



EXPLORING SOUTH AFRICA'S LEADERSHIP POTENTIAL IN CLIMATE CHANGE DISCOURSE IN AFRICA

FIDELIS JOSEPH UDO

215080831

Dissertation submitted in fulfilment of the requirements for the degree of

MASTER OF SOCIAL SCIENCE IN POLITICAL SCIENCE

In the School of Social Sciences, University of KwaZulu-Natal, Pietermaritzburg

Supervisor: Belinda Johnson

2018

DECLARATION OF PLAGIARISM

I, Fidelis Joseph Udo, declare that:

1. The research reported in this thesis, except where otherwise indicated, is my original research.
2. This thesis has not been submitted for any degree or examination at any other university.
3. This thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.
4. This thesis does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:
 - a. Their words have been re-written but the general information attributed to them has been referenced
 - b. Where their exact words have been used, then their writing has been placed in italics and inside quotation marks, and referenced.
5. This thesis does not contain text, graphics or tables copied and pasted from the Internet, unless specifically acknowledged, and the source being detailed in the thesis and in the References sections.

ACKNOWLEDGEMENTS

I am especially indebted to God, whom I believe has been my source of strength, especially in challenging times during the course of writing this dissertation.

I am very much indebted to my supervisor, Belinda Johnson for her invaluable support. Her invaluable emotional support and constructive academic insights have been magnificent in seeing me through. I am indebted to the Rick Turner Scholarship board for the financial support, having been a two times beneficiary of the scholarship.

I owe a deep gratitude to my friends who always showed concern, especially through asking how my work was going. Special thanks to my friends, Tabby Kaburia, Andrew Akpan, Dr Uduak Johnson, Dr Anthony Gathambiri, Mr Muiyiwa, Dr Bernard Matolino, Dr Noleen Loubser, Mr Dominic Lele, Ovet Moore, Kelvin Banda, Igwad Thomas, and all those who supported in one way or another.

I am especially indebted to my family for their invaluable emotional support. Special thanks to my Mum, Rose Joseph and my brothers: Fabian Udo, Nicholas Udo, Juliana Udo, and Gabriel Udo. I cannot forget the support of my sister-in-law, Justina Fabian Udo. I thank you all. God bless you.

Gracias!!!

Abstract

Studies have shown that Africa, despite being the most-affected continent by the catastrophic impacts of climate change, wields a relatively minimal influence in the ongoing global climate change debates. This inadequacy of influence is due to insufficient leadership from Africa in the global climate change negotiations. To mend this leadership challenge, South Africa has been identified as having significant potentials to lead African climate change discourse, especially, towards wielding a greater influence in the ongoing global climate change discourse. The purpose of this research therefore, is to explore the factors that qualify South Africa to be a prospective leader in climate change discourse in Africa. The study employed Underdal's leadership perspective to analyze South Africa's climate change actions, both domestically and globally. The study shows that though South Africa might have the challenge of being mistrusted by its fellow African countries, yet; it still presents huge potentials of providing structural, entrepreneurial, and directional leadership in climate change discourse in Africa. The research suggested that to strengthen trust and improve its leadership prospects, South Africa needs to build more climate change actions coalitions with its fellow African countries.

Table of Contents

Declaration of Plagiarism	i
Acknowledgements.....	ii
Abstract.....	iii
Table of Contents.....	iv
List of Figures and Tables.....	vii
List of Acronyms.....	viii
INTRODUCTION AND BACKGROUND TO THE STUDY	1
1.1 Introductory Remarks	1
1.5 Research Questions	9
1.6 Research Objectives.....	9
1.7 Broader Issues to be investigated.....	10
1.3 Rationale for the Study	11
1.4 Significance of the Study	12
1.8 Research Methodology	12
1.9 Limitations of the Study.....	13
1.10 Structure of the Dissertation	13
CHAPTER TWO	15
LITERATURE REVIEW	15
2.1 Introduction.....	15
2.2 Conceptualizing Climate Change.....	15
2.3 Climate Change Disaster in Africa	20
2.4 Africa’s Participation in Global Climate Change Discourse	24
2.5 Leadership Theory	26
2.6 South Africa’s Involvement in Climate Change Discourse in Africa.....	28
2.7 South Africa’s Prospects of Climate Change Leadership in Africa.....	32
CHAPTER THREE	34
THEORETICAL FRAMEWORK	34
3.1 Introduction.....	34
3.2 Evolution of Leadership Theory	34

3.3	Underdal's Conceptualization of Leadership.....	36
3.4	The Three Mechanisms of Leadership.....	36
3.4.1	Directional Leadership:.....	38
3.4.2	Structural Leadership:.....	39
3.4.3	Entrepreneurial Leadership.....	40
3.5	Conditions Necessary for Leadership.....	41
3.6	Supply and Demand sides of Leadership.....	42
3.7	Application of Leadership theory to the Study.....	43
3.8	Conclusion.....	44
CHAPTER FOUR.....		45
SOUTH AFRICA'S POLICIES, STRATEGIES, AND ACTIONS TOWARDS CLIMATE CHANGE ADAPTATION AND MITIGATION.....		45
4.1	Introduction.....	45
4.2	South Africa's Intended Nationally Determined Contribution.....	46
4.2.1	Mitigation Policies of the INDC.....	51
4.3	National Development Plan.....	53
4.4	South Africa's Climate Change Response Strategy.....	56
4.4.1	Adaptation Strategy.....	58
4.4.2	Mitigation Strategy.....	60
4.5	Conclusion.....	62
CHAPTER FIVE.....		64
GLOBAL RESPONSE TO CLIMATE CHANGE CHALLENGE.....		64
5.1	Introduction.....	64
5.2	Development, Objectives, and Principles of the United Nations Framework Conventions on Climate Change.....	65
5.3	The Kyoto Protocol.....	66
5.3.1	The Concept of the Emission Trading Mechanism.....	67
5.3.2	The Concept of Clean Development Mechanism.....	68
5.3.3	The Principle of Joint Implementation.....	69
5.4	The Durban Climate Change Summit.....	70
5.5	Copenhagen Climate Summit.....	74
5.6	South Africa in Copenhagen 2009.....	79
5.7	The Paris Climate Change Agreement.....	83

5.8	Conclusion	86
CHAPTER SIX		87
SOUTH AFRICAN LEADERSHIP AND IN CLIMATE CHANGE DISCOURSE		87
6.1	Introduction.....	87
6.2	South Africa as a Structural Leader in Climate Change Negotiations	87
6.3	South Africa as a Directional Climate Change Leader	90
6.4	South Africa as an Entrepreneurial Climate Change Leader in Africa	96
6.5	Is South Africa's Climate Change Leadership Demanded in Africa?	101
6.6	Challenges to South Africa Climate Change Leadership in Africa	102
6.7	Conclusion	103
CHAPTER SEVEN		104
SUMMARY AND GENERAL CONCLUSION OF THE STUDY		104
7.1	Summary.....	104
7.2	General Conclusion and Recommendations	107
BIBLIOGRAPHY		111

List of Figures and Tables

Figure 1: Global Anthropogenic greenhouse gas emission.....16

Figure 2: Meteorological temperature data of annual mean and a five year mean

Indicating Anomalies 1880 - 2020.....17

Figure 3: Relationship between Capabilities, behaviours and Actual Leadership

Supply41

Figure 4: South Africa in Climate Change Negotiations Coalitions.....97

Tables:

Table 1: Global Concentration of Atmospheric Gases.....18

Table 2: Various Typologies of Leadership Modes.....37

Table 3: Investment Increase in Sectoral Climate Change Actions Expenditure in

South Africa.....52

Table 4: Copenhagen Accord Pledges by Annex 1 and Non-annex 1 countries.....77 -78

Table 5: South Africa and Copenhagen Accord 2009.....81-82

List of Acronyms

AMCEN	African Ministerial Conference on the Environment
CDM	Clean Development Mechanism
COP	Conference of Parties (to the United Nations Framework Conventions on Climate Change)
GHG	Greenhouse Gas
IEP	South Africa's Industrial Action Plan
INDC	Intended National Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
NASA	National Aeronautics and Space Administration
NCCRP	National Climate Change Response Policy
NDCs	Nationally-Determined Contributions
NDP	National Development Plan
NOAA	National Oceanic and Atmospheric Administration
OPEC	Organisation of Petroleum Exporting Countries
RSA	Republic of South Africa
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Conventions on Climate Change
UN-ISDR	United Nations International Strategy for Disaster Reduction
BaU	Business as Usual

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introductory Remarks

Scientific evidences have confirmed climate change to be one of the prevailing catastrophic issues in the world today (IPCC, 2007). Its disastrous effects have not only affected the environment, but also pose serious threats to political and economic stability in many regions of the world. Challenges posed by climate change include incessant wildfires, extended periods of drought in some regions, and an intensification in the amount of rainfall in other regions; among others (NASA, 2017). Scientists predict that unless drastic actions are taken to curb the catastrophic impacts of climate change, they are most likely to continue to pose more catastrophic effects to humanity (NASA, 2017). Research also stipulates that the environmental disasters caused by climate change, if not curbed, will continue to deplete the growth of crops and oceans lives, thereby escalating food insecurity, unemployment, ethnic conflict, political violence, economic instability, and forced displacement of persons; among others (Theisen; Gleditsch, & Buhaug, 2008).

Weber (2010:1) defines climate change as a ‘slow and gradual modification of average climate conditions’ of the environment. Climate change is said to take several decades to occur. This is unlike weather, which is experienced over a short period, for instance, ranging from few hours to few days (Weber, 2010). Climate change can also be described as the alteration or variability in the climatic conditions of the environment over several decades. Scientists have discovered that climate change is both a natural phenomenon, and as well, can be caused by human activities on the environment. According to NASA (2014), some of the natural occurrences that lead to the variations or changes in the earth’s climatic conditions include, among others, a change in Earth’s distance from the sun, which causes a variability in the magnitude of energy that the sun releases unto the earth. Climate change can also occur when a volcano erupts (*Ibid*).

Scientists discovered these natural causes of climate change during the 17th century era (NASA, 2014). During that time, climate change was considered a natural phenomenon, incapable of human intervention. Such perception had been held until recently (around 1970s), when the World Meteorological Organization (WMO) discovered that human beings,

through their daily activities, also contribute to the heating of the lower atmosphere and consequently, climate change. Human-induced climate change is said to be as a result of accumulation of greenhouse gases in the atmosphere through various human activities that sends greenhouse gases (GHGs)¹, such as carbon dioxide, methane, and nitrous oxide into the environment. Firstly, human beings, through their daily activities and production decisions, emit GHGs, into the earth's atmosphere. When these gases accumulate in the atmosphere, they trap heat, resulting in global warming. Global warming in turns leads to changes in the climate. Climate change now leads to variations in the climatic conditions of the earth. These variations affect the entire universe, even though some regions, through their high production capacities, may emit more GHGs than others. This explanation of universality concords the assertion that 'it is the overall stocks of GHGs that matter and not the place of origin' (Stern, 2010:39).

In the late 1970s, the WMO expressed serious concerns that human activities might lead to serious global warming. Concerns about global warming increased during the 1980s, especially in 1988, when North America experienced an extreme heat wave and droughts. Scholars have noted that since climate change leads to a lot of developmental and economic challenges, it has shifted from being only a scientific concerns, to pose political concerns. Climate change was previously understood as a scientific concern until the 1990s when it became a political issue (Bodansky 2001). It was this during this period, in 1990 precisely, that the Intergovernmental Panel on Climate Change (IPCC), issued the UN Framework Conventions on Climate Change (UNFCCC), which can be argued to have constituted a very important moment in the history of global political concerns and negotiations on issues of climate change. The issuance of the UNFCCC constitutes the international community's response to the challenge of climate change, having realized the global nature of the challenge. The disastrous effects of climate change have no respect for regions; they are experienced universally, in one way or another (IPCC, 2007). It would not be implausible to argue that the establishment of the IPCC, a body responsible for carrying investigations into, as well as reports on the scientific basis of climate change and the subsequent issuance of UNFCCC, marks the dawn of the global community's response to climate change.

¹ Greenhouse gases are described as those gases in the atmosphere that can absorb infrared radiation, thereby trapping and holding heat in the atmosphere (Lallanila, 2015).

The IPCC first came into existence in the year 1988. It was established by the United Nations Environmental Program, UNEP, and the World Meteorological Organization (WMO), (IPCC, 2007). Since then, the IPCC has been central in the global debates on climate change concerns. Its First Assessment report in 1990 resulted in the drafting of the UNFCCC. A total of 166 nations became signatories to this convention at the Earth Summit which held at Rio de Janeiro in 1992. In 1994, the convention (UNFCCC) came into force. At the initial stage, the UNFCCC did not set out national greenhouse gas emission reduction targets, but drafted the key principles that were going to guide subsequent international climate change debates. The IPCC was tasked with the responsibility of neutralizing the effect of climate change and also finding means to avoid dangerous human activities that interfere with the atmospheric climate system. Such neutralization was to be done in a manner that would help natural systems to adapt without posing major damages to food systems and economic growth. Besides, it was necessary that countries keep their GHG emissions on check, and in conformity with their national limits. It is to be noted here that at the Kyoto climate change conference in 1997 that the different national limits were set in consideration of countries' emission responsibilities and adaptive capacities (UNFCCC, 1998). These limits were set mainly for developed (industrialized) nations who were plausibly said to have contributed a greater deal to global warming than the less industrialized or developing nations. Developing countries, who were found to contribute minimally to climate change, yet more vulnerable to its effects, had lesser responsibilities for GHG emission reduction (*Ibid*). The global community, through the IPCC, saw the need of taking preventive actions to reduce the threats posed by climate change, notwithstanding actual scientific worries about climate processes and effects.

It seems plausible to aver that even though the UNFCCC did not set out targets for nations to reach in reducing greenhouse gas emissions in their respective countries at the onset, it had put in place, crucial steps to guide subsequent global negotiations on national targets towards reduction of greenhouse gas emission. The effort made by the UNFCCC led to a meeting of the Conference of Parties (COP)², which was held in Kyoto, Japan in 1997. During this global assembly, the Kyoto Protocol was signed, which set national emission targets for 2008-2012 period. The national emissions targets were set for only developed countries, as

² A detailed discussions about the COP will be discussed in the course of this research

they were argued to be the ones responsible for a greater share of climate change and should therefore take the lead towards its mitigation.

The approach adopted in the Kyoto Protocol – putting the greater responsibility for climate change mitigation on the developed nations - spurred controversy from some developed countries (particularly the US and Australia), who refused to signed up to the legally-binding emission reduction approach of the Kyoto Protocol (Horgat, *et al* 2012). They debated that developing countries, especially those with fast growing economies and the major economies, also needed to be charged with the obligation to limit their emissions. The U.S., under George Bush’s administration rejected the Kyoto Protocol on the grounds that it exempted many other major economies from the mandatory emission reduction and that it ‘would cause serious harm to the U.S. economy’ (cited in Kahn 2003:551). Others questioned the reality of climate change (Niederer, 2013). Those who sought to reject the reality of climate change and hence, the Kyoto Protocol’s treaty were mainly the industrialized nations and capitalist individuals with huge investments in big oil industries. They lobbied to deny climate change.

Notwithstanding the climate change controversy and the denial by some nations and individuals, the period between 2007 and 2009 experienced an increasing recognition of climate change reality, especially after the publication of the IPCC’s 4TH Assessment. Many scientists in the U.S. and other parts of the world reached a consensus that climate change was real, and was caused primarily by anthropogenic factors³. The National Academy of Science, the IPCC, and the World Meteorological Organisation identified climate change as a real and urgent threat that needed urgent attention. According to the National Academy of Science, it is indisputable that urgent actions need to be taken to address climate change. (WWF, 2009). This recognition strengthened the continuous global conventions and treaties to reduce GHG emissions, and has resulted in the yearly Conference of Parties to the United Nations Framework Conventions on Climate Change. Most notable and significant among them are the Copenhagen Summit in 2009, Durban Summit 2011, and the Paris Climate Conference in 2015. These conferences have yielded the Copenhagen Accord, the Durban Platform for Enhanced Action, and the Paris Agreement respectively. These different agreements will be discussed in details in the later part of this thesis. But for now, some important points posited in these agreements are as follows:

³ Anthropogenic factors are those human activities that release GHG into the environment.

- Developed countries are responsible for a greater part of the emission and therefore, should take most responsibility towards plummeting it.
- Developed countries are obliged to offer financial and technological assistance to enable developing countries adapt to climate change impacts, as well as enhance sustainable development in their regions.
- Countries are encouraged to set their emission targets at 2°C minimum. (UNFCCC, 1998).

However, despite the extensive consensus reached regarding the necessity of taking urgent action on climate change, and the steps taken by the global community to combat it, there still exist some deep controversies and divisions among countries as regards the appropriate and fair distribution of the responsibility for limiting greenhouse gas (Aukkonen, *et al* 2009). In June 1, 2017, the US declared its exit from the Paris Agreement. Various international stakeholders realized the detriment of such decision to the progress of international efforts towards combating climate change. According to a former Secretary General of the UN, Ban Ki-Moon, the US's decision to pull out from the Paris Accord constitutes a fundamental problem, and Trump's administration done serious damages to the political side of international relations (Guardian, 2018). According to Urpelainen (2017, Trump's withdrawal from the Paris Agreement could threaten future cooperation as regards global efforts on climate change mitigation. Moreover, the divisions among developed countries are perhaps rooted in divergent national interests. The developed countries still realize the huge impact that adhering to global pacts could range from posing negative effects on their industrialization which is likely to result in reduction in the production of goods. In short, in the international arena, majorly among industrialized nations, there are controversies regarding the drafting of principles to guide the global agreements based on just and acceptable national emission targets. There are also controversies on designing, implementing, and monitoring mechanisms for achieving those targets.

Nevertheless, there are also issues of financing adaptation and mitigation in developing countries, as some developing countries, such as those in the Sub-Saharan Africa, contribute relatively small percentages to global emission yet suffer the greatest deleterious consequences (IPCC, 2007). Literature notes that though Sub-Saharan Africa contributes minimally to climate change, it suffers the greatest effect (Hope, 2009; Brown, Hammil &

Mcleman, 2007; Collier, Conway & Venables, 2008). Africa especially vulnerability to the disastrous impacts of climate change is simply linked to its low adaptive capacity, its high reliance on agriculture, as well as the high poverty level in the continent (*Ibid*). According to AMCEN reports (2014), African countries that are already experiencing semi-arid conditions could experience a fall in crop yield to a level below 50% by the year 2020. Other literature aver that some inter-ethnic conflicts, such as that in Darfur in 2003, are indirectly caused by climate change (Brown, *et al* 2007). Rainfall in Darfur is also reported to have fallen drastically due to climate change. Moreover, future predictions have it that climate change will continuously cause water shortage in the near future, which may affect up to about 75-250 million people (AMCEN, 2014). These are great disasters of climate change that need urgent intervention. Some other disasters in the African continent and the world at large that are attributed to climate change will be elaborated in the later part of this research. For now, it seems reasonable to aver that considering the plight that Africa suffers from the climate change catastrophe, it thus becomes necessary that Africa needs to participate actively in the international climate change negotiations in order to raise its voice, influence, and make demands in the global community. The concern that arises then is whether Africa is actively represented or asserting its influence in the global community of climate change negotiators.

Scholarly literature on climate change debates in Africa has noted the limited involvement of, as well as influence by Africa in the global climate change debates (Eskom, 2011; Bond, 2009; UNFCCC, 2007). Other Literature attributes some African countries' limited political involvement in climate action to lack of information and awareness of the cost of not taking adaptive measures to curb climate change (Chevalier, 2006). In other words, the minimal involvement of some African countries could be attributed to insufficient leadership in the global arena of climate change negotiations. Some report asserts that Africa's minimal role in the international climate change negotiations, for instance, its minimal participation in the Kyoto Protocol's policies of the Clean Development Mechanism (CDM), as well as the carbon trading arrangement could be remedied through a concerted effort by African leaders in the 2009 Copenhagen summit (Lisk, 2009). Concisely, scholarly debates seem to point to lack of leadership as one issue facing African climate negotiation. As such, moving forward or getting a fair share in the global climate change negotiations thus requires effective leadership on the part of Africa.

It has also been acknowledged by literature that South Africa has thus far assumed a leading role within this limited involvement, as it has made various pronouncements on its readiness and willingness to lead Africa not only in climate change issues, but also in other issues of global and regional concerns. Projections on better future involvement have also identified South Africa as better placed to assume leadership role and to represent the African continent in the ongoing global debate on climate change.

Moreover, its recognition as Africa's regional power and leader⁴ in the continent, and its notable history of exerting relatively more influence in International Negotiations on Climate Change than any other African country so far recorded, also seems to place South Africa at a better place to represent Africa's voice and interests in the International community on climate change negotiation. More than any other African country, South Africa has been a participant in the various international climate change negotiating forces and groups such as the post-Kyoto Protocol, the G5 (comprising Brazil, China, India, Mexico and South Africa), the G8, the G8+5 - (G13), the G20, the G77+China, BASIC (comprising Brazil, India, China and South Africa), BRICS - (comprising BASIC + Russia), as well as the recently formed BASIC+ USA. South Africa was also a member, in 2007, of the 15-member United Nations Security Council, a forum that widely discusses issues of climate change. The most significant of all is the convening, by South Africa, of the global community of negotiators through the 16th meeting (session) of the Conference of Parties (COP17), held in Durban in 2011. All these different international influential roles which South Africa, more than any other African regional power has ever played, arguably point to its potential leading African climate change discourse.

When South Africa gained a temporary seat at the United Nations Security Council (UNSC), Thabo Mbeki reiterated a broader idea of an 'African Renaissance' that would see South Africa assume a key leadership responsibility as a 'mediator between the global North and the global South' (Death, 2011:457). Thabo Mbeki also described South Africa 'as a resolver of conflict and deliverer of hope in Africa, and perhaps beyond' (in Death 2011:457). Similar assertions of political will had also been made by Nelson Mandela during his tenure as South African President. But it should be noted that rhetoric without appropriate actions undermines

⁴ Though the attribution of regional power and leader here may be contestable, I attribute regional power and leader to South Africa due to its relatively stronger economy, technological advancement, and international influence more than any other African country has been said to.

a leader's effectiveness. Effective leadership demands that an actor backs up its rhetoric with actions. Such actor needs to use its influence to foster and promote the common interests of those it is leads. South Africa, in this instance, is expected to use its international influence to foster the common interests of Africa in climate change debate. Doing so would strengthen its leadership status, and help it gain more trust from other African countries, as sometimes, the approach taken by South Africa in the international negotiations on climate change leads to it being mistrusted by its African peers (Nhamo, 2011). Though scholars have made various assertions that to affirm South Africa's potential of climate change leadership in Africa, there seems to be limited evidence or justifications of these assertions. This research attempts to fill this gap by exploring the factors that qualify South Africa as a leader in climate change discourse in Africa.

South Africa has its own challenges and interests which may be different from those of other African countries, or of the Africa Group⁵. The possible dilemma is how South Africa is able to defend its interests in the international community of negotiators while at the same time playing out its African leader's role in aligning with, as well as fostering Africa's common interest. Scholars have indicated that sometimes, South Africa's position on issues of climate change conflicts with that of the rest of Africa nations and the Africa Group (Nhamo, 2011, Hoste, 2010). Some instances of these conflicts will be explored during the course of this research. But should South Africa prioritizes its interest at the complete expense of the interest of other African countries, other countries are likely to become sceptical of South Africa's leadership, and this is also likely to undermine South Africa's leadership potentials. It is therefore necessary to explore the qualities that could set South Africa apart to take up its leadership role in African climate change discourse.

This research explored the factors that set South Africa apart as potential leader in African climate change negotiations. It also investigated the various approaches taken by South Africa in the various International climate change conventions. Besides, it examined the ways in which South Africa's approaches to climate change negotiations align with the interests of the Africa Group. Figueres and Ivanova (2002) assert that the success of climate change mitigation is dependent on two factors: the substance and equity of countries' commitments, and the processes established to promote global-scale cooperation. The global cooperation

⁵ Africa's Group here refers to the joint group of African Negotiators on climate change.

referred to here also involves the extent to which regional cooperation is fostered. That is why this study analyzed the ways in which South Africa has used its global influence to foster African regional cooperation through promoting Africa's interests on climate debates. It is vital to note that (effective) leadership involves leading by example. Therefore, if South Africa is to succeed in fostering African cooperation, its national policies and commitments need to embrace Africa's interests as a whole. Dongo (2014) suggests that the contribution of lead coordinators in Africa is necessary to foster a unified and well-informed voice for Africa in the international negotiations, as well as to represent the African Group of Negotiators (AGN), in the negotiations on key issues such as issues of finance, adaptation, mitigation, and technology transfer. The extent to which South Africa is able to balance its national priorities with those of Africa Group, and the effectiveness of its domestic climate change policies, should be a good determinant to its potential of becoming a leader in African climate change discourse.

1.5 Research Questions:

The research addressed the following questions:

1. What are the factors that set South Africa apart as a potential leader in the climate change discourse in Africa?
2. To what extent does South Africa's approach to International Climate Change negotiations give it the leverage to lead Africa in Global Climate Change discourse?
3. How has South Africa implemented the International climate change treaties in its domestic climate change policies?
4. How best can South African policies be made to incorporate Africa's interest at a global scale?
5. What barriers does South Africa encounter in its implementation of the climate change protocols?

1.6 Research Objectives

The Objectives of the Research were to:

1. To explore the factors that set South Africa apart as a potential leader in climate change discourse in Africa.
2. To explore the extent to which South Africa's approach to international climate change negotiations give it the leverage to lead Africa in global climate change discourse.
3. To explore how best South African policies can be remodelled to incorporate Africa's interest at a global scale?
4. To explore how can South Africa implemented climate change treaties in its policies
5. To identify social, political and economic barriers South Africa encounter in its implementation of climate change protocols

1.7 Broader Issues to be investigated

The climate change catastrophe is currently affecting Africa in a devastating way, despite the fact that Africa contributes least to its cause. Global discourse on climate change mitigation and adaptation is ongoing through various global, national, regional, sub-regional, and organizational negotiations. In the ongoing global negotiations through the Conference of Parties (COP), the voice of African continent is reported to be marginalized and underrepresented (Bond, 2009). This underrepresentation in effect slows down the pace of positive outcome of the different negotiations. Such underrepresentation is caused by poor leadership, lack of political will and most of all, lack of coordination and collective efforts on the part of African countries. It is also caused by divergent interest on the part of African countries on their approaches to climate change politics. African countries need to approach global change negotiation with one voice so as to influence the global negotiators

This research explored South Africa's approaches to global climate change to see if such approach promoted or undermined Africa's common position and voice in climate change negotiation. It investigated any underlying selfish interest in South Africa's policies to and participation in the international climate change negotiations. It also looked at how South Africa, as a member of various influential global blocs, has used, and can use the opportunity to influence and promote Africa's common interest in international climate change negotiations.

1.3 Rationale for the Study

Due to the urgency of the need to tackle climate change challenges, most investigations involving climate change are not only to understand the scientific aspects of the issue, but to identify any available opportunities for intervention and remediation. One of those opportunities involves a political discourse on the need for states collaboration to foster policies that will aid climate change adaptation and mitigation. Effective leadership that will foster states collaboration and unity of interest is also essential if Africa is to get a fair share of the global aid towards climate change mitigation and adaptation.

Collaboration is said to be one of the challenges facing Africa in promoting its voice in the global climate change discourse (Dongo, 2014). Lack of collaboration is linked to the conflicting national interests of African countries (Dongo, 2014). These diverse interests cause the countries to pose divergent and selfish interests when participating internationally and when crafting their domestic climate change policies. Recently, cooperation among African countries is gradually growing stronger. The advancement of Africa Group of Negotiators is fostering a stronger African Common Position on climate change (*Ibid*). To gain an active global response, Africa's active and influential role in the ongoing climate change negotiation needs to be sustained. This requires coordination as well as effective and selfless support from Africa's regional leaders. South Africa, being arguably a major economy in Africa is in a position to lead Africa in this regard. However, if South Africa's interest is not aligned with the common interest of Africa, its capability of performing this function becomes questionable.

The primary aim of this study was to explore the factors that qualify South Africa's leadership. To achieve this aim, the study assessed the forms of leadership exercised by South Africa climate change. The study was motivated generally by the urgent need for intervention on climate change dilemma and specifically, by the rising need for African countries to speak with one voice in global climate change issues. It was also motivated by the need for urgent intervention on the catastrophic climate change challenges that continue to pose serious threat to sustainable development in Africa.

1.4 Significance of the Study

This study is significant as it will offer a valuable contribution to knowledge on strategies of strengthening climate change leadership in Africa. It will also point other African countries to the huge lessons they can learn from South Africa's approach of tackling climate change challenge. It will point South African policy makers on the need for coalition with other African countries, should it need to strengthen its leadership and gain the loyalty of its African peers.

1.8 Research Methodology

This research adopted solely a qualitative approach. Unlike quantitative study which is empirical in nature and derives the meaning of a given phenomenon from data represented statistically and numerically, qualitative approach focuses on extracting *meaning and motivation* from the social world, which could vary with participants' interpretation vis-à-vis data collected (Kalof *et al* 2008). David Silverman (2010:104) also explicates that in qualitative research, interpretation is based on people's understanding and interaction over a certain issue or case. Kalof *et al* (2008:80) also argue that the focus of qualitative research is "on *how* people make sense of their setting" and why people behave, act, or think in the way they do. In line with the various explanations of qualitative research above, this study explored the meaning and motivation that underlie South Africa's approach to International Climate Change Negotiations. It did not seek to draw conclusion based on cause and effect relationship of any statistical analysis. Rather, it explored the meaning and interpretation behind South Africa's approach to international climate change discourse. This study also explored the various South African domestic policies on climate change and looked at what other African countries could learn from them.

This was a desktop research: it made use of data from already published materials on climate change to understand the research problems and answer the research questions. The qualitative data for this desktop research was sourced from books, journals articles, conferences' papers, and policy documents. Special attention was given to South African policy document on climate change. Other varieties of documents of the Intergovernmental Panel on Climate Change were equally consulted. From these materials, the researcher analyzed the participation of South Africa in the various International climate change discourse, as well as the different policies it put in place to deal with the issue of global

climate change. Evidence and facts got will then be compared with the common African Position on climate change to investigate if South Africa's approach towards those global negotiation is really representational of the interest of Africa as a whole. The exploration will also draw some inferences as to the factors, from its domestic policies, that set South Africa apart as a leader in African climate change discourse.

The study adopted an interpretivist paradigm to research. According to Walsham (1995), interpretivist paradigm aims at understanding of the social context of the phenomenon in question. It also seeks to unpack the different scenarios and process where the phenomenon impacts and is impacted by the social context. This study sought to understand how South Africa's national interest can influence the manner that the nation acts to represent Africa in International Climate Change negotiations.

1.9 Limitations of the Study

One of the ways the study explored South Africa's potentials for leadership in African climate change discourse was by analyzing South Africa's participation in the different transnational, as well as global conventions and conferences on climate change. However, due to the limited number of words required for this study, the study did not explore all the global conferences that have be done on climate change. It only explored the ones regarded as prominent and particularly relevant to this study. The conferences explored were mainly the ones in which South Africa has arguably played prominent leadership roles. It is to be noted that leaving out some of the conferences did not alter the validity in the analysis of this study. Most of the conferences that the study investigated were those that had the salient points of other conferences in them.

1.10 Structure of the Dissertation

This research comprises seven chapters, as follows:

Chapter one gives an introduction to the research problem, questions, objectives, rationale as well as the study's significance. This chapter also discusses the methodology and set out the preliminary literature review that informed the study.

Chapter two deals with a broader review of previous literature that are related to the current research. This chapter will also show the gap (s) to be filled.

Chapter three presents the theoretical and conceptual frameworks that guides the analysis of the study.

Chapter four shows the different actions, policy initiatives and programmes that inform the route South Africa is taking in tackling climate change problem.

Chapter five provides an overview of different global conventions on climate change, with special focus on South Africa's involvement in the conventions. It also discusses how South Africa implements the recommended climate change mitigation and adaptation policies.

Chapter Six provides an analysis of South Africa's potentials for structural, directional, and entrepreneurial leadership in African climate change discourse. This chapter also provides the possible challenges that South Africa faces, or is likely to face in its climate change leadership in Africa.

Chapter seven provides a summary, conclusion as well as recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter seeks to review scholarly literature on issues of climate change. It will first explore scholarly literature on the general conception of global climate change. Thereafter, it will look at climate change challenge in Africa, as well as where Africa stands in the global negotiations to deal with climate change challenges. It will also look at literature on leadership theory, as well as studies which deal with the potential of South Africa to become Africa's leader in the climate change debate.

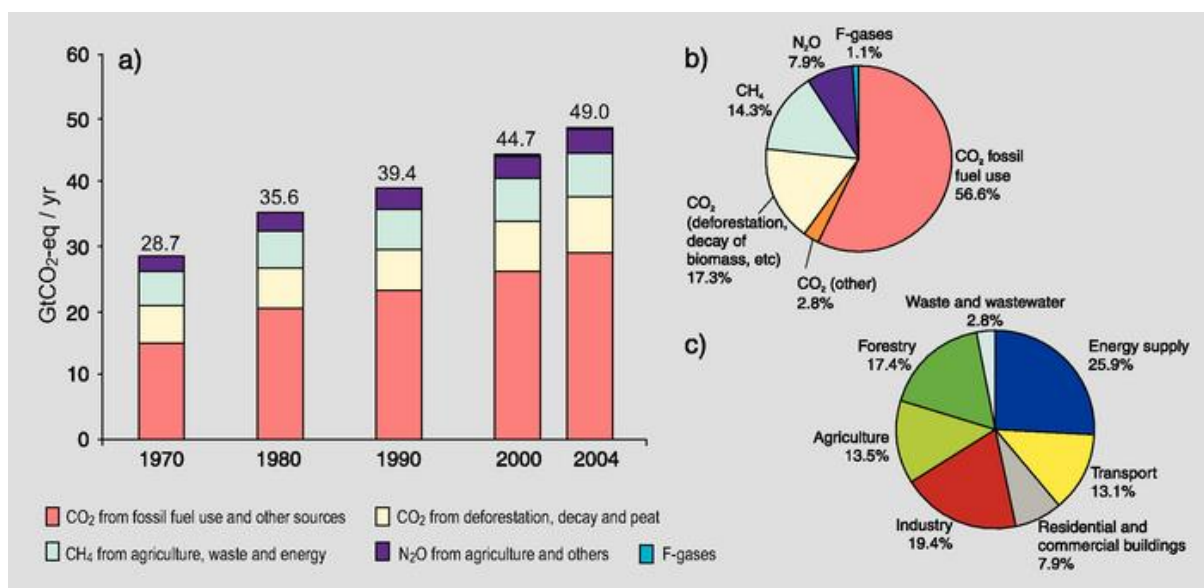
2.2 Conceptualizing Climate Change

Most studies that have attempted to assign a definition to climate change often relies on conceptual models as outlined in a widespread array of technical reports (see IPCC, 2001, 2007; NOAA, 2007; UN-ISDR, 2008). According to the IPCC, climate change is any alteration in the atmospheric climate over time, which can occur as a natural phenomenon, or happen as a result of human activities (IPCC, 2007). This definition to climate change is comprehensive, at it takes cognizance of what climate change entails, as well as the causal factors of climate change, which include both natural factors and human activities. Other scholarly conceptualizations of climate change tend to emphasize mainly the anthropogenic factors as factors behind the cause of climate change (UNFCCC, 1992; United Nations International Strategy for Disaster Reduction, UN-ISDR, 2008). For instance, the United Nations Framework Conventions on Climate Change sees climate change as 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere, and which is in addition to natural climate variability, observed over comparable time periods' (UNFCCC, 1992: 7)

Though the various literature on conceptualization of climate change given above postulate that climate change can either happen naturally, or caused by human activities, they seem to ignore the aspect of the 'how' in addressing the causal factors behind climate change. Other literature tends to go deeper to reiterate the details of the causes of climate change. Examples of such clarification is given by NASA (2015), who postulates that the earth's temperature is regulated by the quantity of incoming energy versus the amount of outgoing energy. Any

factor that causes a sustained change between the amount of incoming energy and the amount of outgoing energy causes a variation in the earth's climate. Some of the natural factors behind the cause of climate change are said to be changes in volcanic activities, changes in solar output, and changes in the Earth's movement round the sun (NASA, 2015). These factors alter the amount of incoming energy, and consequently, climate change. Among these factors, volcanic eruptions pose only relatively short-term influence on the climate due to its episodic nature, while changes in solar radiation is reported to have a long-term influence (*Ibid*). As regards human-induced climate change, though other greenhouse gases play some effective role, the release of carbon (ii) oxide into the atmosphere has been identified to be the main cause of the change in climate (NASA, 2015; IPCC, 2007). It is noted that the increase in the atmospheric carbon (II)⁶ oxide causes changes in the climate, and subsequently, rise in sea level during the late 20th century. Climate change also causes variations in winds and temperature patterns, high precipitation events, and increase in heat waves (leading to drought) (IPCC, 2007)

Figure 1: Global Anthropogenic greenhouse gas emission



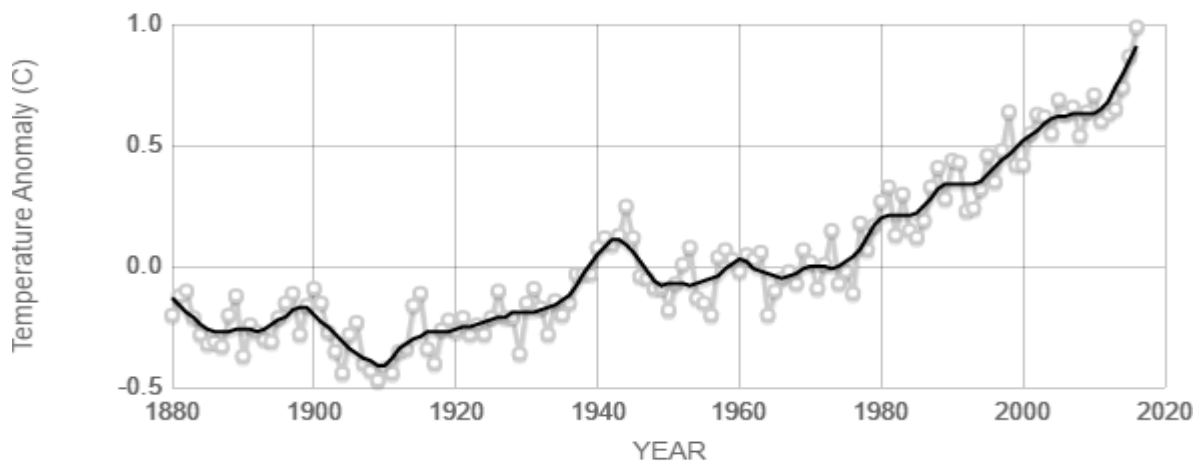
Source: IPCC (2007).

IPCCC uses the above illustration to show the extent to which the emission of GHG into the environment has increased over the course of the years. The upsurge in GHG emission is not

⁶ In this study, carbon (II) oxide and carbon dioxide are used interchangeably.

unconnected with the increase in global warming and alterations in the climatic conditions that we experience over the years. Scientific and meteorological reports show that the rate at which global warming occur has been at increase since the industrial revolution (IPCC, 2007; NASA, 1998).

Figure 2: Meteorological temperature data of annual mean and a five year mean indicating anomalies 1880-2020



Source: climate.nasa.gov

S

ource: NASA (2016).

Reports by Toulmin (2009) point out that there has been a lot more increase in the amount of carbon (ii) oxide in the atmosphere during the post-industrial era than what was notice in the pre-industrial era. During the post-industrial era, the level of carbon dioxide in the atmosphere has increased from about 280 ppm in 1970 to 379 ppm in 2005. Besides carbon (ii) oxide (CO₂), other atmospheric gases that are found to give rise to climate change have also been found to increase considerably since the pre-industrial era.

Table1: Global Concentration of Atmospheric Gases

	Pre-Industrial era	2005	2016
Carbon dioxide	280ppm	379ppm	403.3ppm
Methane	715ppb	1774ppb	1853ppb
Nitrous Oxide	270ppb	319ppb	328.9ppb

Notes: ppm and ppb stand for parts per million and parts per billion respectively

Source: Figures got from IPCC (2007a) and World Meteorological Organisation (2017)

The above table is a scientific report showing the rise in the level of GHG in the atmosphere (since the pre-industrial time), as reported by the IPCC and World Meteorological Organisation.

This significant increase in atmospheric concentration of GHG in the recent years (years of intense industrialization) is incomparable to what was observed during pre-industrial era. During the pre-industrial era, an increase of only 20 ppm in about 8000 years was noticed. Toulmin (2009) further warns that though the current CO₂ levels is 430ppm (as at April 2018), there is the likelihood of it increasing to about 550ppm level by 2035, with a 77-99 percent possibility of global temperature exceeding 2°C. Similarly, IPCC (2001) studies measure the link between increase in greenhouse gas emission and global warming and found that surface temperatures have increase by about 0.6⁰C (1.1⁰F) at a global scale over the 20th century. The IPCC further observes that since the end of the last glaciations, the rate of sea level rise has been at an alarming increase.

Many reports point to anthropogenic factors (human activities), as being the major cause of the increase in atmospheric greenhouse gases (IPCC, 2012; Barnet *et al* 2005; & Alley *et al* 2003; World Meteorological Organisation, 2017). However, there are other literature that have emphasized the natural presence of some significant amount GHGs in the atmosphere. The natural presence of these gases - as pointed out by IPCC (2001); Scientific American (2008); and the United States Environment Protection (2014) - is needed to maintain a

balanced combination of atmospheric gases for life sustainability. Scientific American (2008) points out that the natural greenhouse gas which performed this stabilizing function of mixing with atmospheric gases to help sustain life, had persisted for about 10,000 years prior to the recent upsurge of anthropogenic effects which dates to last two centuries⁷. Some of the human activities that are said to be the primary causal factor for the deterioration of the climate system were earlier noted to include the burning of fossil fuels for production of electricity and for other industrial activities, the clearing of forests for industrial development and urbanization, etc. (IPCC, 2012). Other literature that highlights the primacy of human-induced climate change over natural variability include Trenberth (2003), Barnett *et al* (2005), & Alley *et al* (2003). One key feature of all these literature is that human-induced climate change is real and forms the major cause of global warming.

Human-induced climate change has been linked to a historical quest by humans to exploit their environment, particularly since the industrial revolution era. A report from the UK parliament notes that human-induced climate change is responsible for about 40% more CO₂ in the atmosphere as compared with the pre-industrial revolution era- the highest level so far in the last 800,000 years (UK Parliament, 2011). But this does not mean that human activities that deteriorates the condition of the atmosphere was absent before the industrial era. A hypothesis by Ruddiman (2003) posits that anthropogenic emission of gases first altered the atmosphere some thousand years ago, even before the industrial revolution.

It has been noted that the levels of anthropogenic activities that impact on the atmosphere vary across the different regions of the world (UNFCCC, 2007). Ironically, though the anthropogenic activities occur mostly in the highly industrialized (developed) of the world, the greatest catastrophic effects of the act is felt by the less industrialized nations of the world, which include mainly Africa, Latin America, Asia, as well as the Small Island States (IPCC, 2007). It is held that the hostile impacts of climate change destabilize not only ecological systems, but also social systems and process, and these effects are felt in different degrees in different regions of the world (Buhaug, Gleditsch & Theisen, 2008). Among all

⁷ The magazine reports that carbon dioxide concentration rose by about 35 percent above preindustrial levels, Methane level is at roughly two and a half times preindustrial levels, and nitrous oxide levels are around 20 percent higher (See Scientific American, 2008).

these different regions, Africa – due to her poverty and agrarian nature - is the hardest hit continent as regards the adverse effects of climate change.

2.3 Climate Change Disaster in Africa

Vast literature recognize Africa as the least contributor to global GHG emission and yet, the most sufferer of its disastrous effects (Brown, Hammil & Mcleman, 2007; Barnet & Adger, 2007, Salehyan & Hendrix, 2012; Reuveny, 2007; IPCC, 2007). Africa suffers most from the severe impacts of climate change because of its low adaptive capacity, high rate of poverty, and most especially, its high dependence on agriculture products and other raw materials (Hope, 2009; Brown, Hammil & Mcleman, 2007; Collier, Conway & Venables, 2008). Climate change has the ability to adversely affect all areas of life, including economy, agricultural produce, social stability, and political stability (Hope, 2009).

In the agricultural sector climate change will severely affect food production, which will consequently give rise to food insecurity in many regions of the African continent (AMCEN, 2014 & [Dinar 2007](#), cited in McMichael *et al* 2012). Some African countries, especially those that are already facing semi-arid conditions, could see yields in crop production fall as low as 50% by the year 2020. Net revenues from crop production could also fall as much as 90% by 2100. This could lead to a situation which will threaten food insecurity on the continent (AMCEN, 2014; Brown, Hammill & McLeman, 2007). Climate change also affects access to water, as in some regions, as a rise in temperature results in acute water shortage. Boko *et al* (2007) estimates that the number of African people, (especially the poor), that will be affected by water shortage problems in the near future will reach 75-250 million.

Research has found that Climate change is causally connected to many social instabilities, violence, and many intrastate conflicts in Africa (Barnet & Adger, 2007; Brown, Hammill & McLeman, 2007; Salehyan & Hendrix, 2012). For instance, a fervent analysis by the United Nations Environmental Programme, (UNEP), reveals that the inter-ethnic conflict experienced in Darfur in the year 2003 is reported to have been causally linked to climate change (cited in Brown, et al 2007). Rainfall in Darfur has reportedly fallen by 30 percent during the last 40 years. Consequently, the region's Sahara has is advancing by more than one mile every year. These effects, which are due to climate change, stimulated the conflict between farmers and herders over vanishing pasture and deteriorating water-holes, giving rise to the conflict (*Ibid*).

Literature also explore the relationship between climate change to migration (Reuveny, 2007; IPCC, 2007). Using recent decade's records, people in the areas affected by climate change face three choices: to stay in the affected area and do nothing; to stay in the affected area and mitigate climate change problem; or to leaving the affected area and migrating to take refuge in other countries. All these choices are said to be depended on the extent of the threat the climate change poses as well as the mitigating capabilities of the people. Reuveny (2007) observes that in most cases, people in lesser developed countries leave the affected area. Such migration poses some burden, and possibly conflict in the receiving areas (*Ibid*).

Other studies investigate that changing weather anomalies has led to increase in internal and international migration in sub-Saharan Africa (Schumacher *et al*, 2012; Oppenheimer, 2016). Though the research by these scholars found that higher temperature and decrease in rainfall generally cause people to migrate, other research, such as Peri (2016) found that there is difference between migration in poor countries and those in middle-income countries. According to this study, increased in temperature in middle-income countries causes an increase in both internal rural-urban) migration as well as migration to other countries. On the other hand, temperature increase in poor countries decreases the probability both internal and external migration.

Literature on climate change related conflicts posits that conflicts arise due to scarce resources. Climate change leads to scarcity of resources. As resources become scarce, conflict may arise, as the teaming population in a climate change affected zone (Africa in this instance) compete for the scarce resources. According to Lisk (2009), such conflicts arise mostly in nations characterised by tribal identities. Conflicts arise from communities and nations competing for access to the scarce resources especially when previously divided people or groups are forced to share resources from one source. In his study of the various scenarios of the relationship between climate change and conflict in Africa, Lisk posits thus:

There are prolonged and intensified droughts in eastern Africa; unprecedented floods in western Africa; depletion of rain forests in equatorial Africa; and an increase in ocean acidity around Africa's southern coast. Vastly altered weather patterns and climate extremes threaten agricultural production and food security, health, water and energy security, which in turn undermine Africa's ability to grow and develop. Climate and environmentally

related disasters which threaten human security can induce forced migration and produce competition among communities and nations for water and basic needs resources, with potential negative consequences for political stability and conflict resolution (2009: 9).

Some studies view migration caused by climate change in a negative light (Reuveny, 2007). This is because mass migrants into a country is likely to put unnecessary pressure on the receiving nation. However, some other studies observe that though climate change-induced migration has some negative implications (both to the host country and the migrants), there are also some opportunities that accrue to people who escape vulnerable zones (Black, *et al* 2011). Though these migrants faced a xenophobic attack, most especially that which happened in 2008 and lead to some deaths and numerous displacements, some migrants leaving climate change-affected zone in Zimbabwe to settle in South Africa were also opened to more opportunities in the foreign land (Ibid). Zimbabweans migrants into South Africa were also able to escape the political instability, poor governance, conflict, and social pressures of their country (Ibid).

According to reports by GHF (2009), there are some African countries that are severely vulnerable to the disasters of climate change. They include Niger, Sudan, Ethiopia, and Somalia. These countries are particularly vulnerable to the dangers of climate change mainly because they are located the in semi-arid dry belt, which is prone to droughts emanating from the Sahara/Sahel, to the Middle East, and Central part of Asia. Similarly, most affected countries in sub-Saharan region of Africa include Kenya, Uganda, Tanzania, Nigeria, Mozambique, and South Africa, as a result of vulnerability to flood and droughts. These countries, according to the author, needs urgent attention to curb the future detrimental effects of climate change.

Literature posit that Africa needs huge financial resources and technical capacity to adapt to the challenges of climate change, and to produce appropriate low carbon technologies (UNEP, 2012). Several literature have attempted an estimate of what Africa requires to adapt and mitigate to climate change (UNEP, 2012). Africa needs thorough research, technical capacity and financial support to tackle climate change challenges. A report by the World Bank estimated that Sub-Saharan Africa needs about 14-17 billion

US dollars annually to adapt to climate change (World Bank, 2010). Other studies by economists predict that to achieve ‘climate resilient’ Millennium Development Goals in the African continent, 100 billion US dollars is required every year between 2010 to 2020 period. From this amount, approximately 82 billion US dollars is required for standard development assistance, and an additional 11-21 billion US dollars for adaptation (Frankhauser and Schmidt-Traub, 2010).

Some measures and initiatives to adapt to climate change impacts are on-going in Africa. Example of such initiatives is Africa’s partnership with European countries to find strategies and means of adapting climate change challenges. Examples of such partnership include, but not limited to the European Neighbourhood Policy, the Cotonou Agreement, the EU-Africa Joint Strategy (UNEP, 2012). Funding from these initiatives spur a number of projects in Africa and contributes to enhancement of Africa’s adaptive capacity.

It is suggested by the United Nations Environmental Programme that a variety of other strategies and different solutions are required to address the variability of impacts in the different regions of Africa. This is given the potential severe impacts of climate change to affect a number of several other sectors. Most studies have discussed the severity of climate change challenges in Africa. Other studies have nevertheless, discussed the urgency of this matter and the need to address them. However, few studies seem to delve into the need for effective regional leadership in Africa on issues of climate change. Hence, this study seeks to explore this seemingly-forgotten aspect of how to address climate change challenges in Africa. Moreover, Giddens (2009) suggested that climate change is not to be regarded as merely a scientific or environmental concern but also the political implications of its effects need to be explored too. One of the avenues where the political implications of and responses to climate change takes place is the annually United Nation Conventions on Climate Change (UNFCCC). The highest decision-making body of the conventions is known as the Conference of Parties (COP).

The UNFCCC is an international treaty on environmental concerns. It serves as a forum where countries collectively explore global concerns on GHG emissions, review national policies on climate change, and implement national policies for addressing the issues of GHG emissions and coping with the anticipated effects of climate change (UNFCCC, 2016). This

conference is also a forum where countries (both Annex 1 and Non-nex 1)⁸, cooperate to be prepared to adapt to the adverse effects of climate change. It also bears the responsibility of determining the provision of financial, technological, and other forms of support to help developing countries adapt to climate change. The UNFCCC was negotiated in the Earth Summit held Rio de Janeiro in 1992 and entered into force in 1994. Up to date, 195 countries, who are parties to the conference and the treaty have been meeting every year to discuss progress on climate change issues. The section will also discuss Africa's participation in global climate change discourse.

2.4 Africa's Participation in Global Climate Change Discourse

Before delving into Africa's involvement in the international climate change discourse, it is worthy to note that several studies have explored emerging powers' leadership on issues of the environment. Affionis, *et al* (2016) unpacks Brazil's prospects of exercising global political leadership in biofuel. This study looks at Brazil leadership in this area in its bilateral partnership with Africa and its North-South-South trilateral collaboration with the US and EU. Its relevance to the present study is its application of leadership theory in assessing Brazil's leadership potential. The study primarily explores Brazil's potential for leadership by analyzing its entrepreneurial (policy based), structural, and instrumental attributes in negotiating and carrying bilateral and trilateral partnerships with other nations of the world, especially in making the bilateral inroads into bioethanol production in Africa. It discovered that some constraints, including lack of domestic policy initiatives and vision, economic decline, and fragmented coalition network are the major inhibitors of Brazil's ability to realize its aims and objectives of exercising leadership in the ethanol diplomacy.

⁸ Annex 1 countries include developed nations. These countries are required to take more responsibility towards reducing GHG emissions. They are also required to provide finance and technological assistance to Non-Annex 1 countries, which are the developing countries that contribute minimally to GHG emission (Environmental and Energy Business Resources, 2017. [Available at: www.environbusiness.com/cchangemain/annex12/]

Research on Africa's involvement in the global climate change debates show minimal participation which can have the effect of leading to the discrediting or disregarding of Africa's interests in the global talks. Cramer (2008) asserts that Africa's participation was hardly noticeable during the 2007 global climate change negotiations in Bali. Attention given to scientific discoveries concerning climate change by political decision makers, policy makers, and the civil society also has a limited growth rate. This is a phenomenon that necessitates the need for collaboration by Africans (especially its regional powers)⁹ to focus the attention of the continent's key decision makers on the hazards posed by climate change.

Nigeria is a member of the Organization of Petroleum Exporting Countries (OPEC). This membership points to the potential leadership position it could take in Africa on matters pertaining to the global oil market. South Africa has demonstrated its potential leadership capability in its partnership with the two emerging markets of India and China through the IBSA¹⁰ forum, which is campaigning for the interests of the developing nations at the international negotiating fora. However, scholarly suggestions point to the fact that African countries need to cooperate to get a share of the funds that will be provided by the developed nations towards tackling of climate change catastrophe as well as adapting to its disastrous effects in developing countries (Nelson, 2016 and Clark, 2006). It is equally noted that for this cooperation and leadership to materialize, Africa needs the leadership and representativeness of its regional powers (*Ibid*).

Some studies that look at the limited influence of the African continent in exploring the reasons for the global climate change debate have looked at the extent to which African regional leaders have helped to foster Africa's common interest and approaches towards the global debate. The continent has two main approaches towards climate change negotiations which are

- (i) The 'African Common Position' and;
- (ii) The forming of a negotiation coalition to foster and present that position (AMCEN, 2014).

⁹ My emphasis

¹⁰ IBSA means the alliance of India, Brazil, and South Africa

Nelson (2016) explored the role played by African regional powers, which include Ethiopia, Egypt, South Africa and Nigeria, towards supporting these approaches. This was done by using a qualitative assessment of the roles that these powers have so far played in climate change negotiation and in representing Africa at the international community. What was found was that the regional powers differed in their interests with the rest of Africa. This difference is more evident between Nigeria and South Africa, because of the difference in their energy production and consumption respectively. Nigeria, South Africa, and the other two powers in discourse are also found to differ as regards their general vulnerabilities as well as willingness and readiness to engage in climate change mitigation. Even when they seem to share some interests, they still see negotiation process as serving self-interested goals rather than bringing shared solution to climate change challenges in Africa (Ibid). Despite these conflicting issues, it still appears realistic and necessary that Africa's regional powers engage in ongoing role of representing Africa at the global community in climate change negotiations (Clark, 2006 & Nelson, 2016).

2.5 Leadership Theory

Leadership has been viewed to involve having the capacity to 'guide and orient others towards a purpose (Nye 2008:19). This implies that a leaders is the one who guides or take charge of others (Ibid). Various literature has identified different modes or mechanisms which an aspiring leader need to employ when needing to direct or guide the action of others (Underdal, 1994, Young, 1991, Malnes, 1995). Past research on leadership has also stressed the importance of leadership as a crucial element in dealing with collective action problem (Young, 1991), such as climate change. To make a proper valuation of South Africa's ability or potential to lead Africa in the climate change negotiation, which this study seeks to do, it is essential to examine literature on what leadership entails as well as the factors that qualifies an actor as a leader or potential leader.

Leadership has been defined in different ways by different leadership literature. Though the terminologies used by different leadership literature to describe the various forms of leadership vary, the explanations given to the various modes of leadership are similar. Many previous research is in agreement in pointing out four major modes of leadership. These include idea-based (or entrepreneurial) leadership, structural, directional, and instrumental leadership (Parker and Karlsson, 2014). However, other literature limits their explanation to

three forms or modes of leadership, namely, structural (power-based), entrepreneurial, and directional leadership (Underdal, 1994; Young 1991; and Malnes, 1995). A succinct and relevant understanding of leadership in multilateral negotiations (such as global climate change negotiations) is expressed by Arild Underdal.

Underdal (1994:178-179) defines leadership in multilateral negotiation as ‘an asymmetrical relationship of influence in which one actor guides or directs the behaviour of others toward a certain goal over a certain period of time’. Underdal underlines three characteristics that are associated with leadership. First, it involves two parties; on one side is the leader(s) and on the other side, the follower(s). Second, it involves a shared pursuit of some common goal. In other words, the leader has to lead by example and exercise ‘positive influence’ on the follower (178). Thirdly, leadership must embody some forms of ‘shared values, interests and beliefs’ (179). Finally, there must exist a certain line of interaction between the leader and the follower.

Underdal (1994) describes three mechanisms of how leadership is carried out. They include power-based, directional, and entrepreneurial mechanism of leadership. **Power-based leadership** is described as a form of leadership by ‘sticks and carrots’ (186). In power-based leadership, the conditions, capabilities, or necessary requirements for success involve control over events that are beneficial to others. **Directional leadership** is subdivided into two components: the first component involves leadership by influence. It is when a leader willingly influences the incentives of the other parties in the system or organization. This influence occurs when the leader acts as a role model by making the first move. The second component involves leadership by demonstrating the pre-eminence of certain alternative solutions (*Ibid*). In directional leadership, the capability required to succeed is dominance. A directional leader must occupy a position of dominance within the organization in question. This position of dominance gives the leader a means of control over events that are beneficial and important to the leader. Finally, **entrepreneurial leadership** is about finding means of achieving common goals. The capabilities required for success in entrepreneurial leadership are substantive and political skills. These skills are evident in the ‘energy an actor brings to bear on the problem’ as well as its positional statuses (189).

Underdal (1994) emphasizes the incentives why a potential leader may take up or bargain to take up a leadership role. Such incentives arise when 1) the leader’s goal is different from the

goals of the other parties; 2) when the leader is better informed that other parties involved in the negotiation; and 3) when the potential leader finds it in its power and interests to manipulate the incentives of others by making the first move.

Other literature on leadership substantiates Underdal's perspectives on the characteristics of a leader. Malnes (1995:94) asserts that 'a leader is supposed to look beyond his or her own interest and concerns, to the interest of a wider group'. Both Malnes and Underdal share the perception that the pursuit of common good is one of the mechanisms of leadership. Young (1991) however, argues that self-interested goals are the only motivations why a leader takes up leadership role. The common argument put forward by Underdal, Young and Malnes is portrayed in Malnes's argument that leaders normally seek selfish interest in various arrangements, therefore their action qualifies as leadership only if the common interest is prioritized over the leader's self-interest and ambitions (Malnes 1995:94). This implies that true leadership is when the leader's self-interest corresponds with the collective interest. This may either be unintentional, where the leader's ambitions and self-interested goals coincidentally align with the interests of the followers or it could be intentional, where the leader willingly gives up on some selfish goals and ambitions or make some shifts so as to accommodate the collective interest. This study will assess not only the kind of leadership exercised by South Africa in climate change, but the potentials of its future leadership. The types of leadership portrayed so far by South Africa in leading the African continent in the discourse on climate change will serve to determine its potential of taking Africa forward, and raising its concerns in the international arena on climate change discourse.

2.6 South Africa's Involvement in Climate Change Discourse in Africa

Most studies that have assessed the role of Africa's regional powers in fostering Africa's position on global climate change debate argue that South Africa is better placed and equipped to lead Africa in the global community of climate change discourse. According to The South African Climate Action Network, the Greenpeace, South Africa stands a better chance to lead Africa in the global fight against climate change, especially due to its ability to exert strong international leadership, progressive thinking and policies, reflected in its call for dramatic reduction in global GHG emissions, as well as drafting mechanisms to aid vulnerable nations in adapting to challenges of climate change (Climate Action Network, 2018). Chevallier (2011) also states that as a change agent, South Africa has a responsibility

to move the global climate change negotiations forward in Africa's favour. COP17¹¹, which was hosted by South Africa in 2011, was an opportunity for Africa to wield its influence in the global climate change negotiation. According to reports, to achieve such an aim, South Africa needed to assume a special role in using its expertise, mediating experience and its global influence to consolidate both its own competing national interests and those of Africa as a whole in its negotiating stance during the summit (Chevallier (2011). This involves working in collaboration with the African Union members to ensure one voice for Africa. However, African countries has very divergent priorities and interests which define their national policies. Chevallier (2011) maintains that as a potential climate change leader, South Africa should function to manage all these divergent interests and find areas of convergence for Africa as a whole. Chevallier's (2011) research was mainly concerned about issues of how South Africa's climate change leadership and diplomacy is perceived or welcomed by other African countries. It also raised some doubts whether South Africa is promoting 'African COP' that is fair and equitable for the whole continent or it is solely promoting its own interests in the pretense of defending Africa's priorities.

The literature on South Africa's foreign policy has indicated South Africa's willingness and capacity to assume leadership position both in Africa and beyond. In a foreign policy statement in 1993, Nelson Mandela argued that the time had come for "South Africa to take up its rightful and responsible place in the community of nations", and proposed an ethical attitude to foreign affairs that would constitute "our own positive contribution to peace, prosperity and goodwill in the world" (cited in Death 2011: 457). A similar statement was made by President Thabo Mbeki in 2007, when South Africa gained a temporary seat in the UN Security Council. Mbeki reiterated a broader vision of an 'African Renaissance' as one in which South Africa would play a key leadership role as a mediator between the global North and South, and 'as a resolver of conflict and deliverer of hope in Africa, and perhaps beyond' (:457). These statements signal South Africa's potential political willingness to lead the continent on major issues of continental concerns, as well as deliver the continent from international marginalization.

¹¹ COP17 was the meeting to mark the 17th session of the Conference of Parties on climate change. It was held in the city of Durban, South Africa in November/December 2011. One of the outcomes of this particular conference 'included a decision by the parties to adopt a universal legal agreement on climate change as soon as possible , and no later than 2015' (UNFCCC, 2011).

According to Molewa (2015), the policies, strategies, and planning instruments that the South Africa national government institute to fight climate change challenges demonstrate that South Africa is leading from the front. It is also hard at work behind the scenes to address issues of climate change challenges in Africa. Edna Molewa, who is the minister for Environmental Affairs in South Africa made this claim to show South Africa's readiness to demonstrate leadership during the Paris Climate change negotiation that would produce fair, ambitious and effective legal agreement, as well as balances development priorities¹². In the 2015/2016 Department of Environmental Affairs' Budget Vote Policy Statement, Molewa listed strategies put in place by South Africa to include The National Climate Change Response Strategy, the Green Economy Strategy, Integrated Resource Plan, National Strategy for Sustainable Development, Industrial Policy and Action Plan, and National Adaptation Strategy(*Ibid*).

When looking at what motivates a country to participate in the global climate change negotiations, Atteridge (2011) investigates what motivates South Africa to take up such a constructive participation as well as acting as a bridge builder between various parties in the international climate change discourse. South Africa's ambitious leadership and involvement in the global climate change discourse is not grounded on an ethical foundation but self-interested on (Atteridge 2011). Rather than taking a completely altruistic approach towards climate change negotiations, South Africa's ambitious leadership and participation is informed by some self-interested goals such as the desire to regain its moral image in the international community after it has been blurred by the apartheid system (*Ibid*). It could also be motivated by other factors, including a desire to transform the current power structures in the international institutions, the conviction of its firm foundation and knowledge in African reality, and its neo-liberal view on both its own economic development and that of its region. South Africa, on many occasions has reiterated its readiness and willingness to represent and promote Africa's interest in the international arena but its approach sometimes appears to be dual in nature; it is sometimes based on altruism and at other times, based on purely realist concerns of promoting its national self-interest. The consequences of such dual motives, according to (Atteridge 2011), is that it makes South Africa's leadership motives unpredictable, thus creating mistrust and uneasiness amongst other African countries

¹² Available at https://www.environment.gov.za/.../molewa_2015-16_budgetvote_policystatement

Other challenges that Atteridge (2011) thinks South Africa will face in future regarding its constructive approach to the climate change negotiations is that at the domestic level, influential business interests, such as those affected by carbon tax, will diminish government's implementation of its fair policies. Such domestic constraints will create complexities for South African leaders and make South Africa's constructive approach and leadership barely uncertain.

Considering that South Africa has a strong influence in the international community of climate change, specifically because of its alliances with major world powers, it is no doubt expected to play some roles that will help promotes Africa's interests in the global arena. Nhamo (2011) explores the role that South Africa has so far assumed in climate change negotiations. He specifically highlights the challenges that South Africa has faced in global climate change negotiations, especially from Copenhagen in 2009, via Cancun in 2010, to Durban in 2011. Using document analysis involving the various international climate negotiations, as well as Actor/Actant Network Theory, Nhamo (2011) argues that South Africa mainly played the role of a facilitator during COP17 in Durban. However, the author observes that South Africa has carried out the requirements of the principle of Common but Differentiated Responsibilities and Respective Capacities (CBDRC)¹³. South Africa assumes a leading role in dealing with climate change negotiations in Africa. Unlike other African countries or the Africa Group which prioritize mainly adaptation, South Africa focuses on striking a balance between both adaptation and mitigation in its intervention. Nhamo's (2011) analysis supports Atteridge (2011) claims that South Africa will face a challenge of being mistrusted by other African countries, due to the fact that it sometimes strays from the Common African position in fulfilling the requirement of its other major power alliances. Nhamo (2011) points out that in the international climate change negotiations, 'South Africa has a massive role to play in bridging the gap between the industrialized (developed) and the industrializing (developing) countries'.

¹³According to article 3 of the UNFCCC, the Principle of Common But Differentiated Responsibility and Respective Capacities implies that countries' contributions towards combating the disastrous impacts of global warming and climate change should depend on the different capacities of the various countries.

2.7 South Africa's Prospects of Climate Change Leadership in Africa

Many factors have been considered to prompt advanced developing countries' likelihood of taking positive actions towards climate change leadership. According to Rong (2010), it is essential, in future climate change negotiations, to carry developing nations along. Rong's research analyzed the factors that are likely to affect developing countries' stance on international climate change discourse. The research focused specifically on the 'Plus Five' group of countries: China, Mexico, South Africa, India and Brazil. Using two-level interest based model, it found that mitigation capability (which includes a country's energy endowment, its income per Capita, and its economic structure), and not ecological susceptibility, plays an important function in what stance these countries are likely to take in future global climate change negotiations. The research argues that China, South Africa, Brazil and India are less likely to take up voluntary mitigation commitments in the future formulation of their domestic policies than Mexico, which has been found to have the highest mitigation capability. The greater the degree of mitigation capabilities, the more likely these countries are to formulate more stringent climate change programs in their national economic programs. More technologies and fund thus need be transferred from the developed nations to these countries to boost their mitigation capabilities and increase their active and positive participation in climate change negotiations.

Zapletal (2015) examines the motivations of developing countries in being opened to participate in international climate talks. This research used qualitative approach to assess why Kenya, Qatar and Trinidad and Tobago recently became very much interested in international climate change negotiations. Contrary to Rong (2010), Zapletal (2015) found that a country's level of vulnerability is directly proportional to its participation. However, even countries with high vulnerability may not readily be proactive. Other factors such as the desire to secure financial aid, the desire to attain regional prestige and leadership, as well as international pressure were found to highly contribute to active involvement of these three countries in international climate change talks.

There has been ongoing action to mitigate climate change that are being undertaken not only at the national level, but also at the municipal level in South Africa. According to the research report by Debra Roberts, who was the director of the environmental management department of eThekweni Municipality, Durban, in 2008, Durban is one of the cities worldwide has

established a locally-crafted climate change adaptation strategy (Roberts, 2008). She outlines four institutional markers put in place in the municipality to address the challenges of climate change. The four markers include “emergence of climate change advocates among local politicians and civil servants; climate change as a significant issue in municipal plans; staff and funds allocated to climate change issues; and a serious consideration of climate change issues within local government decision making” (*Ibid*). Putting these four markers into practice has seen a significant progress in the fight against climate change in Durban. He emphasizes that such local action and innovation are necessary as they catalyze meaningful activities both at the provincial and national governments.

However, literature notice that though South Africa has paid huge attention to the mitigation aspect of climate change, it’s leadership ability could be enhanced through paying equal or more attention to adaptation (Madzwamuse, 2101;). This literature recognizes also that since South Africa, (and Africa in general) is affected with huge poverty, paying much more attention to adaptation will help to empower the poor South African masses, and enable them to survive the severe climate change impacts in the continent (Madzwamuse, 2010; Sewankambo, 2009

CHAPTER THREE

THEORETICAL FRAMEWORK

3.1 Introduction

International climate change negotiation is a prevailing issue in field of environmental politics. There is a plethora of theories used by scholars to analyze the problem and determine how states are likely to react to it. Numerous studies have also been carried out to explore how the major powers, especially the European Union (which has been the global climate change leader for a long time), have exert leadership in global climate change debates. Leadership theories propounded by scholars like Arild Underdal, Oran Young, and Raino Malnes used to analyze the behavior of these world leaders. This study, will be drawing upon these theories to explore South Africa's potential of being African regional climate change leader.

This chapter gives a detailed description of leadership theory, which is the theory that underpins this study. It will give a detailed description of the concepts of leadership as described by Underdal (1994), Malnes (1995) and Young (1991). Finally, it will spell out the different conditions necessary for effective leadership to occur.

3.2 Evolution of Leadership Theory

Over the years, scholars have put forward various definitions concerning the issue of leadership. Various attempts have been made in defining those qualities that make individuals, groups, organizations, nations, and regions be regarded as leaders. There have been numerous conflicting opinions that have been put forward and yet, no singularly agreed upon definition of leadership has been put forward.

Beginning in the 19th century, leadership studies have put forward different theories to describe the nature and determining factors of leadership. Thomas Carlyle (1888) examined the lives of historically influential figures such as Julius Ceaser and Abraham Lincoln, who, through their intelligence, charisma, political skill, wisdom, or influence, used their power in a way that had a huge impact in the society (cited in Spector, 2015). From the study of this great men, Thomas Carlyle postulated what is known as 'the Great Man Theory' (*Ibid*). As the name implies, this theory considers men to be the only class of human beings endowed

with the ability to lead. In other words, Great Man Theory believes that only men are capable of heroic leadership. Proponents of this theory believed that men could pass those leadership traits to only their sons, and not daughters.

Great Man Theory is also rooted in some western political thought. In Book 1 of his *Politics*, Aristotle proposes that the distinction between a leader and follower is in line with the laws of nature: ‘for that some should rule and others be ruled is a thing not only necessary but expedient; from the hour of their birth, some are marked for subjection, others for rule’ (cited in Cawthon, 1996:2). While some would argue against the premises from which he draws his conclusion - especially his argument that women are by nature inferior to men - Aristotle had earlier argued that rank or leadership is defined by the superior power of implied virtue of knowledge, wisdom, competence, and ability. For Aristotle, nature endows such virtues, and are circumstances of birth (*Ibid*). The belief in the ability to pass on traits gave rise to a new “Great Man Theory” in the early 20th century. This new theory is the Trait Theory of leadership.

Trait theory asserts that certain individuals intrinsically possessed those characteristics such as assertiveness, which are required for them to exercise leadership (Giles, 2005). In 400 BCE, Sun Tzu aptly described this form of leadership in his statement that ‘the leader of armies is the arbiter of the people’s fate, the man on whom it depends whether the nation shall be in peace or in peril’ (Giles, 2005:9). Zaccaro *et al* (2004:118), studied the history of leaders between 1990 and 2003 and argued that leadership attributes include the following: personality traits, cognitive abilities, motives and needs, social abilities, problem-solving skills, and implied knowledge. While some authors see these attributes as being valuable assets for effective leadership, other authors criticized this approach because of its disregard of situational contexts (Ng *et al* 2008; Nye, 2010). Other leadership theories include Path-Goal Theory (House 1996), Contextual Intelligence (Nye 2010), Adaptive Leadership (Heifetz *et al* 2009), Transformational (or transactional) Leadership (Burns, 1978; Bass, 1985), and Environmental Leadership (Gallagher, 2012)

Though it may be argued that tackling the issue of leadership in the prevailing climate change issue is not different from leadership in the historical war times and leadership in different organizational situations, it seems that the conceptions of leadership as outlined above do not provide adequate explanation of leadership that this study examines. This study seeks to

examine leadership qualities that set South Africa an exceptional leader in climate change discourse in Africa. It will employ a more recent conception of leadership, that which specifically addresses global or regional climate change leadership problems. This conception of leadership is informed by the arguments put forward by Arild Underdal (1994), Oran Young (1991), and Raino Malnes (1995) amongst others.

3.3 Underdal's Conceptualization of Leadership

One of the scholars who specifically delve into the issue of climate change leadership is Arild Underdal. Underdal's (1994) approach is one that is popular amongst climate change scholars and argues that the success of any efforts that geared towards solving the problems of international climate change is the quality of leadership present. He therefore outlines the mechanisms through which leadership takes place, and the capabilities required to make each of the mechanisms work.

According to Underdal (1994:178-179), leadership, in the aspects of multilateral negotiations is expressed or defined as "an asymmetrical relationship of influence in which one actor guides or directs the behaviour of others toward a certain goal over a certain period of time". He describes three characteristics that are associated with leadership. These characteristics are: influence, guidance, and common interest. A potential leader must be capable of influencing the behaviour of the other actors. They must also be able to direct the behaviour of others. The 'influence' and the guidance that such an actor must direct both parties at mutually beneficial, common goals. The 'influence' that Underdal is talking about here refers to a 'positive' influence, which he describes as 'guiding, rather than vetoing or obstructing collective action' (1994:1). Being the first to defect from a joint action, no matter how great the impact of such defection on one's partners, is considered a disqualification for leadership (Ibid). Leadership literature points out three modes, mechanisms, or forms by which leadership occurs. The three mechanisms will be discoursed in the following discussions.

3.4 The Three Mechanisms of Leadership

Young (1991) and Malnes (1995) also explore what leadership entails. Their descriptions of the three modes of leadership are very similar to that described by Underdal (1994). The first mode of leadership is referred to by Underdal (1994) as 'coercive leadership', whereas Young (1991) calls it 'structural leadership' and Malnes, 'carrots and sticks' leadership. The

second mode of leadership is described by Underdal as ‘unilateral leadership’, Young (1991) calls it ‘Intellectual leadership’ and Malnes (1995), ‘directional leadership’ The third mode of leadership Underdal calls ‘instrumental leadership’, Young (1991) ‘entrepreneurial leadership’ and Malnes ‘problem-solving or instrumental leadership’. Although these theorists may have used different names for these modes of leadership, what is common is the mechanisms employed to direct the behaviour of others. Table 1 sets out the different modes of leadership and describes those mechanisms.

Table 2: The Different Mechanisms of Leadership

Underdal	Young	Malnes	Brief Description of the of the leadership mechanism.
Coercive	Structural	Sticks and Carrots	This leadership involve the use of incentives which are based on political and economic power of the leader.
Unilateral	Intellectual	Directional	This mode of leadership entails the use of ideas and domestic implementations to influence the other countries’ perceptions of what is desirable and possible.
Instrumental	Entrepreneurial	Problem-solving (instrumental)	This involves crafting of structures to solve collective problem as well as the application of valuable diplomatic skills.

Source: Modified by the author with ideas from Grubb and Gupta (2000)

In the course of this research, the descriptions of the three forms or mechanisms of leadership will be limited to the three terms, namely, Structural, Directional, and Entrepreneurial leadership.

3.4.1 Directional Leadership:

Directional leadership involves an actor taking a unilateral step towards solving a collective problem. It is leadership through ‘influencing other’s incentives by making the first move’ (Underdal, 1994:189). In a directional leadership scenario, the actor (leader) initiates pace-setting mechanism or model for others to emulate (Parker, *et al* 2012). A directional leader exercises this mode of leadership either through the substantive impact it leaves on the options available for others or through social persuasion.

In the first instance, the actor in question uses their power (influence) to initiate actions that are for the benefits of all parties involved. It should be noted here that though the actor in question initiates efforts towards collective problem solving, they are not guiding or controlling the behaviour of others. Therefore, this mode of leadership may not qualify as leadership according to Underdal’s definition. Underdal also clearly states that in this mode of leadership, action may meet opposition from the prospective partners in the game, who may decide to free-ride; thereby weakening rather than strengthening their incentives to participate, contribute, or follow. Moreover, as Underdal also states that ‘the effectiveness of leadership occurs when the supply of leadership matches its demand’ (1992:2). In other words, leadership is effective when the followers willingly accept the leader as legitimate. Leadership that is exercised solely through unilateral action may not be entirely effective. Directional leadership is provided by an actor that occupies a dominant position in the game. This actor must also have sufficient capabilities to accomplish significant results in a given system of activities alone.

In the second instance, directional leadership may take place through social persuasion. This occurs when the problems faced by the parties are similar. In such instances, a unilateral actor seeks to persuade the other actors to follow a set of actions and set good examples for them to follow. Examples include when a national government sets strict environmental regulations within its boundaries and then try to persuade other governments within the same region to adopt similar approach. The persuasive impact of an actor’s unilateral action does not primary depend on its substantive contribution towards common problem, but rather on its

moral or symbolic significance (Underdal, 1994). This implies that though the power-resources deployed by a prospective leader in solving the collective problem may not contribute substantively towards the welfare of the other partners, such actions can also help indirectly by convincing the other partners to commit themselves to a joint action. In this instance, it is plausible to say that leadership through substantive contribution is solely a privilege of the most powerful (technologically, economically, and otherwise) states, since they have the capabilities. Other relatively weak countries can also undertake unilateral action through persuasion only. What sets the most powerful actor in game apart as a potential leader is its capacity to combine both substantive (practical) and persuasive (symbolic) in its leadership.

3.4.2 Structural Leadership:

Structural leadership occurs when a leader set out resources that are capable of generating innovative incentives that can help to improve the prospects for intervention in an issue area (Young, 1991; Underdal, 1994). Leadership through this mode involves trying to force other parties to agree to one's own terms. This usually happens when an actor has interests in given events which it then goes on to force others to follow its plan, if that is required for it to succeed in getting its interest. Structural leadership is exercised through a promise of rewards for those who comply and/or threats of punishment for those who refuse to comply or those who defect from a certain agreement. These promises of rewards or punishments aim at influencing other's behaviours, with what is described as 'tactical diplomacy' (Underdal (1994:7)). It is possible that each actor in a game may be pursuing its self-interest. In such cases, Underdal (1994) argues that the exchange rate depends on the degree of asymmetry in their interdependent relationship. Promises of financial or technical assistance in return for joining a certain regime is the most commonly used strategy to induce states cooperation in international climate change negotiation. Structural leadership involves coercion (Underdal, 1994:7) which can either be negative or positive (:8). Coercion is negative when it involves threats or punishments, and positive when the structural leader tries to provide its partner (s) with sufficient incentives to participate on its own terms or disincentives to refuse a course of action. An example of positive coercion is the promise of technical and/or financial assistance. The more the coercion put in inducing a party to adopt an agreement, the more the coercion that will be required to implement the agreement or make the party stays in it.

Additionally, the more powerful an actor or a hegemon is, the better and greater its chances of succeeding in inducing other states to accept a line of action.

3.4.3 Entrepreneurial Leadership

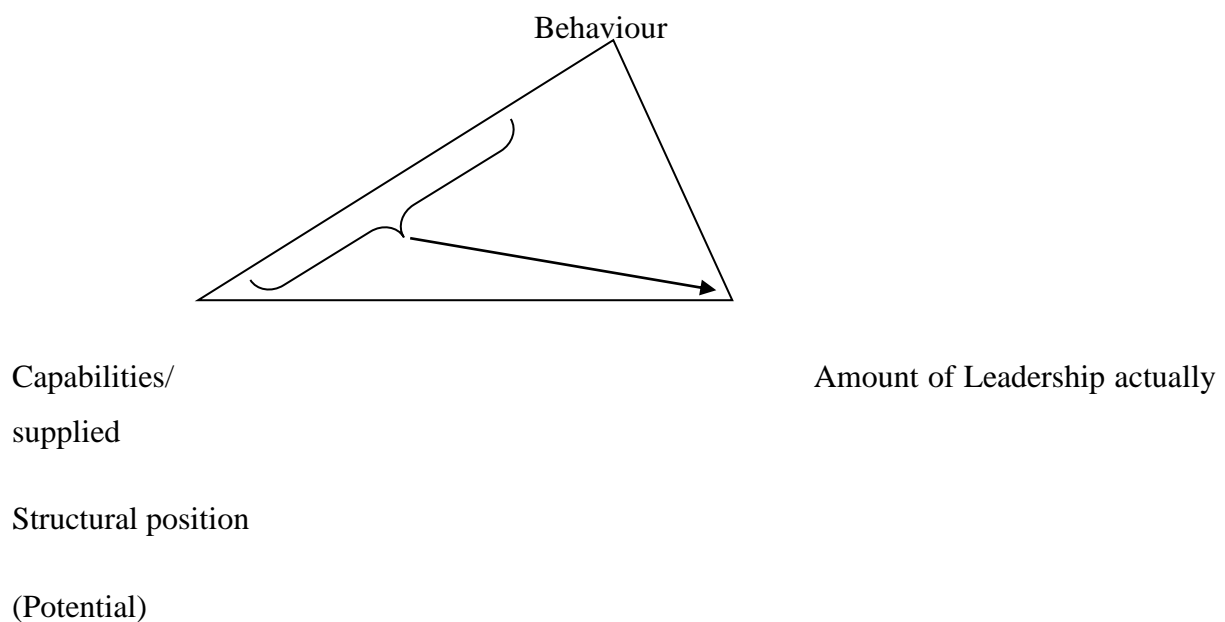
In contrast to structural leadership which involves imposing an actor's preferences on others, or preventing others from doing so to them (Underdal, 1994:9), entrepreneurial leadership occurs when an actor ultimately seeks to achieve a common goal for all parties involved. It occurs when a leader provides vision and inspiration for others or able to design a 'politically feasible' (Underdal, 1994: 9) solutions to common problems. Such a leader must be well-informed about the problem in question to be able to initiate some actions towards solving it. Young (1991) defines an entrepreneurial leader as one who leads through the application of positive negotiating skills to influence issues and terms in institutional negotiation. Such a leader is also capable of fashioning mutually-acceptable agreements by convincing parties together to seek contracts that are capable yielding common interests (:288). In entrepreneurial leadership, other parties may follow an actor's guidance either because they are convinced by the substantive (practical) merit of the solutions offered or prescribed or because of mere faith in the actor's capacity to find a way. This faith may be strengthened by the actor's previous achievements or its capacity. Haas (1990) explains that diagnosing a problem, as well as discovering, inventing and exploring possible solutions to the problem are essential aspects of entrepreneurial leadership.

Underdal (1994) also explains that problem-solving capacity of an actor is a function of three determinants: appropriate institutional setting, the power and status of the actor, and the energy and skills available for engineering cooperative solutions. These three attributes are necessary for success as an entrepreneurial leader. It is possible that some individual states in a region may possess all these three attributes in a greater level than others. Underdal (1994) suggests that representatives of small countries stand a better chance of aspiring for entrepreneurial leadership more than their higher-powered colleagues, especially if the role involves mediation (:9). However, he does not exclude the fact that this mode of leadership also demands substantial amount of human resources. He posits that the 'smaller and poorer a country is, the more rarely can it (afford to) mobilize the needed expertise and diplomatic tactics needed to succeed as an entrepreneurial leader or the less potential it has of assuming such role. Problem-solving capacity is a function of three determinants.

3.5 Conditions Necessary for Leadership

As shown in the preceding discussion of the different modes of leadership, leadership can occur only when certain conditions are met. These are the conditions necessary to qualify an actor to be called a leader or to be considered as having the potential to take leadership position. Before going into the specific conditions necessary for each of the three forms of leadership, Underdal (1994) outlines a general criterion necessary to transform potential leadership into an actual one. In his description, the extent to which an actor can lead, or the amount of leadership that it can supply is determined by 1) the capabilities and structural position, and 2) its behaviours. In other words, whether an actor has the potential to become a leader is determined by the capabilities and behavior. The capabilities constitute a source of influence, which has to be backed up by some effort and some (tactical) quality of behavior.

Figure 3: Relationship between Capabilities, Behavior and Actual Leadership Supply.



Source: Underdal (1992:2)

The capacities that Underdal (1994) refers to are economic capacity, which includes sufficient human, technological and financial resources. The structural position of an actor refers to the influence that actor has in the international community. Influence can be measured by its alliances with major powers. The behaviour is the willingness to transform the capacities into defining a solution for collective action problem. South Africa's

behaviours that define its potentials for structural leadership will be discussed later in the course of this research.

3.6 Supply and Demand sides of Leadership

Scholars have realized that leadership cannot be effective unless such leadership is recognized by the proposed followers (Karlsson, *et al* 2012). An effective leader-follower relationship is said to occur when there is a positive correlation between the supply of leadership and the actual demand for such leadership. In other words, effective leadership occurs when the follower responds positively to the directives of the leader. Schoeller (2015:4) notes that ‘leadership is offered when one of the actors (involved in a collective action problem) is willing to take a lead’. However, taking the lead does not have to come at the expense of the potential leader. A potential leader first weighs the cost and benefits of leading; and only lead if it expected benefits outweigh the costs (Ibid). In this case, the powerful actor is said to employ strategies to reach an outcome, or to solve the collective action problem. In a situation where more than one powerful actor in the group offers leadership, Schoeller (2015:5) also observes that the actor with the most powerful is likely to become the leader. This is because its absence in the final agreement would cause the utmost costs to the others actors. Moreover, maximum resources also help a group to maximize its chances of achieving a common aim. Schoeller (2015) also observes in instances where the costs are high, the need and demand for leadership occurs, and eventually, leadership occurs too (and vice versa).

In exploring the factors that qualify South Africa as a potential African climate change leader, the research will try to explore avenues where South Africa has been given that mandate to lead Africa on issues of continental concerns. In other words, the study will investigate whether other African countries accept the leadership offered South Africa on climate change discourse in Africa. It will also investigate the prospects of African countries giving positive response to the leadership that will be offered by South Africa in future climate change debates in Africa. South Africa has, in various foreign policy pronouncements, shown willingness to lead Africa in issues of continental concerns.

3.7 Application of Leadership theory to the Study

Parker and Karlsson (2012) note that a quality leader is one that is able to bring a balance among all the necessary conditions for leadership. Relying solely on structural leadership is rarely a recipe for success simply because it is rare to find actor with power resources sufficient to make this a viable strategy (*Ibid*). Likewise, directional leadership usually needs to be accompanied by the bargaining leverage that stems from structural power. Young (1991) in the same vein notes that the actions of incisive entrepreneurs who are not supported by intellectual capital or by bargaining power yield equally insignificant effects. While applying this framework to this study, the researcher will attempt to identify types of leadership, if any, that South Africa is exercising in leading Africa on climate change. South Africa's leadership potentials will be determined through investigating the extent to which South Africa, through its adoption of the different climate change policies, has applied the different mechanisms of, and shown the criteria for success in the three forms of leadership. In line with Young (1991: 303), who asserts that if the efforts of a leader are to bear fruit, the leader needs to regularly incorporate the 'contributions of different forms of leadership', this study will examine the extent to which South Africa has applied most, if not all of the criteria for successful leadership in the three forms of leadership highlighted below:

1. Structural: it will explore the different resources (human, financial, and technological) deployed by South Africa to help tackle climate change in Africa, especially in aiding the poorer African countries.
2. Entrepreneurial: it will explore the different new ideas and solutions, as well as their effectiveness that South Africa has brought to help deal with climate change problem in Africa.
3. Directional: it will investigate how South African climate change policies have guided other African countries in tackling climate change problems.

In addition, South Africa's potential of leadership will be scrutinized using the following three aspects. The first is that it must be able to exert a 'positive' influence towards solving collective action problem, which is climate change challenges in Africa. The instances where it has exercised such positive influences at the global stage is also a good pointer to its potentiality of doing same in Africa. Positive influence here implies 'guiding rather than

vetoing collective action' (Underdal 1994:178). The second aspect that shows potential of leadership is that the actions of the actor must be geared towards collective pursuit of a common goal. Finally, there must be consistence in the performance of an actor over a long period of time before such action qualifies it to be a leader (Underdal, 1994; Schoeller, 2015).

3.8 Conclusion

The goal of this chapter was to examine leadership theory, which underpins this study. The chapter has given an overview of the concept of leadership by Underdal (1994). Young (1991) and Malnes (1995), who divided leadership into three forms: directional, structural, and entrepreneurial. For an actor to succeed as a leader, it is stipulated that it must be able to employ resources, innovate ideas, and be able to give direction or take the first move towards solving a collective problem.

The study seeks to explore the different capacities that South Africa has to exercise directional, entrepreneurial, and structural leadership as a climate change leader in Africa. According to Underdal (1992), such capacities or structural positions, when backed by appropriate behavior (determination and willingness to lead), is what transform a potential leader into an actual leader in any negotiation process. Another necessary condition for leadership is the extent to which the potential leader has been recognized or accepted by the potential followers.

CHAPTER FOUR

SOUTH AFRICA'S POLICIES, STRATEGIES, AND ACTIONS TOWARDS CLIMATE CHANGE ADAPTATION AND MITIGATION

4.1 Introduction

Current research indicates that Africa is the hardest-hit continent by the disasters associated with climate change. (Hope, 2009; IPCC, 2007). It has also been shown that Sub-Saharan Africa contributes the least amount towards the global greenhouse gas emissions (*Ibid*). However, South Africa contributes the greatest amount of GHG emissions in comparison to other African countries (Hope, 2007). Burning of coal and other fossil fuels result in high level of GHG emissions (DEA, 2012); and South Africa, being highly dependent on fossil fuel for its energy production (*Ibid*), is said to contribute more than 95% of the coal reserves in the African continent (Energy Information Administration, 2011). This is far more than Nigeria and Angola, the second and third largest emitter, which contribute 80% and 90% of the total oil and natural gas reserves respectively in Africa (*Ibid*).

South Africa is also labelled as one of the highest emitters of GHG, amongst other developing countries. Being the highest emitter in the continent, it would be logical to think of South Africa as bearing much more responsibility than other African countries towards climate change mitigation, just as reiterated by Madzwamuse (2010). Apart from India and China, South Africa should also assume a greater degree of responsibility in comparison to other developing countries in reducing emission of GHG into the atmosphere. The extent to which it has assumed these responsibilities and is working towards mitigating climate change challenge would therefore be determined by, and evident in the different policies that South Africa has put in place to curb climate change.

This chapter discusses the different mechanisms that South Africa has adopted to tackle climate change, as elaborated in the White Paper on Climate Change, as well as South Africa's Intended Nationally-Determined Contribution (INDC). This chapter will also explore the different action plans and policies made by South Africa towards climate change mitigation. It will explore the different facets of National Development Plan (NDP) that aims at tackling climate change challenges

4.2 South Africa's Intended Nationally Determined Contribution

The formulation of the Intended Nationally-Determined Contribution (INDC) in a response to the UNFCCC requirements. The South African INDC is a document that South Africa submitted to the Conference of Parties on climate change, highlighting what South Africa intends to do regarding finance and investments for adaptation and mitigation. The INDC is a requirement by the international community, according to the decision of COP19 and COP21¹⁴. It requires nations that are signatories to UNFCCC to draft a document highlighting how they will tackle climate change adaptation and mitigation in their respective countries to contribute in fostering the global move towards a carbon-free universe. It forms a part of the Paris Agreement of COP 21.

South Africa drafted its INDC on the grounds and consideration that the Paris Accord would constitute a fair, binding, and effective measure and approaches towards processes aimed at enhancing global climate change adaptation and mitigation implementation (Centre for Environmental Rights, 2016; RSA, 2015). This global approach entails developing nations providing finance, technology, and capacity building funding, to developing nations (RSA, 2015). South Africa's response to climate change is reported to have been informed by the findings of IPCC, that global warming is unequivocal, and that it requires mitigation efforts to alleviate the high risk of harsh, pervasive, and irreparable global impacts (RSA, 2012). South Africa also recognizes that the climate change challenge is characterised by excessive use or manipulation of the global commons in an unequal world

South Africa is particularly vulnerable to the impact of climate change, especially in light of the widespread poverty and inequality in the country. Other challenges arising from climate change are associated with food security, human settlements, and infrastructure. The agreement requires that countries ensure that increase in temperature is regulated to stay at a level below 2°C above the level of the pre-industrial era. They are also to further commit to a revision of a temperature goal below 1.5°C according to the global standard as predicted by science. It is no doubt that South Africa's economy is heavily dependent on coal, which

¹⁴ COP 19 and COP21 stand for the 19th and the 21st Conference of the Parties to the United Nations Framework Conventions on Climate Change. Conference of the Parties (COP) refers to those countries that ratified the United Nations Framework Conventions on Climate Change (UNFCCC) of 1992, that is, the Kyoto Protocol. COP is the supreme decision-making body at the UNFCCC.

forms a greater part of its employment opportunities. Thus, the country seems to have recognised that addressing the challenges of climate change should be carried out with consideration to sustainable economic development. That is, addressing climate change challenges should hinder progress on the main goals of fight against poverty, unemployment, and reduction of inequality. Climate change is mitigated because it poses a huge threat to development. Therefore, if mitigating climate change ends up retarding economic development, then there was no point mitigating it at all.

South Africa's INDC has attempted to address both short term and long-term goals. The short-term transition, which is up to 2025 is quite rigid in its goal of transition towards a low carbon economy. This period is prioritized as period to aim at eradicating poverty and inequality in South Africa.

South Africa's INDC has adopted an approach of Peak Plateau-Dcline-trajectory range in its promise of transitioning to a low-carbon economy. This approach puts in place a system to realise the opportunities of a low-carbon economy. It acknowledges that a comprehensive and fair transition necessitates time and well-considered low-carbon and climate-resilient development. The formulation of its INDC has taken both its constitution, and the National Development Plan into account. The National Development Plan sets 2030 as the target for South Africa to realise its vision of achieving a sustainable development route, where poverty is eradicated, and inequality have been alleviated too (NPC, 2012). The NDP is considered in South Africa's National Climate Change Policy of 2011, and the National Sustainable Development Strategy. Some of the approaches taken to implement climate action plans include the Industrial Policy Action Plans, the Integrated Energy and Electricity Plans (IEP), and the New Growth Path.

The Integrated Energy Plan (IEP) is South Africa's Plan is envisaged in the White Paper of the Energy Policy of South Africa, formulated in 1998. The minister of Energy was mandated to include the Energy Policy in the Government Gazette. The essence of IEP is to offer a future energy road trajectory for South Africa; one that seeks to guide the future energy infrastructure investments and policy development of the country. The Plan is to ensure that future energy service needs in the country is met in the most efficient, cost-effective, and socially inclusive manner, while giving due cognizance to the effects this has on the environment. Other objectives of the IEP include promoting job creation and localization,

diversifying power supply, promoting energy access, and minimizing water consumption (RSA, 2016). Industrial Policy Action Plan (IPAP) is a component of South Africa's policy to address the challenges of economic and industrial growth, poverty, unemployment, and inequality. IPAP is guided by the vision of South Africa's NDP, and is a key component President Zuma's Nine Point Agenda¹⁵ The New Growth Path (NGP), which was announced by President Jacob Zuma in State of the Nation's Address of 2009, is an economic policy that aim at creating decent jobs as well as increase investment attraction to South Africa. Though the IPAP and the NGP do not mention climate change directly, the policies aim at strengthening the capacity of the citizens to cope with changes and hardships, most of which is caused by the disastrous impacts of climate change. The policies specifically gear at strengthening climate change adaptive capacity. They all form major parts of South Africa's INDC.

The formulation of the INDC in South Africa was done in the context of, *amongst* other things, the environmental rights enshrined in section 24 of the constitution of the Federal Republic of South African, as well as in consideration of the National Development Plan (NDP) (NPC, 2012). The National Development Plan offers a '2030 vision' that aims at guiding the country's sustainable development trajectory. It has an objective of eliminating poverty and inequalities by 2030. The procedures for the execution of the NDP vision 2030 is also expounded in the South African climate change policy (that is, the 2011 National Climate Change Response Policy (NCCRP). Other documents such as the 'Climate-compatible Sectoral Plans', and the South Africa's National Sustainable Development Strategy of South Africa further explicate the NDP vision 2013.

Decent development has been made in executing the climate-compatible sectoral plans. These developments include the implementation of the Integrated Energy and Electricity plans (IEP and IRP), the Industrial Policy Action Plan (IPAP) and the New Growth Path (NGP). This is to ensure that different sectors and departments such as Agriculture, Health, and Economic Development implement some strategies of tackling climate change in their plans and activities. For instance, the agricultural department is encouraged and well financed to

¹⁵ President Jacob Zuma announced about the Nine Point Agenda in his 2015 State of the Nation's Address. They represent nine areas that he needs to focus to boost economic growth, alleviate poverty and unemployment in South Africa. The other areas seeks to boost agriculture, increase mineral wealth, encourage private-sector investment, etc.

ensure technological innovations, research and improvement in climate-resilient crop varieties, improved methods irrigation, and enhancement of high-value agricultural crops and infrastructure (Zwane, 2016). Some of the objectives, methodologies, and investments into the different climate action plans are set out in the table below. These actions, categorized as adaptation strategies are, grouped into six goals as follows:

- Goal 1 seeks to develop a National Adaptation Plan and activate effective operationalization towards executing the National Climate Change Response Policy for the period 2020 to 2025 and for the period 2025 to 2030. The goal takes into cognisance that NDP 2030 and other sectoral policies that underpin the foundation of South Africa's sustainable development planning. 0.17b US dollars has been allocated for this goal.
- Goal 2 takes into account the various climate issues in national development. It also considers the sub-national and sector policy frameworks for the period of 2020 to 2030. This goal aims at integrating flexible adaptation sector policies into national and sub-national policy frameworks to facilitate the execution of climate change policies.

Goal 3 seeks to construct the basic institutional capability for climate change response planning and execution for the period of 2020 to 2030. It involves building national and subnational budget developments, as well as reprioritization of budgets that facilitate the institutional capability to plan and execute climate change adaptation projects and programmes.

Goal 4: At this stage, the government seeks to formulate an early warning vulnerability and adaptation monitoring system for key climate change vulnerable sectors and geographic areas for the period ranging from 2020 to 2030. It will also put in place mechanisms to carry out regular reporting in terms of the National Adaptation Plan. This is done on a five-year rolling out implementation period. At this stage, the government strives to develop and support a climate change early warning system and vulnerability networking with the involvement of appropriate stakeholders. An Example of these networks and stakeholders are the South African Weather Services, the South African Earth Observation Network.

Goal 5: This goal entails formulation of a vulnerability assessments and frameworks to assess adaptation needs 2020. The framework seeks to facilitate a continual support and management of adaptation needs. This stage involves the periodic analysis of climate change related impacts and that are detected through the timely warning system. Action at this stage includes both uninterrupted and downs-stream costs estimation for the prevailing climate and for the immediate future. The projection is done under both Low and Moderately-high Mitigation Scenarios. The estimate costs are as follows: From 1971 to 2000, the estimate cost is between 0.4 – 22.8 billion US dollars, with a median estimation of 2.8 billion US dollars. Within the period of 2020 to 2030, the estimated cost for low mitigation scenario¹⁶ is between 0.42 – 30.8 billion US dollars, with a median value of 2.9 billion US dollars. For moderate to high mitigation scenario within this period, the estimation is between 3.4 -29.8 billion US dollars, with a median value of 2.8 billion US dollars. For the period of 2020 – 2050, the estimated cost for low mitigation scenario is between 0.2 -53.1 billion dollars, with a median value of 3 billion US dollars. For the high mitigation scenario, the estimation is between 0.2 -50 billion US dollars, with a median value of 50 billion US dollars.

- Goal 6: This goal involves sharing of information regarding earlier investments in adaptation. The essence is to promote education and awareness of climate change adaptation needs, as well as to garner international recognition. It aims to create awareness and to change peoples' behaviours through the early warning system and vulnerability assessments. The implementation investment in adaptation programmes has increased from 0.71 to 1.88 billion US dollars from 2010 to 2015.

Other support from the international financial mechanisms includes Adaptation fund: \$10 Million and also support from United Nations Environmental Programme, UNEP: \$3.5 Million.

Source: SA-INDC, (2015)¹⁷

4.2.1 Mitigation Policies of the INDC

Besides adaptation, mitigation forms another major component of South Africa's INDC. The mitigation effort put in by South Africa has deviated from the 'business as usual' mode of mitigation to adopt the policy framework of the 'Peak-Plateau-Dcline' trajectory range. The target of South Africa is to moderate its GHG emission to the range of 398 and 614 MT CO₂-EQ¹⁸ between 2025 and 2030. The policies in place to force the different sectors to reduce their carbon emission include carbon taxation policy, the desired-emission-reduction-outcomes policy, company level carbon budgets, and lots of other regulatory standards and regulations for identified GHG emitters and environmental pollutants.

With these policies, South Africa seeks to keep its pledge of contributing to the global mitigation of climate change. In order to meet the Cancun pledge, South Africa has vouched to use the period between 2016 to 2020 to demonstrate and develop this mix of policies at the national level (INDC: 2014:6). The goal is to enable South Africa's emission to peak at 2020, and to plateau for the next decade, and then begin declining in absolute terms. South Africa also seeks to introduce a mandatory GHG reporting domestically, with regular reporting to the UNFCCC. The INDC is said to present a just and fair share to the global move to mitigate climate change, and especially, especially given South Africa's national conditions, and main concern to eradicate poverty, inequity as well as stimulate broader economic growth and the eradication of unemployment. The INDC also reports on of South Africa's gradual increase in its investments in climate change mitigation and adaptation. The table below shows the increase in national expenditure on climate change adaptation and mitigation challenges in various sectors from the period of 2010 to 2015.

¹⁸ MT CO₂- EQ stands for Metric Tons of Carbon dioxide Equivalent. It is a metric measure used to compare the emission of different GHG based on the Global Warming Potential. In other words, it is a way of measuring how much of global warming a certain type of greenhouse gas is likely to cause.

Table 3: Investments in Sectoral Climate Change Actions Expenditure in South Africa

Sector	Increase in Expenditure (in billion US dollars)
Agriculture and Forestry	0.18 – 0.59
Energy	0.23 – 0.36
Human settlements	0.01 – 0.02
Biodiversity	0.03 – 0.05
Water	0.17 -0.59
Disaster risk reduction and emergency response	0.02 – 0.7
Total	1.64 – 2.31

Source: SA –INDC, 2010.

From the table above, it can be observed that South Africa's investment in climate change adaptation between the periods 2010 to 2015 has experienced a substantial increase. South Africa has already made huge investment in mitigation through the development of Renewable Energy Independent Power Producer Procurement Programme (REI4P). There has been an endorsement for 79 renewable energy IPP projects, amounting up to about 5, 245 Megawatts, with private investment of about 16 billion US dollars. Investment in public transport infrastructure which was 0.5 billion dollars in 2012 is anticipated to be grow at 5 percent increase every year. Similarly, South Africa also allocated 0.11 billion dollars between 2011 to 2013 in South African Green Fund to spur initiatives that were aimed at mitigating climate change challenges. This amount is also anticipated to increase to encourage more viable and successful initiatives.

4.3 National Development Plan

The National Development Plan (NDP), is a South African policy document. It was formulated in 2010. It is another document that both stresses the necessity of climate change mitigation and adaptation and sets out policy initiatives to achieve it. The NDP is a policy document that sets 2030 as the target year to drastically eradicate poverty and moderate inequality in South Africa. This plan has been developed considering the historical circumstances that have led to widespread poverty and inequality. It aims at redressing these historical disadvantages that persist, even twenty-two years after achieving democracy, South Africa still experiences a great economic divide, extreme poverty, huge unemployment, and continuing violence. The NDP seeks to promote and deepen democratic values and build a much more inclusive society where everyone's well-being is taken into consideration and where development is prioritized. A section of the NDP states:

‘This plan envisions a South Africa where everyone feels free yet bounded to others; where everyone embraces their full potential, a country where opportunity is determined not by birth, but by ability, education and hard work. Realising such a society will require transformation of the economy and focused efforts to build the country's capabilities. To eliminate poverty and reduce inequality, the economy must grow faster and in ways that benefit all South Africans’ (NDP, 2010:24).

A more important part of the NDP is that it takes the issue of climate change and sustainable environment into huge consideration. The chapter five of NDP, entitled, ‘Ensuring Environmental Sustainability and an Equitable Transition to a Low-carbon Economy’ discusses the initiatives and policy framework that will aid South Africa's mitigation of climate change and a transition to a low-carbon economy. The NDP sets the following as vision for 2030:

- A coordinated planning that seeks to reduce climate change challenges and other environmental stresses, as well as providing the citizens with clean water, housing, affordable energy, in order to strengthen their resilience to climate change impacts.
- Increased preparedness for disasters, by making large investments in more sustainable skills, technologies, and programmes aimed at ecosystem conservation and rehabilitation, as well as biodiversity assets.
- Making large investments in consumer education and awareness, designing of green products, designing of infrastructure, and waste-to-energy projects.

- Experiencing substantial growth in a renewable energy sector through the Integrated Resource Plan (IRP).
- Developing mutual partnerships with neighbouring countries to encourage private investment in renewable energy while maintaining competitiveness in the global economy.
- Substantially increasing public investment in innovative agricultural technologies and developing resistant and environmentally-sustainable approaches to support small-scale and rural farmers (NDP, 2010).

To achieve these goals, the NDP sets out some guiding principles, especially to help towards transition to a low-carbon economy. The principles are, but not limited to the following:

- Just, ethical, and sustainable: to recognize South Africa's aspiration as a developing country and bear in mind its unique history.
- Global Solidarity: to seek to balance South Africa's national interests with the collective interests of Africa and the global society at large.
- Full Cost Accounting: To internalize the cost of adaptation and mitigation in the national planning, budgeting, and to make investments in actions and projects towards environmental sustainability.
- Transformative: To address structural and systemic flaws of the economy and society, with strength of leadership, courage, visionary thinking and innovative planning.
- Sound policy-making: to develop simple but coherent, effective, and feasible policies that provide predictable signals¹⁹

Moreover, South Africa has recognised that the mining sector in the country contributes about 13.5 percent of the total carbon emission in the country (NDP 2010: 201). This is because of the carbon intensive nature of South Africa's economy. This means that transiting to a low-carbon economy needs will need a substantial degree of intervention in the energy

¹⁹ Ibid

sector. The NDP therefore sets out principal strategies and interventions to be carried out in the energy sector, if the transition to a low-carbon economy is to be successfully achieved. These principal strategies involve implementing energy-efficient, as well as low carbon-intensive programs and processes in the energy sector, and promoting renewable energy in electricity. South Africa is also rich in solar and wind energy. Appropriately utilizing these resources can also help facilitate a smooth transition towards a low-carbon economy.

Furthermore, international experience has shown that the most operational way to realize a fair move to a lower-carbon economy is by procuring ways of making the emitters change their practices to internalise the cost of their practices (NDP, 2010). In light of this, the South African NDP has set two strategies of enhancing climate change mitigation in the industrial sector. These strategies include carbon pricing and carbon budget approaches. Carbon pricing involves setting high prices for carbon-intensive materials. This is done through carbon tax. According to NDP (2010), the National Treasury is on an on-going engagement in research and discussion as to the appropriate way of implementing this approach. The South African government has already approved the means and mechanism for establishing the domestic price of carbon. The tax is levied on Scope 1 emissions²⁰. It began in year 2016, with an amount of R120 per every ton of carbon dioxide equivalent (R120/tCO₂-eq), and is to increase every year at the rate of 10 percent over the first five years, that is, to reach R175.69 in 2020. Firms that apply carbon budget and low carbon emission strategies in their processes are rewarded. South African government plans to recycle the proceeds from this tax to facilitate a transition to low carbon economy, as well as protect poorer households and vulnerable groups to adapt to the severe impact of climate change (World Bank, 2016).

In a similar manner, carbon budget seeks to set and regulate the amount of carbon that can be emitted in a given time. This is to be benchmarked against the South African national GHG emission trajectory range, which entails using the Peak- Plateau -Decline trajectory. South Africa's NDP has set 2050 as the period when the carbon budget approach will need to be feasible. This long-term period has been adopted in light of the long-term structural implications that this policy may have on the economy, and in light of the economic and social challenges faced in South Africa. Some of the proposed interventions and policy initiatives for achieving a carbon tax and carbon budget mechanism include:

²⁰ These are the emissions as a result from burning of fuel, gasification and none-energy industrial activities.

- The provision of leadership by the South African Department of Energy and Department of Public Enterprise by establishing an independent system and market operator, as well as diversifying the energy sector.
- The implementation of carbon-pricing mechanisms by the Department of National Treasury, in collaboration with appropriate stakeholders.
- The promotion of communal and private-sector investments in renewable energy by various departments.

Just as it has done on mitigation, the NDP has also laid out strategies that South Africa needs to adopt to ensure that its citizens adapt to climate change challenges. Some of the main ways will aim at building resilience through poverty and inequality alleviation, health-care improvement, unemployment reduction, maintaining the integrity of ecosystems, and skills development. The NDP states it clearly that the South Africa's "local, provincial and national governments will need to embrace climate adaptation by identifying and putting into effect appropriate policies and measures that are well coordinated and credibly motivated" (NDP 2010:209). What is most important is that South Africa recognises the need to balance both mitigation and adaptation in its approach to climate change leadership.

4.4 South Africa's Climate Change Response Strategy

The South Africa's climate change response strategy is also outlined in the South African Climate Change Response White Paper. The White Paper is a policy document that sets out South African Government's vision of combating climate change challenges. It outlines strategies of a just transition to a low-carbon economy and society. The Paper is, most importantly, South Africa's response to the global community's call for nations to adopt national strategies for climate change adaptation and mitigation. Two objectives underpin South Africa's strategic response to climate change. These objectives include both adaptation and mitigation strategies. Adaptation involves ensuring effective management of the inevitable climate change impacts through interventions that will build resilience of South African society to deal with climate change challenges. Mitigation involves making a fair and just contribution towards the global response to climate change by stabilizing GHG concentrations in the atmosphere in a way that will not destabilize sustainable development.

The following elements comprises South Africa's overall approach towards limiting GHG emission:

- Ensuring the implementation of the National Greenhouse gas Emissions Trajectory Range, as a measure for all collective emission reduction actions.
- Defining and describing the anticipated GHG emission reduction results for each relevant segment and sub-segments of the national economy centered on a thorough analysis of the mitigation prospects, best accessible mitigation alternatives, science, data and a complete analysis of the costs and benefits;
- Implementing a carbon budget approach to ensure flexibility and cost-effective instruments for enterprises in appropriate sectors and/or sub-sectors and, where necessary, converting carbon budgets into company-level desired GHG emission reduction outcomes.
- Requiring companies and economic sectors or sub-sectors with established desired emission reduction outcomes to formulate and submit mitigation strategies that set out how they propose to attain the desired emission reduction targets.
- Adopting and executing mitigation measures and policies to enhance job creation and sustainable development.
- Putting varieties of mechanisms in place to promote GHG emission reduction, including applying carbon pricing policies and other economic motivations.
- A national scheme of data gathering that will offer complete, exact and current emissions data. This will be done in the form of a Greenhouse Gas Inventory and a Monitoring and Evaluation System capable of supporting the analysis of the impact of mitigation actions²¹

It is important to point out that though the White Paper recognises the distinction between adaptation and mitigation aspects of climate change, the South African government realizes that an effective response needs to be able to make fine distinctions between approaches. . Merely categorizing response measures as either adaptation or mitigation could obscure the

real and potential positive combinations in terms of the impact of the responses (White Paper, 2011:13). The overall approach adopted by South Africa in the White Paper therefore seeks to integrate both adaptation and mitigation aspects into an overall developmental framework. This developmental framework is termed ‘climate change resilient development’ (*Ibid*). Climate change resilient development is defined thus:

‘all interventions – mitigation, adaptation, or both – that contribute to a fair and effective global solution to the climate change challenge while simultaneously building and maintaining South Africa’s international competitiveness, its social, environmental and economic resilience to the adverse effects of global climate change, and any unintended consequences of global climate change response measures’²²

This form of developmental approach is said to be need-driven and customized, developmental, empowering, transformational, participatory, as well as dynamic and evidenced-based. It is need-driven and customized in the sense that it employs various adaptation and mitigation processes, interventions, and approaches that seek to cater for the special needs of the most vulnerable populations in the society. The developmental aspect entails that the approach needs to prioritize climate change adaptation and mitigation response measures while paying equal attention to economic growth, job opportunities, and the health care of the citizens. The transformational, empowering, and participatory aspect of intervention entails addressing climate change in a manner that promotes innovation, skill development, finance and investment flows that will facilitate a fair shift to a low-carbon economy and society. It also entails measures that empower the full participation of all citizens of the South African society, through behavioural changes to enable strong adaptation to climate change challenges. Finally, the approach is dynamic and evidenced-based as it needs to take into consideration the existing research and knowledge of the different sectors that need to incorporate climate change adaptation and mitigation strategies into their sectoral arrangements.

4.4.1 Adaptation Strategy

The adaptation measures adopted by the White Paper recognises that tackling climate change involves the analysis of the short-term adaptation strategy. This involves the early warning and forecasting of ways to reduce risk and disaster. The mid-term strategy, on the other hand,

²² The South African Climate Change Response White Paper, 2011: 13).

involves a decade-scale analysis and forecasting and identifying anticipated potential resource challenges. The long-term analysis entails predictions of future climate conditions and its accompanying challenges. South African government aims to tackle these climate change challenges, through research, capacity building, job creation, technological development. Another strategic measure taken by the government is to incorporate climate change management into mainstreamed sectoral plans. This will lead to the creation of the Intergovernmental Committee on Climate Change (IGCCC). This committee is tasked with the responsibility of analysing the risks of all sectoral plans. The different sectors which constitute risk areas that South African government needs to pay attention to, include the water sector, health sector, agricultural and forestry sector, human settlement sector (including urban, rural, and coastal settlements), and biodiversity sector.

In the water sector, government seeks to promote water-related research to improve water quality and ensure that water adaptation measures are managed from the regions. The decision to manage water adaptation measures from the regions is due to the trans-boundary nature of Southern African Rivers. The government also seeks to consider catchment areas and water management practices, such as investing in water conservation and water demand management; and exploring new resources, for instance, underground water, re-use effluent, and desalination. In the agricultural and forestry sector, the government endeavours to integrate agriculture and forestry into climate resilient rural development planning to ensure job creation and food security.

The essence of the integration is to ensure synergies between climate change adaptation and mitigation. The government also seeks to use the result of available risk and vulnerability assessments reports to formulate and update Short-term, Medium-term, as well as Long-term Adaptation Scenarios. This assessment seeks to support the agricultural sector to exploit innovative areas and new crops, as well as reduce climate change negative impacts on existing ones. The government also seeks to employ the early warning system to provide prompt warnings of hostile weather conditions as well as possible related pest and disease occurrence. Though the measures taken by the government in other sectors will not be detailed, it is worth noting that appropriate adaptive measures have been taken by the government in all other sectors, which mainly involves research to promote capacity development, and funds have been allocated for different measures.

4.4.2 Mitigation Strategy

Just like adaptation, climate change mitigation is very indispensable. As a responsible global citizen, South Africa recognizes its obligation, and is dedicated to placing its fair share towards a combined global effort to climate change mitigation. The global efforts towards mitigation of GHG emission aims to keep the global temperature increase below 2°C. President Jacob Zuma, on 6th of December 2009, declared South Africa's readiness to implement climate change mitigation policies that would contributively lead to a 34% and a 42% reduction below its 'Business as Usual' emissions growth trajectory. This percentage is to be realized in 2020 and 2025 respectively.²³ However, this commitment is not made in exclusion of the fact that developed countries, as outlined in Article 4.7 of the UNFCCC, need to provide technology, capacity building, and financial assistance to developing countries to help them meet the needs of their sustainable development while curbing climate change challenges. South Africa therefore pledges that if this commitment is made, it will adjust its GHG emission to peak between 2020 and 2025, then to plateau for about a decade, and then start declining thereafter. This trajectory range is viewed as generous, considering that South Africa, as a developing country, still faces domestic challenges of poverty, inequality, and unemployment; and therefore, needs to adopt climate change mitigation policies that do not threaten sustainable development. South Africa seeks to adopt the following strategies in implementing its mitigation plan:

- Setting Performance benchmark: This will be done with reference to the National Greenhouse Gas Emissions Trajectory Range
- Recognizing desired sectoral-mitigation contribution: The South African government seeks to oblige all sectors and sub-sectors to define their individual contribution towards reducing emission.
- Defining Carbon Budgets for each sector: the government seeks define carbon budget for each sector.
- Using the Market: the government seeks to deploy a range of economic mechanisms to facilitate the desired emission reduction outcome, e.g. appropriate carbon pricing and other market incentives.

²³ Cited in Nhamo, 2011

- **Mitigation Plans:** this will demand each sector to prepare and submit their set plans of achieving their emission reduction target.
- **Employ a Variety of Approaches:** the government seeks to oblige sectors and subsectors to adopt and implement varieties of policies, approaches, measures, and action plans to optimise emission reduction outcome while boosting sustainable development.
- **Monitoring and Evaluation:** this involves launching a system of data collection (at the national level) to enhance periodic evaluation of the emission reduction effort²⁴ (RSA, 2011)

It also recognizes that emissions, if left unchecked, have the potential of reversing the development achieved so far. The current analysis indicates that if strict mitigation actions are not taken, South Africa's emissions could grow by fourfold by year 2050 (the White Paper, 2009:26). It is also clear, from the nature of its economy, that South Africa has very limited opportunities to cut emissions caused by deforestation, as this option is very easily achieved through regulatory policies and is also inexpensive. But the option of limiting emissions through cutting carbon emissions appears very costly for South Africa. South Africa therefore requires good preparation in its transition to a low-carbon economy to avoid a huge blow to its development. It appears that the policy of the Peak-Plateau-Divide Trajectory Range is therefore a good option for South Africa. This is because it suits the principle of short, -medium- and long-term mitigation strategies. The following details the strategies that South Africa will adopt in the short, medium, and long terms.

The short-term mitigation options include afforestation, energy efficiency and management of demand, emergence, and investment in bio-fuels, as well as continued investment in renewable energy technologies. Similarly, the medium-term strategies involve the following:

- Shifting towards low-carbon electricity generation options

- Transport modal shift, e.g. from road to rail, private to public, as well as considering electric and hybrid vehicles
- Carbon incarceration and storage in synthetic fuels industry
- Transit the economy to a more sustainable production and consumption patterns²⁵

The long-term measures, which comprises the most important measures South Africa seek to combat climate change include the following:

- Benchmark National Emission Trajectory Range: seeks to put into consideration the Peak, Plateau, Decline trajectory range in all measures taken to mitigate emission.
- The Carbon Budget Approach: seeks to draw up an ideal amalgamation of all mitigation actions at the least cost, and that ensures sustainable development interests for the different sectors involve in reducing emissions in South Africa. The carbon budget is to be followed by regular inventory and reporting to ensure that every sector's compliance with the target.
- Sectoral Mitigation and lower-carbon development strategies: this will require that each sector responsible for emission come up with their own strategies to limit emissions. In this strategy, each sector is to be required to render measurable and confirmable indicators for each programme or measures they intend to adopt in limiting emissions.
- GHG Emission Inventory: South Africa is committed to keeping an up-to-date inventory, which will be reviewed annually, so as to ensure periodical evaluation of mitigation actions. The inventory adopted is to go in line with IPCC's 2006 guidelines, and to be periodically reviewed by team of international experts.²⁶

4.5 Conclusion

South African climate change adaptation and mitigation response strategy is succinctly explicated in the South African Intended Nationally Determined INDC, the White Paper, as well as the National Development Plan vision 2030. South Africa seeks to response to the global call to mitigate climate change with a Peak – Plateau-Decline trajectory, where emission is to peak until 2025, remain unchanged between 2025 and 2030, and after that,

²⁵ Ibid

²⁶ Ibid

starts to decline. South Africa recognises this strategy as contributing to a fair share towards global mitigation of greenhouse gas emission. Other policies and plans, such as the Integrated Energy Plan (EIP), the Industrial Policy and Action Plan (IPAP), and the New Growth Path, and their ways of contributing to the combat of climate change were also discussed. The chapter also discussed the other adaptation and mitigation strategies, and the different resources for climate change action, as proposed in the South Africa's National Development Plan vision 2030.

CHAPTER FIVE

GLOBAL RESPONSE TO CLIMATE CHANGE CHALLENGE

5.1 Introduction

According to IPCC (2007), and RSA (2015), climate change constitutes a global challenge. However, some regions are more vulnerable to its effects than others. The extent to which its effects are felt depends on the region's (and its people's) ability to adapt to the challenges posed by climate change. Resilience is determined by the region's economy and the nature of its ecosystem. Africa is mainly agrarian in nature, and hence, much more susceptible to the destructive impacts of climate change. Africa is also the hardest-hit continent due to its level of poverty. Poverty reduces people's capacity to adapt to the changes caused by the changing climate system. In April 2007, the IPCC reported that Africa was not taking a quick action to contain the dire effects posed by climate change on economy and environment in the continent (IPCC, 2007). Other reports stipulates that Africa, despite being the hardest hit region, benefits least from the global climate change regime, especially on the aspects of funding and investments for low carbon growth (Lisk, 2009; Madzwamuse, 2010).

Africa then is supposed to have the largest share of the justice in the global effort to address climate change issues. However, this seems not to be the case as Africa is said to exercise the weakest voice in the international negotiations on climate change (Bond, 2009). Africa has been undermined in the global community. This is attributable to laxity in leadership and strong representation of Africa's voice in the global community of negotiators. To rescue Africa from such bondage, there appears to be a need for stronger leadership and representation in the international community of negotiators. This will go a long way to secure Africa's interest in these fora. Literature seems to point to South Africa as being in a better position to represent Africa's interest in the global community. This is due to South Africa's status and recognition in the world as Africa's leader. South Africa on its part has also expressed its willingness to take up this leadership position and to protect Africa's interests. The chapter will thus explore the different international climate change conferences that have dealt with climate change. Though there have been series of global conferences to address climate change challenge, the exploration here will be limited to the few that South Africa have taken major leadership roles and position.

The chapter will first provide a brief outline of the development of International Conventions that mark the international response to climate change. Thereafter, it will give an overview of the major international conferences, including the Kyoto Summit of 1997, the Copenhagen Climate Change Summit of 2009, the Durban Climate Change summit of 2011, and finally, the Paris Climate Summit of 2015. Though much details will be provided of the Kyoto Summit, due to its historical significance, the explanations of the other summits will be based mainly overviews which will describe the objectives and the agreements that proceeded out of them. This will be followed by a brief explanation of South Africa's participation in the Copenhagen Agreement will be provided. Finally, a brief overview of the role of the International Organisation for Standardization (ISO) will be highlighted.

5.2 Development, Objectives, and Principles of the United Nations Framework Conventions on Climate Change

As a response to the global climate change challenges, and in realization that climate change is a universal catastrophe (RSA, 2015, IPCC, 2007, UNFCCC, 2008), the international community has taken drastic measures towards combating climate change. Most of these measures are promulgated in the Nations Framework Conventions on Climate Change (UNFCCC), through the Conference of the Parties. UNFCCC is a treaty that was introduced at the Earth Summit held in Rio Janeiro in 1992. The Convention came into force in 1994, with 194 countries signing it then. This large number of signatories shows the level of international agreement on this treaty.

The ultimate objective of the Convention is to regulate countries so that they develop policies and approaches required to limit carbon emission into the atmosphere. In other words, the convention seeks, as its main goal, alleviate GHG level in the atmosphere to the extent that will ensure the prevention of dangerous anthropogenic interference with the climatic system (UNFCCC, 1998). In promoting climate change mitigation, the Convention seeks to encourage national policies and processes of mitigation that will put into consideration adaptation time, food security and above all, a sustainable economic development. Parties to the UNFCCC meet every year at what is regarded as the Conference of Parties (COP). The COP is the supreme decision-making authority of UNFCCC. It is responsible for reviewing the implementations of the Convention as well as assessing the commitments that parties

have made in response to the Conventions objectives, new scientific findings, and experience gained and challenges encountered in implementing climate change policies. COP reviews national communications and emission inventories submitted by parties to assess progress made in realizing the aims of the Conventions. UNFCCC is attended by national government, who form the Parties to the Convention²⁷. It is also attended by UN bodies, agencies, international governmental organisations, Non-Governmental Organisations, civil society groups, business corporations, faith communities, youth, and many more. Key issues discussed in UNFCCC are exclusively those related to climate change, including issues of mitigation, adaptation, climate finance, technology transfer, and loss and damage calculation. These different terminologies, their implications, and implementation will unfold as we discuss the different COP in the following section.

5.3 The Kyoto Protocol

After the inception of the yearly UNFCCC in 1994, the third session of the Convention, which was a historic one, was held in 1997 in Kyoto, Japan. This meeting led to the adoption of the Kyoto Protocol. . The Kyoto Protocol is significant in the history of global move to combat climate change disaster. It serves as the first legally-binding commitments that requires countries to actively work towards reducing GHG emission. The overall objective of the Protocol is the *'stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system'*²⁸. 192 countries, including both developed, developing, and economies in transition signed and ratified the Kyoto Protocol. 38 countries, were required to mandatorily cut their GHGs emissions, including CO₂ to a total emission of about 5.2% below the 1990 level of emission. This was to be done within the period of 2008 and 2012. This period marked the first commitment period of the Protocol. The second commitment period which was adopted in 2012 is to cover the period between 2012 and 2030. As at July 2017, only 65 countries have ratified the second commitment.

²⁷ It is to be noted that though national government delegations form the parties to the UNFCCC, parties could also comprise groups. Examples of groups that attended UNFCCC include G77, African Group, Environmental Integrity Group (EIG), Small Island Developing States, Least Developed Countries Group, Alliance of Small Island States (AOSIS), European Union, and many more.

²⁸ Cited in Schenker (2014:1). Available at: <https://www.earthsfriends.com/kyoto-protocol-summary/>.

The developed countries and economies in transition were mandatory required during the first commitment period of the Kyoto Protocol to reduce their emissions at different percentages. For example, a cut below the 1990 emission levels of 8% was required for the EU, 7% for the U.S., 6% for Japan, and 0% for Russia. These percentages were calculated in form of an assigned amount called ‘emission reduction units’ (ERU). These were the amounts that signatories to the Protocol were allowed to reduce compared to their 1990 level of emission. The Kyoto stipulated some mechanisms that would facilitate the attainment of the targeted emission reduction level, and which signatories to the protocol would have to adhere.

5.3.1 The Concept of the Emission Trading Mechanism

The first mechanism introduced by the Kyoto Protocol is Emission Trading. As illustrated in article 6 of the Protocol, Emission Trading allows countries that have emissions to spare to sell the excess capacity to countries that have gone over their targets. For example, supposed the reduction costs per unit of GHGs in China is 5, while that of South Africa is only 2, it means that if these two countries are to reduce a unit each respectively by themselves, it will cost 7. But if South Africa is to reduce 4 units by itself, then the reduction cost will be 4. If South Africa and China involve in emission trading, China can let South Africa reduce China’s emission by 2 units and then pay a cost ranging from 2 to 5. According to Article 3 of the Kyoto Protocol any certified GHG emission reductions units which a Party procures from another is to be added to the assigned amount for the procuring Party. Emission trading aims to set positive prices on carbon emissions and thus, act as a restraint to countries from deteriorating in their emissions.

According to Article 6 of the Protocol, the transfer or acquisition of units by parties is to be done through projects that aim to reduce GHG emissions by sources in any sector of the economy.²⁹ Such partnerships come conditions which are set out below:

- Any of such projects must have the approval of both parties involved.
- Any of such projects must provide an emission reduction by sources or ensure removals by sinks.

²⁹ Kyoto Protocol (Art. 6)

- Any party must not procure any emission reduction units unless it has complied with its emission reduction obligations as stated in Article 5³⁰ of the Protocol.
- The acquisition of emission reduction units has to be supplemental to domestic actions for purpose of meeting commitments under Article 3 of the Protocol.

5.3.2 The Concept of Clean Development Mechanism

The Clean Development Mechanism (CDM), is outlined in article 12 of the Kyoto Protocol. The mechanism allows Annex 1³¹ countries to launch emission-reduction projects in non-annex 1³² countries. The CDM was meant to meet the two major objectives of the Kyoto Protocol: ensuring sustainable development and stimulating Joint Implementation by Parties to the Kyoto protocol. The Kyoto Protocol is designed to enable developing countries to mitigate climate change in a manner that does not tamper their sustainable development goals. Kyoto Protocol's principle of CDM, therefore, allows investments by developed countries projects that ensures reasonable emission reduction in developing countries while using those schemes to offset their commitment to limit or reduce GHG emissions, in other words, to earn certified emission reduction (CER) credits. Countries can trade their CER to meet a part of their emission reduction targets. The purpose of CDM is clearly stated in Article 12 of the Kyoto Protocol as follows:

‘The purpose of the clean development mechanism shall be to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3’.

³⁰ Article 5 of the Protocol requires each party in Annex 1 to put in place a national system for the estimation of anthropogenic emission by sources and removals by sinks of all GHGs. Such nation system of estimation must include methodologies and guidelines to be employed.

³¹ Annex 1 countries are the industrialized countries that were Parties to the Kyoto Protocol. Annex 1 countries that consented to the first commitment period of the Kyoto Protocol included Australia, All members of the European Union, Belarus, Croatia, Iceland, Kazakhstan, Norway, Switzerland, and Ukraine.

³² Non-annex 1 countries refer mostly to the developing countries that were Parties to the Kyoto Protocol. Most of these countries were identified as being especially vulnerable to the adverse effects of climate change, including countries poor countries with low-lying coastal areas and those prone to drought and desertification.

The CDM is seen by some parties to the protocol as a ‘win-win’ opportunities, because industrialized countries are allowed to meet their commitment through cost-effective³³ and flexible means, and developing countries at the same time, gain access to the financial resources and clean energy technologies provided to them by the industrialized countries (Werksman 1998: 147).

Other observers and parties see the idea of CDM as shifting responsibility of emission from developed countries to developing countries. They also argue that the idea may make it difficult for developed countries to ensure compliance with their emission reduction obligations (Ibid). The criteria for participation and measurement of CER is to be provided by the Executive Board of the CDM which is set up by the Convention. This is not contradictory to the fact that it is the responsibility and prerogative of the host Party to check whether a CDM project helps it attain the goals of sustainable development (UNFCCC 2002). This means that developing countries can define the sustainable developments requirements for CDM projects to be brought into their countries according to their own wishes and demands. Above all, in the wake of many criticisms and support for the CDM, it suffice to say that its effectiveness depends on how it has been able to achieve its goals: helping developing countries maintain sustainable development, helping developed countries meet their emission reduction targets, as well as helping realise the overall objective of limiting GHG emission. The importance of the principle of CDM lies in its offering flexibility to countries in terms of how they want to meet their emission reduction targets.

5.3.3 The Principle of Joint Implementation

The principle of the Joint Implementation is the third mechanism of the Kyoto Protocol. It is highlighted in article 6 of the protocol. The joint Implementation Mechanism allows industrialized countries to meet part of their emission reduction commitments by paying for emission-reduction projects in other industrialized countries. For instance, the Joint implementation allows that facility built in Eastern Europe and the former Soviet Union – economies in transition – to be paid for by Western European and Northern American countries. The providing countries in this case, then forfeit whatever they have paid as part of their Kyoto Protocol’s emission reduction obligation. Joint implementation is similar to Clean

³³ It was stipulated that ‘Policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost.’ (UNFCCC 1992, article 3.3)

Development Mechanism. They are both mechanisms to help the COP to realise the goals and requirements of the Kyoto Protocol. Both mechanisms also imply that the benefit of reducing global GHG emission is the same, irrespective of where it is reduced. However, unlike CDM which involves transfer to technology and fund developing countries, and which has no obligation to reduce emission, the Joint Implementation involves parties which both have emission reduction obligations.

5.4 The Durban Climate Change Summit

The 17th meeting of the COP was held in Durban, South Africa. It took place from November 28 to December 11, 2011. This meeting is considered to have marked a turning point in the global climate change negotiations (UNFCCC, 2011). Governments clearly recognised the need to draw up a legal and binding agreement to tackle climate change beyond 2020. In fact, the agreement to draw up such legal agreements was achieved by governments and parties to the conventions. This agreement was to be drawn up not later than 2015. The famous Paris Agreement, which is another global agreement on climate change, is a by-product of the commitment made in Durban. Moreover, with respect to the apparently major achievements made in Durban is that actions towards climate change were made to become inclusive, where 'all would play their part to the best of their ability and all will be able to reap the benefits of the success together' (unfccc, 2011:1). Such inclusiveness was a reflection of the 'Principle of Common but Differentiated Responsibility'³⁴, as adopted at the Earth Summit in Rio de Janeiro in 1992. The decisions taken in Durban were also coming closer to meeting and delivering the overall objective of global Climate Change Conventions: to stabilize GHG concentrations in the atmosphere at a level that will prevent dangerous interference with the global climate system while ensuring sustainability of development (UNFCCC, 2016).

Scholars have realized that there is still an imminent gap between the current national and international actions to mitigate climate change and the level that science predicts as a

³⁴ The Principle of Common but Different Responsibility is illustrated in article 3, paragraph 4 of unfccc (2016). The principle acknowledges that all states have shared obligation to address the issue of climate change but denies equal responsibility of all states with regard to this. This is especially due to disparity in economic development of different states, as some are industrialized while others are either industrializing or under-industrialized. In this sense, the more industrialized a nation is, the more likely it has contributed to climate change dilemma, and the more responsible it is to contribute towards its mitigation. The greater responsibility here also links to greater ability, as developed countries are more able to adapt to climate change effects than their developing counterparts.

requirement to avoid severe risks of climate impacts in the future. IPCC 4th Assessment predicts that atmospheric emissions need to be kept at 2 degrees or below if future destruction is to be avoided. Various global efforts to mitigate reduce emission are aimed at meeting this level. However, even if the target of 2 degrees is reached, some of the poorest countries, especially those most vulnerable to the climate change dilemma will still need much support to adapt to the already existing catastrophe and changes that climate change has caused. Another challenge is getting countries to cooperate in responding to the global requirements for mitigating climate change in their respective national policies. This issue is not unconnected with lack of trust among countries.

There has been some conflict and lack of trust amongst some developed and developing countries as to who causes climate change, who is relying mostly on dirty source of energy, and whose responsibility it is to pay for the damages caused by climate change. The US, for instance, has been questioning the recognition of China among non-annex 1 countries and hence, its leverage not to take up a mandatory commitment towards climate change mitigation, as formulated in Kyoto Protocol. The envy is because China, despite being categorised as a developing country, tends to emit a relatively very large amount of greenhouse gas, due to its booming industrialization. Such controversy contributed to the US's refusal to ratify the Kyoto Protocol. The Durban climate change convention put these challenges into considerations. To address challenges such challenges in a more coordinated and connected manner, the conventions drew up a road map for implementation over a longer time period, which has normally not been the case in the history of the global conventions. Four major areas of concerns were agreed on the road map.

The first area of concern is the second commitment period of the Kyoto Protocol. This will seek to advance and promote the continuation of the international legal binding system of the Kyoto Protocol. This commitment entails developed countries' commitment to greenhouse gas cuts, as well as continuation of the modalities of accounting rules, and cooperative joint implementation systems which form the main mechanisms of the protocol.

The second issue in the road map is the introduction of a new policy of debates, a platform that is hoped to deliver a new global GHG reduction protocol, as well as other legally binding instruments by 2015 for the period beyond 2020. This new platform is called The "Durban Platform for Enhanced Action" (UNFCCC, 17). The body Ad Hoc Working Group of the

Durban Platform is responsible for the crafting of the 'Platform' was established during the Durban COP. This Ad Hoc Working Group was tasked with the mandate of developing a protocol, or another legal binding instrument that would be inclusive of all the Parties, and which would be implemented from 2020. The new protocol was to be ready for adoption by 2015, during the 21st session of COP. Most importantly, the Durban session of the COP adopted a work plan to enhance the mitigation ambition, which is currently targeted at 2 degrees. As already said, this is to be done by including all Parties in undertaking obligatory mitigation commitments.

The third issue in the Road Map concerns the decision to implement a broad-based stream of negotiations that will include all member nations under the Convention. This also involves ensuring more transparency in the existing national emission reduction commitments. Moreover, the road map also draws up and launches long-term implementation of a comprehensive global support network, which will facilitate funding and technology transfer to enable developing countries to construct more climate-resilient societies and economy, as well as transit to a clean energy system. It is to be noted here that the 'Ad Hoc Working Group on Cooperative Action' was established at the previous COP at Bali³⁵. It means therefore that the Durban COP worked to strengthen and reinforce the decision made at Bali Action Plan.

The last issue in the road map concerns a global review of emerging climate change challenge, as well as the existing predictions and targeted level of emission reduction. In other words, this involves reviewing whether the maximum 2 degrees rise will be enough to ensure the overall objective of the Convention, or whether 1.5 degree is to be targeted. This review is to be backed by best available science and data. This part also seeks to mobilize collective action to ensure that global temperature rise does not go beyond agreed limit.

In summary, the Durban Platform for Enhanced Action is an intermediary Convention that developed what was achieved in the Initial (first) commitment epoch of the Kyoto Protocol, and then opened a way for the 2015 Paris Agreement that took place in Paris, France. The Durban COP realized that climate change is a global problem which requires collective efforts and seeks to implement strategies to ensure such inclusivity. The Durban COP could also be said to have yielded some positive outcomes because it could bring a coalition

³⁵ Ref. Decision 1/CP.13 of the Bali Action Plan (unfccc, 2007:3).

between the US, South Africa, China, India, and Brazil. These countries negotiate as a bloc in the international conferences.

Considering the US's past inaction, and its envy of other large developing economies like China, it makes sense that these countries negotiate as a block to bring some reinforcement. Reports seem to point to the fact that China, India, and other developing countries lag in taking up legal binding commitments because they want the developed countries, like the US to do so first (Rigg, 2011). It therefore means that the India, Brazil, South Africa (IBSA), and the US coalition is a positive move, if an effective and a legally binding second round of Kyoto commitment is to be achieved. This coalition also stands a good chance to put pressure on the European Union (EU), which initially seemed reluctant to save the Kyoto, as it was looking at other large economies like the US, Japan, Russia, China, and other big emitters to commit to restraining their emission within a reasonable timeframe. Some developed countries such as Japan, Canada, and Russia refused to agree to the Kyoto's second commitment period. Getting the agreement of the US and the EU to the second commitment period was a great achievement and advancement towards achieving global emission reduction targets. The EU later decided to adopt the Kyoto Protocol's second commitment during the 2012 COP held in Doha, Qatar.

Besides achieving an agreement to establish the second commitment period of the Kyoto Protocol, reinforcement of the principle of CDR, and the commitment to scale up the existing level of emission ambition so as to address the gap between existing mitigation pledges and the needed emission reductions that science recommend, the Durban COP was also able to institute the Green Climate Fund, as well as the Durban Platform³⁶.

The Green Climate Fund was established to enable poor (developing) countries to strengthen their efforts towards adapting to the challenges of climate change. Though it was set up by the 195 countries who were Parties to the 2010 UNFCCC held in Cancun, Mexico, its reinforcement, and acceptance came during the Durban COP. The Green Climate Fund seeks to deliver equal amount of funding towards mitigation and adaptation. This is a good idea, as

³⁶ The Durban Platform refers to the documents of the negotiations arising from the Durban COP, as discussed in the paper. Its main aim is to strengthen the multilateral rule-based regime of the Convention. It developed a legally binding international agreement that could extend till 2020.

adaptation needs as much attention as mitigation does. The Green climate fund is mobilized by developed economies, to help developing countries, with special attention to those extremely vulnerable to the risks and disasters of climate change. Examples of such countries are the least developed Countries, Small Island States, and other weak African countries. According to reports, 10.3 billion US dollars was gathered in 2014 for this purpose, marking the initial launch of the Fund³⁷.

5.5 Copenhagen Climate Summit

The fifteenth session of the UNFCCC (COP 15) was held in Copenhagen, Denmark, from December 7 to December 18, 2009. It was attended by about 115 world leaders. This Convention marked one of the historic and significant conventions on issues of climate change as the Copenhagen Accord, the outcome of the Convention was produced. It was significant because key developing countries polluters, including China, Brazil, India, and South Africa agreed to binding emission cuts. This was the first time in international agreement that developing countries agreed to make binding emission reductions in pollution rates. It was a good move towards resolving the schism between developed and developing countries, which seemed to alter the progress of climate change negotiations in the past.

One significant development brought by Copenhagen summit was that countries were committed to submitting, by January 2010, their different national action plans towards limiting greenhouse gas emission to the scientific and globally agreed level. The Accord also advised countries to step up their emission reduction targets of 2 degrees to 1.5 degrees (Weiss and Light, 2009). Just like any other COP, the Copenhagen COP was guided by the ultimate objective of stabilizing greenhouse gas concentration in the atmosphere at a level that will prevent dangerous outcomes to the climate system. This was done on the basis of equity, respect to the principle of Common But Differentiated Responsibilities and Respective Capacities. It also took cognizance of the context of sustainable development.

The issue of climate finance was not forgotten during the Copenhagen summit, as Annex 1 parties were committed to providing financial aid, technological aid, and other aids to enable developing countries' adapt to climate change and enhance their transition towards a green economy. In addition, these parties were committed to further adhere to the Kyoto Protocol

³⁷ About Green Climate Fund, see www.greenclimate.fund/who-we-are/about-the-fund

by submitting their quantified economy-wide mitigation targets for 2020. This is done on the basis of a compulsory commitment. Also, non-annex 1 countries were to submit their quantified economy-wide emission reduction targets for 2020 at the next UNFCCC. This was to be done in the context of their nationally appropriate mitigation actions³⁸. The Copenhagen climate summit represents one of the most positive international conventions on climate change negotiations, because it got both developed and emerging economies to commit towards GHG emission reduction.

In a move towards the Copenhagen convention, the US decided to provide its mid-term emission reduction targets and finance to the Convention (Houser, 2010). This move by the US, together with its yearning for equity in sharing responsibilities of climate change actions to nations, especially capable developing nations, spurred key developing economies to take active actions. China, on November 26, 2009, prior to the Copenhagen summit, announced its commitment to reducing greenhouse gas emission per unit of gross domestic product by 40 to 45 percent from the 2005 emission levels³⁹ by 2020 (Centre for American Progress Action Fund, 2009). China's act was the result of the US-China presidential summit, held two weeks before the announcement, where the US convinced China to take up binding emission reduction, and which China consented to. Subsequent to the U.S.-India conference which was held in Washington, DC; India, declared its intention to cut its emission by 24% from the 2005 levels by the year 2020⁴⁰. Reports show that other clean-energy and climate change actions the two countries will lead to about 13 percent and 19% below 'business-as-usual' emissions of China and India respectively in 2020 (Centre for American Progress Action

³⁸ Nationally appropriate mitigation actions entails implementing mitigation policies and taking national actions based on the measurement of national capabilities to ensure that mitigation is done with due consideration to the need for sustainable development.

³⁹. According to China's last submission to the UN, China's 2005 emission level was at 5.4 billion tonnes of CO₂. Available at: www.climatechangenews.com/.../china-off-course-for-2020-carbon-emissions-target/

1.
2.

⁴⁰ See <https://www.theguardian.com> › Environment › Greenhouse gas emissions

Fund, 2009). South Africa pledged a cut by 34 percent below Business-As-Usual emission by 2020⁴¹.

One significant achievement from the Copenhagen conference was securing the participation of parties that previously refused to participate. By the time participants arrived at the Copenhagen summit, almost all emerging economies had joined the developed countries in announcing their strict emission reduction targets. This was the product of the leadership of the US and other developing economies such as China, Brazil, South Africa, and India

Besides the various domestic actions of the different countries, the Copenhagen climate summit also spurred positive international bilateral relations and cooperation among the major GHG emitters. During the Major Economies Forum (MEF) held in L'Aquila, Italy in July 2009, leaders representing about 75 percent of the global emissions pledged to respond not only positively, but 'vigorously' to climate change⁴². The 11 industrialized countries that attended the meeting pledged to take robust actions, towards GHG emission reduction. The 7 emerging economies also pledged to take prompt actions both individually and aggregately towards climate change mitigation. The projected effects of these commitments on emission 'represents a meaningful deviation from the business as usual' (Houser, 2010:3). The table below shows the emission reduction targets of the major GHG emitters at the Copenhagen summit, which represents the impact of the Copenhagen Accord.

⁴¹ Climate Tracker, 2017. Available at: climateactiontracker.org › Countries

⁴² Major Economies Forum (MEF). 2009. *Declaration of the Leaders of the Major Economies Forum on Energy and Climate*. Available at: www.majoreconomiesforum.org.

Table 4: The Copenhagen Accord pledges by Annex 1 and Non-Annex 1 Countries

		Emissions			Reduction from BAU			
Billion tons CO ₂ e,		2020			Billion tons		Percent	
including land-use change		BAU	Low	High	Low	High	Low	High
	2005							
Annex I Parties	20.06	19.9	17.92	17.1	1.98	2.64	10	14
United States	7.45	7.29	6.4	6.4	0.89	0.89	12	12
European Union	5.14	4.79	4.39	3.84	0.41	0.95	9	20
Canada	0.81	0.9	0.7	0.7	0.2	0.2	22	22
Japan	1.44	1.3	1	1	0.31	0.31	24	24
Australia	0.65	0.71	0.57	0.47	0.14	0.24	20	34
Other	1.67	1.66	1.63	1.62	0.03	0.04	2	2
Non-Annex Parties:	24.71	35.74	33.55	32.61	2.19	3.12	6	9
India*	2.11	3.74	3.74	0	0	0	0	

Brazil	2.23	2.39	1.6	1.56	0.8	0.83	33	35
South Korea	0.59	0.72	0.51	0.51	0.21	0.21	29	29
Mexico	0.75	0.85	0.8	0.62	0.05	0.23	6	27
Indonesia	1.95	2.34	1.75	1.75	0.59	0.59	25	25
Other	9.84	12.53	12.49	12.49	0.04	0.04	0	0
Sub-aggregate	44.78	55.64	51.47	49.71	4.17	5.76	7	11
Potential mitigation from international finance			0	-1.53	0	1.53		
Aggregate	44.78	55.64	51.47	48.18	4.17	7.29	7	13

Adapted from Houser (2010:4)

This table represents a significant shift in the international climate change negotiations, as both developed countries and other major and emerging economies have now placed their respective carbon emission reduction targets. The US, which had not signed the Kyoto Protocol became one the major pushers of the climate change deal. South Africa acted as a good example to African countries since it appears to be the only African country that took a major emission reduction role in the Accord, with a reduction target of 34 percent below business as usual, even though South Africa's stance with that of its fellow African countries (Nhamo, 2011). Due to its status as a member of the Major Economies Forum, South Africa was one of the major role players during the Copenhagen summit and in crafting the Accord. Its involvements in the summit will be reiterated below.

5.6 South Africa in Copenhagen 2009

During the Copenhagen summit, developed countries were significantly pressurized to reduce their emissions, at least above 40 percent from their 1990 levels, whilst emerging economies like South Africa, India, China, and Brazil were pressured to take on targets (Nhamo, 2011). Developed countries were also forced to provide fund to aid developing countries transit towards a clean energy economy. Likewise, the developed countries pledge to provide 10 billion US dollars each year, beginning from 2010 until 2012, the year that marked the end of Kyoto first commitment period. The developed countries also proposed a kind of international verification of emission actions to be done by emerging economies. Though this verification was to be done on the basis of no penalties, there was a huge resistance to such proposal from the G5, particularly China and India, which regarded such proposal as ‘potentially violating their (national) sovereignty’ (Nhamo 2011: 17). The developing countries preferred to carry out their emission reduction pledges through self-regulation. The politics surrounding Copenhagen Accord would have been very heated if the meeting had not been held just before the Copenhagen summit between South Africa, Brazil, India, and China to discuss a way forward for the negotiations. As an outcome of the meeting, these countries pledged to cut their emissions. South Africa announced its readiness to cut emission on condition that the developed countries provide it with support. The statement made by the presidency on 7 December 2007 goes thus:

‘South Africa will undertake mitigation actions which will result in a deviation below the current emissions baseline of around 34% by 2020 and by around 42% by 2025. This level of effort enables South Africa’s emissions to peak between 2020 and 2025, plateau for approximately a decade and decline in absolute terms thereafter. This undertaking is conditional on firstly, a fair, ambitious and effective agreement in the international climate change negotiations under the Climate Change Convention and its Kyoto Protocol and secondly, the provision of support, from the international community, and in particular finance, technology and support for capacity building from developed countries, in line with their commitments under both the Framework Convention on Climate Change and the Bali Action Plan’ (The Presidency 2009d).

Other positive statements made by the presidency following the Copenhagen summit showed South Africa’s willingness to steer the climate change leadership affairs of the African continent. The presidency declared thus:

‘South Africa’s national interest is the development of a future international and multilateral climate change regime which: 1) resolves the current challenge and potential future crisis of the devastating climate change impacts on the continent; and

2) simultaneously supports the building of future sustainable economic, development, competitiveness and growth in a way that enhances social and environmental development in South Africa and in the African continent' (Ibid).

These statements showed a positive move by South Africa towards taking a fair share of the responsibility for the global climate change. South Africa's commitment to cut down carbon emission was in consideration that South Africa is a reliable global citizen (Nhamo, 2012). However, it can also be argued that South Africa is the highest GHG emitter among African countries, and one of the top emitters in the world and hence, has some more obligations than most developing countries to take a greater share of the mitigations actions. Moreover, South Africa's application for clean technology Investment Fund amounting to 500 million US dollars, leveraged to 1.6 billion US dollars from other multilateral sources (Nhamo 2012:18), was said to be successful. This could also contribute to South Africa taking a leadership position in global climate change mitigation actions. However, a day after the above announcement, as the country seemed to issue a contradicting statement and one that goes back to the prior negotiating stance which was based on two-track approach. A report posted on the presidency's online site on the 8 of December 2009 reads:

'As a developing country with huge developmental challenges, South Africa cannot afford to take on any binding emission reduction targets. South Africa has an energy intensive economy ... South Africa's position is that a 2-track approach is needed: (i) 1 track for the outcome of negotiations under the Kyoto Protocol on further commitments by Annex I Parties for the 2nd and subsequent commitment periods – namely an amendment of Annex B of the Kyoto Protocol; and (ii) a separate instrument, interpreted with the Convention and Kyoto Protocol, for the outcome of the negotiations under the Convention' (The Presidency 2009c).

South Africa seems to have faced many predicaments in reaching a decision regarding its position in COP 15. Statements by some South African key officials also suggest South Africa's dissatisfaction before, during, and even after the summit. The table below shows some of the statements by South African officials regarding Copenhagen summit, which point to how South Africa struggled to gain negotiating stance in the entire processes of COP15⁴³.

⁴³ Some of the statements are a reiteration of what has already been mentioned

Table 5: South Africa and Copenhagen Accord 2009

Date	Events	Evolving Issues
7 December 2009	Presidential statement prior Copenhagen Climate summit	South Africa vowed to limit GHG emission by 34% and 42% by 2020 and 2025 respectively, as part of its fair contribution towards global mitigation efforts, and conditional on developed nations' financial and technological support
December 8, 2009	Another declaration made before the Copenhagen Conference	South Africa restated that it 'cannot afford to take on any binding emission reduction targets' because of the country's developmental challenges. The energy-intensive nature of the South African economy was acknowledged here. South Africa reiterated its support of the two-track approach (The Presidency 2009c, 1).
18 December 2009	Statement of the Copenhagen Accord	The Copenhagen Accord was described as a political document for observing, with substantial backing from BASIC+USA, the major parties involved in the architecture of the Accord (UNFCCC, 2009)
18 December 2009	South Africa's president's speech during the Copenhagen summit.	South Africa recognized that climate change poses dangerous threats to Africa and seeks the outcome of COP 15 to support the idea Common But Differentiated Responsibility and Respective Capacities (Zuma 2009:1). Developing countries are urged to abide by

		the nationally-appropriate actions for climate change mitigation. South Africa vows to limit GHG emissions by 34% and 42% by 2020 and 2025 respectively, providing annex 1 countries provide funding and technological aid.
20 December 2009	Statement about COP 15 by South Africa's Department of Water and Environmental Affairs	South Africa expressed its deep dissatisfaction with the result of COP15 (DWEA 2009). Copenhagen Accord was just a political Accord reached by 28 out of 119 countries present. South Africa required a climate agreement that would give equal attention to both adaptation and mitigation.
22 December 2009	Media statement on COP15 by South Africa's Minister of Water and Environmental Affairs	South Africa alleged that COP15 process was violated through what was described as 'ill-restrained interference'. It also made mention of 'poor decisions by those guiding the process' (Sonjica, 2009:1). Copenhagen Accord is seen as 'weak in that it is partial and political rather than legally binding' (Sonjica 2009:3)

Some scholars argue that the crafting of Copenhagen Accord lacked fairness and equity. According to Nhamo (2012), the conflicting messages of the Presidency of South Africa on 7 and 8 December 2009, as well as other messages attempting to exonerate South Africa from the crafting of the Copenhagen Accord points to some hidden and unfair activities in the Copenhagen COP. Oxfam (2009) also reports that G8+5 (G13), of whom South Africa is a member, was the killer of COP15, adding that this group was only interested in protecting its interests. The South African team leaders were also reported to have been derided some of the G77 negotiators causing a division and fiasco in the group's negotiating stance. South

Africa has also been criticized for not being loyal to the African common positions, especially, taking up emission reduction commitment which contradicted common African stand. It is also alleged that South Africa was indeed the ‘missing link’ to Africa a united Africa during the processes of Copenhagen conference (Nhamo 2012: 21).

5.7 The Paris Climate Change Agreement

The Paris Climate Change Conference, which took place in December 2015 in Paris, France was another historic international climate change conference. The summit was attended by 196 Parties, a number which shows huge improvement compared to the past COPs. The outcome of the Paris summit is the Paris Agreement, which represents a new legally-binding framework under which the international community will continue to coordinate towards tackling global climate change catastrophe. The process that culminated in the Paris Agreement started since 2009, during the Copenhagen summit.

The Paris Agreement seeks to stabilize the global GHG emission below 2 degrees on pre-industrial level. The Agreement seeks to achieve this goal through nations making more progressive and ambitious emission reduction commitments, which would require making profound changes to their economies. One unique feature of the Paris Agreement is that all Parties are obliged to make contributions towards climate change mitigation and adaptation, and to communicate ‘nationally determined contributions’⁴⁴ to the COP secretariat. However, this is still done on the principle of common but differentiated responsibility and respective capacities, which applies ‘in the light of different national circumstances’ (Art. 2.2). The Paris Agreement is also different from the Kyoto Protocol in that unlike the latter which defined countries' emission reduction targets, the former depends on voluntary mitigation contributions. It develops processes that will ensure individual and collective progress in meeting up with the requirement of stabilizing the atmospheric greenhouse gas.

The Paris Agreement constitutes a legal treaty that is binding under international law. However, there are some sections that are not binding. The agreement applies both top-down

⁴⁴ The Paris Agreement requires every country or party to draft and submit their post-2020 climate action plan, which is referred to as the Nationally Determined Contributions (NDCs). Each climate plan needs to reflect the country's ambition for reducing emissions, taking into account its domestic circumstances and capabilities (Art.4, 2). Countries are allowed to meet their NDC targets by transferring ‘mitigation outcomes’ internationally, either in the context of emission trading, or to allow results-based payments;

and bottom-up approaches to tackling climate change. In the bottom-up approach, countries are allowed the flexibility of making mitigation contributions that are nationally-determined. This means they should decide on the contributions that aligned with their national circumstances. In the top-down approach, the Agreement has some sets of international rules and norms, including some procedural commitments. This is to provide transparency and accountability in national government domestic actions and contributions. Countries are legally bound to submit their nationally determined contributions (NDCs), report regularly on the progress of their contributions and their different actions, and also update their NDCs every five years. It is through regular reporting and updating of NDCs that the international community seeks to ensure transparency and accountability from countries.

Paris Agreement stresses the significance of achieving a balance between adaptation and mitigation. According to Article 7.1 of the Agreement, enhancement of adaptive ability, reinforcement of resilience, and plummeting the rate of vulnerability to climate change forms the major aims of the Agreement. These adaptive goals seem to be lacking or insufficiently stressed in other global conferences on climate change. The Agreement seeks all national government to put much emphasis on adaptation, and to strengthen cooperation among Parties, including through fund transfer (Art. 7). The Agreement also provides opportunity for countries to assess adaptation progress and priorities, mainly through regular stocktaking, and to exchange experiences and lessons learned. The different propositions set by the Paris Agreement, especially its legally binding nature, and the provision for regular review and updating of countries nationally determined contributions should put the Agreement at an edge to achieving the global target of reducing GHG emission below 2 degrees.

The increase in the number of Parties and countries' willingness to cooperate is also a point to celebrate when it comes to the Paris Framework. Several scholars describe the Paris Agreement not as a perfect international treaty, but as an inspirational Accord that will trigger global actions towards climate change (Savaresi, 2016; Clemencon, 2016 and Christoff, 2016). Clemencon describes Paris Agreement as 'better than no agreement' (2016:1). In his analysis of whether the Agreement is a historic breakthrough or a dismal failure, Clemencon opines that though the Agreement seems not to provide a concrete blueprint for reducing GHG below 2 degrees, especially as scientific evidence does not show that this will be achieved, there is still hope that small amount of energy transition will be achieved, that will continue to raise political activism in the coming years. In the same manner, Christoff asserts

that the Paris Agreement has provided a robust framework and has created a promising path towards tackling global climate change catastrophe (2016: 755). Savaresi (2016) sees the Agreement as marking a new era in the history of global climate diplomacy, as it has created a fresh path for international cooperation, breaking away from mere utterances to practicalities.

INTERNATIONAL ORGANISATION FOR STANDARDIZATION

Another avenue of global response to climate change challenge is through the work of the International Organisation for Standardization (ISO). Its contribution towards global climate change mitigation effort is very essential that it would be incomplete to discuss global responses to climate change without considering them.

The International Organisation for Standardization (ISO) is a union of two organisations: the ISO (International Federation of the National Standardizing Association) and the UNSCCC (United Nations Standard Coordinating Committee). ISO is an independent non-governmental organisation. It was formed in 1946, when 25 countries met at the Institute of Civil Engineering in London. The organisation was formally established on February 23, 1947. The essence of the meeting was to form a new international organisation with the objective of facilitating the international coordination and unification of industrial standards. The short form name for the organisation was agreed to be ISO. The word ISO is derived from the Greek word ISOS, meaning ‘equal’. The main aim of the organisation is to promote proprietary, industrial and commercial standards. Since its establishment, the organisation has grown considerably. Reports shows that as of March, 2017, the organisation has a confederation of delegates representing over 162 countries and has published over 16,500 international standards⁴⁵. The representatives meet on regular basis to create new management standards.

ISO, under the International Standard Committee on Climate Change is an effective non-governmental organisation that has provided much insights into the global response to climate change. It has developed a range of international standards which provide much details to guide organisations mitigate climate change. Some of the guidelines provided by ISO include quantification and reporting of GHG emission and removals at the project level,

⁴⁵ Information available at <https://www.isoqsltd.com/about-us/what-is-iso/>

as well as quantification and reporting of GHG emission and removals at the organisational level. Report shows that at present, about 40,000 entities around the globe are responding to the guidelines of the ISO by quantifying and reporting their GHG emissions or removals to comply with government regulations, participate in emission trading or demonstrate leadership in corporate social responsibility (Lambert, 2015). The ISO works in collaboration with the United Nations Framework Conventions on Climate Change and the Intergovernmental Panel on Climate Change to devise means that the global community can respond to climate change disaster.

5.8 Conclusion

Most of the global community has accepted the prediction of science concerning the disastrous effects of climate change. Climate change has also been recognized as constituting a global problem, and therefore, requiring global efforts towards its solution. The international community is not silent on the issue of climate change catastrophe. Several concerted efforts have been made through regular provision of international accords aimed at fostering international cooperation in tackling climate change. This chapter provided a brief historical overview of the international community's response to climate change issue. It has outlined the operations and the agreement that have evolved from the different global conferences, ranging from the Kyoto Protocol, the Copenhagen Accord, and Durban Platform for Enhanced Action, and the Paris Agreement. The chapter also presented a brief overview of the role of ISO in the global responses to climate change challenges.

Though the chapter has not discussed all the international conferences that have tackled climate change, the major ones discussed in the chapter are sufficient to give one an overview of the international response to climate change up to date.

CHAPTER SIX

SOUTH AFRICAN LEADERSHIP AND IN CLIMATE CHANGE DISCOURSE

6.1 Introduction

The overall objective of this study was to explore the factors that qualify South Africa's potential leadership position in Climate Change discourse in Africa. The literature explored in the course of the research has outlined three mechanisms by which leadership occur. These include, structural, entrepreneurial, and directional forms of leadership. Entrepreneurial and directional leadership involve crafting attractive and innovative initiatives and policies to solve collective problem. Structural leadership involves using force to implement solutions to collective problems. One critical question to ask is how effective leadership is assessed. Kanie (2003) asserts that without conventional power associated with structural leadership, the other two forms of leadership would hardly materialize. This implies that assessing the quality of a leader involves exploring how an agent has been able to employ all the three mechanisms of leadership in its policies and actions. Such balance would determine a potential leader.

This chapter seeks to evaluate the different ways and programs through which South Africa has applied the three mechanisms of leadership to its climate change diplomacy and actions. In other words, the chapter will evaluate South Africa's leadership potential based on the requirements for success in the three forms of leadership. The chapter will also evaluate how South Africa's leadership is likely to be perceived by other African countries. Finally, it will explore some possible challenges that South Africa is likely to face in its climate change diplomacy and leadership in Africa.

6.2 South Africa as a Structural Leader in Climate Change Negotiations

The basic determinant or requirement for structural leadership is economic and material power. Any agent wishing to take up leadership, must have a relatively higher ability – compared to other entities in the leader/follower continuum - to deploy economic and material resources towards solving collective problem. South Africa has severally enjoyed the status of Africa's largest economy. Though South Nigeria reportedly overtook South Africa in 2015 as Africa's largest economy, recent turbulence and economic recession in Nigeria suggests that South Africa is in a better position to reclaim its status. Nigeria continually slips

into recession while South Africa has moved upward by 0.2 percent in the third quarter of 2017 (Pham, 2017). This status of South Africa as Africa's largest economy has some implications for its potential to exercise structural leadership in African climate change issues. Such implications include the capacity to support other less-capable African countries financially in their effort to adapt to climate change.

Assessing the potential of an actors' structural leadership also involves looking at its hegemonic status among the other actors in the region. A hegemon in a region stands a better position to assume leadership in issues concerning that region. A hegemon has international recognition and influence which causes other countries to listen to its opinions and followed its leadership. It attracts the attention of other entities to itself. For instance, Kanie (2003) asserts that the reason why US, EU and Japan were three important players in the negotiation towards the final stage in Kyoto, and why they received so much political attention leading up to Kyoto is because of their high hegemonic status and structural power. South Africa has often been labelled as Africa's hegemon (Alden and Schoeman, 2015). South Africa has also often demonstrated its hegemonic position and the willingness to use this position to lead Africa. There have been arguments that South Africa's intention to lead Africa is mere rhetoric, lacking substantial back up. But such arguments are not tenable, considering the resources South Africa has invested in its tackling domestic climate change challenges.

More than any Africa country seems to have done so far, South Africa has invested significant amount of funds in its domestic actions towards climate change mitigation and adaptation. South Africa stated as part of its goals in the National Development Plan that it has planned to invest up to 50 billion dollars in its Long-Term Mitigation Scenario (NDP, 2009d). This amount is large enough to give South Africa an edge over other African countries in matters of resource deployment towards climate change mitigation and adaptation.

Structural elements of leadership also involve the size of present and potential future emission and the economic resources that a country is willing to bring to bear on a global regime (Kanie 2003). South Africa is undoubtedly the highest emitter of GHG in Africa and one of the top emitters globally (Energy Information Administration, 2011; RSA, 2011a). South Africa has recognized this position, and has consequently, made effort in the global negotiations to bring down its future emissions. Prior to COP15 which was held in

Copenhagen, South Africa made a commitment to reduce its national emissions by 34% below BaU levels by 2020 and 42% by 2050. Though this commitment was made on the condition that developed countries provide finance, technology and capacity-building support (Death, 2011), the commitment shows the attitude of a leader, one who is ready to invest towards climate change mitigation projects. If South Africa's 'peak-plateau-decline' strategy is achieved, it will lead to a transformation of one of the most carbon-intensive economies in the world. Moreover, South Africa has also been perceived to respond positively to the global financial and economic crisis because it launched a 7.5 billion US dollars projects, out of which \$0.8 billion was allocated to issues of environmental concerns, including construction of railways, energy-efficient buildings, and water and waste management (UNEP 2013). As a way of transiting towards a green economy, South Africa has reportedly invested huge resources towards green jobs and green initiatives.

The South African White Paper on climate change also recognises the threat posed by climate change and pledges to act to curb it. Accordingly, the White Paper regards climate change as one of the greatest threats to sustainable development and believes that, if unmitigated, it has the potential to undo or undermine many of the positive advances made in meeting South Africa's own development goals and the Millennium Development Goals (RSA 2011a, 9).

However, the Paper goes on to note that although there will be costs associated with South Africa's adaptation and GHG emission reduction efforts, there will also be significant short and long-term social and economic benefits, including improved international competitiveness, that will result from a transition to a lower-carbon economy and society (RSA 2011a, 10).

In a bid to fulfil the promises in the White Paper, South Africa has invested a significant amount of money in green technological innovations and leadership. Examples of these include thin film solar photovoltaic modules and the Joule (an electrical vehicle) (DBSA 2011:5). In 2009, South Africa invested \$5.4 billion in clean energy projects to generate 1400 Megawatts of electricity. This project is projected to produce 6926 Megawatts of renewable energy by 2020 (Reuters, 2012). In 2009, South Africa adopted the system of 'feed-in

tariffs'⁴⁶ for a range of technologies, which independent power producers (IPP) could generate electricity for the grid. According to Death (2014), this projects has attracted lots of local and international investors, and has led to South Africa being rated as the first country in the world to propose a feed-in tariff for wind energy, an example that has the world watching and emulating.

South Africa hosted Green Economy Summit in 2010. This summit was followed by Economic Development Minister, Ebrahim Patel's announcement in November 2011 that South Africa has developed a new green economy Accord that seeks to create up to 300,000 green jobs in the next 10 years (Patel, 2011). This project was to be funded by the Green Fund, in which R800 million was invested, with an increase of R300 million in the 2013 budget (Gordhan 2013). With the recent global effort and emphasis on countries to transit to a green economy, this huge investment into such projects by South Africa, seems to position the country at a point where it is able to lead Africa's discourse and move towards green economy, a very crucial part of climate change mitigation. It gives South Africa an edge over other African countries in terms of structural leadership, bearing in mind that structural leadership does not only entail what an actor brings to support other actors, but also the capacity (whether potential or actual) that an actor has to be able to curb a common problem.

Climate change is a common problem, and an action to curb it in one nation certainly have positive effects in other countries. South Africa aims to raise funding to scale up its renewable energy sector. This funding is being mobilized through South African Renewables Initiatives, a partnership established in 2011 by the government of South Africa and Denmark, Germany, Norway, the UK and the European Investment Bank (Death 2014).

6.3 South Africa as a Directional Climate Change Leader

Directional leadership involves the application of ideas and domestic implementations that can positively influence the perception of other countries as to what is desirable and possible (Grubb and Gupta, 2000). South Africa shows great leadership initiatives in its efforts

⁴⁶ Feed-in tariffs policy involves making a payment to households or businesses generating their own electricity through the use of methods that do not contribute to the depletion of natural resources, proportional to the amount of power generated.

towards transiting to a low carbon economy, having initiated various projects to facilitate this transition. A key example of such projects is the South Africa's Integrated Resource Plan. The NDP vision 2030 stipulates that by 2030, South Africa, will have been having about 43% of its energy supply from a renewable energy source. This is backed up with action, as the country, through its proposal to purchase a 3725MW energy source, has been able to attract a Foreign Direct Investment amounting to R150 billion in the energy sector.⁴⁷ This is a great move which experts describe as teaching great lessons to other countries that transition to a green economy is possible⁴⁸. It is a policy move that other African countries can learn from, especially the strategy needed to mobilize necessary resources to deploy technologies required to transit to a green economy.

An actor exercises directional leadership or show potential for such based on the substantive impact it leaves on the options available for other actors to emulate, or through persuasion. Such an actor is a 'pace setter' or 'role model' (Parker *et al* 2012). South Africa is arguably an African leader, or a potential African leader on Green Economy transition. This is backed up by the fact that it does not only initiate the mechanism to transit to renewable energy, it also poses the structural ability to take the initiative to a completion.

Besides implementing good policy initiatives capable of persuading other actors, a directional leadership also occurs through social persuasion. This time it is not the leaders' initiatives that speaks, it is the leader that speaks directly. However, a directional leader, among other actors, must still poses the symbolic or moral significance to persuade other entities to follow its line of action. The relative power of an actor within a group of actors determine the extent to which that actor qualifies to show direction. For instance, though there may be other factors to consider, an actor that is more powerful (technologically, economically, and otherwise) within a group of actors is more appropriate to become a directional leader.

Other relatively weak countries in Africa can also have the persuasive skills or take unilateral action that others can emulate, but this is not enough to qualify for leadership. What sets the most powerful player in a game apart as a potential leader is its capacity to combine, or its possession of both substantive (practical) and persuasive (symbolic) in its leadership. South

⁴⁷ African Centre for a Green Economy. Available at: africancentre.org/south-africa-shows-leadership-in-the-transition-to-a-green-economy/

⁴⁸ Ibid

Africa is praised globally for its strong democratic values. This global view influences a lot of things, including how the country is listened to at the global stage, as well the confidence other countries have as to invest in it. These qualities may seem insignificant, but they are not to be ignored as part of what sets South Africa apart as a potential leader in African climate change negotiations.

South Africa displays exceptional directional leadership on the issue of carbon tax. South Africa is one of the major emitters of GHG. It is ranked 10th worldwide. Its moves to implement carbon taxation shows that South Africa recognizes that as a responsible global citizen, it needs to lead by example by deriving ways of cutting down its emissions. The most important aspect of this form of leadership is when the ideas employed to reduce emission do not endanger sustainable development, at least not much. South Africa moved in the right direction when in 2015, the then finance minister, Pravin Gordhan, in his budget speech stated that ‘we are living in an environmentally stressed world’⁴⁹.

In the budget speech, Gordhan announced South Africa’s readiness to implement carbon taxation policy. A policy paper had already been introduced in 2013 for that purpose. Carbon tax seeks to charge some prices to the producers of carbon-intensive products the rate of \$14 (R120) per ton of carbon dioxide, beginning from January 2015. Additionally, a relatively large part of the budget was allocated to support production of environmentally friendly bio fuel and upgrading of refineries to cleaner energy standards. Other environmental programmes such as installation of solar geysers, lower-carbon public transportation system, and renewable energy procurement were also supported in the budget planning.

The South African government has undertaken these initiatives even though it still struggles with issues of poverty and inequality. This is an evidence that it is setting a good example for other countries to follow, especially those industrialized countries that still lack the political will to act on climate change. The idea of carbon tax sends signals to producers of carbon-intensive products of the need to invest in cleaner technologies and reduce emission. The idea resonates with sustainable developmental goals, as investing in cleaner technology will still create more job opportunities. According to the analysis from the Carbon Tax Policy Paper,

⁴⁹ Information available at:
www.treasury.gov.za/documents/national%20budget/2014/speech/speech.pdf

though the carbon taxation policy will effect slightly negative changes in the growth rate in few sectors, many other sectors will experience positive growth.

The Paper states that as a result of the initiative, annual growth rate in coke production sector will decline from 3.6 percent to -0.3 percent, and that of steel and iron sector will fall from 3.3 percent to 1.4 percent, which will lead to a drastic decrease in the exportation of these products in 2035 (World Bank, 2016). This decline is a result of carbon taxation making it more difficult for these sectors to compete on the international market. However, there is a positive effect to this move. Many other sectors, including transport equipment, electrical machinery, and textile and footwear sector are expected to experience a positive increase of up to 7 percent annual growth rate. This will lead to about 30 – 40 percent increase in the exportation of these sectors by 2035 (*Ibid*). The point to note here is that the introduction of carbon tax by South Africa has been able to stimulate sustainable development, making the initiative a lesson worth emulating by other countries.

One of the key challenges that countries face in tackling climate change is managing the increasing urbanization of cities while paying attention to the demand for climate change adaptation and mitigation. There is a growing evidence that urbanization contributes more to climate change. This is due to increasing industrialization associated with urbanization. Cities are where the majority of these actions happen and therefore, they are places where more initiatives to curb climate change also ought to take place. In this case, designing climate change mitigation and adaptation strategies within the particular urban areas is crucial to reduce climate change-induced activities in urban areas. The city Durban, which falls under the eThekweni Municipality of South Africa has been very pivotal in designing its climate change policy. It is to be noted that Durban's climate policy is different from the South Africa's national climate change strategy. The Durban Climate Change Strategy is part of the initiatives of tackling climate change challenges at the local level. It is a bottom-up approach to tackling climate change.

The Durban Climate Strategy was developed immediately after COP17, which was held in Durban. The Strategy recognizes that cities around the world, and Durban city in particular, need to transit to a low carbon and 'green' economy while taking into cognizance the sustainability of its residents. It is important to note that the Durban Climate Change Strategy has developed seven flagship programs that address adaptation issues, waste management

practices, transportation, Renewable Energy procurement, Water Conservation management practices, and Energy efficiency and energy demand management processes. These practices and programmes are aimed at turning the city of Durban into a climate sensitive city. Dr Sean O'Donoghue, Manager of the Climate Protection Branch at the eThekweni Municipality describes Durban as a pioneer for developing city climate change strategy. For him, Durban is a model for a great number of cities in the world (cited in Environmental Planning and Climate Protection, 2011).

Durban has not only provided directional climate change leadership through its different GHG reduction policies, it is also an agent for entrepreneurial leadership through its coalition with other top cities worldwide which seeks to prioritize climate change mitigation and adaptation in their policy formulations. As a result of the initiatives for climate change leadership and environmental sustainability made by the eThekweni Municipality, Durban was recently invited to join the C40 group⁵⁰. Only eleven cities in Africa participate in the C40. These cities include Cairo in Egypt, Addis Ababa in Ethiopia, Accra in Ghana, Nairobi in Kenya, Lagos in Nigeria, Dakar in Senegal, Dar es Salaam in Tanzania, as well as Cape Town, Johannesburg, Tshwane, and Durban.

Though the discussion in this section concentrated on the climate change initiatives in Durban in particular, it is worth observing that South Africa alone has four cities, out of the eleven African city members of C40. This shows the extent of South Africa's leadership in climate change initiatives in Africa. On joining the C40 in 2015, Councillor James Nxumalo, the Major of eThekweni Municipality remarked that *'this interaction will strengthen our knowledge and ability to deal with climate change on a local level, while still ensuring sustainable service delivery. It fits in with our vision to make eThekweni the most caring and liveable city in Africa'* (cited in eThekweni Municipality, 2015). The C40's president and United Nation's Special Envoy to Cities and Climate Change also commented on eThekweni

⁵⁰ The C40 group is a group of 90 of the greatest cities in the world. C40 focuses on tackling climate change and building urban actions that reduce the emission of greenhouse gases into the atmosphere while increasing the wellbeing, health, and economic opportunities of the urban residents.

municipality's climate change policies as helping point the way forward on cities climate change action⁵¹.

Nonetheless, as a nation, South Africa, among other African countries, has also played crucial role in inventing new ideas that will enable foster solutions to the problem of climate change in Africa. According to the most recent Climatescope ranking of developing countries' renewable energy capacity, South Africa, amongst other African nations was ranked as number one in renewable energy capacity growth (Barber, 2014). The Climatescope ranking is evaluated on four metrics or indicators, namely, clean energy practices and actions, policy formulations and regulations, price attractiveness of the clean energy, as well as market-size prospect. Using these measures to evaluate developing countries' growth on renewable energy, China appears to top the rank among developing countries as the largest manufacturer of wind and solar equipment in the world, with the major market demand for these innovations. Brazil was ranked the second, and South Africa, the third.

However, though South Africa is ranked the third among the developing countries, commentators argue that South Africa is the African region's clear leader for clean and renewable energy developments, with its record of \$10 billion investment in 2012 and 2013, after the launch of the South African Renewable Energy Independent Power Producer Program (REIPPP) (Barber, 2013). Climatescope also reported that more than 50 percent of the total renewable energy installed in the Sub-Sahara Africa is in South Africa (*Ibid*). While South Africa experienced 37.7 gigawatts, Nigeria, which is ranked just below South Africa on the developing countries' renewable energy capacity growth, only has 10.2 gigawatts installed. This is a huge stride for South Africa. Considering the population sizes of the two African giants, with Nigeria having almost more than three times that of South Africa, one can easily assume that Nigeria stand a better chance of installing more renewable energy sources. But instead, South Africa happens to take the lead. South Africa is able to attract foreign investors in clean energy due to its attractive climate change and energy policies. As regards greenhouse gas management activities and policies, reports also indicate that no other Africa countries have been able to score as highly as South Africa (Barber, 2013).

⁵¹ Statement made at the signing of the Durban Climate Change Charter in 2015. Details available at: www.durbanadaptationcharter.org/.../durban-joins-c40-cities-climate-leadership-group

Green technology is an essential aspect of green growth discourse. The world presently yearns to 'go green'. Academic institutions and other research agencies are currently desperate for innovative ideas on how to invent technological equipment capable of making the world go green. South Africa, the first country in Africa, offers prime directional leadership in support of technologies for green economy. Besides promoting the use of photovoltaic module (or solar power), South Africa is prominent through the launching of electric (joule). Fuel burning cars contribute 10% of South Africa's emission. However, they contribute a far greater percentage in other countries like Nigeria, which is well known for its unregulated car combustion and traffic congestion on its road.

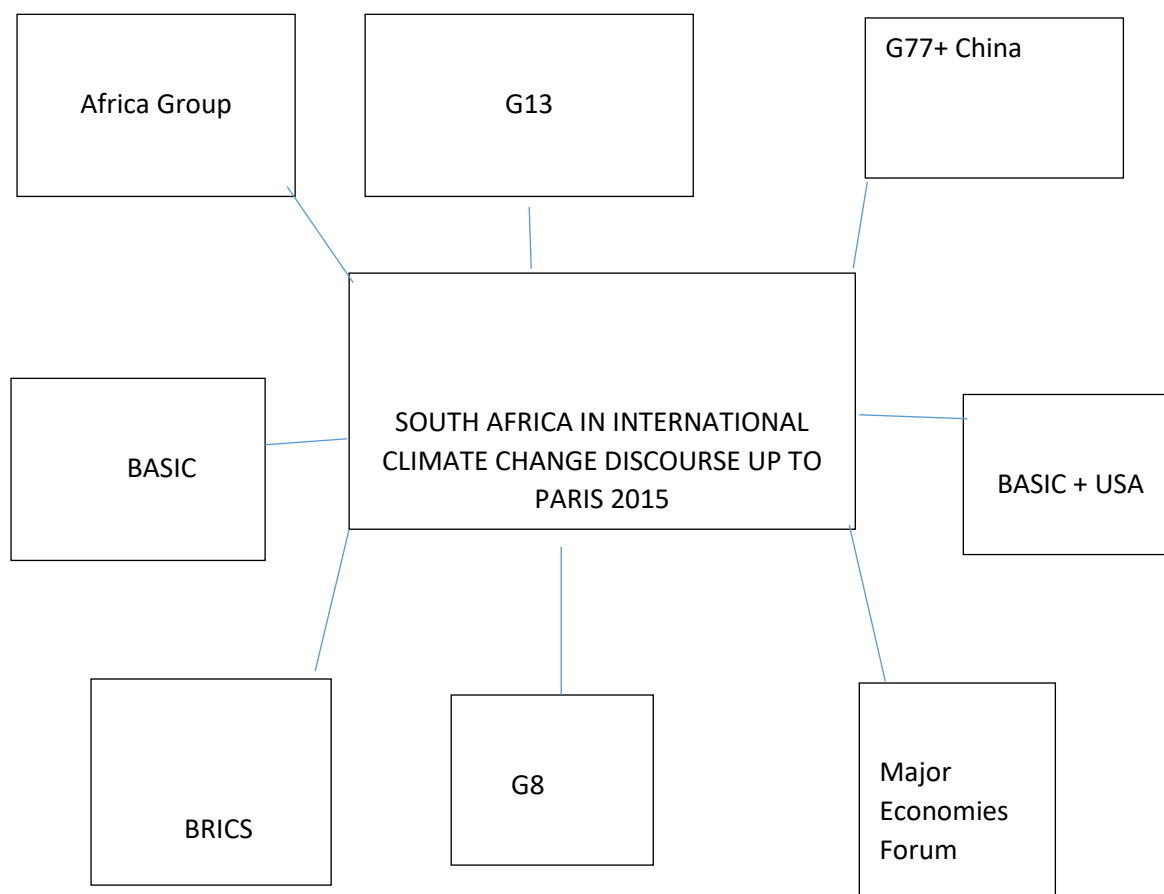
According to reports, there are currently about 300 electric cars running on South Africa's roads. According to South Africa's submission to the Paris Agreement on climate change, the country will have about 3 million electric cars on the road by 2050, with an investment of R6.5 trillion in the industry over the next four decades (Mail & Guardian, 2017). This number will be a significant development forward when it comes to promoting green transport technologies in Africa. It is a great lesson for other African countries to emulate. Nigeria is already imitating this development, as the first electric car is to be introduced in the country in 2018.

6.4 South Africa as an Entrepreneurial Climate Change Leader in Africa

According to Gupta and Ringius (2001), an entrepreneurial leader seeks to 'construct mutually beneficial solutions by using issue-linkage and coalition-building to influence the crafting of a positive solutions to common problem. Such a leader uses its diplomatic skills to put emphasis or influence the direction of negotiation towards an integrative rather than distributive bargaining. It is axiomatic and arguable that among other African countries, South African represents the most symbolic entity with more influence in the international community. This is evident in its coalitions with other great powers, not only on issues of climate change, but on other issues of political and economic concern. South Africa has formed alliances with other developed and economy in transition countries. These alliances include but not limited to the Britain, Russia, India, China and South (referred to as the BRICS); Brazil, South Africa, India, and China + US bloc (known as the BASIC+US); India,

Brazil, and South Africa +China (IBSA + China); G5⁵²; G8 group⁵³. Although some of these alliances form mainly economic blocs, some of them, such as the BASIC +US, IBSA + China, aim at tackling the climate change challenges.

Figure 5: South Africa in Climate Change Negotiations Coalitions



Source: Nhamo, 2011

South Africa has been identified and has singled itself out as an exceptional African country which coalitions with all these great powers. These coalitions give South Africa at an edge over other African country to exert influence in the global community on behalf of the continent. Being a member of these coalitions demands a great multilateral negotiating skills,

⁵² G5 comprises 5 emerging economies of the 21st century. It comprises Brazil, China, Mexico, India and South Africa

⁵³ G8 comprises the eight most powerful countries of the world. It comprises UK, the US, Canada, Japan, France, Germany, Italy, and Russia (Russia has been suspended due to Ukraine crisis).

which is needed now if Africa's interests are to be represented in the international community of climate change negotiators. South Africa has proven to possess these skills, especially in terms of its diplomatic skills which became obvious during the Copenhagen climate summit of 2009, whose Accord was crafted by a coalition of emerging powers of Brazil, South Africa, India, and China, in tandem with the US.

However, South Africa was accused of betraying Africa's trust in its decision during the crafting of Copenhagen Accord (Nhamo, 2011). This is because it pledged to reduce GHG emission, which was not the common African position. South Africa was accused of failing to represent Africa's common interests, through its coalition with the great powers. Though this aspect contributes to a leadership failure on South Africa's part, it is not enough to discredit the fact that South Africa poses the symbolic influence, through its coalition ability, to execute directional leadership in Africa. Since South Africa is not a great power but has formed these coalitions with these great powers, it seems to have gotten much leverage to direct Africa's climate affairs, especially in the international community. South Africa is a dominant economic leader in the African continent, and tends to be a major gravitational force for international actors.

It is argued that the post 1998 Mbeki-led South Africa seeks to develop a foreign policy that advance world-order interest, and to improve South Africa's image in the international community after the abolition apartheid policies and system of government (Shelton, 2012). South Africa is also guided by a pan-Africanism, South-South cooperation, and anti-imperialist perspectives (*Ibid*). These perspectives have a direct link towards South Africa's ambition to restructure and foster Africa's regional integration through Africa's Renaissance and the New Partnership for Africa's Development (NEPAD), ideas that owe their origin to Thabo Mbeki's African leadership. Also, South Africa's notable financial and political capital towards the formation NEPAD, and its huge contribution towards the success of the African Union, the Pan African Parliament, other sub-regional institutions such as the Development Bank of Southern African and the South African Customs Union (SACU), is also an immense improvement to South Africa's capacity to direct African affairs. Those characteristics arguably demonstrate its capacity to measure up to the task and the requirements of being a capable continental manager on the issues of climate change.

An important aspect that gives South Africa an upper hand in becoming Africa's leader is not only its international influence or its financial capacity, but its political will and readiness. It is one thing to have the capacity to direct others and another to be ready and willing to do so. An actor that has these two attributes: the actual capacity and the political willingness, is arguably, better positioned to lead than one with only one of these attributes. Right from the time of Nelson Mandela, to the era of Mbeki's African renaissance, and even in the present era of Jacob Zuma, South Africa's foreign policy decision-makers have always been intent on strengthening the country's international leadership role, especially that of African region.

South Africa seems to have given greater expression to this self-prescribed role in its foreign policy implementations, in which climate change is one of the major focuses. The minister of International Relations and Cooperation conceives of South Africa's role thus: 'We have defined ourselves as a progressive agent for positive change. In practice, we have assumed the role of peacemaker and negotiator in Africa, and a champion of Africa's interests abroad.'⁵⁴ South Africa's foreign policy analysts are also of strong opinion that South Africa is strongly intent not only in promoting its material and ideational interests in Africa, for instance, by extending South Africa's business all over Africa as the case seems to be, but also on 'acting out its role conceptions as regional leader and protector, mediator-integrator and bridge' (Alden and Schoeman, 2013: 119).

Furthermore, South Africa can be argued to have emerged as a significant African leader, especially for the role it played in hosting the COP 17 in 2011. Morocco is the only other African country that has hosted the United Nations Climate Change Conference.⁵⁵ South Africa executed a vast amount of leadership during the conference, striving to negotiate a fair and just climate change deal for the world. Though some commentators point to the Durban COP as a historic failure (Ligget, 2011; Fuhr *et al* 2011; Bond, 2012), various other commentators consider it a success, and commend South Africa for its leadership during the process. According to Christian Figueres, the UNFCCC executive secretary, 'the South African presidency steered through a long and intense conference to a historic agreement that

⁵⁴ Maite Nkoana-Mashabane, 'SA's Aims: Champions of Africa's Interest Abroad', *Sunday Independent* of 15 January 2012, p.6

⁵⁵ COP 22 was held in Marrakech, Morocco from 7 – 18 November 2016.

has met all major issues'⁵⁶. Similarly, South Africa's international relations minister and president of COP17 reported that 'we have taken crucial steps forward for the common good and the global citizenry today. I believe that what we have achieved in Durban will play a central role in saving tomorrow, today'⁵⁷.

South Africa's exercise of entrepreneurial leadership is also marked by its mediating spirit. Under the Kyoto Protocol, South Africa, like all other developing countries, falls under non-annex 1 country. This means that it is not under any obligation to meet the terms of the Protocol's target of reducing GHG emissions. This could arguably be justifiable, as developing countries contribute less to the current state of global climate change. Developed countries have long been involved in industrialization while some of the developing countries only recently got involved.

However, critics, such as the USA sees this differentiation as unjustifiable, stating that some developing countries are currently producing high emissions, and hence, ought to also take full responsibility towards mitigation. This approach has since been found to have taken the progress of global action to mitigate climate change backward. Nonetheless, the differentiation was a possible impediment to climate change mitigation, as it fails to serve as a deterrent through penalizing those developed countries that fail to adopt ecologically-sound domestic economic policies. Some of them claim that developed countries could not have reached their current level of development without their aggressive level of industrialization. One can see that this crisis, instead of speeding up the global efforts to combat climate change, is only capable of drawing back the progress made so far. In this consideration, South Africa can be considered as a leader for being able to mediate this crisis. South Africa has acted as a mediator. Despite having no obligation to the Protocol, South Africa still acts as a mediator (and leader) by taking up binding emission reduction targets. This move serves to appease the envy of developed countries. According to Nhamo (2009), South Africa's involvement with the G5, and its approaches to climate change at Copenhagen indicates a robust climate change leadership and a change in the climate change leadership status quo.

⁵⁶ Refer to Parker, 2011. Available at www.thepresidency.gov.za/content/role-south-africa-climate-change-process.

⁵⁷ *Ibid*

6.5 Is South Africa's Climate Change Leadership Demanded in Africa?

There are two sides to leadership. On one side is the supply of leadership by the actual or potential leader. On the other side is the demand of leadership by the followers. Leadership can be viewed as a relationship; it is a relationship between two actors: a leader and a follower. Leadership literature asserts that effective leadership occurs only when there is a match between the supply of leadership and the demand for that leadership by the followers (Karlsson, *et al* 2012). Moreover, leadership analysts suggest that in a situation of two actors with relatively different power levels, the actor with more power (economically, financially, and otherwise) usually emerges as the leader (Schoeller, 2015). A potential leader is also seen as the actor that is willing to take up the responsibilities that are required of a leader. However, as suggested here, it seems that willingness and capacity need to go with the demand for a certain leadership before the leader-follower relationship is qualified as effective.

South Africa has, on a few occasions behaved as Africa's leader. It required its position at COP to align with that of the Africa's Group. However, at the events at COP15 at Copenhagen, South Africa was accused of betraying Africa's trust, and making a self-interested decision during the COP processes and the agreements that proceeded from it (Nhamo, 2011). South Africa went on, in alignment with the BASIC group of countries to pledge an emission reduction target, despite the Africa's Group's agreement that African countries should allow developed countries to take responsibility of mandatory emission reduction. One can see here that whilst other African countries advocated for climate change solutions centered on adaptation, South Africa was pushing for both adaptation and mitigation agenda. This may not be surprising, especially considering South Africa's large industrial base, which has made the country as one of the major world emitters of greenhouse gases.

Moreover, South Africa's accusation of 'going it alone' also surfaced during the previous climate change summit in Accra, Ghana, in 2008. South Africa was accused of poor leadership when it went on to spell out voluntary mitigation targets, contrary to the position of Africa's Group, which promoted full adaptation (cited in Nhamo, 2011). Such accusations could put South Africa in a very delicate position of not being acknowledged as a leader by its African peers. There appears to be a concern on its ability to suspend, or at least balance

its interests with the interests of the African continent. South Africa's position at Copenhagen is reported to have created some enmity with Africa's Group (Bond 2009), and with the G77+China group, as some members of these group felt that South Africa had put them in an unnecessary climate compromise which led to group conflicts. However, though South Africa's move in Copenhagen was despised by other African countries, the initiative qualifies as leadership in the international arena. The fruits of South Africa's move to take up emission target at COP 15 greatly contributed towards spurring the US's later participation in climate change. The US had earlier refused to take up binding emission targets because it argued that other major economies did not had to take mandatory participation in emission reduction. This negligence changed in COP 21, as the US not only took up emission reduction targets, but also became an active leader and coerced other countries to take up binding emission targets.

6.6 Challenges to South Africa Climate Change Leadership in Africa

There are possible challenges likely to be faced by South Africa in its climate change leadership in Africa. These challenges are besides the domestic challenges that the country is already facing in implementing the international climate change treaties. Such challenges include ensuring that actions on climate change do not retard the sustainability of development. There is still much poverty in the country, and the rich-poor gap is still relatively wider than that of other African countries. Yet, as a major emitter of greenhouse gas globally, and the largest in Africa, South Africa faces the challenge of taking a greater share of emission reduction responsibility. These and other challenges confront South Africa in its implementation of global climate change treaties. Nonetheless, besides these kinds of challenges, South Africa will most likely face huge challenges in its leadership role in African climate change discourse. One of such challenges is how to gain the trust of its African peers.

As was explained earlier, South Africa has succeeded in building coalitions with many developed countries. This is due to South Africa's global status, which situates the country between the developed and developing world. This status has on several occasions put South Africa in a difficult situation during international climate change negotiations. South Africa is trapped in a dilemma of maintaining a dual identity in some international negotiations (Atteridge 2010). It often acts as a bridge builder between developing countries' position and

that of developed countries or major economies. This was evident in South Africa's stance at COP 16, as South Africa mainly aligned with the BASIC +USA group in its decisions. This attitude spurred some accusations and distrust from fellow African countries and some other developing nations, of the genuineness of South Africa's intentions. It raised distrust regarding South Africa's capability and willingness to prioritize Africa's interests over the interests of the developed countries. Sometimes, the interest of developed countries differs from interests of African countries. In such instance, it becomes a challenge for South Africa, which is in the midst these two negotiating groups, to balance the competing interests of the different international partners.

Another challenge that South Africa is likely facing is the issue of balancing between mitigation and adaptation actions. South Africa, because of its high emission level, tends to feel more responsible than other African countries to mitigate climate change. It has even taken huge steps towards mitigation more than it seems to do on adaptation. This is evident in many of its domestic climate change policies which seek to reduce emission by 34% by the year 2035. Madzwamuze (2010) notes that South Africa needs to pay equal attention to adaptation as it does with mitigation, especially since the country still has great number of poor people. Focusing more on mitigation, without equal consideration to adaptation is likely to disadvantage the poor in the country who suffer the greater consequences of climate change disaster.

6.7 Conclusion

This chapter has illustrated the different behavior through which South Africa shows potential of leadership by meeting the different requirements for structural, directional, and entrepreneurial leadership. As a structural leader, South Africa has a powerful economy in Africa. It has invested huge financial resources into tackling climate change problem, which has made it stand out amongst its African peers. As a directional leader, South Africa has shown different initiatives to transit the country into a low carbon economy. Initiatives such as feed-in tariffs system, photovoltaic PV modules, electric cars (joule), managing climate change at the local levels (bottom up approach), Renewable Energy Independent Power Producer Programme (REI4P) are all innovations that set the pace for other countries to follow in their goal of tackling climate change. Moreover, as an entrepreneurial leader, South Africa has formed issue-linkage coalitions not only with Economies in Transition, but with

the developed countries to foster solutions to climate change problems. The chapter also shown some challenges that South Africa is likely to encounter in its leadership of climate change discourse in Africa. Issues of distrust from other African countries and an inability to balance mitigation with adaptation are possible challenges that South Africa is likely to face in its climate change leadership.

CHAPTER SEVEN

SUMMARY AND GENERAL CONCLUSION OF THE STUDY

7.1 Summary

The research paper sought to explore South Africa's prospects of leading the African climate change discourse. Experts describe climate change as a variation in the climatic conditions of the earth over several decades. It can be a change in the weather patterns, rainfall patterns, wind patterns, or precipitation patterns, measured over several decades. Climate change affects different regions differently. Some regions may experience its effects in form of excessive rainfall or rise in sea level, while some may experience it in form of drought, and excessive heat, depending on the regions position in the earth's pole. Climate change is also considered as the causal factor of the incessant environmental disasters - such as flood, drought, excessive rainfall, and storm – that we experience today (IPCC, 2007). Catastrophic effects of climate have, in one way or the other, led to social and political conflict, poverty, and decrease in countries GDP, amongst others (Salehyan & Hendrix, 2012; Barnett & Adger, 2007; Brown, Hammill & McLeman, 2007; AMCEN, 2014). Though the effects of climate change is felt globally, it is observed that Africa is the most vulnerable continent to the effects of climate change (*Ibid*). This is due to the agrarian nature of the continent, as most African countries depend on primary resources for their growth. Africa is also suffering from poverty. The poor condition of then make it extra challenging for people in Africa, especially the poor, to adapt to the severe climate change impacts.

Climate change was previously linked to some natural factors or causes, such as change in Earth's distance from the sun, regular shifts in the Earth's Orbital cycle, and large volcanic eruptions that are capable of emitting light-reflecting particle into the earth's upper atmosphere (NOAA, 2007). However, around the 1970's, scientists in the World Meteorological Association declared that human activities form a high contributing factor to

climate change. Human actions, such as combustion of fuels, releases carbon dioxide and other greenhouse gases to the atmosphere, which contribute in heating up the atmospheric layer that protects the earth from the direct heat of the sun (NASA, 2014). These activities therefore result in climate change.

During the past few years, the global community has put some concerted efforts towards mitigating climate change. Appropriate response strategies have been put in place to react to climate change. This led to the drafting of the United Nations Framework Conventions on Climate Change (UNFCCC) during the Earth Summit held in Rio de Janeiro, Brazil in 1992. Though the 1992's Summit did not achieve much in terms of setting targets for nations to limit GHG emission, it was an important preparation for the drafting of the Kyoto Protocol, in 1994, in Kyoto, Japan. The Conference of Parties held in Kyoto is the hallmark of international response to global climate change challenges. It set a legally binding emission targets for parties to adhere to mitigate climate change. One important development at the Kyoto Summit was recognizing the value or of Common but Different Responsibilities and respective Capacities (CBDRC). It was recognized that though climate change is a global problem, and its effects felt by every country, some countries – the developed countries – contributed more to cause climate change, and hence, should assume a greater responsibility for its mitigation.

The vast increase in the rate of global warming in the past two centuries has been attributed to the rising level of industrial activities. Records by IPCC (2007a) have shown a greater increase in the amount of greenhouse gas in the atmosphere in the post-industrial era, as compared to pre-industrial era. This is connected to human activities that emits these greenhouse gases into the atmosphere. As the higher increase in global warming is attributed to higher level of industrial activities, it would not be implausible to assert that the developed country, whose industrial activities may be at a much higher level than developing countries, contributes relatively higher to the cause of climate change than their developing counterparts. The developed world have long been opened to industrialization; hence, to causing climate change. After the Kyoto summit, the global community has been holding yearly summits, referred to as the Conference of Parties, COP. COP remains the highest governing body of the United Nations Framework Conventions on Climate Change. Though this study was not able to discuss all the COP since the Kyoto COP, the significant ones discussed include the Copenhagen summit, the Durban summit, and the Paris summit. These

conferences resulted in the Copenhagen Accord, the Durban Platform for Enhanced Action, and the Paris Agreement respectively. These different binding documents have contributed in enhancing the international action to combat climate change.

The Copenhagen Accord was very essential at resolving the schism between industrialized and developing countries as regards who should take up emission reduction targets. Countries pledge to submit their different national emission reduction plans to the COP by January 2010. The Copenhagen COP experienced a great leadership by BASIC+USA in forging international agreements that were to later facilitate the 2015 Paris Agreements. The Durban Platform for Enhanced Action was fundamental at enhancing an inclusive action to climate change. Developing countries were persuaded to participate at taking up mitigation targets. However, this was done on the Principle of Common but Different Responsibility and Respective Capacity (CBDR). Developing countries took emission reduction targets on the condition that developed countries release aid to assist them in combating climate change.

The Paris summit was the most recognized COP since Kyoto summit. It was very significant as it was able to arrive at a legal treaty to bind all countries to take up voluntary emission reduction targets. Paris summit was also more essential than the previous summits, as Paris Agreement was crafted within international law. The agreement allowed countries to take up emission reduction depending on their national circumstances. Balancing adaptation initiatives with mitigation initiatives is also given a crucial consideration in the Agreement.

This study explored the different policies and actions taken by South Africa in its response to climate change challenge. The South African White Paper on Climate Change is fundamental in stressing the South African Climate Change Response Strategy. South Africa forms one of major producers of GHGs in the world, and the largest in Africa. In response, the country is committed to acting as a global citizenry in taking appropriate actions to contribute towards global effort to combat climate change. South Africa's policy on climate change mitigation, as illustrated in the White Paper adopts the Peak-Plateau-Dcline trajectory range. Emissions are to peak till 2025, remain unchanged between 2025 and 2030 and then begin to decline. South Africa has also given significant huge consideration to climate change in its NDP vision 2013. It seeks to set policies in place that will ensure that the citizens are climate change resilient by 2030. One significant strategy that South Africa adopts to combat climate change is by including mandatory climate change mitigation strategies in all sectors and

ministries in the country. This research also explored the different ways South Africa has exercised the three methods of building coalition with other African countries, and challenge of its leadership being demanded by its African peers.

7.2 General Conclusion and Recommendations

Climate change poses serious concerns to humanity, especially in Africa. African countries are more vulnerable to climate change due to the nature of its economy, which depends mostly on primary products. The international community is giving response to climate change catastrophe through the yearly COP, where countries meet to seek interventions to the problem. During COP, national governments and negotiating groups represent countries and voice out their interests. Though some African countries are members of other negotiating coalitions, the African continent as a whole is represented in the COP as the African Group. Many efforts have been put in place to secure Africa's voice and interests in the international community of negotiators. However, literature shows that Africa is still underrepresented in this forum. This underrepresentation is due to insufficient leadership on the continent. South Africa has severally put itself up as Africa's leader on global issues. But the one question that formed the main aim of this research is 'what qualifies South Africa to be Africa's leader on climate change discourse'?

This study employed the leadership theory to explore South Africa's potential of leading Africa in climate change discourse. It is argued that South Africa stands at a better position, compared to other African countries, to be an African leader in climate change discourse. In the assessment of the factors that qualify South Africa as a potential leader in African climate change discourse, the study has identified factors such as international influence, coalition building, shift towards a lower-carbon economy, and including of climate change actions into the different sectors of the economy, and huge investment in climate change actions as factors that distinguish South Africa as potential leader in climate change discourse in Africa.

Underdal definition of leadership as 'an asymmetrical relationship of influence in which one actor guides or directs the behaviour of others toward a certain goal over a certain period of time' informed this study (1994:178-179). This influence must be a positive influence to qualify an actor as a leader. South Africa has exercised positive international influence on issues that pertain global discourse on climate change. South Africa was critical at the crafting of many international agreements on climate change, such as the Accra Accord, the

Copenhagen Accord, the Durban Platform for Enhanced Action, and the Paris Agreements. South Africa, in collaboration with China, India, Brazil and the USA, heavily influenced, the success of Copenhagen Accord. South Africa was able to facilitate the inclusivity of developing countries in the global climate change mitigation initiatives. South Africa led by example, despite the criticism from some developing countries, including the African Group when it made the move to pledge for a commitment towards emission reduction at Copenhagen. South Africa's international influence has fostered much coalitions between the country and other Major Economies. This coalition singles South Africa out, among its Africa peers, as a strong and significant agent in global in climate change leadership. It has placed South Africa on top of the hierarchy of countries that can represent Africa's voice and interest in the global community of negotiators. The coalitions exhibit South Africa's entrepreneurial leadership in climate change discourse.

Furthermore, South Africa is exemplary in its initiatives towards a shift to a considerable low-carbon economy. South Africa has shown directional leadership in initiatives such as feed-in tariffs and carbon taxation. These initiatives are proclaimed worldwide as novel ideas that other countries need to learn from in their endeavour to respond to climate change challenges. South Africa has also shown directional leadership in the way it incorporates climate change mitigation strategies into different sectors of the economy. Every sector and ministry is obliged to include climate change mitigation strategies in their plans, and to publish efforts made from time to time. One important aspect that also distinguishes South Africa as a directional leader is the issue of green technology. South Africa is undoubtedly an African leader in green technology, as no other country as yet introduce electric cars on its road. South Africa has introduced about three hundred electric cars on its road, and has pledged to introduce several thousand by the year 2050. On issues of green technology, South Africa has undoubtedly made a significant move that shows its potential of leading African climate change negotiation and discourse.

South Africa is also a role model in the practice of a bottom-up approach to tackling climate change challenges. This approach involves tackling climate change from the grassroots or local governments. Despite being a relatively smaller country compared to Nigeria and some other African countries, South Africa has had four cities as members of the C40 group. This initiative presents a model worth learning from. It is a positive influence, which qualifies an actor as a leader.

South Africa is demonstrably a structural climate change leader. This is shown in its huge investments in climate change actions. South Africa does not only demonstrate positive influence in climate change combat through policies and rhetoric, it has invested millions of dollars into ensuring that its climate change actions ensures sustainable development. Exercising entrepreneurial and directional leadership strengthened by economic backing. The findings in this research confirm that South Africa demonstrably backs up its stance iterations with action (which requires finances), and this could arguable place South Africa as the stronghold structural leader or potential leader in climate change discourse in Africa. The large amount of finance that South Africa allocates to climate change initiatives and actions in its 6-point goals in National Development Plan also suggest South Africa's substantial structural leadership.

It is noted that despite the potentials for climate change leadership shown by South Africa, its leadership is not devoid of challenges. These challenges are outline to include balancing between mitigation and adaptation and establishing more coalitions with other African countries. These two challenges culminated to South Africa wavering in gaining the trust of its African peers. In some instances, South Africa seemed to have aligned more with the developed countries and other powerful economies in climate change negotiations, sometimes even seeming to trade African Group's position for the position of its allies, raises huge suspicion by other African countries of the candidness of its intentions to protect Africa's interests. To restore the trust of its African peers, it is recommended that South Africa begins to build more climate change action coalitions with that of other African countries. This will allow South Africa to begin to align its interests with the interest of other African countries and also to strengthen its alignment with the Africa Group. Building and strengthening these coalitions will enable South Africa identify areas of interests of other African countries, and with its expertise, influence, and structural power, intervene where necessary.

Finally, it would also be crucial that South Africa takes cognizance of the rural areas' contributions to climate change. It is common to attribute higher responsibility of GHG emissions to cities, especially due to the concentration of industries and productions sites in cities. Cities could also be logically argued to contribute higher percentage of GHG due to the higher concentration of people there, which results in high consumption. However, scholars argue that much responsibility for emission is to be borne not by those who produce the

emissions, but rather those who consumes the products whose production led to the generating of GHG (Satterthwaite, 2008; Bastianoni, Pulselli & Tiezzi 2004). According to Bastianoni, Pulselli & Tiezzi (2004) argue that responsibility for emission should be shared between the consumer and the producers. The consumer should bear a higher responsibility but also have the choice of choosing an optimal producer with the best environmental performances and morality (*Ibid*). In this manner, the producer would be encouraged to choose the best environmental policies so as to attract trade from consumers or buyers of their products. So, it seems that this is something South Africa needs to consider in its future formulation of climate change policies. South Africa should apply any means appropriate – even if it means putting high tariffs on goods whose production might have led to high emission of GHG – to encourage other high emitting countries to reduce their emissions. This approach would enable South Africa to strengthen its entrepreneurial leadership on climate change, not only in Africa, but beyond.

BIBLIOGRAPHY

- Alden, C & Schoeman, M 2013. 'South Africa in the company of Giants: The Search for Leadership in a Transforming Global Order', *International Affairs*, 89 (1), 111-129.
- Alden, C & Schoeman, M 2015. 'South Africa's Symbolic Hegemony in Africa. *International Politics* 52: 239-254. Available at: https://repository.up.ac.za/bitstream/handle/2263/51617/Alden_South_2015.pdf?..
- Alley, R., Nordhaus, W., Overpeck, J., Peteet, D., Pielke Jr., R., PierreHumbert, R., Rhines, P., Stocker, T., Tally, L., & Wallace, J 2003. Abrupt Climate Change. *Science* 299, 2005-2010.
- AMCEN, 2015. 'African Strategy on Climate Change, Draft African Union Strategy on Climate Change, May 2014. Available at: www.un.org/en/africa/osaa/pdf/au/cap_draft_aclimatestrategy_2015.pdf. [Accessed: 12 August 2015]
- Aukkonen, J., Blanco, P., Lenhart, J., Keiner, M., Cavric, B., & Njenga, C 2009. Combining Climate Change Adaptation and Mitigation Measures at the Local Level, *Habitat International*. 33(3), 287-292.
- Barber, D 2014. 'Top Renewable Energy Investment Destinations in Africa', *AFK Insider*, Available at: afkinsider.com/80168/top-renewable-energy-investment-destinations-africa/
- Barnet, T., Pierce, K., AchutaRao, P., Gleckler, B., Santer, J., Gregory, J., & Washington, W 2005. 'Penetration of Human-Induced Warming into the World's Oceans'. *Science*. 309(5732), 284-287.
- Barnet, J & Adger, W 2007. 'Climate Change, Human Security and Violent Conflict', *Political Geography*, Vol. 26(6), 639 -655.

- Bass, B 1985. *Leadership and Performance beyond Expectations*. New York: Free Press.
- Bastiannoni, S., Pulselli, F & Tiezzi, E 2004. The Problem of Assigning Responsibility of Greenhouse Gas Emission. *Ecological Economics*, 49(3), 253 – 257.
- Black, R., Benet, S., Thomas, S., & Bedington, J 2011. 'Climate Change: Migration as Adaptation', *Nature*, (478), 447-449.
- Bodansky, D. 2001. 'The history of the global climate change regime'. In: Luterbacher, U & Sprinz, D. ed. 2001. *International relations and global climate change. Research Quarterly* 64(2) ed., 23-42. Cambridge: MA: MIT Press.
- Bond, P 2009. *Curing the Post-Copenhagen Hangover*. Available at:
<http://climateandcapitalism.com/?p=1455> (Accessed 28 December 2016)
- Bond, P 2012. 'Market failure at Durban's climate summit', *South African Geographical Journal*. 94(2), pp.89-102.
- Brown, O., Hammill, A & McLeman, R 2007. 'Climate Change as the New' Security Threat: Implications for Africa', *International Affairs*, 83 (6).
- Buhaug, H., Gleditsch, N., & Theisen, O 2008. 'Implications of Climate Change for Armed Conflict', A Working Paper presented for the World Bank workshop on *Social Dimension of Climate Change*, March 2008. Available at:
<https://yosemite.epa.gov/ee/epa/erm.nsf/vwan/ee-0566-122.../ee-0566-122.pdf>.
[Accessed: May 30, 2017].
- Burns, J 1978. *Leadership*. New York: Harper & Row.
- Chevalier, R 2009. Addressing Mitigation of and Adaptation to Climate Change in Sub-Saharan Africa While Meeting Development Goals, *South African Yearbook of International Affairs*. 2008/2009. Johannesburg: SAIIA

- Centre for Environmental Rights, 2016. ‘Comments on the Draft Declaration of Greenhouse Gases as Priority Pollutants & the National Pollution Prevention Plans Regulations’. Available at: <https://cer.org.za/.../CER-comments-on-the-Declaration-of-GHGs-as-priority-pollutant>. Accessed: November 3, 201.
- Chevalier, R. 2011. COP 17: “What Role for South Africa as an Agent of Change?” SAIIA Policy Briefing No. 38. Cape Town: South African Institute of International Affairs.
- Christoff, P 2016. ‘The Promissory Note: COP 21 and the Paris Climate Agreement’, *Environmental Politics*, VOL. 25, NO. 5, 765–787. Available at: <http://dx.doi.org/10.1080/09644016.2016.11918187>.
- Clemencon, R 2016. ‘The Two Sides of the Paris Climate Agreement: Dismal Failure or Historic Breakthrough?’ *Journal of Environment & Development*, Vol.25 (1), 3 -24.
- Climate Action Network, 2018. ‘Greenpeace Africa’. (Online). Available at: www.climatenetwork.org/profile/member/greenpeace-africa. [Accessed: 20 November, 2017].
- Collier, P., Conway, G., & Venables, T 2008. ‘Climate Change and Africa’, *Oxford Review of Economic Policy*, 24 (2): 337-353.
- Death, C 2011. ‘Leading by Example: South African Foreign Policy and Global Environmental Politics’, *International Relations* 25(4) 455–478. (Online). Available at: ire.sagepub.com/content/25/4/455.short.
- Death, C 2011. ‘Leading by Example: South African Foreign Policy and Global Environmental Politics’, *International Relations* 25(4) 455–478. (Online). Available at: ire.sagepub.com/content/25/4/455.short.
- Death, C 2014. The Green Economy in South Africa: Global Discourses and Local Politics, *Politikon*, 41:1, 1-22, DOI: 10.1080/02589346.2014.885668.

Department of Water and Environmental Affairs, 2009. Copenhagen Climate Meeting

20 December 2009. Pretoria: Department of Water and Environmental Affairs.

Development Bank of South Africa, DBSA, 2011. 'Programmes in support of transitioning

South Africa to a green economy'. Development Planning Division Working Paper Series No. 24. Available at: www.sagreenfund.org.za/.../DBSA-Working-Paper-Series-24.-Programmes-in-Support

Dongo, L 2014. Negotiating Africa's Interests on Climate Change: The African Group of

Negotiators. [Online]. Available at: <https://climate-exchange.org/2014/03/13/negotiating-africas-interests-on-climate-change-the-african-group-of-negotiators/> [Accessed: 17 June 2016].

eThekweni Municipality, 2014. *Durban Joins C40 Cities Climate Leadership Group as an*

Innovator City. Resource Centre Newsletter, 12 March 2014 (Online). Available at: www.durban.gov.za > eThekweni Municipality > Resource Centre > Newsletters

Energy Information Administration, 2012. International Energy Statistics. Available at:

<http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm>

Environmental Planning and Climate Protection, 2011. Durban Research Action Partnership

eThekweni Municipality. (Online). Available at: www.durban.gov.za > ... >

Environmental Planning & Climate Protection > Projects. [Accessed: 20 January 2017].

Figueres, C. & Ivanova, M 2002. Climate Change: National interests or a global regime? In:

Global Environmental Governance: Options & Opportunities. Esty, D & Ivanova, M (eds.), (Online). Available at: <http://www.yale.edu/environment/publications/> [Accessed: 17 June 2016].

Frankhauser, S & Schmidt-Traub, P 2010. *From Adaptation to Climate-resilient*

Development: the Costs of Climate-proofing the Millennium Development Goals in Africa, Centre for Climate Change Economic and Policy, Grantham Research Institute on Climate change and the Environment. London: London School of Economics and Politics.

Fuhr, L., Schalatek, L & Omari, K 2011. 'COP 17 in Durban: Largely Empty

Package. *Berlin: Heinrich Böll Stiftung*.

Gallagher, D 2012. 'Why Environmental Leadership?' In: D. Gallagher, ed. 2012.

Environmental Leadership – A Reference Handbook 1. London: SAGE Publications, Inc.

Giddens, A 2009. *The Politics of Climate Change*. Cambridge: Polity Press

Global Humanitarian Forum, 2009. Human Impact Report on Climate Change. (Online).

Available at: <http://www.ghf-ge.org/human-impactreport.pdf> (Accessed: Sept. 2017).

Gordhan, P 2013. 2013 Budget Speech – National Treasury. Available at:

www.treasury.gov.za/documents/national%20budget/2013/speech/speech.pdf.
[Accessed: 12 August 2015].

Gupta and Ringus, 2001. 'The EU's Climate Change Leadership: Reconciling Ambition with

Reality', *International Environmental Agreements: Politics, Law and Economics* **1**: 281–299.

Haas, P 1990. *Saving the Mediterranean*. New York: Columbia University Press.

Heifetz, R., Grashow, A., & Linsky, M. 2009. *The Practice of Adaptive Leadership: Tools*

and Tactics for Changing Your Organization and the World. Harvard: Harvard Business Press.

- Horgat, R., Tyldesley, S., Cole, M., & King, D 2012. 'Future Trajectories of Climate Change Negotiations and their Implications for South Africa. A report produced by the Smith School of Enterprise and Environment for Centre for Development and Enterprise, University of Oxford. Available at: www.cde.org.za/.../Future%20trajectories%20of%20climate%20change%20negotiations. [Accessed: 20 June 2018].
- Hope Sr, K 2009. 'Climate change and poverty in Africa', *International Journal of Sustainable Development & World Ecology*, 16:6, 451-461
- Hoste, J 2010. Where Was United Africa in the Climate Change Negotiations? *Africa Policy*. Hart (Eds), *Oxford Handbook of Political Leadership* (p.580-594). Oxford: Oxford University Press.
- House, R 1996. 'Path-Goal Theory of Leadership: Lessons, Legacy and a Reformulated Theory. *Leadership Quarterly* 7(3), pp. 323-352.
- Houser, T 2010. 'Copenhagen, the Accord, the Way Forward', Policy Brief, No. PB 10-5. *Peterson Institute for International Economics*.
- IPCC, 2007. Working Group II 2007: Glossary of Terms. IPCC Fourth Assessment Report: Climate Change 2007, Working Group II: Impacts, Adaptation and Vulnerability. Available at: http://www.ipcc.ch/publications_and_data/ar4/wg2/en/annexessglossary-a-d.html. [Accessed, August 2014].
- IPCC. 2001. Climate Change 2001: Synthesis Report. Intergovernmental Panel on Climate Change. Available at: <https://www.ipcc.ch/ipccreports/tar/vol4/english/>. (Accessed: August 2016).

- Kanie, N 2003. *Assessing Leadership Potential for Beyond 2012 Climate Change Negotiation: Elaborating a Framework of Analysis*. Available at: citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.466.9245&rep=rep1... Accessed: 5 December 2016.
- Kalof, L., Dan, A., & Dietz, T 2008. *Essentials of Social Research*. Berkshire: Open University Press.
- Karlsson, C., Hjerpe, M., Parker, C., & Linne'r, B.-O. 2012. The Legitimacy of Leadership in International Climate Change Negotiations. *Ambio*, 41(1) 46-55.
Doi: [10.1007/s13280-011-0240-7](https://doi.org/10.1007/s13280-011-0240-7)
- Ki-Moon, M 2018. 'US has Caused Serious Damage to Paris Climate Efforts'. Guardian Online Newspaper, 5 March 2018. Available at: <https://www.theguardian.com/.../ban-ki-moon-us-paris-climate-agreement-withdrawal>. [Accessed: 20 June 2018].
- Kings, S 2017. *SA Promises Three Million Electric Cars*, Mail & Guardian, 7 April 2017.
(Online). Available at: <https://mg.co.za/article/2017-04-07-00-sa-promises-three-million-electric-cars>. [Accessed: 7 June 2018]
- Lambert, G 2015. *Leading Global Collaboration in Climate Change Standards*. Available at: <https://www.iso.org/news/2015/12/Ref2031.html>. Accessed: November 7, 2017.
- Ligget, B 2011. 'COP17: Talks in Durban End With Failure to Cut Current Global Emissions'. Available at: inhabitat.com/cop17-talks-in-durban-end-with-failure-to-cut-current-global-emission.
- Lisk, F. 2009. 'Overview: The Current Climate Change Situation in Africa', in: Besada, H & Sewankambo, N. eds. 2009. *Climate Change in Africa: Adaptation, Mitigation and Governance Challenges*. Centre for International Governance Innovation (CIGI) Special Report. Available at: http://www.unicef.org/esaro/Climate_Change_in_Africa.pdf. (Accessed Sept., 2016).

- Malnes, R 1995. 'Leader' and 'Entrepreneur' in International Negotiations: A Conceptual Analysis. *European Journal of International Relations*, 1(1), 87 -112.
- Marchiori, L., Maystadt, J & Schumacher, I 2012. *The Impact of Weather Anomalies on Migration in Sub-Saharan Africa*. Journal of Environmental Economics and Management. 63(3), 355-374
- McMichael, A., Barnett, J & McMichael, C. An Ill Wind? Climate Change, Migration, and Health. *Environmental Health Perspectives*. 120(5), 646–654.
- Moore, T 1998. *Climate of Fear*. Washington, DC: Cato Institute.
- NASA, 2015. *Global Temperatures: Global Mean Temperatures as an Indicator of Global Climate Change*. *Exploring the Environment*. Available at: http://ete.cet.edu/gcc/?/globaltemp_teacherpage/. (Accessed 23, August, 2016).
- NASA, 2016. *Global Temperature*. (Online)
Available at: <https://climate.nasa.gov/vital-signs/global-temperature> [Accessed: 21 May 2017]
- NASA, 2017. *Nasa Points Causes of Earth's Recent Record Carbon Dioxide Spike*. (Online News). Available at: <https://climate.nasa.gov/.../nasa-pinpoints-cause-of-earths-recent-record-carbon-dioxid...> [Accessed: 20 November, 2017].
- Nelson, M 2016. Africa's Regional Powers and Climate Change Negotiations. *Global Environmental Politics*, 16 (2), 110-129. Available at: www.mitpressjournals.org › Global Environmental Politics. Accessed: December 6, 2016
- NDP, 2009. 'National Development Plan. South African' National Planning Commission. Available at: www.nationalplanningcommission.org.za/Documents/devplan_ch3_0.pdf. Accessed: 6h May 2016.
- Ng, K., Ang, S., & Chan, K 2008. 'Personality and Leader Effectiveness: A Moderated

Mediation Model of Leadership, Self-efficacy, Job demands, and Job autonomy.
Journal of Applied Psychology, 93(4), 733-743.

Nhamo, G 2011. 'South Africa in Climate Negotiations: Challenges from Copenhagen via Cancun to Durban 9/12', *International Journal of African Renaissance Studies*, 6 (2), 5-35 University of South Africa Press.

Nhamo, G 2014. From Sustainable Development through Green Growth to Sustainable Development Plus. *International Journal of Africa Renaissance Studeis*. 2(2), 20-38. Available at: <https://doi.org/10.1080/18186874.2014.987953>. [Accessed: 20 November 2017].

NOAA 2015. *Trends in Atmospheric Carbon dioxide, Earth System Research Laboratory Global Monitoring Division*. Available at: <http://www.esrl.noaa.gov/gmd/ccgg/trends/>. (Accessed, 16, September, 2017).

Parker, C. & Karlsson, C 2014. 'Leadership and International Cooperation'. In: Rhodes. R & t' Hart, P. eds. 2014. *The Oxford Handbook of Political Leadership*. Oxford: Oxford University Press.

Parker, C., Karlsson, C., Hherpe, M & Linner, B. (2012). Fragmented Climate Change Leadership: Making Sense of the Outcome of COP-15. *Environmental Politics*, 21(2), 268-286, DOI: 10.1080/09644016.2012.651903.

Patel, E 2011. *Green Economy Accord to Create Jobs, New Investments*. SA Commercial Props New, 17 November 2011. (Online). Available at: www.sacommercialpropnews.co.za/south-africa-economy/3889-green-economy-accor... [Accessed: 20 June 2018].

Peri, G & Cattaneo, C 2016. *The migration response to increasing temperatures. Journal of Development Economics*, 122(C), 127-146

Pham, A 2017. 'Africa's Economic Prospects in 2017: Ten Countries to Watch'.

Available at: www.atlanticcouncil.org/.../africasource/africa-s-economic-prospects-in-2017-ten-cou.

Pielke, R 2004. What is Climate Change? [*Issues in Science & Technology*](#), 20(4), 31-34.

Prather, M. 2007: Historical Overview of Climate Change. In Solomon, S., Quin, D., Manning, M., Chen, Z., Marquis, M., Averyt, K., Tignor, M., & Miller, H. eds. 2007. *Climate Change 2007: The Physical Science Basis*. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press

RSA, 2012. *National Climate Change Response White Paper*, Available at:

www.energy.gov.za/.../SA_ClimateChangeResponsePolicyImplementation_30March2. Accessed: 7 July 2016.

RSA, 2015. *South Africa's Position on Climate Change Ahead of UNFCCC COP21 Summit*,

President Jacob Zuma's Statement in preparation for COP 21. Available at: <https://www.sanews.gov.za/.../south-africa's-position-climate-change-ahead-unfccc-co>. [Accessed: 20 November 2017].

RSA, 2015. South Africa's Intended Nationally Determined Contribution. (Online).

Available at: https://www.environment.gov.za/sites/default/.../sanational_determinedcontribution.pdf. [Accessed: 5 August 2017].

RSA, 2016. *Development of the Integrated Energy Plan*, presentation at Stakeholder

Consultation Workshops. Available at: www.energy.gov.za/IRP/irp.../Development-of-the-Integrated-Energy-Plan-DoE.pdf.

Reuveny, R 2007. 'Climate Change-Induced Migration and Violent Conflict'. *Political Geography*, 26(6), 656-673.

Reuters, 2012. South Africa Okays \$5.4 b in Clean Energy Projects. Available at:
www.reuters.com/article/safrica-power-idUSL5E8LTD8K20121029.

Rigg, K 2011. What will it take for Durban Climate Change Conference to End Positively?
(Online). Available at:
<https://www.theguardian.com>...>Durbanclimatechangeconference2011>. [Accessed: 11 September 2017].

Rong, F 2010. 'Understanding Developing Country Stances on post-2012 climate Change Negotiations: Comparative analysis of Brazil, China, India, Mexico, and South Africa', *Energy Policy, Elsevier*. 38 (8), 4582–4591.

Ruddiman, W 2003. 'The Anthropogenic Greenhouse Era Began Thousands of Years Ago' *Climate Change*, vol. 61(3), pp. 261-293.

Satterthwaite, D 2008. Cities' Contribution to Global Warming: Notes on the Allocations of Greenhouse Gas Emissions. *Environment & Urbanization*, 20(2). 539 -549.

Savaresis, A 2016. The Paris Agreement: A New Beginning? *Journal of Energy & Natural Resources Law*, 34(1), 16-26, DOI: 10.1080/02646811.2016.1133983.

Sewankambo, N 2009. Climate Change and Health: An Issue with Great Potential for Exacerbating Health Inequities in Africa. In: Besada, H & Sewankambo, N. eds. 2009. *Climate Change in Africa: Adaptation, Mitigation and Governance Challenges*. Centre for International Governance Innovation (CIGI) Special Report. Available at: http://www.unicef.org/esaro/Climate_Change_in_Africa.pdf. (Accessed: 7 June 2018).

- Schoeller, M 2015. Explaining Political Leadership Germany's Role in Shaping the Fiscal Compact, *Global Policy*, 6(3), 256-265. Wiley Online Library.
<https://doi.org/10.1111/1758-5899.12243>
- Shelton, G 2012. 'South Africa and East Asia', in C. Landsberg & J. Wyk (eds.). *South African Foreign Policy Review*, Vol.1. Pretoria: Africa Institute for South Africa.
- Silverman, D 2010. *Doing Qualitative Research*. London: SAGE Publications.
- Sonjica, B. 2009. Minister of Water and Environmental Affairs Buyelwa Sonjica's Addresses to the media on climate change talks (COP15). Pretoria: Department of Water and Environmental Affairs
- Spector, B 2016. Carlyle, Freud, and the Great Man Theory More fully considered.
Leadership. 12(2), 250-260
- Stern, N 2010. 'The Economics of Climate Change.' In: Jamieson, D & H Shue, H. ed. 2010. *Climate Ethics: Essential Readings*. New York: Oxford University Press.
- Theisen, O; Gleditsch, N, & Buhaug, H, 2008. *Implications of Climate Change for Armed Conflict* Working Paper, presented to the World Bank workshop on Social Dimensions of Climate Change The World Bank, Washington DC, 5–6 March 2008
25 February 2008.
- The Presidency of South Africa. 2009c. *President Jacob Zuma to Attend Climate Change Talks in Copenhagen*. Available at:
<http://www.thepresidency.gov.za/show.asp?type=pr&include=president/pr/2009/pr12061648.htm&ID=1930> (accessed: 3 September 2017).
- The Presidency. 2009d. 'President Jacob Zuma to Attend High Level Segment of the COP15 Scheduled for 18 December 2009 in Copenhagen', <http://www.thepresidency.gov.za/show.asp?include=president/pr/2009/pr12081345.htm&ID=1933&type=pr>
[Accessed: 3 September 2017).
- Toulmin, C 2009. *Climate Change in Africa*. Chicago: University of Chicago Press.

Trenberth, K., & Karl, T 2003. Modern Global Climate Change. *Science*.305 (5651), 1719-1723. DOI:10.1126/science.1090228

UK Parliament, 2011. The Carbon Plan: Delivering our Low Carbon Future. Department of Environment and Climate change. A presentation made to the UK Parliament, 1st December 2011. (Online). Available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47613/3702-the-carbon-plan-delivering-our-low-carbon-future.pdf. (Accessed: 5th May 2017).

Underdal, A 1994. 'Leadership Theory: Rediscovering the Arts of Management'. In:
Zartman, W. (ed.) 1994. *International Multilateral Negotiation: Approaches to the Management Complexity*. San Francisco: Jossey-Bass Publishers.

Underdal, A 1992. *Leadership in International Climate Change Negotiations: Designing Feasible Solutions*. Cicero Working Paper, 1992:08. Oslo: CICERO Center for International Climate and Environmental Research.

UNFCCC 1992. *United Nations Framework Convention on Climate Change*.
Available:https://unfccc.int/files/essential_background/background_publications_html/pdf/application/pdf/conveng.pdf (Accessed Aug. 2014).

UNFCCC, 1998. *Kyoto Protocol to the United Nations Framework on Climate Change*.
(Online). Available at: <https://unfccc.int/resource/docs/convkp/kpeng.pdf>. [Accessed: 20 November 2016].

UNFCCC 2007. Climate Change: Impacts, Vulnerabilities and Adaptation in Developing Countries, United Nations Framework Convention on Climate Change. Available at:
<http://unfccc.int/resource/docs/publications/impacts.pdf> (Accessed Aug. 2016).

United Nations Environmental Programme 2013. 'PROVIA Guidance on Assessing

Vulnerability, Impacts and Adaptation to Climate Change'. (Online). Available at: <https://static.weadapt.org/knowledge-base/files/1300/52865896ab2a4provia-guidance-nov2013-low-res.pdf>. (Accessed on March 30, 2017).

United Nations International Strategy for Disaster Reduction, 2008. *Climate Change and Disaster Risk Reduction*. Briefing Note 0. September 2008. Geneva.

http://www.unisdr.org/files/4146_ClimateChangeDRR.pdf. Accessed Aug. 2016.

United States Environmental Protection, 2014. *Climate Change Indicators in the United States*. Available at: <https://www.epa.gov/sites/production/files/2016-07/.../climateindicators-full-2014.pdf>. [Accessed: 20 November 2016].

Urplénainen, J 2017. *Trump's Withdrawal from the Paris Agreements means Other Countries Will Spend Less to Fight Climate Change*. (Online). Available at: <https://www.washingtonpost.com/.../trumps-noncooperation-threatens-climate-finance-u>. [Accessed: 20 June 2018]

Walsham, G. 1995, Interpretive Case Studies in IS Research: Nature and Method. *European Journal of Information Systems*, Vol 4. No 2, pp.74-81.

Watson, R., Filho, L., Sanhueza, E., & Janetos, A. *Climate Change 1992: The Supplementary Report to the IPCC Scientific Assessment* (eds.: Houghton, J. et al). 25-46. Cambridge: Cambridge University Press.

Weber, E 2010. What Shapes Perceptions of Climate Change? *WIREs Climate Change*. 1(3), 332-342.

Weiss, D. & Light, A. 2009. *What You Need to Know Following Copenhagen Climate Summit*. (Online). Available at: grist.org/.../2009-12-23-what-you-need-to-know-following-copenhagen-climate-sum*geography*, Vol. 26(6).

Werksman, J 1998. *The Clean Development Mechanism: Unwrapping the Kyoto Surprise*.

(Online). Available at: onlinelibrary.wiley.com/doi/10.1111/1467-9388.00141/pdf.

[Accessed: 25 August 2017].

What Are Greenhouse Gases? (Online). Available at: whatsyourimpact.org/greenhouse-gases.

[Accessed: 18 May 2017].

World Bank 2010. *Economics of Adaptation to Climate Change*: Synthesis Report. Available

at: http://www.oecd.org/document/35/0,3746,en_2649_34447_47515235_1_1_1_1,00.html [Accessed: June 19, 2017].

World Bank, 2016. *Modelling the Impact on South Africa's Economy of Introducing a Carbon*

Tax, Available at:

www.treasury.gov.za/.../2016111001%20%20Carbon%20Modelling%20Re.

World Wildlife Fund, 2009. *Climate Change, Global Warming*. Available at:

<https://www.youtube.com/watch?v=gEvmwNoMYEg>. Accessed: 7 August 2017.

World Meteorological Organisation, 2017. *Greenhouse Gas Concentrations Surge to New*

Record. (Online October 30, 2017). Available at:

<https://public.wmo.int/en/media/.../greenhouse-gas-concentrations-surge-new-record>.

[Accessed: 24 June 2018].

Young 1991. Political Leadership and Regime Formation: On the Development of

Institutions in International Society. *International Organization*, Vol.45, no.3.

Pp.281-308.

Zaccaro, S., Kemp, C., Bader, P. 2004. 'Leader Traits and Attributes'. In: J. Antonakis, J., Cianciolo, A., & Sternberg, R. *The Nature of Leadership*. Thousand Oaks, CA: SAGE Publications, pp.101-124.

Zapletal, N 2014. Climate Change and Developing Countries; Examining the Motives for

Participation in International Negotiations, (Unpublished Master's Thesis). *Cuny Academic Works*. Available at: http://academicworks.cuny.edu/cc_etds_theses/305.

[Accessed: 22 June 2016].

Zwane, M 2016. Climate Change Adaptation and Agriculture in South Africa, *A Policy Brief*.

Available at: awsassets.wwf.org.za/downloads/wwf_pfu_policy_brief__lowres_.pdf.