# UNIVERSITY OF NAIROBI

## INSTITUTE OF DIPLOMACY AND INTERNATIONAL STUDIES

**MA RESEARCH PROJECT**

# THE ROLE OF NON-STATE ACTORS IN CLIMATE CHANGE MITIGATION AND ADAPTATION IN AFRICA: A CASE STUDY OF THE AFRICAN UNION

**BY**

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**DECEMBER, 2017**

# DECLARATION

I **Teresa Murigi** do herewith affirm that this is my authentic assignment and hasn't been conferred for the award of a degree or any other accolade in any other university. Where works by others have been used, appropriate references have been given.

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**APPROVAL**

This Dissertation has been submitted for examination with my approval as the University Supervisor

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# DEDICATION

“This study is dedicated to my family for the unwavering financial and social support”

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It’s through God’s grace that I was definitely able to finish this thesis. May his mighty name forever be glorified.

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# ABSTRACT

Globally, climate change has emerged to be a fundamental issue that affects all nations. It has also become a phenomenon that requires global governance in the modern globalized world to tackle threats in the human societies. The African countries as well consider Climate change as a matter of concern even though their contribution towards the increase of Greenhouse Gases (GHGs) is minimal. Although, opportunities have been created for mitigation and adaptation; lack of financial, institutional and human capacities have constrained the implementation of these measures. Consequently, Africa encounters a major challenge of effectively participating in climate change negotiations due to her status within the international system coupled with the lack of capacities which are key for meaningful engagement. Notwithstanding the numerous internal difficulties faced by the African countries in climate negotiations and governance, improvement in response and willingness to cooperate and participate has been shown by the African countries as compared to the previous times. The governance of climate change attributes various doctrines which include; management and accountability as well as strengthening, all which are fundamental when dealing with the various threats posed by changing climate. Several governing mechanisms are also included, from informal cooperation between different institutions and actors to hierarchical forms of regulation. Therefore, climate change management can be described as a broad assortment of coordinating methods that propel mitigation as well as adaptation of climate change. This study intends to analyze the performance of Non-state actors in the mitigation and adaptation of climate change within Africa, using the African Union as a case study. The study objectives were: Establishing the major effects of change in climate, as well as the limitations undermining the mitigation and adaptation process, examining how different non-state actors assist states the mitigation and adaptation processes as well as highlighting the performance of the African Union in climate change mitigation and adaptation in Africa. The study adopted qualitative design in its conduct and utilized descriptive research designs. Descriptive research design is a scientific method which involves observing as well as describing the behavior of a subject by not changing it in any way. The researcher relied on both primary as well as secondary data. The Primary data was accessed by administering interviews to key persons. Secondary data was obtained from published data available from libraries including on-line libraries such as J-store. This comprised books, journals and newspaper articles. Internet sources also formed an important source of data in form of latest development in the field. The study finally recommends that the policy vacuum of climate change in Africa is large and calls for thoughtfulness alongside sound policies. The implications of any delay in this section are catastrophic and of dangerous precedence. Climate change adaptation and mitigation policies need to be harmonized by specific states together with natural resource management and legislations as well as development of institution capacity.

## ABBREVIATIONS

| | |
|---|---|
| **ADP** | Ad Hoc Working Group on the Durban Platform for Enhanced Action |
| **CCAC** | Climate and Clean Air Coalition |
| **COP** | Conference of the Parties to the United Nations Framework Convention on Climate Change |
| **CSA** | Climate Smart Agriculture |
| **GAFCA** | Global Aggregator for Climate Actions |
| **GHG** | Greenhouse Gases |
| **GRA** | Global Research Alliance for Agriculture on Agricultural Greenhouse Gases |
| **HFC** | Hydrofluorocarbon |
| **IFAD** | International Fund for Agricultural Development |
| **IRENA** | International Renewable Energy Agency |
| **LPAA** | Lima-Paris Action Agenda |
| **NAZCA** | Non-state Actor Zone for Climate Action |
| **NGO** | Nongovernmental organization |
| **OECD** | Organization for Economic Co-operation and Development |
| **OGCI** | Oil and Gas Climate Initiative |
| **SE4ALL** | Sustainable Energy for All |
| **SLCP** | Short-lived climate pollutant |
| **UN** | United Nations |
| **UNEP** | United Nations Environment Programme |
| **UNFCCC** | United Nations Framework Convention on Climate Change |

## DEFINITION OF KEY TERMS

**Climate change** refers to international or territorial shift in climate patterns, especially a shift experienced during the mid to late 20th resulting from the use of fossil fuels.

**Climate change adaptation** means using innovative ideas, technologies and techniques to reduce the impacts of climate change.

**Climate change mitigation** is tackling changing climate from its root causes, especially through controlling greenhouse gas emissions.

**Climate Change Governance** this is the use of power and rule by perceived government bodies with a view of minimizing the climate change impacts on ecosystems, communities, and the wider environment in general. It entails legislation development, policies making, institutional and management frameworks, at continental, regional and national levels.

**Non-state actors** signify an individuals or organizations that have significant influence politically but are not associated to any particular state or country.

# CHAPTER ONE
# INTRODUCTION TO THE STUDY

## 1.1 Background of the Study

Climate change has materialized as one of the critical development issues since the early 1990s. Towards the end of 2016, the UN declared that the global temperatures had increased to 1.2 degrees Celsius which is beyond the levels of pre-industrial era. The organization therefore called for an urgent action in reducing vulnerability, provision of basic services and building resilience. It warned that if not addressed with utter urgency, change in climate would ternate the number of the impoverished by 2030.[1]

Climate change is a resultant effect of human activities that change the earth's atmosphere. It leads to natural changes such as rise in temperatures, overwhelming droughts, extreme storms and flash floods as well as rising sea level. The first Geneva meeting of 1979 was the first International meeting on climate change. Since then there have been a series of other meetings to discuss the same, the 1992 Earth Summit, which was held in Rio de Janeiro being the most fundamental as it resulted to the manifestation of the United Nations Framework Convention on Climate Change (UNFCCC).

It was during this summit that climate change became identified as a universal phenomenon which became a prerequisite for all countries to pursue mitigation and adaptation measures at all levels. Alleviation of the consequences of change in climate however needed concession in the economic as well as the social lives of nations, owing to the fact that it involved natural resources exploration, energy production and utilization, waste disposal, technology transfer, global trade, as well as acquisition of information and dissemination.[2]Though the

[1]The World Bank Group. International Development, Poverty & Sustainability. (n.d). Retrieved May 07, 2017, from http://www.worldbank.org

[2] Tadesse, D, " The Impact of Climate Change in Africa," *Institute of Security Studies*, ISS Paper 220, 2010

contribution of African countries to the total greenhouse gas emission is less than a third, they are more exposed to climate change. Their vulnerability is attributed to certain factors such as their high dependence on rainfied agriculture, as well as minimal funds, technical as well as institutional capacity for adaption. [3]

Africa for example, has experienced a variety of natural hazards on account of changes in the climate. These include; droughts and floods, landslides and dust storms. The 2011 HOA drought is a good example of the calamity brought about by change in climate. This led to the displacement of 13 million people, and also tasked all actors within the international system to undertake significant efforts to combat climate change in linking and integrating disaster risk reduction, pastoralism, development, peace building, humanitarian assistance as well as food security strategies. [4]

Since the 1992 Rio Summit, NGOs have become an integral part in global environmental governance. More of them are seen to participate in climate change negotiations, from environmental to business associations, trade unions to women groups, farmers associations and even faith based organizations turn out in large numbers to attend the annual COP of the UNFCCC conference, where in some years they have outnumbered government agents. In December 2015, the Paris Conference included an agenda to recognize the commitment of non-state actors in reducing GHG emissions. This action raised the non-state actors profile within the UNFCCC, outlining the important role played by faith groups, regions, NGOs among others in creating awareness, support and implementation in matters climate change. [5]

[3] Gemada D, et al, " The Impacts of Climate Change on the African Continent and the way forward," Journal of Ecology and Natural Environment, Vol 7, (2015) pp.256-262

[4] Nansen Initiative Secretariat, Natural Hazards, Climate Change, and cross-border displacement in the Greater HOA: Protecting people on the move, (21-23 May 2014, Nairobi, Kenya).

[5] Betzold, C, *Non-state Actors in International Climate Change Negotiations*, (ETH, 2013).

## 1.2 Statement of the Research Problem

Climate change repercussions have been greatly felt in Africa by both natural and human systems. The region is characterized with warm trends especially in the subtropics, acute heat events, changes in rainfall and increasing aridity. This has resulted to an increase in the current high rates of under nutrition and communicable diseases, rural-urban migration, flash floods and food insecurity that are experienced in the continent. A number of African countries have gauged the brunt of change in climate to their state economies. As a result, efforts have been set up from local, national, regional and international ranks in dealing with the effects by both government and non-state actors. All these efforts have been done in trying to offer opportunities for fast-tracking the continent's sustainable development.

Though efforts have been made through implementation of National Climate Change Strategies, National Communications, as well as National Adaptation Programmes, it's still undeniable that the fact that climate change effects within the African Continent have been heavily felt within the recent years. There are significant gaps in the current state of research as well as policy affairs regarding climate change mitigation and adaptation at the continent level. Apart from states, other non-state actors, therefore also need to play critical role if Africa has to successfully manage the climate change issue.

Against this background, this study seeks to critically examine the climate change situation in the Africa, and the non-state actor's role in climate adaptation and mitigation within the region, by focusing on the African Union. This will be done through critically examining the major effects of the change in climate Africa, and the challenges experienced in mitigation and adaptation. The researcher shall also identify the various roles played by non-state actors in mitigation and adaptation. The researcher shall also identify the strategies that the African union has come up with to deal with this challenge in the region.

## 1.3 Research Questions

1) What are the major impacts of climate change as well as the challenges affecting mitigation and adaptation process in Africa?
2) How do various non-state actors assist states in climate change mitigation and adaptation in Africa?
3) What are the specific measures that have been put in place by the African Union to tackle mitigation and adaptation within the region?

## 1.4 General Objective

The research's main objective is to evaluate the Non-state actor's role in climate change mitigation and adaptation in Africa with an emphasis on the African Union.

### 1.4.1 Specifics Objectives

The specific objectives will be as follows;

1) Establishing the major climate change impacts, and the challenges that affect mitigation and adaptation process in Africa.
2) Examining how various non-state actors assist states in mitigation and adaptation of climate change in Africa.
3) Analyzing the role of the African Union in climate change mitigation and adaptation in Africa.

## 1.5 Literature Review

### 1.5.1 Climate change in Africa

The last three decades have been the warmest since the 1850s. This can be traced to a surge in the emission of anthropogenic greenhouse gases, from as early as the pre-industrial era. This has been caused by population and economic growth which have both risen over the years. Their rise has thus resulted to an increase in the amount of carbon dioxide, methane as well as nitrous oxide in the troposphere. A combination of these gases with other anthropogenic drivers have great effects which have been experienced within the climate systems and are seen as the major causes of global warming, which has been a reality from the Mid-20$^{th}$ Century. [6]

Climate change has become an important agenda in policy making forums because of its perceived impacts that have greatly undermined development. The 2007 IPCC report cautioned that Africa was not acting with urgency to address the repercussions change in climate. A random assessment within the region shows that indeed this is true and that the reality of Climate change is being experienced. This can be revealed by the numerous disasters in the region that range from prolonged and intensified droughts in the East African region, floods in West Africa, rain forests depletion in the equatorial region together with increased acidity of the ocean in the Southern Coast. These have as a result threatened various important areas such as agricultural production, energy, health, which have in turn slowed down development within the continent. [7]

[6] IPCC, 2014: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

[7] CIGI Special Report: Climate Change in Africa: Adaptation, Mitigation and Governance Challenges, Besada, H & Sewankambo, N, 2009

Africa is a continent that is rapidly growing with rich diversity. The continent is projected to have a population of 2 billion by the year 2050. The rise in population has had a strainiuos effect on some of the major sectors that are crucial to ensure existence and sustainability of the increasing population.[8]

In line with the climate change vulnerability index for 2015, there are seven out of ten countries in Africa that are in danger of being affected by climate change. A recent report by Oxfam states that, climate change has worsened the drought and humanitarian disasters in Africa. This is attributed to the fact that the region is experiencing its third year of low rainfall. As a result, about 12 million people from Kenya, Somalia and Ethiopia are facing hunger risks due to recurrent droughts. The once in a lifetime droughts have now become a way of life in the region. The drought has not only affected humans but animals as well, where donkeys and camels which are very hardy animals have been unable to cope with the harsh climatic conditions. Drought has had a great impact on agricultural production, rearing of livestock as well as water supply.[9]

The security of most African countries has been threatened by Climate change. This is because of the mutual dependency between human security and environmental protection. Natural resources depletion is seen to undermine livelihoods, increasing vulnerability to disaster and thus risking the security of humans. An example is the Horn of Africa, where survivability of pastoralists in the region has been made difficult. Fighting between the Ogaden and Oromia regions of Ethiopia is a good example of conflicts resulting from climate change. Also, the conflicts between the pastoralist populace within the arid and semi-arid borderlands of Southern Sudan, the Northern part of Kenya and the Southern region of

[8] Serdeczny, O et al, " Regional Environmental Change," *Climate Change Impacts in Sub-Saharan Africa : from physical changes to their social repercussions,* Vol 17, (2017) pp. 1585-1600

[9] Reuters. Climate Change deepening Horn of Africa Crisis. April 27, 2017.

Ethiopia, results from the clash over water and pastures, raiding of livestock, as well as the presence of small arms.[10]

In Kenya, Uganda and Tanzania, changes in reliability of rainfall, droughts and frequent floods have led to failure in crop production as well as famine, marred with stresses such as degradation of land as well as tenure insecurity. Sums of economic sectors have also been affected by rainfall variability. Lake Victoria is a good example, various sectors of the economy have been affected, and this is because of reduced rainfall and exorbitant discharge at the outflow of the lake, to accommodate power production needs which have resulted to a drop in water levels. Effects include power shortages, disruption in water supply and transport and infrastructure since 2005. An oblique outcome of the mentioned climate impacts is elevated pressure on forests and wetlands because people have resulted to burning of charcoal, gathering wood and agricultural expansion as ways of dealing with the effects.[11]

Climate change has accelerated floods in most parts of the continent. This is mostly evident in North, East and South parts. In 2001, the floods in Northern Algeria, led to death and economic loss of $400 million. In 2000, floods in Mozambique led to death of 800 and displacement of 2 million others. Climate change has also threatened human health in the region. This is because, it causes water scarcity and floods which lead to outbreak of waterborne diseases. According to the United Nations Economic Commission for Africa, African states are exposed to serious health problems due to climate change. This is due to poverty and weak institutions to deal with the health challenge. Malaria is especially common

[10] Leff, J , "International Journal of Conflict and Violence," *Pastoralists at War; Violence and Security in Kenya, Sudan, Uganda border region*, Vol 3, (2009) pp. 188-203

[11] Hepworth, N. and Goulden, M., 2008, Climate Change in Uganda: Understanding the implications and appraising the response, LTS International, Edinburgh

within the region due to changes in temperature which boost the number of mosquitoes carrying the disease.[12]

A lot has been done within the African continent in handling climate change and its consequences, from local, territorial as well as international levels. This has however not been without a challenge due to some factors that greatly limit the mitigation and adaptation process within the continent. First, African countries are disposed to climate change effects due to some major factors that are characteristic to the continent's development challenge and which in return exacerbate the vulnerability of the continent. They include; poverty, ineffective governance, limited technology and infrastructure, conflicts, population growth and limited capital.

Realization of adaptation strategies is thus only possible if the consequences of climate change are examined apace with other processes like economic development as well as globalization, political and institutional changes, changes in livestock and land use among many other ways. There is evidence of connection amid sustainable development and vulnerability to climate change. The various factors affecting development within the countries thus need to be addressed by national and local decision makers. [13]Lack of integration of possible adaptation strategies at the continental scale is another challenge. This has in return paralyzed the development of effective and realistic adaptations reaching beyond the national borders, since adaptation measures are not linked to the climate change impacts but rather to other factors such as land use planning, drought warning, water resource management, healthcare programmes etc.

[12] Eight ways climate change is already affecting Africa, http//www.350Africa.org, April 2017.
[13] Lioubimtseva, E, " Africa and global climate change: Impacts, vulnerabilities and adaptation challenges" in Murithi, T (ed), *Handbook of Africa's International Relations*(Routledge, 2014) pp. 219-230

Another major challenge is lack of sufficient resources by most African countries, which are needed to tackle mitigation and adaptation. A research carried out by the United Nations Environmental Programme (UNEP) in 2013, indicated that an increase in temperature globally, would call for an increase in adaptation costs for the continent which is most affected by the outcome of change in climate. The report thus suggested joint effort within the international community in funding the added costs.

Also, Africa has a limited bargaining power in International negotiations even though it's most exposed to the results of climate change. African countries have few priorities in tackling the aftermaths of climate change. These include; active participation on the platforms of International negotiations, appropriate resource allocation, food and energy refuge, and long term managing and adapting to climate risk. All these require good governance, technology, innovation and involvement of all levels of society.[14]

### 1.5.2 Role of various non-state actors in addressing climate change mitigation and adaptation

Since the 2009 Copenhagen conference, non-state actors have advocated for recognition of the role that they play in reduction of GHG emissions. Non state actors including NGOs and regional bodies play a key part in recommending initiatives as well as carrying out pilot projects. It's as a result of this that Ban Ki-Moon, former Secretary General of the United Nations, supported their recognition and encouraged their involvement in climate change matters in a 2014 climate summit. [15]

[14] Osman. B, Climate change impacts, adaptation and links to sustainable development in Africa, http:// www.fao.org/docrep/011/htm. Retrieved on April 2014

[15] Afriat, M. "Exploring the challenges behind the Paris Agreement," Institute of Climate Economics Newsletter, Paris, 2015.

In January 2017, the African Union held the 28th African Union Summit in Addis Ababa. During this summit, non-state actors from across Africa participated in two policy dialogue meetings coordinated by the Pan-African Climate Justice Alliance in association with the United Nations Economic Commission for Africa as well as the African Climate Policy Centre. This set up facilitated stakeholders to deliberate on climate change matters relevant to the continent. More emphasis was also made regarding the post- Marrakech perspective along with the execution of the Paris Agreement Provision. The adoption of renewable energy options was also discussed.

Climate change governance is a subject area that isn't easily understood without examining the role of non-state actors. Though much focus placed on governance activity in this field is centered around the global negotiations under the United Nations Framework Convention on Climate Change (UNFCCC), non-state actors perform a prominent role in determining outlines of climate change governance, comprising over hybrid, private, networked, as well as community-based governance.[16] Governance of climate change therefore offers a rich test-case for this study.

The supremacy of non-state actors in climate change control is not systematically explored, the first step of the study is undertaking in the mapping of perceived functions and influence of various categories of non-state actors. Explicitly, a major focus is on the official classification of types of organizations that the UNFCCC uses. UNFCCC system segregates non-state actors into various groups, which include Environmental non-governmental organizations (ENGO), Business as well as industrial non-governmental organizations (BINGO), Local government as well as municipal authorities (LGMA), Indigenous peoples organizations (IPO), Research as well as independent non-governmental organizations

[16] Climate Change Mitigation and Adaptation; What really does climate change adaptation and mitigation mean? http://www.globalgreenhousewarming.com, April 2017

(RINGO), Trade Unions non-governmental organizations (TUNGO), Farmers as well as agricultural NGOs, Women and Gender, as well as Youth (YOUNGO).Intergovernmental Organizations (IGOs), like World Bank as well as UNEP, and groups of observer organizations.[17]

The use of this categorization allows the exploration of whether the sources of power which are aligned to particular types of non-state actors has additional explanatory power that runs past the prior analyses of individual non-state actors. The differences within the categories, that the organizations are well aware of, makes them align themselves with a constituency in the process of joining an observer organization to the UNFCCC. The intention is to make constituencies become loose organizations that serve disparate but largely clustered interests or perspectives. Therefore, it becomes difficult to consider the different constituencies as monolithic blocks; instead, they form a representation of a broad spectrum of interests which are often also conflicting. According to Boström and Tamm Hallström more divided constituencies could find it more difficult to exert social power. Nevertheless, there are typically greater commonalities within a constituency than between constituencies[18].

Thus, while non-state actors compete over exerting authority, they have different power sources and play different roles. The rivalry between different non-state actors has been particularly stark in the climate change negotiations, which makes it an interesting test for exploring the different functions each non-state actor plays. The question on which non-state actors have been most successful in advancing their interests and why in international climate governance remains largely unexplored. This paper suggests that we cannot fully understand the authority of non-state actors if we do not consider their distinct roles and functions within

[17] Newell, P, *Climate for Change: Non-state Actors and Global Politics of Greenhouse.* (Cambridge University Press 2000).
[18] UNECA, First Conference on Climate Change and Development in Africa, (17th October 2011).

environmental governance. This first step will bring out the differences in perception of roles that exists between these broad interest alignments.

### 1.5.3 Climate Change Mitigation and Adaptation Strategies used by the African Union

The IPCC in its 2007 report demonstrated that a lot of efforts were being put in place to control greenhouse gas emissions. Part of the climate change impacts are unavoidable, hence mitigation and adaptation are suggested as the two main strategies to deal with changes in climate alongside its impacts. Adaptation and mitigation are very critical for purposes of sustainable growth and development. Climate mitigation refers the actions taken to lastingly reduce or eliminate the lasting perils and threats of climate change to human life and property. The IPCC refers to mitigation as, anthropogenic interventions in reducing the origin or boost sinks of greenhouse gases.[19]

Climate adaptation on the contrary is the capacity by the system to conform to shift in climate with the intention of moderating any probable damage, while taking advantage of all the opportunities as well as coping with the consequences. The IPCC defines mitigation as adjustment of natural and human schemes to a different or changing environment. The sole purpose of adaptation is to moderate harm and in the process exploit constructive opportunities. The various forms of adaptation incorporate; anticipatory as well as reactive adaptation, private as well as public and autonomous as well as planned.[20]

Both processes are very fundamental in climate change for the reason that, mitigation addresses the origin of climate change, thus ensuring maximization of any benefits arising courtesy of change in climate whereas adaptation tackles aftereffects of climate change by reducing vulnerability through building on and intensifying current coping strategies.

[19] 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, 976pp.

[20] Climate Change Mitigation and Adaptation; What really does climate change adaptation and mitigation mean? http://www.globalgreenhousewarming.com, April 2017

Mitigation and adaptation are deemed as vital across the global arena, and are key areas in climate change discussions. The UNFCCC spells out the mitigation and adaptation strategies that should be adhered to by both developed as well as developing nations.

Africa's stake of global greenhouse gas emanation is only 3.5%, while compared to other great emitters like China, US and the EU whose total contribution is about 55%. Though it has the lowest emission record, it's the most vulnerable with the effects that arise due to change in climate. Adaptation and mitigation are critical within the continent and should be treated as pressing issues. Climate mitigation in the context of Africa means that the continent is able to avoid a high carbon lock, such as that in China. Rapid economic growth and urbanization are among the major factors that will increase Africa's emission of GHGs if mitigation does not take place immediately.[21]

The climate change issue has over the years driven governments around the world to come up with ways of coping with it. Policies have been formulated; institutions have been developed as well as programmes. Yet with all this in place, a quick glance on the situation especially in Africa reveals that efforts by the local governments are nothing to write home about. This has prompted the intensification by non-state actors in working to resolve climate change. In Africa for instance, the African Union has been on the front line in addressing climate change.

The first meeting regarding changing climate as well as development in Africa happened in Addis Ababa on 19th October 2011. It was a drive by the African Union Commission initiative, the United Nations Economic Commission for Africa (UNECA) in conjunction with the African Development Bank. This conference was held after the realization that

[21] Amadou, Sy, Africa: Financing Adaptation and Mitigation in the World's Most Vulnerable Region, http://www.brookings.edu

mitigation process for the impacts of climate change within the continent required collective efforts by policy makers, researchers, scientists and practitioners. Some of the areas that were identified as critical for mitigation and adaptation include; climate resilient development as well as adaptation, data and service delivery, low-carbon development, climate science as well as economics and finance of climate change. [22]

The African Union has a strategy on responding to climate change and making significant achievements in controlling its effect on its ecosystems and species, through augmenting the continuous adaptation to climate change capability, promoting sciences related to climate change, technologies and R&D to a new level, while markedly promoting public insight on matters of climate change, besides intensifying the climate change establishments and mechanisms. The AU has taken a united stand in global negotiations by establishing a Unit for Climate Change and Desertification at the African Union. Also, the African groups of negotiators in the UNFCCC operations, opinions from the pertinent Science and Technology Committees, the work of the Committee of African Heads of States as well as Government on climate change as well as the African Ministerial Conference on Climate change have all been brought unto a comprehensible AU plan.[23]

The AU has also demonstrated commitment to the International environmental regimes as well as its own environmental regimes, though these regimes has in the recent past faced a number of obstacles such as poverty, low institutional capacity, conflict of interests and needs, and skeptics from some member states. The AU has also been active in the UNFCCC in a number of ways. It has provided leadership support and voice in the UNFCCC implementation. A good example is the role played by the former president of Ghana,

[22] Africa Partnership Forum: Financing Climate Change Adaptation and Mitigation in Africa; Key issues and Options for Policy Makers and Negotiators, http://www.fanrpan.org/archive/documents/financing.paper.pdf
[23] Condon B & T.Sinha, *The Role of Climate Change in Global Economic Governance*,(Oxford University Press, 2013)

Kufuor, in leading the UN delegation on climate change, which was essential in carrying out some the UNFCCC recommendations. Such roles are vital in the implementation of climate change advocacy systems in African, regional and nation-wide, besides capacity building of arbitrators and supporting multi-disciplinary professionals.[24]

The AU has also adopted the Environmental Action Plan through the framework of AU/NEPAD. The purpose of the plan is the promotion of viable use of Africa's natural resources. It also strengthens support of environmental initiative both political and public. The plan is also effective in resource mobilization, through programmes such as the Great Green Wall Programme which helps in battling desertification. The various regional communities serve as implementing agencies of continental action plans. They help in transposing the AU plans in the sub-regions as well as providing monitoring and evaluation mechanism for national implementation. In 2016, the Peace and Security Council of the AU dedicated an open discussion on climate change as well as state fragility, peace and security in Africa.[25]

### 1.6. Knowledge Gaps

Climate change has become a global threat that can no longer be ignored. The consequences have especially become pronounced in Africa. As a result states have come up with various policies and strategies in trying to tackle the impacts of climate change. Consequently, non-state actors have become vocal on the same issue, working closely with states in the process of policy formulation and adopting the various strategies. However, the current literature fails to highlight the role of non-state actors in addressing climate change through providing guidelines for mitigation and adaptation in the African context. The African Union has especially stepped up in its role in global governance in the region by actively supporting

[24] Brunner R & A. Lynch , *Adaptive Governance and Climate Change*, ( American Meteorological Society, 2010)
[25] Muchie, M & O. Akpor, *The African Union Ten Years After: Solving African Problems with Pan-Africanism and the African Renaissance,* ( African Institute of South Africa, 2003)

mitigation and adaptation process which has not been adequately captured in the recent literature.

### 1.7 Hypothesis of the study

The study tests the following hypothesis;

1. Climate change mitigation and adaptation are critical measures for dealing with the climate change situation in Africa.

2. Non-state actors play a major role in the mitigation and adaptation process in Africa.

3. The African Union has not played any major role in climate change adaptation and mitigation in the continent.

### 1.8 Justification of the study

Climate change is among the tremendous 21st Century threats. A lot has been done and continues to be done to try and come up with better ways of managing climate change, from its causes to its effects. Africa has been hit hard, even though its contribution to climate change is way lower in comparison to the developed nations who are the greater contributors to climate change. To be able to tackle the aftermath of changing climate across the continent, African countries have adopted policies and strategies that help make the situation manageable. Though a lot of efforts have been put in place especially by the African Union, change is yet to be realized. The continent still continues to lag behind in matters development which is greatly attributed by effects of climate change. A lot still requires to be done to address climate change issues in the continent.

The study will therefore provide new information for both state and non-state actors, which is vital for the mitigation and adaptation process within the continent. This study will be helpful to policy makers within the African Union that are responsible for environmental

sustainability. The study will also contribute to scholarly and academic literature on climate change adaptation and mitigation in the continent.

### 1.9 Theoretical Framework

The inadequate commitment by states in climate change negotiations has seen non-state actors perform a more pronounced role in climate change governance. Additionally, the collective nature of climate change calls for international co-operation in addressing its impacts and causes. The study adopted the Liberalism and Non-Liberalism theory.

#### 1.9.1 Liberalism

Liberalism, also known as pluralism is a school of thought that primarily disagrees with realism and its view of world order. To liberalists, non-state actors are extremely critical within the international system, in comparison to states. Liberalists therefore give more significance to the actions and concerns of individuals and groups. They regard political institutions highly in helping individuals' foster cooperation among themselves in order to grasp trivial objectives as well as goals. Liberalists, just as realists endorse that the world is a revolutionary system; they however argue that there is no clash for power and resources, and advocate for cooperation as opposed to competition. They focus significantly on regional and international organizations. They believe that these organizations help the international community in reaching continual peaceful outcomes.[26]

According to liberalists, nations are more likely to benefit in any area within the international community through co-operation. They are more optimistic in how they view the world. Though they agree with realists on the anarchical nature of the international system, they advocate for alternative ways of dealing with conflicts. They call for use of economic interconnection, global institutions as well as transmission of democratic political systems as

[26]Moravcsik, Andrew: Liberalism and International Relations Theory. Paper No. 92-6, pages 1-53. Available Online: https://www.princeton.edu/~amoravcs/library/liberalism_working.pdf

opposed to war fare. Former US president Woodrow Wilson was a major advocate of liberalism.[27]

Climate change is a political issue revolving around the themes of power, morality and interests. In regard to Africa and climate change mitigation and adaptation, through co-operation, the continent has managed to speak in one voice in addressing the climate change menace using the African Union. African countries are able to speak in one voice in climate change negotiations to push for the implementation of better and friendly policies, more funding to deal with the repercussions of change in climate, as well as drive for active participation by developing countries in the mitigation process as they are the major emitters of greenhouse gases. Joint effort by the different states has seen the realization of greater effort than would have been if the various states were to deal with the climate change issue for a national perspective only.

### 1.9.2. Neo-Liberalism

Neoliberalism is a theory that came about as a result of the economic laissez-faire that came about in the 1970s and 1980s. Neo-liberalists mainly call for comprehensive economic liberalization as well as plans, spanning the interests as well as capabilities of the private sector in comparison to the public sector, notably the shutting down of state as well as government influence over the economy. They also advocate for non-interference, open trade, privatization and a reduction of spending by governments. Neo-liberalism is believed to stand in the way to fighting climate change and its effects. Most scholars argue that climate change calls for a unique collective public response, to which neoliberalism ideology stands in the way. To reduce emission of greenhouse gases, there is need to conquer all of its open-market mantras, which include taking railways and utilities and energy grids back to control by the

[27]Russet, B. & J.Oneal, *Trangulating Peace: Democracy, Interdependence and International Organizations,* (New York: Ww Norton and Company, 2001).

public, regulating corporations in order to eliminate fossil fuels and rising of levies to be able to pay for enormous investment in climate-ready infrastructure as well as renewable energy.[28]

### 1.10 Methodology of Research

The main focus of this study is the African Union and its contribution to the mitigation and adaptation process in continent. To researcher obtained the relevant information from the African Union Bureau for Animal Resources (AU-IBAR) here in Nairobi, as well as from the African Union headquarters in Addis Ababa. The study adopted qualitative design in its conduct and utilize descriptive research designs. Descriptive research is a scientific method which incorporates observation as well as description of a subject's nature by not influencing it in any way.

A number of scientific disciplines, particularly social science, prefer this method towards obtaining an overall overview of the subject. It is also employed where testing and measuring an enormous large number of samples for more quantitative types of experimentation is impossible. This method enhances the study helping researchers have an improved perspective of the synergy of climate change and environment. The researcher relied on primary as well as secondary data. Primary data has been gathered by administering interviews to key persons. Secondary data was collected from published data available from libraries including on-line libraries such as J-store. This comprised books, journals and newspaper articles. Internet sources also form an important source of data in form of latest development in the field.

[28] Harvey, D. *A Brief History of Neo-Liberalism,* (Oxford University Press, 2005)

### 1.11 Scope and Limitations of the research

The two major limitations of the researcher were time and financial resources because the researcher had to travel to various places for primary data collection.

### 1.12 Chapter Outline

This study will cover five chapters. Chapter one includes the introduction, statement of the research problem, research questions, objectives of the study, literature review, hypothesis, justification of the study, theoretical framework, methodology of the study and limitations of the research. Chapter two critically analyses the effects of climate change in Africa as well as the challenges to the mitigation and adaptation process. Chapter three seeks to address the role of the non-state actors in assisting states deal with mitigation and adaptation. Chapter four emphasizes the role played by the AU in mitigation and adaptation. Chapter five analyzes the data collected give conclusions and study recommendations and provide suggestions on further areas of study.

# CHAPTER TWO
# CLIMATE CHANGE IMPACTS AND CHALLENGES OF MITIGATION AND ADAPTATION PROCESS

## 2.1 Introduction

This chapter addresses the major climate change effects and challenges facing the mitigation and adaptation process in Africa. The most susceptible states to climate change are those within the developing world. This is attributed to low capacity to adapt and overdependence on resources which are climate change sensitive. The growth process in Africa as well as the developing world will be undermined by climate change, and the impoverished and most susceptible areas of society will be greatly affected. Its probable effects bluster to counter benefits of sustainable development, at the same time inserting more pressure on the presently overstrained human and financial resources in the developing states.

The most vulnerable areas that have been identified are the major economic sectors like agriculture and water, energy and health as well as wildlife and tourism, which are very important in efforts towards poverty reduction.[29] A large number of Africa's population, to be exact 96%, highly depend on agriculture that is rainfed while in other states there is a forecast of 50% fall on the crop yields by the year 2050 while arable land will drop by 6% margin. Climate change will therefore severely influence food security and food access, and impoverished rural societies and meager countries with minimal financial, institutional as well as technological scope to conform, facing the unfavorable effects. All the same, Africa's general greenhouse emissions is less as compared to the global level, but there is a devastating scale on the effects in Africa and its population and will become more relevant in

[29] Pittock, A. Climate Change: *The Science, Impacts and Solutions,* (Earthscan, 2009).

days to come. The climate change significance on development makes the process of mitigation as well as adaptation imperative while countering effects of changing climate.[30]

There is a call to involve climate change adaptation en masse areas of public policy by pace makers. The inclusion needs to target extensive climate change governance concerns that are reviewed in this chapter. The question of governance of climate change promotes critical questions such as: degree of adaptation readiness; institutional capacities as well as arrangements; the system of financing needed because of adaptation; the ideal approach to carry out improved cooperation support; potent mode for delivery; as well as structures to enable adaptation efforts purpose and aid the most sensitive parts of society.[31]

### 2.1.1 Observed and Projected Trends

Surface temperatures have heightened with more than 0.5 degree centigrade over the last fifty years within the continent. Northern Africa has over the decades observed a long-term warming which is immensely over the range of changes as a result of natural variability. The region has received warm seasons especially in the months of March through to August. The increase has also been experienced in West Africa and the Sahel. According to experts on detection of climate change and Indices, the cold days have dwindled and notably replaced with warmer days and nights. The Equatorial parts, Southern parts as well as Eastern Africa have as well experienced great rise in temperature from the early 1980s.[32]

Warming, that is happening near surface temperature as well as recurrence of intense warm events has been detected in states that border the Western Indian Ocean. The Southern part has also observed a rising trend in its yearly mean, maximum and minimum temperatures within the last two decades. There has been an increase in minimum temperatures more

[30] Toulmin, C. *Climate Change in Africa*, (Zed Books Ltd, 2009).
[31] Williams, C & D. Kniveton (eds). *African Climate Change: Physical, Social and Political Perspective*, (2011).
[32] Pius Yanda& C. Mubaya. *Managing a Changing Climate in Africa: Local Level Vulnerabilities and Adaptation Experiences*, ( Mkuki na Nyota Publishers, 2011).

rapidly relative to maximum temperatures. During the 21st Century, temperatures within the continent are projected to increase faster compared to the global average. The tropical West Africa parts, unprecedented climates are expected to occur within one or two decades earlier, since the small natural climate variability in the area generate constricted climate bounds which could be exceeded by relatively slight climate changes. The Sahel as well as the tropical West Africa parts are identified as popular for climate change, and unpredicted climates are estimated to happen earliest in the late 2030s and 40s.[33]

Africa is pinpointed amidst the most prone areas of the world to changing climate. Africa is a speedily developing continent ecologically, climatically and in terms of cultural diversity. Africa's populace is also estimated to rise to 2 billion by 2050. Susceptibility to climate change differs across sectors and regions as highlighted below.

### 2.2 Agricultural Sector

The food production systems in Africa most affected in the world to climate change because of extensive dependence on rain fed farming, frequent floods as well as droughts which influence crops, livestock and also accelerate poverty which limits adaptation capacity. The agricultural sector is one of the areas that are eminently prone to changes in climate.

The outcomes of climate change on agriculture are significant because of its effects on both human and plant health. Increase in temperatures and change in precipitation are the main variables affecting agriculture in the region. The report cites a load on food security as well as livelihoods in Africa have been placed by the booming uncertain nature of weather patterns within the continent. The Burkina Faso floods and the drought in Ethiopia are some of the intensities of peril caused by the changing climate in the continent.[34]

[33]Otter Luanne, Olago. D & Niang. I (eds). *Global Change Processes and Impacts in Africa: A Synthesis*, (East African Educational Publishers, 2007).

[34] Pachauri, R & Meyer. L. IPPC: Climate Change, Synthesis Report, Contribution of Working Groups 1,2 ,3 to the Fifth Assessment Report of the IPPC, 2014.

Sixty five percent of Africa's labor force is employed by the agricultural sector, with 95% of agriculture in the region being rain fed. This has resulted to a rise in food costs that has in turn affected economic growth in most parts of the region due to currency depreciation, conflicts as well as security threats. Kenya is a good example of this. The country endured yearly damages of 10-16% on its GDP, as a result of floods related to El-Nino witnessed in 1997/98, as well as La-Nina drought experienced in 1998/2000. Some of the major economy driving sectors e.g. transport, industrial and hydro-power production have also been greatly affected.[35]

Due to food crisis in the region, hunger and malnutrition trends have remained sturrbornly high. It is estimated that by the year 2100, agricultural damage of between 2-7% of the GDP are estimated especially within the Sahara, with 2.4% in Western Africa, 0.4% in Central Africa and 1.3% in Northern as well as Southern Africa. A decrement in fertile agricultural land is also expected. A rise in crop pests and infections is also expected and alteration of soil fertility. All these factors are expected to lead to failed nutrient access that will in turn raise the vulnerability to diseases like Malaria as well as Hiv/Aids.[36]

Africa is predicted to be the utmost prone to changes in climate globally due to certain stress factors like damaged infrastructure, impoverishment as well as poor governance. The climate in the region is expected to rise by 1.5-4 degree centigrade, with a yield production drop of up to 50%, leading to a fall in crop revenue of up to 90% by 2100. By 2080, Africa is estimated to be affected region by food insecurity in the world, possessing 40-50% of under nourished people. A decline in viable arable land production is also expected by the same year. An increase in crop pest and diseases and soil fertility is also expected. Some positive aspects are also expected because of changes in seasons as well as production cycles.

[35] Hallegate Stephane, Bangalore.M, Fay. M et. Al, *Shock Waves: Managing the Impacts of Climate Change on Poverty,* (The World Bank, 2014*).*

[36] AnitaWreford, D. Moran & N. Adger, Climate Change and Agriculture: Impacts, Adaptation and Mitigation, (OCED, 2010).

Ethiopia and Southern Africa are estimated to have prolonged seasons of growing due to climate change.[37]

### 2.3 Health Sector

There is an booming accord that overall climate is altering as a result of global development practices, which have generated environmental hazards on an international scale, involuntarily uncovering communities to greenhouse gases. Negative impacts of the shift augur to aggravate health inequalities and counter advances that have been done recently to advance public health, and resolutions to achieve Millennium Development Goals. In May of 2008, World Health Organization made a resolution prioritizing climate change as well as health, listing it on the WHO's health sector agenda which demands that member states facilitate actions that secure the public's health against changing climate.[38]

Climate change has both direct as well as effects on human health. Some of the downright effects include; morbidity, injury as well as mortality, which are as a result of change in climate related severe weather effects like floods, drought, cyclones, skin and eye damage due to UV radiation, and thermal stress as a result of heat waves and cold periods. The indirect impacts include malnutrition, malaria, diarrhea, meningitis as well as neglected tropical diseases. Malnutrition for instance, causes 1.7 million deaths per year in Africa, and is regarded as a leading contributor to mortality globally. Malnutrition is also believed to be directly linked to food insecurity. Malaria is also a major disease and cause of death in the region. An estimated number of between 700k and 2.7 million die annually due to malaria. The disease is as a result of combined effects of changing temperature and precipitation that provide a suitable environment for easy spread of the disease. [39]

[37] Dinar Ariel & Mendelsohn, R, *Handbook on Climate Change and Agriculture*, (Edward Elgar Publishing Limited, 2011).
[38] Martens, P. Health and Climate Change: Modelling the Impacts of Global Warming and Ozone Depletion, (Earthscan, 2013).
[39] Butler, C. *Climate Change and Global Health*, (CABI, 2016).

## 2.4 Water Resources

Climate change has a throng of impacts both short term and long haul on water resources in African states. They are; sea-level surge in estuaries, flooding, drought, depletion of rivers, and poor water quality for both surface and ground systems. In the 1970s and 1980s a period of low rainfall resulted to severe droughts in the region, especially in the Sudanian areas and the Sahelian regions. There has been an increase in serious floods in the Niger Basin attributed to rise in temperatures. Seasonal water shortages are also expected especially in the Southern part of East Africa. [40]

Reports indicate that an estimated population of almost 51% leaving in Sub-Saharan states doesn't have access to clean water while 41% do not have adequate sanitation. In most rural areas, women and girls are left with the sole burden of water collection, protection of water resources, maintaining of water systems as well as water storage. Climate change influences the water sector in such a big way. 25% of the Africa's populace experience periods of water stress, with an additional 69 % of the population experiencing water abundance. The water abundance however, does not account for factors like access to clean drinking water as well as sanitation which greatly affect quality of water available for human use.

Shift in temperature, sea levels as well as precipitation are approximated to influence the point of water availability in the continent. The issue of water is a great concern for the region as most of its populace depends heavily water within the surface for their day to day exertions. The Sahel, Horn of Africa and Southern Africa regions which are greatly prone to

[40] Kevin Chika & Ozor. N, Impacts of Climate Change on Water Resources in Africa: the role of Adaptation, http://www.ourplanet.com

drought, water quantity reduction affects its quality, which in turn affects other areas like health and biodiversity.[41]

### 2.5 Terrestrial Ecosystems and biodiversity

There are great changes happening in distribution of the various categories of ecosystems in the continent, from deserts and grasslands, to woodlands and savannahs as well as forests. Some three major trends have been observed within the continent. First, there is the enlargement of desert and reduction of the vegetated space. Second, there is the increase in human influence extent of natural vegetation. Thirdly, there is a composite shift in the spatial dissemination of the natural vegetation in Western Africa, as well as an increase in woody vegetation in within Central and Eastern parts as well as South Africa. The main contribution of the changes includes changes in anthropogenic land use, especially agriculture expansion, fuel wood harvesting as well as livestock grazing.

Mountain ecosystems are undergoing changes due to climate change. Ice caps on Mt. Kilimanjaro are proposed to disappear by the year 2020. The Cameroon Mountains and the island-like Afromontane habitats that extend from Ethiopia through to South Africa could also be affected. Changes in climate are expected to cause shifts in species range, and changes in the productivity of trees that could become strenuous for forest ecosystems. Other threatened species include migratory birds, manatees and marine turtles, and the mangroves. The long haul results of these are felt by the tourism and fisheries industries. Climate change causes changes in ecosystem composition leading to heightened susceptibility of ecosystems

[41] AMCEN, 2011:Addressing Climate Change Challenges in Africa; A Practical Guide Towards Sustainable Development

to natural as well as anthropogenic disturbances. It is also likely to cause species migration and habitat reduction. [42]

### 2.6 Energy Sector

Water is the central source for generation of electricity in most African states. A closer look at the East African region reveals that Kenya, Uganda and Tanzania heavily depend on hydro for power generation. With Kenya having a 70%, Uganda 65% and Tanzania 58% of their installed capacity respectively coming from water. Climate change greatly influences hydro power production through; lowering water levels on catchment areas, reducing capacity of hydroelectric generation, and failure to meet power demands which results to increased power costs. The alternative to hydropower is thermal power that happens to be seven times more costly.

Uganda for example has invested millions of dollars in thermal power, which has been equally strenuous on its economy, prompting her to invest in other forms of power generation like renewable energy. Ghana was also faced with a power crisis in the year 2007, when the levels of water at the Akosombo dam reduced beneath the basic level of 240 feet. Consequently the authorities were left with no option but to administer load shedding. In 2006/2007, Ethiopia experienced power cuts for close to six months because of drought-related shallow water altitudes in her hydro dams. Customers experienced loss of power by for 15 to 48 hours per week.[43]

[42] Parry M.L., O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., 2007, Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge, UK, 982pp.
[43] Powles, J et al, " Food, Livestock Production, Energy, Climate Change and Health," The Lancet, Volume 370, Issue 9594, (2007) PP 1253-1263

## 2.7 Livestock

Livestock systems face a number of stressors which merge with changing climate as well as variability thus magnifying the vulnerability of the pastoralist communities. The said pressures are; heightened variability in accessing water, rangeland degradation, grazing areas fragmentation, conflict and political crisis, lack of opportunities to diversify livelihoods, etc. livestock loss due to prolonged droughts in the continent is a critical risk.

Sufficient provision of water required for livestock production could become difficult. Change in climate could equally influence the distribution of economically important pests in dry land as well as lowland areas. Change in rainfall, temperature and also seasonality results in a better habitat for storage of her monthica, in Central Africa. These weeds are a major reason for yield reduction in the continent. A reduction in sufficient range of major cassava pests for instance whitefly as well as cassava brown steak virus is also projected.[44]

## 2.8 Urbanization

The populace in urban areas is expected to treble by the year 2050, with a 0.8 billion increase. Most of the evolving cities in the continent are unplanned, with a major growth of informal settlements, and lack of adequate housing and basic services, and urban poverty. Climate change has highly influenced scale as well as type of rural urban migration in Africa. Most migration flows that have been detected with regard to environmental change are within state boundaries. For the large urban centers located in mega deltas like Nile Delta and Benin City as well as Port Harcourt and Aba in the Niger Delta, urbanization as a result of migration may lead to a rise in people who are prone to the results of coastal climate change.

Floods also do have considerable effects on cities as well as smaller urban centers. An example is the heavy rains that were experienced in 2002 in East Africa, which resulted to

[44] Herrero M, et al, " The Impacts of Climate Change on Livestock and Livestock Systems in Developing Countries: A Review of What We Know and What We Need to Know," Agricultural Systems, Vol. 10, No.3 (2009) PP 113-127

floods as well as mudslides, compelling multitudes of people to leave their homes in Rwanda, Kenya, Tanzania as well as Burundi. An assessment of Eastern Africa shows that coastal flooding would affect over 86,000 by 2030, with an economic risk of between 0.68 billion dollars and 1.06 billion dollars. The same predicament is expected in West Africa and Southern Africa. African towns and cities are highly susceptible to changes in climate owing to their finite capacity to adapt as well as resolve the present as well as future consequences of climate change. Structural factors such as poor capacities and resources by local governments, lack of proper regulatory structures and mandates and poor infrastructures are also contributing factors.[45]

## 2.9 Challenges to mitigation and adaptation in Africa

### 2.9.1 Lack of a comprehensive policy structure for climate change adaptation jurisdiction

A thorough framework that is critical for climate change adaptation is inadequate in most states. It is especially common in the countries that have not adopted an inclusive mechanism of planning to be able to adapt to changing climate which is mainly conveyed in National Adaptation Plans of Action along with National Climate Change Response Strategies. Countries like Zimbabwe and Nigeria are among those that lack clear plans and strategies. In areas where these plans don't exist, adaptation has a tendency to be highlighted by an excess of disintegrated policies of both the environment and development.

The existence of NAPAs/NCCRS tends to be closely fixated to biophysical susceptibilities, following sector alongside project methodologies to adaptation as well as failing to boost integrated responses and account for micro-level adaptation requirements. Owing to these

[45] Deichmann U, et al, "Has Climate Change Driven Urbanization in Africa?" Journal of Development Economics, Vol 124, (2017) PP 60-82

limitations the demands of the very delicate people in society, whom are; women, the impoverished as well as small-scale farmers are not satisfactorily provided for.[46]

### 2.9.2 The layout of climate change adaptation within the environment sector restraints effectual integration

A dissection of the environment as well as the development policy structure portrays a propensity to position adaptation of climate change exclusively with the environment sector with no association to alternative sectorial schemes. This restrains public alongside decision makers' capability to comprehend change of climate and its impacts as well as its significance for the national economies, hence wrecking the political buy-in for prioritization alongside resource acquisition for climate change adaptation. Generally, the protocol for mainstreaming climate change adaptation to national level planning isn't presented to the economic planners.[47]

### 2.9.3 Macro-Economic development schemes cripple adaptive capacity

The focus towards etching foreign direct investment alongside procuring industrial clash, fiscal policy, as well as balance of wage increases in a bid to allure foreign investors as well as enhance economic growth, demeans the impoverished there by undermining their adaptive capacity. A scrutiny of agricultural schemes exposed a bias against macro-economic interests in line with commercial agriculture alongside technological transfer with the demands of subsistence farmers being belittled. Centre of majority of the susceptibility and adaptation reviews in the agricultural zone affirm this prejudice.

Similarly, capital interests have ensued to the deracination of the local land owners alongside the resource users in rural societies to promote tourism, commercial forestry as well as

[46] Climate Action Tracker (2015). "Climate Action Tracker." Retrieved 18 September 2017, from http://climateactiontracker.org.

[47] Stripple J, et al, " Transitional Adaptation Governance: An emerging Fourth Era of Adaptation," Global Environmental Change, Vol 35, (2015) PP 423-435

agriculture for export, leaving a cogent number of rural dwellers landless, without access to biodiversity as well as natural resources and as a result highly vulnerable to the consequences of change in climate.[48]

### 2.9.4 Gender isn't mainstreamed into crucial adaptation response schemes

National adaptation policies don't amply feature the areas of inequality alongside gender. The strategies of adaptation by majority of the affected areas of the economy for instance farming, biodiversity and even water have great variations with regards to planning for gender-related differential impacts of change in climate. Facilitating provisions for instance the security of tenure, provision of technical insight like meteorological and weather forecasts as well as availability of micro-finance and room for dynamic employment aren't adequately and rightfully available to women. Packaging of solutions to meet the demands of the recipients is equally important as giving of solutions.[49]

### 2.9.5 The advancement of adaptation plans and strategies is eminently prevailed by state actors

The civil societies as well as the local populace have by far executed a finite part in formulation of the national climate change adaptation rules as well as strategies. This situation undermines the important governance principles majorly equity, involvement by the stakeholders, answerability as well as pellucidity. The needs of the stakeholders as well as their interests are therefore inadequately echoed in adaptation responses.[50]

[48] Besada H & N. Sewankambo, *Climate Change in Africa: Adaptation, Mitigation and Governance Challenge*, (Centre for International Governance Innovation, 2009).
[49] Simon David & Leck H, "Fostering Multiscalar Collaboration and Cooperation for Effective Governance of Climate Change Adaptation," Urban Studies, Vol 50, 3 (2013).
[50] Falkner R, "International Negotiations Towards Minilateralism," Nature Climate Change, Vol 5, 9,(2015), pp 805-806.

### 2.9.6 Government institutions encounter extensive threats which erode their adaptive scope

These protests consist of weak coordination due to the conflicting as well as overlapping mandates, erroneous arrangements for inter-agency synergy, overwhelming of the exterior systems such as the UNFCCC alongside donors, as well as inadequate funding for adaptation. States with finite incomes for instance Uganda, Tanzania and Zimbabwe have restrictions with dazzling and embracing proficient people as well. There is urgency for the decentralization of adaption counters to be heightened by empowering the local governments alongside intensifying their extent for adaptation.[51]

### 2.9.7 There is sketchy venture in vital areas for climate change adaptation

Most of the actors are muddled in boosting information on climate change, capacity building alongside groundwork, and give lesser preference to investments in legislative facets, designation, propagation as well as financial collaboration.

### 2.9.8 Groundwork doesn't counter national information voids on climate change

African inquest scopes are compelled to cohort on disparate, foreign-led investigations that retort to exterior research interests alongside agendas.

### 2.9.9 Allotment structures within the donor companies are frail and project avenues continue to prevail development assistance

The allotment of donors on climate change linked issues is restricted to environment related working groups. Therefore, collocation as well as communication is restrained and thus failures to consolidate other important areas like farming and energy as well as in reduction of poverty where the bulkiest share of development cooperation is conducted. In part of the cases donors hardly rebrand existing actions as climate change activities, making it hard for

[51] Liverman, D, "Challenges to Mitigation and Adaptation in Africa," W, Steffen & K, Richardson, (ed), Climate Change: Global Risks, Challenges and Decisions, (Cambridge University Press, 2011) 16-19.

governments as well as other actors to gain access of the funding they require for the development of adaptation strategies.[52]

## 2.10 Conclusion

The impacts of climate change have been greatly felt in the African continent. Rise in temperatures, rainfall unpredictability alongside extreme weather conditions being among the major effects. There are also major impacts that are expected in the future, all which are affecting the major sectors within the continent. The impacts of climate change are felt by people across all walks of life, hence the need for joint effort in the combating process. The role of dealing with climate change should therefore not be subjected to environmentalists and scientists because it transforms the lives of each and every one of us. The people have an obligation to adjust our way of life so as to be able to conserve as well as prolong our planet for the future of our generations.

Also, Africa needs to realize that the ongoing effects of climate change on its economies as well as its populace call for the implementation of a development agenda to be incorporated in climate change negotiations. There is also the need for sustainable development that includes a swift move towards a low-carbon economy, and a call for green growth opportunities in investment which is important for responding to the urgent and rising need for climate adaptation. The sustainability of Africa's environment as well as its productivity is enormously reliant on how climate change within the continent is managed.

[52] Gemada, D & Sima, A, " The Impacts of Climate Change on the African Continent and the Way Forward," Journal of Ecology and Natural Environment, Vol 7, (2015), PP 256-262

# CHAPTER THREE

## ROLE OF VARIOUS NON-STATE ACTORS IN ADDRESSING CLIMATE CHANGE MITIGATION AND ADAPTATION

### 3.1 Introduction

Climate change is a universal menace that needs collective solutions, where its attributes and effects need a major engagement by numerous national and local-level shareholders to help in forming as well as implementation of solutions. The adaptive capacity of the impacts of changing climate is heavily dependent on actions and blue prints which are adopted to counter the needs and intensify the resilience levels of the susceptible systems and parties within the communities. The absence of effective action plans as well as legislative frameworks presents hurdles to performance of adaptation responses, thus causing a rise in the susceptibility by specific people mostly women and the impoverished. The lack of adequate institutional support as well as appropriate policies limits the adaptation process and constrains availability of essential natural resources by societies that rely on them for their endurance as well as adoption to the changes in the environment as well as climate variability. The effects of change in climate, as well as the need for a combined response demands volatile and adaptive institutions as well as meritorious actors in leading the course in creation of an facultative environment for adaptation to the changing climate.[53]

### 3.2 Non-state Actors in Climate Change Adaptation and Mitigation

The increase of distinct non-state actors as well as institutional arrangements has changed the dynamics and outcome of international environmental politics." A more prominent role is now being played by Non- state actors. State and inter-governmental organizations are still major influencers of international policy making but non-state actors shape global politics. This change in global governance composition has as a result become an intense subject of debate in academic literature and global policy circles. The role of non-state like the NGOs,

[53] Bulkey H, et al, " Transitional Climate Governance," Global Environmental Politics, Vol 9, 2 (2009), PP 52-73

the Multinational Corporations as well as scientific organizations has become dominant in global governance. The sum of NGOs claiming advisory status at the United Nations Economic and Social Council has elevated over the years from 700 in 1992 to about 3200 to date. Inadequate commitment by states in climate change negotiations has seen non state actors play a more pronounced role.[54]

Some of the major areas of concern by the non-state actors are; climate change governance include; influencing agendas, influencing policy makers, mitigation and adaptation, provision of expertise and solutions, evaluation of consequences, raising awareness, presenting public opinion and representation of marginalized voices. In climate change mitigation, they have a key role in implementing of national climate plans as well as strategies, strengthening of civil societies and local communities' participation, protection of local ecosystems, advocating for cooperation between sub-national as well as national governments on local climate action, and generation of science policy interactions among other roles.[55]

In November 2016, the twenty second UN Framework Convention on Climate Change happened in Marrakesh. The main theme of the conference was "Together Now," in line with a call for unity among businesses, regions, cities, industries, and NGOs to help in transitioning to a low carbon society. There are new efforts in accelerating climate action between states and non-state actors which is achieved through facilitation of dialogue, exchange of knowledge as well as cooperation among the two actors. Prior to this, the launch of NAZCA, the Non-State Actors Zone for Climate Action was launched in 2014, to ease the mandate of non-state actors in the climate change mitigation and adaptation measures. According to the UNESC, Non-state actors include; the civil society and social networks,

[54] European Environment Agency, *Global Governance: The Rise of Non-State Actors*, (Publications Office of the EU, 2011).
[55] Fogarty, E, *States, Non-State Actors and Global Governance: Projecting Polities*, (Routledge, 2013).

economic factors such as businesses and trade unions, as well as sub-state actors like the regional and local governments, cities as well municipalities.[56]

Non-state actors have a major purpose in climate change mitigation as well as adaptation because being observers of multilateral diplomacy; they are entrusted with overseeing, monitoring as well as the implementation of countries' Nationally Determined Contributions. Over the years, the UNFCCC Secretariat has become a facilitator for climate change. Under the UNFCCC, various non-state actors have come up. These are; the environmental NGOS, activists organizations, city networks, international organizations, oil firms, consultancy as well as legal firms, carbon brokers, trade unions, women groups, youth organizations and even religious groups.[57]

Most of the named groups are however unattached internally with most seeking environmental friendly action plans as well as technologies. This has seen a rise in climate justice movements, bringing forth new energy in climate activism, with the involvement of new social groups and networks. In Africa, local and international non-actors have become increasingly involved in climate change adaptation, with regard to the needs as well as interests of their people and availability of finances needed for the adaptation process. More assistance has been skewed towards the national as well as international organizations with less involvement by society based organizations. In Botswana for example, various NGOs have played an active role in areas such as forests, and product management and conservation, management of water and waste which help boost opportunities as climate change adaptation entry points.[58]

[56]Karin B, et al, "Non-State Actors in global climate governance: from Copenhagen to Paris and Beyond," Environmental Politics, Vol 26, 4, (2017) PP561-579.
[57]Nasiritousi, N, *Shapers, Brokers and Doers: The Dynamic Roles of Non-State Actors in Global Climate Change Governance,* (Liu-Tryck, 2016).
[58] Schroeder H, et al, "Conceptualizing Climate Governance Beyond the International Regime," Global Environmental Politics, Vol 9, 1, (2009) PP 58-78.

There is also the Nigeria Climate Action Network, which is an alliance by various Non-Governmental organizations to help in identification of contemporary entry points and resources to facilitate the mainstreaming of climate action plans as well as programmes meant to build a broader development agenda. In Kenya there is the Pan African Climate Justice Alliance, a coalition among African Civil Societies that is actively involved in climate change matters as well as sustainable development work. Majority of the NGOs are however seen as weak in matters climate change due to constrains in terms of financial as well as human resources, leading to a lack of political power. Zimbabwe serves a good example, where NGO-Government relations have been very tense, to an extent of the government striking a ban on NGO field activities.[59]

One of the most active non-state actors in Africa is the civil society, which performs a major act in environmental governance in Africa, and is seen as a partner in regional governance because of its acceptance and support of the agendas formulated by the various regional bodies within the continent. An analysis of the Eastern and Southern regions reveals that the civil society works closely with the respective regional bodies the EAC, SADC and COMESA. The political instruments that are key in ensuring socio-economically as well as environmentally sound regional governance are available, though there is demand for a bit of fine tuning. The civil society plays two roles in the partnership which are service delivery and lobbying and monitoring. Some of the civil society organizations include; Osienala Friends Organizations in Kenya, Uganda and Tanzania. Their main agenda is the Lake Victoria, where they provide various services to the locals, educating the fishing communities on

[59]Dimitrov R, "Inside Copenhagen: The State of Climate Governance," Global Environmental Politics, Vol 10, 2, (2010) PP 18-24.

environmental management. The Kenyan government also appointed the organization as a lead agent in matters regarding Environmental Impact Assessment.[60]

An aggregate view of patterns is provided by the data on Non-state actors' participation in climate actions. For example 'participants in climate action' 'the actors that lead climatic action;' 'the number of businesses and which types engage in climate action.' This data is fundamental in determining the climate action extent involvement in underrepresented voices in formal climate regime. Furthermore, the northern drive or international orchestration of climate actions could be indicated from the analysis of patterns of participation. These questions are particularly pertinent with the UNFCC context on climate discussions, where states in the developed world have roused extra involvement with non-state alongside sub-national actors, and with a good number of developing states and NGOs showing concern over certain issues like the privatization aspect of climate governance.[61]

### 3.3 Functions

GAFCA applies a method that works well as compared to the current climate action keeping track of the initiatives and research projects mainly focusing about mitigation. Additionally, GAFCA divides the disparate functions that are potentially attained by climate actions in the management of global climate. This ensures a clear understanding of the roles played by climate actions in different climate policy areas, along with resilient development, mitigation, as well as adaptation. There is a need for functions conception on climate. For example a climate action whose purpose is raising awareness. The functional categories include the production and dissemination of knowledge as knowledge, technical implementation on

[60] Armstrong D, J. Gilson & D. Spini (eds), "*Civil Society and International Governance: the role of Non-state actors in global and regional regulatory frameworks*," (Routledge, 2011).
[61] Cadman T, R. Maguire & C.Sampford (eds), "*Governing the Climate Change Regime: Institutional Integrity and Integrity Systems,*" (Routledge, 2017).

ground action, capacity building by institutions which includes both governments and informal institutions, setting of norms and standards, campaigning as well as lobbying.[62]

### 3.4 Outputs

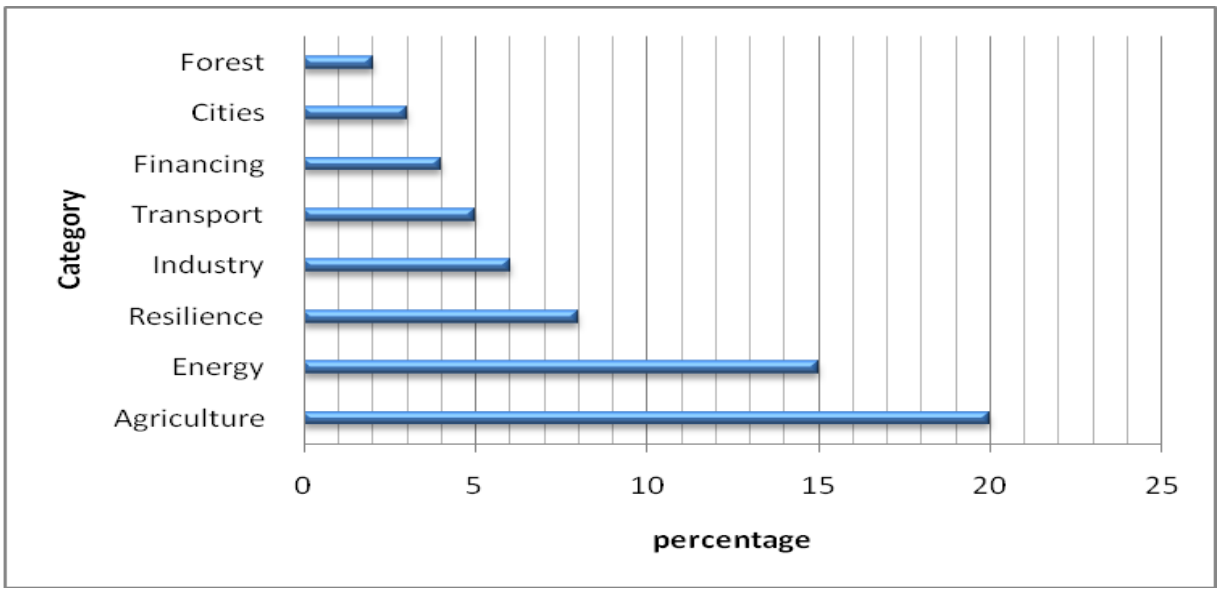
The attributable and tangible climate action products, also known as outputs, are a basal condition for efficiency. Any action that does not yield an output can safely be considered to be ineffective in all ways. Contrary, output indicates existence and climate action productivity. Effectiveness is very unlikely without matching outcome (behavioral outcome) and effects (level of finding solutions). Even though it is difficult to attribute environmental and behavioral changes, it is much easier to attribute outputs to certain climate actions.[63]

### 3.5 Strengthening Non-state climate actions

A great deal of focus is put on questions that relate to organizations characteristics, leadership geographic patterns, implementation, as well as measurable outputs resulting from climate actions since they were launched at the 2014 UN Climate Summit. Generally, results are presented in aggregate form. Actions dissemination as outlined in the 2014 UN Climate Summit is unequal as is highlighted in Figure 1, thus causing a mix up in the aggregative investigation for smaller areas of action.

[62] Goldberg M, et al, Strengthening Non-state Climate Action, (A Progress Assessment of Commitment Launched at the 2014 UN Climate Summit, November 2015, New york).

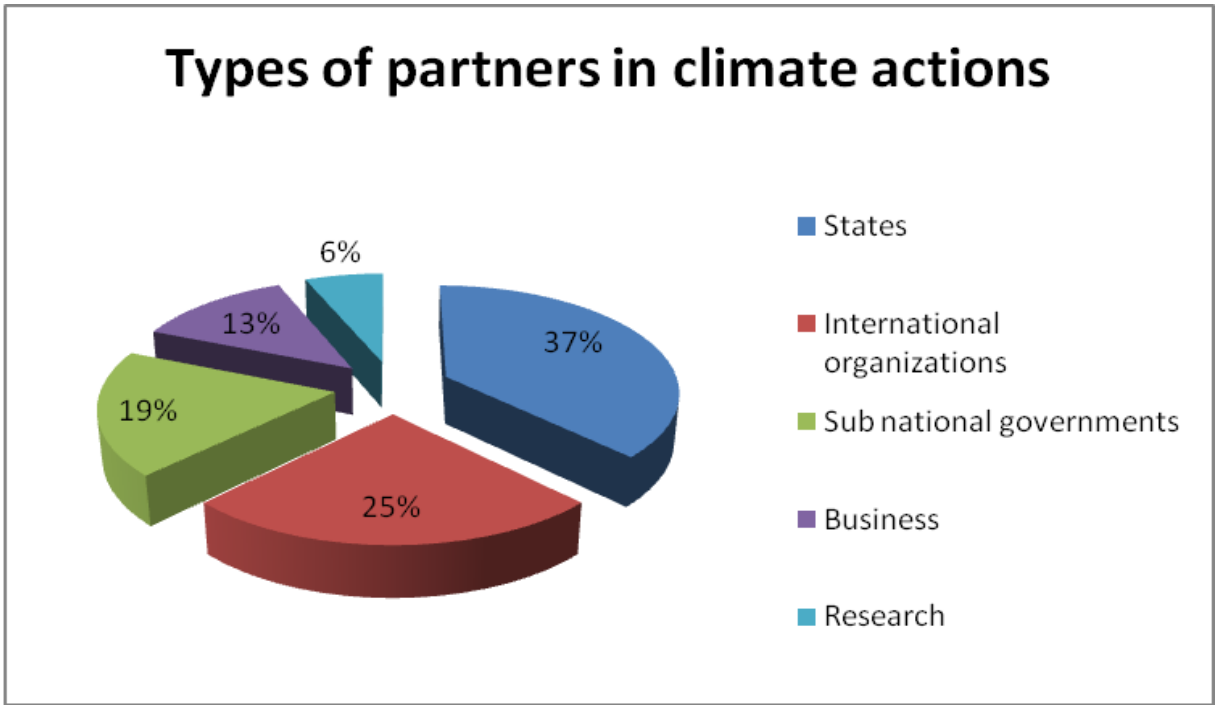
**Figure 1 Numbers of actions according to action area**




### 3.6 Patterns of participation

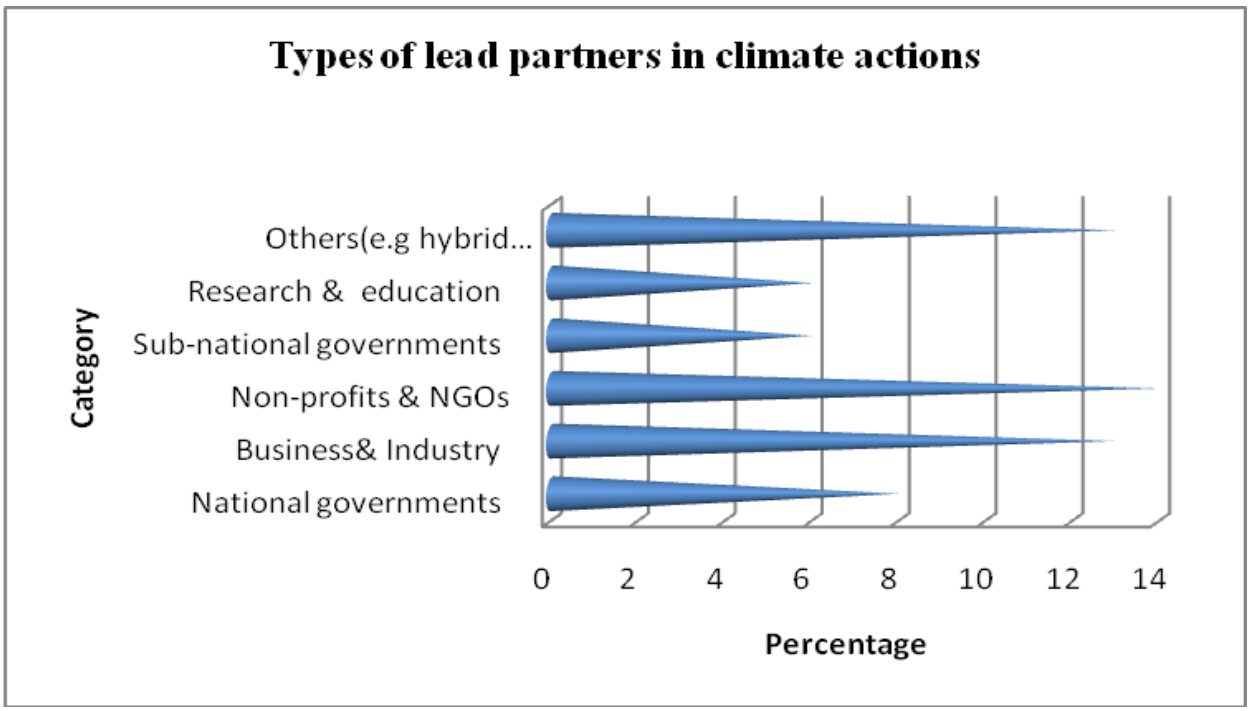
Considerable diversity is a characterization of the cases of climate actions arising from the 2014 UN Climate Summit. Even though climate actions are generally assumed to be transnational inputs away from the state-centered climate regimes and national governments as well as international organizations are the most involved partners in climate actions, whereas the sub-national governmental actors for instance cities as well as regions are the in line. Despite the UN Climate Summit's advocacy on business as well as industry efforts, only 11 % of all partners are enlisted in this category. The UN summit managed to only mobilize alternative transnational actors, as well as NGOs, and research as well as education organizations constituting 17%. Through this analysis, there is a demonstration of the important role played by the traditional players in climate governance especially the national governments as well as international organizations.

**Figure 2 Categories of partners in climate actions**




Where climatic actions leadership is involved, though national governments feature frequently, the international organizations top a bulk of the climate actions as is evident in Figure 2. A distant second position is taken by business and industry organizations as lead partners. The crucial role played by international organizations on orchestrating climate action is confirmed by this leadership patterns. The existence of national governments as well as agencies partners is attributed to the evidence that international organizations guide most of the climate actions. The International organizations are accountable to the national governments. In addition liability relations is strict in international associations as compared to transnational governance institutions, nonetheless, international organizations clearly see an advantage by national governments involvement while compared to other stakeholders.

**Figure 3 Lead partners in Climate Actions**




The major partners have been fortunate at mobilizing above the usual suspects for instance the National governments as well as the large multinational corporations as listed in Figure 3.

### 3.7 Conclusion

The involvement by non-state actors in climate change governance has been definite within the continent over the years. Climate diplomacy has greatly been pioneering in continuously seeking to facilitate access and inclusion of the various ranges of non-state actors. It should however be noted that the focus on non-state actors does not mean that states are no longer important in climate change management.

Non-state actors' contribution to the governance of climate change varies in different ways and to different degrees through offering knowledge and expertise, new insights, moral arguments as well as in taking action on the implementation of policies alongside assuming the role of stake holders. Non state actors are overall identified as being shapers of information and ideas, brokers of knowledge, norms and initiatives and doers of implementing policies as well as influencing behaviors. There is need to improve conceptual

as well as theoretical understandings of non-state authority so as to understand how power and interests, ideas and norms as well as governance practices combine when trying to understand governance outcomes. Nevertheless, states are still important for setting the terms of climate actions through the various laws and regulations. It is hence important to understand how states and non-state actors relate in a bid to understand global environmental governance.

# CHAPTER FOUR

# THE ROLE OF THE AFRICAN UNION IN CLIMATE MITIGATION AND ADAPTATION

## 4.1 Introduction

This chapter will highlight the obligation by the African union in climate mitigation and adaptation. The chapter will thematically address this issue by looking at key achievements of the African Union and some of the mechanisms put in place to address climate change governance in Africa.

## 4.2 Africa's Environmental Challenges

"Climate change is real and happening faster than ever before, with devastating impacts on the African continent. A delay in action thus makes lower climate risk levels unattainable. Climate Diplomacy is the consolidation between national interest debates and international cooperation, in addressing climate change challenges. It ensures accuracy in assessment of other countries' interests and intentions, and finds the space for agreement. This is integral for the establishment of links between domestic, foreign and international climate policy. African political leadership has identified the importance and infiniteness for Africa to actively get involved in Climate Diplomacy through a harmonized common point and to design robust policy approaches for a collective effort in confronting complex climate change challenges."[64]

Africa is ranked the poorest region globally, having two thirds of all least developed countries and the largest group of persons that survive on less than one dollar a day. The region is also characterized with the worst environmental degradation and resource depletion, where most of the people depend on the natural resources for survival. The survival tactics of

[64] Venables T, et al, "Climate Change and Africa," Oxford Review of Economic Policy, Vol 24, 2, (2008) PP 337-352.

the impoverished and the fast growing population results to environmental crisis. The climate issue in the continent has become greatly unpredictable, with its impacts adding to the sense of urgency. There are attempts to help address the climate challenges at the various geographical and organizational levels, from UNECA, UNEP, AU, ADB and RECs.[65]

### 4.3 African Union's Role in Mitigation and Adaptation

Climate change's nature as an international challenge cannot be dealt with on an individual basis hence calls for partnerships and collaborations in dealing with the crisis. The African Union encourages partnerships among various countries, regions, as well as the various sectors as a sure way of addressing the multiple threats resulting from the climate change crisis. For the longest time, efforts for addressing climate change problem in Africa were fragmented as well as uncoordinated. This therefore hindered Africa's voice from being heard in international climate change discussions.

This realization hence intensified a conversation around a common front ahead of the COP15 in Copenhagen. Nevertheless, there were still a number of formations dealing with climate change issues. These included; The African Ministerial Conference on the Environment (AMCEN) alongside the African Group of Negotiators (AGN). There is a growing inter-state cooperation and engagement on climate change through AMCEN. The first regional workshop on adaptation was held in 2006. This was a great step for Africa towards adaptation. Consequently, African Heads of State and government members have attended various regional meetings to formulate a common position in climate change governance. The African Union has come up with some major initiatives to help in improving policy coordination at a continental level. These include; the Climate Information for Development Program, which it sponsors alongside the ADB and UNECA. The program's main role is

[65]Mcleman R, et al, "Climate Change as the 'new' security threat: Implications for Africa." International Affairs, Vol 83, 6, (2007) PP 1141-1154.

provision of relevant data meant to help African countries and sub-regional organizations in developing and implementing their climate change adaptation strategies, which include the assessment of their previous economic achievements in terms of climate resilience on a long term basis.[66]

As a continent, Africa is also a member of several groups, for example, Group of 77 and China, Small Island States as well as Least Developed states. These groups have however faced a major challenge of different formations advancing different positions, which does not go well with Africa. The common Africa Position therefore emphasizes on the need to get an agreement that is fair, equitable and favorable for Africa. The major issues surrounding the agreement are prioritizing adaptation provision of adequate finance, adaptation of science and technology, and issues of loss and damage. [67]

There are several African Partnerships on Climate change. These include; The Climate and Development Programme for Africa, a flagship Programme meant to bring together AUC, UNECA and AFDB, the African Group of Negotiators, alongside the committee of Heads of State as well as Governments on changing climate. Various sub-regional efforts between regional blocs and civil society have also been made to help in the improvement of interjection of climate change issues to national and regional progression strategies, developing initiatives for Africa's ability to adapt and also mitigate to the impacts of changing climate as well as strengthening the African-EU dialogue on climate change.[68]

Since the Rio Summit of 1992, the issue of climate change has driven governments globally in creating certain ways to deal with the menace. This has been done through forging of

[66] Teresa Murigi, interview with Shane Wangechi, Assistant at the Department of Research and Media Monitoring, Nairobi, September, 16, 2017.
[67] Venro, Adaptation to Climate Change in the Joint African EU Strategy and the Copenhagen Climate Summit, http://www.germanwatch.org
[68] K Musiyiwa & W. Filho, *Climate Change Adaptation in Africa: Fostering Resilience and Capacity to Adapt*, (Springer International Publishing, 2017).

policies, erection of institutions, and designing of programmes aimed at addressing the climate change issue. Within the African Continent, the climate change menace is believed to have endangered efforts by member states to achieve African renaissance. As a result, Africa has adopted a unified approach in the various discussions and sessions on international climate change negotiations under the Committee of African Heads of States as well as Government on changing climate (CAHOSSC).

Africa's major priorities in addressing climate change challenges include the implementation of climate change schedules and strategies that will help in attaining development goals that include the Millennium Development Goals, as a way of alleviating poverty through achieving food security. Through preparing a climate strategy for Africa, adaptation is recognized as one of the overriding priorities for the continent hence the call for exercise of adaptation measures as well as actions, by procuring new and extra public funds, dynamic financial technologies as well as building scope in an efficient manner.[69]

Mitigation has been addressed in equal measure, giving consideration to mitigation commitments by the developed and developing states, reduction of the emissions resulting from deforestation and forest degradation, and the implementation of article 4.1 (C) of the UNFCC. African governments have united in various meetings and declarations in dealing with the climate change crisis in the continent. One of these is the Algiers Declaration on climate change, which was established by the African Head of Governments in February 2009. A committee of ten heads of states and governments was subsequently formed during an AU summit in August of the same year and was chaired by the Ethiopian Prime Minister. They agreed on some major key positions that included; the compensation of Africa in the area of environmental justice, the damage of property and economics, as well as the social

[69] Mutanga. S, T. Simelane & N. Pophiwa, (eds), Africa in a Changing Global Environment: Perspectives of Climate Change Adaptation and Mitigation Strategies in Africa,( South Africa: Africa Institute of South Africa, 2013).

losses arising due to the responsibilities of the developed countries. Africa also embraced the United Nations Framework Convention and adopted measures based on the precautionary principle with regards to adaptation. It was agreed that adaptation is the highest priority for Africa, and that as a continent; Africa has the right in receiving full support in its adaptation to the climate change due to its vulnerability. The need in fulfilling provision of financial technological and capacity building which is provided for in the UNFCCC was also highlighted.[70]

The African Union has and continues to play a very major role in safeguarding Africa's united stand in where matters of global governance, mainly negotiations and the evolving mechanisms are concerned. The Heads of states and Governments have overtime verdicts in order to assist member states in effectively and equitably dealing with the threats that are posed by climate change. In July of 2009, the AU Summit in Libya embraced a decision on Africa's common position with regards to climate change that was to be entrenched on the Algiers platform as well as its refinement by the African Group of Negotiators. Efforts by the commission to establish an extensive African Strategy on climate change was also put into consideration, and the commission requested to collaborate with accomplices to give insight on a comprehensive African Strategy on climate change that would include the establishment of sector technical fall back data on the climate change effects, its economic value and the level of carbon in the distinct Africa ecosystems.[71]

AU commission also embarked on elaborating the draft strategy that was done by a technically supported participatory process that included all key stake holders from member states, UN agencies, Regional Economic Communities and other associates. The blueprint

[70] Filho, W, (ed), *Experiences of Climate Change Adaptation in Africa,* (Springer International Publishing, 2011).
[71] Teresa Murigi, interview with Shane Wangechi, Assistant at the Department of Research and Media Monitoring, Nairobi, September, 16, 2017.

strategy was there by established and polished through small specially designed and savvy working groups and was surrendered to the 4th extraordinary session on the African Ministerial Conference on Environment that was held in September 2011 in Bamako Mali. Four major pillars of the draft strategy include; climate management, advancement of education, research, raising consciousness and advocacy, promoting national, regional as well as international cooperation, and lastly dominating and integrating climate change regulations in planning, budget and development process.[72]

The AU has also partnered with the Canadian International Research Centre alongside the UK Department for International Development (DFID) to establish the Climate Change Adaptation in Africa (CCA), research and capacity development program whose aim is in improving the extent of African states to conform to change in climate change in a way that is valuable to the vulnerable groups. The program builds on current initiatives and previous experiences to develop a self-sufficient proficient body of prowess in Africa to enhance the capacity of African countries to adapt. The Green Wall Sahara Initiative is another program that was initiated in conjunction with ECA, FAO, UNEP, UNCCD, and OSS. There is also the "Climate Dev. Africa" an action plan between the United Nations Economic Commission for Africa alongside the Global Climate Observing System, aimed at mainstreaming climate information into decision making for Africa development.[73]

The AUC has continually supported NEPAD's environmental initiative and its relevant action plan, affirming the economic value of climate susceptibility as well as change through the inclusion of a programme area on combating change of climate in Africa. The Commission has also backed up NEPAD's Africa Regional Strategy for the control of

[72] Zangi, B, Snidal, D, Genschel, P & Abbbott, K, (eds), *International Organizations as Orchestrators*,(Cambridge University Press, 2015).

[73]The AU-IBAR Climate Change Adaptation Mitigation Strategy for Animal Resources; AU-IBAR Monographic Series NO.2 2012

Disaster Risk, which endorses the value of order among agencies to address catastrophe blockage and response plans. The AU commission also partnered alongside the African Development Bank as well as UN Economic Commission for Africa in 2007 to support the new agenda, the Global Climate Change Observing System Africa.[74]

This programme was designed to help in integrating climate information and services to support Africa's progress towards MDGs, as well as mainstreaming climate information in national development programmes that focus primarily on the most climate sensitive sectors. The AU has strongly encouraged its member states in becoming party to the UNFCCC as well as the Kyoto Protocol in order to be able to efficiently arbitrate in upcoming rounds of meditation in its own rights. Since August 2007, over 50 member states have become party to the two. A bargaining structure was recommended for the UNFCCC/Kyoto deliberation process, which includes a negotiating unit comprising of Heads of States from Algeria, Mozambique, Uganda, Mauritius, Congo, Nigeria and Ethiopia, and a team of negotiating professionals from all member states party to the protocol. The African Group of Negotiators is under the guidance of the AU Assembly, CAHOSCC and the African Ministerial Conference. [75]

The AU has also developed a hub for knowledge formation on climate change known as African Climate Policy Centre (ACPC). The main role of the hub is highlighting the need for revised climate information for Africa, as well as strengthened use of the data in decision making through developing detailed capacity information governance as well as the diffusion of activities. The ACPC is a major section for Climate Development in the continent. It is an all-inclusive programme serving the Regional Economic Communities, governments and communities in Africa. It has three broad activity areas; Advocacy and Consensus Building,

[74] Breslin, S & Elliot, L, (eds), *Comparative Environmental Regionalism*, (Routledge, 2011).
[75] AU (African Union), Report on implementation of the AU Assembly decision on the African common position on climate change, Executive Council Fifteenth Ordinary Session, Sirte, Libya, 24–30 June 2009.

knowledge management, outreach activities and peer learning and lastly consultative services as well as technical collaboration comprising of capacity building and mobilization as well as technical assistance. [76]

The African Negotiating bloc has contributed greatly to the mitigation and adaptation process in the continent. A legally binding adaptation framework has been adopted, alongside outlining several demands, which include sufficient, continuous, new and extra, as well as calculable funds, and investment in supporting response on mitigation and adaptation as well as technology cooperation. The amount of funding will be accessible for adaptation finance, and the arrangements by which these funds will be governed, are still emerging. However, it is apparent that in order to make a strong case while bargaining for adaptation finance, African states need to show that they are in a position of utilizing adaptation funding competently, transparently and for its intended use.[77]

In February 2016, the AU Commission and the Food and Agriculture Organization of the UN teamed up and floated a €41 million project named, 'Action Against Desertification' aimed at supporting six African states, namely; Burkina Faso, Ethiopia, Gambia, Niger, Nigeria and Senegal in large-scale recovery of production landscapes that have been damaged by desertification and land degradation. The project is financed under the 10th European Development Fund that supports African, Caribbean and Pacific States. This project was built on some of the best practices from the Great Green Wall for the Sahara and the Sahel Initiative, approved by African Heads of State and Government in 2007. The Initiative has enabled more than 120 communities in Mali, Burkina Faso and Niger create a green belt on more than 2,500 hectares of degraded and arid land and planted more than two million seeds

[76]Teresa Murigi, interview with Abdi Maalim-Department of Rural Economy and Agriculture, AU-IBAR Offices, Museum Hill Nairobi, September 26th 2017.

[77]Masego Madzwamuse, Climate Governance In Africa: Adaptation Strategies and Institutions, http://www.boell.delen/ecology/africa

and seedlings from fifty native species. Through the project, a special hub was developed in the AUC to help support in regulation, monitoring and evaluation, capacity building, resource acquisition and knowledge administration to scale up such efforts.[78]

### 4.4.1 Agriculture

Agriculture is linked to both climate change mitigation and adaptation, through complex links. Climate change affects food production negatively as it leads to disruption of weather patterns, leads to water shortage and influence increase of pests and diseases which further affect the economy. Furthermore, a number of mitigation actions, which include substantial use of bio-energy, could undermine food security. Conversely, conversion of forests into farmlands and other agricultural activities lead to the emission of greenhouse gases.

It is considered that the second emitters of greenhouse gases after the energy sector is a combination of agriculture, forestry and land use changes which contributes to just under 25% of all manmade greenhouse gas emissions. Agriculture sector can also be a source of mitigation of climate change, being a source of emission. Though it is challenging to make international policies because of the decentralized nature of agriculture and different practices globally, it is easy to manage and control the emission of greenhouse gases from agricultural activities.[79]

### 4.4.2 Energy

The production and use of Energy are important to the functioning of the global economy, and therefore managing them is necessary for sustainable development and mitigation. However, 'energy dilemma' which refers to the conflicts of interest between energy security, sustainability and equity; makes managing energy production and its use complicated. Despite growing concerns relevant to climate change, states continue to give more preference

[78] Wangui Mwangi, African Union and FAO Expand Great Wall Partnership, http://www.sdg.iisd.org

[79] Andonova L, "Boomerangs to Partnerships? Explaining State Participation in Transnational Partnerships for Sustainability," *Comparative Political Studies*, Vol 47,3,(2014) Pp 481-515.

to energy security and access over environmental and sustainability issues. For instance China, while installing renewable energy capacity at an overwhelming rate also advance the building of coal-fired power plants to serve its growing energy needs.[80]

Energy actions, like those proposed in various summits, have become supplementary approaches to go beyond ongoing efforts by international institutions and states. Climate actions potentially give more knowledge; policy experimentation and finances to realize solid projects, which tackle climate change from the bottom-up. They also provide inspiration for actors across multiple areas of governance to lower their carbon footprints and also undertake adaptation measures. However, it is impossible to paint energy climate actions with one large brushstroke because of their immense diversity. Strong backing by major organizations has granted energy actions and great institutional support, better access to finances, as well as wide-ranging networks. An example is the 'Africa Clean Energy Corridor', the 'Global Geothermal Alliance' and the 'SIDS Lighthouses Initiative' which are initiatives that are nested within IRENA.

### 4.5 Conclusion

As one of the most vulnerable regions in the world to the projected impacts of climate change, Africa faces many challenges at this critical juncture. Traditionally, national development plans, poverty reduction strategy papers and sectorial strategies in climate-sensitive sectors have paid little, if any, attention to climate variability, and even less to climate change. Africa's ability to turn a threat into an opportunity hinges on actions taken today.

Africa's concerns and its agenda on environmental change in general and global warming in particular are totally ignored by developed nations, which are the main actors affecting the global environment. Indeed, Africa has tried to present its case and pleas to the international

[80] Dubash N & A. Florini, "Mapping Global Energy Governance," Global Policy, Vol 2,1,(2011) PP 6-18.

communities and governments, as well as nongovernmental institutions, on the dire present and future consequences of climate change on Africa. The African voice that was individually presented was not seriously considered.

Climate change is already affecting people across Africa and will wipe out efforts to tackle poverty unless urgent actions are taken now in terms of adaptation, mitigation and compensation. Failure to reach an equitable agreement on climate change negotiations may have dire consequences for Africa in particular and the world in general. Furthermore, climate change is a serious global challenge that demands urgent, cooperative, fair and shared responsibility to act. To achieve effective cooperation in terms of climate change issues, it will be important to involve key stakeholders from the climate change community where they are not yet involved.

# CHAPTER FIVE
# SUMMARY, CONCLUSION AND RECOMMENDATIONS

## 5.1Introduction

This chapter presents summary of the research findings as well as conclusions drawn from the same.

## 5.2 Summary of the Findings

The following is a summary based on the study objectives through qualitative study analysis: Non-state actors conduct various broad mandates in environmental governance in Africa. The study has utilized survey findings from various papers to critically evaluate the impact of climate change and perceptions among various non-state actors on their mandate and differences across various spectrums. The study has significantly shown that various classes of non-state actors are understood to perform key roles especially in climatic governance. The review of the governance shows that non-state actors have equivalent benefits regarding a number of governance actions and the analysis connects these actions to various consolidations of sources of power and entirely to their agency.

The study significantly adds value to the general perspective of the complexity of the influence in climate management globally which is marked by competition and cooperation over policy space. Therefore it creates a beginning stride for creating a better channel for possible labor distribution among various actors as governance issues becomes more fragmented and decentralized. There is a strong association among the governance profiles with regard to a particular non-state actor category, for instance raising awareness, expertise provision, as well as the representation of marginalized voices. Also, the results categorically reveal that no sole class of non–state actors is solid within all activities of governance. This

shows the possibility of a chance which could assist in collaboration across the various classes in order to acquire significant effects across spectrum policy. Partnership trends in climate management may actually echo this particular observation.

In addition the profiles of governance acquired from the study data augurs well with their presentation in this literature. Nonetheless, profiles of governance additionally advance present understanding through availing key insight towards the type of actors and recognized reserves as being authentic with regard to spectrum policy and hence assist in discerning the development of none-state actor's agency. Conversely, the study identifies gaps with regard to the perception of the actors, showing various factors that could hamper agency. The study additionally has significant reference for future study agenda in this particular field.

The analysis conferred within this paper can model future studies within this order. The adjacent step would entail concentrating at the results of participation in order to understand the nexus between actual roles and the perceived roles. An additional area for future studies the extent in which organizational level aspects predetermines state actor agency in comparison to group level factors. The study has entirely dwelled on the mandate of non-state actors on climate authority with regard to African Union. Nevertheless, the study notes that the results of these findings can be utilized in policy making areas and other environmental governance context. Other studies can actually conform on the presented outcomes in this study to probe the diverse governance actions amidst various groups of non-state actors on the shifting of agency over-time and what it implies for governance outcomes with special regard to democratic legitimacy and efficiency. There is a need therefore to apply various multitudes of methodologies to determine agency questions, authority and legitimacy climate global authority. This paper has purposefully availed a tentative model to call for more research in the field of the climate governance.

## 5.3 Discussion on the Findings

This study has noted that change and climate have significant impacts on economic progress and sustainable advancement in Africa. They are threats to sustainable advancement gains and bedevil key achievements of Millennium Development Goals (MDGs). Food security and agricultural production are threatened, water shortage is imminent and levels of destitution are more likely to heighten if effects of climatic changes aren't actually mitigated and measures of adaptation initiated. In Africa, adaptation is a key urgent matter and this paper argues that adaptation preparedness depends upon various inter-related factors of governance. These ranges from policy frameworks which helps in poverty eradication and inequity at local levels and nationally, to various institutional frameworks which enables involvement of stakeholders to enable local level adaptation, to availability of institutional capacity and funding, in addition to information access on the ramifications of climatic changes.

Studies from countries such as Southern, West Africa and East point out on glaring gaps when it comes to integration of climatic change within national development stages, addressing key vulnerabilities and frameworks. A number of barriers such as evaluation of adaptive capacity preparedness premised on an analysis of policy and roles executed by various actors, institutional frameworks as well as public awareness levels are among the key challenges in Africa. This study established the following as the main points on various sectorial policies;

### 5.3.1 Adaptive Water Resources Management

This study noted that the water sector is actually among the most affected in African states. Though majority of the states have a water demand management policy frameworks, they have not yet fully and explicitly been considered as the ramifications of climatic changes. The study realized that the main challenges would be policies and legislations which govern water rights, are not properly advanced to actually address the changing climatic

circumstances, continuous demand to transcend supply and hence there is a need to harmonize this demand with water availability in the future and that conflicts are likely to develop as a result of increased scarcity. It is paramount to oversee water abstraction and address the variation in the water availability due to climate instability and access equitability to water for both agricultural production and domestic purposes which is a key priority forging forward, specifically putting into consideration the barriers facing small-scale, the poor and subsistence farmers.

### 5.3.2 Agricultural production and food security

Systems of agricultural production are susceptible to the implications of climatic changes resulting to unfavorable effects on National economies and a rise in food insecurity levels. This study notes that building resilience within this particular sector therefore should be a priority for climatic change adaptation among African Countries. One of the key themes emanating from climatic change preparedness study analyzed and presented in the study is that agrarian reforms remain a paramount preference and therefore must form actually a portion regarding macro-economic policy frameworks whilst laying attention to addressing the structural inequality that has been persistent in reference to access of land for the indigent, small scale and subsistence farmers as well as women. Hindrances to reforms within the land sector need to be pinpointed and addressed in an amicable manner. Of equal importance are the strides needed to establish sustainability in the management of water and land, financial access, crop variety improvement technological transfer among other adaptation enablers.

### 5.3.3 Biodiversity and Natural Resources

Since biodiversity and natural resources play an important part to local and national economies within Africa as a region, regulatory actions in this area are paramount for the adaptation of climatic change. This study notes that there is high vulnerability within this sector which has impacted climate change and enabled close supervision as a way to mitigate

the impacts and enhance adaptive capacity. States are required to utilize emerging opportunities within the forestry sector like REDD, but without affecting local livelihoods that benefit from the use of these resources. Community-based forestry and wildlife conservation policies and programmes play a potential role in diversification of local livelihoods and building resilience of local communities.

Nonetheless, for these opportunities to materialize there is need for governments' support in the decentralization of natural resources administration, while supporting development of local level institutions and ensuring a move towards securing the source rights of local communities. Donors, researchers and civil society organizations equivalently share the same challenges of coordination. As a way of harnessing and enhancing the institutional capacities of these players, exceptional coordination is required. The interventions initiated by these actors need to counter and commit to national adaptation priorities. The role played by these actors especially the civil society needs to be recognized and form an integral part of partnerships with state actors and other players for the benefit of climate change adaptation. Government agencies cannot tackle the problems of climate change independently.

The access to information and public awareness is also crucial for climate change adaptation capacity. This calls for the development of communication strategies required to respond to the information needs of stakeholder within the various levels. The absence of information on the projected impacts of climate change within the local level will erode the adaptive capacities of most rural dwellers, mostly because they of their dependence on climate sensitive resources for their livelihoods. The prompt availability of information is therefore crucial in facilitating decision-making by groups like farmers. Locally, specific information needs to be developed and current knowledge gaps filled.

A comprehensive overview of adaptation governance in Africa, calls for a fresh insight at the quality of growth and development and calls for a renewed emphasis on equity and in efforts to improve the extent of public participation and engagement in the formulation and implementation of climate change adaptation measures. There is a need to brace the political drive towards sustainable development and equity at various levels of society and policy-making.

## 5.4 Conclusion

The examination of the various climate actions propelled during the 2014 UN Climate Summit in New York tended to two imperative knowledge gaps in the comprehension of non-state and sub-national activities in worldwide climate administration. To begin with, this investigation considered various useful measurements of climate action that are pertinent to relief, adjustment and flexible advancement, while past experimental investigations of climate action generally considered their alleviation potential. Secondly, the investigation surveyed execution of climate action *ex post*, while past examinations essentially evaluated *extant* what action guarantee to do. Along these lines, this examination reveals insight into the part of climate action past their relief potential; and it also shows that at the total level, it is conceivable to track the action of an expansive number of actions in a near way, and also evaluate their advancement.

Debatably, the ultimate pressing inquiry is if climate actions can advance low-carbon as well as climate-flexible improvement. The impression that rises up out of this analysis is encouraging, in spite of the fact that it is still too soon to give a complete solution because most climate actions are genuinely new and therefore require more opportunity to become competent. Universal institutions have possessed the capacity in preparing many sorts of partners, going admirably past the usual 'standard suspects' critical in transnational administration. Though there is persistent by some characteristics, most actions are a target

for low-pay and lower-center income economies, hence improving the probability that climate actions could profit the world's most susceptible individuals.

Nonetheless, preparing actions in these generally moderately underrepresented action territories can be viewed as an accomplishment and an instance of fruitful coordination. A mirror picture rises up out of the vitality and industry action regions. Both action ranges include moderately huge output execution appearing to be well on track to convey. In any case, the way that most actions originated before the 2014 UN Climate Summit brings about issues on their level of aspiration as well as their extra commitment with regards to the summit. It is encouraging to see that the UNFCCC and other worldwide procedures progressively make commendable linkages between climate actions and global procedures. Though the 2014 UN Climate Summit is genuinely exceptional among climate gatherings, it doesn’t make it a secluded exertion.

Nonetheless, proceeded with endeavors by the UNFCCC, other worldwide institutions and governments are not ensured if climate change trickles down on the worldwide political plan. Restricted assets and nonappearance of orders may keep instigators from assembling and encouraging climate actions at a similar scale and pace, contrasted with what has been found in the run-up to Paris. However, requirement for climate actions doesn’t decrease after Paris. On the off chance that anything, climate action will be more important than any time in recent memory to help acknowledge national focuses, to create handy arrangements, and to exhibit the achievability of more yearning responsibilities both from governments and the private part. To put it plainly, proceeded with coordination is expected to expand the capability of climate actions. The findings of this analysis recommend certain key needs and give a contention to far reaching and long haul arrangement endeavors by the UN and other global organizations.

## 5.5 Recommendations

i. The distribution and connecting of duties and arrangement endeavors in a synergistic system comprising some major actors like the UNFCCC secretariat, intergovernmental associations, transnational activities as well as research associations; such that coordination turns into a common endeavor while expanding on the abilities of various accomplices.

ii. A safe and consistently refreshed online stage that highlights the existing climate actions as well as their duties while blending information on various and more particular registries. This would give a methodical outline, which thusly empowers a superior comprehension of the bigger scene of climate actions after some time.

iii. Regular surveys of the execution of climate actions, to give precise information to speculators, common society, researchers, strategy creators, and orchestrators. Standard surveys enhance straightforwardness and furthermore permit total analysis, efficient following of climate actions, and the illustration of what is learnt.

iv. Upholding African Union's responsibility regarding restricting warming underneath 1.5°C over the preindustrial levels in front of the Paris COP21. Climate Action Network getting to eliminate the petroleum product discharges at the earliest opportunity not later than 2030 if adjustment and relief expenses will stay reasonable. A solid political duty is required from the created nations and all countries to make an authoritative understanding in the coming transactions.

v. African Union under AMCEN as the district umbrella builds up an unmistakable; directed climate change adjustment and relief approach and also structure for low carbon advancement innovation in the locale. Developing political energy for climate

adjustment strategy plan into particular national states; build up a territorial checking body.

vi. Africa states require a change in outlook in administration of characteristic assets, land and water and also sustenance security strategies. Political force to protect these assets and create environments based adjustment procedures is vital in the district. Key regions of intrigue incorporate soil, woodland, water, land, agribusiness and fuse into national advancement systems.

vii. Climate change approach vacuum in Africa is substantial and calls for consideration close by sound ecological and financial arrangements. Postponement in this segment is a hazardous priority and suggestions are disastrous. Particular states need to fit their ecological strategies, regular asset administration and enactments and also institutional limit advancement.

viii. Role of science in arranging stays neglected in the district. A marriage amongst science and strategy improvement is near. Venture into research, farming improvement, arrangement plan, sustenance security is basic for climate change adjustment procedure in Sub Sahara Africa.

ix. States exploit UNFCCC system on approach creates and detail national climate change adjustment arrangements and enactments that energize low carbon innovation development by motivators and other hazard diminishment methodologies; dishearten utilization of GHG by forcing demands; address ecological and biological systems corruption that block environments based adjustment which is to a great extent unexplored in Africa.

x. Develop a responsive ecological administration framework by building limit of natural foundations with clear commands and energy to authorize enactments. In the event that natural administration in the district is completely practical current adjustment levels would be higher contrasted with injured arrangement right now experienced in contrast with different areas.

xi. The global group has a commitment under Kyoto Principle of normal yet separated obligation to help Africa should climate change adjustment load not under generosity but rather in duty to anthropogenic climate change. Vows made under UNFCCC in GEF and LDC Fund and additionally other universal duties if respected sufficiently can upgrade natural and also worldwide security.

xii. Technology exchange to creating countries and little islands, limit working of these nations by their created partners to get to the Green reserve, expulsion of hindrances to getting to and usage of the GEF and other globally profited subsidizes and putting into Africa's logical way is basic in the COP 21 and other multilateral concessions to ecological and climate change if adjustment limit in Africa is to progress. Indeed, even the best of arrangements will fall flat if subsidizing is constrained. Be that as it may, need regions of financing, for example, auxiliary changes and channels of getting to the assets, and also research levels must be scaled u expediently.

xiii. Strengthening UNFCCC and extending its part as a worldwide body to fabricate creating countries climate change adjustment and alleviation limit; screen and assess in keeping track with discharges from various nations with a lawful command.

xiv. This study demonstrated a method that could be applied to regular reviews and the bench marking for output performance, which could become a key element in a comprehensive framework for engagement; enabling orchestration to go beyond the mere recording of a high number of actions. The Paris climate conference presents a

window of opportunity to take decisive steps towards a more comprehensive and effective framework for the engagement of non-state and sub-national climate actions. Through continued orchestration efforts, orchestrators effectively respond to the changing nature of climate governance, one that increasingly features bottom-up dynamics and leverages the capacities of both state and non-state actors.

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# APPENDICES

## APPENDIX I: RESEARCH PERMIT

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