and natural disasters.<sup>568</sup>

## **UMA and Climate Change Agenda**

To avert the catastrophes of the aforementioned impacts of climate change, the UMA as a regional intergovernmental union responds in various ways.

At the international level, the Maghreb countries are actively involved in the implementation of the United Nations Framework Convention on Climate Change (UNFCCC). The COP7 meeting in Marrakech in 2001, and the role played by the African Group led by the African Group led by Algeria from 2008 through 2010 bear witness to these countries' strong commitment to the international negotiation process on climate. Experts from the Maghreb are increasingly involved in the work of the Intergovernmental Group of Experts on Climate Evaluation (GIEC).<sup>569</sup>

At the regional level, the Arab Maghreb Union is particularly keen on addressing climate issues in view of the vulnerability of the region. It has updated its regional desertification control program adopted in 1999, which now includes the climate dimension. The standing Maghreb Committee is also discussing desertification and sustainable development issues with a view to formulating a Maghreb strategy for adaptation to climate change, as recommended in 2009 by the UMA ministerial commission in charge of food security.<sup>570</sup>

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<sup>568</sup> Review of a regional Action and Cooperation Framework to Build capacities for Adaptation to climate change in the Maghreb; 2011, Rabat, Morocco, p.1, available at <http://www.uneca-an.org/francais/seminaires/ccAidememoireENG.pdf>, Last accessed on 15 August 2012

<sup>569</sup> Review of a regional Action and Cooperation Framework to Build capacities for Adaptation to climate change in the Maghreb, supra Note at 529

<sup>570</sup> Wafa Essahli, Supra Note at 522

At the national level, countries have intensified their efforts to mainstream climate concerns in their development policies and programs. National strategies/ plans aiming to combat climate change are already available or under preparation in most countries. Sector wise, significant efforts have been deployed in adapting key sectors such as agriculture, tourism, coastal management, water management, energy, industry and health. Such policies are built on profound institutional, regulatory and financial reforms.<sup>571</sup>

Sub-regional achievements include the following:

#### **A. Integrated Watershed Management**

With the support of UNEP and GEF, Tunisia, Morocco, and Algeria developed a regional project on ‘integrated watershed management in North Africa in light of climatic changes’.<sup>572</sup>

#### **B. Adapting to the Impacts of Climate Change in the Agricultural Sector**

The International Fund for Agricultural Development (IFAD) is implementing a project that focuses on combating salinity in North Africa. The project is encouraging crop and livestock diversification to strengthen farmers’ resilience to the effects of climate change. It is also promoting the sustainable management of marginal land by introducing innovative technologies such as high yielding forage plants that are better adapted to saline and marginal environmental conditions.<sup>573</sup>

#### **C. Other Initiatives**

North African countries have set up programs and projects in the domain of climate change, starting with the elaboration of national communications, the choice of adaptation options, evaluation of the vulnerability of coastal zones to climate change, and the implementation of projects aimed to reinforce capacities for combating climate change.<sup>574</sup>

At the national level also countries in the North Africa play a significant role in designing projects for combating climate change. This is particularly shown in Tunisia and Morocco. The

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<sup>571</sup> Review of the Implementation of the Action Plan of the NEPAD Environment Initiative, Supra Note at 475

<sup>572</sup> Ibid

<sup>573</sup> Ibid

<sup>574</sup> Wafa Essahli, Supra Note at 522

UNEP and GEF launched project TUN in 2002 that focuses on studies aimed at addressing new water and soil vulnerability in Tunisia.<sup>575</sup>

Morocco also plays a role in combating climate change. In 2003, Morocco began a project with UNEP focusing on the rise in the sea level along the Moroccan coastline and its relationship to climate change. As far as Ecosystem protection in Morocco is concerned, IFAD is supporting a project aimed at increasing incomes and improves the living conditions of the poor rural people in the country's Eastern region. The project has strengthened the capacity of grass-roots organizations to adopt participatory approaches to identify and manager investment opportunities in animal production systems, to create linkages with potential markets and to diversify income generating activities by improving access to technical, commercial and financial services.<sup>576</sup>

A grant from the GEF supported the introduction of technologies that increase the levels of organic matter in the soil and improves the carbon storage and water retention of soils. It also strengthened the capacity of local users of natural resources to adapt to the effects of climate change by developing early warning coping strategies for drought and diversifying income generating activities.<sup>577</sup>

### **The Relationship between the African Union and RECs in Combating Change**

As mentioned earlier, it was in January 2007 that the Assembly of the AU called upon AU Member states to integrate climate change considerations into their national development policies, strategies and programs. Accordingly, various normative and institutional frameworks are developed at the sub- regional, regional and national levels to respond to the catastrophes of climate change.

The AU has recognized the need to encourage its member states to become state parties to the UNFCCC and the Kyoto Protocol in order for the AU to effectively negotiate in future rounds of

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<sup>575</sup> Report on the Existing Institutional Framework in relation to climate change in West and Central Africa, Supra Note at 482, P.17

<sup>576</sup> Ibid

<sup>577</sup> Ibid

negotiations in its own right. Since August 2007, almost all African states have already become parties to the UNFCCC and the Kyoto Protocol.<sup>578</sup>

The negotiation team composed of a Conference of African Heads of State on Climate Change comprising Algeria, Republic of Congo, Ethiopia, Mauritius, Mozambique, Nigeria and Uganda; and a team of negotiators/ experts on climate change from all member states who are country parties is also established for the negotiation process of UNFCCC and Kyoto Protocol.<sup>579</sup>

As far as the relationship between the African Union and RECs is concerned, it was at the Maputo summit in 2003 that the AU Commission was requested to accelerate the preparation of a new draft Protocol on Relations between the African Union and RECs. At the July 2007 Accra summit, the AU Assembly adopted a Protocol on Relations between the AU and the RECs.<sup>580</sup>

However, the draft Protocol on Relations between the AU and RECs is vague on the relationship, only pointing out that RECs should ensure that their international engagements are in harmony with the harmonized policies and programmes between the two tiers of continental governance.<sup>581</sup>

Here, RECs recognize and accept the principle of subsidiarity<sup>582</sup> in their relationship with the AU, but there is less clarity on its application in practical terms.<sup>583</sup>

The official AU position is that the RECs are the building blocs for continental integration. The Protocol on relations sought to enable RECs to establish ‘an organic link with the union’ in order to strengthen relations, to harmonize policy positions. It makes provision for RECs to make proposals on modalities and policy issues through the AU Specialized Technical Committee. In line with the systems theory of decision making, RECs are seen as a constituent part of the whole, whose duty is to allocate values to parts in order for multiple actors to contribute to policy

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<sup>578</sup> Moller Bjorn, 2009, Africa’s sub-regional organizations: seamless web or patchwork?, crisis states working paper(series 2), Copenhagen: Danish Institute of International Studies, available at <http://www.crisisstates.com>, p.18, last accessed on 05 July 2012

<sup>579</sup> Ibid

<sup>580</sup> Ibid

<sup>581</sup> Wafa Essahli, Supra Note at 522

<sup>582</sup> The principle of subsidiarity provides that decisions must always be taken at the lowest possible administrative and political level, and as close to the citizens as possible.

<sup>583</sup> Wafa Essahli, Supra Note at 522

decisions and, therefore, the outcomes. But there is no effective interface between the AU Commission and the RECs, and the RECs only have an observer in the AU.<sup>584</sup>

It is this lack of clarity between RECs and the AU that makes them to conduct international relations separately and often in competition with each other which in its turn among other things brought about divergent interests and weak level of coordination.

This lack of clear relationship is not a problem in the European Union, here in after called EU. EU possesses a legal personality that is separate from the legal personalities of its member states. As a distinct legal institution, the EU possesses the competence to adopt supranational rules and enter into international agreements with binding effect on its member states.<sup>585</sup>

The EU and its member states have ratified and/ or approved both the UNFCCC and the Kyoto Protocol, and thus, are legally bound to meet specific international climate change obligations. In the context of climate change, the EU formally shares competence with the member states. Consequently, during the negotiations for the UNFCCC and the Kyoto Protocol, the EU negotiated on behalf of its member states. For the purpose of the Kyoto Protocol, the EU operates in partnership as a ‘bubble’.<sup>586</sup>

Each EU-15 nation has also independently ratified or accepted the Kyoto Protocol. Thus, the EU-15 states have legal obligations under the Kyoto Protocol both as members of the EU ‘bubble’ and as sovereign states parties to the Treaty.<sup>587</sup>

Within the EU Kyoto ‘bubble’, the ‘burden sharing’ agreement determines that each of the EU-15 member states is allocated a quantified emission limitation and reduction commitment, based on historical contribution to greenhouses gas emissions and national capacity to reduce emissions.<sup>588</sup>

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<sup>584</sup> Cinnamon Pinon Carlarne, 2010, climate change Law and Policy, EU and US Approaches, oxford University press, p. 158

<sup>585</sup> Ibid

<sup>586</sup> Id , P.159

<sup>587</sup> Cinnamon Pinon Carlarne P.162, Supra Note at 532

<sup>588</sup> Id at 160

Beyond these commitments, member states individually determine how they will meet their assigned emissions reduction obligations. Member states within the EU ‘bubble’, as sovereign states are free to establish more ambitious reduction goals.<sup>589</sup>

The EU and its member states, thus, share emission reduction targets under the Kyoto Protocol. Beyond this more general target, however, the EU and the EU-15 member states work collectively and independently to establish climate change law and policies.<sup>590</sup>

### **3.4. Challenges and Prospects of the African Union and Sub- regional Intergovernmental Organizations in Combating Climate Change**

#### **3.4.1. Challenges of the African Union and Sub- regional Intergovernmental Organizations in Combating Climate Change**

**The existence of various policy gaps at the national and sub-regional levels, a major one being the sluggishness in mainstreaming climate change into all development sectors**

In many African countries, a climate policy is non-existent or still in the making. In other words, an integrated development climate policy framework which incorporates development and climate policy is inexistent.<sup>591</sup> Lack of capacity for integrating climate issues into development planning and implementation is one of the main obstacles to integrating climate science in development activities in Africa. This may include the lack of capacity to respond to climate information, reluctance to incorporate climate variability in management practices, inability to relevant national agricultural research reports and lack of appropriate institutions.<sup>592</sup> Another obstacle is the lack of institutional arrangements to facilitate the generation, analysis and systematic integration of relevant climate information with other pertinent information in a form that planning and operational agencies can use. Furthermore, lack of relevant and reliable climate and socio-economic data is also an obstacle to integrating climate science into development activities in Africa as the quantity and quality of climate information provided by African

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<sup>589</sup> AMCEN, Supra Note at 18, P.201

<sup>590</sup> Ibid

<sup>591</sup> Ibid

<sup>592</sup> UNECA, African Climate Policy centre(ACPC),2011, climate science, Information, and services in Africa: Status, Gaps and Policy implication, available at <http://www.uneca.org/acpc/publications> , last accessed on 23 July 2012

meteorological services has been deteriorating.<sup>593</sup> Lack of qualified scientists is also responsible for lack of capacity to present evidences as to the usefulness of integrating climate information into development.<sup>594</sup>

### **The lack of strategic visioning in addressing climate change is linked to inexistent climate change policies**

In part, a major reason for the high dependence on agriculture is yet no national plan addresses this issue in a strategic manner, for example, by aiming to reduce the population dependent on agriculture for their livelihoods through building human capacity and skills that allow population to move to secondary economic sectors.<sup>595</sup>

### **Poor linkage between climate change policy and research**

African countries already support their hydro-meteorological services to improve the quality of collected evidence on climate change. Research can also contribute in various other ways, for example in vulnerability assessments for identifying adaptation priorities. However, the link between research and policy remains poor. Pathways through which researchers can reach policy makers are few to inexistent and the contributions that science makes largely unharnessed. There is no umbrella body guiding and prioritizing research work, leading to misfit of research priorities with national knowledge gaps and dependence on individual research initiatives. Climate change is also hardly integrated in the education curriculum, exceptions being in South Africa through its integration in the secondary school curriculum in 2006. Government officers also need to be better able to articulate climate change issues, its impacts on their sectors, the possible responses, and how they can take advantage of the opportunities that climate change offers.<sup>596</sup>

### **The Heterogeneity of the African Group**

The African Group consists of oil-producing states, coastal states, island states and agricultural states that have unique interests concerning climate change. Oil producing states fear a shrinking

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<sup>593</sup> AMCEN, Supra Note at 18, P.201

<sup>594</sup> Ibid

<sup>595</sup> Ibid

<sup>596</sup> Werner Scholtz, Supra Note at 347

of oil exports, while Sub-Saharan states experience desertification because of climate change. Coastal states are concerned about the shrinking of coastlines and diminishing fish stocks.<sup>597</sup>

These different interests hinder the development of a common interest among African states which in its turn makes difficult to establish a truly unitary position that could present the interests of all of the states on the continent. States may accordingly betray the common position in order to realize their own interests of negotiations.

### **The difference in level of development between and among African states**

As already known African countries are different in their level of development and this difference in its turn has a problem to have a common position on climate change. South Africa serves as an example of an advanced developing country that contributes to climate change and that may have to contribute more actively to the global solution through mitigation actions. Emissions from other states are miniscule. It is possible for more powerful states, such as South Africa, to ensure that an African position is not contrary to its national interests. This results in a situation where African states (with negligible emissions) are grouped with South Africa. The situation that arises is ironic. A lack of capacity among African states necessitates a pooling of resources pursuant to a common position on climate change. This lack of capacity, however, also creates the opportunity for more powerful states to dominate the outcome of the cooperation. This means that the voice of less powerful states may be drowned through the capacity of the powerful in a regional grouping. The refusal to distinguish between advanced developing and other developing states may be to the benefit of South Africa, but from a pragmatic point of view is not of relevance to most African states.<sup>598</sup>

The heterogeneity of African countries is also manifested when technology transfer is considered. South Africa, for instance, does not have the same needs concerning technology transfer as Lesotho.<sup>599</sup>

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<sup>597</sup> Werner Scholtz, *Supra Note* at 347

<sup>598</sup> *Ibid*

<sup>599</sup> *Ibid*

## **Regional powers as champions**

Within Africa, South Africa, Ethiopia and Egypt play leading roles. Often common negotiating positions benefit from the willingness of major African states or leaders to champion them, which means willingness to lobby internally and externally about its concessions to be made. All multilateral diplomacy requires sufficient political will on the part of decision makers to work effectively. Political pressures can make or break multilateral negotiations and a political champion (or several champions) is, therefore, important. Besides political championing, such states should also be willing to put human and technical resources into ‘getting others say yes’ to the common position, a complex and highly technical process at times.<sup>600</sup>

Chances of successful championing or robust, but pragmatic leadership are enhanced when the champion has a good understanding of working methods, systems and protocols involved and when it has influence or prestige in the eyes of others involved in the negotiation process. The challenge for Africa is that only a few states possess these qualities and choosing them all the time may go against the principle of regional representation and rotation of leadership. In Copenhagen, Ethiopia led the championing of the African position.<sup>601</sup>

## **Supranationalism**

Common positions are undermined by the failure of the organization to evolve into a supranational organization.<sup>602</sup> The AU remains an intergovernmental organization whose decisions are still driven by interests of individual member states. While the intention has been to turn the institution into a supranational body underpinned by shared sovereignty, nation states are reluctant to cede any sovereignty to the organization in order to enable it independently pursue the common interests of the continent. For this region, individual states’ interests tend to compromise the shared interests that common position epitomizes. This is why member states

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<sup>600</sup> Siphamandla Zondi, 2011, *Africa in International Negotiations: A Critique of African common Positions*, available at <http://www.igd.org.za>, last accessed on 18 August 2012

<sup>601</sup> Ibid

<sup>602</sup> Supranationalism is a method of decision-making where the negotiated power is delegated to an authority by governments of member states where as in an intergovernmental organization state governments play a more prominent role.

tend to choose one or more of them to champions and manage its common positions instead of mandating the chairpersons of the AU and the AUC to represent their common interests.<sup>603</sup>

Lack of supranational authority is also the cause for the slow and inadequate implementation of agreed plans. A number of RECs have been unable to fully implement programs on a timely basis. Delays partly reflect the lack of enforcement authority, as sanctions are rarely applied to countries in breach of common agreements. This has opened a substantial gap between the stated aspirations of member countries as expressed in the treaties and protocol creating the regional economic communities, and the reality on the ground. The poor and limited translation of regional goals into national plans and budgets and inadequate implementation of regional programs at the national level also can be explained by a general reluctance of countries to cede their national powers to the regional authorities.<sup>604</sup>

### **The Coordination of Africa's External Relations**

The idea of concerted negotiating positions is weakened by lack of a framework for coordination of external relations by RECs and the AU. As a result, both RECs and the AU conduct international relations separately and often in competition with each other. There is very little evidence of alignment of RECs' international relations and African common positions.<sup>605</sup>

### **The Flexibility Dilemma**

The AU makes provision for concessions to be made, but the national interests of individual African countries have tended to prevent consensus on compromises to be made. There is inflexibility on the part of individual countries, part of which has to do with discomfort of some about the power and influence of a few big countries. The compromise mechanisms tend to overestimate the ability of the AU central organs to manage continental diplomacy when the power still lies with national capitals. By and large, there is no room for compromise during negotiations because it is often extremely difficult for the AU to work out areas of compromise beforehand because that would require difficult internal negotiations. They also need to know

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<sup>603</sup> Siphamandla Zondi, Supra Note at 560

<sup>604</sup> Africa and climate change Agenda, Supra Note at 352, P.42

<sup>605</sup> Siphamandla Zondi, Supra Note at 560

beforehand about parts of the common position that other parties could find difficult to agree to.<sup>606</sup>

### **Weak Political Leadership**

Africa lacks credible leadership to address climate change. The political leaders are yet to effectively walk their unending talks; save for the multitude of pious resolutions, there is no concrete effort to deal with the fast-unfolding crisis. In fact the continent's affairs have been reduced to endless spirals of meetings and deliberations, only to come up with more meetings. It is this circus that has, for instance, delayed the establishment of the AGF (African Green Fund). In general, the continent's leadership lacks the requisite political will to steer the continent to the path of sustainable growth and development, with mere rhetorical promise to tackle the climate change-related challenges engulfing the continent.<sup>607</sup>

### **The Culture of Marginalization**

Discussions on climate change issues in Africa are largely dominated by the political elites and their ilk. Many have been left out of the process. In particular, groups that have remained vulnerable to the adverse impacts of climate change (like indigenous peoples, women, children, and the youth) have been pushed to the peripheries of the discussion, and millions of Africans have had no effective voice in the process. This has further led to a number of individuals and communities expressing skepticism of the nexus between the environment and climate change, there by dismissing claims that the current problems are attributable to man's activities.<sup>608</sup>

### **Global Inaction and Unreliable Pledges**

Africa's efforts to address climate change issues cannot succeed if treated in isolation of the global trends. Further, we must not forget that, contributing only about 3.8% of the global GHG emissions, Africa is suffering the wrongs of others, and even if it were to fully tackle climate change in its domain, its efforts would not be more than a drop in the ocean. In light of this, a cursory view of the prevailing global practices reveals a mixed track record, with non-commitment surfacing at various times. For instance, the commitment of some developed

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<sup>606</sup> Siphamandla Zondi, *Supra Note* at 560

<sup>607</sup> Africa and the Climate change Agenda, *Supra Note* at 352, P. 42

<sup>608</sup> *Ibid*

countries to address climate change in developing countries has been merely symbolic; some of them yet to honor their pledges under the current global financing mechanism. This has resulted in inadequate, unpredictable, and unreliable financing for climate change actions in Africa, as in other developing countries. The World Bank too has not been straight forward in its dealing with (and in) developing countries; through its subsidiarity, it continues to finance the “global land rush” and other projects that would likely contribute to combat climate change.<sup>609</sup>

As far as RECs are concerned, among the multitude of challenges and factors undermining the success of the regional economic communities and regional initiatives is the proliferation and overlapping of membership: the number of RECs and other regional bodies on the continent has been steadily growing with many countries members of multiple arrangements. Such multiplicity has several drawbacks, including inconsistent objectives and conflicting operational mandates; contradictory obligations and loyalties for member countries; increased financial cost of country membership; duplication of programs and efforts; unhealthy rivalry for donor funds; and consequently reduced ability to pursue coherent and effective integration programs.<sup>610</sup>

### **Corruption and Economic Mismanagement**

Corruption may be the most talked about problem in most African countries, many of which have been poorly managed for the better part of their independence histories. This trend is not much changed in the twenty first century. Most leaders still use their official positions for self-aggrandizement, as opposed to public services. In both the public and private spheres, the vice has greatly undermined the continent’s growth and development prospects, while exacerbating the costs and effects of climate change. Undoubtedly, the resulting impoverishment, dilapidation of basic infrastructure, and decay of the social justice system, among many others associate evils, will adversely undermine the affected population’s resilience to shocks related to climate change. More importantly, corruption affects the flow of financing for addressing climate change.<sup>611</sup>

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<sup>609</sup> Africa and the Climate change Agenda, Supra Note at 352, P. 42

<sup>610</sup> Ibid

<sup>611</sup> Ibid

## **Continued Poverty and Chronic Food Insecurity**

For decades, Africa has unsuccessfully struggled to eradicate poverty. Closely intertwined with, and largely culminating from, poverty is chronic food insecurity, a situation that has seen millions of Africans deprived of food, the most basic necessity in life. Almost thirty percent of the world's hungry population is found in Africa according to Food and Agriculture Organization (FAO). Unfortunately, the millions condemned to perpetual poverty and chronic food insecurity have often turned to various forms of environmentally harmful means of survival, including charcoal burning, fuel-wood vending, logging, and encroachment on forests and other sensitive ecological zones to open up more farmlands. These actions will undoubtedly exacerbate the impacts of climate change in the affected areas.<sup>612</sup>

## **The Grouping Together of G77 States with African States**

One of the pillars that all African countries agree under the Bali was more technology transfer for the mitigation and adaptation to climate change as well as in conjunction with the G77+china- the implementation of the principle of collective but differentiated responsibility towards the reduction commitment.<sup>613</sup>

The problem here is that the grouping together of African states with G77 states means that extremely under industrialized African states are lumped together with industrializing states, such as India and China that emit a lion's share of global greenhouse gases. A possible reason for the grouping is the belief of smaller states that they do not have the power to negotiate with developed states and that it is therefore advantageous to cooperate with china and India. The problem is, however, that the grouping results in the failure of African states to articulate the distinct interests of the continent.<sup>614</sup>

### **3.4.2. Prospects**

Despite the challenges that the AU, RECs face in confronting climate change issues, prospects for climate protection in the region are relatively bright. Below is a cursory review of different

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<sup>612</sup> Africa and the climate change Agenda, Supra Note at 352, P.42

<sup>613</sup> Climate change in Africa-Ecology, Heinrich Boll Foundation, available at <http://www.et.boell.org> , last accessed on 04 August 2012

<sup>614</sup> Werner Scholtz, Supra Note at 347, P.14

realities surrounding climate change actions, each suggesting that substantial improvement to climate protection is underway.<sup>615</sup>

### **Proliferation of Climate Funds**

Over the last few years, a proliferation of climate funds have witnessed, a handful of which have benefitted (or are expected to benefit) the African continent in its effort to implement various climate change mitigation and adaptation actions. Such funding regimes include regimes include the Clean Technology Fund (CTF), the Special Climate Fund, the Kyoto Protocol Adaptation Fund, the Congo Basin Forest Fund (CBFF), the Forest Carbon Partnership Facility (FCPF), the Global Environment Facility Trust Fund (GEF Trust Fund), the Global Climate Change Alliance (GCCA), the Least Developed Countries Fund (LDCF), and the Special Climate Change Fund (SCCF). These initiatives can greatly contribute to Africa's cause to address to address the challenges posed by climate change. If well harnessed, these funding mechanisms have the potential to help Africa to combat climate change. Despite the general dissatisfaction with the criticism of these mechanisms, the growing body of climate financing facilities can contribute to the region's fight against climate change.<sup>616</sup>

### **Green Economy**

African countries have opportunities to achieve a transformation towards a greener economy that delivers sustainable economic growth and development and promotes employment opportunities and poverty reduction while enhancing the continent's natural capital and reducing ecological scarcities and environmental risks. These opportunities can be achieved by significantly increasing investments in sectors such as renewable energies, low carbon transport, energy-efficient buildings, in addition to improved fresh water provision, forest and fishery resources.<sup>617</sup>

### **Sustainable Management of Africa's Ecosystems and Natural Resource Base**

The conservation of ecosystems and biodiversity is the foundation of a sustainable economy. Water, food, shelter and energy are the building blocks on which life and economic systems are

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<sup>615</sup> EAC and Climate Change Agenda, Supra Note at 406, P.5

<sup>616</sup> Ibid

<sup>617</sup> Comprehensive Framework of African Climate change programmes, 2010, AMCEN, p.88, available at <http://www.unep.org/roa/Amcen/Amcen...ss/.../ConceptualFramework.pdf>, Last accessed on 10 July 2012

built and the resilience of Africa's economy is intricately linked to the state of natural resources base.<sup>618</sup>

Africa's ecosystems provide a range of valuable goods and services, such as food, water and medicinal products, and are energy source among other things. African governments are increasingly recognizing the importance of linking ecosystems to social and economic wellbeing.<sup>619</sup>

There is also increasing recognition of the potential opportunities arising from efforts to adapt to climate change, for example, in promoting the sustainable management of Africa's forest resources, land resources and ecosystems;<sup>620</sup>

### **Sustainable Energy Production**

Africa has substantial renewable energy resources, such as solar and wind energy. Opportunities exist to exploit these renewable energy sources and to enhance energy efficiency to meet the continent's energy needs, while also acting to reduce carbon dioxide emissions. There are significant opportunities for investment in renewable energy and energy efficiency technologies. African governments and policy makers have an important role to play in facilitating such investment.<sup>621</sup>

### **Sustainable Transport**

There are opportunities significantly to reduce greenhouse gas emissions, promote green economic growth and attain the Millennium Development Goals through measures such as policies, regulations and investments to promote sustainable public transport. Linkages between improved public transport, improved road infrastructure and efforts to promote air quality, for example, through standards for cleaner fuels and fuel efficiency, provide additional opportunities.<sup>622</sup>

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<sup>618</sup> Comprehensive Framework of African Climate change programmes, Supra Note at 576

<sup>619</sup> Ibid

<sup>620</sup> Ibid

<sup>621</sup> Ibid

<sup>622</sup> Ibid

## **Carbon Market**

Opportunities that arise from Africa's involvement in the carbon market should also be considered. Carbon finance has the potential to generate tens of billions of dollars per year of investments. Through the purchase of carbon finance can help leverage additional investments, strengthen capacity in developing countries and encourage political engagement to address climate change.<sup>623</sup>

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<sup>623</sup> Comprehensive Framework of African Climate change programmes, Supra Note at 576

## CHAPTER FOUR

### 4. CONCLUSION AND RECOMMENDATIONS

#### 4.1. Conclusion

Climate change is the biggest global challenge of the twenty-first century. Rising temperatures, changes in seasonality and amount of rainfall, the rise in sea levels and the change in direction and speed of wind adversely threaten the well being of mankind all over the world. The decreased in food and availability of water, the extinction of various species of plant and animals, health problems and occurrence of extreme climatic events which in their turn adverse the settlement of human beings and security are expected as a result of impacts of climate change.

Despite the fact that climate change knows no boundary and a threat for all human beings, Africa is the continent hardest hit by climate change more than any other continent due to its vulnerability and low capacity to adapt. Climate change is a major threat for Africa's sustainable growth and development and the achievement of the Millennium Development Goals.

The greatest tragedy is that Africa contributes less than 4 percent of the world's total emissions of greenhouse gases and the hardest to be hit by the adverse impacts of climate change. Wide spread poverty, poor infrastructure and governance institutions and high dependence on rain fed agriculture render Africa the most vulnerable continent.

The effects of climate change, most notably, reduced agricultural production, worsening food security, extreme climatic events of flooding and drought, diseases, and serious conflict over scarce land and natural resources and already evident.

The fact that over 95% of Africa's agriculture is rain fed renders agriculture production to be seriously hampered by climate change and variability.

Climate change will shorten the cultivation phase which make vast amount of land out of production. This reduction of arable land as a result of climate change, water scarcity due to a reduction in rainfall will have an adverse impact on agricultural production which in its turn affects the life of African population in one way or another, there by affecting food security and

economy of the continent by increasing dependency on food imports and exacerbating malnutrition.

Climate change in Africa also affects availability of water. As a quarter of African countries are in zones where small reductions in rainfall cause a reduction in the availability of water which exposes the population to water stress.

As a result of climate change in Africa, diseases will likely spread thereby affecting the health conditions of climate sensitive diseases such as Rift valley fever, cholera and malaria.

Violent conflicts in Africa due to scarcity of land, natural resources mainly water, migration are also resulted because of climate change.

Moreover, the impact of climate change in Africa extends to seriously hampering the biodiversity of the continent. The unique biodiversity of Africa due to the availability of unique bird, mammals and plant species is threatened by climate change, which will result for the extinction of these species unless urgent action is taken.

As climate change is a global common problem, the participation of everybody in the planet is necessary. It is with the aim of benefiting everyone on the planet from a stable climate that various international agreements addressing issues of climate change is needed. Accordingly, among others, the UNFCCC, the Kyoto Protocol and new agreements beyond 2012, such as the Bali Action plan, the Copenhagen Accord, the Cancun Agreements and Durban Platform for Enhanced Action are taken as some of the basic international agreements meant to address the impacts of climate change.

Given Africa's vulnerability to climate change, it is important for the region to engage both in adaptation and mitigation activities. So, due to the urgency to address the impacts of climate change and to bring African solutions to the African problems, African Union, RECs under the umbrella of the African Union and individual African states have played a role by themselves and in collaboration with various organizations at bilateral and multilateral level to avert the catastrophes of climate change.

As part of their response, African states have ratified international agreements addressing climate change, basically the UNFCCC and its Kyoto Protocol.

The African Union responds to avert the adverse impacts of climate change by enacting various legislations, declarations, decisions, which address the issues of climate change in one way or another.

It was in January 2007 that the AU considers the issue of climate change by organizing a summit on climate change for the first time in its history. African leaders expressed their grave concern at the impact of climate change and thereby call member states and RECs to integrate climate change considerations in their development strategies and on development partners for their support. The New Partnership for Africa's Development (NEPAD) is also increasingly dealing with climate change.

The African Union developed various normative and institutional frameworks to address issues of climate change.

The Nairobi Declaration on the African process for combating climate change, and Algiers Declaration on Climate Change are some of the basic legislations adopted by the AU as a response to climate change.

The establishment of the CAHOSSC and AMCEN are also taken as part and parcel of the response of the AU to climate change.

A number of initiatives have already been taken including the Action plan on Climate Information for development in Africa (ClimDev Africa) programme being implemented by the AU, UN Economic Commission for Africa and African Development Bank; the African Climate policy center being launched by UNECA.

Moreover, the Accession of the AU to the UNFCCC and Kyoto Protocol shows the commitment of the AU to combat climate change.

In addition, multilateral, bilateral organizations and states also cooperate with AU to assist its response in tackling the impacts of climate change.

Apart from the AU, the eight RECs recognized by the AU are also active participants in addressing the issues of climate change in one way or another though they were not originally established for this purpose.

Individual states under the umbrella of the AU in general and RECs in particular also involve in addressing climate change issues by policy and strategy formulation.

## **4.2. Recommendations**

Since climate change is now becoming one of the most serious problems of Africa, providing durable and sustainable solutions for this matter is one of the priorities of our time. However, the response of the African Union and various intergovernmental sub- regional organizations to combat climate change faces challenges. Hence, to tackle these challenges the African Union, sub- regional intergovernmental organizations and individual African states should:

- Secure adequate, reliable and predictable finance for climate change actions at the regional and sub-regional level. More importantly, Africa should be able to secure climate change finance from member states through devising various techniques. These can include, for instance, imposing taxes and levies from African private sectors, NGOs, diplomatic institutions, taxes on airplanes, stimulating the political willingness of African member states to contribute additional annual contributions of finance to combat climate change. Moreover, the role of African monetary institutions should not be underestimated in combating climate change.
- Combat corruption by enhancing transparency and accountability in management of climate financing funds and integrating corruption safeguards in the design of climate change actions. In other words, African leaders have to fully commit themselves to the fight against corruption, ensure proper targeting of funds received under the prevailing climate fund regimes.
- Support public engagement and representation in the climate change discourse, in order to accommodate the views of vulnerable groups
- African governments should integrate climate change issues into economic planning and management at both the national and regional levels, including through high level inter-ministerial coordination at national level and an increased role for Regional Economic Communities
- Improve access of local communities to weather and climate related information and to the knowledge of best coping strategies

- RECs and Individual African states have to harmonize their response to climate change with that of the AU
- African leaders must improve the continent's normative and institutional capacities to deal with the challenges posed by climate change
- African leaders have to link the continent's common position and the prevailing regional, sub- regional and national policies, strategies, practices and programs
- African leaders have to fully commit the fight against poverty, also through the establishment of appropriate normative and institutional approaches to have a better adaptive capacity.
- African governments have to establish and sustain credible institutions to address climate change issues on the continent
- African governments need to effectively leverage the window of opportunity availed by climate change and variability, in particular the opportunity to establish green economies
- The AU member states should develop new research policies on climate change and support existing research capacity.

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