

POLITICAL ANATOMY OF SOUTH AFRICA'S CLIMATE CHANGE POLICY

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Mafikeng Campus of the North-West University**

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DECLARATION

I, Oluwole Idowu Olutola, declare that the thesis entitled “**Political anatomy of South Africa’s climate change policy**” hereby submitted for the degree of Doctor of Philosophy in Political Studies has not previously been submitted by me for a degree at this or any other university. I further declare that this is my work in design and execution and that all materials contained herein, have been duly acknowledged.

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Signature

.....

Date

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ABSTRACT

The focus in this study was on South Africa's interaction with climate change on the global scene and, in particular, its response in terms of policy and other regulatory frameworks aimed at addressing the challenge of climate change at the domestic level. This was done in order to unearth the political interplay involved in South Africa's approach towards climate change in view of its delicate position as both a contributor to climate change and one of the hard-hit by its adverse impacts.

The researcher relied on systematic exposition and adaptation of key underpinnings of "complex interdependence" and "second image reversed" as a theoretical basis for discussion. On the other hand, the researcher used responses captured through in-depth interviews with purposively selected respondents and a range of secondary data. While the Nvivo software was used in the study to generate relevant themes and sub-themes, qualitative content analysis (QCA) was used to interpret the data collected using the themes and sub-themes as units of analysis.

In addition to examining the environmental right as enshrined in the 1996 Constitution, two principal policy instruments for addressing climate change in South Africa, namely the National Environmental Management Act (NEMA, 1998) and the National Climate Change Response (NCCR, 2011) were reviewed in the study. In particular, the Business-As-Usual/Peak-Plateau-Divide (BAU/PPD) emission reduction trajectory and South Africa's Intended Nationally Determined Contribution (INDC) were also examined. This examination was done against the background of a historical analysis of the trajectory of the global environmental and climate change regimes and discussion on different aspects of South Africa's involvement in the global climate change process.

It was revealed that South Africa's approach to climate change is characterised by a political interplay. At the global level, South Africa has been actively involved in the global climate change process, particularly within the UNFCCC frameworks, while at the domestic level there are puzzling challenges regarding its policy response to climate change. Much of these reflect in the failure of the country's political leadership to muster strong will needed to bring about an end to the use of coal as a major energy source and foreign income earner; neutralise basic fossil fuel interest which seeks to ensure that coal remains a growth catalyst in South Africa; prioritise climate change as an important issue of national concern rather than an environmental

byproduct and, therefore, a side-issue which should not be taken seriously; mainstream climate change considerations and planning into all relevant sectors and national departments; pursue a more ambitious transition to a low carbon and climate resilient South Africa; and incentivise mitigation and adaptive behaviour in majority of South Africans as part of the overall efforts towards achieving a low-carbon transition.

It is concluded that the challenges are doable given greater commitment and deliberate actions on the part of the South African government, including support from the international community, mostly in terms of capacity building and technology transfer. In this regard, this study recommended amongst others that South Africa's low-carbon transition needs to go through a fresh consultation phase to allow for public comments and strong national position on climate change.

Keywords: Climate change; Paris climate agreement; low-carbon transition; South Africa; complex interdependence; second image reversed

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LIST OF ABBREVIATIONS AND ACRONYMS

AAU	Assigned Amount Units
ADB	Asian Development Bank
AF	Adaptation Fund
AFASA	African Farmers' Association of South Africa
AfDB	African Development Bank
AG	African Group
AGI	African Governance Institute
Agri-SA	Agri South Africa
AMCEN	African Ministerial Conference on the Environment
ANC	African National Congress
AOSIS	Alliance of Small Island States
ARs	Assessment Reports
ART	Antiretroviral Therapy
AU	African Union
AWEPA	Association of Western European Parliamentarians for Africa
AWG	Ad-Hoc Working Group
BAP	Bali Action Plan
BASIC	Brazil, South Africa, India, China
BAU	Business-As-Usual
BRICS	Brazil, Russia, India, China, South Africa
CAN	Climate Action Network
CAHOSCC	Committee of the African Heads of State on Climate Change
CAP	Climate Action Partnership
CAT	Climate Action Tracker
CBD	Convention on Biodiversity
CBDRRC	Common but Differentiated Responsibilities and Respective Capabilities
CCD	Convention to Combat Desertification
CCS	Carbon Capture and Storage
CDE	Centre for Development and Enterprise
CDM	Clean Development Mechanism
CEC	Committee for Environmental Coordination

CERs	Certified Emission Reductions
C2ES	Centre for Climate and Energy Solutions
CH ₄	Methane
CFCs	Chlorofluorocarbons
CIFs	Climate Investment Funds
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMP	Meeting of the Parties
CMS	Convention on Migratory Species
CO	Carbon monoxide
CO ₂	Carbon dioxide
CCONEPP	Consultative Conference on National Environmental Policy Process
CoN	Commonwealth of Nations
COP	Conference of Parties
CSD	Commission for Sustainable Development
CSLF	Carbon Sequestration Leadership Forum
CSP	Concentrating Solar Power
CTCN	Climate Technology Centre and Network
CTF	Clean Technology Fund
CTL	Coal-To-Liquid
DBSA	Development Bank of South Africa
DEAT	Department of Environmental Affairs and Tourism
DEA	Department of Environmental Affairs
DIRCO	Department of International Relations and Cooperation
DMR	Department of Mineral Resources
DoE	Department of Energy
DoT	Department of Transport
DPE	Department of Public Enterprises
DPEA	Durban Platform for Enhanced Action
DPME	Department of Planning Monitoring and Evaluation
DRC	Democratic Republic of Congo
DTI	Department of Trade and Industry
EARN	Europe Africa Research Network
EBRD	European Bank for Reconstruction and Development

EFF	Economic Freedom Fighters
EIA	Environmental Impact Assessment
EIT	Economies-in-Transition
EIPs	Environmental Implementation Plans
EIUG	Energy Intensive Users Group
ELA-JHB	Earthlife Africa Johannesburg
EMG	Environmental Monitoring Group
EMPs	Environmental Management Plans/Principles
ERUs	Emission Reduction Units
ETS	Emission Trading System
EU	European Union
EWN	Eye Witness News
FOEI	Friends of the Earth International
GCF	Green Climate Fund
GCF-TC	Green Climate Fund Transitional Committee
GCMs	Global Climate Models
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GEF-TF	Global Environmental Facility Trust Fund
GHGs	Greenhouse Gases
GHGs	Greenhouse Gas Emissions
GLOBE	Global Legislators Organisation for a Balanced Environment
GMEF	Global Ministerial Environment Forum
GWC	Growth Without Constraints
GWP	Global Warming Potential
HCFCs	Hydro Chlorofluorocarbons
HDI	Human Development Index
IADB	Inter-American Development Bank
IBSA	India, Brazil, South Africa
ICAO	International Civil Aviation Organisation
IDS	Institute of Development Studies
IEA	International Energy Agency
IISD	International Institute for Sustainable Development
IMF	International Monetary Fund

IMO	International Maritime Organisation
INDCs	Intended Nationally Determined Contributions
IPAPs	Industrial Policy Action Plans
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producers
IPPPP	Independent Power Producers Procurement Programme
IPRs	Intellectual Property Rights
IRP	Integrated Resource Plan
ISS	Institute for Security Studies
IGCCC	Inter-Governmental Committee on Climate Change
IMCCC	Inter-Ministerial Committee on Climate Change
JAES	Joint Africa-EU Strategy
JI	Joint Implementation
JMD	Johannesburg Millennium Declaration
JPI	Johannesburg Plan of Implementation
KP	Kyoto Protocol
LCA	Long-Term Cooperative Action
LDCs	Less Developed Countries
LDM	Loss and Damage Mechanism
LTMS	Long-Term Mitigation Scenarios
LULUCF	Land Use, Land-Use Change and Forestry
MARPOL	International Convention for the Prevention of Pollution
MDBs	Multilateral Development Banks
MDGs	Millennium Development Goals
MEAs	Multilateral Environmental Agreements
MEIs	Multilateral Environmental Institutions
MNC	Multinational Corporations
MP	Montreal Protocol
MRV	Measurement, Reporting and Verification
NAM	Non-Aligned Movement
NAMAs	Nationally Appropriate Mitigation Actions
NAPs	National Adaptation Plans
NAPAs	National Adaptation Programme of Actions
NCCC	National Committee on Climate Change

NCCR	National Climate Change Response
NCCR-WP	National Climate Change Response-White Paper
NDB	New Development Bank
NDMC	National Disaster Management Council
NDP	National Development Plan
NEAF	National Environmental Advisory Forum
NEDLAC	National Economic Development and Labour Council
NERSA	National Energy Regulator of South Africa
NEVA	National Employment Vulnerability Assessment
NEMA	National Environmental Management Act
NEPAD	New Partnership for Africa's Development
NFSD	National Framework for Sustainable Development
NGOs	Non-Governmental Organisations
NGP	New Growth Path
NIEP	National Integrated Energy Plan
NO _x	Nitrogen Oxide
N ₂ O	Nitrous Oxide
NT	National Treasury
NWU	North-West University
OAU	Organisation of Africa Unity
OECD	Organisation for Economic Cooperation and Development
ODA	Official Development Assistance
ODSs	Ozone Depleting Substances
PA	Paris Agreement
PPD	Peak, Plateau and Decline
PPP	Polluter-Pays-Principle
PPP	Public Private Partnership
PRSA	Parliament of the Republic of South Africa
PWRs	Pressurised Water Reactors
QCA	Qualitative Content Analysis
RBS	Required By Science
REBIDS	Renewable Energy Bids
REDD	Reducing Emissions from Deforestation and Degradation
REFIT	Renewable Energy Feed-in Tariffs

REW	Renewable Energy World
RMU	Removal Unit
RSA	Republic of South Africa
SA	South Africa
SADC	Southern African Development Community
SADC-PF	Southern African Development Community Parliamentary Forum
SAFCEI	Southern African Faith Communities' Environment Institute
SA-GF	South African Green Fund
SAIIA	South African Institute of International Affairs
SANBI	South African National Biodiversity Institute
SARW	Southern African Resource Watch
SA-SNC	South Africa's Second National Communication
SAAQIS	<i>South African Air Quality Information System</i>
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SCF	Strategic Climate Fund
SD	Sustainable Development
SDGs	Sustainable Development Goals
SJRP	Sector Jobs Resilience Plans
SYRs	Synthesis Reports
TDCA	Trade, Development and Co-operation Agreement
TEC	Technology Executive Committee
ToR	Terms of Reference
TWCs	Third World Countries
UJ	University of Johannesburg
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCHE	United Nations Conference on the Human Environment
UN-CSD	United Nations Commission for Sustainable Development
UNCSD	United Nations Conference on Sustainable Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNEP-GC	United Nations Environment Programme Governing Council
UNFCCC	United Nations Framework Convention on Climate Change

UNGASS	United Nations General Assembly Special Session
UNISA	University of South Africa
UNSC	United Nations Security Council
USA	United States of America
USGCRP	United States Global Change Research Programme
WB	World Bank
WCA	World Coal Association
WEF	World Economic Forum
Wits	University of Witwatersrand
WMO	World Meteorological Organisation
WRI	World Resource Institute
WSSD	World Summit on Sustainable Development
WTO	World Trade Organisation
WWF	World Wide Fund

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Climate change is a global problem. It is real, and its consequences are now very visible. The South African National Department of Environmental Affairs and Tourism (DEAT, 2004: iii) describes it as "possibly the greatest environmental challenge facing the world this century". Lately, it is said to be "the greatest challenge of our time" (Nachmany *et al.*, 2014: xiii). Therefore, climate change requires collective action involving both developed and developing states in order to deal with it. This is at least true considering the fact that the latest Paris Agreement (PA) on climate represents a build up to a prolonged negotiation process that was not only fraught with crises but which also lasted for two decades going by the annual meetings of the Conference of Parties (COP).¹

Beyond the understanding of natural factors responsible for climate change, the Synthesis Report of the Intergovernmental Panel on Climate Change (IPCC) maintains "the IPCC is now 95 percent certain that humans are the main cause of current global warming" (IPCC, 2014: v). This, no doubt, affirms the anthropogenic conception of climate change which simply connotes the emission of greenhouse gases (GHGs) as a result of human activity. Although developed countries contribute more to climate change, they are, nevertheless, least affected by it. Hence, they are obliged by subsisting international agreements, to make commitments towards a significant reduction in their carbon emissions. These include the United Nations Framework Convention on Climate Change (UNFCCC, 1992), the Kyoto Protocol (KP, 1998) and the Paris Agreement (PA, 2015).

Conversely, developing states (most of them in Africa) suffer most from climate change and also have low(er) mitigation and adaptive capacity to deal with it. Worse still, the development gaps in developing states necessitate that these countries grapple with the double challenges of simultaneously achieving their national objectives while also combating climate change. Another major concern is the fact that most developing countries lack proper understanding regarding the tradeoffs involved in addressing climate change, together with other socio-economic issues such as poverty, unemployment, inequality, curable and terminal diseases.

For South Africa, the climate scenario is particularly crucial. To date, South Africa's economy is predominantly carbon-based,² depending heavily on coal and mineral. Based on the World Energy Outlook Special Report, coal is the mainstay of the South African energy system, meeting around 70% of primary energy demand and accounting for more than 90% of domestic electricity output (OECD/IEA, 2014: 146). Besides, South Africa is home to Medupi³ – one of the world's largest coal-fired plant situated in Lephalale, Limpopo Province (Bond, 2011: 142; Death, 2014: 9), as well as Sasol's Secunda Plant – the world leader in Coal-To-Liquid (CTL) technology ranked as a major producer of carbon dioxide (CO₂)⁴ and, perhaps, the largest single non-state GHG emitter anywhere in the world (Death, 2014: 9; FOEI, 2011: 3). Moreover, South Africa is the fourth largest coal producer in the world and, therefore, one of the world's largest exporters of coal (Chevallier, 2011: 50). As rightly observed, coal is an especially potent GHG polluter with enormous environmental degradation (Rosenbaum, 2011: 283). Added to this are mining activities in respect of other world's most valuable mineral resources such as platinum, manganese, gold, diamond, and, lately, gas fracking in The Karoo with serious environmental implications.⁵

The situation projects South Africa as a major GHG emitter at least in comparative terms and, without any doubt, the largest on the African continent. By any measure, either by emissions per capita or emissions per unit of Gross Domestic Product (GDP), South Africa is a significant emitter of GHGs (DEA, 2011b: 26). Indeed, South Africa ranks amongst the world's top 15 GHG emitters. Hence, it is expected that its economy would be vulnerable to any possible actions taken by developed (Annex I)⁶ countries in response to climate change mainly because of its high dependence on coal. In view of the circumstance, and mostly on account of its twin status as a GHG emitter on the one hand and one of the hard-hit by climate change on the other (RSA, 2011: 5), South Africa (as a developing country) has been actively involved in the global climate change process.

Having agreed to the 2007 Bali Action Plan (BAP), South Africa just a day before the Copenhagen climate summit in 2009 openly declared its commitment to a Nationally Appropriate Mitigation Action (NAMA) for achieving a 34% deviation from its Business-As-Usual (BAU) emissions by 2020 and 42% by 2025 (Masters, 2009: 11). The BAP represents a comprehensive process to enable the implementation of UNFCCC with the ultimate objective of stabilising Greenhouse Gas Emissions

(GHGs) at 2°C relative to pre-industrial levels to prevent dangerous anthropogenic climate change through long-term global cooperative action. South Africa, under Marthinus Van Schalkwyk, as Environment Minister, not only coordinated the Ad-Hoc Working Group on further commitments for Annex I Parties under the KP on behalf of the G77 and China (Backstrand and Elgstrom, 2013), it also served as the chief negotiator for the group on the Adaptation Fund (AF) in addition to being elected to represent Africa on the Adaptation Fund Board (Masters, 2009: 11).

Furthermore, a former South African Planning Minister, Trevor Manuel, co-chaired the Transitional Committee for the design of the Green Climate Fund (GCF),⁷ together with representatives from Mexico and Norway. Additionally, South Africa successfully hosted the 2002 Johannesburg Earth Summit Rio+10 (UN, 2002), as well as the prestigious Seventeenth Session of the Conference of Parties (COP17) in late 2011 (UNFCCC, 2012). In early 2014, a South African parliamentarian, Cedric Frolick, was also elected as President of the Global Legislators Organisation for a Balanced Environment (GLOBE). This was the first time the organisation had chosen its GLOBE President from outside the G8 (Newmarch, 2014); probably in recognition of South Africa's active involvement in the global climate change process. GLOBE is an international organisation that seeks to advance legislative interventions to addressing environmental and climate change-related challenges.

1.2 PROBLEM STATEMENT

Despite its active role in the global climate change process, South Africa has not been able to effectively deal with climate change at the domestic level. Apart from the challenge posed by the country's climate change-energy contradiction, another issue is environmental governance (climate change inclusive) in South Africa, which is confronted by a number of challenges. Key amongst which are poor resource and weak institutional capacity (Richards, 2008), poor inter-governmental coordination (Mokwena, 2009), ineffective compliance and enforcement deficiency (Glazewski and Collier, 2012; Kotze, 2011; Plessis and Nel, 2011) and fragmented regulatory frameworks (DEA, 2011a).⁸

The situation is further worsened by the contention that existing climate change-related policies in South Africa are incoherent, incomprehensive and, therefore, ineffective to address the climate scenario (DEA, 2011a; Richards, 2008). These policies, amongst others, include the National Environmental Management Act

(NEMA, 1998) and the National Climate Change Response (NCCR, 2011). While the former serves as the most single important regulatory framework for managing environmental issues (climate change inclusive), the latter represents a deliberate policy to mitigate and adapt to climate change in South Africa. Worth mentioning, also, is the South Africa's Business-As-Usual/Peak Plateau Decline (BAU/PPD) low-carbon transition trajectory encapsulated in the country's Long-Term Mitigation Scenarios (LTMS) as a verifiable GHGs reduction strategy. According to the strategy, it is expected that the country's emissions will peak between 2020 and 2025, plateau for approximately a decade and, thereafter, decline in absolute terms up to the mid-century. This BAU/PPD low-carbon growth path has been rated inadequate, particularly with regard to its baseline (CAT, 2015).⁹

Furthermore, the absence of a comprehensive climate change policy and governance framework in South Africa reinforces the argument in certain quarters that it is not sufficient to integrate climate change into existing environmental policies since climate change interacts with other socio-economic issues and, therefore, transcends purely environmental considerations. Worse still, South Africa currently lacks a separate and dedicated administrative lead agency on climate change. The Department of Environmental Affairs currently serves in this capacity.

All these lapses not only challenge the altruism of South Africa's active or, perhaps, leading role in the global climate change process but also question the seriousness of any governmental efforts aimed at combating climate change in the country. South Africa, no doubt, is locked between its interests in the global action on climate change on the one hand and the sensitivity, as well as the vulnerability of its carbon-dependent economy to any global climate change deal to cut GHGs on the other. As such, one central question raised in this thesis is: of what benefit is the country's involvement in the various international regimes that address environmental problems when Pretoria government energy generation is carbon-based? Hence, it has become imperative to empirically analyse South Africa's policy on climate change in order to unearth the politics involved.

1.3 AIM OF THE STUDY

The main aim of this study was to examine the South Africa's climate change policy with a view to proposing strategies that could improve South African

government's efforts at dealing with climate change domestically as well as advance its leading role in the global climate change process.

1.4 OBJECTIVES OF THE STUDY

The specific objectives of the study were to:

- i. Appraise South Africa's involvement in the global climate change process;
- ii. Assess South Africa's climate change policy;
- iii. Examine the imbalance in South Africa's global and domestic actions on climate change and factors responsible for such imbalance;
- iv. Analyse the political interplay involved in South Africa's approach to combating climate change; and,
- v. Assess its impact on efforts aimed at addressing climate change in South Africa.

1.5 RESEARCH QUESTIONS

The research questions asked were as follows:

- i. What is the nature of South Africa's involvement in the global climate change process?
- ii. What are the issues with South Africa's policy on climate change?
- iii. Is there any imbalance in South Africa's global and domestic actions on climate change and what factors are responsible for such imbalance?
- iv. What is the nature of the political interplay involved in combating climate change in South Africa? and
- v. Of what impact is the interplay on efforts aimed at tackling climate change in South Africa?

1.6 RESEARCH FRAMEWORK

This study was designed as a single case, with a synthesised research methodology that integrates theoretical framework, a review of relevant literature, as well as qualitative data gathering and techniques of analysis. As a framework, the design assisted the research in terms of capturing detailed information concerning South Africa's approach towards addressing climate change at global and domestic

levels, as well as subjecting the same to rigorous analysis with a view to figuring out the extent to which the country's approach is affected by pure political considerations as against technical and structural factors. The NVivo software for qualitative data analysis was employed in the study to create relevant themes and sub-themes based on responses obtained from participants purposively selected for the study. Qualitative content analysis (QCA) was used to interpret data with a view to bringing together participants from all sides of the themes and sub-themes (Appendices B-N). The researcher combined the two methods in order to generate more reliable and credible results.

1.7 METHODOLOGY

1.7.1 Study area

South Africa, with a population of over 50 million people, constitutes the study area for the purpose of this study. As the southernmost country on the African continent, with three other Southern African countries (Botswana, Lesotho and Swaziland) locked within its territory, the Republic of South Africa is administratively governed by the Executive led by the Presidency, a bicameral-structured Parliament composed of the National Assembly and the National Council of the Provinces, and the South African Judiciary. The country is divided into nine provinces namely, Gauteng, North-West, Limpopo, Mpumalanga, Free State, KwaZulu-Natal, Western Cape, Eastern Cape, and Northern Cape.

Until 1994 when it became a democratic state, South Africa was for a long time under the apartheid regime characterised largely by racial discrimination and all manners of inequalities. South Africa's climate is mostly semiarid; while the eastern coast regions are subtropical with mainly sunny days and cool nights, the west coast is arid because of the cold Benguela. Much like other Southern African states, South Africa is climatologically exposed to the warm Indian Current from the Indian Ocean, the cold Benguela Current from the Atlantic Ocean, the warm Agulhas Current from the tropics and the high Central Plateau. While most of South Africa experiences summer rainfall, there is a relatively high degree of sunshine with rainfall from the west to the east, coupled with semi-desert regions in the north-west. Also, given its proximity to the Atlantic and Indian Oceans, the Western Cape has a Mediterranean climate with winter rainfall. This is in addition to the country's wealth of ecosystems and a variety of biodiversity hotspots.

Economically, South Africa is richly endowed with a number of world's most valuable mineral resources such as amongst others gold, diamond, platinum, manganese, coal, chromite ore, copper. With these resources, including high dependence on agriculture as the key drivers of its economy, South Africa today ranks as an upper-middle-income country and, indeed, amongst the top three economies on the African continent. However, a number of socio-economic challenges are still evident of which corruption, inequality, cultural distortion, as well as high rates of unemployment, illiteracy and HIV/AIDS and terminal diseases are easily noticeable.

1.7.2 Types and sources of data

Using mixed methods approach, this study utilised both primary and secondary data. The primary data were sourced from interviews with participants purposively selected for this study. To complement the primary data, as well as give a better and more holistic information regarding the topic under investigation, the researcher also utilised a ranged of secondary data. These include government policy documents, reports and studies conducted particularly on South Africa's climate change, excerpts from speeches on climate change, relevant textbooks, seminar and workshop papers, journal articles and, in particular, materials from academic database.

1.7.3 Method of data collection

1.7.3.1 Population

Considering the fact that information needed for the study required expert knowledge, the study population cut across major stakeholders as far as the South Africa's climate change is concerned. They include government officials, parliamentarians, academics and researchers, non-governmental organisations (NGOs), and individuals within South Africa. The researcher believed that the population as identified comprised participants who were best suited not only to offer useful information about South Africa's global and domestic actions on climate change, but were also able to provide worthwhile insights into key political issues relating to the country's climate change.

1.7.3.2 Sampling frame

More specifically, the sampling frame comprised members of the Portfolio Committee on Environmental Affairs of the South African Parliament, senior officials from relevant divisions/units of national departments with issues of concern with climate change in South Africa as follows: Environmental Affairs as the



administrative lead institution regarding climate change; Energy; International Relations and Cooperation; Mineral Resources; Planning, Monitoring and Evaluation; and The Presidency. Others included senior research fellows from the South African Institute of International Affairs (SAIIA); academics from departments of political sciences of some selected universities in South Africa namely, the Universities of Johannesburg, Witwatersrand, South Africa and North-West (Potchefstroom campus); climate change experts from climate change-related NGOs in South Africa including the South African Climate Action Network, Greenpeace Africa, Earthlife Africa Johannesburg (ELA-JHB) and Climate Action Partnership (CAP); and major farmers' associations including the African Farmers Association of South Africa (AFASA) and Agri South Africa (Agri-SA), whose members are believed to be at the extreme risk of the negative impacts of climate change.

1.7.3.3 Sample size

Regarding sampling size, a total of thirty-seven (37) key participants were originally identified and targeted for in-depth interviews for the purpose of data collection. However, five (5) of the targeted participants could not be reached to participate in the study. These included the three (3) participants from the Parliamentary Portfolio Committee on Environmental Affairs and two (2) others from The Presidency. With regard to the Parliamentary Committee, for instance, the secretary informed the researcher that the committee's chairperson refused to grant permission for members to participate in the study even though the reason for such decision was not disclosed to the researcher. Similarly, all efforts to reach participants from The Presidency proved unsuccessful. Based on these difficulties, therefore, a total of thirty-two (32) participants were actually interviewed as follows: ten (10) senior officials – two each from the national departments identified except The Presidency; two (2) senior research fellows from the SAIIA in the field of South African Foreign Policy; eight (8) academics – two each from the universities identified; eight (8) climate change experts – two each from the NGOs identified; and four (4) executive members – two each, including chairmen and spokespersons from the farmers' association identified.

1.7.3.4 Selection method

Purposive method was employed in selecting the participants identified for this study. Through semi-structured interviews, a series of open-ended questions related to the topic under investigation and the objectives of the study were developed

and presented to participants who then provided their responses. Semi-structured interviews afforded the researcher the opportunity to discuss in greater details and seek further clarifications from participants regarding some aspects of issues raised during the interviews. Even though an interview guide was utilised for the purpose of the interviews, there were instances whereby the questions were rephrased or new ones introduced to capture responses depending on the category of interviewees and, more importantly, to meet the specific objectives of the study. Hence, the researcher-designed interview questions format (Appendix A) merely served as a general guide. All questions and responses were documented appropriately. For instance, interactions that stemmed from face-to-face interviews were carefully captured in the form of notes, while other one-on-one interviews conducted using electronic gadgets were recorded digitally.

1.7.4 Method of data analysis

With the aid of the Nvivo software for qualitative data analysis, a number of relevant themes and sub-themes were identified for the purpose of analysis in this study. Qualitative content analysis (QCA) was used to describe and analyse the data, with a more interpretive approach, while also using the themes and sub-themes as units of analysis. QCA was preferred because it remains the most appropriate technique for analysing primary data collected, especially from interviews as against questionnaires. Beyond the basic level that merely gives a descriptive account of the data/responses, QCA as applied in this study, was approached at the latent level that not only described the data/responses, but went further to draw inferences from the description of the data. The aim was to establish the real situation regarding South Africa's policy response to climate change.

Generally, QCA conceptualises a step-by-step research process ranging from a research question, linking the question to the theoretical framework, research design, sampling strategy, data collection and analysis, presentation of research results and discussion in respect to quality criteria (Marying, 2014). Thus, it represents a data analysis technique guided by this process which, otherwise, sets the standards for any research – quantitative or qualitative. Marying (2014: 6) describes it as a mixed methods approach, integrating qualitative and quantitative steps of analysis. According to Rust (cited in Marying, 2014: 21), QCA pursues a double strategy: first, it forces the object of analysis to reveal its structure in a de-totalising approach that

makes inquiry into the relationship between individual aspects and general appearance; and, secondly, it does this with the aim of achieving a conscious re-totalisation, so as not to lose sight of the overall social core content of every statement. QCA not only summarises verbal material (description) but also draws a conclusion (inference) from the material on the circumstances of its origin and effects (Marying, 2014: 19). Thus, it relies more on its hermeneutical approach which, according to Myers (2009: 181), is concerned with the meaning of qualitative data, especially textual data, through translation, interpretation and communication of intentions as contained in the textual material. In this study, the researcher interpreted the data as collected and presented the findings in a broad descriptive but more specific sense towards dealing with the research questions.

1.7.5 Validity and reliability of the study

To ensure the validity of the study, open-ended questions were designed by the researcher to provide a link between the research questions and interview questions. The interview questions guide was subjected to initial scrutiny by the researcher's supervisor before its use on the field. Besides, the researcher ensured proper documentation of responses, as well as adhered strictly to the research design as outlined in the proposal. To enhance transparency and honesty with regard to conformity with the research process, the researcher utilised the NVivo software for qualitative data analysis to generate relevant themes and sub-themes as units of analysis in order to bring about a more efficient research output.

The role of the researcher, however, was limited to conducting interviews with selected participants, as well as transcribing the data collected. Hence, the researcher could be held responsible for any unethical misrepresentations of data or information provided by participants and not their perspectives. The researcher also acknowledges that objectivity in the context of QCA is not without some reservations. Steinke (cited in Marying, 2014: 14) rightly observes that: "The classical criteria, deriving from the test theory (objectivity, reliability and validity) cannot be simply transferred to qualitative approach." Therefore, objectivity, defined as the total independence of the research results from the researcher, is held to be difficult within qualitative approaches (Marying, 2014).

1.8 ETHICAL CONSIDERATIONS

To guarantee the protection of research ethics, formal letters were written to the participants to apprise them of the purpose and nature of the interview, the proposed date, venue and time (subject to their convenience). Participants were also assured of confidentiality and strict adherence to the purpose for which data were required. In particular, the research adhered strictly to the North-West University's ethical position regarding research conduct.

1.9 SCOPE OF THE STUDY

The study was confined to the period from 1994 (when South Africa became an active participant in international relations) to December 2015 (when the annual COP meeting towards a globally acceptable climate change deal was held for the twenty-first time). Also, as mentioned earlier, the research focused mainly on political interplay as a major issue in South Africa's climate change process.

1.10 LIMITATIONS OF THE STUDY

Apart from the issue of funding that was the major and general constraint, the study was approached particularly from a political perspective and, as such, certain aspects of the science of climate change and their technicalities were carefully avoided as much as possible without losing focus on achieving the specific objectives of the study. With regard to fieldwork, and as indicated earlier under "sample size and selection method," five out of the thirty-seven (37) participants originally targeted for interviews for the purpose of data collection for this study could not be reached to participate in the study. Their non-participation, however, did not impact seriously on the study as other participants were able to respond to issues that supposedly fell within their official domain. This became possible because of the cross-cutting nature of climate change. The non-inclusion of participants from the Department of Public Enterprises, was also an issue of concern, considering the fact that the Department does not only superintends Eskom as the South African national electricity utility of which about 90% is coal-based, but also that it generates a lot of money for the South African government with regard to public utilities. However, this omission was again taken care of by responses from participants in other line Departments such as Energy, Mineral Resources, PME, as well as comments by some of the experts from selected climate change-based NGOs.

1.11 SIGNIFICANCE OF THE STUDY

Through its political approach, the study represents a departure from existing studies that have focused mostly on environmental, as well as socio-economic impacts of climate change, with the few others that deal with technical and other structural issues militating against effective climate change mitigation and adaptation in South Africa. Rather than re-echoing the structural challenges to effective climate change mitigation and adaptation, South Africa's policy on climate change is dissected in this study with a view to bringing to the fore the politics involved. In so doing, the researcher identified the gap in South Africa's global and domestic approaches to dealing with climate change, as well as justified the need for a balanced linkage between the two levels. This has become necessary, considering the fact that domestic actions are critical to any sufficiently ambitious international engagement.

Beyond acknowledging the country's climate-energy interlock and other challenges *vis-à-vis* environmental governance, it is established in this study that a more serious issue is that of playing politics with efforts aimed at combating climate change in South Africa. The need for more commitment on the part of the South African government in dealing with climate change, especially at the domestic level is also explored in this study.

In effect, therefore, this study contributes to knowledge in two important areas: (1) by appraising South Africa's involvement in the global climate change process, as well as reviewing the country's key climate change-related policies against the background of their interdependence and shortcomings; and (2) by exploring how the climate scenario in South Africa may be radically different given the integration of existing climate change-related policies and other regulations into a single piece of legislation like climate change act on the one hand, and the establishment of a separate and distinct leading executing agency/focal point of climate change as against the Department of Environmental Affairs that currently serves in that capacity on the other. Thus, it is expected that the findings of the study in these two areas will deepen understanding about South Africa's policy response to climate change.

1.12 OUTLINE OF THE STUDY

1.12.1 Chapter one

Chapter 1 is the general introduction (problem statement, aim and objectives, research questions, significance of the study, research framework, methodology,

ethical considerations, scope of the study, limitations, contribution to knowledge and outline of chapters).

1.12.2 Chapter two

In chapter 2, attempt is made to provide a systematic exposition and adaptation of the key underpinnings of the theoretical framework that informed the study. This serves as a background to the review of relevant literature with particular focus on thematic areas that are of primary concern to the study, as contained also in chapter.

1.12.3 Chapter three

Chapter 3 presents a historical analysis of the trajectory of global environmental/climate change regimes with a view to highlighting their key features and challenges.

1.12.4 Chapter four

Chapter 4 examines different aspects of South Africa's involvement in the global climate change process.

1.12.5 Chapter five

Chapter 5 focuses on the country's domestic response in terms of specific policy and other regulatory framework aimed at addressing the challenge of climate change.

1.12.6 Chapter six

Chapter 6 is the presentation and analysis of data that emanated from the in-depth interviews conducted with a range of purposively selected participants for this study.

1.12.7 Chapter seven

Finally, chapter 7 provides a summary of the findings of the study, general conclusions and policy recommendations for stakeholders.

NOTES

- 1 The Conference of Parties (COP) is the administrative arm of the UNFCCC that meets annually to make and adopt decisions aimed at promoting the objectives of the Convention. For further details on its mandate, see Article 7 of the UNFCCC, 1992, P. 17-19.
- 2 As at 2011, South Africa ranked the "second most energy-intensive economy in the world." See, for instance, Patrick Bond, 2011, p. 142.
- 3 The Medupi project is a World Bank-sponsored dirty investment in South Africa through coal-fired power station, considering that coal is a major source of pollution that the international system is trying to reduce to the barest minimum level. For more on this, see Siphso Kings, 7 July 2015.
- 4 Although CO₂ is not the only composite of GHGs, it is said to be the major gas associated with global warming. Others include methane (CH₄), nitrous oxide (N₂O), carbon monoxide (CO), nitrogen oxide (NO_x), chlorofluorocarbons, water vapour, etc. For details, see Hallowes, 2008, p. 3; IPCC, 2007, p. 5; Rosenbaum, 2011, p. 33; Ologunorisa, 2011, p. 20.
- 5 Shale gas fracking in The Karoo, no doubt, offers a fairly credible alternative to South Africa's coal-dependent energy economy, considering that gas produces greener energy compared to coal.
- 6 Annex I refers to 'Parties' described as a group of developed industrialised countries that were members of the Organisation for Economic Cooperation and Development (OECD) in 1992 and countries with economies-in-transition (EIT), including the Russian Federation, the Baltic States, and several Central and Eastern European States. This group of countries are listed under UNFCCC and subsequently, obliged by the KP to a collective quantified anthropogenic GHGs' reduction given the first commitment period of 2008-2012; with binding targets beyond 2012 to be negotiated in the future. For a full list, see Annex I to the UNFCCC, p. 32. For details on the quantified emissions limitation per country, see Annex B of the KP, 1998, p. 20.
- 7 See "Green Climate Fund: Genuine Climate Finance for Africa or a Greedy Corporate Fund," Brief (2) of the Institute for Security Studies in partnership with Earth Life Africa, Johannesburg (ELA-Jhb.) at https://www.issafrica.org/uploads/ISS_ELAGreenClimateFund2.pdf.
- 8 A detailed survey of the various theoretical perspectives and explanations on the identified challenges are captured in the research as part of the literature review.
- 9 CAT is an independent scientific analysis produced by four research organisations including Potsdam Institute for Climate Impacts Research, Climate Analytics, New Climate Institute and Ecofys, which have been tracking climate action since 2009.

CHAPTER TWO

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.0 INTRODUCTION

This chapter combines exposition and adaptation of key theoretical underpinnings of “complex interdependence” and “second image reversed” to provide a theoretical basis for the discussion in this study. It adopts a systematic approach that examines other alternative theoretical perspectives with a view to determining their suitability or otherwise for the study, while justifying the preference for and compatibility of complex interdependence and second image reversed. At another level, it reviews relevant literature with particular focus on thematic areas that are of primary concern to the study. These include: the causes and effects of climate change from South Africa’s perspective; the global climate change process/negotiations and South Africa's involvement; and South Africa's domestic policy response to climate change.

2.1 THEORETICAL FRAMEWORK

"Second image reversed" (Gourevitch, 1978) and "complex interdependence" (Keohane and Nye, 1987) are employed in this study as the main theoretical framework. The choice of these two theoretical paradigms was informed in part by their relevance and, more importantly, their compatibility. Detailed explanations are provided in the course of the analyses in this section. While other theories are also applicable, the theoretical frameworks identified for the study, for the most part, have strong analytical tools through which the multi-dimensional nature of climate change could be adequately examined. Before considering the two models and their adaptations in this study, it is imperative to examine some of the other theories as well as their inadequacies.

2.1.1 Realism

Political realism considers international relations as a power struggle among self-interested states, especially such that is generally pessimistic about the prospects for eliminating conflict and war (Walt, 1998: 31). It stresses the importance of states and power politics *vis-à-vis* the pursuance of their respective national interests. For

classical realists such as Kissinger (1957) and Morgenthau (1948), conflict is seen as a natural state of affairs. Hence, they placed equal emphasis on anarchy and egoism. Neo-realists like Kenneth Waltz highlight the impact of anarchy and the distribution of the capabilities (hierarchy) of individual states. In particular, Waltz (cited in Eckersley, 2007: 257) contends that the 'tragedy of the commons' is indeed generated by the anarchic structure of the state system which is essentially unchanging. As such, neo-realists believe that states are the central (unitary) actors in the international system. Krasner (1978: 33), for instance, perceives states as autonomous actors whose main objective is to pursue goals associated with power and the general interest of the society. Generally, realists are also of the common view that there are constraints on politics which essentially are self-imposed and are made possible due to the absence of supranational government or authority. The absence of a central authority to settle disputes constitutes an essential feature of the international system, which gives rise to the "security dilemma" (Holsti, 1985: 4).

Characteristically, neo-realists emphasise the anarchical nature of the international system, which necessarily requires the primacy in all political life of power and security (Donnelly, 2005: 30). To them, power, self-interest and conflict are the key ordering features of inter-state relations. For instance, Waltz (cited in Donnelly, 2005: 35) argues that hierarchy and anarchy are the two principal political ordering principles of the international system, the units either stand in relationships of authority and subordination (hierarchy) or they do not (anarchy). These two principles clearly impede cooperation, the search of which has occupied the heart of the international system *vis-à-vis* climate change for the last twenty years at least going by the annual COP meetings. Such impediment arises because structural realists like Waltz are of the view that: "Anarchic pressures towards balancing and against cooperation are reinforced by the relativity of power" (Donnelly, 2005: 38). Reus-Smit (2005: 190) captures it more accurately as follows:

Waltz went on to argue that to ensure their survival, states must maximise their power, particularly their military power. Because such power is zero-sum – with an increase in the military power of one state necessarily producing a decrease in the relative power of another – Waltz argued that states are 'defensive positionalists'. They are conscious of their position within the power hierarchy of states, and at a minimum, seek to maintain that position, at a maximum, to increase

it to the point of domination. For this reason, Waltz claimed that the struggle for power is an enduring characteristic of international relations and conflict is endemic. In such a world, he argued, cooperation between states is at best precarious, at worst, non-existent.

Realism, no doubt, is underpinned by the assumption of rationality at least to the extent that states are guided by the logic of "national interest," usually defined in terms of survival, security, power and relative capabilities (Holsti, 1985: 4-5). Nevertheless, realism simply fails to explain most of the international relations (Donnelly, 2005: 53). The over-concentration of realists on anarchy and power deludes them of the important role of cooperation brought about through multilateral institutionalism since according to them, if enforcement is impossible and cheating likely, why would any state agree to co-operate through a treaty or institution in the first place?

Thus, realism provides a limited space for climate change and any global cooperative actions aimed at dealing with it. At best, it accommodates climate change as a new "issue area" of "low politics" of the environment of which its importance to inter-state relations is determined only when it impinges directly on national security (Eckersley, 2007: 248). As far as this study is concerned, the realists' degradation of climate change as low politics represents a point of departure when compared to the green theory.

2.1.2 Green theory

Unlike realism that considers states as the fundamental unit of analysis, the green theory emphasises ecological security instead, especially in terms of human well-being and the integrity of the ecosystem. According to the green theory, environmental regimes embody moral norms that cannot be simply reduced to state interests or capacities as theorised by the realists. Eckersley (2007: 257) points out that: "Understanding why regimes have emerged requires an examination of not only state interests, but also national cultures and values, the role of scientists and transnational environmental advocacy networks, and persuasive practices of regimes negotiators and other norm entrepreneurs."

Historically, the green theory developed as a challenge to the two broad theories of international relations, which are realism and liberalism. Thus, challenging their state-centric framework, rationalist outlook and 'ecological blindness', the green theory offers a range of new green interpretations of international justice, development, modernisation and security (Eckersley, 2007: 247). Preoccupied with the central issue of environmental justice, the green theory provides a theoretical explanation for the destruction of the rest of nature by human societies.

Beyond criticising humanity's increasingly instrumental relationships with non-human nature, together with subjugation of indigenous peoples and many traditional forms of agriculture, Eckersley (2007: 251) maintains "Environmental governance should be about protecting not only the health and well-being of existing human communities and future generations, but also the larger web of life, made up of nested ecological communities at multiple levels of aggregation (such as gene pools, population, species and ecosystems)." In this light, the green theory advocates for an ecocentric approach as against anthropocentric conceptualisation of the global environmental crisis (Paterson, 2005: 238). The green theory does not only challenge such anthropocentric theorising, but also seeks a transcendental solution to the current environmental crisis caused by the exponential economic growth experienced during the last two centuries (Paterson, 2005: 237).

Unlike the liberal perspective that accepts the existing global structures and frameworks as given while dealing with global environmental problems such as climate change, the green theory shifts the blame to these structures as the main cause of the environmental crisis for which the global system is currently faced with and, therefore, calls for their transformation rather than institutional tinkering (Paterson, 2005: 236). Beyond global economic and political interdependence, the green theory proposes the need to bring about ecological interdependence through environmental regimes aimed at solving uniquely ecological problems. According to Eckersley (2007: 252), "improving distributive justice while simultaneously curbing ecological destructive economic growth has emerged as the central political challenge of the green theory and practice, both domestically and internationally." Emphatically, the core argument of the green theory requires that environmental challenges be mitigated. Besides, there is also a need to address any untoward climate-induced externalities through distributive equity and environmental justice. Hence, while advocating for environmental justice, the green theory brings to intellectual

discourses, hitherto 'low politics' issues such as ecological security, sustainable development and environmental equity. Eckersley (2007: 249) contends that:

Unlike military threats, which are deliberate, discrete, specific, and require an immediate response, environmental problems are typically unintended, diffuse, trans-boundary, operate over long time-scales, implicate a wide range of actors, and also require painstaking negotiation and cooperation among a wide-range of stakeholders.

Considering the fact that the issue of negotiation and cooperation may have been resolved at least with the emergence of the new Paris Agreement (PA) on climate change, the environmental governance envisaged by the green theory, is such that entails its transnational, deterritorialised or global conceptualisation of environmental justice and green states (Eckersley, 2007: 252). It also includes the general position that the warming of the atmosphere should be reversed quickly enough through mitigation, and also that necessary mechanisms be put in place to ensure that vulnerable states cope with the adverse effects of climate change. Even though the green theory gives ultimate priority to the environmental aspect and, by implication, climate change, its theoretical foundations are established within the framework of the three pillars of sustainable development – social, economic and environmental.

According to green theorists, it is required first, to reduce ecological risks across the board, and second, to prevent their unfair externalisation and replacement through space and time to innocent third parties (Eckersley, 2007: 252-253). By implication, the idea that industrialised societies should be the first to move away from a carbon-based economy, which is central to the philosophy of environmental justice, is no doubt one of the core arguments of green theorists. In effect therefore, green theorists argue that the solution to climate change lies in the development of extensive environmental regulations and emphasis to be placed on the significant redistribution of environmental allowances from the rich to the poor in order to ensure the simultaneous satisfaction of basic needs and environmental quality for all underpinned by the principle of equal per capita rights to the atmosphere (Eckersley, 2007: 261).

While it is true that the green theory acknowledges human-induced climate change as a global problem and, indeed, one of the most challenging environmental

problems faced by mankind, the issue of environmental justice of which South Africa is, no doubt, at the forefront as an advocate of developing countries has not been adequately addressed. This is further established by the new Paris climate agreement under which all parties are required to commit themselves to the global efforts at reducing GHGEs regardless of their polluting or non-polluting status. Besides, its overriding inclusion of the neglected area of environmental domination and marginalisation (such as the domination of non-human nature), the neglect of the needs of future generations and the skewed distribution of ecological risks among different social classes, states and regions (Eckersley, 2007: 248), does not seem to enjoy as much relevance in this study.

2.1.3 Constructivism

Constructivism is another theoretical approach worth examining. Though not a substantive theory, it contains a set of assumptions that challenge the rationalist framework of realism and liberalism. It represents a growing shift in the main focus on material factors of state and international regimes to the impact of ideas in order to establish a social reality. Generally, constructivism maintains that it is not enough to look at realities as static, their meanings and attributions are but a function of the particular historic and cultural contexts to which they relate. The underlying belief is that the peculiarity of the social values, norms and assumptions in rationalising social and political happenings are equally of importance, without which ordinarily, their actual meanings would have been lost. Constructivism thus, permeates individual thoughts and meanings to include societal attributes that define them.

Essentially, constructivism is characterised by an emphasis on the importance of normative as well as material structures; on the role of identity in shaping political behaviour; and on the mutually constitutive relationship between agents and structures (Reus-Smit, 2005: 188). For constructivists, the units of analysis such as anarchy, military power, international trade and multilateral institutions, among others, are not as important as the realists and liberalists have made them appear. Even though such analytical variables are objective facts about the world, they have certain social meanings which are constructed from a complex and specific mix of history, ideas, norms and beliefs that characterise individual states and their behaviour. Dunne *et al.* (2007: 168) put it more succinctly by indicating as follows: "Explicitly, social phenomena such as states or alliances or international institutions, that is the

collective subjects of international relations may build on the basic material of human nature, but they take specific historical, cultural and political forms that are a product of human interaction in a social world."

Apart from concerning itself with the dissimilarities across context rather than a single objective reality, as well as the social dimensions, including the norms, rules, and language at a particular situational level, constructivism also allows actors multiple choices in the course of their interactions. These actors, according to Geels (2010: 499-500), are knowledgeable interactive agents who take cognisance of the rules, interpret and tailor them to the demands of the specific socio-cultural environment in which they operate. In effect, therefore, constructivism brings to being, realities that are distinctively peculiar to a particular history, culture and political setting. Hence, it is practically difficult to separate individuals or states from the context of normative meaning which shapes who they are and the possibilities available to them (Dunne *et al.*, 2007: 170).

Although it is acknowledged, to some extent, that states are egoistic (concerned primarily with the pursuit of their own self-interests) and rational actors (capable of establishing the most effective and efficient way of realising their interests given the environment under which they operate), constructivism places primary emphasis on issues of identities, ideas and beliefs as the key ordering features that give material meanings to inter-state relations. It proposes that these ordering features blur the notions of rationality under which states pursue their survival, power and wealth accumulation agenda. Interestingly, constructivists distinguish between a 'logic of consequences' – where actions are rationally chosen to maximise the interests of a state – and 'logic of appropriateness' – where rationality is heavily mediated by social norms (Holsti, 1978: 19).

While challenging the rationalists' view that states' interests are exogenously determined and, are therefore, formed prior to their social interaction, constructivists argue that actors – states and non-states – are inherently social, whose identities and interests are socially constructed and are also products of inter-subjective social structures. According to Berger and Luckman (cited in Geels, 2010: 499), constructivism stresses the inter-subjective sense-making and symbolic constructions of reality through which people create shared interpretations. The belief is that all knowledge is wedded to interests and, as such, theories should be explicitly

committed to exposing and dismantling structures of domination and oppression (Reus-Smit, 2005: 193).

Reasoning along the same thoughts, Wendt (1992: 398) asserts that identities are the basis of states' interests. These identities are constituted by institutionalised norms, values and ideas of the social environment in which actors operate. It is assumed that actors have distinct identities shaped by the cultural, social, political, as well as material circumstances in which they are embedded (Dunne *et al.*, 2007: 171). Constructivists not only assume that the environment in which states operate is social and ideational as well as material, they also believe that normative or ideational structures that shape social identities of political actors are as important as material structures. Besides, understanding how non-material structures affect actors' identities or at the least constrain their behaviour is important because identities inform interests and, in turn, actions. Such understanding, as argued, is no doubt, crucial to explaining a wide range of international political phenomena that rationalists ignore or misunderstand (Reus-Smit, 2005: 197).

From the foregoing, it is clear that climate change and the global process to deal with it is at best understood within the context of its inter-subjective sense-making and symbolic constructions as a social reality. This gives little or no consideration for structural domination in terms of the socio-economic issues associated with climate change. In this regard, Eckersley (2007: 248) rightly observes that the issue of environmental justice has been ignored. Considering the fact that environmental justice is not of primary concern in this study, the overall importance of environmental regime, as well as the interpenetration of inter-state relations and domestic structures remains a key issue.

2.1.4 The logic of two-level games

"The logic of two-level games" as espoused by Putnam (1988), seems to have addressed the issue of the environmental regime and, in particular, the reciprocal influence between domestic and international affairs. It presents an analysis of linkage politics at two-levels – domestic and international, which goes beyond the rationalists' analyses which focus on the interests of actors (states or non-states). Its core argument is that national-level policymakers are confronted with two distinct constituencies when making decisions (domestic-level and international-level); whereas, sometimes, the interests of these two levels are aligned and sometimes, they stand in opposite

directions. Politics at the domestic and international levels, are fundamentally interdependent, thus understanding states' interests in the international arena necessitates that serious attention be given to domestic and international forces since it is the interaction between the two that ultimately shapes how the international game is played out and, therefore, the extent of cooperation among actors.

Although Putnam's two-level analysis of the interconnection between domestic and global politics bears direct relevance to this study, its overbearing focus on the technicalities of international negotiations makes it less appealing. Of particular interest in his analysis is how and when domestic politics become entangled with an international negotiation using the two-level games metaphor. The two-level games focus on a general equilibrium that accounts simultaneously for the interactions of domestic and international factors while viewing states as gate-keepers between the two levels. These include the national level where domestic groups pressurise governments to adopt and implement favourable policies, as well as the international level where national governments pursue a national interest that is in conformity with domestic pressures taking into consideration the adverse effects of international developments. The international level, in this case, comprises of sovereign states that seek to always negotiate a treaty that best maximises their ability to satisfy domestic pressures while at the same time, minimising the untoward consequences of international politics.

Putnam (1988) explains that the interactive process between domestic and international politics is characterised by a situation when a national leader finds himself negotiating international agreements simultaneously. At one level is the international negotiation where the leader tries to reach an agreement with other leaders and at the other, is the domestic negotiation where the leader tries to get the agreement to be ratified through domestic legislation. The two-level games admit that the domestic and international dimensions of pressures are fundamentally different, and tend to exert influence on the negotiation process. According to Putnam (1988: 434):

Each national political leader appears at both game boards. Across the international table sit his foreign counterparts, and at his elbows, sit diplomats and other international advisors. Around the domestic table behind him, sit party and parliamentary figures, spokespersons

for domestic agencies, representatives of key interest groups and the leader's own political advisors.

Level I entails bargaining between the negotiators, leading to a tentative agreement, while Level II represents separate discussions within each group of constituents about whether to ratify the agreement or not. As explained by Putnam (1988: 436), the requirements that any Level I agreement must, in the end, be ratified at Level II, impose a crucial theoretical link between the two levels, considering that Level II win sets are very important for understanding Level I agreements. The "win-set" referred to is defined as the set of all possible Level I (international) agreements that would 'win' by gaining the necessary majority among the constituents (Putnam, 1988: 439). Thus, based on an analysis of international negotiations from the perspective of one country through win-sets, it is possible to estimate the impact of domestic politics on inter-state relations/negotiations.

Putnam (1988) further extrapolates that larger win-sets make Level I agreement more likely and, conversely, the smaller the win-set, the more likely the negotiations will break down. Furthermore, he argues that the relative size of the respective Level II win sets will affect the distribution of the joint gains from the international bargain since the larger the perceived win set of a negotiator, the more he can be tossed around by other Level I negotiators. In this regard, Putnam identifies three factors that affect win set size as follows: distribution of power, preferences and possible coalitions among Level II constituents; Level II political institutions; and the strategies of the Level I negotiator. However, he cautions that three other factors affect the interactions between Level I and Level II as follows: uncertainty which can be a bargaining device or a stumbling block; international pressures with capacity to shape domestic politics and thus influence international negotiations; and the role of the chief negotiator and his preferences which, according to him, can have a powerful impact.

Clearly, Putnam's two-level games offer far more than what is intended in this study. Although the aspect of negotiation is key to the global climate change process, the dynamics and nitty-gritty of the negotiation process are not covered within the scope of this study. Of particular focus instead, is the political interplay involving South Africa as an actor in the global climate change process.

2.1.5 Stag hunt game theory

Beyond the negotiation technicalities and manoeuvrings that often characterise international dealings, the cooperative endeavours of state actors demand special focus. The stag hunt game theory provides the simplest illustration of the ideas of cooperation and fundamentals of collective-action problems such as climate change. Skyrms (2004) explores the implications of a prototype of the social contract bothering on the story according to Rousseau (cited in Skyrms, 2004: 1) that: "If it was a matter of hunting a deer, everyone will realise that he must remain faithful to his post; but if a hare happened to pass within the reach of one of them, we cannot doubt that he would have gone off in pursuit of it without scruple."

Thus, theorising along the same lines, Skyrms (2004) contrasts the pay-off of hare hunting (where the risk of non-cooperation and the reward are both small) to the pay-off of stag hunting (where all players are required to cooperate and the reward is much greater). The underlying assumption is that hunters in the stag hunt are faced with the dilemma of choosing either to maximise individual (hunt hare) or collective-action gain (hunt stag), considering the payoffs of their choices. Even though an individual can succeed in hunting a hare alone, the value of a hare is worth much less than a stag. Hence, it is required that the cooperation of other players be sought to successfully hunt a stag. In other words, the best outcome for all players is to hunt a stag while, conversely, the worst outcome for any player is to consider doing it alone.

Unlike the Prisoner's Dilemma that equally illustrates the dilemma faced by two self-regarding and rational prisoners as actors in the game characterised by conflict between maximising individual and collective gain, stag hunt represents a "trust dilemma" game such that what is rational for one player depends on his beliefs and trust about the actions of the other player(s). According to Skyrms (2004: 2), cooperation in the stag hunt is consistent with rationality, whereas the validity of such cooperation depends on mutual beliefs and trust. Thus, achieving cooperation in a many-person stag hunt is more difficult than achieving cooperation in two-person stag hunt. Of course, the global climate change process involves multiple actors, a situation that probably explains, for the most part, the fraught COP meetings over the past two decades. However, the new Paris climate agreement has proved that though it is difficult, it is nevertheless, not unachievable. Yet, the critical issue remains the extent to which one can say that the new agreement constitutes the cooperative endeavour envisaged in the stag hunt proposition.

Based on Skyrms' analysis, rational players are pulled in one direction by considerations of mutual benefits and in the other, by considerations of personal risks. Hence, oscillating between hare hunt (risk-dominant) equilibrium and stag hunt (risk-rewarding) equilibrium is possible given that stag hunt may not solve the problem of cooperation. Rather, it allows for cooperation in equilibrium, as well as in non-cooperative equilibrium. On this basis, Skyrms (2004: 3) argues that:

Both stag hunting and hare hunting are Nash equilibria. That is, just to say that it is best to hunt the stag if the other player hunts stag, and it is best to hunt hare if the other player hunts hare. A player, who chooses to hunt stag, takes a risk that the other will choose not to cooperate in the stag hunt. A player who chooses to hunt hare runs no such risk, since his payoff does not depend on the choice of action of the other player, but he forgoes the potential payoff of a successful stag hunt.

However, the understanding is that change variation tends to move players out of hare hunting to stag hunting depending on the relative magnitude of the basins of attraction as regards the two equilibrium levels. As argued, if more than 75 percent of the population hunts stag, then stag hunters will take over and vice-versa (Skyrms, 2004: 11). Considering the fact that stag hunt game provides a theoretical basis for understanding some of the key challenges to proffer a cooperative solution to climate change, its inadequacy regarding the involvement of multiple actors in the global climate change process as earlier pointed out and, perhaps, complete lack of analysis concerning the interpenetration of domestic and international politics, justifies why the focus of this study is on the "second image reversed".

2.1.6 Second image reversed

Drawing from the basic assumption that domestic structure offers an explanatory tool for inter-state relations, the "second image reversed" (Gourevitch, 1978) primarily looks at the arrows that flow from the latter to the former; thereby balancing the interaction between the two. Unlike Robert Putnam's "Two-Level Games", whose theoretical formulation attempts to explain in metaphorical terms how and when domestic politics connect with international negotiations, Gourevitch's analysis deals more generally with the global system as a whole. According to him,

the global system, sometimes, becomes the cause of happenings at the domestic level, even though it acknowledges the importance of the domestic system as a cause of international relations (Gourevitch, 1978: 882).

Refuting the argument that there is a break in the past when compared with some of the features of the present in the analysis of domestic-international interactions, Gourevitch (1978: 882) maintains that the claim for the newness is overstated. According to him:

Many features which are considered characteristic of the present (interdependence, the role of trade, transnational actors, permeability, conflict within the state over desirable policy) also seem relevant to past systems and regimes; and conversely, characteristics of the past (war, instability, sovereignty, military power, international anarchy) seem to be still with us.

Basically, Gourevitch's main argument is that international politics and domestic structures affect each other. In other words, domestic politics and the global system are viewed as parts of a two-way interactive system. According to Gourevitch (1978: 911), "International relations and domestic politics are so interrelated that they should be analysed simultaneously, as wholes." This captures essentially the interconnection between domestic actions and global involvement with regard to South Africa and how they impact on each other. In his analysis of the impact of the international system on domestic politics, Gourevitch (1978) identifies the international state system and the international economy as the two aspects that have powerful effects on the character of domestic politics. However, he was quick to note that the two aspects are not exhaustive and that other global forces exist in this regard. Although no specific mention is made of climate change perhaps because it is a relatively new issue of the global common that poses as much threat (ecological) as a war to the global system, its inclusion among other external forces that exert influence on a state's actions would definitely not be out of order.

Furthermore, Gourevitch (1978: 883) contends that the impact of the international system on domestic structure includes a variety of effects ranging from specific events, decisions, a policy, regime type and pattern of coalitions. While regime type refers to the institutional structure, the machinery, process and procedures of decision-making, pattern of coalitions relate to social forces and political

relationships. These two, according to him, constitute the enduring features of the domestic structure, mostly used as a variable for explaining global actions of any states. This theory is also in line with the systemic theory that draws interplay between domestic and international systems where both influence each other (Ojo and Sesay, 2011: 12-27). It thus becomes relevant when one is examining the effects of climate change as polluters may not necessarily be affected by their actions because of their relatively high mitigation and adaptive capacity.

Also in connection with the liberalists' perspective, Gourevitch (1978:893) in his analysis of the effect of international politics on domestic issues captures more succinctly the argument that the growing role of non-state entities such as transnational, international, and multinational actors in global (nonmilitary) issue-areas like technology, trade, communications and culture tend to shape domestic policy in some significant ways. Reinforcing Keohane and Nye's theoretical proposition in what they refer to as "complex interdependence", Gourevitch concurs with the position that countries differ in global issue-areas according to their sensitivity and vulnerability. According to Keohane and Nye (1987: 186), "complex interdependence strengthens the need to focus on particular sensitivities and vulnerabilities of actors in specific issue-areas". On this basis, Gourevitch (1978: 893) states that:

Complex interdependence alters domestic structures because it entails shifts in power away from certain governmental institutions towards other ones, or even shifts outside the government to private actors, or to international actors, or other foreign actors. Policy becomes the outcome of an immense swirl of forces, in which pieces of government become components along with companies, unions, pressure groups, international organisations, technology and so on.

Undoubtedly, the question of sensitivity and vulnerability to climate change (with particular focus on South Africa) motivated the researcher to conduct this study. Like other developing states on the African continent (not with equanimity though), South Africa is extremely vulnerable to the adverse impacts of climate change. Besides, the important role of governmental institutions responsible for climate change in South Africa (directly or indirectly), as well as non-governmental entities

whose activities have some form of influences on climate change-related issues in South Africa are acknowledged in this study.

2.1.7 Complex interdependence

"Complex interdependence", based on the analysis of Keohane and Nye (1987), acknowledges that domestic characteristics of individual states form part of what shape their international relations. This aligns as much with the theoretical position of the "second image reversed," which brings about their compatibility. As earlier noted, the complex interdependence theory is employed in this study in order to theorise the complex and interactive nature of climate change on the one hand, and the importance of institutionalised inter-state relations in the global climate change process on the other. Besides, the choice of complex interdependence is also premised on its usefulness as a valuable tool for underpinning a wide range of interconnectedness, especially at non-state informal levels. Complex interdependence emphasises interdependence between states, transnational relations and non-state actors, particularly multinational corporations (MNCs).

The intention is to provide analysis of the key theoretical propositions of "complex interdependence", with a view to adapting them to issues raised in this study. The underlying basic assumption is that the global climate change process and the involvement of South Africa as a key actor *vis-à-vis* the analysis of its domestic approach in dealing with the complex and interactive nature of climate change can be modeled as complex interdependence, especially in the context of interconnection between domestic policy and international engagement involving multiple actors. International relations, according to Keohane and Nye (cited in Reus-Smit, 2005: 189), is not to be conceived as a system of 'colliding billiard balls' but as a cobweb of political, economic and social relations binding sub-national, national, transnational, international and supranational actors.

Quite relevant to this study is the fact that "complex interdependence" remains, perhaps, the only model that is particularly and conveniently compatible with environmental (ecological) regimes, given the contemporary global system. This compatibility is, no doubt, rooted in the liberal institutionalist outlook, which proposes that states respond to a common environmental problem (climate change inclusive) through multilateral cooperations established on the basis of a mutually agreed interdependent international agreements or environmental regime. Such

international regime, according to Keohane (1984: 57), is defined as 'sets of implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations'. The author further maintains that international regimes do raise the cost of cheating, lower transaction costs and increase information, thereby facilitating cooperation under anarchy. In this regard, Holsti (1978: 12) is even more vocal and believes that:

Institution-building reduces uncertainty, information costs, and fears of perfidy; improves international education and communication to ameliorate fears and antagonisms based on misinformation and misperceptions; and the positive-sum possibilities of such activities as trade are but a few of the ways, according to GS/C/LI perspective, by which states may jointly gain and thus mitigate, if not, eliminate the harshest features of a self-help international system.

In order to provide a better analysis of complex interdependence, it suffices that the concept "interdependence" be properly clarified to a better understanding of the theoretical model and its application in this study. Interdependence, according to Keohane and Nye (1987: 730), is a broad term that refers to situations characterised by reciprocal effects among countries or actors in different countries. They define interdependence as reciprocal effects among actors resulting from 'international transactions – flows of money, goods, people and messages across international boundaries' (Rogerson, 2000: 416). The import of their definition transcends mere connectedness between state actors; it also refers to the degree and patterns/outcomes of inter-state relations. From the analysis of Rusbult and Van Lange (2008: 2050), interdependence could be defined as relationships between actors in terms of situation structure using variables such as dependence, co-variation of interests and information certainty. By implication, the notion of interdependence proposes taxonomy of situation structure for an intra-personal and inter-personal process. Separately, Russett and Starr (cited in Amusan, 2010: 115) conceptualise interdependence to imply changes or events in any single part of a system which produces some reactions (sensitive effects) from or have some significant consequence to other actors of the system whether they like it or not. Russett (cited in Rogerson, 2000: 418) specifically points out that increased ties and transactions resulting from interdependence promote

trade, migration, tourism, and cultural and educational exchanges which encourage voluntary political and economic cooperation.

In this regard, Comor (cited in Rogerson, 2000: 422) cautions that interdependence does not mean equality; the capacity of some actors to shape and influence the conceptual formation and application of systems by other actors is fundamentally important. From Comor's analysis, it is clear that Keohane and Nye's conceptualisation of interdependence requires authority, whether in the form of public government or private or community governance. On this basis, Rogerson (2000: 423) provides clear distinctions between interdependence and other conceptual variants like mutual dependence (perfect or near perfect symmetrical relationships between actors); dependence (asymmetrical relationships with satisfactory outcomes in favour of one actor far more than the other); and imperialistic dependence (where one actor dominates almost entirely the relationships). Thus, relying on the distinctions, Rogerson (2000) argues that true interdependence is located somewhere in-between these extremes. However, for the purpose of analysis in this study, interdependence is defined as reciprocal relationships between multiple actors and involves a combination of structures and processes, given the contextual situation or environment in which they operate and the corresponding effects/outcomes of such interactions.

As an important variant of liberal perspectives, complex interdependence emerged as a deliberate attempt to challenge the theoretical inadequacy of classical realism with its state-centric assumption of a state being the main unit of analysis in international politics, which calls for questioning the highly interdependent international system. While incorporating some of the key elements of realism such as anarchy, self-interest and rationality as its starting point, the general belief, according to the complex interdependence perspective, is that these elements are not sufficient for an adequate understanding of international relations. Indeed, the realists' view of international system as 'anarchical' and, therefore, 'self-help' (Griffiths, 1999: 31) brought about the notion of complex interdependence between and among states, with its main focus on conditions of political processes, including issue-linkage, agenda and the role of international organisations as facilitators of inter-state cooperation (Keohane and Nye, 1987: 738).

Unlike structural realism, neoliberalism is characterised by states not as 'defensive positionalists', as earlier pointed out, but as 'utility-maximisers' such that

would allow cooperation provided it promises absolute gains *vis-à-vis* their national interests. Reus-Smit (2005: 193) adds that unlike realists who only believe in the existence of an international system, neoliberals go further to acknowledge the existence of an international society even though their conception of that society remains strategic. However, Keohane and Nye (1987: 731) conceive of "complex interdependence as a situation among a number of countries in which multiple channels of contact connect societies (that is, states do not monopolise these contacts); there is no hierarchy of issues; and military force is not used by governments towards one another". Their analysis reveals that complex interdependence is underpinned by three basic assumptions: (1) actors, other than states, constitute a critical element in shaping a state's policy instruments; (2) state policy goals are not arranged in stable hierarchies but are subject to trade-offs; and (3) military force is largely irrelevant.

With particular regard to issue-linkage, Keohane and Nye (1987) identified marine and international trade/monetary affairs as key examples of issues degradingly described as 'low politics' as against the realists' 'high politics' (military security and nuclear deterrence). Implicitly, Keohane and Nye (1987: 727) acknowledge that these two aspects are not exhaustive and, as such, make specific reference to the importance of the multidimensional nature of socio-economic and ecological interdependence. Their reference to ecological interdependence, no doubt, reinforces the position in this study that climate change constitutes a global issue of concern to state and non-state actors. To effectively deal with climate change as a global challenge, there is a need for global cooperative action in the form of interdependence. This understanding in its entirety aligns with the general perception that: (1) climate change constitutes an 'issue-area' of global concern that has continued to pose as much threat (ecological) as war to the contemporary global system; (2) climate change is complex and interacts with other socio-economic and environmental issues; and (3) climate change directly challenges sustainable development and, indeed, constitutes one of the focal principles of Sustainable Development Matrix (SDM).

To clarify further on the points raised, some important analysis may be relevant. Griffiths (1999: 186), for instance, asserts that outcomes resulting from conditions of political processes involving many states will be determined by the distribution of resources and vulnerabilities at particular issue-areas. His exposition aligns with Gourevitch's reference to Keohane and Nye's position as earlier pointed

out that complex interdependence takes into cognisance the sensitivities and vulnerabilities of actors in specific issue-areas. On this basis, it is clear that the researcher was inspired by South Africa's twin status as a major GHG emitter though relatively and one of the hard-hit by climate change.

With regard to the complex and interactive nature of climate change, it is an overwhelming scientific fact that climate change is multidimensional; it connects with socio-economic, political and environmental aspects of human life. Its recognition as a global challenge has also, no doubt, continued to provoke cooperation at all levels of inter-state relations. The most feasible being the institutionalised global climate change process as evidenced by multilateral arrangements such as the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol (KP) and the Conference of Parties (COP).

On the role of institutions in facilitating interstate cooperation, Keohane and Nye (1987: 738) consider international organisations as entities that institutionalise policy networks and within which transgovernmental policy coordination and coalition-building could take place. Martin (2007: 111) elaborates on this by maintaining that international institutions provide multilateral platforms through which states deal with collective-action problems that threaten stable patterns of cooperation, together with performing coordination and monitoring roles. She emphasises that international institutions become "valuable foundation" for international cooperation. Essentially, it is assumed that a range of collective-action problems are surmountable through institutional (multilateral) cooperation, many of which are rooted in transaction costs and agreements that are self-enforcing due to the absence of external enforcement and individual state sovereignty. Nevertheless, the chances remain that inter-state relations involving states acting multilaterally are regulated in a number of ways through international regimes that provide for mechanisms and standards to ensure that states live up to the terms of agreements reached.

It is instructive to note that Keohane and Nye's analysis is also underpinned by the assumption of rationality, which maintains that at all times states seek to maximise the highest optimum gain given the costs and benefits of different courses of actions and preferences open to them. In this regard, they contend that conditions of inter-state relations will be unrelated to the distribution of military power and that transnational relations will be crucial factors in the decision-making process,

including international coalitions and non-governmental institutions (Griffiths, 1999: 186). The condition of rationality in the context of Keohane and Nye's perspective simply implies that states and their fortunes are inextricably tied together in complex interrelationships involving many actors in world politics (Keohane and Nye, 1987; Powell, 1994).

Also, complex interdependence emphasises the interconnectedness between actors, which tends to affect both states' opportunities and their willingness to act in a particular way. This interconnectedness results in cooperation provided it is symmetrical and in competition and conflict if asymmetrical. Thus, Keohane and Nye (1987: 364) argue that the need for interdependence theory in explaining states' relations is to achieve all unattainable in isolation. This, according to Grieco (1988: 490), suggests that in a world of multiple issues imperfectly linked, in which coalitions are formed trans-nationally and trans-governmentally, the potential role of international institutions in political bargaining is greatly enhanced. According to Keohane and Nye (1987: 738), international institutions help to overcome selfish state behaviour mainly by encouraging states to forego immediate gains for the greater benefits of enduring cooperation. Underlying such belief is the fact that interdependent cooperative action among states results from the inability of even the most powerful states to cope with, or unilaterally bear the cost and risk of issues of global common, including environmental threats (Keohane, 2001). Hence, the question that readily comes to one's mind is how best can South Africa's coal-energy complex be dealt with in order to protect what is a common global resource that is the atmosphere?

This brings back the issue as regards the limit of interdependence as a prerequisite for inter-state cooperation. While employing interdependence to address issue areas of common concern such as climate change, Martin (2007: 110) espouses the liberalists' position that international institutions face problems of bargaining, monitoring and enforcement. Evidence in relation to this abounds in some of the criticisms directed at liberalism generally, and in practical terms, experiences from the negotiation crises that characterised the fraught COP meetings, in particular, and the entire global climate change process over the years. Keohane and Victor (2011) somewhat allude to this in what they term the "regime complex for climate change" indicative of a varied array of narrowly-focused regulatory regimes that characterise

the global climate change process. According to Keohane and Nye (1987: 730), the problem is that:

Interdependence generates classic problems of political strategy since it implies that the actions of states, and significant non-state actors, will impose costs on other members of the system. These affected actors will respond politically, if they have the capacity, in an attempt to avoid having the burdens of adjustment forced upon them. From the foreign policy stand-point, the problem facing individual governments is how to benefit from international exchange while maintaining as much autonomy as possible. From the perspective of the international system, the problem is how to generate and maintain a mutually beneficial pattern of cooperation in the face of competing efforts by governments (nongovernmental actors) to manipulate the system for their own benefit.

Although the prospect of cooperative action in dealing with climate change at both global and domestic levels is underpinned by the assumption of a degree of consistency between cooperation and the rationality of individual states, Keohane and Nye (1987: 730) do not mince their words and maintain that interdependence would not necessarily lead to cooperation. Reus-Smit (2005: 191) states that:

When economic and political interactions between states are minimal, there are few common interests to spur international cooperation. When interdependence is high, however, as since the Second World War, states come to share a wide range of interests, from the management of international trade to global environmental protection. The existence of mutual interests is a prerequisite for international cooperation, but neo-liberals insist that the existence of such interests does not itself explain the extent and nature of cooperative relations between states – international cooperation remains difficult to achieve.

Even though one can safely conclude that the problem of bargaining/cooperation *vis-à-vis* the global climate change process is at least resolved going by the new Paris climate agreement on climate change, issues relating to compliance and enforcement with the provisions of the agreement remain largely

unsettled. Thus, according to Keohane and Nye (1987: 731), complex interdependence may not faithfully reflect world political reality, and at best, represents an ideal type that is socially and environmentally determined.

Against this background, the researcher apportions relevance to South Africa's involvement in the global climate change process which, essentially, is approached through a formal channel of interactions involving its trans-governmental institutions such as the DEA, other relevant key national departments/agencies with issues of concern with climate change in South Africa, and SAILA. In addition, the theoretical approach provides recognition for inputs from climate change-based NGOs in South Africa such as Earth Life Africa Johannesburg (ELA Jhb.), Climate Action Network (CAN), Climate Action Partnership (CAP), as well as other relevant stakeholders, especially group or individual farmers who suffer extreme risk of climate change adverse impacts.

Significantly, complex interdependence downplays the importance of military solution to climate change, as well as supports that domestic actions are fundamental to any sufficiently ambitious international engagements. Lastly, as earlier pointed out, South Africa's vulnerability to climate change, no doubt, motivated the researcher to undertake this study and its theoretical linkage with complex interdependence.

2.2 LITERATURE REVIEW

To complement the above theoretical framework, three general themes were identified in the study that informed the literature review. These themes include: the causes and effects of climate change with particular focus on South Africa; global climate change process and South Africa's involvement; and South Africa's policy on climate change. The purpose of this approach is to allow for a more comprehensive review of relevant materials relating to the research topic.

2.2.1 Causes and effects of climate change: South Africa in focus

Climate change, no doubt, has been at the centre of most discussions in recent times, involving scholars and non-scholars, including political leaders, civil rights and environmental activists. Unlike most concepts, climate change interacts with other socio-economic and ecological aspects of human life. Even though it is popularly considered as environmental, some scholars have argued that climate change transcends purely environmental issues (Allen, 2012; Amusan, 2010; Nwebaza and

Kotze, 2009; Lalthapersad-Pillay and Oosthuizen, 2011; Lalthapersad-Pillay and Udjo, 2014; Stern, 2012; Tadesse, 2010).

In the context of international politics, Amusan (2010: 115), for instance, describes climate change as a parasitic concept that touches on many other social aspects, while Allen (2012: 3) is a bit more specific and contends that climate change is multifaceted connecting physical, scientific, socio-economic, political, cultural and legal aspects. Reasoning along the same line, but with particular emphasis on why climate change negotiations are very difficult and, therefore, remain a challenge to the UNFCCC process, Stern (2012) contends that climate change is not just a conventional environmental issue – it involves virtually every aspect of national economies, including industry, energy, transportation, agriculture and forests. Stern further maintains that this situation explains why limits on emissions make countries nervous about economic growth and development. Hence, Stern concludes that climate change is an economic issue every bit as it is an environmental one.

Alternative analyses by Nwebaza and Kotze (2009), Lalthapersad-Pillay and Oosthuizen (2011), Lalthapersad-Pillay and Udjo (2014) and Tadesse (2010) share a common sentiment regarding the link between climate change and sustainable development. Nwebaza and Kotze (2009: 73), for instance, emphasise that climate change is both an environmental as well as a development issue. Lalthapersad-Pillay and Udjo (2014: 870) concur with Sarkar by maintaining that climate change extends beyond environmental issues, thereby making it primarily a development issue and a key adjunct of sustainable development. With particular focus on the African continent, Lalthapersad-Pillay and Oosthuizen (2011: 368) and Tadesse (2010: 1) jointly re-echo the view that climate change will undermine Africa's ability to achieve the sustainable development agenda as envisioned in the Millennium Development Goals (MDGs). It should be borne in mind that MDGs have been transformed into Sustainable Development Goals (SDGs) (effective post-2015). A more constructive analysis is seen in the works of IPCC (2014: 90); that climate change though a threat to equitable and sustainable development, issues concerning adaptation, mitigation and sustainable development are closely related and, therefore, exhibit potential for synergies and trade-offs.

However, one area of agreement remains that climate change is an ecological phenomenon with catastrophic ramifications that constitute a serious challenge for sustainable development of which three pillars have been identified: environment;

economic; and society. Of the three, environmental sustainability is increasingly becoming more prominent and now seems well-established. This, no doubt, is premised on the understanding that everything connects with the environment and that the world's mineral resources are finite and exhaustible. According to Goodland (1995: 10), environmental sustainability is simply defined as the "maintenance of natural capital", while Moldan *et al.* (2012: 6) conceive of it as "the ability to maintain the qualities that are valued in the physical environment". In other words, it connotes the efficient use of renewable and non-renewable mineral resources which necessitate that adequate consideration should be made for minimising the potentially hazardous externalities occasioned by mineral development.

According to Prior *et al.* (2012), finite mineral resources such as coal, natural gas and crude oil (which, no doubt, are major sources of GHGs), otherwise referred to as peak resources, are by definition, non-renewable, non-replaceable and non-reproducible. This understanding, perhaps, underscores the position according to Amigun *et al.* (2008: 692) that development in Africa must take into consideration, the issue of environmental sustainability, considering the fact that the region is largely endowed with finite mineral resources. Their concern further establishes that African states grapple with the more daunting twin problems of contending with climate change, as well as achieving sustainable developmental goals. In this connection, IPCC (2007: 18) maintains climate response actions should be implemented to realise synergies and avoid conflicts with other dimensions of sustainable development. Klein *et al.* (2003: 8) observed that the Johannesburg Earth Summit in August/September 2002, provided a strong impetus to the discourse supporting links between climate policy and sustainable development, a situation that has given rise to the concept of "mainstreaming" – integrating climate change into existing developmental policies and programmes.

The understanding of climate change, for the most part, has been influenced by institutional definitions (DEAT, 2004; IPCC, 2007; UNFCCC, 1992; World Meteorological Organisation [WMO], 1989). This, perhaps, results from its global and complex nature. The WMO (1989), for instance, defines climate change as the average weather and the statistics of its variability over a period of thirty years. This traditional view of climate change looks deficient at least for two reasons: firstly, it fails to account for external causes or likely causes of climate change; and secondly, its speculation of thirty years is no longer tenable in view of the contemporary

realities about timescales of climate change. Hence, the definition is euro-centric for developed states to confirm anti-anthropogenic links to climate change. Although these lapses seem to have been carefully addressed by latter definitions (DEAT, 2004; IPCC, 2007; UNFCCC, 1992), it may be necessary to import these definitions for the purpose of clarity. The UNFCCC (1992: 7) defines 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". According to the DEAT (2004: iii), "global climate change is more about serious disruptions of the entire world's weather and climate patterns, including impacts on rainfall, extreme weather events and rise in sea level, rather than just moderate temperature increases". The account by the IPCC (2007: 30) conceives of climate change as "a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer".

Clearly, these definitions are not without some slight variations worth highlighting. For example, the DEAT's definition emphasises the serious nature of climatic disruptions as against normal temperature increases, while that of UNFCCC and the much later IPCC stress the need to pay attention to critical aspects such as human-induced climate change and timescales. Although the IPCC in its definition also refers to some kind of statistical tests in determining timescales, it however, does not specify any. Nevertheless, it is very likely that the referred statistical tests are not unconnected with the Global Climate Models (GCMs), which represent the core tool for projecting changes in the climate. These models, according to Xu (1999: 230) and Allen (2012: 10-11), are also not without inherent uncertainties.

Although it is rightly observed that the causes and effects of climate change are very diverse (Tol, 2009: 29), two major patterns of causes have been identified as responsible for climate change. These are natural processes (IPCC, 2007: 5; Taylor, 2013) and human activities (Hoffman, 2011; Leiserowitz, 2007; UNFCCC, 1992). In other words, there are two basic schools of thought in the climate change debate: those who view climate change as a natural phenomenon (natural); and those who consider human activities as the cause of climate change (anthropogenic). While not in complete disagreement with the two broad classifications, Ologunorisa (2011: 16) argues that the third school of thought (climate change sceptics) should equally be

recognised. Underscoring the fact that three positions needed to be distinguished, Ologunorisa (2011: 16) identified skeptics who claim that anthropogenic climate change has not been proved as a distinct group in addition to the two major schools of thought, while also acknowledging the popular view that: "The sceptics have dwindled significantly in numbers in recent years as the science of climate change has progressed, but they still get a significant hearing". His reservation aligns more or less with the position that the so-called climate sceptics are largely unidentifiable (Rosenbaum, 2011: 368-373; Stern, 2006: 2).

One missing point, however, is the exclusion of other notable schools of thought, including the agnostic school, which opines that climate change does not matter in any way, as well as the ice age school, which argues that the so-called changes in the climate system are merely indicative of the transition of the world to the next ice age. Even though the agnostic and the ice age schools have little or no bearing to this study, their mentioning as other schools of thought is not less important. Thus, the primary focus is on the two major patterns, which are natural and human.

Focusing on climate change as a natural occurrence, Taylor (2013: 25) contends that climate change (such as global warming and cooling) has occurred naturally throughout history over timescales that vary from decades to hundreds of thousands of years. Some causes of these natural changes in the climate system, which are also referred to as the extraterrestrial factors, include changes in the Earth's orbit, solar activity and volcanic eruptions. Alternatively, anthropogenic climate change results from human activity that modifies the composition of the climate system. According to IPCC (2007: 5), anthropogenic climate change is as a result of changes in atmospheric concentrations of GHGs and aerosols, land cover and solar radiation that alter the energy balance of the climate system. Also, in its Fifth Assessment Report (AR5), IPCC further established the human influence on climate system, while noting in particular that recent anthropogenic GHGEs are the highest in history. It argues that: "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and the ocean have warmed, the amounts of snow and ice have diminished and the sea level has risen" (IPCC, 2014: 2).

While not the only GHG responsible for climate change, it is a scientific consensus that carbon dioxide (CO₂) constitutes the most important single

anthropogenic GHG (Hallowes, 2008; IPCC, 2007; Ologunorisa, 2011; Rosenbaum, 2011). Hallowes (2008: 3), for instance, states that CO₂ is by far the most significant GHG because it is the most abundant and lasts longest in the atmosphere. IPCC (2007: 5) provides a clearer explanation that the annual emissions of CO₂ grew by about 80% between 1970 and 2004, even though it also acknowledges that the contributions of other GHG constituents such as methane (CH₄) and nitrous oxide (N₂O) have also increased significantly far above their natural range. Statistically, the average total contribution of CO₂ (fossil fuel use - 56.6 percent; deforestation, decay of biomass, etc. - 17.3 percent; and other sources - 2.8 percent) to climate change stood at 76.7 percent, while that of others (CH₄ - 14.3 percent, N₂O - 7.9 percent, and F-gases - 1.1 percent) combined, was just 23.3 percent (IPCC, 2007: 5).

Informed by the same statistical analysis, IPCC contends that global atmospheric concentrations of CO₂, CH₄ and N₂O have increased remarkably as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years. It further reveals that energy supply constitutes the greatest source of GHGs up to 25.9 percent followed by the industrial sector with 19.4 percent, forestry with 17.4 percent, agriculture with 13.5 percent, transport with 13.1 percent, residential and commercial buildings with 7.9 percent, and waste and wastewater with 2.8 percent. However, one needs to note that the analyses as contained in IPCC (2014), especially with regard to the GHG components and contributions by sectors to GHGs, are not in any significant way different from those of 2007 except for the fact that the former represents an updated report which reflects changes that have taken place since 2007. For example, with particular regard to sources of GHGs, IPCC (2014: 88) distinguishes between electricity and heat production and other energy sources. Directly connected to this and, in particular, the contention that fossil fuel and agriculture are the major sources of GHG atmospheric concentrations, Ologunorisa (2011: 18) states more categorically that anthropogenic climate change is largely caused by: (1) increase in the CO₂ content of the atmosphere as a result of human activities like bush burning, and burning of fossil fuels such as coal, gas and oil; (2) artificial generation of heat as a result of human activities, especially in urban areas; and (3) alteration in the earth's albedo as a result of deforestation, land clearing for cultivation or construction and animal grazing.

Although the debate as to the percentage contributions of natural and human factors to climate modification is yet to be finalised, most studies admit that climate change is largely anthropogenic (Allen, 2012; Chown *et al.*, 2010; IPCC, 2014 and 2007; Karl *et al.*, 2009; Stern, 2006; UNDP, 2007). In particular, IPCC (2007: 5) maintains that "Global GHG emissions due to human activities have grown since pre-industrial times, with an increase of 70% between 1970 and 2004." Furthermore, IPCC emphasises that the effect of human activities in recent years has been that of warming, considering the fact that most of the observed increase in global average temperatures since the mid-20th century, is likely due to the observed increase in anthropogenic GHG concentrations. It is further observed that there has been significant anthropogenic warming over the past 50 years averaged over each continent and that eleven of twelve years from 1995 to 2006 rank among the twelve warmest years in the instrumental record of global surface temperature since the year 1850 (IPCC, 2007: 2). An updated account was provided recently according to IPCC (2014: 4) as follows:

Anthropogenic greenhouse gas emissions have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever. This has led to atmospheric concentrations of carbon dioxide, methane and nitrous oxide that are unprecedented in at least the last 800,000 years. Their effects, together with those of other anthropogenic drivers, have been detected throughout the climate system and are extremely likely to have been the dominant cause of the observed warming since the mid-20th century.

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Unprecedentedly, the reality of anthropogenic climate change and its catastrophic ramifications on socio-economic and ecological lives across different regions of the world has continued to attract global consensus. With particular regard to observed changes in climate and their effects, IPCC (2007: 2) maintains that warming of the climate system is leaving no doubt with evidence of increases now manifesting in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level. More specifically, according to IPCC (2007: 2):

It is very likely that over the past 50 years: cold days, cold nights and frosts have become less frequent over most land areas, and hot days and

hot nights have become more frequent. It is likely that: heat waves have become more frequent over most land areas, the frequency of heavy precipitation events has increased over most areas, and since 1975, the incidence of extreme high sea level has increased worldwide.

The Panel also minced no words in its report that observational evidence across all continents and most oceans indicate that many natural systems are being affected by regional climate changes, particularly temperature increases (IPCC, 2007: 2). In addition to changes in natural systems such as air, ocean, snow, ice, and sea level, as earlier pointed out, observed changes are also evident in frozen ground, increased number and size of glacial lakes, increased runoff and earlier spring peak discharge in many glacier and snow-fed rivers, earlier timing of spring events, upward shifts in plant and animal ranges, increased ground instability in mountain and other permafrost regions, and so on (IPCC, 2007: 2). The Panel, in its AR5, also identifies extreme weather and climate events to include a decrease in cold temperature extremes, an increase in warm temperature extremes, an increase in extreme high sea levels and an increase in the number of heavy precipitation events in a number of regions (IPCC, 2014: 7).

However, the earth systems are not the only vulnerable elements to climate change. Both the natural and human systems are also believed to be adversely impacted by temperature and precipitation changes, together with sea level rise and other extreme events associated with climate change. Other non-natural climate-sensitive systems are equally not spared. Key amongst which are agriculture (food supply in particular) – though quite ironically as the sector also contributes to climate change, health, infrastructure, as well as other socio-economic human endeavours. IPCC (2007: 10, 13) maintains that the effect on agriculture includes complex and localised adverse impacts on smallholders, subsistence farmers and fish farmers, thereby resulting in low yields, damage to crops, as well as the inability to cultivate due to waterlogging of soils. The overall implication points to a significant decline in food security nationally, regionally and globally. For the health sector, the effect will manifest in increasing burden from malnutrition, diarrhea, cardio-respiratory and infectious diseases, increased morbidity and mortality from heat waves, floods and droughts, as well as changed distribution of some disease vectors (IPCC, 2007: 10). In the case of water, there would be increased water availability in moist tropics and

high latitudes, but decreasing water availability and increasing drought in mid-latitudes and semi-arid low latitudes. Hence, hundreds of millions of people would be exposed to increased water stress (IPCC, 2007: 10).

With specific reference to climate future projection, IPCC (2007: 7) maintains "continued GHG emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would very likely be larger than those observed during the 20th century". This has also been confirmed by IPCC (2014: v) in its latest Synthesis Report as follows: "The IPCC is now 95 percent certain that humans are the main cause of current global warming." The Report further indicates that human activity, as the cause of climate change, keeps increasing and it is, no doubt, the highest in history, impacting human and natural systems and also extending to all parts of the world.

IPCC (2014: v), through its AR5, was also clear in its findings as follows: "The more human activities disrupt the climate, the greater the risks of severe, pervasive and irreversible impacts for people and ecosystems, and long-lasting changes in all components of the climate system." While stressing that there are means to limit climate change and its risks, with response options that equally guarantee economic and human development, the Panel cautions that holding temperature increase to below 2°C relative to pre-industrial levels will require an urgent and fundamental departure from business as usual. Besides, it adds that the longer actions are delayed, the more it will cost and the greater the technological, economic, social and institutional challenges we will face (IPCC, 2014: v). It is instructive to note that the IPCC reports represent the most influencing position on anthropogenic climate change, and they are still widely held as a denominator in assessing the actual or potential causes/effects of climate change. Lending credence to this, Ogunorisa (2011: 16) states that "the IPCC has had an enormous influence on world thinking on climate change in so far as there is a consensus about its extent and dangers; it has played a large part in building it".

Most studies contain the general position that the industrialised countries contribute more to anthropogenic climate change traceable to the industrial revolution of the 17th century (IPCC, 2007 and 2014). Rather than generalising as regards the contribution of developed states as a whole to climate change, Amusan (2010) and Bond (2012) are of the common view that multinational corporations (MNCs) owned and controlled by rich industrialised countries, are the key actors and polluters. For

instance, Bond (2012: 165) argues that the main beneficiaries in the case of South Africa are the world's largest metals and mining corporations, especially BHP Billiton and various Anglo-American subsidiaries. Similarly, Amusan (2010: 112) is of the view that the parents' states, who are the recipients of the profits from the offshore investments carried out by the so-called multinational corporations (MNCs), should bear the cost of pollution and not African states that only serve as a dumping ground for their products. Thus, it is clear that the two scholars hold different views regarding who should bear the burden of GHGEs. While Amusan puts the blame on MNCs, Bond (2011: 4) particularly extends the blame to the rental state, while arguing that "South Africa exemplifies climate injustice given her sole dependence on fossil fuel as a source of energy and a major GHG emitter." Their viewpoints, no doubt, reinforce the critical issue of license by which MNCs are allowed to operate in partnership with rental states, which seems to have been ignored or perhaps taken for granted. Besides, there are other local activities outside the operations of MNCs that equally promote GHGEs. The analyses, according to Bond *et al.* (2009) and Bond (2011; 2012), have been largely influenced by clear consideration for climate justice, particularly from the perspective of the global civil society.

Concerning anthropogenic climate change in terms of the dissenting position, Rosenbaum (2011: 370) rightly points out that the so-called climate change dissenters are generally believed to be proxies and allies of MNCs whose activities revolve around minerals, in particular, gas and oil, as well as exploration. Levy and Egan (2003: 804) expressed a similar concern in their exposition by maintaining that US-based companies in polluting industries formed associations and lobby groups to challenge the science of climate change. This interplay of ecological and political roles of MNCs seem to align more perfectly with the liberalists/neoliberalists' perspectives on the importance of non-state actors in matters of global commons like climate change.

However, beyond their polluting status, it is also a consensus in the scientific community that rich industrialised states are the least affected by climate change because of their relatively high mitigation and adaptive level technologically. However, the reverse is the case regarding poor developing countries of the world (Obeng and Agyenim, 2013; Stern, 2006; Tol, 2009). Obeng and Agyenim (2013: 188), for example, espouse the general position that developing countries have a lower adaptive capacity and tend to be more vulnerable to climate change than their

developed counterparts. More strikingly, Stern (2006: 6) argues that the impacts of climate change on developing countries will be of particular severity. While it is clear that no region will be spared from the impacts of climate change, poor(er) countries whose majority of their population depends mainly on natural resources for survival, will be the most vulnerable. Several studies have also attested to the fact that the impacts of climate change in poor(er) countries (many of which are in Africa) will directly or indirectly affect human welfare and constrain efforts aimed at promoting sustainable development and environmental recovery (Adano and Daudi, 2012; AGI, 2014; Lalthapersad-Pillay and Udjo, 2014; Mwiturubani and Wyk, 2010; Tadesse, 2010).

More succinctly, Mwiturubani and Wyk (2010: x) posit that "the climate change phenomenon is a global concern, which typically threatens the sustainability of the livelihoods of the majority of the population living in developing countries. Africa, particularly the sub-Saharan region, is likely to be negatively impacted by climate variability and change". Ologunorisa (2011: 31) concurs with the above analysis and maintains that although climate change is a global problem, countries within the tropical region, significant length of coastline, poorly developed social and physical infrastructure, and whose economies and livelihood share greater sensitivity to climate-related events, are highly vulnerable to the negative impacts of climate change negative impacts. Ironically, third world countries (TWCs) are at best, marginal contributors to GHGEs due to their status as developing, and in some cases, Least Developed Countries (LDCs) characterised mainly by relatively lower economic activities. Besides, they also lack the capacity to mitigate and adapt to climate change. Obeng and Agyenim (2013:185) moot that the vulnerabilities of developing countries, though rooted in a number of socio-economic factors and constraints commonly associated with them, including dependence on natural resources and low poverty level as earlier pointed out, the scenario is further exacerbated by weak technical and organisational capacity, informal social constraints, as well as a potential socio-cultural resistance to scientific and technical adaptation mechanisms, amongst others. In particular, apart from poor economic status, inadequate adaptive capacity, low levels of innovation and technological progress, political deficiencies and ineffective diplomacy (Ruppel and Wulff, 2016: 49), Africa's vulnerability to climate change is further worsened by widespread poverty, relatively high rate of illiteracy, and more critically, heavy dependence on

rain-fed agriculture. IPCC (cited in Mwiturubani and Wyk, 2010: x) captures the scenario more explicitly as follows:

Africa's vulnerability arises from a combination of many factors, including extreme poverty, a high rate of population increase, frequent natural disasters such as droughts and floods, and agricultural systems (both crop and livestock production) that depend heavily on rainfall. Extreme natural occurrences such as floods and droughts are becoming increasingly frequent and severe. Africa's high vulnerability to the negative impacts of climate variability and change is also attributed to its low adaptive capacity.

The effects of human-induced climate change are, for the most part, negative, drastic, and catastrophic with dangerous ramifications for the health and wealth of any nation. Beyond the general understanding that the effects/impacts vary from one region/country to another, the belief is also that anthropogenic climate change is still occurring. IPCC (2007: 18) maintain that "determining what constitutes "dangerous anthropogenic interference with the climate system" in relation to Article 2 of the UNFCCC involves value judgements. Science can support informed decisions on this issue, including by providing criteria for judging which vulnerabilities might be labelled 'key". This simply implies that some uncertainties still surround its exact impacts, while in reality, there are various views (sometimes, opposing) regarding the dangerous impacts of climate change. The widest predictions, no doubt, hold that, for the most part, the effects of climate change will be negative and dangerous.

However, Mendelsohn *et al.* (2006: 161) are some of the few exceptions who contend that countries in relatively cool regions of the world – still developed countries – will likely benefit from warming, while countries in relatively warm regions of the world – still developing countries – will be endangered by it. While they re-affirm the peculiarity and vulnerability of most developing countries to climate change, it is further established based on their findings that climate change represents both opportunities and risks for human development. But the extent to which it is so for Africa as a whole is still questionable. Allen (2012: 3) vaguely assumes the difference in climate change opportunities and threats to developed and developing countries by maintaining that climate change presents to society as a whole, a wide range of threats and a narrower range of opportunities politically,

economically and socially. Similarly, IPCC (2014: 13), in its latest report, states that climate change will exacerbate existing risks and create new ones for natural and human systems, while it also acknowledged that the risks will be unevenly distributed and are generally greater for disadvantaged people and communities in countries at all levels of development.

Based on the projected regional impacts of climate change on Africa, it is expected that: (1) By 2020, between 75 and 250 million of people are projected to be exposed to increased water stress due to climate change; (2) By 2020, in some countries, yields from rain-fed agriculture could be reduced by up to 50% which implies that agricultural production, including access to food, in many African countries, will be severely compromised with adverse effects on food security; (3) Towards the end of the 21st century, projected rise in sea-levels will affect low-lying coastal areas with large populations with the cost of adaptation amounting to at least 5 to 10 percent of Gross Domestic Product (GDP); and (4) By 2080, an increase of 5 to 8 percent of arid and semi-arid land in Africa is projected under a range of climate scenarios (IPCC, 2007: 11).

These predictions are in line with the consensus that climate change will impact severely on Africa as a whole even though Southern Africa and, in particular, South Africa, has been identified as a potentially vulnerable sub-region. In this regard, Richards (2008: 8) observes that "It is generally acknowledged by environmental scientists that the southern Africa region is extremely vulnerable to climate change problems and its impacts on the environment." Although Richard's observation lacks in-depth analysis, a number of factors may be of help in validating his position. These include: (1) some of the world's ranked LDCs and TWCs with relatively and, perhaps, extremely low development indices – small population, income per capita, Human Development Index (HDI) rank, most and extreme events vulnerability status – are found in the sub-region; (2) many states in the sub-region, if not all, depend heavily on natural and mineral resources as major drivers of their respective economies, implying that the negative spin-offs of extractive activities of multinational corporations in these states add to that of climate change; and (3) there is a relatively high degree of socio-economic and ecological heterogeneity arising particularly from the *landlockedness* of some of the states in the sub-region which further deepens the connective nature of climate change. Beyond the question of landlocked geographical configuration of some of the states in the sub-region, which makes them spectacularly

prone to ecological disasters induced by climate change, the reality is also that most Southern African Development Community (SADC) member states are mining countries, with mining activities contributing between 40-90 per cent of national budgets of mineral resource-dependent Southern African states (SARW, SADC-PF, 2013: 4).

More specifically, Glazewski and Collier (2012: 319) posit that the geographical setting of Southern Africa is such that it exposes most Southern African states to the warm Indian Current from the Indian Ocean, the cold Benguela Current from the Atlantic Ocean, the warm Agulhas Current from the tropics and the high Central Plateau. They argue further that these four main climate determining factors, and the resultant varying atmospheric conditions during winter and summer, justify the peculiar vulnerability of Southern Africa to climate change and South Africa, in particular, being the largest economy in the sub-region. Their contention is further reinforced by the prediction that if nothing is done about climate change and South Africa continues to burn fossil fuels and chop down its forests at the current rates: (1) South Africa's coastal regions will warm by around 1-2°C by about 2050 and around 3-4°C by about 2100; (2) South Africa's interior regions will warm by around 3-4°C by about 2050 and around 6-7°C by about 2100; (3) there will be significant changes in rainfall patterns and this, coupled with increased evaporation, will result in significant changes in respect of water availability which implies that the western part of the country is likely to experience significant reductions in the flow of streams in the region; (4) South Africa's biodiversity will be severely impacted, especially the grasslands, fynbos and the succulent Karoo where a high level of extinction is predicted; (5) South Africa's crop production, particularly maize, fruit and cereal in winter rainfall areas may be badly affected; and (6) there will be an increase in the frequency and severity of extreme weather events, and so on (Effects of Climate Change on South Africa, 2011).

Officially, the DEA (2010: 7) argues that "by mid-century, the South African coast will warm by around 1-2°C, and the interior by around 2-3°C. After 2050, warming in South Africa is projected to reach around 3-4°C along the coast, 6-7°C in the interior". The situation portends that many South Africans would be vulnerable to extreme weather events associated with climate change since majority of the country's population live in impoverished conditions such as informal settlements and residential arrangements that expose them to harsh rain, wind and cold. Expanding the

analysis to include the impacts of climate change on health-related issues in South Africa, Turpie *et al.* (2002) argue that the prevalence of curable and terminal diseases and, in particular, HIV/AIDS, cholera and tuberculosis, will worsen climate change situation in South Africa. However, he failed to examine some of the positive impacts of government interventions through the provision of ART (antiretroviral therapy) in dealing with the situation.

Focusing on climate-induced agro-water stresses given the environmental relations between South Africa and its entirely landlocked neighbour (Lesotho), Amusan and Olutola (2015) contend that climate change ramifications in Lesotho would not only be more real but also that it would impact extensively, directly and, of course, negatively on developmental issues in South Africa (its relatively industrially developed neighbour). This is because the former is a source of water supply for the industrial heartbeat of the latter. Perhaps, in this connection also, Turpie *et al.* (2002) argue further that small-scale and subsistence farmers, as well as fish farmers, are most vulnerable to the effects of water shortages and droughts, thereby resulting in low productivity particularly and, ultimately, food insecurity. They further contend that due to bush encroachment, especially in Savannah regions, the impact of climate change is also more likely to pose a great risk to the Kruger National Park and other ecosystems, including biodiversity hotspots (grassland, fynbos and succulent karoo biomes) in South Africa. In particular, they cite the case of the African penguin, an iconic marine bird that is endemic to South Africa and Namibia, which is already facing the risk of extinction due largely to climate change. The information, as contained in South Africa's INDC, concludes that the country is especially vulnerable to climate change impacts, particularly in terms of water and food security, health, human settlements, and infrastructure and ecosystem services (UNFCCC, 2015d: 1).

Moreover, most studies on South Africa's climate change look in the way of the country's high vulnerability to its impacts, even though it is argued that the situation is due mainly to its coal-dependent economy (Bond *et al.*, 2009; Chevallier, 2011; DEA, 2011a and b; DEA, 2010; DEAT, 2004; Death, 2014; Fisher, 2014; Heerden *et al.*, 2006; Nkomo, 2005; RSA, 2011; Winkler and Marquand, 2009). Nkomo (2005), for instance, posits that South Africa has large reserves of low-grade and low-cost extractable coal through which up to 92% of cheap electricity is generated in South Africa, in addition to the production of synthetic liquid fuel with Sasol and PetroSA as major players. Heerden *et al.* (2006: 114) provide a slightly

increasing figure in their contention that "coal is the dominant source of primary energy supply and is used as fuel stock for the generation of 94 per cent of the country's electricity". According to Fisher (2014), South Africa depends largely on coal for its electricity generation and synthetic liquid fuel for up to 93% and 30% respectively. Though there are slight variations regarding the figures, it is clear from their analyses that coal is a key pillar of the South African economy. Besides, a more reliable account based on the World Energy Outlook Special Report indicates that an overall estimate of 94% of South Africa's electricity is generated from coal (OECD/IEA, 2014: 85), while around 30% of the country's gasoline and diesel needs are produced from indigenous coal (WCA, 2012: 12).

Considering the fact that South Africa might have experienced some further slight reductions in its dependence on coal, especially in recent times, given the current efforts aimed at transition to a climate-resilient and low carbon economy, the argument, according to Nkomo (2005: 10) that energy provision, which is largely driven by coal is crucial to overall development in South Africa, still remains very relevant. Bond *et al.* (2009: 18) are even more vocal and maintain that climate change would be an economic disaster for South Africa, especially in view of the country's over-reliance on coal. According to Bond *et al.* (2009: 34), the country's continued reliance on the extremely wasteful burning of low-grade coal has a worsening impact on the environment, not only through emissions but also in requiring vast amounts of coolant water.

While also establishing the link between economic growth and climate-energy complex in South Africa, Menyah and Wolde-Rufael (2010) argue that sufficient evidence indicate that economic growth is not a solution to GHGs' reduction in South Africa since doing the latter would simply imply both a reduction in energy consumption per unit of output as well as sacrificing its economic growth. Hence, they suggest that "an alternative and viable option for South Africa is to increase the use of alternative sources of energy that are relatively free from pollutant emissions" (Menyah and Wolde-Rufael, 2010: 1381). Winkler and Marquand (2009: 47) argue that such transition to a low-carbon economy will require a paradigm shift in industrial policy which may be difficult to achieve since South Africa is carbon constrained. Having also established that South Africa is a heavily coal- and mineral-dependent economy, with some of the highest levels of social and economic inequality in the world, Death (2014: 2) moots that South Africa falls well short of the

United Nations Environment Programme's (UNEP) definition of a green economy as one which is 'low carbon, resource efficient and socially inclusive'.

Fisher (2014) does not consider the country's over-reliance on coal as totally negative. This is based on the argument that aside using coal as the main source of its electricity generation with around 34 million tons mined every year, South Africa also benefits from the coal industry as the mining industry's top revenue earner (ahead of platinum and gold) with approximately \$1.1 billion paid as direct and indirect taxes and royalties by Anglo American alone in 2012, and as a single employer of labour of up to 83,000 people with their combined salaries and wages totaling \$1.6 billion in a country with a 25% unemployment rate. Many scholars, including Chevallier (2011: 50), Bond (2011: 4) and Kotze (2011: 490) are also of the common view that extensive degradation in South Africa is associated with mining activities that not only include coal but other mineral resources. De Wit (2011) maintains, in particular, the environmental hazards associated with fracking of shale gas in The Karoo which has pronged at least two opposing views: (1) that shale gas is better left untapped due to massive environmental degradation and health hazards emanating from chemical pollutions envisaged in the process; (2) that the Karoo finite resource offers a fairly credible alternative to South Africa's coal-dependent energy economy, considering that gas produces greener energy compared to coal.

The overriding position, however, remains that coal as one of the key economic drivers, is critical to South Africa's economic growth and development. Like Bond *et al.* (2009), Bond (2011 and 2012), Chevallier (2011), Death (2014), Fisher (2014), Pillay (2013), as well as several other studies on South Africa's coal-driven economy such as Winkler and Marquand (2009: 52) argue that South Africa is extremely energy-intensive by international standards; only a handful of countries have higher intensities. Although Chevallier (2011: 50) and Pillay (2013) differ in their separate contentions that South Africa is the 13th and 12th world's highest carbon emitter respectively, Chevallier is clearer as it relates the figure specifically to energy-related CO₂ with emissions per capita ratio only slightly below industrialised countries and well above the average of developing countries. She further argues that emissions from energy supply and uses constitute by far the largest part of South Africa's total emissions (91 per cent) – 40 per cent of these emissions accounted for by electricity generation from Eskom's coal-fired stations.

In whatever manner, coal generates more carbon than any other mineral resources and its use as a source of energy is also encouraged because it comes at a relatively cheaper rate compared to other sources of energy. As a result, it is argued that South Africa is among the countries with the lowest energy prices in the world (Heerden *et al.*, 2006: 119). Aside chronicling a more detailed revelation credited to Professor Mark Jury regarding South Africa's contribution to GHG climate change, Bond *et al.* (2009: 13) also maintain that officials, corporations and uncritical NGOs, are hiding under the KP's Clean Development Mechanism (CDM) to continue what he refers to as South Africa's hedonistic outputs of GHGs, while also earning profits in the process. In a separate but similar analysis, Bond (2011: 9) argues that South Africa, in reality, owes a vast climate debt to Africa given its world-leading rate of CO₂ per GDP per person. Elsewhere, Bond (2012: 160) contends that South Africa has one of the world's highest rates of carbon emissions per dollar of GDP.

However, it is not clear from all of these arguments whether South Africa, as a major but developing GHG emitter classified as a non-Annex I Party, should be rated at par with other rich industrialised Annex I countries under the KP and, therefore, assume similar responsibilities in terms of quantified GHGs reduction targets as applicable to those countries. Whatever be the case, South Africa is excluded from the list of Annex I Parties (developed/industrialised countries and economies in transition) with the binding quantified emission limitation or reduction commitments under the KP (UN, 1998).

2.2.2 Global climate change process and South Africa's involvement

Generally, and as far as the global climate change process is concerned, scholars often make reference to activities centred around the WMO and UNEP jointly established IPCC in 1988; the 1992 UNFCCC Earth Summit held in Rio de Janeiro, Brazil; the 1997 KP which stipulates GHGs reduction targets for Annex I countries; and the Conference of Parties (COP) which represents the administrative arm of the UNFCCC/KP that meets annually to make and adopt decisions aimed at promoting the objectives of the Convention. However, prior to the establishment of these institutions was the 1972 United Nations Conference on the Human Environment (UNCHE) held in Stockholm, Sweden, which, no doubt, signaled as the first global attempt aimed at addressing international environmental issues. This was

to be followed by the 1985 Vienna Convention for the Protection of the Ozone Layer and the 1989 Montreal Protocol on Substances that Deplete the Ozone Layer.

Like other global multilateral arrangements, the trajectory from the IPCC to the KP has been characterised by an array of events and activities geared towards finding a global cooperative solution to climate change. The global climate change process, for the most part, has pitched developed industrial states who are the major polluters against their developing nonindustrial counterparts who are mostly non-polluters and vulnerable regarding virtually all aspects of climate change discussions. These range from loss and damage, climate fund, support and so on. For instance, with regard to loss and damage, the position of developing countries championed by Brazil, South Africa, India and China (BASIC) is such that the burden of returning the climate to its pre-industrial status should be borne by developed nations, together with their multinational corporations (MNCs) since they created the problem in the first place through their unchecked industrial revolution of the 17th century and subsequent indiscriminate emission of GHGs from various human activities. Hence, as the one responsible for the anthropogenic climate change and its untoward negative impacts, it is compelling for developed nations to assist poor developing countries, who incidentally, turned major victims of climate change-induced ecological consequences in order to transit to economies largely propelled by clean energy sources. Regrettably, developed countries have been accused of not doing enough in this regard.

While challenging the BASIC school of thought and showing little or no regard to the principle of “common but differentiated responsibilities and respective capabilities” (CBDRRC), the USA-led bloc representing the collective view of developed nations, advocates that solution to climate change requires collective action. It, therefore, justifies their 'failure to assist' polluting activities linked to no fewer dirty coal plants that also exist in rapidly industrialising and other emerging economies, particularly in Asia. In particular, the USA, being the world's number one GHG emitter, together with Australia, declined to ratify the KP on the ground that the CBDRRC was faulty since relatively industrialised countries like China, India and other rapidly emerging economies were excluded from the Protocol's legally binding GHG emission reduction targets set for Annex I countries (Ecklersley, 2007: 259; Rosenbaum, 2011: 389). Part of their arguments is also that it is unappealing to put their economies at a disadvantaged position should they consider cutting their

GHGEs. Similarly, Brunnee *et al.* (2012: 61) maintain that nations, once tagged "developing", have now become big polluters in their own right. As such, industrialised countries fear that abiding by the KP quantified emission reduction commitments will give high-carbon economies in transition and developing countries an undue advantage. Dismissing such explanation as a mere pretext while making specific reference to the case of the USA, Amusan (2014a: 48) argues that the country's non-ratification of the protocol was because it challenged her sovereignty and economic development.

Whatever the case may be, CBDRRC is a defining characteristic of the global climate change negotiations through which the differing responsibilities and capabilities of Parties to the UNFCCC are acknowledged and established. The principle assumes that rich countries have polluted for longer and should, therefore, bear a bigger responsibility for addressing the problem with climate change. Rajamani (2015: 1) states in specific terms that "in recognising that parties vary both in their levels of responsibility for climate change and in their capacities to address it, the CBDRRC principle provides a basis for differentiating among them". Hence, the principle supports the fact that developed countries should take the lead in the global efforts at dealing with climate change. However, the extent to which the principle has been substantially complied with leaves much room for debate within academic circles.

Ologunorisa (2011: 50), for instance, contends that the CBDRRC principle has generated at least two polarised visions of political reality; Northern versus Southern views. He maintains that the Northern view is not only to ensure that developing countries, who are at best marginal contributors to anthropogenic climate change, participate in the GHGE reduction activities but also that no harm is caused to the economies of industrialised economies with regard to their commitments to any global climate change deal aimed at significantly reducing their GHGEs. Conversely, the Southern view represents a lack of confidence in the subsisting global climate change agreement, which continues to deny the developing world the right to benefit equally from the protection of what is a common global resource, that is, the atmosphere.

In the face of the opposing stance, Ologunorisa (2011: 50) argues that "leaving these two views un-harmonised is definitely an impediment to realising the goal of the Kyoto Protocol". Expressing more or less similar criticisms against the KP, Helen

Dagut (cited in Mathebula, 2014: 453) observes that environmental and social concerns in the Protocol are sacrificed for economic and, by extension, development concerns. Brunnee *et al.* (2012: 53) are of the view that the UNFCCC failed to address important issues regarding burden-sharing arrangements, the nature, content and extent of CDRRC in the climate regime. These lines of argument also affect other issues bothering on quantified emission reduction commitments involving Annex I Parties under the KP, NAMAs in the case of developing non-Annex I countries, as well as the newly introduced intended nationally determined contributions (INDCs) under the Paris climate agreement; all of which have been criticised for their self-differentiated and defective approach.

Basically, the critical argument between developed countries and their developing counterparts has always revolved around the loss and damage mechanism (LDM). The mechanism championed by developing countries requires that developed nations bear the burden for offsetting the losses and damages suffered by developing countries through the provision of adequate compensation to enable them cope with climate change-induced events, which ordinarily, goes beyond their coping capacity. In essence, the mechanism clearly exemplifies climate justice in line with the principle of CDRRC. This principle, according to Ologunorisa (2011: 5-6), admits that industrialised countries are the major contributors to anthropogenic climate change far more than what obtains regarding developing nations. Hence, morality demands that major polluters (i.e. industrialised nations and their MNCs) bear the brunt of reverting the climate to its pre-industrial natural system and, in doing so, adequate support should be provided to developing countries to mitigate and adapt to the ecological problem caused by industrialised nations, especially through financing and technology transfer. Based on the analysis, therefore, advocates of climate justice like Allen (2012), Amusan (2014a), Bond *et al.* (2009), Bond (2011 and 2012), among others, mostly members of civil society, are of the strong view that rich industrialised countries should, in addition to significantly reducing their GHGEs, acknowledge and offset their climate debt owed to the South. They reject the whole idea of carbon markets, describing it as a neoliberal strategy aimed at commodifying nature, while equally advocating for the establishment of an International Climate Justice, as well as an end to intellectual property rights (IPRs) for climate technology (Bond, 2011: 45).

Industrialised countries, on the other hand, rejected the whole idea of climate justice. The core of their argument is that linking liability and compensation to global efforts aimed at tackling climate change is anathema and, therefore, could create complicated legal and financial issues. Hence, based on their collective view, the solution to climate change requires global cooperative action, which must involve both polluters and non-polluters alike. Stern (2006: 4) appears to have canvassed their position when he argues that "both stronger ambition on the part of industrialised countries and the involvement of developing countries will be necessary if emissions are to be substantially reduced". The statement credited to the U.S. President, Barack Obama (cited in Amusan, 2010: 130) that "more confidence building between 'emerging economies, least developed countries, and developed countries' is needed before a legally binding global agreement on climate change can be reached", also speaks volume in this regard.

Considering the fact that developing countries have not stopped to put pressure on industrialised countries to step up their efforts and save humanity from imminent dangers that climate change portends for the contemporary global system, the issue of climate fund, undoubtedly, represents one of the most contentious areas of disagreement between them. According to Winkler (2005: 357), this probably results given that implementation of GHGE commitments by developing countries depends largely on financial and technical assistance from major polluters, especially industrialised countries. Thus, as part of their commitments under the UNFCCC and following the Cancun climate agreements in 2010, developed countries not only pledged the sum of USD30 billion between 2010-2012, they also backed it with a promise to mobilise another USD100 billion every year up to 2020 as mitigation and adaptation assistance to developing countries to help them reduce their GHGEs and also adapt to the impacts of climate change (Lattanzio, 2014; Schalatek *et al.*, 2010).

According to the UNFCCC (1992) and KP (1997), developed countries fall under the groupings called Annex I or Annex B – including countries undergoing the process of transition to a market economy also known as "economies in transition" (EIT), and Annex II – members of the Organisation for Economic Cooperation and Development (OECD) classified as developed (industrialised) countries and already listed under Annex I Parties but excluding the EIT. Annex II Parties, in particular, are under obligation as provided under the UNFCCC and its KP, to provide financial assistance to developing countries to enable them to mitigate and adapt to the adverse

impacts of climate change. In addition, Annex II Parties are required to "take all practicable steps" to promote the development and transfer of environmentally friendly technologies to EIT, as well as developing non-Annex I Parties which are low-income countries. Least Developed Countries (LDCs) were also given special consideration because of their limited mitigation and adaptive capacity. Essentially, the purpose of the assistance is to assist them in reducing their GHGEs (climate change mitigation), as well as managing the impacts of climate change (climate change adaptation).

Prior to the creation of GCF, there were other financial initiatives such as the Least Developing Country Fund established in 2002 to specifically address the needs of LDCs and support the preparation of the National Adaptation Programme of Actions (NAPAs); the Special Climate Change Fund created in 2004 to provide financing to developing countries for climate change-related activities and programmes complementary to funding provided by the Global Environmental Facility (GEF); as well as the Adaptation Fund (AF) created in 2007 to finance activities aimed at strengthening developing countries' resilience to climate change of which the fund also attracts in addition to financial contributions, 2% share of proceeds from revenues generated through the CDM (Mansell, 2015: 2; Ologunorisa, 2011: 56). Besides, there were also a set of Climate Investment Funds (CIFs), which include the Clean Technology Fund, the Forest Investment Programme, the Pilot Programme for Climate Resilience, and the Scaling-Up Renewable Energy in Low Income Countries Programme. These CIFs were established in 2008 within the institutional framework of multilateral development banks (MDBs) such as the World Bank (WB), the European Bank for Reconstruction and Development (EBRD), Inter-American Development Bank (IADB), Asian Development Bank (ADB) and African Development Bank (AfDB) to provide a channel for climate finance.

With particular reference to these financial instruments and much like the case with the GCF, Klein *et al.* (2003: 3-4) assert that climate funds represent a major breakthrough for adaptation, while at the same time, they present a number of problems. They maintain contributions to the funds are largely voluntary and insufficient to meet adaptation needs; the criteria are a far cry from the nature of adaptation; and also that the structure of the funds supports sector-specific adaptations rather than societal adaptations, which could bring about more benefits. In the same vein, Lalthapersad-Pillay and Oosthuizen (2011: 377) remark that the funds have been

heavily criticised for being both fiscally and technically inadequate. Although it was agreed by Parties to the UNFCCC that the GCF would be mobilised from various sources, including public and private, bilateral and multilateral, and other alternative sources, a number of controversies had since surrounded almost every aspect of the fund, while it largely remains a pledge. Amusan (2010), for instance, emphasised on its inadequacy, while Bond (2012 and 2011) and Brunnee *et al.* (2012) espoused on other controversial issues surrounding its source, control mechanisms, accessibility and implementation strategy. Substantial arguments in the academic arena also point to the concern that the fund will be diverted into more general development issues, many of which may not connect directly with climate change. This and other related issues are well captured in the analysis by Lattanzio (2014) who states as follows:

Initial funding came from Germany, France and a dozen other countries who pledged approximately \$2.3 billion during the United Nations Climate Summit in September 2014. The Obama Administration announced a pledge of \$3 billion over four years during the G-20 meetings in Australia on November 15, 2014. Notwithstanding these financial pledges, some operational details remain to be clarified. They include what role the GCF would play in providing sustained finance at scale, how it would fit into the existing development assistance and climate financing architecture, whether sources beyond public funding would successfully contribute to it, and how it would allocate and deliver assistance efficiently and effectively to developing countries.

Lattanzio's observation, perhaps, explains the initial stance of developing countries; that a larger portion of the fund be provided by rich industrialised countries themselves. Central to their argument is the fact that if the GCF is left in the hands of the private sector, the fund may end up serving the interests of multinationals who are themselves major contributors to climate change, thereby turning the fund into Greedy Climate Fund (ISS, n.d.). It is also their concern that the fund should not be linked with the carbon-trading gimmicks and that access to it should also not be in competition with developed countries as is the case with other developmental financial instruments under the control of the World Bank (WB);

that is seen as not only undemocratic but also a key promoter of the “hazardous” neoliberal economy.

Like Lattanzio, other scholars have also condemned the involvement of the World Bank (WB) in the management of the GCF (Amusan, 2014a and 2010; Bond, 2012; Mendelsohn *et al.*, 2006). Mendelsohn *et al.* (2006), for instance, raised consternation to the effect that the role of WB as custodian of the GCF had been criticised by civil society given its past record and continued financing of environmentally unfriendly projects, particularly in developing countries. The analysis by Bond (2012: 103) specifically affirms that the integrity of the fund has been compromised by the involvement of WB in its management (as an interim trustee). Bond (2012: 163) made particular reference to the financing of Eskom (the South African national electricity utility), with a loan of \$3.75 billion for the construction of a coal-fired power plant in April 2010 by the WB, the same year the GCF was created, while Amusan (2014a and 2010) examined the bank’s pro-West and pro-dirty investments in Africa and other developing states. Their common position, however, remains that the dual role of the bank as a carbon trader and fossil-fuel financier, runs contrary to the objectives of the GCF, which basically is to finance and promote low-carbon, sustainable development in developing countries. As if to make matters worse, the study by Lalthapersad-Pillay and Oosthuizen (2011: 377) examined the GCF with one of its findings revealing that donors tend to delay on meeting their pledge. Bond (2012: 103) corroborated the same and observed that austerity-minded states in the USA and the European Union are already backtracking on their pledge to the GCF.

With regard to technology development and transfer, studies also differ in their analyses. For example, Amusan (2014a: 17) contends that the so-called climate-friendly technologies are simply beyond the reach of most developing countries that are relatively impoverished economically, while the situation is further complicated by the desire of the business sectors to protect and retain their patent rights at all cost. Although the UNFCCC commits to technology transfer from developed countries to developing ones, Hallowes (2008: 14) argues that IPRs, leveraged on and designed to sustain unequal power relations, are central to the neoliberal economic agenda of the World Trade Organisation (WTO); hence, such commitment is in itself, contradicted in the WTO process and has been dishonoured. Looking into the same issue but with a view to proffering a solution, Giddens (2009) suggests that the fundamental problem

is to make clean energy sources competitive with fossil fuel energy sources, whether through public provision of subsidies or through technological advances. He emphasised that the role of technology in promoting low-carbon lifestyles is bound to be considerable. Hence, technological innovation remains a core part of any successful climate change strategy, as well as energy policy. His analysis brings to the limelight, the global climate change strategy which seeks to strictly reduce GHGs through multilateral instruments such as the CDM, emission trading system (ETS) and joint implementation (JI) mechanism.

While the CDM allows Annex I countries to earn Certified Emission Reductions (CERs) credits by financing sustainable GHG-reduction projects in developing nations in order to meet their quantified emission reduction commitments under the KP, the ETS (also known as offsetting) allows industrialised countries to trade in carbon or emission credits in such a way that countries with levels of emissions below their agreed targets, will be able to sell the excess emission credits to countries that fail to meet their own targets. Whereas, the JI mechanism allows industrialised countries to nullify GHG pollution by investing in (green) renewable projects or carbon sinks in other industrialised countries. These mechanisms, according to Ologunorisa (2011: 52), simply illustrate a scenario of robbing Peter to pay Paul. Focusing on the CDM, in particular, Nwebaza and Kotze (2009: 143) observe that since its inception, a number of problems have been associated with the mechanism. Key amongst which include: (1) the so-called CDM projects contributing marginally to socio-economic and environmental sustainability in host countries; (2) the CDM investment flow favouring only a small sub-set of environmental priorities like tree planting at the expense of the more substantial renewable energy projects such as solar or wind; (3) institutional bureaucracy and general weakness, capacity constraints, resource poverty, as well as unnecessary delays in programme implementation; and (4) difficulties in accessing the adaptation fund which is a subsidiary of the mechanism, and inequitable distribution of the fund to finance adaption programmes, especially in developing countries.

Although his intellectual orientation was largely underpinned by the global civil society's perspective/activism, Bond *et al.* (2009: 5) describe CDM projects as 'low-hanging fruits' that are always the first to rot since they are the first to be picked by investors given their high returns. They further argue that "the distribution of carbon allowances (a prerequisite for trading) to the biggest polluters, presupposes

one of the largest and most regressive schemes for creating poverty rights in history". On this basis, Ologunorisa (2011: 51) also contends that the rules under which carbon trading operates are not very clear since there are many unresolved issues. It is also the concern of most developing countries that the traditional Official Development Assistance (ODA) handed out by developed countries will likely be used to fund CDM projects. Hence, the mechanisms are seen as a new form of colonialism through privatisation of the air.

As against the polluter pays principle (PPP) which advocates that those responsible for climate change should bear the burden of remedying the climate system, as well as supporting any consequent adaptive response that may be required, the acronym simply translates to mean that it pays to pollute since those who contribute majorly to pollution, are in turn, beneficiaries through carbon trading. This is exemplified in the argument that the Reducing Emissions from Deforestation and Degradation (REDD) programme is a deliberate attempt to take advantage of Africa as a sink for pollution caused by Northern countries (Bond *et al.*, 2009: 32). Bond (2012: 20) further contends that the REDD is another capitalist agenda to draw forests into the deeply flawed carbon markets and offset schemes. Through privatisation, commodification and sale of forested lands as carbon offsets, the REDD allows a financial laundering mechanism for developed countries to shift their carbon pollution onto developing countries. As such, those responsible for the climate crisis not only get bail for the environmental crime committed, but also profit from it. Aside from the argument that the approach is contentious, Ologunorisa (2011: 51) adds that there is no sufficient data on natural carbon sinks.

Although some of these challenges have been acknowledged by the IPCC (2007: 18), it nevertheless, posits that notable achievements of the UNFCCC and its KP are the establishment of a global response to climate change, stimulation of an array of national policies, and the creation of an international carbon market and new institutional mechanisms to provide the foundation for future mitigation and adaptation actions, especially at the global level. Yet, these achievements have been challenged based on the argument that the global climate change process and, more specifically, the KP, are fundamentally and bureaucratically flawed (Rosenbaum, 2011: 389; Bond, 2012: xii). However, of particular importance to this study is South Africa's involvement in the process.

Several studies have focused on this topic with varied perspectives though (Atteridge, 2011; Bond *et al.*, 2009; Death, 2014; Droge, 2010; Hallding *et al.*, 2011; Hochstetler, 2012; Hurrell and Sengupta, 2012; Husar, 2010; Masters, 2009 and 2012; Mokwena, 2011; Never, 2010). Mokwena (2011: 6-7), for instance, argues that since the advent of democracy in 1994, South Africa has been firmly integrated into climate change and related environmental regimes at regional and international levels through signing and ratifying a bewildering array of protocols, treaties, agreements and frameworks that provide guidance to its climate change response actions. Masters (2009: 11) examines the South Africa's active and, perhaps, leading role in the process, which according to him, would not be strictly established until after 2007 following its BAU declaration as part of its commitment to the Bali Action Plan (BAP). One can also establish the reason behind the country's active role in the global climate change process in view of the remark by Death (2014: 1) that the global interest in the 'green economy' generally became heightened since 2008. But with the changing global economy and the 'rise of the South,' Death (2014) is more emphatic about South Africa's high-profile engagement with the green economy despite the fact that the country faces many challenges in pursuing a transition to a more sustainable development. His concern for the rise of developing countries of the South in the global green economy finds some relevance with the argument, according to Tollefson and Gilbert (cited in Reddy and Wilkes, 2015: 8) that developing countries more than doubled their emissions, increasing their share of the global total from 29 per cent to 54 per cent.

The situation, among other factors, probably explains the emergence of many coalition groups from the global South *vis-à-vis* the global climate negotiations of which South Africa is actively involved. Although Death (2014: 2) made partial reference to South Africa's position as a new member of the BRICS (an association of five major emerging economies comprising Brazil, Russia, India, China and South Africa), he did not go into detailed analysis regarding the country's key role in BRICS and other global coalition groups such as BASIC and the G77+China (a primary negotiating group for developing countries *vis-a-vis* the global climate change process). However, Hallding *et al.* (2011) examined, in particular, and more comparatively, each of the BASIC member countries with the observation that together, they contribute substantially to GHGEs, while equally stressing their peculiar vulnerability to climate change, at least economically. Other studies focused

on South Africa's multiple memberships, particularly in the context of its role in the controversial 2009 Copenhagen Accord. In particular, Hochstetler (2012) is more attracted by the country's membership of G77 and China and how South Africa's role in the Copenhagen Accord set it apart from the broader group, while Hurrell and Sengupta (2012) analysed more clearly, each of the BASIC member countries' GHGs reduction commitments, which were jointly declared a day before Copenhagen Accord.

Similarly, Bond *et al.* (2009) and Husar (2010) emphasised South Africa's coordinating role in the global climate change negotiations even though the two differ slightly in their assessment of the import of such role. Bond *et al.* (2009: 18), for instance, state that South Africa's midwife role between major polluters has the potential to resolve the crisis by bringing together the two opposing factions – the USA and China, while Husar (2010) posits that the country's position as exemplified in its coordinating role relative to the Copenhagen Accord, conflicts with that of its traditional alignments, which include the G77+China and the African Group (AG). Atteridge (2011), Droge (2010) and Never (2010) also share a similar view. Atteridge (2011: 3), for instance, describes its BAU declaration a day before the Copenhagen Accord as a self-portrayal. However, the much credit for in-depth discussion about the challenges inherent in South Africa's ambivalent approach towards the global climate change negotiations, triggered by the country's domestic energy mix that is majorly carbon-based, should be given to Masters (2009 and 2012).

Howbeit, one area of agreement in all the studies on South Africa's involvement in the global climate change process is that the country is a strategic geopolitical player on the African continent with enormous influence as advocate of continental agenda on climate change, as well as a strong voice in the global South *vis-à-vis* climate change negotiations. However, discourse is still not sufficient as to whether South Africa's global actions on climate change truly seek to advance and promote the continent's climate change agenda or its nothing but a self-seeking ambition. Bond (2012: 158), for instance, reveals that South African leaders regularly let down their African colleagues in the COP meetings. Hence, it is clear that existing studies have not adequately addressed all issues about South Africa's involvement in the global climate change process. Of particular mention in this regard are those relating to the country's low-carbon transition and other energy security challenges in the context of its domestic policy, which, no doubt, establish the link with this study.

2.2.3 South Africa's policy on climate change

Generally, response actions to address climate change at any level take two dimensions as provided under the UNFCCC and KP arrangements. These include mitigation and adaptation. Notwithstanding that all Parties are required to take actions to mitigate, as well as adapt to climate change, it is important to note that prioritising between the two response options is dependent on a number of factors, including the contribution of individual states to GHGs; the extent to which each state is affected by the negative impacts of climate change; and, to a reasonable extent, the cost value. For instance, it is evident that more stringent mitigation and adaptation policies have greater chances of reducing the dangerous impacts of climate change, whereas such policy measures attract more expenditure in terms of implementation than less stringent ones. Similarly, while most industrialised countries focus on mitigation, which essentially is aimed at reducing and preventing GHGs to return the global climate to its pre-warming level, developing countries give priority to adaptation which entails strategies geared towards coping with the negative impacts of climate change.

On mitigation, IPCC (2007: 18) maintains that "a wide variety of policies and instruments are available to governments to create the incentives for mitigation action. Their applicability depends on national circumstances and sectoral context" As earlier pointed out, national circumstances relate more specifically to the emissions' status of individual countries among other factors. On the other hand, Berrang-Ford *et al.* (2010: 2) argue that adaptation includes adjustments in human systems as a way of responding to actual or expected climatic conditions or their effects, which moderates harm or exploits beneficial opportunities. With a deeper explanation, IPCC (2007: 14) maintains that "a wide array of adaptation options is available, but more extensive adaptation than is currently occurring is required to reduce vulnerability to climate change. There are barriers, limits and costs, which are not fully understood".

However, according to Klein *et al.* (2003: 3), it is observed that despite the acknowledgement of the two approaches, national and global policy on climate change has focused mainly on mitigation. Yet, many have argued that no amount of mitigation efforts could, in the immediate sense, avert climate change due to the time difference in the global climate alteration (Allen, 2012; IPCC, 2007, 2014; Karl and Peterson, 2009; Stern, 2006; UNEP, 2010; United States Global Change Research Programme (USGCRP) cited in Jantarasami, 2010). The IPCC (2007: 7), for instance,

maintains the that "there is high agreement and much evidence that with current climate change mitigation policies and related sustainable development practices, global GHGEs will continue to grow over the next few decades". In its AR5, the IPCC (2014: 16) further established that "many aspects of climate change and associated impacts will continue for centuries, even if anthropogenic emissions of greenhouse gases are stopped. The risks of abrupt or irreversible changes increase as the magnitude of the warming increases". Similarly, the UNEP (2010) raised concern that there is no proof to show that climate change has, in any way, been mitigated despite the adoption of UNFCCC. Allen (2012: 10) seems to have made the situation particularly more palpable when he posits that "current understanding of the carbon cycle reveals that even a very substantial reduction in emissions would simply cause atmospheric concentrations to rise more slowly. That it would be centuries to millennia before the climate would return to anything close to its pre-industrial state". Although Allen (2012) provides no scientific details regarding his contention, it remains a consensus that there is lack of sufficient knowledge about adaptation. According to IPCC (2014: 19), there are limits to adaptation effectiveness, considering the increasing magnitudes and rates of climate change even though it admits that the risks of climate change impacts can be reduced through adaptation. This view, to a large extent, explains why mitigation is given more priority over adaptation. As such, and, ironically too, adaptation again becomes a necessity. Nevertheless, sole reliance on adaptation involves huge social and economic costs. According to Stern (2006), the implication is that mitigation becomes costlier.

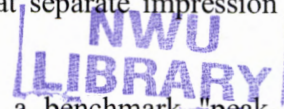
Regardless of the seeming dissimilarities between the two approaches, the common position is that both mitigation and adaptation are essential to effectively deal with climate change. The IPCC (2007: 19) acknowledges the inadequacy of each instrument, as well as their complementary role towards a significant reduction in the risks of climate change. The IPCC (2014: 17), in its AR5, puts it more succinctly as follows:

Adaptation and mitigation are complementary strategies for reducing and managing the risks of climate change. Substantial emissions reductions over the next few decades can reduce climate risks in the 21st century and beyond, increase prospects for effective adaptation, reduce the costs and challenges of mitigation in the longer term and contribute to climate-resilient pathways for sustainable development.

However, Klein *et al.* (2003: 5) sound a warning that synergising the two climate policy options will encounter greater institutional complexity, both nationally and internationally, which could limit the efficacy of the measures among other challenges. Furthermore, Klein *et al.* (2003: 6) contend that "there is a risk that mitigation activities will simply be labelled adaptation activities and vice versa so as to make them eligible or increase their attractiveness for funding". In this regard, the IPCC (2014: 26) provides the way out that effective implementation of mitigation and adaptation strategies is a factor of policies and cooperation at all levels (global, regional, national and sub-national), which can be enhanced through integrated approaches that link the two climate change responses with other societal objectives. The Panel's reasoning is, perhaps, informed by its argument that the two responses are underpinned by common enabling factors namely, effective institutions and governance, innovation and investments in environmentally sound technologies and infrastructure, sustainable livelihoods and behavioural and lifestyle choices (IPCC, 2014: 26).

As far as South Africa is concerned, both mitigation and adaptation measures are being considered, a situation that results mainly from its twin status as a 'major' GHG emitter and one that is vulnerable to climate change adverse impacts. Basically, most studies on South Africa's climate change policy alluded to the country's commitment to achieving a 34% deviation from Business As Usual (BAU) by 2020 and 42% by 2025 (Masters, 2009: 11; GLOBE, 2013: 373). The BAU represents a direct response to the BAP, which was launched as a comprehensive process to advance the global climate change process beyond the KP binding emissions cuts through long-term cooperative action on climate change with the primary aim of reaching an agreed outcome on or before the 2009 Copenhagen climate talk. Although the BAP initiated discussions on NAMAs, Measurement, Reporting and Verification (MRV), REDD and so on, which according to Brunnee *et al.* (2012: 56-57) is another major step forward even though it tends to create a somewhat separate impression from the KP approach.

In particular, South Africa's BAU measured against a benchmark "peak, plateau and decline" GHGs trajectory where the country's emissions peak between 2020 and 2025, plateau for approximately a decade and begin declining in absolute terms thereafter (RSA, 2011: 14; Masters, 2009: 7). However, CAT (2015) criticised the Business-As-Usual/Peak-Plateau-Decline (BAU/PPD) commitment as largely



inadequate on the ground that it is a far cry from what is required as the country's contribution towards achieving the UNFCCC ultimate objective. That is, stabilising GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. As a signatory to numerous international agreements relating to climate change, including the UNFCCC, KP and the latest Paris climate agreement, South Africa is under obligation as contained in those agreements, which essentially bother on mitigation and adaptation. According to RSA (2011: 5) and Beaumont (2011), these obligations are guided by two key objectives: (1) to effectively manage inevitable climate change impacts through interventions that build and sustain South Africa's socio-economic and environmental resilience, as well as its emergency response capacity; and (2) to make a fair contribution to the global effort to deal with climate change in a sustainable manner.

Hence, South Africa has developed a number of flagship regulations to specifically address climate change. These include the Bill of Rights in South Africa's Constitution, which contains among other things, an environmental right; the National Climate Change Response White Paper (NCCR-WP) which was released in 2011 as a deliberate policy move to mitigate and adapt to climate change in South Africa; the National Environmental Management Act (NEMA, 1998) which serves as the most single important regulatory framework for managing environmental issues (climate change inclusive) in South Africa; the 2008 National Strategy for Sustainable Development which spells out general guidelines, including the introduction of a carbon tax, renewable energy feed-in tariffs, carbon capture and storage, mandatory targets for renewable energy, energy efficiency, solar energy systems, emission saving transport systems, waste management, water conservation and demand management (AWEPA, 2012: 5), among others.

However, studies on environmental governance (climate change inclusive) in South Africa reveal that though there exists a range of climate change policies, many of which have found their ways into specific environmental related laws like the NEMA Act (1998), the National Nuclear Energy Act (1999), the Electricity Act (1987), Air Quality Act (2004), National Water Act (1998), Biodiversity Act (2004), among others, the country still faces a number of challenges in its efforts aimed at tackling climate change (DEA, 2011; Glazewski and Collier, 2012; Kotze, 2011; Masters, 2009; Mokwena, 2009; Plessis and Nel, 2011; Richards, 2008). Richards (2008), for instance, identified poor resource and weak institutional capacity, as well

as ineffective policy implementation, coordination and monitoring. Mokwena (2009) raised the issue regarding poor inter-governmental coordination, with examples drawn from responses to climate change in the three major municipalities in South Africa namely, eThekweni, the City of Cape Town, and the City of Johannesburg. Glazewski and Collier (2012), Kotze (2011), Plessis and Nel (2011) are unanimous in their approach, which focuses on the twin challenges of ineffective compliance and enforcement deficiency *vis-à-vis* environmental governance in South Africa.

In particular, Glazewski and Collier (2012: 328-329) emphasise that environmental compliance and enforcement mechanisms remain scattered across many different laws which are also in turn administered by an array of national, provincial and local authorities. This situation, they further argue, has resulted in duplication, confusion, bureaucracy and inaction which continue to frustrate effective environmental governance in South Africa. Although the issue of institutional fragmentation and weaknesses run through most of the studies, the DEA (2011a) gave a robust analysis of the different dimensions of fragmentation namely, horizontal, vertical, stakeholder and legislative. In this connection, the DEA (2011a: 6) rightly observes that institutional and legislation fragmentation pose enormous challenges to horizontal coordination, while vertical coordination is constrained by inherent structural challenges. It posits further that the challenge of stakeholder coordination remains that of a complex activity due to different (and often opposing) interests, ideologies, capacities, as well as varying degrees of political influence of the different stakeholder groupings.

Extending the argument to include inter-sectoral fragmentation, Kotze (cited in DEA, 2011a: 11) contends that the different dimensions are all responsible for inefficiency and poor implementation of climate change governance, which is but one dimension of environmental governance in South Africa. This, according to him, should therefore, not be allowed to contribute additional fragmentation to existing ones. His observation becomes even more relevant, considering the position of Knieling and Filho (2013: 1) that climate change governance is not only an emerging area but also that it deals basically with the twin issues of mitigation and adaptation. According to Knieling and Filho (2013: 2), "the broad nature of climate change governance makes it difficult to explain and conceptualise, since the complexity of climate change and the many ecological, economic and social variables with which it is associated, extend beyond the scope of traditional governance processes". Although

no specific mention was made of the areas covered within the traditional governance processes, it is very likely that environmental governance tops the list.

Yet, another critical issue is whether the understanding of climate change governance being a part of environmental governance simply implies that the former extends beyond the latter. Moreover, explicitly or implicitly, the DEA (2011a) made no clear provisions for delineating the boundary between climate change governance and environmental governance. At best, it acknowledges that there is a need for enhanced synergy between the Intergovernmental Ministerial Committee on Climate Change (IMCCC) and the Parliament, as well as the development of an implementation protocol. This clearly underestimates the important link between climate change and proper legislative procedures, especially such that will translate to a distinct climate change act in South Africa, which is yet to receive sufficient academic interrogation. It also underscores the argument in some quarters that South Africa lacks a coherent policy on climate change. On this basis, Richards (2008: 3-4) contends that:

What South Africa does have is a range of sectoral policy documents, strategies and action plans on many different aspects of climate change, which means that all the different existing policies and strategies are, therefore, not informed by a coherent national policy, thus amplifying the chances of all these disparate documents failing to address the challenges posed by climate change and its environmental impacts in a coherent and systematic manner consistent with other national policy frameworks.

Although Richards was right to have pointed out that South Africa lacks a coherent policy on climate change, the bulk of his analysis centred on climate change and South Africa's expected role within the integrative confines of the Southern African Development Community (SADC). Having also acknowledged the fact that South Africa is facing a number of challenges in balancing its domestic priorities with growing international pressure for it to reduce its GHGEs, Masters (2009) argues that South Africa lacks credibility in calling for a greater international commitment to address climate change, considering the government's slow progress in mainstreaming climate change into the country's socio-economic development priorities. This, he examined with a particular focus on South Africa's climate-energy

complex, which, no doubt, constitutes the primary attraction for most studies on South Africa's climate change (including this study), as well as negotiation issues preparatory to the 2009 Copenhagen climate talks (COP15). The issue, however, is that Copenhagen has come and gone. Besides, a lot had since transpired from Copenhagen to date not only in the global arena of climate change process but also with regard to South Africa's responses to climate change.

One of such was the official release of the NCCR in 2011 about three and two years after Richards' and Masters' publications respectively. However, despite the release, there is still no sufficient scholarly proof to show that the incoherent gap has been taken care of. The DEA (2011a: 9) openly lent credence to this, having revealed that some technical solutions to the country's climate change have been developed though, there are still no substitutes for a comprehensive policy and governance framework in ensuring effective implementation; hence, an efficient and effective governance system integrating climate change into administration is required.

At another level and, of course, separately, Weston (2011) and Death (2014) appear to have touched on some of the relevant issues, especially given their emphasis on the coal and mineral-energy contradiction in South Africa's approach towards addressing climate change. From a typical domestic perspective, Weston (2011), for instance, describes South Africa's climate change policies as rhetoric. Central to his analysis is the argument that despite global warming, South Africa is expanding its coal-intensive electricity infrastructure, thereby locking the country into a fossil fuel future that contradicts any political claims of attempting to deal with climate change. Hence, South Africa exemplifies the contradictions between capitalism and ecological sustainability given the clear example of the World Bank loan of USD3.75 billion to Eskom for the construction of the Medupi Power Station (Weston, 2011: 142). The Medupi coal-fired plant, according to Weston (2011: 145), being the fourth largest in the world, represents a case of "creating the logic of an economy that is internally subordinated to the interests of the minerals and energy complex and externally subordinated to the imperial market".

Similarly, Death (2014: 9) makes an unambiguous allusion to the Medupi scenario which was rated as the third (as against the fourth) largest coal-fired power plant and other coal-fired power plants located in South Africa such as the new Kusile coal-fired power plant as possibly the fourth largest in the world, as well as Sasol's Secunda plant being one of the largest point sources of CO₂ emissions in the world.

Close to what is intended in this study, Death (2014) examines the apparent contradiction given South Africa's international recognition as a leader in the global action on sustainable development and environmental justice on the one hand, and the country's coal and mineral-driven economy on the other. In doing this, Death (2014) conceptualises the green economy with the identification of four discourses on the subject namely, green revolution, green transformation, green growth and green resilience. Even though it was clearly pointed out that out of the four categories green growth constitutes the dominant discourse and the basis upon which South Africa can be positioned as a global leader in the green economy, Death (2014: 3) emphasises that "in many respects, South Africa is an unlikely candidate to be leading or advocating a transition to a green economy". The core of his argument is that South Africa's overall commitment to the whole idea of the green economy is rather shallow and incoherent, and poses little potential to drive sustained economic growth, let alone, genuinely transform the country's development model (Death, 2014: 3). In other words, the implication is that there are substantive issues affecting South Africa's version of green growth, even if it were to be pursued vigorously.

Without any doubt, the studies by Weston and Death, as reviewed, lack in-depth analyses of South Africa's policy on climate change, as well as the country's leading role in the global climate change process. Though these two studies are quite logical and relevant, much of the details of South Africa's global and domestic actions on climate change were either taken for granted or avoided. In particular, Weston (2011) over-flogged the issue of the World Bank loan to Eskom. In the same vein, from all the studies reviewed thus far, one can deduce that some key political issues that underscore the policy (and legislative) aspect of South Africa's climate change have not been sufficiently explored. This is so at least in terms of evidence-base empirical analysis. Hence, the researcher, in this study, engages more empirically with the discourse on the politics of climate change *vis-à-vis* policy responses towards addressing its adverse impacts, with particular focus on South Africa. It seeks to unearth factors behind the country's political interplay regarding its approaches towards climate change both at the global and domestic levels than to make unfounded assumptions. More importantly, this study will be approached against the background of the argument calling for a distinct climate change act, as well as a separate/dedicated administrative lead agency on climate change in South Africa.

Lastly, also underlying the importance of this study, is the new Paris climate agreement. The Agreement was agreed to by nearly 200 countries, including the USA and China (the two arrowheads of the blockade to previous attempts) at the end of COP21 climate summit held in December 2015 in Paris. According to the provisions of the Agreement, Parties (South Africa inclusive) are under collective obligation, to commit themselves to keep global warming below 2°C, as well as pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels; having recognised that this would significantly reduce the risks and impacts of climate change. Hence, one of the concerns of the researcher in this study is to examine the extent to which the new Paris climate agreement represents a genuine globally acceptable climate change deal and what compliance level is generally expected even though South Africa has made it known that the country will continue to depend on coal for its industrial development.

2.3 Chapter summary

Key theoretical assumptions of relevant theories of politics and international relations were examined in this chapter. However, particular focus was given to “complex interdependence” and “second image reversed” as the two most suitable theoretical paradigms to underpin the discussion in this study. Their systematic fusion provides some degree of laxity that caters for the many aspects and complexities of climate change, at the theoretical level. While the emphasis in relation to “second image reversed” was on the interrelationships between domestic happenings and international affairs which correspondingly speak to South Africa’s domestic response to climate change and its involvement in the global climate change process, the emphasis as regards “complex interdependence” deals with a range of interconnectedness and the involvement of multiple actors including NGOs (both international and local) as stakeholders in the climate change process domestically and globally.

Also, at the theoretical level using complex interdependence, this chapter established the multidimensional nature of climate change given that it impacts virtually all aspects of human life, as well as the important role of institutionalised arrangements like the UNFCCC, KP and COP. In particular, the latter systematically leads to the need to discuss the trajectory of the global climate change process, which basically revolves around the identified institutionalised structures that constitute the main focus in the next chapter.

CHAPTER THREE

TRAJECTORY OF GLOBAL ENVIRONMENTAL/ CLIMATE CHANGE REGIMES

3.0 INTRODUCTION

From the literature reviewed, one can deduce that the global climate change process revolves around three key regulatory frameworks as follows: the UNFCCC; KP; and COP. However, initial global discourse on environmental issues in which climate change was a core subset dates back to the first United Nations Conference on the Human Environment (UNCHE) held in Stockholm in mid-1972. The event was followed by numerous global environmental conventions, action programmes and conferences. Key among them, are the 1982 United Nations Environmental Programme (UNEP), the 1985 Vienna Convention for the Protection of the Ozone Layer, the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer, the 1992 United Nations Conference on Environment and Development (UNCED), the United Nations World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002 and the 2012 United Nations Conference on Sustainable Development (UNCSD) held in Rio de Janeiro, Brazil.

Quite importantly, the role of the Intergovernmental Panel on Climate Change (IPCC) established in 1988 and its subsequent synthesis reports in shaping thoughts and understanding particularly about anthropogenic climate change remains crucial. Hence, to understand the trajectory of multilateral discussions on environmental governance and, in particular, climate change regimes at the global level, it is important to examine each development in the global environmental/climate change process with a view to highlighting their main features, payoffs and challenges.

3.1 UNITED NATIONS CONFERENCE ON THE HUMAN ENVIRONMENT (UNCHE)

The United Nations Conference on the Human Environment (UNCHE) held in Stockholm, Sweden from 5-16 June 1972, was unprecedentedly the first international gathering of both state and non-state actors to discuss human interactions with the environment and attendant environmental concerns. Addressing the challenge of global environmental deterioration then became the main focus of discussions at the

UNCHE. Basically, the Conference adopted the "Stockholm Declaration" and "Stockholm Action Plan" under which a number of common principles and action guide to lay the foundation for future global environmental frameworks were established (Buss, 2007). Inspired by its theme, *Only One Earth*, the Stockholm Declaration called for a common outlook and a set of principles to encourage and guide the peoples of the world in the preservation and enhancement of the human environment (UN, 1972: 3).

Through these principles and, in particular principle 21, the Stockholm Declaration provides that states have the sovereign right to exploit their own resources pursuant to their own environmental policies, as well as the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction. Hence, the Declaration focused on the need to preserve and improve the human environment, as well as provide support for achieving its overall goal. In addition, it recognises the link between ecological management and poverty alleviation while noting that most of the environmental problems in developing countries result from under-development.

Although the Stockholm Declaration contains no specific distinction between climate change and other environmental issues, state and non-state participants at the UNCHE agreed on certain recommendations, including the need for governments/agencies to: (1) communicate environmental issues with global implications; (2) prioritise training and capacity-building for the benefits of personnel directly involved in planning, development and management of settlement areas; and (3) collaborate in addressing environmental issues such as air pollution, lack of access to clean water and population growth. As rightly observed, Haas (2002: 76) points out that essentially, the recommendations concern environmental governance in terms of assessment (evaluation and review, research, monitoring and information exchange), management (goal setting and planning, international consultation and agreements), and support (education and training, public information, organisation, financing and technical cooperation).

As part of the key issues addressed, the UNCHE decided that industrialised countries should come to the aid of poorer developing countries in bridging the development gap. While acknowledging the global nature of the environmental impact and that the protection of the environment should remain a top priority for all

governments, the Stockholm Conference held that global cooperative action would be required in addressing common environmental problems. Hence, as one of its accomplishments, though indirect, it is established that: "the Stockholm Conference stimulated countries all over the world to assess environmental conditions and take legal and organisational steps, including creating environmental ministries and protection agencies" (Linnér and Selin, 2013: 983).

Considering the fact that the UNCHE was, no doubt, the first attempt towards addressing the issue of environmental protection at the global level, the Conference provided a limited scope for climate change as it deals purely with environmental issues. Besides, it was far from achieving the ultimate goal of any international environmental summits, which is to develop a global environmental regime. Besides, participation at the Conference was more or less a state actors' affair and, therefore, not as wide-spread as observed during subsequent environmental conferences. This situation may have been brought about as a result of poor public interest regarding the seriousness of global environmental challenges.

3.2 UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP)

Having acknowledged the fact that environmental impact is global in nature, the UNCHE was followed with the establishment of the UNEP in 1982, with its headquarter situated in Nairobi, Kenya. Aside from being primarily responsible for mainstreaming environmental issues into the programmes and activities of the United Nations agencies, the establishment of UNEP was regarded as one of the greatest achievements of the UNCHE (Najam and Cleveland, 2003: 125).

Although UNEP is not a specialised agency of the United Nations, it no doubt, represents the voice of the worldwide organisation as far as environmental issues are concerned. Essentially, it provides leadership and fosters cooperation among stakeholders towards addressing common environmental problems. In specific terms, UNEP functions to, among other things: (1) monitor the status of the global environment and interpret environmental data; (2) superintend the United Nations activities on the issue of the environment; (3) create environmental awareness in governments and the private sector; (4) assist in the development of international environmental treaties/laws; and (5) assist governments in the formulation and implementation of environmental policies.

In the performance of its functions over the years, there is no doubting the fact that UNEP recorded substantial progress in fostering environmental partnerships and creating awareness. Significantly, the programme was instrumental in developing the first multilateral environmental convention (that is, the Vienna Convention), as well as galvanising global support, particularly for ozone protection through its World Plan of Action on the Ozone Layer. Also, it should be pointed out that UNEP functioned as the Secretariats for the Vienna Convention and the Montreal Protocol (MP). Besides, UNEP continues to serve as an important rallying point for discussions by stakeholders *vis-à-vis* environmental sustainability, especially at global and regional levels.

Even though its primary preoccupation remained that of environmental protection, at a certain point, UNEP attempted to integrate socio-economic issues into its environmental portfolios but failed due to North-South politics. However, it is not unlikely that such move laid a strong foundation for the suggestion as contained in the report of the 1987 World Commission on Environment and Development – the Brundtland Commission – that a UN Board for Sustainable Development should be established; which only materialised in the form of the Commission for Sustainable Development (CSD) as recommended by the 1992 Earth Summit (Linnér and Selin, 2013: 976).

Moreover, funding constitutes another major challenge that impeded the activities of UNEP since the programme relies primarily on voluntary financial contributions from a small number of countries. Yet, according to Earth Negotiations Bulletin (cited in Linnér and Selin, 2013: 977), the repeated desire to have UNEP transformed into a full-fledged United Nations specialised agency, a situation that could have guaranteed more funding for the programme, was each time, met with stiff opposition from the European Union (EU) and some African countries on the ground that such integration posed considerable threats to their respective sovereign authorities as contained in Principle 21 of the UNCHE.

3.3 VIENNA CONVENTION FOR THE PROTECTION OF THE OZONE LAYER

The Vienna Convention for the Protection of the Ozone Layer, adopted during the 1985 Vienna Conference, was clearly the first global environmental Convention (agreement) to be ratified by broad parties at the global level. The Vienna Convention

which came into force in 1988 (three years after), primarily seeks to protect human health and the environment against the negative effects associated with modification of the ozone layer, especially as a result of human activities. Specifically, Article 2 of the Vienna Convention places an obligation on Parties to take appropriate measures to protect human health and the environment against adverse effects resulting or likely to result from human activities, which modify or are likely to modify the ozone layer (UNEP, 2001: 2).

Towards achieving its overall objective, the Vienna Convention provides for cooperation among Parties by means of systematic observations, research and information exchange on the potentially harmful effect on human health and the environment as a result of modification of the ozone layer. Parties to the Convention were also encouraged to "adopt appropriate legislative or administrative measures and co-operate in harmonising appropriate policies to control, limit, reduce or prevent human activities under their jurisdiction or control should it be found that these activities have or are likely to have adverse effects resulting from modification or likely modification of the ozone layer" (UNEP, 2001: 3).

According to the provisions of Article 6 of the Vienna Convention, a Conference of the Parties (COP) was established with a specific mandate to "by consensus, agree upon and adopt rules of procedure and financial rules for itself and for any subsidiary bodies it may establish, as well as financial provisions governing the functioning of the secretariat". In addition, it provides that: COP shall keep under continuous review, the implementation of the convention; promote the harmonisation of appropriate policies, strategies and measures for minimising the release of substances causing or likely to cause the modification of the ozone layer; and make recommendations on any other measures relating to the Convention (UNEP, 2001: 5-8).

Although the Vienna Convention lacks specific provisions for legally binding reduction goals since Parties could not agree on control measures as regards ozone depleting substances (ODSs) such as chlorofluorocarbons (CFCs) and hydro chlorofluorocarbons (HCFCs), it however, serves as a framework for mobilising efforts aimed at protecting the ozone layer through cooperation and research development. Indeed, the Convention made substantial progress in reaching a global consensus on the threat to the ozone layer and its negative impacts. For the first time in the history of the global environmental governance, the Vienna Convention raises

genuine concerns as regards the contribution of human activities to the modification of the ozone layer. Even though it was less elaborately defined, the whole idea provided a strong basis for subsequent research, particularly that of the IPCC regarding the anthropogenic climatic effects deriving from such modification.

3.4 MONTREAL PROTOCOL ON SUBSTANCES THAT DEplete THE OZONE LAYER

The Montreal Protocol on Substances that Deplete the Ozone Layer was negotiated on 16 September 1987, entered into force on 1 January 1989 and amended on 29 June 1990. The Protocol represents a supplement to the Vienna Convention with the primary objective of protecting the ozone layer through the complete elimination of ODSs. It acknowledges that ODSs constitute a significant threat to the ozone layer and, to address the situation, it clearly spells out legally binding goals aimed at controlling ODSs and, in particular, the use of CFCs which are the main chemical agents that deplete the ozone layer. With stringent time-bound targets set for eliminating these substances (UNDP, 2007:154), the Montreal Protocol, in the process, also serves the purpose of protecting the climate system even though it was not formally designed to do so.

Characteristically, the Montreal Protocol contains eight key elements. These include: (1) the requirement for all Parties to eliminate the production and import of ODSs within the stipulated timelines; (2) special provisions for developing countries with 10-15 additional years to phase out ODSs; (3) provision of a Multilateral Fund to assist developing countries to enable them comply with the ODSs control measures; (4) the requirement for all Parties to render annual report on the production, import and export of ODSs under their control; (5) the establishment of an Implementation Committee to review the ODSs reports; (6) restraints on Parties from engaging in ODSs trading with non-parties; (7) regular assessments to enable Parties to make informed decisions with the most up-to-date information on science, environmental effects, technology and economics of ODSs; and (8) adjustment provisions to speed up the phasing out of ODSs without having to go through the lengthy formal process of national ratification, as well as facilitate the addition of new chemicals aside those already covered by the Montreal Protocol.

However, under limited circumstances, parties are allowed to produce and consume a specified ODS provided they satisfy certain stringent conditions laid out in

the schedules to the Montreal Protocol of which special provisions were made to accommodate the needs of developing countries in line with the CBDTRC Principle. Typical examples were the 10-15 years grace beyond the agreed timetable granted to developing countries to phase out ODSs, as well as the provision for a multilateral fund as a financial mechanism to aid technology transfer from developed countries to their developing counterparts.

Undoubtedly, the Montreal Protocol ranks as the first universally ratified environmental treaty with clear legally binding commitments to protect human health and the environment through a reduction in the production, consumption and emission of ODSs. Following the implementation of the Protocol, evidence abounds that most of the ODSs and, in particular, the hazardous CFCs have been largely phased out, while a great deal has been achieved in protecting the climate system as a result. Velders *et al.* (2007: 4814) maintain "the climate protection goal already achieved by the Montreal Protocol alone, is far larger than the reduction target of the first commitment period of the Kyoto Protocol". Velders *et al.* (2007: 4818) further argue that:

In assessing the avoided worlds of the MR74 and NMP87 scenarios in the 1990s and beyond, it must be realised that without the Montreal Protocol, most ODSs would have almost certainly been included in the Kyoto Protocol because of their large GWPs, affecting the provisions and timing of the Kyoto Protocol. Waiting to regulate ODSs with the Kyoto Protocol would likely have resulted in a delay in achieving what the Montreal Protocol is expected to achieve by 2010. A delay could be expected because the Kyoto Protocol regulations likely would have entered into force when ODS uses and emissions were larger than in the early 1990s, making reductions economically and practically more difficult.

Reasoning along the same lines, one can add that the Montreal Protocol remains, perhaps, the most successful when compared with the KP and, indeed, the entire global climate change process as evident in the fraught COP meetings that lasted exactly twenty years. As earlier pointed out, the Montreal Protocol was credited with the first global effort to give practical expression to the CBDTRC Principle.

On the negative side, however, even though the Montreal Protocol enjoys a worldwide ratification, its control measures do not apply to some of the key GHGs. These include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), carbon monoxide (CO), nitrogen oxide (NO_x) and hydrofluorocarbons (HFCs), all of which have a high global warming potential (GWP). Velders *et al.* (2007: 4814) are even more vocal and maintain "the absence of ODSs in the Kyoto Protocol and the absence of formal climate considerations in the Montreal Protocol serve as motivation to consider the past and future scenarios of ODS emissions and their substitutes, and their relevance to anthropogenic RF". In other words, the absence of the identified GHGs in the Montreal Protocol justifies the call for a distinct global climate change regime.

3.5 UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT (UNCED)

The United Nations Conference on Environment and Development (UNCED), popularly referred to as the *Earth Summit*, was held in Rio de Janeiro, Brazil from 2-14 June 1992. In addition to the issue of human environment which took centre stage during the Conference, the UNCED discussed extensively, the interconnections between sustainable development and environmental protection and incorporated the agreed principles on the linkage into the Rio Declaration. However, it should be recalled that the term sustainable development was first developed and popularised within the international cycle by the 1987 Brundtland Commission *via* its report entitled "*Our Common Future*". Against the backdrop of the logic that conventional modes of development produce genuine socio-economic and environmental externalities, implying that environmental degradation threatens economic development (Andonova and Mitchell, 2010: 265), the Brundtland Commission (105) defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Goodland, 1995: 4). This definition takes into consideration the three pillars of sustainability namely, social, economic and environmental (Heijungs *et al.*, 2010: 423; Moldan *et al.*, 2012: 4). Of the three, environmental sustainability has continued to gain more prominence than the other two sustainability variants.

Thus, acknowledging that environmental protection, as well as social and economic development is critical to sustainable development and as part of its policy

frameworks, the Rio Earth Summit came up with a blueprint for sustainable development which encapsulates the Rio Principles. The Principles (27 altogether) under which the rights and responsibilities of states were clearly spelt out, both on the key aspects of sustainable development, which are environmental sustainability, social sustainability and economic sustainability. As a key mechanism towards realising the fundamental objectives of the Rio Principles, the UNCED designed and adopted a global action programme referred to as Agenda 21 which represents a comprehensive planned global action covering different aspects of sustainable development. The UNCED also provides for the following: the establishment of the United Nations Framework Convention on Climate Change (UNFCCC); the United Nations Convention on Biodiversity; a commitment to desertification; the Statement of Forest Principles for sustainable forest management; and the drafting of the Earth Charter. In addition, the Rio Earth Summit agreed to certain operating rules for the Global Environmental Facility (GEF), including a commitment to shore up development assistance funding, as well as the establishment of a CSD in line with Agenda 21 roadmap. In particular, the UN-CSD was established to monitor progress towards sustainable development. The Commission was charged with the responsibility of ensuring effective oversight of the UNCED; enhancing international cooperation and rationalising intergovernmental decision-making capacity; and overseeing progress with regard to the implementation of Agenda 21 at local, national, regional and global levels (Haas, 2002: 79).

Implicitly, there is, no doubt, that Agenda 21 acknowledges the relatively huge environmental challenges faced by developing countries, which require special attention. Hence, the Agenda also provides for a number of policy regulations aimed at addressing the linkage between human activities and the environment on the one hand, and between ecosystems, including the atmosphere, freshwater and oceans on the other. In effect, socio-economic concerns and climate change form part of the core environmental issues dealt with under the Rio Declaration on Environment and Development. Suffice to note also that the Brundtland Commission and Agenda 21 of the UNCED sought to re-prioritise environmental issues with environmental protection and management linked to socio-economic considerations of sustainable development.

Quite significantly, the UNCED widened the scope of stakeholders' participation which was evident not only in the unprecedentedly large involvement of

non-state actors, particularly the global civil society but also the official recognition accorded to the civil society. Having extended environmental discussions to include sustainable development, the Rio Earth Summit set a new agenda incorporating the essentials of sustainable development. According to Powers (2012: 406), the Rio Declaration articulated a vision and commitment that offered hope of a better world to follow. Another major achievement of the Rio Summit was that it moves forward the global actions towards environmental governance and, in particular, climate change. Indeed, according to Seyfang and Jordan (cited in Death, 2011: 4), the Rio Summit was instrumental in bringing the discourse of sustainable development, as well as the science of climate change, within the remit of international diplomacy. The climate change aspect was, no doubt, visible with the establishment of the UNFCCC as a key regulatory framework for addressing the challenges of global climate change through a number of coordinated actions and measures to prevent the dangerous anthropogenic contamination of the climate system. As such, the UNFCCC has since become the pillar of subsequent multilateral climate change discussions.

Of course, the UNCED could not be said to be without some defects. Even though many states and non-state stakeholders were inspired to initiate policies and programmes along the twin lines of climate change governance and sustainable development, events afterwards showed that the Rio Summit was not all perfect. While it was apparently a step forward when compared with the initial UNCHE in terms of issue-area, participation and efforts towards the global environmental regime, the UNCED still could not have been regarded as having achieved the goal of establishing a legally binding global environmental agreement despite the establishment of the UNFCCC. Apart from the inadequacies of the UNFCCC, which is discussed in detail in the latter section of this chapter, the negotiation of the Kyoto Protocol five years after as a regulatory supplement to the UNFCCC, was clearly a bold statement of the non-binding status of the Rio environmental regulatory frameworks.

Fundamentally, more attention was given to economic sustainability far above the socio-environmental aspects of sustainable development. Indeed, the critical aspects of social sustainability such as poverty eradication *vis-à-vis* environmental concerns, were left clearly unaddressed in the UNCED environmental protection and sustainable development agenda. According to Goodland (1995: 4), "Sustainable development (SD) should integrate social, environmental, and economic sustainability

and use these three to start to make development sustainable." Yet, the introduction of sustainable development to global environmental discourse exposes the relatively high cost of technological innovations that would be required and of which developed countries face fewer challenges when compared to their economically poor developing counterparts. Obviously, the environmental and economic sustainability envisaged under UNCED is largely driven by modern technologies, but at a financial cost. As rightly observed, Smith *et al.* (2010: 439) contend that "the challenge of sustainable development is increasingly understood in terms of 'transitions' to more sustainable socio-technical systems". As if to make matters worse, the UN-CSD created as an institutional framework to achieve the environmental and sustainable development goals of UNCED was more or less a weak institution, and grossly underfunded. Moreover, the Commission lacks the required authoritative power to enforce its mandates and actions.

3.6 UNITED NATIONS GENERAL ASSEMBLY SPECIAL SESSION (UNGASS) ON SUSTAINABLE DEVELOPMENT

Further to the discussions at the UNCED, the United Nations General Assembly Special Session (UNGASS) on Sustainable Development, otherwise known as Rio+5 or Earth Summit II, was held in New York in 1997. Perhaps as the third global environmental conference, the main objective of UNGASS was to take stock of the progress made so far based on the UNCED 5-year review agreement, as well as re-energise commitment on the part of member states to further action on goals and objectives set out by the Earth Summit (UN, 1997). In particular, UNGASS acknowledged that UNCED was a landmark event during which a new global partnership for sustainable development was unveiled. Having also reaffirmed that Agenda 21 remains the fundamental programme of action for achieving sustainable development and realising that same requires the integration of its economic, environmental and social components, UNGASS focused mainly on accelerating the implementation of Agenda 21 in a comprehensive manner rather than renegotiating its provisions or to be selective in its implementation (UN, 1997).

One key important issue raised at UNGASS was again, accelerated globalisation, especially in the areas of trade, foreign direct investment and capital markets that characterised inter-state relations and how it presents new opportunities and challenges. In this particular regard, UNGASS urged that national and

international environmental and social policies be implemented and strengthened in order to ensure that it impacts positively on sustainable development, especially in developing countries. UNGASS also observed that five years after UNCED, the state of the global environment continued to deteriorate even though some progress had been recorded in terms of institutional development, international consensus-building and Public Private Partnership (PPP) actions through which a number of countries have been able to cut their GHGEs. Furthermore, the UNGASS summit established that extensive efforts had been made by governments and international organisations in the area of incorporating environmental, economic and social issues into decision-making by elaborating new policies and strategies for sustainable development or by adapting existing ones.

While it agreed that provision of adequate and predictable financial resources and the transfer of environmentally sound technologies to developing countries are critical to the implementation of Agenda 21, UNGASS drew attention to the requirement that a lot still needed to be done with regard to finance and technology transfer, technical assistance and capacity-building. Nevertheless, the meeting acknowledged that there had been a sizeable expansion of private flows of financial resources from developed countries to a limited number of developing countries and, in a number of countries, efforts had been made in support of domestic resource mobilisation, including the increasing use of economic instruments to promote sustainable development. In particular, UNGASS stressed that in many developing countries, the debt situation remains a major constraint on achieving sustainable development. It highlighted the fact that although the debt situation of some middle-income countries improved, it has become necessary to continue to address the debt problems of the heavily indebted poor countries, many of which continue to face unsustainable external debt burdens (UN, 1997).

Generally speaking, UNGASS succeeded in evaluating the level of progress recorded five years after UNCED, particularly with regard to the implementation of Agenda 21 which represents the global action plan for sustainability and UNCED's commitments as agreed under the Rio Declaration. Beyond the re-endorsement of the previous commitments, not much could be decided at UNCED+5 due to shoddy preparation, except that it was unanimously agreed that another major conference should be convened as a follow-up to the Rio Declaration with ample time and

resources to allow for effective participation. Thus, no fresh declaration was made nor any environmental agreement reached.

3.7 WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT (WSSD)

The World Summit on Sustainable Development (WSSD) turns out to be the fourth UN conference on the environment. The Summit which was held in Johannesburg, South Africa from 26 August to 4 September 2002, focused strictly on sustainable development in the context of its environmental, social and economic dimensions. Seyfang (2003: 225) remarks that "in contrast with the Stockholm conference, which concentrated on technical environmental matters, WSSD successfully focused upon social issues, and the interface between the environment and social and economic development, with alleviating poverty being a core theme".

Even though it signals a march forward in reviewing the Rio commitments and, in particular, the implementation of Agenda 21 like what obtained during the UNCED+5, WSSD, through the Johannesburg Declaration on Sustainable Development and Plan of Implementation (both of which are political and as such not legally binding), was more concerned about concerted efforts aimed at responding more positively to the need to produce a practical and visible plan to bring about poverty eradication and human development (UN, 2002: 2). As a build-up to UNCED and its successes, WSSD sought the further realisation of yet-to-be-achieved goals through the development of implementable actions and measures to be undertaken at all levels in order to enhance global cooperation. In addition to taking into account the Rio principles, including the CBDRRC principle, such efforts will also promote the integration of the three components of sustainable development (economic development, social development and environmental protection) as interdependent and mutually reinforcing pillars. It was also acknowledged that poverty eradication, changing unsustainable patterns of production and consumption and protecting and managing the natural resource base of economic and social development are overarching objectives of, and essential requirements for sustainable development (UN, 2002: 8).

Specifically, WSSD attempts to set actual targets and timelines to complement the more or less declaratory statements that characterised previous environmental summits. Compared to previous summits, more attention was given to the implementation aspects and its effectiveness (Najam, 2005: 313). Besides,

unprecedented priority was given to energy as part of the discussions on environmental and economic sustainability initiated at the Rio Summit. In addition to integrating the critical aspects of social dimension into environmental sustainability, the focus on energy and its linkage to the UN's Millennium Development Goals (MDGs) were clearly a major development at the Johannesburg Earth Summit (Najam and Cleveland, 2003: 117).

Another key achievement of the WSSD was that the Summit succeeded in setting an expanded agenda that incorporates the three key aspects of sustainable development. Besides, the term sustainable development was also expanded to include issue-areas such as sanitation, access to clean water, HIV/AIDS and poverty eradication. In particular, the WSSD agreed on a number of actions as part of the global efforts and plans to eradicate poverty key among which include: (1) reduction by half, by 2015, the world's people living in poverty and those without access to safe drinking water by the same proportion; (2) establishment of a world solidarity fund to eradicate poverty and promote social and human development in developing countries, as well as encourage the role of the private sector and individual citizens in mobilising funds for the same purpose; (3) development of national programmes for sustainable development and local and community development, as well as promoting the empowerment of people living in poverty and their organisations within the ambit of each country's poverty reduction strategies; (4) promoting women's equal access to and full participation in decision-making, mainstreaming gender perspectives in policies and strategies at all levels of governance, as well as eliminating all forms of violence and discrimination against women; (5) provision of basic health services for all, as well as reducing environmental health threats, taking into consideration the special needs of children and the interconnections between poverty, health and environment, together with the provision of financial resources, technical assistance and knowledge transfer to developing countries and countries with economies in transition; (6) building basic rural infrastructure, diversifying the economy, improving transportation and access to markets, market information and credit for the rural poor to support sustainable agriculture and rural development; (7) combating desertification and mitigating the effects of drought and floods through measures such as improved use of climate and weather information and forecasts, early warning systems, land and natural resource management, improved agricultural practices and ecosystem conservation in order to reverse current trends and minimise degradation of

land and water resources, including through the provision of adequate and predictable financial resources to implement the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa; and (8) increased access to sanitation to improve human health and reduce infant and child mortality, prioritising water and sanitation in national sustainable development strategies and poverty reduction strategies where they exist (UN, 2002: 10-11).

Also, it is worthy to note that WSSD introduced, for the first time, the "Type-2 Agreements" under which formal recognition was extended to non-state actors. Without any doubt, this innovation was brought about as a result of the increasing role of non-state actors, particularly the civil society and international Non-Governmental Organisations (NGOs) in global environmental affairs. Hence, the WSSD, through the Johannesburg Plan of Implementation, sought to identify key non-state actors and processes required as complementary efforts to achieve the set targets. With the introduction of the so-called type-2 agreements which significantly reflect the unique importance attached to public-private partnership (PPP), the Johannesburg Earth Summit places a high premium on corporate responsibility. Clearly, this development was a major accomplishment. Indeed, it was established that in 2002, South Africans were credited for having hosted a broadly well-organised environmental conference though with limited final text (Death, 2011: 8).

Much like the UNCED+5, which was not designed to generate new environmental agreements or negotiations, the WSSD merely reviewed and monitored progress without having to set a new environmental agenda. Rather, its mandate was to ensure effective implementation of the subsisting agreements and commitments, particularly the Rio commitments of which no significant achievements were as at the period recorded in terms of implementation (La Vina *et al.*, 2003: 2). Hence, the Plan of Implementation was developed with actionable plans, as well as set targets and timeframe towards realising the goals of sustainable development. The set objectives under the Plan of Implementation were believed to be far-reaching than those set out in Agenda 21, given that the former takes into consideration the environmental complementary role of the various tiers of government, including grassroots as well as non-state stakeholders. Apart from the global civil society and other relevant NGOs, indigenous people and local communities were also recognised as part of key non-state stakeholders, whose environmental role in the management of community-based

natural resource extends to include areas such as forest management, mining, among others.

In effect, the Johannesburg Earth Summit achieved a great deal in raising the profile of global environmental issues and creating more awareness regarding sustainable development (Najam and Cleveland, 2003: 127). La Vina *et al.* (2003: 2) maintain the WSSD recorded successes in seven key areas as follows: a sanitation target; the acceptance of the need to delink economic growth from environmental degradation; the reaffirmation of the principle of access to information, participation and justice; the launching of some key initiatives and partnerships on sustainable development; the recognition of community and indigenous people's rights; acknowledging the importance of ethics; and the promotion of greater corporate responsibility and accountability.

Considering the fact that WSSD succeeded in setting targets and timelines in the area of sanitation, where none existed prior to the period, the whole idea of introducing tough targets and timetables, including the European Union (EU) proposal that 15 per cent of the energy of countries should be sourced from renewable energy by 2015 was successfully opposed by the USA (whose President was conspicuously absent at the Summit), Japan and most members of the Oil Producing Exporting Countries (Speth, 2003). More specifically, WSSD failed to: (1) put in place mechanisms for addressing climate change as part of the global efforts to complement the KP, which the USA refused to ratify; (2) re-negotiate a new deal to address more effectively, the issue of development assistance funding for developing and least developed countries; (3) create new institutional frameworks to oversee standardisation of subsisting environmental laws and their enforcement; and more importantly, (4) harvest a global environmental treaty considered to be the ultimate goal of any international environmental summits. Death (2011: 1) corroborates that summits such as the WSSD that failed to produce new international agreements or strengthen environmental regimes, are by popular assessment, regarded as failures.

To make matters worse, the WSSD, neither in any significant way, advanced the course of implementing the Desertification Convention introduced as part of the Rio Declaration nor launched any global efforts aimed at controlling deforestation and protecting the direly threatened ecosystems. While it is the case that particular focus was given to energy aspects of human needs, the Johannesburg Earth Summit lacked

any worthwhile innovations on renewable energy sources. Speth (2003) came up with a somewhat clear summary of the WSSD when he observed that:

If one asks whether the summit responded seriously to global-scale environmental threats or brought globalisation and sustainable development together, the only honest answer is that it did not. In failing to rise to the moment, WSSD was a huge missed opportunity. Environmental leaders were almost unanimous in voicing dismay, although they did not lose their sense of humour. The World Wide Fund for Nature (WWF) called WSSD, the “World Summit on Shameful Deals”, and Greenpeace noted that the Plan of Action on energy is not much of a plan and it contains almost no plan.

3.8 UNITED NATIONS CONFERENCE ON SUSTAINABLE DEVELOPMENT (UNCSD)

Roughly twenty years after, Rio de Janeiro, Brazil played host to yet another environmentally-focused international conference – the United Nations Conference on Sustainable Development (UNCSD) held from 13-22 June 2012. The Conference whose outcome document was tagged “*The Future We Want*” focused specifically on institutional frameworks for sustainable development on the one hand and poverty eradication within the framework of a green economy on the other. Based on the United Nations General Assembly Resolution A/RES/64/236 adopted on December 24, 2009, the UNCSD was designed to focus attention on two main themes: the realisation of a green economy within the context of sustainable development and poverty eradication; and the development of an institutional framework for sustainable development (Najam and Selin, 2011: 451).

Basically, the main objective of the UNCSD was to re-ignite the stagnating environmental and sustainable development agenda at the global level with renewed commitment and up-to-date stock-taking regarding the implementation, accomplishments and challenges of previous agreements. This became necessary in view of the urgent need to address new and emerging environmental challenges, especially in the context of a globalised green economy. As rightly remarked, the green economy attracted much attention as the latest big idea in international environmental politics (Death, 2014: 1). Aside from the establishment of the link between poverty eradication and sustainable development, and, therefore, the green

economy, the UNCSD also focused on other important aspects of human endeavours such as energy, water and sanitation, health and human settlement. More specifically, seven primary issues were identified to form part of discussions at the UNCSD. These include jobs, energy, cities, food, water, oceans and disasters (Powers, 2012: 407). Also, based on its outcome document, the Rio+20 Summit establishes a strong link between its commitments and the attainment of the Millennium Development Goals (MDGs). Specifically, paragraph 246 of the document states that: "We recognise that the development of goals could also be useful for pursuing focused and coherent action on sustainable development", while according to paragraph 249, the Rio+20 summit held that: "The process needs to be coordinated and coherent with the processes to consider the post-2015 development agenda." (UN, 2012: 46-47).

Quite significantly, the UNCSD drew renewed political attention at least at the global level to the concept of sustainable development and, more importantly, green economy. To this extent, the UNCSD was, no doubt, a milestone in the trajectory of global environmental governance (climate change inclusive). Having also stressed the importance of local communities and cities to realising the global objectives of addressing environmental challenges and promoting sustainability (environmental, social, and economic) as the bottom line for human development, the UNCSD brought together state and non-state stakeholders in a more harmonious relationship while discussing global environmental issues. However, the number of parallel summits/meetings mounted by organised civil society and other environmental NGOs to coincide with the Rio+20 Summit was significantly reduced when compared with the experience during the WSSD. Nevertheless, the synergy prompted one of the key outcomes of the UNCSD under which both state and non-state parties agreed to work together more closely, particularly in the areas of planning, decision-making and implementation even though it was not so clear what extent of influence is allowed for non-state parties.

While the idea of a green economy was clearly an important addition to the discourse on global environmental and climate change phenomena and in fact acceptable to all, the same ideology, for the most part, pitched state actors in opposing camps reflecting in most cases, the North-South rivalry. As rightly observed, disagreements between developed and developing countries soon emerged, with the former emphasising the criticality of pursuing growth in an environmentally sound manner, and the latter prioritising economic concerns as they could not mortgage their

need to provide higher living standards for their citizens (Powers, 2012: 408). This division underpinned by conflicting interests and viewpoints, therefore, constitutes the greatest single barrier to UNCSD in terms of evolving a comprehensive environmental regime, the type of which is binding on all Parties.

Much like the previous conferences, UNCSD failed to inspire the desired global environmental cooperation such that is rooted in the effective transfer of green technology from developed countries to assist the economically poor developing and least developed countries in achieving their sustainable development goals, and fundamentally, the development of a globally acceptable environmental/climate change regime. Hence, much of the environmental disputes between the North and the South remained unsolved despite the emphasis on green economy and sustainable development.

To conclude this section, it is important to note that the environmental conventions and conferences examined thus far have, no doubt, succeeded in setting global environmental agenda of one form or the other, creating significant environmental awareness, as well as expanding the level of participation in global environmental discourses. However, the conferences, for the most part, lacked sufficient political wherewithal to evolve institutionalised legally binding environmental treaties with proper enforcement mechanisms. Considering the fact that initiatives and developments in each of the conferences cut across strictly environmental issues and climate change, it is imperative to note, in particular, that the 1992 Rio Summit laid the most basic foundation for global climate change governance with the establishment of UNFCCC.

Lastly, it should be pointed that discussions at UNCED+5, the WSSD and the UNCSD focused generally on the environment and sustainable development with less particular attention paid to climate change. One obvious explanation for the situation is the fact that the UNFCCC, the KP and COP have been created and substantially taken over as multilateral platforms for discourse strictly on global climate change.

3.9 INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

As earlier pointed out, the Intergovernmental Panel on Climate Change (IPCC) was jointly established in 1988 by the World Meteorological Organisation (WMO) and UNEP (IPCC, 2007: iii). Certainly, not unconnected with advancing the common objective of the 1972 UNCHE, the 1985 Vienna Convention, and the 1987

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Montreal Protocol, the IPCC was set up primarily to: (1) appraise the scientific evidence as regards climate change; (2) evaluate the environmental and socio-economic ramifications of climate change; (3) come up with response options to effectively address the global challenge of climate change; and (4) provide authoritative advice and guidance for the Conference of Parties (COP) established under the Vienna Convention.

Clearly, most of the Panel's activities are evident in its assessment reports (ARs), special reports and other publications related to climate change. Thus far, the Panel has produced at least five reports; 1990, 1995, 2001, 2007, and 2014 (being the latest). The 1990 IPCC report was the First Assessment Report (AR1) in which the Panel established that GHGs resulting from human activities are substantially increasing atmospheric concentrations and, if continued, would enhance the natural greenhouse effect (Houghton *et al.*, 1990). In particular, it stressed that the impact of continued accumulation of GHGs in the atmosphere would impact not just the natural system but that of human as well. However, the AR1 acknowledged that there are many uncertainties in its predictions, especially with regard to the timing, magnitude and regional patterns of climate change, due to an incomplete understanding of sources and sinks of GHGs, clouds, oceans and polar ice sheets (Houghton *et al.*, 1990).

In its second report, the IPCC made no dramatic changes to existing findings as contained in its AR1 other than the fact that it recorded considerable progress in terms of new data and analyses regarding the quantification of the effects of climate change. Specifically, as one of its new key findings, the AR2 stated that the balance of evidence suggests that there is 'a discernible human influence on global climate' (Houghton *et al.*, 1996). Much like the previous report, the AR2 equally acknowledged the uncertainties regarding certain aspects of climate change. Key amongst them are: the magnitude and patterns of long-term natural variability; the time-evolving pattern of forcing by, and response to changes in concentrations of GHGs and aerosols; and land surface changes (Houghton *et al.*, 1996: 5). The report also stressed that future unexpected, large and rapid climate system changes (as have occurred in the past) are, by their nature, difficult to predict. A situation that implies that future climate changes may also involve "surprises" (Houghton *et al.*, 1996: 7).

In addition to the findings already established in its first and second reports, the IPCC third assessment report focused specifically on the science of climate

change but with more objective findings that serve to inform climate change policies towards realising the ultimate objective of UNFCCC. Stressing the serious nature of the effects of anthropogenic climate change, the AR3 maintained that "globally, it is very likely that the 1990s was the warmest decade and 1998 the warmest year in the instrumental record, since 1861" (IPCC, 2001: 2). The report also established that over the last century, the earth has warmed by 0.68C, and the increase is at least partly due to the anthropogenic release of GHGs (Grundmann, 2007: 416). Thus, in a more significant way, the AR3 deepens understanding of climate change and its untoward effects on both natural and human systems.

The 2007 IPCC Synthesis Report (SYR) contains the summary of the contributions of three Working Group to the Fourth Assessment Report (AR4). Issues addressed in the AR4 range from the observed changes in climate and their effects; factors responsible for climate change; projected changes in the climate systems and likely impacts; and adaptation and mitigation options. Lately, in 2014, the Panel produced its Fifth Assessment Report (AR5) which represents the most comprehensive assessment of climate change undertaken thus far by the Panel. According to IPCC (2014: v), the 2014 SYR also incorporates the findings of two special reports on "Renewable Energy Sources and Climate Change Mitigation" and "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation" which were both published in 2011. Earlier, the Panel produced other special reports, including those entitled "Safeguarding the Ozone Layer and the Global Climate System" and "Carbon Dioxide Capture and Storage" published in 2003 and 2005 respectively.

Through its synthesis reports (SYRs), the Panel provides, in particular, a summary of its findings on key issues of concern to policymakers *vis-à-vis* climate change. It is at least expected that the reports would assist stakeholders (formal and informal) to evolve and implement appropriate response actions to deal with the common challenge of climate change. As contained in the SYRs, the IPCC not only confirmed the changes in the climate system, it also established that for the most part, since the industrial revolution of the 17th century, the changes have been human-induced. Furthermore, the Panel provides scientific information regarding the impacts of anthropogenic climate change both in the short and long terms, and vulnerability situations across regions. It also suggests how best to deal with the situation through a number of mitigation and adaptation efforts, including cost and technology analyses.

According to IPCC (2007: iii), "the Panel's AR4 is a remarkable achievement involving more than 500 Lead Authors and 2000 Expert Reviewers, building on the work of a wide scientific community and submitted to the scrutiny of delegates from more than one hundred participating nations". Undoubtedly, the IPCC through its findings and reports, have contributed significantly to influencing thoughts and positions on climate change and, in particular, the anthropogenic perception of it. Grundmann (2007: 416) rightly observes that "although the IPCC says that it is producing policy relevant science but not prescribing policy, it can be shown that over time, it has assumed a definitive stance regarding the causes and remedies of climate change". Besides, there is sufficient evidence to support the fact that many of the policies and response actions on climate change both at the levels of multilateral and individual states, have found their inspirations directly or indirectly in the IPCC assessments and situation reports on climate change.

It is worth mentioning that the IPCC is not a climate summit and, as such, it does not seek to produce or negotiate any international agreements on climate change. Rather, it provides a scientific basis to inform appropriate actions that may ultimately lead to achieving the overall goal of reaching a globally acceptable climate change agreement. Also, the point needs to be made that the Panel has been criticised for its activities and outcomes that are more politically biased than pure scientific investigations. Besides, some of its findings are not well established in view of the uncertainties that surround climate change predictions, especially with regard to timing, magnitude and regional patterns/effects of climate change. As mentioned earlier, it is a consensus that the Panel's contributions to deepening understanding of climate change and, in particular, the anthropogenic climate change are critical to the entire climate change process at least at the global level.

3.10 UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

The United Nations Framework Convention on Climate Change (UNFCCC) was clearly one of the key achievements of the 1992 Rio Earth Conference. With the establishment of the UNFCCC, it became obvious that particular attention needed to be paid to climate change as an important environmental phenomenon. Specifically, Article 2 of the UNFCCC (1992: 9) states that:

The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

To achieve the main goal of preventing dangerous anthropogenic climate change as envisaged in the foregoing stated objective, it simply implies that: (1) GHGEs should be stabilised in the atmosphere; (2) the ecosystems should be preserved; (3) food production should be guaranteed and not threatened; and (4) socio-economic development should be guaranteed with some level of sustainability.

Apparently, the UNFCCC acknowledged that climate change is largely anthropogenic and that its adverse effects both on natural ecosystems and humankind are a common concern of humanity. It equally recognised that climate change is global in nature and, as such, dealing with it would require that the widest possible cooperation involving all Parties be fostered. Moreover, it calls for the participation of all Parties in an effective and appropriate international response, in accordance with the CBDRRC principle and the socio-economic conditions of individual Parties under the Convention (UNFCCC, 1992: 2). Significantly, the UNFCCC recalls the sovereign right of all Parties to exploit their own resources pursuant to their own environmental and developmental policies, including the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of their respective national jurisdiction. Similarly, apart from recalling the decisions and commitments of the previous environmental convention, protocol and conferences, Parties to the UNFCCC also took cognisance of the climate change analytical work and assessments undertaken by states and other relevant international bodies and panels such as the WMO, the UNEP and the IPCC.

As part of its framework, the UNFCCC provides a set of principles to guide state actors towards realising the stated objective. The principles include the need to

(1) protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with the CBDRRC principle, and that developed countries should take the lead in tackling climate change and its adverse effects; (2) give full consideration to the specific needs and special situations of developing countries who are particularly vulnerable to the adverse effects of climate change; (3) take precautionary measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects, as well as take into consideration, the requirement that climate change policies and measures should be cost-effective so as to ensure global benefits at the lowest possible cost; (4) recognise the right of every country to promote sustainable development, and also that climate change policies and measures should be such that are appropriate for the specific conditions of each Party and be integrated with national development programmes; and (5) forge cooperation among Parties in order to promote a supportive and open international economic system that would lead to sustainable economic growth and development within all Parties (UNFCCC, 1992: 9-10).

Expectedly, Parties to the UNFCCC also agreed to a number of commitments which though obligatory, are not legally binding. Key amongst which include the establishment of national inventories of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol, and communicate same with updates regularly and accordingly; formulation and implementation of appropriate national climate change response actions to include mitigation and adaptation; promotion and cooperation in the exchange of relevant scientific, technological, technical, socio-economic and legal information related to the climate system and climate change, and to the economic and social consequences of various response strategies; promotion and cooperation in education, training and public awareness related to climate change so as to encourage the widest participation in the global climate change process; amongst others.

In particular, the UNFCCC admits that developed countries contribute majorly to GHGs and, conversely, that the per capita emissions in developing countries are relatively low. The Convention also acknowledged that the share of global emissions originating in developing countries will grow to meet their social and development needs (UNFCCC, 1992: 2). Hence, the UNFCCC document provides, in particular, that certain commitments should be undertaken by developed country Parties and other Parties included in Annex I. These commitments are geared towards ensuring

substantial reductions in GHGEs from those countries. Under the UNFCCC, Parties included in Annex I seek to return GHGEs not regulated by the Montreal Protocol to 1990 levels by the year 2000 (IPCC, 2007: 88). According to this provision, each Annex I Party is encouraged to adopt climate change policies and measures aimed at limiting its anthropogenic GHGEs, as well as protecting and enhancing its GHG sinks and reservoirs (UNFCCC, 1992: 12). It is believed that doing so will demonstrate the commitment of developed countries to taking the lead in combating climate change and its adverse effects as provided under the Convention and as part of their contributions to achieving the stated objective of the Convention. Also, actions taken in this regard are to be communicated as stipulated by the relevant provisions of the Convention.

In the area of finance, the UNFCCC contains the provision that developed Annex I Parties and other developed Parties included in Annex II, are required to provide new and additional financial resources, including for the transfer of technology, to meet the agreed full costs incurred by developing countries in meeting their obligations under the Convention (UNFCCC, 1992: 13-14). The implication is that developing countries will depend, to a large extent, on their developed counterparts to effectively implement their commitments under the Convention. Such financial support and transfer of technology are to take into account the differing socio-economic conditions of Parties to the Convention, especially to the effect that economic and social development and poverty eradication are the first and overriding priorities of developing and least developed countries. Be that as it may, the Convention recognised the need for adequacy and availability of funds, as well as the importance of appropriate burden sharing among developed countries (UNFCCC, 1992: 13-14).

More importantly, through the provisions of Article 7, a Conference of Parties (COP) was established as the supreme body of the UNFCCC to monitor the implementation of the Convention and any related legal instruments that the COP may adopt, as well as make, within its mandate, decisions necessary to promote the effective implementation of the Convention (UNFCCC, 1992: 17). More specifically, some of the functions of the COP include to: (1) promote and facilitate the exchange of information on climate change measures adopted by the Parties, taking into consideration the differing circumstances, the CBDRRC principle and the respective commitments of all Parties to the Convention; (2) provide guidance for the

preparation and development of national inventories of GHGEs by sources and removals by sinks, as well as evaluating the effectiveness of climate change measures; (3) assess the implementation of the Convention, the overall effects of the climate change measures, and in particular, the extent to which the objective of the Convention has been realised; (4) consider and adopt regular reports on the implementation of the Convention and ensure their publication; and (5) seek to mobilise financial resources within the ambit of relevant provisions of the Convention, among others (UNFCCC, 1992: 18-19).

Apart from being a starting point and, indeed, the most basic foundation for multilateral discussions to specifically address the problem of global climate change as against protecting generally the human environment, which was the common objective of the previous environmental conventions and conferences (in particular, the Vienna Convention), the UNFCCC also represents a modest achievement given that nearly all countries (developed and developing) are Parties to the Convention. They include the so-called Annex I Parties, Annex II Parties, and non-Annex I Parties (low-income countries and LDCs which have been specially recognised in view of their extreme vulnerability and limited capacity to adapt to the adverse effects of climate change). Altogether, over 190 countries were listed as Parties to the Convention.

Quite remarkably, the precautionary principle provided under the UNFCCC was equally noteworthy. The import of the principle is understood against the background of the fact that there are uncertainties associated with climate change predictions, especially as regards future changes in the climate system and its likely impacts. Hence, the precautionary principle accounts for the uncertainty through its provision in Article 3(3) that causes of climate change be anticipated, prevented or minimised, and also that its adverse effects be mitigated. The principle went further to clarify that: "Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account 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: 9). Toth *et al.* (2001: 655-656) provide further insights into the precautionary principle, which according to them, is a policy option when possibly dangerous, irreversible, or catastrophic events are identified, but scientific evaluation of the potential damage is not sufficiently certain. Hence, the principle is considered as a

mechanism to anticipate, prevent or minimise such unscientific or partial-scientific adverse effects of climate change.

On the negative side, however, the UNFCCC being a framework Convention, set no binding limits *vis-à-vis* regulating GHGs among Parties, especially Annex I Parties. Article 17 provides that the COP may, at any ordinary session, adopt protocols to the Convention (UNFCCC, 1992: 28). Having set the framework for controlling GHGs, it is expected that the protocols to be negotiated and adopted afterwards, would set the required legally binding targets concerning GHGs as an add-on to the UNFCCC. By implication, the UNFCCC was constrained to achieve its stated objective of "stabilising the atmospheric concentrations of GHGs at a level that would prevent dangerous anthropogenic interference with the climate system". And, by extension, the Convention could also not serve as an efficient framework for evolving a global climate change agreement. Besides, it is observed that the obligatory targets set for Annex I Parties under the UNFCCC to limit GHGs at 1990 levels by the year 2000 is simply unfair and inequitable since it was based on equal benchmarking for the concerned Parties. The implication is that the economic costs involved in meeting the targets would vary from one Party to the other, whereas Parties with initially relatively high levels of energy efficiency are likely to incur more financial cost in meeting the set targets than those with initially low(er) levels.

Equally worthy of note, both the Vienna Convention and the UNFCCC provide for the establishment of a COP though separately and with differing but shared interrelated objectives. While the COP established under the Vienna Convention was mandated primarily to keep regular review of the implementation of the Vienna Convention towards realising the goal of protecting the human environment through strategies and measures for minimising the release of substances causing or likely to cause modification of the ozone layer, that of the UNFCCC is designed to focus on monitoring the implementation of agreed commitments towards limiting GHGs through climate change mitigation and adaptation measures. Yet, conventional environmental issues and climate change are closely (watertight) linked.

3.11 KYOTO PROTOCOL (KP)

The Kyoto Protocol (KP) was negotiated as a key outcome of COP3 held in Kyoto, Japan in 1997. The Protocol which would not enter into force until February 2005 emerged both as a separate legal instrument, as well as an addition to the

UNFCCC. Prior to the period and as a yearly event, the COP held two meetings: the first in Berlin, Germany in 1995; and the second one in Geneva, Switzerland in 1996. These two COP meetings: set the template for modus operandi as regards the COP; resolved with few updates, especially on countries enlisted as new Parties, and ratification of the UNFCCC; and agreed on submission of national communications as stipulated by the UNFCCC. However, it is worth mentioning that the UNFCCC left many unresolved issues expectedly to be sorted out by the COP through its negotiation process.

COP1, in particular, acknowledged the great work that had been carried out by the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, which no doubt, set the tone for discussions and deliberations at the maiden COP meeting. Hence, deliberating on the report of the committee was clearly a key issue that formed the COP1 agenda. Also, having initiated the negotiation process, COP1 gave more primacy to a multilateral consultative option and established that it is expedient for resolving any questions regarding implementation of the UNFCCC. More importantly and as part of the negotiation process, COP1 initiated the review of some of the UNFCCC provisions considered inadequate.

COP2 continued with the negotiation process with a draft finalised text. It stressed that stemming global climate change could only be successful if a collective action is given topmost priority. Hence, it considered and deliberated on the need for joint action to advance the implementation of the UNFCCC. Its emphasis on joint action was indisputably informed against the background of the anxiety raised by the AR2 concerning human-induced climate change and its position that consistent precautionary action should urgently be considered as a way of dealing with the situation. Thus, COP2 gave as much support to the findings of IPCC as contained in its AR2. By the same token, COP2 stressed the importance of equity considerations in evolving climate change strategies and policies, while the disadvantaged position of developing countries was equally noted. This, no doubt, was in terms of their limited financial capabilities, technological constraints, limited human resources and weak institutional frameworks. It also followed from the observation that most developing countries, particularly in Africa, rely on agriculture which has been identified as a key vulnerability industry to climate change. The situation, according to the UNFCCC (1996: 6-7), was further worsened by harsh economic conditions and a huge external debt burden; whereas their preoccupations were more of addressing poverty,

improving social services, as well as creating jobs. With particular reference to the uniform "harmonised policies," the USA raised clear objection while advocating for a more flexible arrangement and also called for a legally binding mid-term targets as against a long-term arrangement.

At COP3, Parties adopted the KP which essentially was the main reason why the negotiation process was initiated in the first instance through the establishment of the COP. Importantly, it should be pointed out that it was not the intention of the Protocol to introduce any new commitments for Parties not included in Annex I but rather, to reaffirm existing commitments, as well as further the advancement of the implementation of these commitments in order to achieve sustainable development. Hence, the primary objective of the Protocol was to strengthen commitments for the developed Annex I Parties by setting legally binding quantified emissions reduction targets with specified timelines. As a framework, the KP provides for quantified GHGs-cutting commitments/targets for Annex I Parties, with specifics to be worked out in details in succeeding years. With the adoption of the Protocol, therefore, Parties agreed to implement and/or further elaborate policies and measures in accordance with their national circumstances within the context of the CBDRRC principle. Key amongst which include to: (1) enhance energy efficiency in relevant sectors of their respective national economies; (2) protect and enhance sinks and reservoirs of their GHGs, especially those not regulated by the Montreal Protocol; (3) promote sustainable agriculture in light of climate change considerations; and (4) embark on research with a view to promote, develop and advance the use of new and renewable forms of energy, carbon-dioxide sequestration technologies and innovative environmentally friendly technologies (UNFCCC, 1998: 8).

In particular, the KP stressed that Annex I Parties shall pursue limitation or reduction of GHGs not controlled by the Montreal Protocol, especially from aviation and marine bunker fuels. This, as stipulated by the KP, should be pursued working through the International Civil Aviation Organisation (ICAO) and the International Maritime Organisation (IMO). While emphasising the need for cooperation among Parties to enhance both the individual and combined effectiveness of their climate change policies and measures, the KP also provides that Annex I Parties shall strive to implement climate change policies and measures in such a way that minimises the adverse effects of climate change and, in particular, those concerning international trade and other Parties, especially developing countries *vis-*

à-vis social, environmental and economic aspects of their respective national lives (UNFCCC, 1998: 9).

Under the KP, especially given its first commitment period from 2008 to 2012, Annex I Parties made up of industrialised countries and transition economies, unanimously agreed to commit themselves to overall GHG emission reduction commitments up to 5.2 per cent below 1990 levels, with specific targets for individual countries (Boswell *et al.*, 2012: 106). They intend to achieve the set targets through planned commitments, including the provisions that: (1) any emission reduction units, or any part of an assigned amount, which a Party acquires from another Party in accordance with the provisions of Article 6 or of Article 17 shall be added to the assigned amount for the acquiring Party; (2) any emission reduction units, or any part of an assigned amount, which a Party transfers to another Party in accordance with the provisions of Article 6 or of Article 17 shall be subtracted from the assigned amount for the transferring Party; (3) any certified emission reductions which a Party acquires from another Party in accordance with the provisions of Article 12 shall be added to the assigned amount for the acquiring Party; and (4) if the emissions of a Party included in Annex I in a commitment period are less than its assigned amount under this Article, this difference shall, on request of that Party, be added to the assigned amount for that Party for subsequent commitment periods (UNFCCC, 1998: 11). Yet, the position of the IPCC in its AR1 is that at least a 60 per cent GHGEs reduction would be needed to significantly return the climate system to its pre-1990 era.

With regard to the issue of finance, Article 11 of the KP provides that developed Annex I countries should provide new and additional financial resources to meet the agreed full costs incurred by developing country Parties in advancing the implementation of existing commitments towards GHGEs reduction. However, it cautioned that the implementation of these existing commitments shall take into account the need for adequacy and predictability in the flow of funds and the importance of appropriate burden sharing among developed country Parties (UNFCCC, 1998: 18). By the same provision, it is also required that the new financial resources should include the transfer of technology and methodologies needed by developing country Parties to meet the agreed full 'incremental' costs of advancing the implementation of existing commitments.

Similarly, the KP provides for a clean development mechanism (CDM) as contained in its Article 12. The CDM aims to assist developing country Parties in achieving sustainable development and in contributing to the ultimate objective of the UNFCCC, as well as to assist developed Annex I Parties to achieve their GHGEs reduction targets in compliance with their commitments under the KP (UNFCCC, 1998: 18). More specifically, the CDM provides that: (1) developing countries benefit from project activities resulting in certified GHGE reductions; (2) developed Annex I countries use the certified emission reductions accruing from such green projects to contribute to compliance with part of their GHG quantified emissions limitation and reduction commitments under the relevant provisions of the KP; (3) GHGE reductions resulting from each project activity shall be certified by operational entities to be designated by the COP serving as the meeting of the Parties to the KP on the basis of voluntary participation approved by each Party involved, real, measurable, and long-term benefits related to the mitigation of climate change, and reductions in emissions that are additional to any that would occur in the absence of the certified project activity; and (4) funding of certified project activities be arranged as necessary; participation under the CDM clean development mechanism, including the acquisition of certified emission reductions may involve private and/or public entities, and is to be subject to whatever guidance may be provided by the executive board of the CDM (UNFCCC, 1998: 19).

With the introduction of an emission trading system (ETS) otherwise referred to as "cap and trade", the KP set a ceiling, which is the cap for GHGEs with some permits created to regulate the GHGEs pattern. Not only that the UNFCCC Parties and other private entities involved in the scheme were allowed to operate with a permit, some form of trading was also introduced such that it puts a price on pollution, as well as creates flexibility regarding emissions-reduction largely controlled by the market system. Hence, GHGEs reduction attracts the lowest possible cost. This, no doubt, is different from a purely pricing system where carbon taxes are imposed on GHGEs.

The KP also provides for what is known as a Joint Implementation (JI) mechanism as yet another important GHG regulatory framework. The JI creates an opportunity for any Annex B Party (developed Annex I Parties and EIT) to invest in GHGE reduction or emission removal projects in any other Annex B Party, thereby earning emission reduction units (ERUs) as an alternative to doing same locally. By

implication, the JI offers some flexibility which allows any Annex B Party to meet its emission reduction or limitation targets under the KP in a relatively cheaper way and outside the territorial boundary of the Annex B Party concerned. The ERUs earned in the process can be used to offset its KP target. In addition to providing a flexible and cost-effective way of meeting their KP targets, the host Annex B Party also benefits from green technology transfer through the JI mechanism.

Significantly, all developed Annex I Parties apart from the USA, participated in the first-round commitments of the KP. It is noteworthy that the KP was amended in 2012 during COP18, with Annex B of the Protocol containing a list of developed Annex I Parties. These Parties commit to the second-round targets covering the period from 2013–2020. In essence, therefore, Annex B of the KP comprised developed Annex I Parties with first- or second-round quantified GHGEs reduction commitments/targets. Although most Annex I Parties and the European Union (EU) had agreed to the second-round targets of the KP, the amendment never entered into force due largely to new developments in the negotiation process. Hence, the KP represents a true starting point of global actions on climate change and, indeed, the first global climate change deal aimed at reducing human influence on the climate system (Lorenzoni and Pidgeon, 2006).

Unlike the UNFCCC whose objective is basically the stabilisation of GHGEs, the KP provides for specific commitments in terms of GHGEs reduction, especially on the part of developed Annex I Parties with set targets. The KP thus represents a significant achievement and progress towards addressing global climate change problems. The introduction of deliberate GHG regulatory mechanisms such as the ETS, the CDM, and the JI were also, no doubt, significant innovations even though they have been largely criticised for commodifying nature. For example, some developed countries while hidden under the CDM banner, have engaged in the planting of trees as green projects in developing countries (which, no doubt, are small and insignificant) as part of the efforts towards meeting their GHGEs reduction targets. It is also common knowledge that old forests with slow carbon absorption rates are being cleared and replaced with fast carbon-absorbing vegetation but which are detrimental to host communities.

Furthermore, the carbon trading introduced by the KP has been condemned for being so indulgent as it gives more opportunities for developed Annex I Parties to continue to pollute, while also earning carbon credits/allowances through offsetting

for doing so. Instead of cap and trade provided under the KP through the CDM, the suggestion in certain quarters is that a carbon tax system would have been more appropriate and effective. This suggestion is premised on the argument that emissions trading may not help reduce the anthropogenic concentration of GHGs in the climate system since the free carbon market allows that those with surplus units can sell and, of course, to the highest bidder. By implication, those who benefit from carbon trading are very likely to pollute the more. Hence, it simply pays to pollute, whereas no significant reduction in the GHGs will be attained except that the overall carbon credits/allowances in the system are sufficiently reduced.

Moreover, such cap and trade system encourages *grandfatherism* in which polluters, who ordinarily should be held responsible, are in turn, earned credits/allowances from governments, while it also permits some forms of manipulation from clever Parties. For instance, permits were not only given freely, especially to major polluters (powerful developed states and MNCs), some smart Parties also earned carbon credits from outside the cap and trade system. Hence, James Hansen (cited in Myers, 2010) argues that as long as fossil fuels remain cost effective, they will continue to be used. It is important, therefore, that a flat carbon tax be introduced to increase the price of such fuels rather than the emissions trading scheme currently implemented following the KP.

Despite its standard setting and innovative efforts to significantly reduce global GHGs through quantified targets, the KP much like the UNFCCC, could not deliver on achieving the overall objective of preventing the anthropogenic climate change. Besides, the Protocol's framework was equally faulty which, to some extent, explains why the U.S. Congress failed to ratify it on the ground that transiting economies like China and India were not covered under its quantified GHGs reduction targets. Considering the fact that the combined GHGs from these two countries are far less than that of the USA which ranks as the world's foremost GHG emitter, many have argued that the excuse given by the U.S. for not ratifying the Protocol was untenable and, of course, informed by an ulterior motive. More so, that the country is known for being hostile towards international environmental agreements, recalling that it also failed to ratify the Biodiversity Convention as well. In a sense, it thus implies that asking these countries to come under the KP arrangement is like asking the rich to continue to stay rich and the poor to continue to stay poor since GHGs are closely linked to GDP growth.

The issue with the KP became even more serious when in December 2011, Canada officially withdrew its participation, while New Zealand and some other countries equally threatened to do same. In the same vein and as regards the second-round of the KP commitments, Japan also declared in 2010 that it should be counted out since its participation is very likely to put her at a disadvantaged position against its main economic competitors namely, China, India and Indonesia. These anti-KP countries would rather prefer to develop and implement voluntary internal GHGEs reduction programmes outside the multilateral arrangement provided under the KP. For instance, the U.S. was instrumental to the "Asia-Pacific Partnership on Clean Development and Climate" established in 2005 as an international, voluntary, and PPP arrangement on GHGEs reduction involving the U.S., Australia, Canada, and other South East Asian countries, including Japan, China and South Korea.

Also, being a framework system, the KP appears inefficient for its failure in bringing about a globally acceptable climate change deal given that negotiations under it and, indeed, the entire global climate change process, including the COP arrangement, are governed by consensus. Hence, it is possible for small groups forming themselves into different groupings to block the negotiation process. Eckersley (2012: 34) explains that such consensual requirement is interpreted in practice to mean the absence of any formal objection by any of the Parties. It is also on record that not little political lobbying and influence were exerted by oil and coal MNCs to thwart the negotiation process for it was obvious that their business activities are very unlikely to escape the untoward economic ramifications should there be any concrete climate change agreement in terms of significant reductions in global GHGEs. The claim in certain quarters is also that some well-respected scientists were bought over by these same MNCs to discredit any climate change deal that genuinely seeks to significantly check GHGEs. While it is at least doubtful, it is not absolutely impossible.

Beyond the untoward economic externalities that may be associated with the KP, the contention is that the targets set by the KP are just too optimistic while the costs of implementing them far outweigh their benefits. Much like the UNFCCC, the KP also shares the deficiency in using 1990 as a base year for benchmarking GHGEs status rather than individual country per capita emissions. Besides, the energy efficiency of Parties to the KP varies together with the costs of meeting their respective GHGEs reduction targets. This situation, no doubt, further engenders

inequality among Parties, especially between developed countries and their developing counterparts.

Thus, with particular regard to 1990 as a base year and the inherent inequities engendered by the same, it is argued that the Europeans had a massive advantage over other countries since the reunification of Germany had resulted in the elimination (for economic reasons) of a lot of dirty, polluting industry in what was formerly East Germany, while the discovery of natural gas in the North Sea of the United Kingdom, facilitated Margaret Thatcher's phase-out of the coal industry which had been a major source of fuel. This simply implies that the EU could apportion emissions not needed by Britain and Germany to big polluters (awarding large net increases in some cases), thereby obtaining flexibility that no individual country had. Yet, the USA had, in the meantime, experienced unprecedented economic growth. The argument further holds that "by selecting a timescale that was almost immediate – a completion date of 2008 – the Kyoto Protocol mandated economically inefficient measures to achieve its targets" (Harvard Magazine, 2002).

Quite noticeably, the non-ratification of the KP by the U.S. dealt a serious blow and, perhaps, also represents a setback regarding global actions on climate change even though the KP proceeded without the U.S. Yet, another critical issue which is whether subsequent COP meetings and, indeed, the latest Paris climate agreement would not have been necessary if the USA had ratified the KP. Alternatively, the question that still needs to be answered is: To what extent can it be established that the non-participation of the U.S. being the world's number one GHG emitter, contributes wholly to the failure of the KP? This may require that a separate academic interrogation be undertaken.

3.12 POST-KP CONFERENCE OF PARTIES

As a result of the challenges with the KP, the global system felt the need to continue with the negotiation process within the institutional framework of the COP on a yearly basis. Hence, the KP was followed by a series of COP meetings, many of which achieved close to nothing in terms of improvement to the standards set by the KP. For instance, the first three post-KP COP meetings, which include COP4 held in Buenos Aires, Argentina in 1998, COP5 held in Bonn, Germany in 1999 and COP6 held at The Hague, Netherlands in 2000, were more of preparatory discussions

focusing on integrated action plans to ensure early entry into force of the KP, which was intended immediately after COP6 at the earliest.

3.12.1 COP4

Aside from being the first COP meeting to be held in the Southern hemisphere, COP4 stressed the need for all state and non-state actors to become actively involved in the global climate change process, bearing in mind the CBDRRC principle and the primary objective of attaining sustainable development goals. To that extent, the host country, that is, Argentina and one other non-Annex I Party, that is, Kazakhstan, indicated their commitment to be part of the quantified emission reduction or limitation framework provided under the KP. Though faced with difficulties in finalising some of the contentious issues in the KP, COP4 managed to integrate some of the core action plans in furtherance of the UNFCCC and the KP, together with ambitious and politically firm deadlines for ratification by Parties at the subsequent COP meeting (UNFCCC, 1999a). This, no doubt, was key in the whole arrangements aimed at ensuring early entry into force of the KP.

3.12.2 COP5 AND COP6

The fifth and sixth COP meetings were not in any significant ways different. Having realised that progress regarding the implementation of the UNFCCC and the KP had been slower than envisaged, the emphasis at the two COP meetings centred on the need for a clear manifestation of political will on the part of state actors in particular, especially one that would move the global climate change process forward. Besides, much of the deliberations focused mainly on ensuring that the KP becomes activated as planned, while particular attention was drawn to the argument that leaving the curbing of global GHGEs to only Annex I Parties would not be enough. Hence, developing countries must join in the efforts, considering that many of them have rapidly growing economies with a significant source of GHGEs even though their per capita levels remained relatively low (UNFCCC, 1999b). Furthermore, the issue of assistance to developing countries through finance, technology and capacity-building in order to allow that they too follow environmentally-sound paths of economic development and, therefore, contribute more meaningfully to GHGEs reduction was equally raised at both meetings. In a way, the meetings were more or less technical sessions.

By way of assessment, the fourth and fifth COP meetings ended with no significant contributions to climate change governance momentum created by the KP. Indeed, the periods were characterised by lack of action and setbacks in the global climate change process. However, at the resumed COP6 meeting after the initial negotiation logjam, some agreements were, no doubt, arrived at primarily to enhance the implementation of the three KP mechanisms. One of such was that no quantitative limit on carbon credit that could be earned from applying the mechanisms provided that domestic GHGs reduction actions constitute a significant element of the efforts of each Annex B Party while meeting its KP target. In spite of the agreements, the early entry into force of the KP immediately after COP6, latest by 2002, did not materialise as envisaged. This was due largely to lack of consensus among Parties regarding some of the contentious issues raised in the UNFCCC and the KP, which for the most part, also pitched developed Annex I Parties against their developing counterparts. Besides, operational details regarding the agreements reached during COP6 remain largely inconclusive.

3.12.3 COP7 (MARRAKESH ACCORDS)

In a sense, COP7 held in Marrakesh, Morocco in 2001, turned out to be markedly different given that Parties agreed to the "Marrakesh Declaration" and the "Marrakesh Accords". Under the Marrakesh Declaration, Parties were not only conscious of the UNFCCC objective, they also reaffirmed that economic and social development and poverty eradication are the first and overriding priorities of developing countries (UNFCCC, 2002: 3). Specifically, Parties admitted that: (1) addressing the many challenges of climate change will make a contribution to achieving sustainable development; (2) the WSDD provides an important opportunity for addressing the interconnection between climate change and sustainable development; (3) the importance of capacity-building, green technology development and transfer, involvement of private sector in the climate change process, market-oriented approaches, as well as supportive public policies and international cooperation could not be under-estimated; and (4) climate change and its adverse impacts have to be addressed through cooperation at all levels, while the efforts of all Parties to implement the UNFCCC was most welcomed (UNFCCC, 2002: 3).

Having also reaffirmed the importance of capacity-building for developing countries to enable them to participate fully in and also implement their commitments

under the UNFCCC, the Marrakesh Accords provide a framework and its implementation towards achieving this particular goal. In addition, it resolved that a comprehensive review of the implementation of the framework should be carried out during COP9 and every five years thereafter (UNFCCC, 2002: 5-6). Essentially, the framework serves as a guide for the GEF as an operating entity of the financial mechanism, and which should be considered by multilateral and bilateral organisations in their capacity-building activities related to the implementation of the UNFCCC and in preparation for their effective participation in the KP process. In particular, it was stressed that there is no "one size fits all" formula for capacity building, which in any circumstance, should be country-driven such that it addresses the specific needs and conditions of developing countries, while also reflecting their national sustainable development strategies, priorities and initiatives (UNFCCC, 2002: 8).

Furthermore, capacity-building as encapsulated in the framework, should be such that it is continuous, progressive and iterative; the implementation of which should be based on the priorities of developing countries. Besides, it should be undertaken in an effective, efficient, integrated and programmatic manner, taking into consideration the specific national circumstances of developing countries and, in particular, the special circumstances of LDCs and Small Island developing states that are most vulnerable to the adverse impacts of climate change (UNFCCC, 2002: 9). Interestingly, the Accords extend its framework for capacity-building to include EIT. The underlying argument was that, as Parties included in Annex I List and, as such, under KP obligation regarding quantified GHG emission limitation and reduction commitments, the EIT are likely to face some form of new challenges in addition to the existing ones in terms of capacities to implement the UNFCCC. Hence, as Parties undergoing the process of transition to a market economy, they equally require some measure of assistance to enhance their ability to deal more effectively with climate change. To that extent, capacity-building is equally considered critical for them to be able to effectively implement their commitments under the UNFCCC and in preparation for their participation in the KP process (UNFCCC, 2002: 17). As much as it is the case with developing countries and LDCs, it is equally emphasised that the framework for capacity-building in EIT should be results-oriented and implemented in a holistic manner to facilitate its monitoring and evaluation, cost-effectiveness and efficiency.

By the same token, the Marrakesh Accords provide a framework under which planned actions for the development and transfer of technologies were clearly spelt out. In addition to the decision that an expert group to oversee activities in that regard should be established, it was also decided that under the GEF as an operating entity of the financial mechanism, financial support for the implementation of the framework should be provided through its climate change focal area and the special climate change fund (UNFCCC, 2002: 22). Besides, it was agreed that a work programme for the implementation of other relevant provisions of the UNFCCC should be developed to include the provision of necessary support for the preparation of NAPAs, together with the establishment of a LDCs fund to be operated by an entity entrusted with the operation of the financial mechanism, under the guidance of the COP, to support the work programme for LDCs (UNFCCC, 2002: 36).

Similarly, the Accords made provision for the establishment of a special climate change fund, as well as other bilateral and multilateral sources. It acknowledged the willingness of most non-Annex II Parties as declared at COP6, to commit themselves to be part of contributors to the financial assistance pool, as well as the joint political declaration made by the European Community and its member States, together with Canada, Iceland, New Zealand, Norway and Switzerland, on their preparedness to contribute collectively €450 million and USD410 million annually by 2005, with this level to be reviewed in 2008 (UNFCCC, 2002: 43). Specifically, the intention of Canada to singlehandedly contribute C\$10 million as a seed fund to encourage other developed Annex I Parties to follow suit was also welcomed.

Significantly, the Marrakesh Accords also enunciate some principles that should govern the treatment of land use, land-use change and forestry (LULUCF) activities which include amongst others that: the treatment of LULUCF activities should be based on sound science; consistent methodologies should be used over time for the estimation and reporting of LULUCF activities; the aim stated in Article 3, paragraph 1 of the KP should not be changed by accounting for LULUCF activities; the mere presence of carbon stocks should be excluded from accounting; the implementation of LULUCF activities contributes to the conservation of biodiversity and sustainable use of natural resources; accounting for LULUCF does not imply a transfer of commitments to a future commitment period; reversal of any removal due to LULUCF activities be accounted for at the appropriate point in time; and

accounting excludes removals resulting from elevated CO₂ concentrations above their pre-industrial level, indirect nitrogen deposition, and the dynamic effects of age structure resulting from activities and practices before the reference year (UNFCCC, 2002: 56).

Clearly, the Marrakesh Accords succeeded in adding flesh to some of the skeletal issues provided under the UNFCCC and its KP. As part of the efforts to finalise operational guidelines for effective implementation of action plans and agreements reached during the previous COP meetings towards realising the primary objective of UNFCCC and those of the KP, the Accords encapsulate principles and decisions that are of primary concern to developing countries in particular. The much emphasis and elaborate exposition on capacity=building, technology transfer and financial assistance from developed Annex I Parties to developing and least developing countries seem to have at least, to some reasonable extent, reignited the hope and confidence of most countries of the South to continue to participate in the negotiation process under the COP multilateral platform. Also, worth mentioning were, no doubt, the establishment of an LDCs Fund, Special Climate Change Fund, and other climate change-related funding arrangements to be sourced bilaterally and multilaterally.

Importantly, the Marrakesh Accords drew attention to the importance of the WSSD to be held the year after, especially regarding the need to deepening understanding of the linkage between climate change and poverty on the one hand, and sustainable development in all its varied dimensions on the other. In the same vein, the CDM framework, under the Accords, provides a special opportunity for cooperation among all Parties, including non-state actors to work together towards GHGEs reduction while pursuing the goal of sustainable development. Thus, the Accords, for the most part, represent a move from theory to practice in the whole efforts towards addressing the challenge of climate change.

Though a step forward relative to the UNFCCC and the KP frameworks, the Accords were not without some deficiencies. First, there was no strict timeframe regarding the implementation of the set frameworks under the Accords even though it was stressed that the frameworks should be implemented promptly and urgently, taking into consideration the immediate, medium- and long-term priority needs identified by developing and, in particular, least developed countries. Regarding financial assistance, the Accords seem to contain only promissory declarations that

were not only a far cry from what was needed to assist developing countries in mitigating and adapting to climate change but also with paltry actual commitments from few developed Annex I Parties. Ultimately, the Accords also did not materialise into an early entry into force of the KP as envisaged.

3.12.4 COP8 AND COP9

The goal of early entry into force of the KP could not be achieved at the eighth and ninth COP meetings held in New Delhi, India in 2002 and Milan, Italy in 2003 respectively. With a better understanding of the linkage between climate change and sustainable development, COP8 further stressed the need to provide support for developing countries through technology transfer. The underlying belief was that with such assistance, developing and, in particular, least developed countries, would be in a better position to minimise the impact of climate change. Having established that those with the least resources are the most vulnerable to the effects of climate change, COP8 again emphasised that higher priority should be given to adaptation as a means to promote sustainable development with a strong belief that the WSSD and its Plan of Implementation had provided guidance in that regard (UNFCCC, 2003).

As expected, further effort was geared towards finalising planned actions and agreements reached during the previous COP meetings in pursuant of the UNFCCC and its KP. In addition to this, guidelines for national communications from non-Annex I Parties were also established while the meeting also took stock in appraising the performance of the GEF, as well as progress regarding capacity-building. Directly related to this, COP9 resolved, in particular, that the Adaptation Fund established during COP7 should be used primarily in supporting developing countries, with much emphasis on capacity-building through technology transfer. Another major decision taken during COP9 was that the first national reports submitted by non-Annex I Parties should be reviewed as earlier agreed to under the Marrakesh Accords.

3.12.5 COP10, COP11/CMP1 AND COP12/CMP2

Incidentally, the first three post-Marrakesh COP meetings also suffered from more or less the same climate inaction that characterised the first three post-KP COP meetings as earlier explained. This is mainly because the meetings did not arrive at decisions and climate change agreements that are substantially different from the existing issues as at the period. For the most part, the Buenos Aires programme of

work on adaptation and response measures were developed during COP10 in addition to taking stock of the progress made in the course of the first decade of the climate change negotiation process, as well as challenges to effective implementation of the action plans developed since the establishment of the COP. Also at the COP10 meeting, it was further stressed that more efforts should be geared at enhancing capacity-building for developing non-Annex I Parties and countries with EIT in order to enable them to adapt more effectively to climate change.

Following the entry into force of the KP in 2005, COP11 held in Montreal later the same year, served as the first Meeting of the Parties (CMP1) to the KP. Much of the discussions at the meeting focused on developing post-KP climate change framework not only beyond 2012 but also such that it would ensure deeper cuts in GHGEs, as well as enhance sustainable development. Specifically, a process leading to a long-term cooperation under the UNFCCC was initiated through a series of workshops known as "the Convention Dialogue". In particular, CMP1 serves to provide guidance regarding the implementation of Article 6 of the KP. In addition to providing further clarifications regarding relevant terms such as Emission Reduction Unit (ERU), Certified Emission Reduction (CER), Assigned Amount Unit (AAU) and Removal Unit (RMU), the meeting established criteria for baseline setting and monitoring as they relate to anthropogenic GHGEs by sources or removal of emissions by sinks. Moreover, the CMP1 also provides specific modalities and operating guidelines for emission trading as contained in Article 17 of the KP, amongst others.

Expectedly, COP12/CMP2 held in Nairobi, Kenya in 2006, extended the discourse on climate change to include a particular focus on areas of support for developing non-Annex I Parties. Beyond the understanding of climate change as an environmental and developmental issue, COP12/CMP2 acknowledged the economic imperative of climate change as well. The perception was that climate change had continued to pose the most serious threats to humanity; a situation that could cause large-scale disruption to economic and social activities, threaten the development goals of billions of the world's poorest people and jeopardise progress made regarding poverty reduction, particularly on the African continent (UNFCCC, 2007: 6).

Thus, realising that concrete actions and mobilisation of additional resources are key to addressing more effectively the common challenge of climate change,

COP12/CMP2 stressed the need to fast-track the implementation of the CDM, particularly in Africa. In the same vein, the meeting emphasised that the implementation of financial mechanisms, as well as capacity-building, including technology transfer from developed Annex I to developing non-Annex I Parties be vigorously pursued. It also agreed to the implementation of the Buenos Aires programme of work to support adaptation by developing non-Annex I Parties and, in particular, that the framework for the Adaptation Fund (AF) be equally be made good.

Although the first three post-Marrakesh COP meetings placed greater emphasis on capacity-building and technology transfer, COP11 was a step forward with the establishment of the Ad hoc Working Group on further commitments for Annex I Parties under the KP (AWG-KP); with the expectation that further commitments for Annex I Parties should be finalised well ahead of the expiration of the KP first commitment period. COP12/CMP2, in particular, stressed the issue of climate change adaptation and funding. In a way, this development no doubt advanced "adaptation" as one of the top priorities of the global climate change agenda. It was also indicative of the genuine concern of Parties that the global climate change process, at least at the level of COP meetings, should progress from just planning and assessment to implementation and real action, especially in a manner that would focus more on climate (adaptation) funding in terms of availability and accessibility to enable developing countries to better adapt to climate change.

3.12.6 COP13/CMP3 (BALI ACTION PLAN)

COP13/CMP3 was held in Bali, Indonesia in 2007. The meeting was, no doubt, significant, considering the fact that it produced a key outcome known as the Bali Action Plan (BAP). As a major effort to enable the implementation of the UNFCCC with the ultimate objective of stabilising GHGEs at a level that would prevent dangerous anthropogenic interference with the climate system, the BAP represents a long-term cooperative global action to address the challenge of climate change in the post-KP (beyond 2012). It revolves around five key elements of Long-Term Cooperative Action (LCA) namely, shared vision, mitigation, adaptation, technology and finance; the last four being referred to as the "building blocks" of a future climate regime (UNFCCC, 2008: 6).

As part of the efforts to realise its objective of a long-term vision for global climate change action through a significant reduction in GHGEs, the BAP provides that developed Annex I Parties remain committed to their quantified GHG emission reduction targets, while developing countries undertake to commit themselves to Nationally Appropriate Mitigation Actions (NAMAs) given adequate support from developed Annex I Parties in terms of capacity-building, technology transfer and financing within the framework of sustainable development.

Similarly, based on a series of proactive decisions with clear details of what needed to be done at specified times in the foreseeable future in order to secure the climate, the Bali climate conference agreed that a new post-2012 climate deal be adopted by Parties at the COP15 which was to be held two years later. The two-year process known as the Bali Roadmap, establishes two track systems regarding the global climate change negotiations to be delivered at COP15. These include: the UNFCCC track under which the Ad Hoc Working Group on Long-Term Cooperative Action (AWG-LCA) was established to set the climate change negotiating agenda with the inclusion of all Parties towards the full implementation of the UNFCCC objective; and the KP track under which the continuation of the work of the AWG-KP regarding further and new GHGEs reduction commitments for Annex I Parties was endorsed. It should be pointed out that the BAP was largely informed by the 2007 findings as contained in the AR4 of the IPCC, having established that the scientific debate regarding the anthropogenic climate change had been at least brought to an end.

Apart from visualising the need for enhanced actions regarding the identified response measures, as well as curbing of deforestation, the inclusion/participation of developing non-Annex I Parties in the overall GHGEs reduction objective through the introduction of NAMAs signifies a significant development in the entire global climate change process. For the first time, the BAP introduced the concept of “developed” and “developing” countries as against “Annex I” and “non-Annex I” Parties provided under the UNFCCC/KP. Besides, the BAP typically represents a successive effort with the establishment of a post-KP negotiation framework after over a decade of annual COP meetings. However, like the KP, the BAP underestimated the challenge of climate change as a global common and, therefore, simply over-packaged its planned actions, particularly with regard to the set dates for achieving its goal. Similarly, the commitments under BAP, including the NAMAs,

were not only imprecise but also very inadequate in terms of what was required to return the climate to its pre-industrial era.

3.12.7 COP14/CMP4 AND COP15/CMP5 (COPENHAGEN ACCORD)

Essentially, COP14/CMP4 held in Poznan, Poland in 2008, was clearly a bridge between advancing negotiations under the BAP and the Copenhagen Accord with a view to developing and finalising a long-term climate agreement acceptable to all Parties. Even though not much was achieved, it resolved with agreed principles for climate financing to assist the poorest nations to enable them to cope with the adverse impacts of climate change. It contrasts with COP15/CMP5 held in Copenhagen, Denmark in 2009 where a lot of issues were deliberated upon.

Following the decisions, as contained in the BAP, COP15/CMP5 sought to establish a more ambitious climate change deal that would cut GHGEs than the targets set under the KP. The expectation was that the new climate agreement to be reached would take off effectively from 2012 when the first-round KP quantified emissions reduction commitments would lapse. At the end of COP15, a number of pledges generally referred to as 'political accord' were undertaken to significantly cut GHGEs. The accord (also known as the Copenhagen Accord) was drafted majorly by the USA and China (supposedly representing the BASIC negotiating bloc).

For the first time in the history of the global climate change process, all Parties, including developed Annex I countries and non-Annex I countries (such as relatively large economies like China and other major developing countries), shared a similar vision regarding the need for a collective commitment *vis-à-vis* GHGEs reduction. While developed Annex I countries commit to continue the implementation of economy-wide GHGEs reduction targets up to 2020, their non-Annex I counterparts reasoned along the line of nationally appropriate mitigation actions (NAMAs). Least Developed Countries (LDCs) and small island states under the Alliance Of Small Island States (AOSIS) grouping were, however, at liberty to undertake voluntary mitigation actions guided by their respective national adaptation plans (NAPs) and provided that they receive financial and technical support from developed Annex I countries.

Another key important aspect of the Accord was its recognition of the scientific justification for keeping temperature increases below 2°C. Fundamentally, it necessitates the need to fast-track the process for individual countries to meet their

specific mitigation pledges by 31 January 2010, with clear provisions for reporting and verification of mitigation actions of individual countries. Besides, the Accord contains commitment on the part of developed countries towards providing new and additional resources for GHGEs reduction through deforestation, forest preservation, as well as enhanced forest sinks.

As a major issue contained in the Accord, developed Parties made a pledge of US\$ 30 billion up to 2012, as well as additional US\$100 billion per year by 2020 to help developing countries cope and adapt to climate change. In this particular regard, the Accord provides for the establishment of Green Climate Fund (GCF) to be sourced from both public and private outlets. The GCF represents an operating entity of the financial mechanism to support mitigation-related projects, programmes, policies and other activities in developing countries. In addition to the GCF, the Accord equally provides for the establishment of technology mechanism to step up the development of appropriate green technology and their transfer for mitigation and adaptation purposes, particularly in developing countries. Besides, developed Annex I countries are under obligation to assist non-Annex I countries with appropriate technology and capacity-building to enable them to adapt better to climate change.

Though far from what was generally expected, the Copenhagen Accord delivered a political climate change agreement (as against a legally-binding post-KP climate deal). This agreement, no doubt, serves as the bedrock for future climate change regime. In addition to resolving with decisions that merely "take note" of the Copenhagen Accord, as well as putting in place a process by which Parties are expected to indicate their support for the Accord, COP15 was not in any important way fundamentally different from the UNFCCC and its KP. Rather, the Accord subscribes almost entirely to the existing climate change frameworks. Though it became operational immediately, not all Parties agreed with many of its provisions. Not only that some of the provisions were not so clear and, therefore, require further explanations and clarifications, there were also no specified timelines for achieving the set targets. At least this becomes evident with the resolution reached at the end of the Copenhagen meeting that the mandates of the AWG-KP and AWG-LCA be extended to COP16.

Similarly, efforts to limit global temperature rise to 1.5°C in favour of the AOSIS in particular, as well as agree to a fair, more ambitious and legally-binding targets for GHGEs reductions by 2020 and 2050, were blocked primarily by China

representing the BASIC grouping and the U.S. who preferred the self-declared nationally monitored targets instead (Death, 2011: 10). Besides, many developing countries alleged of leakage in the so-called carbon trading with lapses, allowed some developed Annex I countries to circumvent the carbon market structure to their advantage. Moreover, the process of drafting the Accord was also questioned on the ground that the Accord lacked transparency and inclusiveness while many developing countries were also excluded from the drafting process. These violations, in normal procedures, were cited as some of the reasons why some states, such as Bolivia, Venezuela, Nicaragua (Latin American countries) and Sudan (Africa), refused to give their support to the Accord in the final plenary (Bodansky, 2010; Eckersley, 2012: 37). In fact, these countries led a protest of developing countries against the Copenhagen Accord, describing the outcome document as not only 'illegitimate' but also 'insufficient', while announcing a new summit in Cochabamba in 2010 to discuss the 'Rights of Mother Earth'. Central to their demand remains the fact that global warming should be pegged at no more than a 1-1.5°C above the pre-industrial level.

Hence, the Accord was for the most part, characterised by disagreements and divisions fueled by North-South existing conflict cleavages (Hernandez, 2014: 124). Although Hernandez (2014) further contends that the North 'forward-looking' or the South 'backward-looking' viewpoints regarding climate change history and negotiations should not be conceived as either negative or positive but rather as merely a time reference through which factors are considered, it is admitted that the North is indebted to the South in terms of environmental remediation. Howbeit, such a negotiation system that was largely marked by North-South divide is what Eckersley (2012: 25) refers to as "inclusive multilateralism" versus "exclusive unilateralism". In summary, the Copenhagen story line is best captured in the remark according to Dimitrov (2010: 19) as follows: "Our aim became a nonbinding "comprehensive core decision" and our worst-case scenario for Copenhagen was a political declaration."

3.12.8 COP16/CMP6 (CANCUN AGREEMENTS)

COP16/CMP6 held in Cancun, Mexico in 2010 continued with the recognition of climate change as a threat to both natural and human systems. It was understood that addressing climate change requires nothing less than a collective action involving all Parties – developed and developing alike. Having also acknowledged the AR4 of

the IPCC on the need to keep global warming below 2°C above pre-industrial levels, as well as the peculiar circumstance of developing countries in terms of their limited capacity to cope and adapt to climate change against other contending issues of social and economic development and poverty eradication (which remain their first and overriding priorities), COP16/CMP6 furthered negotiations on issues yet to be resolved at the Copenhagen meeting. These include the scale-up of GHGEs reduction required by Annex I Parties beyond 2012, flexibility mechanism and LULUCF.

Still, within the framework of the already established negotiating tracks (UNFCCC and KP), COP16/CMP6 agreed on national mitigation pledges, as well as a number of steps needed to be undertaken in order to strengthen the long-term cooperative goal. In particular, the finance commitment, that is, the new Green Climate Fund (GCF), as well as technology transfer as proposed under the Copenhagen Accord, was given a further push. The decisions captured under the Cancun Agreements also include adaptation mechanisms and an enhanced transparency system, amongst others. Under the agreements, Parties agreed to a periodic review to intensify national commitments towards the attainment of below 2°C target, with the first review to commence in 2013 and expected to be finalised in 2015. Parties also resolved that negotiations regarding specified timelines for peaking of global GHGEs up to the year 2050 should hold during COP17. In the same vein, the Cancun meeting noted the call for a further reduction of global warming to 1.5°C above pre-industrial levels, and also agreed that it should form part of the main negotiation agenda at COP21.

With specific reference to national mitigation pledges, developed Annex I Parties commit to scale-up their GHGEs reduction commitments to a level that accommodates the prediction of the IPCC with regard to what was needed to control and revert the climate system to its pre-industrial status. The Cancun Agreements took note of the NAMAs as communicated by developing countries, while also urging them to continue with the submission of their respective annual GHGEs' inventories and reports to assist in monitoring their progress.

In particular, the Agreements recognise the need for developed countries to provide support for their developing counterparts in the areas of finance and technology to enable them to achieve a GHGEs' deviation from 'business-as-usual' by 2020. This was not in any way different from what was agreed under the Copenhagen Accord except for the provision that developed countries should come up with "low-

carbon development strategies or plans", while also encouraging their developing counterparts to act accordingly. Similarly, the Cancun Agreements extend to cover other aspects of mitigation, including the Measuring, Reporting and Verification (MRV), reducing emissions from deforestation and forest degradation (REDD-plus), as well as achieving sustainable forest conservation and management in order to enhance carbon sinks in developing countries.

Furthermore, the Cancun Agreements embody the establishment of a Green Climate Fund (GCF) introduced under the Copenhagen Accord. This includes a further elaboration of its operating guidelines, including the establishment of a 24-member board with equal representatives from both developed and developing countries to be assisted by an independent secretariat; the establishment of a 40-member transition committee (15 and 25 representatives from developed and developing countries respectively) to work out the design of the Fund and submit its report at COP17; the designation of the World Bank as an interim trustee to oversee the management of the Fund, with the first review scheduled for three years after the Fund takes effect.

Regarding adaptation mechanism, the Cancun Agreements provide for the establishment of an adaptation framework referred to as the Cancun Adaptation Framework to strengthen adaptation efforts involving all Parties and, in particular, that of the LDCs to develop and implement national adaptations plans. The Agreements also include the establishment of an Adaptation Committee to provide technical support to all Parties. Moreover, for the first time in the trajectory of the global climate change process, provision was made for the establishment of a work programme to look into the issue of loss and damage associated with climate change, with particular reference to developing countries considered the most vulnerable to the adverse impacts of climate change. Besides, discussions on the need for a climate insurance facility, as well as other options for burden-sharing were equally captured under the Agreements.

Another key achievement of the Cancun meeting as contained in the Agreements, was the establishment of a Technology Mechanism, with a Technology Executive Committee (TEC) to work out its modalities and procedures while focusing on the six key elements, including analysis and synthesis; policy recommendations; facilitation and catalysing; linkage with other institutional arrangements; engagement with stakeholders; and information and knowledge sharing. Also, in this particular

regard, the Cancun Agreements provide for the creation of a Climate Technology Centre and Network (CTCN).

In contrast to the derailment and sharp disagreements that characterised the Copenhagen Accord, the Cancun climate summit made some incremental achievements towards achieving the UNFCCC objective. First, it restores more confidence in the global climate change process with the possibility of a future climate change regime that is legally-binding, considering the fact that the Cancun Agreements laid a strong foundation for further negotiations at COP17 and beyond. Secondly, there was a consensus among all major economies in terms of commitments to collectively reduce GHGs. For instance, under the Cancun Agreements, both developed and developing countries commit to national mitigation plans towards achieving the UNFCCC objective in addition to the commitments under the BAP and the Copenhagen Accord. Thirdly, the Cancun meeting resolved with a fair balance between the agitations of developed Annex I Parties and their developing non-Annex I counterparts. Fourthly, the Agreements made provision for alternative base year to be voluntarily determined by concerned Party for assessing its binding targets even though the 1990 year was still reckoned with as a general baseline for the KP second commitment period.

However, the Cancun Agreements cut short the prospects for a legally binding climate change regime, especially one that imposes strict compliance mechanisms to effectively address the challenge of climate change. Besides, Parties could not also agree regarding some aspects of the issues contained in the Agreements. For instance, specific targets for GHGs reduction given the KP second commitment period were not clearly defined, while there were also disagreements regarding the sources of the GCF. These and other unresolved issues covered within the mandates of the AWG-KP and AWG-LCA were also pushed forward to form the key negotiation agenda at COP17.

3.12.9 COP17/CMP7 (DURBAN PLATFORM FOR ENHANCED ACTION)

The COP17/CMP7 was held in Durban, South Africa in 2011. With some important issues in the multilateral climate change process and, in particular, the need for a global climate change regime yet to be resolved, the Durban COP meeting ended with an outcome entitled the Durban Platform for Enhanced Action (DPEA). This represents another rallying point to deal with outstanding issues, as well as give

effect to the Cancun Agreements. The DPEA reaffirms that: (1) social and economic development and poverty eradication are the first and overriding priorities of developing Annex I Parties; (2) a low-emission development strategy is central to sustainable development; and (3) the share of global GHGEs emanating from developing countries will grow to meet their social and development needs.

Essentially, negotiations at the Durban COP meeting focused on the future of KP with a determination to move the climate change process forward by securing a new global climate change regime with legal force, and also applicable to all Parties, by 2015 at COP21. It was agreed that the proposed regime would take effect by the year 2020. In this regard, an Ad Hoc Working Group on Durban Platform for Enhanced Action (ADP) was established, with a comprehensive work plan to facilitate the process by raising the level of worldwide ambition towards deep cuts in global GHGEs informed largely by the 2013-2015 review (IISD, 2011). Also of particular concern was the IPCC report that even if the UNFCCC objective was realised, it would be required that developing countries be supported to cope and adapt to the already manifest adverse impacts of climate change.

Towards attaining the long-term collective goal of holding global warming to no more than 2°C above the pre-industrial levels and, possibly, a further reduction to 1.5°C, the DPEA provides specifically for a new target of GHGEs reduction by at least 25%-40% below the 1990 benchmark given the KP second commitment period. With the extension of the KP into its second phase commitments, it simply implies that its key mechanisms such as CDM, ETS and JI are to be preserved under the DPEA. Related to this, all major economies, including developing non-Annex I Parties such as China and India were covered under the new target with commitments for reducing their GHGEs by 2015.

In a sense, the DPEA appears to have toned down the North-South divide at least to some extent with its objective of evolving the widest possible single-track cooperation involving both developed and developing Parties with a long-term roadmap for implementation. The previously contentious issues such as historic responsibility or per capita emissions, national economic development as the priority for developing countries, differences between developed and developing countries' Parties were not allowed in the way of moving towards a cooperative single-track global action on climate change. Banerjee (2012: 1763) remarked that the Durban COP meeting represents a marked shift in the geopolitics of climate change with the

emergence of Brazil, India and China as powerful players in the global arena. Although the USA, in particular, had in a sense returned to the global climate change negotiations with her eventual support for the Bali Roadmap (Karlsson *et al.*, 2011: 94), further credible opportunities were provided at the Durban COP meeting for the USA and other developed countries that had for one reason or the other, withdrawn their participation in the KP to be fully re-admitted as key actors in the global climate change process.

With regard to the GCF introduced under the Copenhagen Accord, but established as an operating entity of the UNFCCC financial mechanism under the Cancun Agreements, the DPEA embodies a management framework for the GCF. The framework incorporates a more detailed operationalisation of the Fund with respect to its capitalisation, management, as well as transparency regarding its utilisation. The creation of this management framework was indeed one of the most important achievements of the Durban COP meeting. Directly linked to this, the DPEA also provides mechanisms for cooperative action towards clean technology, as well as forest protection.

Having initiated a fresh round of negotiations for a new legal agreement that will include all major emitters and, by implication, succeeded in injecting another lifeline to the KP, the DPEA became celebrated as a major step forward in the global actions on climate change (Eckersley, 2012: 24). Apart from setting the stage for the development of a post-KP regime beyond 2020, many of the outstanding climate negotiation issues were also resolved at the Durban COP17. A defining moment in the global climate change process though, the Durban COP meeting like all the previous climate summits and gatherings failed to deliver an immediate solution to the threat of climate change. In the words of Eckersley (2012: 24), "The so-called Durban platform, agreed after a record negotiating marathon, represents a non-binding agreement to negotiate a legally binding treaty by 2015, to come into effect by 2020." In the same vein, Harvey and Carrington (cited in Banerjee, 2012: 1772) described the Durban scenario as 'a deal to agree a deal', while Stavins (also cited in Banerjee, 2012: 1772) referred to the situation as a 'non-binding agreement to reach an agreement by 2015 that will bring all countries under the same legal regime by 2020'.

Considering the fact that the Durban COP meeting admits that the set targets for GHGs reduction under the DPEA would not meet the ultimate objective of

UNFCCC, it throws back the question of consensus in the global climate change negotiations which, as rightly observed, have become fatally cumbersome because it requires the impossible: consensus decision-making by 194 parties on every line of a complex and lengthy treaty (Eckersley, 2012: 24).

3.12.10 COP18/CMP8 (DOHA CLIMATE GATEWAY)

As the first transitional meeting to COP15 by which time it was agreed that a new deal on climate change would be finalised, and being the first COP meeting in the Middle East, COP18/CMP8 held in Doha, Qatar in 2012 also served as a reference point for the meetings of other UNFCCC subsidiary bodies held during the same period. These bodies include the 37th sessions of the Subsidiary Body for Scientific and Technological Advice (SBSTA) and that of the Subsidiary Body for Implementation (SBI), the AWG-KP 17, the AWG-LCA 15 and the first session of ADP. Referred to as the "Doha Climate Gateway", the outcome of the Doha climate meeting was a product of a series of negotiations that focused mainly on advancing agreed actions under the DPEA. Key amongst the decisions taken at COP18/CMP8 include: the amendment to the KP to give effect to its second commitment phase from 2012-2020; discussions on a pathway towards sustainable climate finance; finalisation of the mandate of AWK-KP; review of the work of the AWG-LCA to be subsumed under the DPEA; as well as, consideration and adoption of institutional arrangements to address "Loss and Damage" which was a major concern to many developing non-Annex I Parties.

On the issue of mitigation, the Doha climate meeting amended the KP by setting GHGEs reduction targets for each Annex I Party for the second commitment period. Collectively, the set GHGEs reduction commitments target a reduction in global warming by at least 18 per cent below the 1990 levels, covering the period 2013-2020. By the same token, it was resolved that Parties should urgently and significantly cut down their GHGEs towards achieving the objective of holding global temperature to no more than 2°C above pre-industrial levels, as well as strive to ensure the peaking of global GHGEs within the shortest possible time. These should be achieved in a manner that is consistent with science and, in particular, the AR4 with the reaffirmation that peaking of GHGEs in the case of developing countries would require a longer timeframe than that of their developed counterparts. In the same vein, the Doha Climate Gateway provides that efforts should be geared

on the basis of equity and CBDRRC, as well as the provision of finance, technology transfer and capacity-building to developing countries, towards supporting mitigation and adaptation, while taking into consideration the imperatives of equitable access to sustainable development, the survival of countries and protecting the integrity of Mother Earth (IISD, 2012: 9-10).

The Doha Climate Gateway also advanced negotiations regarding the GCF, with the agreement under which developed countries were encouraged to shore up commitments towards providing climate finance up to 2015 against the background of achieving the "fast start" climate finance for the period 2010-2012 as agreed under the Copenhagen Accord and, in particular, the overall goal of mobilising US\$100 billion per year by 2020. Though this remains, for the most part, the agitation of many developing countries, together with the need to scale-up the GCF capitalisation, the Doha climate meeting impressed it on developed countries that were yet to announce their climate finance pledges to do so when their financial situations permit. Besides, it succeeded in extending the work plan aimed at diagnosing likely sources of long-term finance by one year, while the existing processes within the UNFCCC framework for the operations of the GCF, including issues relating to assessing and reviewing the needs of developing countries with respect to finance, were also sustained. In particular, the GCF Board was requested to expeditiously implement the work-plan in order to ensure that the GCF becomes operational early enough, while the meeting also called on developed countries to ensure that a substantial proportion of their public funds are channeled to enhance climate change adaptation.

Furthermore, the Doha climate meeting urges Annex II in a position to do so, to provide financial, technological, technical and capacity-building support to parties whose special circumstances are recognised by the COP in order to assist them in implementing their national climate change strategies and action plans (IISD, 2012: 12-13). The meeting acknowledged the progress made in the implementation of the loss and damage work-plan, as well as noted that a range of approaches is required to address loss and damage associated with the adverse impacts of climate change. Although no new action programme was introduced, it was decided that institutional arrangements, such as an international mechanism to tackle the important issue of loss and damage occasioned by climate change in developing countries, particularly those associated with extreme weather and slow onset climate impacts such as sea-level rise be introduced (C2ES, 2012: 1).

The most significant achievement of the Doha Climate Gateway was the amendment to the KP. The amendment brought to an end the first commitment period as well as kicked-start the process of a new era in the global climate change process, with the implementation of the BAP under a single track (DPEA). This contrasts sharply with the conventional, bureaucratic and even more complex two-track negotiation systems that existed prior to the period. Undoubtedly, it also represents a fast-lane platform towards the development of a new climate change regime/agreement billed for finalisation at the latest during COP21. Again, the unique progress made given the official recognition of climate change loss and damage which, hitherto had remained one of the most contentious issues militating against negotiation efforts between the two world polar divisions (North versus South) is, no doubt, worth mentioning.

However, with the average 18% GHGs reduction deal struck at the Doha climate meeting (though a leap forward compared to the 15% target under the KP), the consensus remains that the threat of climate change and its adverse effects would continue to challenge sustainable development in the world as a whole, particularly developing countries and LDCs regarded as extremely vulnerable to climate change. As such, the Doha climate session faced no small difficulty regarding what becomes the fate of excess Assigned Amount Units (AAUs) given the KP second commitment phase. According to the IISD (2012: 26), "Parties that have AAUs to spare because of emission reductions above their Kyoto commitments are permitted to sell the excess units to other countries. However, these surplus AAUs are mostly "hot air" units that do not represent real mitigation efforts but are due to the economic decline experienced during the transition to a market economy by a number of countries, such as the Russian Federation, Ukraine and Poland".

Related to this, some of the world's key GHG emitters such as Japan, Canada, New Zealand and the Russian Federation declined to be parties to the KP second commitment period, while major economies like China was also not covered under the period. As laudable as the progress with loss and damage, there was no provision for a new numerical goal to ensure that climate funding continues to ramp up through 2020, whereas there was also no specific mention of the notions of liability and compensation (C2ES, 2012: 4). Above all, no substantive climate change deal was reached.

3.12.11 COP19/CMP9 (WARSAW CLIMATE CONFERENCE)

COP19/CMP9 held in Warsaw, Poland in 2013, remains yet another transitional climate change meeting between DPEA and COP21 when it was expected that the new climate change regime would be finalised. Not much was achieved compared to the Doha Climate Gateway, though the Warsaw climate meeting managed to keep the negotiation track towards the goal of the expected new climate change deal. In this regard, the meeting resolved with a call on all Parties to submit intended nationally determined contributions (INDCs) with a view to allowing such to be assessed for their adequacy and suitability by any other interested Parties. In addition, Parties were urged to initiate and intensify domestic preparations for their INDCs, and communicate same well in advance of COP21 – at least by the first quarter of 2015 by those Parties ready to do so (IISD, 2013: 15). In addition to encouraging developed Parties to provide support to their developing counterparts in the preparations of their INDCs, the meeting also agreed that a decision should be taken at COP20 in Lima regarding the nature of information to be captured in the INDCs.

Having maintained the status quo regarding the GCF, the Warsaw climate change conference underlines the urgency of implementing commitments related to finance and technology transfer under the UNFCCC. In particular, it urged developed Parties to set "increasing levels" of aid, subject to review every two years, while it also witnessed new pledges, including US\$40 million by the Republic of Korea to the GCF, and US\$72.5 by seven European governments to the AF (IISD, 2013: 28). Furthermore, following the agreement reached during the previous Doha climate meeting, COP19/CMP9 provides for the establishment of an international mechanism known as the "Warsaw international mechanism for loss and damage associated with climate change impacts" to make information available, as well as provide expertise to the concerned developing countries. Part of the agreement was also that the mechanism would be reviewed during COP22 in 2016.

The most significant outcome of the Warsaw climate meeting relates to REDD-plus. Parties agreed to a number of issues referred to as Warsaw Framework for REDD+ to address deforestation and other forest practices linked to GHGs, with a total pledge of \$280 million from Norway, UK and the USA in that regard. However, the meeting left unaddressed, a range of institutional and funding mechanisms to aid full implementation of the REDD-plus action plan within and

outside the UNFCCC frameworks. With regard to its decision on climate finance, the Warsaw climate meeting failed to set quantified targets beyond 2012 in order to ramp up the GCF, which for the most part, remained promissory commitments that were as at the time, yet to be backed with concrete releases.

Worse still, the Warsaw meeting contributed little or nothing to the drafting of the new climate change regime expected to be concluded during COP21. The decision regarding INDCs not only left hanging issues relating to its submission, but there was also no formal process for its review. Besides, Parties disagreed over the technicalities involved in the terms "intended" and "contributions". For instance, while developed Parties opt for "proposed" as against "intended", most developing countries prefer the word "commitments" to "contributions" (IISD, 2013: 14).

3.12.12 COP20/CMP10 (LIMA CALL FOR CLIMATE ACTION)

COP20/CMP10 held in Lima, Peru in 2014, represents the grand finale for preparatory activities towards the Paris climate agreement. Essentially, the Lima climate meeting resolved with a draft negotiating text as a basis for the Paris climate agreement the following year, as well as discussions on a broad spectrum of issues to be included in the INDCs as expected from all Parties. The latter also includes the manner of presentation and peer-review assessment of how fair and ambitious the INDCs are towards achieving the ultimate objective of the UNFCCC. Thus, laying the foundation for a post-2020 effort to significantly cut GHGEs, including a five-year progress assessment audit, the Lima Call for Climate Action introduced some level of transparency with the creation of a peer-review system among Parties in relation to their INDCs. Besides, the meeting drew particular attention to other GHGEs reduction actions with special focus on the activities of the private sector, cities and indigenous peoples in order to fast-track the attainment of the set goal relating to GHGEs reduction (UNFCCC, 2015b).

Similarly, the Lima climate conference further raised commitments towards adaptation with the decision that measures relating to it could be included in Parties' INDCs. This, no doubt, provides greater opportunity for vulnerable poor countries to cope and adapt to severe climate change impacts and, in particular, those associated with continued increase in the sea level. Related to this, Parties at Lima also agreed that the work-plan under the Warsaw International Mechanism for Loss and Damage should be sustained, and continue to address, in particular, the adverse impacts of

climate change that are not fully covered under the adaptation efforts such as submergence of Islands in sea waters. Issues relating to the composition of the mechanism's executive committee were also decided at the Lima climate meeting (C2ES, 2014).

Significantly, the Lima climate meeting witnessed unprecedented responses in terms of new pledges to the GCF. According to the World Resource Institute (WRI, 2014), dozens of Parties, including developing countries, pledged a total of \$10 billion to the GCF to help countries prepare to climate impacts and make the transition to a low-carbon economy a reality. Much like the calls in the previous COP meetings, since Copenhagen, the Lima meeting equally called on developed Parties to provide financial and technological support to their developing counterparts even though no explicit mention was made of finance as part of the requirements to be included in Parties' INDCs.

Except for other shortfalls such as non-inclusion of loss and damage in the draft negotiating text, as well as inadequate provisions to allow for actors-wide and, therefore, a robust assessment of Parties' INDCs, the Lima Call for Climate Action, no doubt, moved the global climate change negotiations forward with more assurance that a new climate change deal would be struck at COP21 in Paris the following year. The assurance was further established with the return of the U.S. in the negotiation process, and some level of relaxation in China's rigidity towards a collective action on climate change; acknowledging that the two countries represent the world's foremost GHG emitters, as well as the arrowheads of the two major opposing blocs in the global climate change negotiations on the one hand, and the reality of anthropogenic climate change as well as its catastrophic ramifications on socio-economic and ecological lives across different regions of the world which continues to attract global consensus unprecedentedly on the other. However, as at the period, it was still doubtful, the extent to which the Paris climate agreement would be legally binding, and whether it would cover and ultimately resolve all contentious issues that for long, slowed or marred the global climate change process.

3.12.13 COP21/CMP11 (PARIS CLIMATE AGREEMENT)

COP21/CMP11 held in Paris, France in 2015, was unique in many aspects. In particular, the meeting agreed on the adoption of a new full-fledged climate agreement known as the Paris Climate Agreement. The Agreement seeks to manage

global GHGEs reduction efforts effectively from 2020, using a ratchet-up instrument otherwise referred to as 'intended nationally determined contributions' (INDCs). With the participation of nearly 200 countries (and the requirement for ratification by at least 55% of those responsible for GHGEs), the Paris Climate Agreement represents the most substantive climate change deal since the UNFCCC/KP, after strictly twenty years of unduly prolonged negotiations as evident in the fraught COP meetings. Considering the fact that the core issue of reducing GHGEs remains a common feature of all global attempts at solving the climate problem though with different provisions, for the first time in the trajectory of global climate change process, negotiations at the Paris meeting were governed by consensus touching on a number of hitherto contending issues that had provoked heated debates and walkouts at previous summits.

Specifically, Article 2 of the Paris Climate Agreement contains a reaffirmation of the goal of pegging the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognising that this would significantly reduce the risks and impacts of climate change (UNFCCC, 2015a: 22). To achieve this, the Paris Climate Agreement set a common long-term framework for each country to peak its emissions as soon as possible and, also submit every five years, an updated INDCs described as a ratchet-up mechanism that details the country's future plans to combat climate change. In this context, it is expected that each submission should represent a progression beyond the previous ones, while the period covered by GHGEs cuts under the Paris Climate Agreement extends from 2020 to 2030.

Significantly, the Agreement also acknowledges the global agenda for sustainable development goals (SDGs); in particular, Goal 13 which states that urgent action should be taken to combat climate change and its negative impacts (UNDP, 2015). Besides, it provides that Parties should pursue domestic measures aimed at achieving their respective INDCs, as well as bring up biennial comprehensive reports regarding their GHGEs and the progress made relative to implementing and achieving their INDCs, with the exception of LDCs and small island countries (C2ES, 2015). By implication, and unlike what obtained in previous arrangements, the Paris Climate Agreement adopts a bottom-up approach exemplified by individual states' INDCs with some reasonable level of flexibility that allows for necessary changes, updates,

and peer-review as agreed by Parties on the one hand, and different national circumstances on the other (C2ES, 2015: 3).

Without prejudice to the introduction of INDCs, the Paris Climate Agreement reaffirms the need for developed Parties to take the lead in the global actions on GHGs, as well as provide support for developing countries towards implementing their commitments, while for the first time, it encourages voluntary GHGs reduction contributions by developing countries as well. Specifically, the Paris Climate Agreement states that developed countries “should” undertake absolute economy-wide reduction targets, while developing countries “are encouraged” to move towards economy-wide targets over time (C2ES, 2015: 4). This provision, no doubt, aligns with the guiding principle of the subsisting climate change agreements, including equity and CDRRC (UNFCCC, 2015a: 22). Thus, by committing both developed and developing countries to these ambitious targets, the Paris Climate Agreement appears to have met one of the key demands of vulnerable countries to revert climate system relative to its pre-industrial status, and particularly, that of the AOSIS, many of which face rising sea levels due to ice melt and, therefore, the attendant increasingly catastrophic weather conditions that are at least preventable through the 1.5°C goal.

Furthermore, the Paris deal not only acknowledges the existing pledges/commitments towards the GCF and other climate finance instruments, it also places higher responsibility at the doorstep of developed countries to generate new and higher climate finance goals beyond 2025. Thus, in addition to setting a new and higher collective quantified climate finance goal, the Paris Climate Agreement provides that climate finance flows consistently with a pathway towards low GHGs and climate-resilient development (UNFCCC, 2015a: 22). Evidently, at the Paris meeting, the climate finance pledges shore up significantly not only as a result of the USA's announcement to double its finance commitment for adaptation efforts to the tune of \$800 million a year, but also because of positive responses from developing countries (for instance, Vietnam pledged \$1 billion to the new GCF), as well as donations from sub-national governments and non-state actors (C2ES, 2015: 5).

To further enhance adaptation efforts, the Paris Climate Agreement provides for increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low GHGs development in a manner that does not threaten food production (UNFCCC, 2015a: 22), while it extends further the Warsaw

International Mechanism for Loss and Damage. Moreover, it calls for a new mechanism similar to the CDM under the KP in order to generate trading emission offsets, thereby enabling emission reductions in one country to be counted towards another country's INDC, though it cautioned that "double counting" in international emissions trading should be avoided (C2ES, 2015: 1). In addition to providing for the establishment of an Ad Hoc Working Group to consider issues requiring further rules or guidance, the Paris Climate Agreement establishes a new mechanism through a committee of experts to facilitate implementation, as well as promote compliance.

The Paris Climate Agreement also recognises the need for technology research, development and transfer as well as capacity-building, having decided that the Paris Committee on Capacity-building should be established with a view to addressing gaps and needs, both current and emerging, in implementing capacity-building in developing countries and further enhancing capacity-building efforts with the launch of a work plan covering the period 2016-2020 (UNFCCC, 2015a: 9-10). Besides, the Paris deal encapsulates an enhanced transparency on the basis of mutual trust and confidence given its provision of global stock-taking aimed at assessing the overall progress regarding the goals of the Paris Climate Agreement; mechanism for facilitating implementation and compliance; and most importantly, deemphasising carbon neutrality by striking a balance between GHGs and sinks on the basis of equity and environmental sustainability.

Without any doubt, the Paris Climate Agreement represents a progression evidence of which can be seen in the identified key decisions and innovations that distinguish it from previous climate deals. Besides, the essence of the Agreement sends a strong signal that would halt the usual practice of diverting climate funds into fossil fuels and other high carbon projects and, as such, encourage that more of it be spent on cleaner energy and sustainable development instead. This is very likely simply because it places greater emphasis on renewable energy, nuclear energy, zero-carbon transport, energy efficiency and other low-carbon energy sources to achieve its goals.

However, some of its provisions are clearly marred by observed flaws. For instance, the position of CAT (2015) which requires that the global INDCs in its present assemblage would only succeed in keeping warming at between 2.7°C, far below the 2°C and 1.5°C floors. The point also remains that INDCs are, by themselves, not legally binding even though the Paris Climate Agreement is

considering its recognition as a treaty under international law. Therefore, apart from giving a leeway to Parties that may want to default on the agreement, obviously for selfish reasons, another drawback of the "ratchet mechanism" is that it allows marked disparities regarding individual states' INDCs, many of which are largely underpinned by different baselines and timescales (Amusan and Olutola, 2016a: 10).

Besides, strong and high-level political will would, no doubt, be required on the part of individual states to back commitments with appropriate actions in terms of compliance with the already communicated INDCs. Thus, realising the goals set in the Paris Climate Agreement necessitates that punitive measures be provided to address defaulting tendencies, whereas the committee of experts established by the Agreement lacks such punitive authority. Similarly, notwithstanding the fact that the Paris Climate Agreement recognises the CBDRRC principle, it nevertheless, tones down its applicability since all Parties are committed to GHG emissions reduction no matter how small. Hence, the Paris Climate Agreement does not deliver carbon justice such that describes a situation where global per capita emissions are approximately equal across countries and regions. In effect, the chances remain that opportunities would continue to be provided for climate perpetrators who not only profit from climate change but also wield corrosive influence to pollute the more (Amusan and Olutola, 2016a: 11).

On the issue of climate finance, the Paris Climate Agreement treated climate finance elements with no specific changes except that, in addition to the previously agreed pledge of \$100 billion a year by developed countries, it seeks to establish by 2025, a new target to scale up climate finance. However, it introduces a caveat that developing nations that are in a position to make financial commitments to support climate funds are also encouraged to do so. Considering the raging criticism that the pledged amount is not sufficient to help developing countries to transit to a low-carbon economy (EFE, 2015), and also that there are bottlenecks that constrain access to such funds, the Paris Climate Agreement leaves so much to be desired as far as climate finance is concerned. This is so simply because insufficient climate finance would simply imply continued dependence on cheap fossil fuels as a source of energy, coupled with the expectation that Africa alone would need a whopping \$800 billion dollars a year by 2050 to adapt to rising temperatures. In such situation, it would be counter-productive to expect that developing states, many of which are found in Africa, would divert their limited resources away from sustainable

development priorities, especially within the socio-economic perennials, to combat climate change (Amusan and Olutola, 2016a: 11).

Lastly, as rightly observed by the Centre for Climate and Energy Solutions (C2ES, 2015: 2), many operational details of the Paris Climate Agreement were left to be decided by future COPs; a situation that simply points in the direction that an end to the global climate change process is not yet in sight. This suggests the likelihood that the key blocking issues that characterised previous COP meetings such as lack of strong political will, North-South polarisation of climate talks, external interests and influence/lobby, and difficulty in achieving plurality consensus due largely to varying national circumstances may again rear their ugly heads in subsequent COP meetings and, therefore, cut short the progress made in relation to the Paris Climate Agreement.

In conclusion, considering the fact that most of the COPs meetings have recorded only incremental achievements as against substantive developments, the tendency is that the global climate change process will continue to be viewed as uncertain and, therefore, incapable of providing globally acceptable and workable solutions to address the common challenge of climate change. This position, no doubt, finds its theoretical basis in the liberalists' contention that: "Summits that do not manage to contribute to the formation of environmental agreements or regimes, are thus, often seen as 'failed' or inconclusive meetings" (Death, 2011: 5).

3.13 Chapter summary

Having provided an historical background of the initial global discourse on environmental issues generally and climate change in particular, this chapter appraised in details the over two decades of the COP regime. The important role of the IPCC in shaping global perspectives and, to some extent, national and individual thoughts about the threat of climate change was also examined.

This exposition points to South Africa's key role in the global climate change process, as evident at least in the hosting of two of the environmental/climate summits that is the 2002 WSSD and the 2011 DPEA. While the former remains, to date, a crucial reference point for sustainable development at all levels, the latter stood out as a defining moment that significantly established the future of the global climate change process up till the Paris climate agreement era. However, this snappy picture of South Africa's involvement in the global climate change process requires a much broader discussion as seen in the next chapter.

CHAPTER FOUR

SOUTH AFRICA'S INVOLVEMENT IN THE GLOBAL CLIMATE CHANGE PROCESS

4.0 INTRODUCTION

Against the background of the trajectory of the global climate change process as examined in chapter three, the primary objective of this chapter is to appraise South Africa's involvement in the global actions on climate change. In doing this, a major task to grapple with will be to validate or invalidate as the case may be, the argument in some quarters that South Africa has been actively involved, as well as playing a leading role in the global climate change process at least since 1994 when the country was re-united with the comity of nations as a democratic state. This has become imperative in view of the country's coal- and mineral-driven economy by reason of which South Africa is ranked as a major but developing GHG emitter and, without any doubt, the largest GHG emitter on the African continent. The other part will be to examine specific instances and the nature of South Africa's active involvement or leadership participation in the global climate change process. However, to begin with, it is necessary to provide a brief background about South Africa as an international actor.

4.1 SOUTH AFRICA AS AN INTERNATIONAL ACTOR

Generally, the global perception of South Africa and its involvement in international affairs prior to 1994 was, for the most part, coloured and, therefore, constrained by the country's apartheid regime. South Africa was more or less isolated from the rest of the world as a result of its apartheid policies. However, according to Ngwenya (2011: 3), "following its first democratic elections in 1994, South Africa officially rejoined the international community of nations and immediately encountered expectations that it would provide leadership on the African continent". Thus, what could be regarded as the country's status as a responsible international actor would not begin until the post-apartheid era. As rightly observed, "despite South Africa's loathsome Apartheid heritage, solid institutions underpinned its transition to democracy in 1994: a proper Parliament and electoral system, a good new Constitution, independent courts, a vibrant press and a first-world stock market.

Nelson Mandela, whose extraordinary magnanimity helped avert a racial bloodbath, heralded a rainbow nation that would be a beacon for the rest of Africa” (Khadija, 2012).

As an international state actor, South Africa's international engagement traverses different aspects of the country's foreign relations. As expected, beginning with Southern Africa, where the country held sway as an undeniable sub-regional hegemon, South Africa has, no doubt, been a pace-setter for integration initiatives within the Southern African sub-region. Extending its foreign relations and active role to the rest of Africa, South Africa became a strategic geopolitical player on the African continent through the African Union (AU) and the New Partnership for Africa's Development (NEPAD) with enormous influence as an advocate of a continental agenda. For instance, from July 2002 to July 2003 and from October 2012 to 2016, South Africa, under President Thabo Mbeki and a former South African foreign minister, Nkosazana Dlamini-Zuma, successfully chaired the AU and the AU Commission respectively. Indeed, South Africa not only actively participated in the successful transformation of the Organisation of African Unity (OAU) to the African Union (AU), it also clinched the first chairpersonship of the new AU (Flemes, 2007: 20; IDS, 2014). Besides, South Africa, through the instrumentality of the AU, was inarguably, very active in conflict resolution in many of the crisis-ridden African states such as Zimbabwe, Lesotho, Madagascar, Rwanda, Burundi, the Democratic Republic of Congo, Angola, the Comoros, Darfur and South Sudan, among others.

On the global scene, South Africa made its impact felt as an important state actor given its role in international multilateral organisations such as the United Nations (UN), the Non-Aligned Movement (NAM), the Commonwealth of Nations (CoN), Group of 77 and China and the G20. In addition to the country's significant contribution towards the UN-Peace Keeping efforts across the globe, South Africa, on two different occasions (first from January 2007 to December 2008 and secondly, from January 2011 to December 2012), served as a non-permanent member of the prestigious United Nations Security Council (UNSC). Similarly, from August 1998 (barely four years after its emergence as a democratic state in the international system) to July 2002, South Africa assumed the chair of the NAM, while the country also served at different times as the chair of the CoN and the G77+China.

More importantly, South Africa and the European Union (EU) currently have in place, a Strategic Partnership Agreement of which Trade, Development and Co-

operation Agreement (TDCA) is a key element. With the EU being a powerful economic and political bloc from the global North and South Africa being a striving economy from the global South, the underlying belief is that the two entities share some common values, especially in terms of efforts aimed at promoting socio-economic and political development in their respective regions, as well as contributing towards achieving global security/stability. Of special importance in their partnership is the creation of an EU-SA Dialogue Forum under which three working groups namely, Clean Coal Technology, Carbon Capture and Storage, and Clean and Efficient Energy, have been set up, while discussions are on-going regarding generation of nuclear energy (Chevallier, 2008). Without any doubts, South Africa stands to benefit greatly in this particular regard in finding a solution to its highly energy-intensive growth path. It is also important to stress that the EU-SA strategic partnership is quite distinct from the EU general strategy with Africa as a whole. Even though issues relating to energy and climate change are also key in the Joint Africa-EU Strategy (JAES) which provides an overarching long-term framework for relations between the continents (Chevallier, 2010: 90), the JAES aims at a broader EU-Africa relations beyond the traditional order of development aid as “hand-out” to many African states (EARN, 2010).

Regarding South-South relations, South Africa has established strong links with other emerging powers from the Southern hemisphere. This is evident in its influencing role in key South-South coalitions such as IBSA (India, Brazil and South Africa), which represents a trilateral partnership in the South-South strategy since 2003 (Qobo: 77); and BASIC (Brazil, South Africa, India and China), which emerged as a small division of the G77+China in the buildup to the 2009 Copenhagen climate talks. Also worth mentioning is South Africa's membership and important role in BRICS (Brazil, Russia, India, China and South Africa) since April 2011 when the country formally joined the BRIC formation following the attendance of President Jacob Zuma at the BRICS summit in Sanya, China. Importantly, BRICS brings together countries that account for more than a quarter of global land mass, almost half the world population, about 20% of the global GDP and US\$4 trillion in combined foreign reserves (CDE, 2012; Naidu-Hoffmeester, 2014).

Also worthy of note, these trans-regional groupings represent important platforms for dialogue and cooperation among poor, developing and emerging countries of the South, as well as key negotiating blocks for a common Southern

position as far as burning global issues are concerned. Given its membership and active role in South-South multilateral arrangements, South Africa continues to remain as an increasingly relevant actor regarding global issues, especially in the context of the North-South divide. According to the Institute of Development Studies (IDS, 2014), "though the smallest economy of the BRICS, South Africa's substantial contribution towards peace-building and regional development, and its active advocacy role in global fora, have contributed towards its credibility as a key Southern voice in the global public goods arena". One can equally appreciate South Africa's strategic partnership with emerging powers from the South, considering the globalisation of the world economy and the relevance of emerging economies such as China and India as major drivers of global economic growth.

Although South Africa's position as a regional leader, a 'brick' builder between Africa and the rest of the South and a bridge-building state actor between the global North and the global South is still questionable, the country's pivotal and critical role in major international affairs is, however, not strictly in doubt. This ranges from its involvement in global political, socio-economic, as well as ecological and other environmental issues. The point should also be made that South Africa is not the only key continental actor on the global scene. Brown (2012: 1889) observes that over the past decade, more and more African states have become increasingly prominent actors in global politics, evidence of which are seen in their role in international trade and global climate change negotiations, the G8 and G20, and a range of new 'South-South' coalitions. Clearly, Nigeria is one of the few top continental actors with global recognition. According to Brown (2012: 1892), "more generally, South Africa, together with Nigeria, has been the focus of African participation in G8 and G20 summitry and has successfully promoted a 'partnership' agenda with Western states".

4.2 SOUTH AFRICA AS A SIGNATORY TO MULTILATERAL ENVIRONMENTAL AGREEMENTS (MEAs)

Quite expectedly, many of the global environmental treaties, protocols, conventions, laws, agreements and whatnot to which South Africa is a party to, cut across different aspects of the environment. For instance, under the nature conservation and terrestrial living resources, South Africa, had for long, been a signatory to numerous multilateral environmental agreements, including the Antarctic Treaty which came into force in 1961; the Convention on International Trade in

Endangered Species of Wild Fauna and Flora (CITES) otherwise known as the Washington Convention which came into force in 1975; the Convention on Migratory Species (CMS) which came into force in 1983; the Convention on Biodiversity (CBD) which came into force in 1993; and the Convention to Combat Desertification (CCD) which came into force in 1996. With regard to the marine environment, South Africa is also a party to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1975), the International Convention for the Prevention of Pollution from Ships otherwise known as MARPOL 73/78 (1983), the United Nations Convention on the Law of the Sea (1994), amongst others. Others include those that relate specifically to the atmosphere such as the Vienna Convention (1988), the Montreal Protocol (1989/1990), the UNFCCC (1994), the Kyoto Protocol (2005) and the latest Paris Agreement (2015). With regard to the Paris Climate Agreement, however, it should be pointed out that although the agreement has been endorsed by many parties, including South Africa which signed the document on 22 April 2016, but like many other parties, South Africa is yet to ratify the agreement (as at August 2016, only 22 parties have done so).

Perhaps, inspired by its rich natural endowments, as well as its position as an indisputable sub-regional hegemon with strong aspiration for continental leadership in Africa, South Africa had for long been active in her commitment to the various multilateral environmental agreements (MEAs), especially with regard to the ecosystems and biodiversity. For instance, South Africa was one of the 12 original signatories to the Antarctic Treaty with a clear demonstration of significant interest and active involvement in Antarctica. Similarly, the country has been actively involved in guaranteeing the CITES right since its inception as demonstrated by its participation in the 1973 Washington conference and, indeed, became one of the first 15 contracting parties to the CITES (DEA, 2016). Clearly, South Africa has been and is still a leading force in the area of nature conservation in view of its abundant wildlife that ranks first in sub-Saharan African and 25th globally (World Economic Forum, 2015: 22).

Moreover, South Africa's involvement in the MEAs is also conditioned by the fact that environmental concerns are becoming increasingly important such that any attempts to effectively address them would necessarily require global efforts and cooperation as against purely national and localised approaches. However, as noted earlier, South Africa's active commitment in the MEAs prior to 1994 was for the most

part, universally unacknowledged, considering the fact that the country was regarded as a castaway among the international community of nations due largely to its apartheid regime. But beginning from 1994 following its transition to democracy, the country's involvement in continental and global affairs generally was becoming more and more relevant with increasing world recognition being accorded to some of its activities.

4.3 SOUTH AFRICA'S INVOLVEMENT IN THE GLOBAL CLIMATE CHANGE PROCESS

Fisher (2014) contends that “juxtaposed to efforts to develop its economy and address energy poverty are South Africa’s international commitments to take action on climate change”. Hence, it is not surprising that South Africa’s involvement as a state actor in the global climate change process began with its participation in the 1992 UNFCCC popularly known as the *Earth Summit* and its ratification subsequently in 1997. The UNFCCC, which was established as one of the major outcomes of the summit, represents the first global multilateral instrument with which to regulate state actions towards addressing the common challenge of global climate change. This was followed by the country’s ratification of the KP in July 2002 and its participation in other post-KP COP meetings. Ian Rowlands (cited in Masters, 2009: 5) maintains that "climate change negotiations not only offered post-apartheid South Africa a means to demonstrate the 'shape and direction' of its foreign policy, but also provided an opportunity for the country to assume a leadership role in influencing the 'shape and form' of these international agreements". Thus, over time, South Africa’s involvement in the global climate change process has been marked by some level of active engagement as demonstrated in many of its role regarding climate change discussions within the frameworks of multilateral groupings such as the African Group (AG), G77+China, BASIC, and BRICS. Underscoring the country’s active engagement is the argument that “climate change presents a new type of challenge in the global geo-political landscape, and requires traditional and new partners to engage in novel ways” (Chevallier, 2010: 89).

4.3.1 Multilateral groupings of major importance to South Africa in the global climate change process

Since 1992, climate change has particularly emerged from environmental concerns yielding it to increasing global geopolitics of which some form of serious interdependent collaborative efforts are necessary on the part of the state and non-state actors in dealing with it. Thus, with the increasing profile of climate change as a serious global issue of “high politics” and the pressing need for South Africa to be seen as playing a more responsible role in international affairs after a long period of isolation, it is not surprising that the country’s active involvement, particularly with regard to global discussions on climate change, has found practical expressions through the instrumentality of different multilateral associations.

Traditionally and, perhaps, ideally too, the AG and the G77+China represent the first point of contact as climate change negotiating platforms for South Africa. In line with the African Renaissance philosophy, it is consequential for South Africa not only to identify with the AG but also to play an active and leading role in the Group being one of the political and economic giants on the continent. In this particular context, Husar (2010: 104) points out that South Africa aims to coordinate its position closely with African states in order to raise the continent’s profile in international forums. With specific regard to climate change, the AG primarily seeks to work towards a climate change deal that is fundamentally in tune with the continent’s interest, especially as it concerns adaptation assistance from developed Annex I countries. Adaptation, no doubt, is critical to the continent’s common position regarding climate change. Part of the strategies is to use their numeric advantage and a common climate change position as a political pressure on industrialised countries not only to commit to legally quantified emissions reduction targets, but also to significantly deploy adequate resources to aid adaptation efforts in the continent. This adaptation assistance, the Group believes, should not be linked to the traditional development aids to third world countries generally of which developed states had, over the years, committed themselves.

The AG’s position in the global climate change negotiations has been espoused by the Committee of the African Heads of State on Climate Change (CAHOSCC), and South Africa is believed to have occupied a privileged position to help advance the continent’s climate change agenda. Although the process began two years earlier, the continent’s unified common stance was initiated in 2008 in Algiers

following the Nairobi Declaration in May 2009. In addition to providing adequate financial assistance and technology transfer, the Group was also emphatic about strict adherence to the CDRRC principle under which the historical contributions of industrialised countries to GHGs, as well as the different circumstances of UNFCCC Parties towards addressing climate change, are well acknowledged. Hence, in this particular regard, it is also important to the Group that the two-track systems should be maintained. Evidently, the AG has consistently raised its voice to give concrete expressions to its stance *vis-à-vis* the global climate change process. This was seen, for instance, in the Group's insistence that the Bali Action Plan and the Bali Road Map which both capture the key elements of the Group's position, should be vigorously pursued. In the same vein, the Group also made it quite clear that it would neither accept anything less nor tolerate any delay by Annex I Parties to honour their GHGs reduction commitments and adaptation assistance promises.

Generally, the position of the AG is not in any significant way different from that of G77+China, which again, represents another central negotiating group for developing countries as far as the global climate change process is concerned. G77+China coalition, according to Hernandez (2014: 129), acts as a forum for coordinating positions among member countries to increase political leverage during negotiations. Since its establishment in 1964 with the primary objective of advancing the economic interests of third world states in the context of the global North-South divide, the G77+China has continued to serve as a significant rallying point for poor countries of the South on virtually all issues of global concern, at least within the institutional framework of the United Nations. Although the G77+China was originally composed of 77 developing countries, its membership has, over the years, witnessed significant expansion with the addition of new third world states as members, including the inclusion of China as an affiliate member. Also, given its diverse tentacle covering three different continents namely, Asia, Africa and Latin America, the chairmanship of the group is structured on a yearly rotational basis to take care of the separate regional (geopolitical) identities. Significantly, the G77+China has consistently earned considerable global reputation, especially in terms of its coordinating role *vis-à-vis* often disaggregated postures of its members, particularly along regional biases towards global issues. The global climate change is no exception in this regard.

As rightly observed, “the G-77 has been an important negotiating coalition for developing countries for almost 50 years, and has coordinated their positions on climate change for 20 years” (Hochstetler, 2012: 66). Evidently, the G77+China has been active since the establishment of the UNFCCC in 1992. Much like the position of the AG, “the arguments by the G77 in the climate change negotiations have developed on the basis of the principle of ‘common, but differentiated responsibilities’ stated in Article 3.1. of the UNFCCC” (Kasa *et al.*, 2008: 116). This, no doubt, was also directly informed by the argument that industrialised countries share the bulk of responsibility for past emissions and should, therefore, take the lead in addressing the problem of climate change since they contribute(d) majorly to it in the first instance. Also in this connection, the G77+China held a strong tie to their fundamental belief that poverty eradication and achieving respective national development remain the overriding priorities of its members, which therefore, primarily defines its position as far as the global climate change process is concerned. As a key player on the African continent and, importantly, a reckoning third world state, South Africa has been actively involved in the activities of the G77+China *vis-à-vis* the global climate change negotiations, particularly in terms of its coordinating role for the AG and the other developing countries of the South on the one hand, and the global South and the global North usually seen as the main crack of the climate change negotiations on the other hand.

Beyond its identification with the AG and the G77+China, South Africa’s involvement in the global climate change process has also been approached from a unique context. One of such is the country’s strategic ties with other emerging economies such as India and Brazil on the hand, and Brazil, India and China on the other as typified by the IBSA and BASIC groupings respectively. Launched in June 2003 following the adoption of the "Brasilia Declaration", IBSA represents a trilateral alliance among India, Brazil and South Africa. In recognition of the importance of dialogue, the IBSA Dialogue Forum was created to bring together, three large pluralistic, multicultural and multiracial societies from three continents as a purely South-South grouping of like-minded countries, committed to inclusive sustainable development, in pursuit of the well-being of their peoples and those of the developing world with a view to actively resist their marginalisation in the global North-South politics (IBSA, n.d.). Being fossil fuel economies, IBSA member states share similar challenges of dealing simultaneously with energy security, climate change and socio-

economic development (Chevallier, 2011: 36-37). As far as the global climate change negotiation process is concerned, it is observed that "IBSA are becoming increasingly significant global actors and strategic partners in global environmental governance" Chevallier (2011: 36). In this regard, South Africa has, no doubt, been actively involved while taking advantage of the opportunities provided by the trilateral arrangement to substantiate its coordinating role within the broader South-South relations.

Technically, the BASIC grouping has some shared characteristics with IBSA even though the former is more diverse. Though an informal bloc, the BASIC grouping was created in the build up to the 2009 Copenhagen COP15 meeting with the primary aim of striking a climate change deal that is fair, equitable and inclusive with all the UNFCCC Parties in mind. Together with the rest of the G77 countries, BASIC member countries have been listed as non-Annex I Parties exempted from the quantified GHGs reduction commitments under the KP. However, in addition to the critical issues of climate change impacts, socio-economic concerns and national development by which all developing countries of the G77+China are bonded, the main connecting factors regarding the coming together of BASIC states are their emerging economic status, global pressure to mitigate, energy security and political progress which evidently, have separated them from the rest of the G77+China (CDE, 2012: 72; Kasa *et al.*, 2008: 113). More specifically, it is observed that "China and India share the distinction of having had very fast economic growth rates for the last decade or more, while Brazil and South Africa are closer to the global average. Brazil, China and India are among the top ten of the world's largest economies, while South Africa is two deciles lower" (Hochstetler, 2012: 56).

Furthermore, and more importantly, BASIC countries share some basic similarities regarding their GHGs status. From the perspective of developing countries, BASIC countries are relatively major GHG emitters though with differing per capita emissions. As argued, all the four BASIC countries have substantial and fast-growing GHGs and, in absolute terms (total tonnes per year), China is now the world's largest GHG emitter (Hallding *et al.*, 2011). It is also common knowledge that, together with the rest of the G77, their socio-economic development is vulnerable to climate change, especially if no serious collective mitigation action is taken by industrialised countries that historically are the chief cause of the global climate change. Hence, they share a similar position on the need for developing

countries to first pursue poverty eradication and national development in the form of economic growth before any nationally self-sponsored climate change mitigation/adaptation consideration. In other words, they subscribe to the joint position of the AG and the G77+China that the primary polluters (industrialised countries) should take the lead in mitigating climate change and also provide adaptation support for developing countries that contribute less to the environmental phenomenon. Part of their arguments, therefore, is that through innovation, technology transfer and financial support from developed countries, developing countries will be able to decouple development and GHGEs and pursue a 'low carbon development path' (CDE, 2012: 4-5). Thus, the CDRRC principle remains a defining feature of the position of BASIC *vis-à-vis* climate change negotiation process as well.

Prior to the Copenhagen climate summit during which the active role of the BASIC grouping in the climate change negotiations came to the fore, the G8 of the global North had accorded the grouping some lateral but special recognition *vis-à-vis* global discussions on climate change. Apparently, on account of their status as major but developing GHG emitters, BASIC countries, together with Mexico, participated as an "Outreach Group" in the G8+5 meetings in Okinawa, Japan in 2000, Auchterarder, Scotland in 2005, Heiligendamm, Germany in 2007, as well as in the subsequent years as part of the G-20 and the 17-member Major Economies Forum on Energy and Climate (Hochstetler, 2012: 57). For instance, South Africa was the most vocal during the G8+5 meeting held in 2008 in Japan, with a firm position that the country would continue to agitate for more responsibilities on the part of developed countries in the global efforts towards reducing GHGEs.

While the argument that the BASIC grouping is not a negotiation bloc in the global climate change process as it is an adjunct of the G77+China just like the LDCs and AOSIS does not hold any water, considering the grouping's active and influential role in the negotiation process as evident in the outcome of the Copenhagen climate meeting. Besides, notwithstanding the fact that BASIC has consistently reaffirmed its allegiance to the G77+China, its nature and level of engagement in global climate negotiations tend to suggest something different. As argued: "While they often work together, BASIC countries are four separate individuals with different policy priorities and strategies. This leads them to be partners on some issues, but not others" (Hallding *et al.*, 2011). Similarly, another critical issue is the fact that BASIC

countries have been the focus of agitation by developed Annex I Parties as championed by the USA that some major developing countries, or perhaps more appropriately emerging economies, should be included in the quantified emissions reduction commitments under the KP given their rising economic indices and GHGEs levels.

Following the inclusion of South Africa as a geopolitical partner in the BRIC formation and the adjustment in the acronym to BRICS (Brazil, Russia, India, China and South Africa) in 2011, the BRICS block has fundamentally become another important multilateral platform for South Africa to ventilate its foreign policy preferences, not only on global socio-economic issues, but also with regard to environmental concerns (climate change inclusive). With China as the second largest economy in the world, Russia, India and Brazil occupying front positions among top world economies and South Africa also being one of the leading economies in the third world, the BRICS block was brought about strictly on the basis of their shared characteristics. BRICS member states are all economic giants in their respective regions with a potentially strong influential role in the global economy and trade. This is also in addition to their membership of the G20 group.

Consequent upon the participation of the South African President, Jacob Zuma, in the BRICS summit held in 2011 in Sanya, China, an event that confirms the country's full membership of BRICS, In March 2013, South Africa played host to the fifth BRICS meeting to complete the first circle. A major outcome of the meeting was the decision to set up a global financial institution to be known as the BRICS Development Bank but was later christened the New Development Bank (NDB) with an initial capitalisation in the tune of US\$100 billion. The primary goal of NDB is to provide development/technical assistance to support public and private projects, as well as other global financial institutions in line with the vision of BRICS. In the latter regard, in mid-2012, NDB pledged a sum of \$75 billion to boost the lending power of the International Monetary Fund (IMF), with a condition for the institutional reform of the IMF. Although the agreement on the NDB was signed by all BRICS members in July 2014, the Bank would not take off until early 2016 with its Headquarters located in Shanghai, China. Besides, there are no specific funds allocated for addressing climate change at present even though this may likely be the case in the foreseeable future.

More like the BASIC grouping, BRICS countries, as earlier pointed out, share some common attributes that, at least, underscore the essence of their coming together, while at the same time, members also exhibit some fundamental differences, especially in terms of geographical size, population, economic status and opportunities, as well as stance on global issues (climate change inclusive). Though often referred to as a "junior player" in the strategic partnership, the BRICS formation represents another important platform for South Africa simply because of Russia's membership which, no doubt, adds additional space to the climate change negotiation context. In other words, at a certain point, BRICS became a relevant multilateral instrument for group identity in the climate change negotiation process of which South Africa constitutes an important part even though the bloc was originally conceived with the primary goal of encouraging commercial activities in the form of large exports among its members. However, it should be stressed that the BRICS position in the climate change negotiation process is often seen to be more in tune with that of BASIC and, by extension, the G77+China. This is mainly because Russia prefers to maintain a low profile in the international climate change negotiations (Never, 2010: 8), which clearly contrasts with the country's traditional and well-known front role player in global affairs generally. Furthermore, the BRICS group has allowed India and Brazil to emerge independently of their region and to engage globally without the burdens of regional commitments, while South Africa's role in an emerging economy is ideally tied to the joint position of the AG (CDE, 2012: 1).

Given South Africa's membership of numerous multilateral associations as already discussed, it is important to state that the main issues of interest not just to South Africa but to other members are those that relate to poverty eradication, social justice and equity, as well as sustainable development. Basically, the demand of the AG, G77+China, IBSA and BASIC in the climate change negotiations is the same. That is, it is the responsibility of industrialised countries that brought about the climate change in the first instance to take lead in addressing the problem in line with the KP and also that development space should be given to developing countries to enable them to address poverty and socio-economic development which constitute their overriding priorities.

Another crucial factor is down to the issue of fossil fuel which is a major source of energy for many countries of the South. In this regard, South Africa clearly stands out as a heavily coal-dependent economy. For instance, in addition to coal

being a major foreign income earner and the backbone of the South Africa's economy (Chevallier, 2011: 50), the country also depends on coal for more than 60 per cent and 90 per cent of its energy and electricity respectively, while it also ranks as the twelfth highest carbon-emitting nation in the world (Pillay, 2013; Winkler, 2009: 15). According to Hallding *et al.* (2011: 56), "South Africa, for example, has emitted 40% of all of Africa's historical greenhouse gas." The expectation, therefore, is that the country should be able to address its energy vulnerability and also benefit tremendously from its membership of relevant multilateral platforms, as well as its participation in the various fora that are of primary concern with global climate change negotiations.

4.3.2 Overview of South Africa's role in the global climate change process

Prior to its ratification of the UNFCCC and the KP in August 1997 and July 2002 respectively, South Africa had taken interest in climate change with the establishment of a National Committee on Climate Change (NCCC) in 1994 as a forum for stakeholder engagement on climate change. It is, therefore, not surprising that immediately after the endorsement of the two multilateral climate change instruments and as a way of demonstrating its responsibilities within the instruments, South Africa wasted no time in dishing out a number of proactive measures and policy frameworks. These include the following: the National Environmental Management Act (NEMA, 1998); the White Paper on Integrated Pollution and Waste Management for South Africa (2000); the country-wide Study on Climate Change (2000); the White Paper on the Promotion of Renewable Energy and Clean Energy Development (2003); the Integrated Clean Household Energy Strategy (2003); the Implementation Strategy for the Control of Exhaust Emissions from Road-going Vehicles in South Africa (2003); the Air Quality Act (2004); the Renewable Energy Policy (2004); the National Climate Change Response Strategy (2004); the Cleaner Production Strategy (2005); the Energy Efficiency Strategy (2005); the Biofuels Industrial Strategy (2007); the Long-Term Mitigation Scenarios (2008); and National Energy Act (2008).

On the global scene *vis-à-vis* climate change and related issues, South Africa first drew the world's attention to itself as a responsible actor following its successful hosting of the World Summit on Sustainable Development (WSSD) also known as Rio+10 in 2002. The Johannesburg Plan of Implementation (JPI) and the

Johannesburg Millennium Declaration (JMD) on Sustainable Development emerged as the two important outcomes of the summit. As the host, South Africa played a key role in bringing about these two global environmental instruments that seek to ensure the implementation of the 1992 UNFCCC commitments in line with sustainable development goals, especially that of poverty eradication and human development (UN, 2002: 2). Besides, with the introduction of the "Type-2 Agreements", the Johannesburg WSSD for the first time, underscores the unique importance of the civil society and international Non-Governmental Organisations (NGOs) in global environmental affairs. Hence, with the successful hosting of WSSD, South Africa assumed 'leadership' responsibility, especially in promoting the goals and ideals of the JPI and JMD. While it directly contributed to South Africa's acceding to the KP in 2002 (Never 2009: 21), its commitment towards achieving the objectives of sustainable development at the national level would not be actualised until 2008 when the country adopted a National Framework for Sustainable Development (NFSD) under which its national vision, principles and strategic priority areas for achieving sustainable development were expressly set out.

In the same vein, as the Chair of the eleventh session of the United Nations Commission on Sustainable Development (UNCSD-11) in New York in 2003, South Africa, through its Minister of Environmental Affairs and Tourism, Mohammed Valli Moosa, opened the high-level segment which was central in the establishment of a new multilateral framework for achieving sustainable development, as well as monitoring progress in line with the vision and targets of the CSD. Combined with its active role regarding the WSSD, this feat clearly put South Africa in a front position as far as global environmental issues generally are concerned. As rightly observed, the Johannesburg Earth Summit achieved a great deal in raising the profile of global environmental issues and creating more awareness regarding sustainable development (Najam and Cleveland, 2003: 127). According to Death (2011: 8), in 2002, South Africans were indeed credited for having hosted a broadly well-organised environmental conference though with limited final text.

Further to the establishment of the Ad Hoc Working Group on further commitments for Annex I Parties under the KP (AWG-KP) at the first session of the Conference of the Parties serving as the meeting of the Parties to the KP (CMP1) in 2005, South Africa, under Marthinus Van Schalkwyk, as Minister of Environmental Affairs and Tourism, was chosen as coordinator of the AWG-KP on behalf of

G77+China (Backstrand and Elgstrom, 2013; Masters, 2009: 11). As earlier discussed, the AWG-KP was established to ensure the finalisation of further commitments for Annex I Parties well ahead of the expiration of the KP first commitment period (2008-2012), which was expected to be delivered at the Copenhagen COP15. This, no doubt, was critical in order to allow no gap between the first and second commitment periods and the overall GHGs reduction strategy. Clearly, the choice of South Africa was against the background of its active participation in the AG and G77+China as an advocate of continental and the global South agenda on climate change respectively. Besides, South Africa, together with other BASIC countries, especially China and India, had all along, remained vocal on their stance that developed countries should continue to take the lead regarding GHGs cuts and, therefore, prefer an extension of the KP with additional quantified GHGs reduction commitments being imposed on Annex I Parties. Moreover, South Africa's AWG-KP coordinating role also becomes crucial in view of the opposing viewpoint from most industrialised countries championed by the USA that a completely legally binding arrangement different from the KP and which includes all major emitters, including China and India, should be worked out. Hence, this singular scenario marks the strategic entry and positioning of South Africa not just as a continental representative but also the mouthpiece for the entire global South *vis-à-vis* the global climate change negotiations.

To further show its seriousness towards the global climate change process, in December 2007, South Africa adopted the Bali Roadmap for negotiations on the future of the climate regime beyond 2012. The Bali Roadmap laid the foundation for a more effective and inclusive climate regime to be negotiated two years after, with a shared vision focusing on four "building blocks" of a Long-Term Cooperative Action (LCA) namely, adaptation, mitigation, technology and finance. For instance, while reacting to the US position and the outcomes of the G8 summit held in 2008 in Japan, South Africa loudly voiced its stance in rejecting any binding commitments for developing countries *vis-à-vis* the global climate change negotiations (Atteridge 2011: 4).

Undoubtedly, South Africa's standpoint in this regard was clearly in line with the AG agenda on climate change. It should be recalled that South Africa successfully hosted the 12th session of the African Ministerial Conference on the Environment (AMCEN-12) held in Johannesburg from 7-12 June 2008, while it also assumed the

Presidency of AMCEN from 2008-2010 (DEAT, 2009: 29). Delivering the welcome speech on behalf of the South African Government, Marthinus Van Schalkwyk, still as Minister of Environmental Affairs and Tourism, raised serious concerns about international environmental governance showing signs of a stagnating and fragmented global regime for the environment and sustainable development, as well as the need for AMCEN to have a voice and strategic leadership in the negotiation process (Schalkwyk, 2008). Hence, one important outcome of the AMCEN-12 was the adoption of the AMCEN Johannesburg Declaration on the Environment for Sustainable Development. Thus, as the President of AMCEN-12, South Africa supported AMCEN by initiating a process through which the African common position regarding the implementation of NEPAD's Action Plan of the Environment Initiative and the development of a climate change implementation framework to strengthen the continent's participation in the global climate change process preparatory to the 2009 Copenhagen climate meeting were developed. Besides, South Africa played a key role towards the development of the terms of reference (ToR) for AMCEN presidency and the secretariats, while it also earmarked funds for the immediate take-off of AMCEN Trust Fund established as a pool for attracting funding from donors to finance the activities of the body (DEAT, 2009: 29).

On the sidelines of the meeting, from 13-17 April 2008, South Africa also hosted the annual meeting of the Carbon Sequestration Leadership Forum (CSLF). Composed of 25 member countries with South Africa being the only African member, CSLF was established through its charter in June 2003 as a Ministerial-level international climate change platform with the primary goal of facilitating the development and deployment of improved cost-effective technologies for the separation and capture of CO₂ for its transport and long-term safe storage, as well as promoting awareness about legal, regulatory, financial, and institutional environments that are conducive to such technologies. With a membership composition of approximately 60 per cent of the global population and a contributory share of about 80 per cent of the world's total GHGEs, the CSLF is clearly an important inventiveness in the climate change negotiations, especially with regard to the development of carbon capture and storage (CCS) technologies. In particular, at its Cape Town meeting, CSLF declared its support for the G8 recommendations for near-term deployment of CCS; agreed on a mechanism leading to an updated CSLF strategic plan; agreed on appropriate initiatives and projects that would form an

overarching strategy for removing the barriers for CCS; created successful pathways for capacity-building as the vehicle for the transfer of technologies, knowledge, and experience about CCS to key stakeholders and policy makers in emerging economies; resolved to increase the role of stakeholders in implementing policy priorities; and recognised the import of expertise from stakeholders in removing barriers to CCS deployment given that they are ultimately responsible for using CCS technologies. More significantly, it approved the Dynamis Project, which is the first phase of the multifaceted Hypogen programme that targets the construction and operation of an advanced commercial-scale power plant with hypogen production and CO₂ management as the CSLF's 20th recognised project (CSLF, 2008).

Further to its 'leadership' commitment, especially at the global level, and as part of the country's contribution to the global climate change mitigation which hitherto had remained the core issue of controversy among UNFCCC Parties, South Africa, as a developing non-Annex I Party, beat the global environmental community a day before the Copenhagen climate summit in December 2009 when President Jacob Zuma openly announced a Nationally Appropriate Mitigation Action (MAPA) for a relatively ambitious GHGEs reduction commitment towards a Business-As-Usual/Peak-Plateau-Divide (BAU/PPD) trajectory of 34 per cent by 2020 and 42 per cent by 2025. Although the BAU/PPD commitment set such conditions, including finance, technology and capacity-building support from the international community, many have argued that it was far higher than what the domestic energy situation in South Africa as at the time could cope with (Atteridge 2011: 3; Droge, 2010: 14; Masters, 2009: 7). Besides, it is further argued that such commitment ideally should come from the bureaucracy rather than the political leadership of the country (Hallding *et al.*, 2011: 54). Hence, it is clearly a foreign policy action that was politically motivated even though it gave South Africa semblance of a leadership role in the global climate change negotiation process.

The point also needs to be made that South Africa's BAU/PPD commitment was in line with the backdoor voluntary GHGEs reduction deal reached by all BASIC member states to impress the global climate change community and, in particular, developed countries of the North that had consistently urged for the inclusion of emerging economies in the quantified GHGEs reduction commitments under the KP. Shortly before the Copenhagen Accord, each of the BASIC member countries announced, in quick succession, concrete, quantitative, mid-term targets that they

would unilaterally implement within their own countries to mitigate their respective emissions (Hurrell and Sengupta, 2012: 471). While the pledges made by China and India mirror GHGEs reduction commitments along the intensity of GDP as against absolute terms, that of South Africa and Brazil were informed by BAU considerations which assume, at least for a specified period, continued carbon-economic growth path (CDE, 2012: 5).

The joint deal was also reflective of the position of BASIC member countries regarding the political agreement known as "Copenhagen Accord" that emerged from the Copenhagen COP15 meeting, which was alleged to have been drafted exclusively by the USA and China (obviously representing the BASIC bloc), while sidelining the EU for the first time in the climate change negotiations (Hurrell and Sengupta, 2012: 463). Contrary to the general position of the AG of which South Africa is believed to be its representative/speaker (Droge, 2010: 9; Never, 2010: 10) and the G77+China that more ambitious and mandatory quantified GHGEs reduction commitments under the KP should be sustained apace with the existing two-track systems, the Copenhagen Accord provides for an optional approach in the form of self-declared nationally monitored commitments to climate change mitigation by all UNFCCC Parties irrespective of their emissions' status (Death, 2011: 10).

Like other BASIC member countries, South Africa, through its political leadership, made efforts to acquit itself while arguing that the country's role in the Copenhagen climate deal was in line with the "bridge-building" role for which it was known for in order to influence the climate negotiation process. Thus, given their main role in concocting the Copenhagen Accord, South Africa and other BASIC member countries were seen as being instrumental to the active return of the USA in the global climate change negotiations and its willingness to commit to GHGEs reduction comparable to other developed countries, particularly the EU that has shown commitment far more than any other developed nations. In this regard, it is observed that "the emerging prominence of the so-called BASIC group (Brazil, South Africa, India and China) in Copenhagen, together with the United States, points towards the probable shape of the new coalition driving global climate policy, at the expense of UN multilateralism" (Death, 2011: 10).

What is, however, the case is that the sudden shift in the BASIC negotiation position to jointly accept voluntary GHGEs reduction commitments clearly underscores the political interplay involved in the global climate change negotiations,

particularly with regard to the Copenhagen Accord. “For the first time in the history of the climate negotiations, these countries were willing to put hard numbers for climate change mitigation on the table. In contrast, in 1997, during the Kyoto Protocol negotiations, these very same nations had rejected any notion of ‘voluntary commitments’ outright” (Hurrell and Sengupta, 2012: 471). As far as South Africa is concerned, it is argued that the negotiation position as contained in the Copenhagen Accord, is much more influenced both by the international context and its self-portrayal as a “moral leader and responsible international actor” than the country’s domestic climate change scenario (Atteridge 2011: 3). According to Never (2010: 12), the power South Africa exerts in the international climate negotiations, particularly in the context of its role in the Copenhagen Accord, could best be described as active and direct.

Yet, South Africa’s position has been criticised for not being representative of the African continent. Even though the AG subscribes to the view that group of developing countries also have a role to play in the reduction of GHGs because global emissions trend indicates a shift towards emerging economies, especially China and India, their basic position remains that developed countries with historical industrialisation, should bear the burden of GHGs. Also, as a group, the position of BASIC has been denounced by some members of the G77+China, while others have been forced to accept the important and ‘coordinating’ role of BASIC, considering that the broader G77+China appears to have dwindled in global relevance *vis-à-vis* climate change negotiations. In particular, the G77 chair criticised the Copenhagen Accord and also refused to participate in the subsequent meeting of the BASIC group (Husar, 2010: 105). According to Hochstetler (2012: 58), “the Copenhagen negotiations presented some of the most striking evidence of BASIC countries’ partial separation from the G-77 and its consequences for all these participants from the South”. Besides, a group of Latin American countries, including Venezuela, Bolivia and Nicaragua, as well as Sudan (an African country), openly opposed the adoption of the Copenhagen Accord the final night of the summit on the grounds that it bypassed the formal meetings and, therefore, was not as inclusive and transparent as it ought to be (Bodansky, 2010; Eckersley, 2012: 37). Indeed, the Sudanese spokesperson described it as a “suicide pact” for Africa (Husar, 2010: 105).

Earlier in 2008 in Accra, South Africa’s role in the global climate change negotiations had equally been criticised by African civil society organisations. The

organisations accused South Africa of causing disunity in the continent and within the G77 and China and urged South Africa to desist from this, saying it was a breach of the principle of collective responsibility by some African countries (UNFCCC, 2008b). One can also have a better understanding of South Africa's tangled position based on the argument that "South Africa is under pressure from the African group to fight for higher mitigation ambition – from both developed countries and emerging economies. It is also under pressure from the BASIC group to block high ambition for developing countries" (CDE, 2012: 71).

Nevertheless, the BASIC bloc has insisted it remains a part of the G77+China. In particular, the South African Minister, Buyelwa Sonjica, made it quite clear in the course of the Copenhagen climate negotiations that the country fully endorses the common and united position of Africa and that of the Group of 77 and China on climate change (Sonjica, 2009). Masters (2012: 1) moots that the Copenhagen climate summit was more memorable for 'institutionalising' BASIC as against generating a binding agreement to move the global action on climate change forward. In the case of South Africa, the situation apparently explains the divergent perspectives with which many have viewed the country's involvement in the Copenhagen Accord; on the one hand, as a mediator between the global South and the global North, and on the other hand, as a betrayal of the G77 and AG collective climate agenda (Husar, 2010).

South Africa's key role regarding the Adaption Fund (AF) is also crucial and apt. The AF was established in 2001 at the COP7 Marrakesh climate meeting, but it would not become operational until 2009. Essentially, the objective is to finance concrete adaptation projects and programmes in order to assist people in coping with, as well as building resilience towards the impacts of climate change, especially in non-Annex I countries/Parties. Undoubtedly, it represents one of the key demands of developing group of countries under the AG, G77+China and other negotiation groups from the global South of which South Africa remains a strong voice. In particular, the AG demands that the international community contributes \$67-billion per year by 2020 to the AF to enable developing countries cope with the impacts of climate change: (ISS, n.d). In a sense, it explains why South Africa was privileged to serve as the chief negotiator for the group on the AF, as well as elected to represent Africa on the Adaptation Fund Board (AFB) (Masters, 2009: 11). The AFB was created during the COP13/CMP3 Bali climate summit in 2007 as an independent operating body of

representatives mostly from developing countries to provide guidance for the operation of the AF.

Closely linked to this, South Africa also played an active role in the GCF, which was first introduced in 2009 as part of the controversial Copenhagen Accord. With some distinctions from the AF though, the GCF provides financial support for mitigation purposes generally. As a global financial mechanism, the GCF is meant to attract contributions from developed countries to finance climate change-related projects, programmes, policies and activities, particularly in developing countries that are Parties to the UNFCCC. Again, it speaks to the agitation from developing countries that the pledge of US\$100 billion per year by 2020 by developed Annex I Parties under the Accord, should not only be honoured but also that the fund should be up-scaled. In this regard and following the establishment of a GCF Transitional Committee (GCF-TC) in 2010 in line with the resolution of the UNFCCC Parties at the Cancun climate conference, South Africa, under Trevor Andrew Manuel, as the Minister of National Planning, was elected to co-chair the GCF-TC, together with representatives from Mexico (Ernesto Cordero Arroyo as Minister of Finance and Public Credit) and Norway (Kjetil Lund as Secretary of State, Ministry of Finance) (Hweshu, 2011b; ISS, n.d.). The GCF-TC was established essentially for the design of the GCF, in addition to mobilising climate resources for the Fund. It was also established in order to lay out modalities for its operation and to prepare for the Durban COP17 meeting.

Although other African countries such as Egypt, Morocco, Ethiopia, the Democratic Republic of Congo (DRC) and Burkina Faso were equally part of the GCF-TC as African representatives, South Africa stood out because of the extra leadership responsibility that was added to its representation. Whereas, it is also observed that Manuel's high ranking profile drew attention to him as the ideal candidate for the assignment. These include his position as the former chairman of the Development Committee of the World Bank from 2001 to 2005, commissioner on the Commission for Africa from 2004 to 2005, commissioner on the Commission on Growth and Development from 2006 to 2008, chair of the G-20 meeting in 2007, special envoy for development finance under Ban Ki Moon as UN Secretary General in 2008, member of the High Level Group on Climate Change Financing still under Ban Ki Moon as Secretary General in 2010, South African Minister of Finance from 1996 to 2009, and the then current Minister responsible for National Planning.

Moreover, the global recognition already accorded to South Africa as an active player in the global climate change negotiations with regard to its major role in the Copenhagen Accord and, in particular, the importance attached to the country's hosting of COP17 are other critical determining factors. South Africa's position regarding GHGEs reduction responsibility, as well as its vocal stance on the issue of financial support to developing countries to assist them adapt to the adverse impacts of climate change is also worth mentioning. It should also be recalled that, as a developing country, in 2008, South Africa not only contributed to the development of the World Bank Climate Investment Funds (CIFs) but also played a key role in ensuring that CIFs are operated in a fair, equitable and inclusive manner in order to take care of the interest of developing countries for which the CIFs were originally created as additions to the existing Official Development Assistance (ODA) (DEAT, 2009: 27). The CIFs comprise mostly of the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF) both of which aim to serve as interim, scale-up climate change funding to assist mitigation and adaptation efforts in developing countries.

Furthermore, since its re-union with the global community as a democratic state, South Africa has spiritedly identified with various multilateral environmental institutions (MEIs). Through the Department of Environmental Affairs as the country's focal point of environmental issues, including climate change, and in collaboration with the Department of International Relations and Cooperation with regard to external environmental affairs, South Africa has been playing an important role in ensuring that equitable and inclusive governance structures, especially such that advance the country's interest and regional position, are put in place regarding the activities of MEIs. The country's engagement with the UNEP and the Global Environmental Facility (GEF), for instance, towards the promotion of a global sustainable development agenda, is arguably relevant. The GEF was established in 1994 to provide support for the implementation of MEAs generally, as well as serve as a financial mechanism of the UNFCCC. South Africa not only contributed to the UNEP Environment Fund, as well as the GEF-Trust Fund (GEF-TF), but also emerged as a key developing country player in the UNEP Governing Council (UNEP-GC) and the Global Ministerial Environment Forum (GMEF) (DEAT, 2009: 27).

To cap it all, in 2011, South Africa successfully hosted the prestigious COP17/CMP7 climate conference. It should be recalled that in his address at the official opening of the Durban COP17, President Jacob Zuma stressed that “by now,

all of us understand that Durban is a decisive moment for the future of the multilateral rules-based regime, which has evolved over many years under the Convention and its Kyoto Protocol” (Zuma, 2011). Hence, it was no surprise that through Nkoana Mashabane as the Minister of International Relations and Cooperation and, therefore, President of the COP17, South Africa played a central/facilitating role in managing the proceedings at the conference which became a turning point in the climate change process. Without any doubt, COP17 returned with some important outcomes by which climate negotiations that had almost broken down, judging from the Copenhagen experience, were revived and moved forward in terms of positive international response and commitments from both formal and informal parties as embodied in the DPEA. As earlier discussed, the DPEA represents a comprehensive roadmap for implementing/finalising previous agreements and, in particular, the Cancun Agreements (cooperation on clean technology, REDD+, adaptation, financing, etc.) towards achieving the UNFCCC ultimate objective of lowering global warming to no more than 2 degree Celsius above pre-industrial levels. The Durban climate conference, for the first time in the trajectory of the global climate change process, put on record the important contributions of all levels of government – national, sub-national and local, the business and technology sectors, as well as civil society in the overall global efforts to deal with climate change.

According to the UNFCCC (2014b), “the Durban outcome recognised, in its spirit and intention that smart government policy, smart business investment, and the demands of an informed citizenry, all motivated by an understanding of mutual self-interest, must go hand in hand in pursuit of the common goal”. This, no doubt, brings to focus the important contribution of the South African civil society, in particular, that has equally, over the years, demonstrated significant activism, especially with regard to “loss and damage” in the context of climate justice. According to the IDS (2014), South Africa has a robust and regionally engaged civil society that is involved in a range of capacity-building activities across the continent, with significant experience in constitutional justice, mediation and peace building activities, as well as research expertise on regional integration, conflict analysis and early warning regarding climate change.

Similarly and more importantly, under the DPEA, Parties to the UNFCCC unanimously agreed that a fresh and more inclusive universal legal agreement to succeed the KP in addressing the common challenge of climate change beyond 2020

be drawn up as soon as possible and no later than 2015. By implication, the latest 2015 Paris climate agreement which incorporates many of the terms as contained in the DPEA would not have been brought about except for South Africa's coordinating and pivotal role. Importantly still and, perhaps, linked to South Africa's influence within the BASIC grouping, major economies such as China and India, whose non-inclusion in the first phase of the KP quantified emissions reduction commitments had been a major concern to the USA and other developed countries, were brought under the interim mandatory emissions reduction target set by the Durban climate conference as a continuation of the KP through its second commitment period, which was expected to be broadened and also incorporated into the new agreement latest by 2015. In other words, under the DPEA and through its Ad Hoc Working Group (ADP) established specifically to facilitate the reduction process of GHGs, all Parties (Annex I and non-Annex I), including the world's biggest polluters such as the USA, China and India, commit to a single-track GHGs reduction trajectory to bridge the first and second commitment periods under the KP on the one hand and the post-KP period on the other, while still maintaining the right of developing countries to sustainable development. Additionally, the Durban climate conference became important with the adoption of a management framework for the GCF, which embodies a more detailed operationalisation of the Fund, as well as guarantees transparency regarding its utilisation.

Thus, in a way, South Africa succeeded in harmonising the hitherto conflicting interests within the BASIC grouping, particularly with regard to that of China and India not to bow to any collective/binding emissions reduction efforts apace with the USA and other industrialised countries with shared emissions reduction historical responsibility. Hurrell and Sengupta (2012: 472) put it more succinctly by maintain that "with Brazil and South Africa able and willing to go further than China and India, and China able and willing to go further than India (occupying a very different global economic status and GHG profile), it was no surprise then that India – which, in reality, has as much in common with the least developed countries as with the other BASIC states – was in the end left isolated, and fighting its own corner". In a way, conversely though, the BASIC group appears to have waned in influence as member countries were seriously divided over climate negotiations at the Durban COP17 meeting (Hochstetler, 2012: 66).

Even though the Durban climate conference was criticised, among others, for its failure to deliver a substantive climate agreement as against bringing up an insufficient climate deal whose intention does not go beyond 2°C required urgently to address the impacts of climate change, especially with regard to AOSIS and LDCs, many agreed that the Conference was a huge success compared to the previous flawed and tortoise climate change negotiation process and contrary to the expectation prior to COP17 that it would go in the way of the past experience. Despite this, as the host, South Africa successfully managed and moderated the pre-COP17 anxieties towards striking a deal, that is, the DPEA preparatory to a substantive climate deal (that is, the latest Paris Climate Agreement). While commenting on the Durban climate deal and its potential for bringing about real changes *vis-à-vis* the global climate change process, Michael Jacobs, as a visiting professor at the Grantham Research Institute on Climate Change and the Environment (cited in Black, 2011), remarked as follows: "The agreement here has not in itself taken us off the 4°C path we are on... But by forcing countries for the first time to admit that their current policies are inadequate and must be strengthened by 2015, it has snatched 2°C from the jaws of impossibility. At the same time, it has re-established the principle that climate change should be tackled through international law, not national, voluntarism."

As an important side issue, a South African Parliamentarian, Cedric Frolick, was elected as President of the Global Legislators Organisation for a Balanced Environment (GLOBE) in April 2014. GLOBE is an international organisation established in 1989 and currently composed of a group of legislators from over 80 different countries from the global South and the global North. Essentially, it seeks to provide support for political leadership from G20, emerging economies and formal negotiation blocks within the UN frameworks through the advancement of legislative interventions towards addressing environmental, as well as climate change- and sustainable development-related challenges. Frolick's election marked the first time that GLOBE had chosen its President from outside the G8 (Newmarch, 2014; PRSA, 2014). This, no doubt, is not unconnected with the global recognition of South Africa as a key player in the global actions on climate change, particularly within multilateral frameworks such as the UNFCCC, KP and COP meetings. Apparently, his election was also meant to send a strong message to South Africa as a major GHG emitter within the group of developing countries for it to prioritise environmental and climate

change legislations as part of overall governmental efforts to transit from high-carbon footprint to a low-carbon green economy.

Considering the above, can one, therefore conclude that South Africa is a leader in the global climate change negotiation process? Whereas, there is no doubt that South Africa has been actively involved in climate negotiations, the leadership of the global climate change process, in reality, could not be pinned down to a single country as events over the years indicate that other countries, including the USA, the EU, China and Brazil have, at one point or the other, positioned themselves as leaders in global actions on climate change. Besides, being a leader entails certain qualities, some of which include visionary, selflessness, commitment, integrity and strategic planning. In the context of the analysis above, South Africa is found wanting in demonstrating faithfulness to some of these qualities. For instance, South Africa not only lacks a clear vision of its goal as far as the global actions on climate change are concerned, considering the country's ambivalent approach towards the negotiation process even though it recorded some remarkable achievements in terms of its coordinating role. Besides, "the interests of the South African economy (which include cheap coal and electricity; exports from resource intensive sectors; and the need for rapid industrial and infrastructure development) are not well aligned with global short-term climate mitigation objectives" (Goldblatt and Middleton, 2007: 8).

Moreover, South Africa cannot be said to be altruistic as its position in the climate negotiation process sometimes conflicts with that of the AG, G77+China and even within the BASIC caucus for which it pledges its allegiance in terms of alignment. At the basic level, South Africa's international commitment and integrity are also not free from being queried given its relatively high carbon footprint. Worse still, new coal-fired power stations are being added to existing ones despite the country's active involvement in the global efforts towards reducing GHGEs of which keeping coal in the ground is key. One of such is the Kusile coal-fired power plant currently under construction by Eskom and located in the Nkangala district of Mpumalanga with installed capacity for generating a total of 4800 MW and, as such, ranks as the fourth largest in the world (Eskom, 2016; Death 2014: 9). The Kusile coal-fired power plant, according to Greenpeace (2011), will burn 17 million tonnes of coal per year, with estimated annual GHGEs of 37 million tonnes CO₂eq, thereby increasing South Africa's total contribution to climate change by an immense 10%. Hence, the South African government, through its national utility (that is, Eskom) is

advised to stop the construction of the coal-fired Kusile mega power plant in order to prevent its massive environmental, economic and social impacts. Besides, South Africans simply cannot afford to pay for the True Cost of Coal (Greenpeace, 2011).

Comparatively, the US and the EU stood tall as leaders in the global climate change process while within the global South, Brazil seems to occupy the front position. This is simply because since 1992 when it hosted the first ever *Earth Summit* – before South Africa’s active appearance on the scene, Brazil had been recognised as an important player in the global climate change process. The point also needs to be made that Brazil commits to a relatively high domestic mitigation targets with no international support under the Copenhagen Accord unlike South Africa whose BAU commitment was tied to support from the international community. Added to this is the country’s hosting of the Rio+20. Most notably, Brazil’s position is also crucial to the global climate change negotiations, considering that the country is home to the tropical forests of Amazonia, the “lungs of the world”. This Amazon contains the earth’s most extensive hydrographic network that contributes oxygen to the atmosphere and also has the capacity to serve as a sink for CO₂, yet it faces human-created risks as around 20 per cent of global CO₂ emissions stem from slash-and-burn clear-cutting in the Amazonia rainforest (Zilla, 2010: 89-90). Additionally, Brazil holds sway in the production of biofuels as it ranks the world’s largest producer of sugarcane-based fuel (Zilla, 2010: 88-89). Without doubt, the country’s comparative advantage relative to biofuels is fundamental to achieving the core objective of the UNFCCC with regard to a global green economy.

To conclude, therefore, South Africa’s role in the global climate negotiations could best be described as active and, perhaps, one of the leaders in the global actions on climate change. This may likely continue unabated, considering that the world is yet to see an end to the multilateral discussions on climate change.

4.4 Chapter summary

This chapter conveniently established that South Africa is a key player in the global climate change process, with discussions along specific instances. It marked, in particular, South Africa’s influential role (not so much as leading as envisaged in some quarters) in bridging the viewpoints gap between the global North and the global South in the climate change negotiation. The chapter also drew attention to instances where South Africa’s role in the global climate change negotiation process

is perceived to be far less altruistic in view of how some of its positions conflict with that of the AG, the G77+China and even within the BASIC grouping that should ordinarily serve as platforms for pursuing common climate agenda. It also raised the question of the extent to which the country's carbon footprint at the domestic level challenges its international commitment and integrity vis-à-vis the global climate change process. This naturally connects with the focus on South Africa's policy response towards addressing climate change at the domestic level.

CHAPTER FIVE

SOUTH AFRICA'S DOMESTIC POLICY ON CLIMATE CHANGE

5.0 INTRODUCTION

Against the background of discussions about South Africa's involvement in the global actions on climate change as contained in chapter four, this chapter seeks to examine the country's domestic approach in terms of policy and other regulatory measures aimed at addressing climate change. In particular, it focuses on the two principal regulatory frameworks – the National Environmental Management Act (NEMA, 1998) and the National Climate Change Response (NCCR, 2011), while highlighting their key provisions, success features and defects. Connecting the two regulatory instruments is an appraisal of the Business-As-Usual/Peak-Plateau-Decline (BAU/PPD) emissions reduction trajectory in the context of climate change and its challenges within South Africa. Lastly, as a concluding section, South Africa's Intended Nationally Determined Contribution (INDC), which represents the country's contribution to the global efforts to significantly reverse climate change is also examined in this chapter. Though a key demand of the latest Paris climate agreement towards achieving the UNFCCC objective, the INDC is expected to be operated as a key policy instrument to transition to a low-carbon economy within South Africa; hence, the focus in this chapter.

5.1 SOUTH AFRICA'S ENVIRONMENTAL/CLIMATE CHANGE POLICY AND REGULATORY FRAMEWORKS

Prior to its ratification of the UNFCCC and the KP in August 1997 and July 2002 respectively, since 1994, South Africa established a National Committee on Climate Change (NCCC). The NCCC was created to act as an advisory body to the then Department of Environmental Affairs and Tourism (DEAT) – now the Department of Environmental Affairs (DEA) – on matters relating to national responsibilities with regard to climate change and other related issues. As a forum for national stakeholder engagement on climate change, therefore, the NCCC is composed of representatives from business and industry, mining, labour, community-based organisations, as well as non-governmental organisations. Of particular mention are the two most influential energy producers in South Africa (Sasol and Eskom) who

are also members of the NCCC (Atteridge, 2011). Part of the obligations of NCCCC, and, indeed, the main one, is to report on South Africa's implementation of climate change activities every four years through National Communications to the UNFCCC. It should be recalled that the DEA is the focal point designated to take the lead for the coordination and implementation of South Africa's UNFCCC commitments and related matters in terms of UNFCCC. As such, through the DEA, South Africa communicated its First and Second National Communications on Climate Change to the UNFCCC on 11 December 2003 and 16 November 2011 respectively (UNFCCC, 2014c).

However, the inclusion of an environmental right in the 1996 Constitution laid a strong basis for environmental regulatory frameworks (climate change inclusive) in South Africa. Section 24 of Chapter 2 which contains the Bill of Rights specifically provides that everyone has the right to an environment that is not harmful to their health or well-being. More importantly, it places an obligation on the South African government to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that: (1) prevent pollution and ecological degradation; (2) promote conservation; and (3) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development (RSA, 1996: 11).

With this and to further give effect to its obligations under the UNFCCC and the KP, South Africa progressively rolled out a number of related regulatory policies and measures as a way of demonstrating its seriousness to addressing environmental concerns generally and climate change in particular. One of such and, indeed, the single most important environmental law in South Africa is the National Environmental Management Act (NEMA, 1998), which is discussed extensively in the subsequent section of this chapter. Others include the following: the Nuclear Energy Act (1999); the National Nuclear Regulatory Act (1999); the White Paper on Integrated Pollution and Waste Management for South Africa (2000); the Country-wide Study on Climate Change (2000); the White Paper on the Promotion of Renewable Energy and Clean Energy Development (2003); the Integrated Clean Household Energy Strategy (2003); Implementation Strategy for the Control of Exhaust Emissions from Road-going Vehicles in South Africa (2003); the Explosives Act (2003); the Air Quality Act (2004); the White Paper on Renewable Energy (2003); the National Climate Change Response Strategy (2004); the Cleaner

Production Strategy (2005); the Energy Efficiency Strategy (2005); the Electricity Regulation Act (2006); Biofuels Industrial Strategy (2007); Long-Term Mitigation Scenarios (2008); the National Energy Act (2008); the National Climate Change Response Green Paper (2010); and the National Climate Change Response White Paper (2011).

While the list is not exhaustive, it re-establishes the finding that South Africa has an array of environmental and climate change related laws and policies. However, the issue of their adequacy and effectiveness in terms of implementation is a different ball game entirely, especially when one considers the thin line between broader environmental phenomena and climate change. This, therefore, necessitates that particular focus should be given to those relating specifically to climate change of which the NEMA (1998) and the NCCR (2011) have been singled out as the two most crucial climate change policy instruments for analysis in this study.

5.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NEMA, 1998)

Historically, the National Environmental Management Act (1998) emerged as the final outcome of the national consultative process, which began in 1995 following the initiation of a multi-sectoral technical group under the Consultative Conference on National Environmental Policy Process (CCONEPP). Thus, aside from the provision in the 1996 Constitution concerning environmental issues/rights as earlier discussed, the National Environmental Management Act (NEMA, 1998) remains the single most important national regulatory framework for environmental management of all sectors in South Africa; it applies to all organs of state, including the environmental governance practices at local levels (Pelsis, 2011: 390). Indeed, NEMA was enacted to give effect to Section 24 of the 1996 Constitution (Glazewski and Collier, 2011: 319). Essentially, it provides for cooperative, environmental governance by establishing principles for decision-making on matters affecting the environment; institutions that will promote cooperative governance and procedures for coordinating environmental functions exercised by organs of state; and other matters connected with the environment (NEMA, 1998).

Chapter 1 of NEMA contains key national environmental management principles (EMPs) which, among others, include: (1) placing people and their needs at the forefront of environmental management concerns, as well as serving their physical, psychological, developmental, cultural and social interests equitably; (2)

development must be socially, environmentally and economically sustainable; (3) environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated; (4) environmental equity, as well as equitable access to environmental resources, benefits and services to meet basic human needs and well-being; (5) participation of all interested and affected parties in environmental governance with equal opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation; (6) community well-being and empowerment through promotion of environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means; (7) openness and transparency in decision-making with equal access to information as provided under the law; (8) intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment; (9) global and international responsibilities relating to the environment must be discharged in the national interest; and (10) recognition of the important role of women and youth in environmental management and development, as well as the promotion of their full participation (NEMA, 1998: 10-14).

These principles, according to Kotze (2011: 479), broadly mirror the principles and approaches generally endorsed by the international environmental framework which includes the polluter pays principle, the preventive principle, the precautionary principle and the cradle-to-grave principle. By implication, they place an obligation on polluters to take all reasonable measures to prevent and remediate pollution by way of compliance, as well as provide the relevant competent environmental authority with a number of mechanisms to enforce environmental laws (Kotze, 2011: 476).

At the institutional level, NEMA (1998) provides for the establishment of a National Environmental Advisory Forum (NEAF), as well as a Committee for Environmental Co-ordination (CEC). Primarily, the role of NEAF is to inform the Minister of Environmental Affairs about the views of stakeholders regarding the application of EMPs; advise the Minister on any matter concerning environmental management and governance, specifically the setting and achievement of objectives and priorities for environmental governance; appropriate methods of monitoring compliance with the principles of EMPs; and draw the Minister's attention to any matter concerning environmental management requiring attention (NEMA, 1998). The CEC, on the other hand, is composed of Directors-General of the DEA (as the

chairperson) and those of other relevant departments, as well as representatives from provincial environmental departments and local governments. Its main objective is to promote the integration and coordination of environmental functions by relevant organs of state and, in particular, that of achieving the purpose and objectives of environmental implementation plans (EIPs) and environmental management plans (EMPs) as contained in section 12 of the Act (NEMA, 1998: 18).

The purpose of EIPs and EMPs as provided under section 12 of NEMA, is to coordinate and harmonise environmental policies, plans, programmes and decisions of the various national departments that exercise functions that may affect the environment or are entrusted with powers and duties aimed at the achievement, promotion, and protection of a sustainable environment, and of provincial and local spheres of government. The essence is to minimise the duplication of procedures and functions, as well as promote consistency in the exercise of functions that may affect the environment. In addition, EIPs and EMPs are also meant to: (1) give effect to the principle of co-operative government in Chapter 3 of the 1996 Constitution; (2) secure the protection of the environment across the country as a whole; (3) prevent unreasonable actions by provinces in respect of the environment that are prejudicial to the economic or health interests of other provinces or the country as a whole; and (4) enable the Minister of Environmental Affairs to monitor the achievement, promotion and protection of a sustainable environment (NEMA, 1998: 22-23).

Under schedules 1 and 2, NEMA specifically distinguishes between national departments exercising functions which may affect the environment and those that involve the management of the environment. While the former includes departments such as Environmental Affairs and Tourism (now Environmental Affairs), Land Affairs, Agriculture, Housing, Trade and Industry, Water Affairs and Forestry, Transport, and Defence, the latter comprises Environmental Affairs, Water Affairs and Forestry, Minerals and Energy, Land Affairs, Health and Labour (NEMA, 1998: 66-68). In addition to being the most comprehensive regulatory framework for managing environmental issues in South Africa, NEMA is also significant in that it provides for a broad environmental policy network that cuts across different institutions and levels of government in South Africa. NEMA principles not only take cognisance of ecologically sustainable development but also that of cooperative governance involving all levels of administration in South Africa in the management of the environment. Besides, NEMA is articulated to address crucial environmental

concerns such as environmental impact assessment (EIA), while its process caters, at least in principle, for a decentralised approach in terms of implementation that accounts for the participation of provincial and local governments in environmental affairs. Furthermore, to ensure compliance and enforcement, NEMA provides for a number of punitive measures, including criminal prosecution for environmental offences, as well as the right of workers to refuse work that is harmful to human health or the environment.

In a way, however, NEMA introduces some level of complexity regarding the institutional framework for environmental policy in South Africa. This is so, considering that a wide range of government departments at national and other levels have overlapping mandates and functions covered within its provisions (Rossouw and Wiseman, 2004: 132). Even though NEMA recognises the Department of Environmental Affairs (DEA) as the coordinating entity for environmental matters within its cooperative governance structures, as well as the distinction between national departments with issues of concern with the environment (climate change inclusive) *vis-à-vis* the exercise of their functions, it under-estimates the power relations, competing interests and potential conflicts between these departments and the likely implications for inter-departmental collaboration and synergy. Aside from the fact that the DEA is a small department with limited influence over issues of concern with climate change in particular, especially when compared to others like Energy, Mineral Resources, Transport, Agriculture, Forestry and Fisheries, Public Enterprises, and Planning Monitoring and Evaluation. Another case in point is the policy inconsistencies that sometimes characterise relationships between and among these departments. The most common is that of the DEA on the one hand and the Departments of Energy and Mineral Resources on the other, with each trying to guide jealously its core mandate that is generally intertwined with that of others. Yet, an effective partnership between these three key national departments is, no doubt, needed for achieving the objectives of NEMA.

One other area of concern is that of limited capacity across the different institutions saddled with environmental protection and management functions under the NEMA provisions. In particular, the integration of environmental issues within the equally challenging spectrum of sustainable development could not be so easily achieved as envisaged under the NEMA principles. Besides, the limited participation by local government and civil society in the CEC and the non-involvement of the

latter in the implementation and monitoring of NEMA provisions remain yet other critical issues. Hence, it is required that NEMA policy network advances to a proper implementation stage such that will herald the real integration of climate change and sustainable development considerations into government practice (Goldblatt and Middleton, 2007: 31). Even though NEMA provides for EIPs and EMPs, Goldblatt and Middleton (2007: 19) contend that there is no requirement for provinces or concerned national departments to specifically note any climate change related activities within their plans. Thus, specific climate change action planning that focuses on reducing GHGs and, in particular, adapting to the adverse impacts of climate change within South Africa's domestic setting, as well as the monitoring of progress regarding the country's commitment towards the global action on climate change, is not well defined under the NEMA provisions. This creates a serious challenge in view of the fact that climate change, though majorly an environmental issue, requires a collective action at the local level, as well as the state, federal, and international levels (Boswell *et al.*, 2012: 13-14).

5.3 SOUTH AFRICA'S EMISSIONS REDUCTION GROWTH PATH; BUSINESS-AS-USUAL/PEAK-PLATEAU-DECLINE (BAU/PPD)

The South Africa's Long-Term Mitigation Scenarios (LTMS), which embodies the country's Business-As-Usual/Peak-Plateau-Drop (BAU/PPD) emissions reduction paradigm, was officially endorsed by the Cabinet in July 2008; even though the process that culminated into the LTMS was initiated way back in 2006. The LTMS represent a multi-stakeholder process under which options, strategies and opportunity costs for mitigating climate change in South Africa were undertaken to inform the most effective policy directions and response actions.

By design, the LTMS process was packaged to achieve regulatory outcomes and implementation plans that seek to reduce South Africa's GHGs. With 2003 as the base year and top and bottom emissions level up to 2050, the LTMS project two mitigation scenarios, which are: (1) Growth Without Constraints (GWC): and (2) Required By Science (RBS). The GWC embodies the BAU emissions reduction scenario that is tailored to existing development plans; what can be done using available resources within South Africa; and what could be done given support from the international community (Winkler, 2007a: 10-11). In other words, it speculates a 'no action' scenario that is an absence of a constraint on carbon accompanied with the

projection that South Africa's total emissions rate will likely be four times higher by 2050 than what obtained in 2003 (Winkler, 2007a: 117; Winkler *et al.*, 2011: 5821). On the other hand, the RBS presents a scenario of a GHGEs reduction target that is informed by a global burden sharing formula. Together, the two scenarios represent a complementary approach to mitigating climate change within South Africa.

As a whole, the LTMS encapsulates a Business-As-Usual/Peak-Plateau-Decline (BAU/PPD) emissions reduction trajectory under which it is expected that South Africa's GHGEs should peak between 2020 and 2025; plateau for approximately a decade; and, then, decline in absolute terms thereafter up to the mid-century. The trajectory represents a transition from a high-carbon footprint (energy-intensive) to a low-carbon growth path (climate-resilient), which needs to be achieved through a strategic framework that is both pro-development and pro-job creation. The figure below shows a progression along the BAU/PPD low-emissions transition, including the broader two scenarios under LTMS as already discussed.

GHG emission reductions and limits

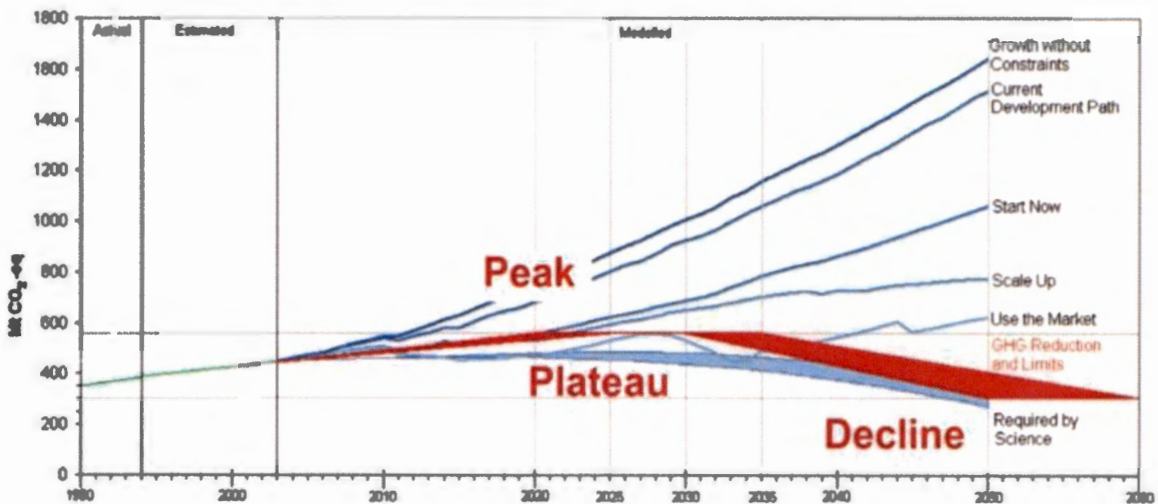


Diagram 5.1: GHS emission reductions and limits

Source: Winkler, 2007b

As a national GHGEs reduction path, four key strategic elements have been identified to drive the process. These include: Start Now (i.e. making existing GHGEs reduction measures mandatory); Scale Up (i.e. commit more aggressively to

implement and shore up existing GHGs reduction measures); Use the Market (i.e. introducing market-based mechanisms to enhance effective implementation and compliance); and Reach for the RBS Goal. According to Hallows (2008: 18), the first three options composed of mitigation actions which are modelled for costs, emission reductions and economy-wide impacts. They refer to a number of technological and economic policy instruments otherwise known as “wedges” aimed at reducing South Africa’s GHGs between 2010 and 2050. These wedges focus on accelerated national energy efficiency and transport shifts (representing an immediate policy and implementation mitigation option); carbon pricing and other alternative market mechanisms such as cap-and-trade; mandatory emissions’ standardisation, including a carbon capture and storage mechanism for new coal-fired power plants, as well as the existing ones; and renewables and nuclear energy strategies aimed at diversifying the country’s energy mix away from coal through feed-in incentives/tariffs that support the transition process.

As observed, the LTMS process created space and a common set of language and data for a national dialogue about climate change risks and opportunities, allowing NGOs, business, government and others to come together for the first time to compare thinking and consider actions (Raubenheimer and Vinluan, 2014). On this note, the BAU/PPD emissions reduction trajectory under the LTMS, typifies the first serious attempt by the South African government to look at ways through which its high-carbon footprint in GHGs could be lowered. Winkler (2010) observes that it was a turning point in South Africa’s climate policy not simply because it articulates the country’s vision, policy framework and strategic directions towards a low-carbon pathway, but also because it presents an opportunity to turn climate change mitigation into a pro-growth, pro-job and pro-development strategy in a carbon-constrained economy. In other words, it represents, at least in principle, a sustainable strategy that combines constraining emissions strategies with eliminating poverty and eradicating inequality in an economy that is majorly energy-intensive. Remarkably, the BAU/PPD establishes a strong basis for the country’s domestic climate change response policy, while it also sets a benchmark through which South Africa’s mitigation actions are measured. In this regard, the DEA (2011b: 28) points out that the BAU/PPD as contained in the LTMS, defines an initial National GHGs Trajectory Range, which may be reviewed in the light of monitoring and evaluation results, technological advances or new science, evidence and information.

Equally worthy of note is its provision for renewable energy ambition targets of a “business unusual” approach with 27% and 50% reductions by 2030 and 2050 respectively. These present a challenge to the coal-based electricity generation that constitutes the most critical carbon-emissions source in South Africa. Aside from being readily available, viable and highly competitive, renewable innovations allow some level of flexibility as there are many sources within it. These range from solar energy, wind energy, hydropower, bioenergy, geothermal energy (which is sourced from the Earth’s internal heat), and ocean energy (which comes from the gravitational pull of the moon and the sun upon the Earth) (REW, n.d.). These green energy sources produce little or no GHGs and are fuelled by virtually inexhaustible natural elements (Greenpeace, 2011).

Given the international climate change negotiations, the BAU/PPD emissions reduction trajectory provides a pointer to South Africa’s policy direction. As stated by the then Minister of Environmental Affairs (and Tourism), Marthinus van Schalkwyk (cited in Schmidt, 2008), the LTMS (BAU/PPD) establish parameters for South Africa’s post-2012 negotiating position, thereby approaching Copenhagen with more clarity on the framework of the deal. Thus, relative to the Copenhagen Accord, the LTMS (BAU/PPD) serve to inform South Africa’s pledge of a GHGs reduction by 34% from a BAU trajectory by 2020 and 42% corresponding to the country’s projected absolute emissions peak by 2025, subject to international technological and financial assistance (Tyler, 2010: 577; Winkler *et al.*, 2011: 5818). This emissions reduction pledge represents the country’s fair share to global mitigation efforts under the UNFCCC and the KP, setting its projections within the LTMS and, in particular, the BAU/PPD track as depicted in the figure below.

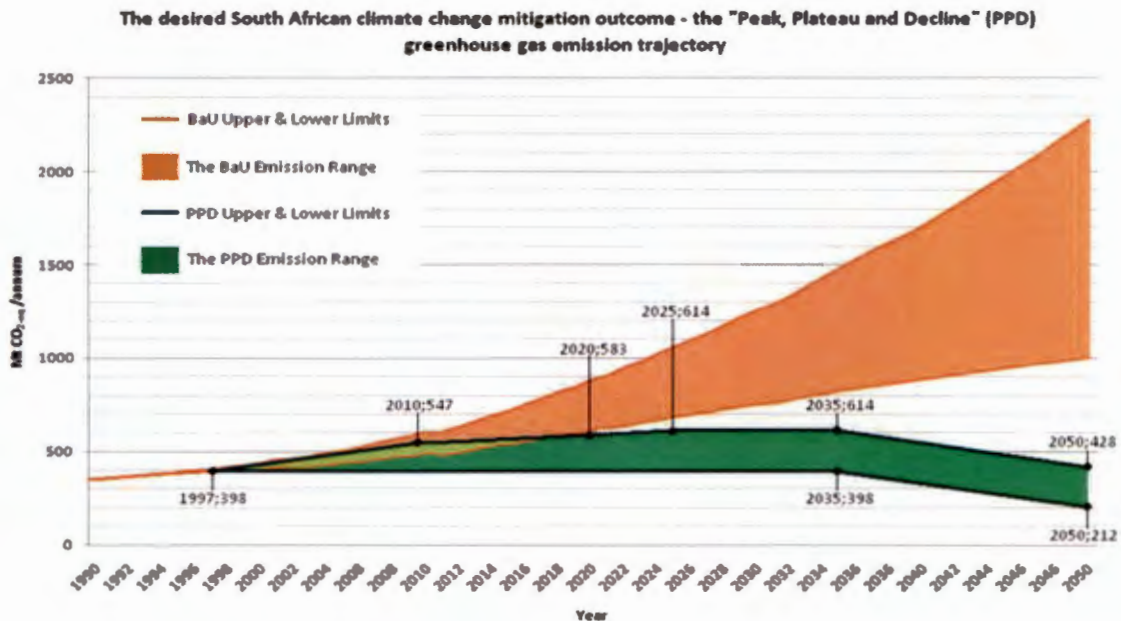


Diagram 5.2: The desired South African climate change mitigation outcome – the “Peak, Plateau and Decline” (PPD) greenhouse gas emission trajectory

Source: DEA (Department of Environmental Affairs), 2011c

However, it remains an issue whether or not the BAU/PPD emissions reduction trajectory is sufficient to deal with climate change in South Africa. This is more so given the observation that the commitment of BAU/PPD is inadequate relative to its 2003 base year, as well as its contribution to the global actions on climate change (CAT, 2015). According to Feil and Shuang-Qing (2012: 217), the main reason lies in the different definitions of Business-as-Usual (BaU), which affects the correct assessment of emissions reduction efforts in developing countries and also has impacts on the adoption of the deviation from BaU to determine emissions paths of developing countries in terms of how to set benchmarks of their national emissions reduction targets. Even though it serves as a reference point regarding South Africa’s future direction in terms of climate change mitigation, the LTMS, under which the BAU/PPD track is embedded, remain a highly unrealistic scenario (Hallowes, 2008: 7). Moreover, the two scenarios under the LTMS (BAU/PPD) present some measure of incompatibility of which the scenarios team identified technology, market and policy actions which could be precipitated by the state as a possible solution (Raubenheimer and Vinluan, 2014). In particular, the RBS is said to be uncostered

because it cannot be achieved within the confines of existing planning models (Hallowes, 2008: 31).

To a large extent, the economic cost of realising the BAU/PPD emissions reduction paradigm is huge and may, therefore, constitute an additional financial strain to the South African economy. Besides, the viability of carbon capture and storage mechanism, particularly in the context of South Africa's climate change and energy dilemma, is not easily guaranteed, while the issue of nuclear strategy under the BAU/PPD emissions reduction trajectory *vis-à-vis* its appropriateness in responding to climate change is highly debatable. Nuclear power comes with its own challenges, amongst which are radioactive contamination along the production chain; global security concerns around the mining and use of uranium (a core element in the production of nuclear power) to make bombs and other explosives; and huge financial and technological investments. These challenges are better understood in the context of the LTMS (BAU/PPD) nuclear option under which it is expected that a total of 20 or more Pressurised Water Reactors (PWRs) would be constructed by 2050.

Also of major concern is the interest of the energy industry and business sector in South Africa, which, no doubt, is significantly threatened by the LTMS (BAU/PPD), given its proposal for a shift away from coal to a large-scale renewable energy programme. Masters (2009: 9) observes that key players in the energy industry and the business sector in South Africa continue to oppose a more active position on climate change. Beyond their vested interests, they are also well-organised with significant influence to frustrate any efforts at revolutionising the so-called "business as usual" in South Africa (Goldblatt and Middleton, 2007: 6). This, however, is not peculiar to South Africa. The FOEI (2011: 3) observes that "the complex and largely hidden world of corporate entity exerts pressure on national and international climate and environmental policy".

However, worth mentioning in the particular case of the South African energy industry and business are Eskom, Sasol, EIUG (Energy Intensive Users Group), Anglo Coal, BHP Billiton, among others. While Eskom is the country's national electricity utility, Sasol's link with the South African government as a major Coal-To-Liquid (CTL) energy producer is unrivalled. According to the FOEI (2011: 4), "the link between Sasol and the state remains tight. The state portrays Sasol as a paragon of innovation and hence, as a key national asset for industrial development". Undoubtedly, Eskom and Sasol remain the most influential with high standing and

bargaining power that could continue to be exerted in order to give leverage to their self-serving interest in fossil dirty fuel as far as the South African energy sector is concerned. While they both advocate for an integrated approach to addressing South Africa's energy need and climate objectives, they also lay claim to new investments in renewables as part of their efforts to join hands with the government in the transition to a low-carbon growth path. Eskom, for instance, has a renewable programme in place that supports the development of its first large-scale wind and Concentrating Solar Power (CSP) plants. However, its contribution in this regard contributes minimally to what is needed in terms of ambitious renewable energy transition in South Africa. Also, in the case of Sasol, the FOEI (2011: 4) noted that the core process in its renewable energy drive remains irredeemably dirty, while it also plans to bring fracking back to South Africa where it has rights to explore shale gas despite its associated environment risks.

Worse still, the swap in South Africa's renewable energy policy from the much anticipated Renewable Energy Feed-in Tariffs (REFIT) to Renewable Energy Bids (REBIDs) generates some level of instability, which in turn creates further challenges to the country's renewable low-carbon transition. It should be recalled that the REFIT was developed in 2009 by the National Energy Regulator of South Africa (NERSA) as a renewable energy policy initiative that pays a subsidy to renewable energy generators that are successful in Eskom's tender process for the provision of limited renewables generation capacity while Eskom retains the final sign-off authority (Tyler, 2010: 582). Two years after, the REFIT was replaced with REBID, which is believed to entail a more competitive bidding process and, therefore, allowing equal playing field for all actors in the South African energy industry and business (Greenpeace, 2011). This singular policy shift introduced some level of uncertainty in the South African renewable energy sector, thereby seriously undermining the renewable investment climate in South Africa (Greenpeace, 2011: 7).

5.4 NATIONAL CLIMATE CHANGE RESPONSE (NCCR, 2011)

Shortly before the Durban climate conference, in October 2011, the South African Cabinet released the National Climate Change Response White Paper (NCCR-WP) as a policy instrument to mitigate and adapt to climate change in South Africa. This was closely followed by the publication of South Africa's Second National Communication (SA-SNC) on climate change in November 2011 far ahead

of the Durban climate meeting. Although the process that led to these two events began long before 2011; starting with the NCCC (1994), National Climate Change Response Strategy (2004), Long-Term Mitigation Scenarios (LTMS, 2008) through the National Climate Change Response Green Paper (approved in November 2010), the hurriedness that characterised the approval of the NCCR-WP and the publication of SA-SNC points to their strong and direct link with South Africa's hosting of the COP17. Besides, it was alleged that the South African Parliament gave a notice of merely eight days between the release of the White Paper and the hearing during which Greenpeace Africa, Earthlife Africa Johannesburg (ELA-JHB), the Environmental Monitoring Group (EMG) and the World Wide Fund (WWF) were invited to present their reactions. Given such scenario, it is argued that there seemed to be 'an *element of haste*' in the final stages of the drafting of the NCCR-WP, which the NGOs attributed to the imperative of publishing it ahead of COP17 (Flottum and Gjerstad, 2013: 68). According to Hweshe (2011a), the timing of the NCCR-WP was meant to give South Africa some muscle during its hosting of the COP17 climate change negotiations.

Whatever the case, as a roadmap to addressing the challenge of climate change within South Africa, the NCCR seeks to achieve two key objectives which are to: (1) effectively manage inevitable climate change impacts through interventions that build and sustain South Africa's social, economic and environmental resilience and emergency response capacity; and (2) make a fair contribution to the global effort to stabilise GHG concentrations in the atmosphere in line with the UNFCCC objective (DEA, 2011b: 11). It acknowledges the guidance provided by the principles already set out in relevant extant instruments such as the Bill of Rights as contained in the 1996 Constitution of South African, NEMA, MDGs and UNFCCC. These, among others, include CBD/RR, equity/climate justice, special needs and circumstances, uplifting the poor and vulnerable, intra- and inter-generational sustainability, precautionary principle, polluter pays principle, informed participation and socio-economic and ecological sustainability.

In order to achieve these objectives, the NCCR is hinged on a number of strategic priorities, including risk reduction and management; mitigation actions with significant outcomes; sectoral responses; policy and regulatory alignment; informed decision-making and planning; integrated planning; technology research, development and innovation; facilitated behaviour change; behaviour change through choice; and

resource mobilisation (DEA, 2011b: 14-15). Unlike NEMA that muddles up mitigation and adaptation efforts aimed at addressing the environmental impacts of climate change in South Africa, NCCR distinguishes between the two approaches. Section 5, for instance, states the efforts regarding climate change adaptation strategies with specific plans that focus on job creation and a green economy growth trajectory, while stressing the importance of key sectors such as water, agriculture and commercial forestry, health, as well as biodiversity and ecosystems. In particular, NCCR provides for the establishment of a sub-committee of the Intergovernmental Committee on Climate Change (IGCCC) to perform climate risk analyses on all sectoral plans, informed by the various sectoral adaptation responses, within two years of its publication (DEA, 2011b: 11). Most notably, it points out that “in addition to a refinement of top-down approaches, developing more detailed bottom-up approaches informed by the responses of local communities and local government will deliver results with a higher degree of confidence than is currently possible” (DEA, 2011b: 17).

With a particular focus on mitigation, section 6 of NCCR embodies key elements in GHGs reduction in line with the country’s BAU/PPD emissions reduction trajectory. These include: using the country’s BAU/PPD path as a benchmark against which the collective outcome of all mitigation actions will be measured; identifying desired sectoral mitigation contributions; adopting a carbon budget approach to provide flexibility and least-cost mechanisms for companies in relevant sectors or sub-sectors; and mitigation plans under which companies and other economic sectors or sub-sectors are required to prepare and submit their plans on how they intend to achieve the desired emission reduction outcomes. Others include: developing and implementing a wide range and mix of different types of mitigation approaches, policies, measures and actions that optimise the mitigation outcomes as well as job creation and other sustainable developmental benefits; using a range of market-based instruments to support the system of GHGs reduction outcomes, including the appropriate pricing of carbon and economic incentives, as well as the possible use of emissions offset or emission reduction trading mechanisms for those relevant sectors, sub-sectors, companies or entities where a carbon budget approach has been selected; and establishing a national system of data collection to provide detailed, complete, accurate and up-to-date emissions data in the form of a GHG

Inventory and a Monitoring and Evaluation System to support the analysis of the impact of mitigation measures (DEA, 2011b: 25-26).

Recognising that the majority of South Africa's GHGEs result from energy supply (electricity and liquid fuels) and use (mining, industry and transport), the NCCR visualises mitigation actions with the largest emission reduction potential that focus on the identified emissions-intensive areas. The main opportunities for mitigation, as contained in the NCCR, consist of energy efficiency, demand management and transition to a less emissions-intensive energy mix, with consequent economic benefits of improved efficiency and competitiveness, as well as incentivising economic growth in sectors with lower energy intensities (DEA, 2011b: 26). Furthermore, the NCCR states in clear terms, mitigation actions that are applicable in the short, medium and long terms. For instance, energy efficiency and demand side management, coupled with increasing investment in a renewable energy programme in the electricity sector, as well as the emergence of biofuels and a suite of non-energy mitigation options like afforestation, are considered suitable in the short-term, while in the medium-term the well-suited mitigation strategies will include shifting to a lower-carbon electricity generation options; significant up-scaling of energy efficiency applications, especially industrial energy efficiency and energy efficiency in public, commercial and residential buildings and in transport; and promoting transport-related interventions, including transport modal shifts (road to rail, private to public transport) and switches to alternative vehicles (e.g. electric and hybrid vehicles) and lower-carbon fuels (DEA, 2011b: 26-27). The long-term mitigation options entail basically information (nationally and internationally) about the outcome of mitigation options, technology development and other new information (DEA, 2011b: 27).

Also, the NCCR provides for the preparation of an annual national GHGEs inventory to be undertaken by the DEA in partnership with the South African Weather Service that serves as the host of the South African Air Quality Information System (SAAQIS). In particular, it outlines detailed plans regarding climate change monitoring and modelling requirements, as well as the evaluation of mitigation actions, while also detailing a number of near-term priority flagship programmes needed for managing climate change response measures. Areas covered in this regard, are public works, water conservation and demand management, renewable energy, energy efficiency and energy demand management, transport, waste management,

carbon capture and sequestration and adaptation research. Moreover, the NCCR projects that job creation is a key element in the country's transition to a green economy even though it acknowledges the climate change-induced additional threat to unemployment that is already a key issue in South Africa. To deal with the challenge, therefore, the NCCR articulates two policy instruments – the National Employment Vulnerability Assessment (NEVA) and Sector Jobs Resilience Plans (SJRPs) – through which to move employment from a carbon-intensive economy to a lower-carbon economy (DEA, 2011b: 34).

Beyond job creation, mainstreaming climate resilient development is yet another important element contained in the NCCR. The focus in this regard is the need for consistent implementation triggered by a long-term framework for institutional coordination in areas such as research and development, innovation, adaptation and mitigation, measurement, reporting and verification of climate change responses. Besides, the NCCR not only recognises the important roles of the various players in addressing climate change in South Africa, it also describes their roles for effective coordination purposes. These include: the South African parliament; the three spheres of government; institutional arrangements with concerns with climate change within the public sector such as the Inter-Ministerial Committee on Climate Change (IMCCC), Forum of South African Directors-General Clusters, Intergovernmental Committee on Climate Change (IGCCC) and the National Disaster Management Council (NDMC); and private sectors partners/stakeholders, including business and industry, civil society, academia and scientists. It identifies the National Committee on Climate Change (NCCC) and the National Economic Development and Labour Council (NEDLAC) as the two instruments for coordinating climate change activities and consult on climate change policies with stakeholders within South Africa.

Also of importance to the NCCR is the need to mobilise finance and other resources, including technical cooperation and technology transfer, which are considered necessary for addressing climate change mitigation and adaptation in South Africa. This, no doubt, is in line with the UNFCCC standing that developing countries that are more impacted by climate change should be supported in their efforts to deal with the challenge – financially, technically and technologically. As envisaged under the NCCR, the domestic and external finance options will include grants for research and development, project development and technical cooperation,

commercial finance through debt and equity, concessionary finance, risk insurance, specialised environmental funds and new capital market innovations like green and climate bonds, financing for biodiversity and other environmental resources, such as payment for ecosystem goods and services. Moreover, it is expected that the South African government will strive to attract and secure additional international resources through official development assistance (ODA) and bilateral development agencies, while ensuring that such climate change-related contributions are directed to national, provincial and local government development priorities (DEA, 2011b: 44).

Apparently, the greatest success feature of NCCR lies in its commitment to moving South Africa from its high-carbon footprint to a climate-resilient growth, predicated on a pro-growth, pro-development and pro-job creation strategy. Contrary to the perception that such move represents a bargain between efforts at addressing climate change on the one hand and pursuing pressing national development objectives such as economic growth and job creation on the other, it indeed, offers a number of opportunities such as new green jobs and investment through the increased use and deployment of renewable energy resources (Niernack and Chevallier, 2010: 6).

However, such transition to a low-carbon destination requires some level of financial and technical know-how that may not easily come by. This is simply because prioritising green growth implies clean energy, which also involves new technologies such as solar innovations, bio-energy, carbon capture and sequestration that allows carbon dioxide to be removed from the atmosphere (Koornneef *et al.*, 2012: 117). The NCCR though, embraces both mitigation and adaptation strategies; it acknowledges that there are financial and capacity constraints to effectively mitigate climate change of which the international community has a crucial role to play in terms of resource interventions. The basic understanding in this regard is that dealing with climate change is costly and, therefore, requires a holistic approach *vis-à-vis* resource mobilisation.

Moreover, it is also significant to note that the NCCR proposes, at least in principle, a cross-sectoral and multi-stakeholders' approach, coupled with an acknowledgement of the contribution of individual citizens through climate-friendly lifestyles and habits to the overall efforts aimed at realising its objectives. However, it is doubtful whether South Africans have embraced such behavioural change like shifting from private to public transport, limiting their food consumption to local

produce and so on. According to Ockwell *et al.* (2009), one way to engender mitigative behaviours would be to introduce a regulation that forces green behaviour (i.e. low carbon behaviour/attitude), but which comes at a cost as government fears a resulting loss of precious political capital.

Lastly, the NCCR recognises that responding to climate change in South Africa demands a low-carbon economy transition, which, no doubt, conforms with the goal of the Paris Climate Agreement. Nevertheless, one wonders the extent to which such transition is achievable and at which point, especially in view of the country's coal- and mineral-dominant energy mix on the one hand and the inherent difficulties in green economy changeover on the other.

5.5 SOUTH AFRICA'S INTENDED NATIONALLY DETERMINED CONTRIBUTION (INDC)

Following the resolution at the COP19/CMP9 Warsaw climate conference to the effect that all Parties should prepare and submit every five years intended nationally determined contributions (INDCs) with a view to allowing such to be assessed for their adequacy and suitability by any other interested Parties ahead of the COP21/CMP11 Paris climate summit, South Africa, through its climate change focal point (that is, the DEA), communicated its first INDC covering the period 2016-2020 (for implementation at the national level) to the UNFCCC Secretariat specifically on 25 September 2015 (UNFCCC, 2015c). Essentially, South Africa's INDC details the country's long-term framework for addressing climate change as part of the global efforts aimed at limiting the world's average temperature to well below 2°C and, possibly, to 1.5°C above pre-industrial levels, effectively from 2020 as required under the Paris Climate Agreement. It contains a spectrum of domestic measures to mitigate and adapt to climate change, including finance, technology and investment required in that regard.

As stated in the document, South Africa's INDC has been developed on a number of assumptions that the Paris Climate Agreement will: (1) be comprehensive, ambitious, binding, fair, effective and incorporate a "no-backsliding" and a "progressive" approach to enhance climate change mitigation and adaptation implementation and ambition; (2) attract full participation of all UNFCCC Parties and consistent with scientific requirements in the short, medium and long-term; (3) be enabled and supported by significant finance and investment, accessible and

affordable technology and substantial capacity-building commitments by the international community; (4) be transparent both in terms of actions and support; (5) recognise the principles of equity and CBDRRC; (6) provide the multilateral rule-based infrastructure, mechanisms and tools to enhance international and regional cooperation on mitigation; and (7) enable and support Parties' capability to transition to low-carbon economies and societies in a manner that addresses the social, economic and environmental dimensions of their sustainable development (UNFCCC, 2015d: 3).

More specifically, South Africa's INDC is structured along three important components (i.e. adaptation, mitigation and support). While the adaptation component is underpinned by some key elements, including adaptation objectives and planning for implementation, adaptation needs and costs, adaptation investments, as well as equity considerations in adaptation, the mitigation component outlines the country's commitment to transition from BAU to PPD trajectory under which South Africa's GHGEs will be in a range between 398 and 614 MtCO₂eq (incl. LULUCF – land use, land use change and forestry) over the period 2025-2050. Approximately, it equates to a 20-82% increase on 1990 levels (excl. LULUCF). Much like the case with the BAU/PPD, it is stipulated that the country's GHGEs reduction target will be achieved through a number of policy instruments which are already under development, including a carbon tax, desired emission reduction outcomes (DEROs) for sectors, company level carbon budgets, as well as regulatory standards and controls for specifically identified GHG pollutants and emitters (UNFCCC, 2015d: 6).

In terms of scope and coverage, South Africa's INDCs cut across all sectors of the economy, while the approach to the planning processes focuses on the country's NCCR, as well as the national development plan (NDP). To operationalise these two national instruments, it is envisaged that various energy (including nuclear power) industrial and other plans and legislation will be developed. From the support component perspective, a key challenge for South Africa in its effort to transition to a low carbon and climate resilient economy and society remains that of financing of and investment in the process by the international community. Thus, the support component of South Africa's INDCs consists of indicative scales of finance and investment required for both adaptation and mitigation as informed by analyses of specific sectors and initiatives. These interventions are, thus, required to enable and support the deployment of low-carbon and adaptation technology, as well as building

the capacity to govern, regulate, install and operate these technologies (UNFCCC, 2015d: 8).

Like previous climate change policy instruments, South Africa's INDC is framed not to compromise overriding national priorities such as eliminating poverty and eradicating inequality, while mitigating or adapting to climate change. It is, to this extent, consistent with the environmental rights as enshrined in the country's Constitution; the NEMA; the BAU/PPD emissions reduction trajectory; and the NCCR. In the same vein, it recalls an alignment with South Africa's GHGs reduction commitment relative to the Copenhagen Accord as earlier explained. However, according to CAT (2015), South Africa's INDC is inadequate as it is not consistent with interpretations of a "fair" approach to reach a 2°C pathway in line with the UNFCCC objective and the Paris climate agreement. CAT further observes that if most other countries were to follow South Africa's approach, global warming would exceed 3-4°C. The global INDCs, in its present assemblage, would only succeed in keeping warming at between 2.7°C, which is far below the 2°C and 1.5°C floors.

By implication, therefore, major GHG emitters of which South Africa is relatively concerned (though as a developing/emerging economy), need to consider a review of their INDCs, particularly with regard to the mitigation components in order to at least meet the GHGs goal under the Paris Climate Agreement. Although the Agreement provides for a review of Parties' INDCs every five years, a major compromise remains that INDCs are by themselves not legally binding even though the Agreement is (Amusan and Olutola, 2016a: 10). In the situation and as earlier pointed out, the Paris Climate Agreement allows a leeway for Parties with defaulting tendencies concerning their INDCs, while hiding behind national concerns and overriding preferences. As it is, South Africa may not wish to accede to any further mitigation commitments no matter how globally compelling. Besides, the country's INDC presents some level of uncertainty, especially when one considers its baseline of 2003 relative to 1990 provided under UNFCCC and its KP.

Moreover, details regarding the country's market mechanism low-carbon option (particularly in terms of clear and well-structured accounting rules) for achieving its mitigation target under the BAU/PPD emissions reduction trajectory, are generally lacking. A case in point is the proposed carbon tax which began with a discussion paper in 2010 and had since advanced with the introduction of the Carbon

Tax Policy Paper in 2013 and the Carbon Offsets Paper in 2014. All of these culminated into the latest draft carbon tax bill which though, has been approved by the Cabinet but is currently before the South African Parliament for passage into law. Essentially, the draft carbon tax law seeks to reduce South Africa's GHGEs through carbon pricing that obliges the polluter to internalise external costs associated with excessive carbon emissions and contribute towards addressing the harm caused by such pollution (NT, 2015). According to Mbadlanyana (2013: 88), the proposed carbon tax has the potential to incentivise a more resource-efficient, low-carbon economy that will lead to growth and economic reforms supporting greater competitiveness.

However, the implementation of the carbon tax policy has experienced some form of delay as it was postponed at least twice since 2014. According to the National Treasury (cited in Reuters, 2016), the delay was as a result of the need to properly integrate its provisions with that of the NCCR and NDP, as well as to allow for further public comments regarding the draft carbon tax bill. Still, the whole idea of the carbon tax has been criticised in view of its limited effect on global emissions reduction efforts; negative impact on the South African economy; loss of jobs and investment. Even though it is observed that the carbon tax, once finalised will project South Africa as the first developing country to impose a comprehensive carbon policy to lower GHGEs, Mairas (2013) argues that it seems increasingly unlikely that South Africa will conclude legislation and regulations in time as planned.

Even if the carbon tax becomes operational, the fear also remains that its effectiveness may be hampered as the tax base may not be as broad as possible to cover all the concerned sectors. Coupled with this, is the tendency to use the carbon tax as another income-generating mechanism by the National Treasury (NT) as against its primary objective of encouraging low-carbon behaviour among South Africans. Hence, the advocacy by relevant NGOs in South Africa is that revenues from a carbon tax should be 'ring-fenced' in order not to be diverted from renewable energy development and also that appropriate legislation should be put in place to prevent companies such as Sasol and Eskom in passing the costs of carbon taxes on to consumers (Flottum and Gjerstad, 2013: 68).

One can also extend the tendency argument to affect inter-departmental and -sectoral interactions in view of the relatively high interest in carbon pricing option. For instance, Goldblatt and Middleton (2007: 27) raised a concern regarding the likely

effects of the carbon tax scenario such that: the NT's short-term response may be positive based on the perceived revenue flows from the carbon tax policy instrument; the Department of Trade and Industry (DTI) may react to carbon tax negatively since it may be conceived as a potential threat to industrial competitiveness due to impacts on power prices; the DEA may have internal conflicts on the one hand supporting the local and global environmental implications of the tax but on the other hand, understanding the importance of South Africa's future position in the UNFCCC negotiations and possibly wanting the introduction of any such instruments to be more directly tied into and timed with global negotiations of a future climate regime. As far as the Department of Energy (DoE) is concerned, the thinking would probably be that of the overall implications of the carbon tax for electricity generation and other energy uses in South Africa. For instance, the tendency is that the proposed carbon tax will simply translate to electricity/energy tax since South Africa's economy depends extensively on coal- and mineral-energy as over 90 per cent of its electricity is derived from fossil fuel.

Another major issue is that South Africa's INDC seeks to address climate change mitigation generally rather than a particular focus on cutting its GHGEs. Knowing that the bulk of the country's GHGEs emanate from the use of coal, one would have expected that the government will prefer a more radical deep-rooted approach towards its low-carbon transition in terms of renewables and nuclear energy strategy, as well as closing down the existing coal-fired power stations. It also remains to be seen whether South Africa will adhere strictly to the contents, goals and targets as contained in its INDC since the document, in itself, offers no less than a definitive standard for operationalising the country's commitment towards global actions on climate change, particularly as required by the Paris Climate Agreement at the UNFCCC level.

While there are indications that South Africa is making efforts to tap into every opportunity to transition to a low-carbon economy, it continues to emphasise strongly that an inclusive and just transition requires time and well-planned low carbon and climate resilient development. What is clear, however, is that there are still issues to be addressed within each of the existing policy frameworks. Except that these issues are dealt with through concrete actions, it would be seen that the South African government is not doing enough at the domestic level to keep pace with its active and leading role in the global actions on climate change.

5.6 Chapter summary

More critically, key regulatory instruments including NEMA, NCCR, BAU/PPD and the recently packaged INDC were examined against their effectiveness towards addressing climate change in South Africa. It was established that much of the challenges come from the implementation of the existing policies even though some aspects of the policies need to be reviewed/updated. While inadequate finance and poor capacity run through as major constraints to effective implementation, the chapter further established that effort aimed at mainstreaming climate resilient development is largely constrained by national concerns such as eliminating poverty and eradicating inequality. These and other issues raised need to be empirically substantiated or disproved. Chapter six looks into this.

CHAPTER SIX

DATA PRESENTATION AND ANALYSIS

6.0 INTRODUCTION

The main purpose of this chapter is to provide a better understanding of South Africa's global and domestic actions on climate change through the presentation and analysis of data obtained from the in-depth interviews conducted with a range of participants purposively selected for this study. Qualitative content analysis (QCA) is used to interpret the data collected based on a set of nodes and sub-nodes (Appendices B-N) created as units of discussion using the Nvivo qualitative data software. The essence, more specifically, is to align the interpretation of data with the objectives of the study in order to generate a more reliable and harmonious results of the study.

6.1 SOURCE OF DATA AND DISTRIBUTION

Data for this study was collected from a total of 32 participants within South Africa. The breakdown of participants is presented in the table below.

Table 6.1: Distribution of participants

S/n	Organisation/office	Branch/division	Position	Size
1.	South African Parliament	Portfolio Committee on Environmental Affairs	Members	0
2.	Department of Environmental Affairs (DEA)	Environmental Advisory Services; Climate Change Adaptation: Socio-Economic Sectors	Senior Officials	2
3.	Department of Energy (DoE)	Energy Policy and Planning; Clean Energy	"	2
4.	Department of International Relations and Cooperation (DIRCO)	Global Governance and Continental Agenda	"	2
5.	Department of Mineral Resources (DMR)	Mineral Regulation; Mineral Policy and Promotion	"	2
6.	Planning, Monitoring and Evaluation (PME)	Outcomes Monitoring and Evaluation; Institutional Performance, Monitoring and Evaluation	"	2
7.	The Presidency	-	"	0
8.	South African Institute of International Affairs	Foreign Policy	Research fellows	2

	(SAIIA)			
9.	University of Johannesburg (UJ)	Politics and International Relations	Professors	2
10.	University of the Witwatersrand (Wits)	International Relations; Political Studies	Professors	2
11.	University of South Africa (UNISA)	Political Sciences	Professors	2
12.	North-West University (NWU)	Political Studies	Professors	2
13.	South African Climate Action Network (SA-CAN)	-	Coordinator; Leadership fellow	2
14.	Greenpeace Africa	-	Executive Director; Programme Director	2
15.	Earthlife Africa Johannesburg (ELA-JHB)	-	Branch coordinator; Member	2
16.	Climate Action Partnership (CAP)	-	Manager; Project officer	2
17.	African Farmers Association of South Africa (AFASA)	-	National executive officers	2
18.	Agri-SA	-	Executive committee members	2
Total				32

6.1.1 Interview techniques/channels

Interviews with participants purposively selected for the study were conducted using different techniques and channels based on availability, convenience and preferred medium of interaction. These included: face-to-face interviews, mostly with government officials from selected national departments and a few academics; electronically, via Skype video chat/calls, comprised mainly of participants from selected climate change-based NGOs, academics and a farmers' representative; and phone calls, with participants from farmers associations and two other government officials from DEA and PME. The breakdown is as follows:

Table 6.2: Interview techniques/channels

S/n	Participants	Technique/channel	Size	Reason(s)
1.	Government officials [DEA (1), DoE (2), DIRCO (1), DMR (2), PME (1)]	Face-to-face	7	Availability
2.	Research fellows [SAIIA (2)]	Face-to-face	2	Availability
3.	Academics [Wits (1), UNISA (1), NWU (2)]	Face-to-face	4	Availability
4.	Government official [DIRCO (1)]	Skype video chat	1	Preferred
5.	Academics [UJ (2), Wits (1), UNISA (1)]	Skype call	4	Convenience and preferred
6.	Climate change experts [SA-CAN (2), ELA-JHB (2), Greenpeace (2), CAP (2)]	Skype call	8	Preferred
7.	Farmers' representative [Agri-SA (1)]	Skype call	1	Convenience and Preferred
8.	Government officials [DEA (1), PME (1)]	Phone call	2	Convenience
9.	Farmers' representatives [AFASA (2), Agri-SA (1)]	Phone call	3	Convenience
Total			32	

A question guide was also used to conduct the interviews even though there were instances where the questions were rephrased or new ones introduced to capture responses depending on the category of interviewees and, more importantly, to meet the specific objectives of the study. In other words, different open-ended questions were raised in the course of interviews with participants in order to promote discussions on different aspects of the focus of the study. The researcher-designed interview questions format (Appendix A) merely served as a general guide. All questions and responses were documented appropriately. For instance, interactions that stemmed from the face-to-face interviews were carefully captured in notes, while other one-on-one interviews conducted *via* electronic gadgets were recorded digitally.

6.1.2 Coding

To aid presentation and discussion of the views and perceptions of participants sampled for the study, as well as ensure ease of identification and classification, all participants were properly coded. The codes and their translations, including the order of coding are presented in the table below.

Table 6.3: Codes and translation

S/n	Code	Translation	Coding order
1.	A1-A8	Academics (two each)	UJ, Wits, UNISA, NWU.
2.	C1-C8	Experts from climate change-related NGOs (two each)	CAN-SA, ELA-JHB, Greenpeace, CAP.
3.	F1-F4	Executives of farmers' associations (two each)	AFASA, AgriSA.
4.	G1-G10	Key government officials (two each)	DEA, DoE, DIRCO, DMR, PME.
5.	R1-R2	Research fellows	SAIIA.

6.2 NODES AND SUB-NODES

With the aid of Nvivo qualitative data software, four distinct nodes and nine sub-nodes were created as units of analysis with a view to generating meaningful intersection between the interview questions and the objectives of the study. The nodes and sub-nodes are outlined in the table below.

Table 6.4: Nodes and sub-nodes

S/n	Nodes	Sub-nodes
1.	Involvement in the global climate change process	Multiple personalities' approach towards climate negotiation Adaptation agenda
2.	Coal-dependent economy	Corporate interests in coal energy
3.	Transition to a low carbon and climate resilient society	Nuclear energy Agriculture and low-carbon transition International support Paris Climate Agreement and South Africa's low-carbon transition
4.	Multi-sectoral approach to addressing climate change	Integration of the existing policies into a distinct climate change act Establishment of a separate national department on climate change

6.3 PRESENTATION OF DATA AND DISCUSSION

6.3.1 Involvement in the global climate change process

Participants generally maintained that South Africa has a relatively high profile concerning its involvement in the global climate change process. Most particularly, they all advanced the position that South Africa is very convincing in terms of its interaction on the international scene *vis-à-vis* global climate change. According to R1, for instance, it would be naive to think that the international diplomatic environment does not have a major party playing field to allow South Africa to pursue its foreign policy agenda not only with regard to things like trade but also specifically with regard to diplomatic engagement with the global climate change. G2 noted in particular that South Africa is a respected strong voice in the global climate negotiation, while A6 commented that South Africa is doing well and, indeed, very active at the global level within the UNFCCC climate negotiation process, especially since 1994 when the country became a democratic state after many years of isolation. Their perceptions, no doubt, bring to mind the observation that South Africa, since the advent of democracy in 1994, has been firmly integrated into climate change and related environmental regimes at regional and international levels through signing and ratifying of a bewildering array of protocols, treaties, agreements and frameworks that provide guidance to its climate change response actions (Mokwena, 2011: 6-7).

According to C2, South Africa's active involvement in the global climate change process is important so that it could have some relevance or legitimacy within climate negotiations, while C8 observed that the country's active involvement is occasioned by the very strong negotiators on its team. G9 remarked, in particular, that South Africa has a lot of issues around mitigation and adaptation. The participant's comment speaks a great deal to the understanding of South Africa as both a contributor to climate change and one of the hardest-hit countries. The implication, therefore, is that South Africa's approach towards the global climate change process is largely informed by its contribution to GHGs on the one hand, and the extent to which the country is affected by the negative impacts of climate change on the other. These twin opposing issues, in turn, determine to a large extent, the nature of South Africa's domestic response in terms of policy measures aimed at addressing the challenge of climate change.

Thus, going by the comment that “South Africa is doing too much at the international level by setting over-ambitious targets” (C5) and that of C3 that “South Africa’s involvement in the global climate change process should not be about policies to allocate for international level but about setting domestic examples of how things are to be done for others to emulate”, it is clear that South Africa’s active involvement in the global climate change process is directly motivated by its contribution to GHGEs. Conversely, it also implies that the country’s manner of approach towards addressing the challenge of climate change at the domestic level (which is seen by many as not doing enough) is constrained by its vulnerability to climate change. In this circumstance, it could be argued that, since South Africa’s involvement in the global climate change process is more or less a self-seeking ambition, advancing the continent’s climate change agenda is not a first priority. At best, consideration for the African continent as far as South Africa’s pursuit of climate change agenda at the global level is concerned may come second given that the country is also very active at the regional level through the African Union (AU) and the New Partnership for Africa’s Development (NEPAD), particularly with regard to their environmental and climate change components. Besides, as discussed in chapter four under the section: “South Africa as a signatory to multilateral environmental agreements (MEAs)”, South Africa had for long been active in its commitment towards numerous MEAs, especially with regard to ecosystems and biodiversity. This, perhaps, is inspired by its rich natural endowments, as well as its position as an indisputable sub-regional hegemon with a strong aspiration for continental leadership in Africa.

6.3.1.1 Multiple personalities’ approach towards climate negotiation

C1 drew attention to South Africa’s foreign policy approach concerning the global climate change process which, according to him, is multiple personalities’ driven, considering its affiliation with different groups. His view brings to focus the discussion in chapter four under the sub-section entitled: “Multilateral groupings of major importance to South Africa in the global climate change process.” Against the background of discourse about South Africa as an international actor, which became pronounced after the country’s first democratic elections in 1994 and, of course, the end of apartheid, at least officially, as well as its long-standing status as a signatory to numerous multilateral environmental agreements (MEAs), it is noted that South

Africa's international engagement, particularly with regard to global discussions on climate change, has found practical expressions through the instrumentality of different multilateral groupings, including the African Group (AG), G77+China, BASIC (Brazil, South Africa, India, China), IBSA (India, Brazil, South Africa) and BRICS (Brazil, Russia, India, China and South Africa).

Such multiple personalities' approach is, in itself, a challenge because one cannot really discern where the country belongs even though it has its advantages; it sounds a lot more different when South Africa is with BRICS and also a lot more different when it is within BASIC (C1). Furthermore, it is observed that there is a need to balance the fact that South Africa cannot afford to, on the one hand, have face off with the EU being its largest partner and largest supplier of its development assistance and, on the other hand, South Africa needs to try very hard to cement her position within BRICS being her largest area of exports in terms of non-refined goods.

While most participants agreed that South Africa's approach towards global climate negotiation is, indeed, multiple personalities' driven, they shared different perspectives regarding the issue. For most participants, the multiple alignments' approach is crucial for South Africa because it holds a lot of promises and potentials for it to be able to effectively address the challenge of climate change. G5 mentioned, for instance, that trans-national alignments are very important towards achieving a broad spectrum of South Africa's foreign policy objectives, including climate change. The sentiments around the so-called multiple personalities' approach, according to him, tend to under-estimate the growing relevance of emerging economies such as Brazil, China and India as major drivers of global economic growth. He further indicated that as a bridge builder between the global South and the global North, South Africa has done a lot to help manage the geopolitics of climate change that hitherto, constituted a stumbling block to effective climate negotiation over the last two decades. A5 noted, in particular, that South Africa's primary area of focus at the moment is within BRICS, hence the country's focus is more with BRICS' perspective than that of BASIC because of the desire to align with Russia's policy and interest, some of which are reflective in the way South Africa is pursuing nuclear strategy. While G6 admitted that South Africa's alignment with BRICS represent where the country's economy will be growing in the nearest future, he opined that South Africa stands to benefit from all its multiple alignments. On this issue, A8 maintained South

Africa has benefitted from her multiple alignments by driving the adaptation agenda that speaks very much to the interest of G77 specifically. In the same vein, C3 indicated that South Africa definitely sided more with G77+China in terms of the interest put forward by the group in the climate negotiation space.

From the climate change perspective *vis-à-vis* its complex nature, G2 explained that climate change is a multi-sectoral phenomenon and, as such, national interests around it are so diverse. Therefore, South Africa's multiple personalities' approach is to a large extent, informed by climate change diversity to the effect that the country is in a similar position with other emerging economies like China, India and Brazil, especially in terms of their status as both a major contributor to climate change and also vulnerable to its negative impacts. In this regard, the comment by C2 that South Africa aligns with great economies that are going to affect how climate change progresses going forward is very relevant. According to him, there are potentials for South Africa to do better in terms of dealing with climate change, considering that these economies have the powers to really make a positive change looking at the rate population is growing and the demand they will put on the resources in the future. Similarly, R1 indicated as follows: "It is a powerful alignment, we have seen them playing a strong role in climate change negotiations in the past. However, how they influence each other in the next 20 years is crucial in terms of climate change debate in the future." It is also important to add that these countries, together with South Africa, rank as emerging economies with great potential for enabling future global economic growth.

However, some participants cautioned that South Africa should be very careful how it approaches its affiliation with G77+China, BASIC, IBSA, BRICS and the EU, especially with regard to the global climate negotiation. C6 stated, for instance, that South Africa should balance a set of political considerations and, more particularly, the need for the country to align with partners within BRICS in order to benefit from the BRICS Development Bank being set up. According to A7, South Africa's multiple identities tend to put the country in a very delicate situation, while C5 observed that South Africa, sometimes, tends to be offensive by aligning too much in one direction. C4 maintained a somewhat extreme position that the multiple alignments do not really contribute to planning ambition aimed at addressing climate change at the domestic level.

Clearly, their concerns find relevance in the observation that South Africa's role in the global climate negotiation as exemplified in its coordinating role relative to the 2009 Copenhagen Accord conflicts with that of its traditional alignments, which include the G77+China and the African Group (Husar, 2010). It also reminds one of the analogy by Masters (2012: 3) that the increasingly complex spaghetti bowl of groupings presents a challenge to states in terms of capacity to engage effectively on all platforms, as well as the ability to set out a clear sense of purpose. With particular regard to BASIC, for instance, it is argued that the group is both an opportunity and a threat for South Africa (CDE, 2012: 72). Similarly, South Africa's participation as a member of BRICS, speaks to a selfish "neo-liberal economic" agenda that not only conflicts with the interest of the African continent but, more specifically, that of the Southern African Development Community (SADC) where the country held sway as an undeniable sub-regional hegemon and a pacesetter for integration initiatives in Southern Africa.

6.3.1.2 Adaptation agenda

Some participants also lent credence to South Africa's adaptation agenda as a key contributory factor to its active involvement in the global climate change process. G9 noted, in particular, that if South Africa had not stood up and put more pressure in terms of its position on adaptation, which is now part of the Paris Agreement, the story would have been a different one today. In the same vein, A8 observed that South Africa's interest in the global climate change process was triggered by genuine advocacy for adaptation. Hence, the country is more active in pushing for adaptation agenda which speaks to the whole idea of climate justice as a key demand of third world states in the global climate negotiation. While it pushes for adaptation agenda at the global level, C1 suggested that South Africa needs to have a much general capacitation around adaptation at the domestic level.

The adaptation agenda is crucial not just for South Africa and its involvement in the global climate change process but also SADC member states and other African countries that are still struggling to adapt to the impacts of climate change. In the case of SADC, in particular, the chances are that the more climate change destabilises their countries, the more problems it would create for South Africa due to the connective nature of climate change externalities (Amusan and Olutola, 2016b: 6). Thus, South Africa's involvement in the global climate change process is also about advocacy for

climate change adaptation, especially such that benefits developing countries of the African continent in particular, and the global South in general. This, again, brings back the earlier discussion that the country's active involvement in the global climate change process is fundamentally informed by its twin status both as a contributor to climate change and one of the hardest-hit by its adverse impacts. However, a clear understanding of the country's status as a contributor to climate change, or better still, a major but developing GHG emitter, does not in any way suggest that South Africa seeks to promote GHGs agenda alongside with its advocacy for climate change adaptation. What it does suggest is that its active involvement in the global climate change process is aimed at looking for ways to protect the country's carbon-intensive economy from any unfavourable collective decisions taken by UNFCCC Parties to combat climate change.

6.3.2 Coal-dependent economy

While it is a common knowledge that the South African economy is intensively coal-based, participants made some important comments regarding its connection with the country's approach to dealing with climate change. Majority of participants indicated that South Africa should not continue with the use of coal as a key driver of its economy. According to C1, for instance, South Africa needs to prioritise meeting the target set at the international level, which implies that coal should be left in the ground. In other words, the South African government needs to stop with immediate effect, further investment in new coal-fired power plants since it is unrealistic to be building new coal-fired power stations which are a waste of investments, considering that the country will be peaking its emissions in the next five years based on the BAU/PPD trajectory. Reasoning along the same line, C2 observed that South Africa has not been able to remove itself from trying to benefit from the coal resource in such a way that it is far more expedient and modern. What this suggests is that the country still relies on the old development path, which is predominantly coal-based. According to G9, the situation is not likely to change anytime soon given that South Africa has been using coal to generate electricity for decades. In the light of the country's heavy dependence on coal, G6 maintained the international community is putting pressure on South Africa to do more in terms of addressing the challenge of climate change, while A4 is of the opinion that South

Africa's dependence on coal should not be an excuse for the country not to be doing enough at the domestic level.

Since coal is a major factor in South Africa and, indeed, the backbone of the country's economy (Chevallier, 2011: 50), C4 indicated that there are two schools of thought regarding the use of coal in South Africa. The dominant one is of the view that South Africa should either use coal to industrialise or use any other form of energy intensity, while the other school (less dominant though) posits that the question is not about energy intensity but about the different leverage of economic drivers that can be used to further increase the economic role or the different development gains that the country has achieved over the years. Hence, the advice to government is that though coal is a major path of the economy, however, it should be used when necessary or any other energy source that is there for effective purpose. If South Africa intends to further its energy axis, it should use renewable energy like other African countries far more easily and far more expedient than it would use coal.

From a climate perspective, coal is obviously not an option for the South African economy given its high emissions intensity on the one hand and its finite – that is not renewable – attribute on the other. Besides, a key demand of the latest Paris climate agreement is a rapid end to fossil fuel, which places a burden on the South African government to look for ways to replace its coal with clean energy sources. Starting from 2023, the old inefficient coal plants and technology are expected to be decommissioned and replaced with renewables, nuclear and efficient energy sources. Furthermore, by 2030, the contribution of coal to the energy mix is expected to be in the reach of 30% to 40% as against the current 90%. The target is not likely to be achieved in view of the dominant position that coal will continue to remain as a major source of energy in South Africa at least for some period of time, and also considering what the state is doing in trying to maximise foreign income from international trade in coal. Besides, C1 observed that there is a very strong basic fossil-fuel interest in South Africa which makes it difficult for the country to move away from coal.

6.3.2.1 Corporate interests in coal energy

The views and perceptions of participants about corporate interests in coal energy in South Africa differ slightly. Although many believed that corporate interests constitute a challenge to the country's low-carbon transition as is the case all over the world, some believe the situation in the particular case of South Africa is not as

serious as it is portrayed. While citing the case of the Guptas in South Africa, which shows how difficult it is to separate politics and business interests, as well as the corruption involved, C8 made indicated that there is a lot of political and business interaction to ensure that coal remains a major energy source not only in South Africa but globally. More specifically, R2 remarked that business lobby groups in South Africa are heavily dominated by Xstrata, Anglo-American, BHP Billiton, among others, all of which combine to diminish the country's contribution to the global climate change process. Similarly, A1 observed that there are business strips within the parliamentary process which are working against the country's low-carbon transition. According to G9, frustration from the corporate circle has always been there for decades, but it became pronounced because of the changes introduced in terms of implementation and strategic planning around climate change, which are still new to players in the coal energy industry. Eskom, for instance, has been producing electricity using coal for decades; it would take time for it to transform into renewables fully. South Africa cannot just wake up and close down all the Eskom facilities all in a bid to turn them to renewables.

According to G3, "Eskom is doing what it needs to do to survive. I do not subscribe to the accusation that Eskom is frustrating renewable energy efforts in South Africa even though I feel Eskom is muddled and should be broken down into pieces." The issue with Eskom is that the company is asking for a right to sit in the same table where IPPs terms are being determined, whereas Eskom is left out when the IPPPP (Independent Power Producers Procurement Programme) is being conceptualised. The implication is that the company is treated like any other power producers and, as such, it has to decide whether to pay or not to pay as far as the IPPPP is concerned. However, given its current financial sustainability, Eskom cannot pay (C2).

At another level, G4 observed that the issue about corporate interests is not as disturbing as people make it to appear. Eskom, for instance, is not frustrating efforts to transition to renewable energy in South Africa. He disclosed that Eskom received some amounts of money from the World Bank to enable it embark on a large scale renewable energy adventure and, indeed, the company is currently running a renewable energy campaign. In the same vein, G7 explained that from a technical point of view, Eskom is beginning to appreciate the climate change mitigation system that the government, through the DEA, has put in place.

Undoubtedly, part of the discussions in chapter five under the section entitled “South Africa’s emissions reduction growth path; Business-As-Usual/Peak-Plateau-Decline (BAU/PPD)” alluded to the efforts linked to Eskom and Sasol, in particular, with regard to renewable energy transition in South Africa. For instance, it is believed that Eskom has a renewable programme in place that supports the development of its first large-scale wind and Concentrating Solar Power (CSP) plants, while Sasol also laid claim to a number of new investments in renewables as part of its contribution to transition to a low-carbon growth path in South Africa. However, it is also believed that their efforts in this regard contribute minimally to what is needed in terms of ambitious renewable energy transition in South Africa. Also, according to the FOEI (2011: 4), the core process in Sasol’s renewable energy drive remains irredeemably dirty, while the company also plans to bring fracking back to South Africa where it has rights to explore shale gas despite its associated environment risks.

Besides, there is also no guarantee that the money given to Eskom by the World Bank for large-scale renewable energy adventure in South Africa (as revealed by G4) will be properly monitored and channeled as intended. This is against the background of the exposition in the literature review concerning the dual role of the World Bank as both a carbon trader and fossil-fuel financier, which runs contrary to the whole idea of financing and promoting low-carbon, climate resilient and sustainable development in developing countries. Worth mentioning, in particular, is the Bank’s past record and continued financing of environmentally unfriendly projects, particularly in developing countries (Mendelsohn *et al.*, 2006); its pro-West and pro-dirty investments in Africa and other developing states (Amusan 2014a and 2010), as well as its perception as a key promoter of the neoliberal economy (Bond, 2012; Lattanzio, 2014). It should be recalled that the same World Bank provided Eskom with a loan of \$3.75 billion for the construction of a coal-fired power plant in April 2010 (Bond, 2012: 163).

In the light of the foregoing analysis, coupled with the high standing influence of key players such as Eskom, Sasol, EIUG, Anglo Coal, BHP Billiton, among others in the South African energy industry and business sector, particularly with regard to dictating and shaping the country’s climate change policy as discussed in chapter five, it could be concluded that there are basic corporate interests that present a serious challenge to South Africa’s low-carbon transition.

6.3.3 Transition to a low-carbon and climate resilient society

Participants generally agreed that the South African government has put in place a number of policy measures and initiatives to aid transition to a climate resilient and low carbon South Africa. However, opinions were diverse and also sharply divided regarding how the transition is being carried out. For some participants, the transition is on course and, indeed, progressing very well. For instance, G2 and G4 believe that South Africa has one of the most progressive renewable energy integration policies in the world. Hence, as a world leader in renewable energy, South Africa is meeting its BAU target. Similarly, G10 indicated that the country's low-carbon transition is hinged mainly on renewable energy that is progressing very fast even though it will take some time before South Africans will see the prices dropping for real purchases on electricity. According to A8, South Africa is in a position to transit though not over night or pursue a much more aggressive renewable energy integration policy, which leads to a situation where the country has the least and also the highest behind the cheapest possible electricity.

In what looks like a middle ground, C4 stated that the growth of renewable energy will happen either way in South Africa even though there is no indication that the government is taking the low-carbon transition in terms of renewables seriously. According to him, the 2008 National Energy Act that renewable energy development in South Africa is working on is non-existent anymore, whereas renewable energy is developing at a speed that the South African government cannot do because there is currently no planned document to determine the rate of penetration within the electricity sector, which in itself, is an anomaly. Similarly, C2 explained that an increase in the price of electricity, which suppressed demand, coupled with slow growth economically world-wide, has helped South Africa to meet its climate commitment *vis-à-vis* low-carbon transition. In other words, the prevailing global economic circumstance rather than any proactive steps taken by the South African government in terms of policy environment, has worked in favour of South Africa as far as its low-carbon transition is concerned. As a matter of fact, South Africa is actually working against such circumstance with what the state is doing about its coal energy complex, which basically, is to maximise foreign income from international trade in coal.

While it is true that South Africa is making progress regarding its low-carbon transition, G9 observed that climate change is still regarded as an environmental

department thing and not an overall phenomenon that affects all. She observed further that, from a political point of view, the South African government is pursuing the low-carbon transition from more or less two conflicting approaches. This is the case, considering that Eskom, as the national electricity utility, is sitting with the Department of Public Enterprises (DPE) and not necessarily with the Department of Energy (DoE). Whereas, within the DoE, there are energy efficiency and strategies which do not necessarily translate to how Eskom does its business, which is to generate electricity and make income from it and not necessarily to address sustainability or climate change or energy efficiency issues as is currently the case under the DPE.

However, the dominant view remains that South Africa's low-carbon transition is moving rather too slowly and, indeed, is constrained by a number of challenges. For instance, A3 explained that though government has rolled out a number of renewable energy initiatives to assist the green transition with a long-term goal, however, it is yet to be seen what impact renewables will have on coal-generated electricity in South Africa. Similarly, A5 stated that South Africa could not be said to be on track in terms of renewable energy, especially when judged against the 40% renewable energy target by 2020 as envisioned in the country's Integrated Resource Plan (IRP). C1 noted, in particular, that South Africa's commitment towards renewable energy does not indicate that the country is meeting the target set at the national level, while C3 explained that based on what is on the ground presently, the South African government is not following an aggressive renewable energy path to meet its international commitment. According to C5, renewable energy in ambitious scale is still to be carried out in South Africa considering the fact that renewable energy is still viewed as an alternative source of energy as against the mainstream form of energy.

From the energy efficiency perspective, A6 explained that the whole issue boils down to how much political interference South Africa can anticipate within the energy planning environment. Therefore, managing the energy environment, which is down to the political machinery within South Africa, remains a key element through which the country's transition to a low-carbon (green) economy is determined. As it is, at the political level, the 2016-2020 set for renewable transition is still a trial period because there are no legislation or regulations and guidelines in place to enforce it in terms of a carbon budget (G9). This brings to mind the argument that it seems

increasingly unlikely that South Africa will conclude legislation and regulations relating to its carbon tax in time as planned (Mairas, 2013). Yet, the proposed carbon tax has a great deal of potential to bring about the desired low-carbon economy. In the circumstance, the transition to a low-carbon economy may take longer than necessary.

Moreover, transition to a low-carbon footprint anywhere in the world comes at a cost financially, technically and technologically. This is simply because prioritising green growth implies clean energy, which also involves new technologies such as solar innovations, bio-energy, carbon capture and sequestration that allows carbon dioxide to be removed from the atmosphere (Koornneef *et al.*, 2012, 117). At the behavioural level, such transition also requires that citizens embrace and exhibit climate-friendly lifestyles and habits, whereas the reality is that many South Africans are yet to be incentivised to such behavioural change like shifting from private to public transport, limiting their food consumption to local produce, among others.

According to Ockwell *et al.* (2009), one way to engender mitigative conduct would be to introduce regulation that forces green behaviour (i.e. low carbon behaviour/attitude), which again, comes at a cost as government fears a resulting loss of precious political capital. This is even more likely in the case of the current political leadership in South Africa, considering on the one hand that the dominance of the African National Congress (ANC), as a ruling party since 1994, is being challenged by opposition parties, particularly the Economic Freedom Fighters (EFF) and on the other, that climate change is seen as a side-issue in the political consciousness of many South Africans. According to G9:

South Africa is still used to the traditional ways of doing business which do not incorporate or consider environmental issues or climate change impacts because the focus was more on socio-economic development at the expense of every other issue. As long as South Africans do not associate climate change with their way of doing things/business, climate change will continue to be seen as a by-the-way thing that comes from the environment. In South Africa, environmental management is usually perceived as a western thing that should not be taken seriously, which affects planning if people continue to have that mindset.

The implication is that, at the political level, climate change is yet to be seen as an important issue of national priority like eliminating poverty and eradicating inequality. Yet, it is through such a combination of strong top-down political will and bottom-up approach which facilitates both public acceptance and climate-friendly behaviour that the challenge of climate change can be effectively addressed. In a sense, the near lack of a strong political will to effect an uncompromising and ambitious low-carbon transition in the case of South Africa, is evident in the country's tortoise shift away from coal to green sources of energy. Despite the avalanche of policy instruments and the so-called climate-friendly economy-wide sectoral plans such as the IRP, otherwise referred to as the electricity plan as a component of the national integrated energy plan (NIEP), industrial policy action plans (IPAPs), as well as the new growth path (NGP), the level of progress in renewable energy shift in South Africa remains slow to date.

Under the IRP 2010-2030, for instance, the South African government, through the DoE, set a target of 17,800MW (equivalent to 42%) of new electricity generation capacity to be derived from renewables, largely solar and wind of which the country is well-endowed and, indeed, ranks one of the world's top 3 (DoE, 2015). Going by comments of most of participants as discussed above, it could be deduced that South Africa's potential in terms of renewables is yet to be sufficiently explored even though the country, within the last five years when the IRP was introduced, has witnessed some reasonable level of investments in renewable energy technologies; a bidding process that has delivered a little over 90 Independent Power Producers (IPP); and about three scores of renewable projects with a total capacity of 5,243MW while another 6,300MW is still under consideration (DoE, 2015; UNFCCC, 2015d: 9).

Moreover, as noted earlier, it remains another issue whether the renewable energy target can be achieved within the specified period, notwithstanding that the government has introduced a number plans and measures to galvanise solar and wind innovations, as well as close down existing coal-fired power plants within the next two decades. This may be due in part, to the country's energy demand growth and the rhetoric stance for which the current political leadership is known for, especially with issues of concern with climate change. Evidently, South Africa's energy scenario indicates unnecessary delays concerning renewable energy programmes. Besides, renewable energy may not serve to sufficiently enable the desired economic growth in

a carbon-constrained South Africa, which further establishes that the use of coal as the country's major source of energy, will persist for some period of time.

Also, at the national and corporate levels, advocacy and investment in the so-called high energy efficiency coal-fired power plants continue with the construction of new coal-fired power stations such as the Medupi and Kusile that have been both rated as two of the world's biggest coal-fired power plants. With each of the coal-fired powered plants having a projected lifespan of 50 years. South Africa, no doubt, is further locked into a dirty energy future. As argued, corporations, while hiding under the rubric of green economy, are seeking new technological 'false solutions' to the climate and other environmental crises, including dirty forms of 'clean energy' (nuclear, so-called 'clean coal', fracking 'natural gas', hydropower, hydrogen, biofuels, biomass and biochar, carbon capture and storage experiments) and other geoengineering strategies such as genetically modified trees as plantations to sequester carbon, sulfates in the air to shut out the sun, iron filings in the sea to create algae blooms, and large-scale solar reflection such as industrial-scale plastic-wrap for deserts (Sharife and Bond, 2013: 149). In the same vein, Greenpeace (2011) argued that the so-called 'clean coal' simply does not exist.

To date, the reality is that the South African economy is still largely coal-based. With the addition of more coal-fired power plants under whatever guise, coupled with the fact that less than 1 per cent of the country's electricity currently comes from renewables, South Africa apparently still has a long way to go in switching to an energy mix that is less carbonised. According to Winkler and Marquand (2009: 47), transition to a low-carbon economy in South Africa will require a paradigm shift in industrial policy which may be difficult to achieve in view of its prevailing carbon footprint.

The conclusion, therefore, is that South Africa's low-carbon transition, particularly in terms of renewables, is not developing at a speed to indicate a balance between the country's engagement in the global climate change process and its domestic climate change commitment in terms of policy measures and regulations. Hence, delivering a low carbon and climate resilient South Africa as envisaged within the existing climate change policy instruments may be difficult.

6.3.3.1 Nuclear energy

Nuclear energy is, no doubt, part of the planned energy mix in South Africa's low-carbon transition. However, as discussed in chapter five, a nuclear option comes with its own challenges such as radioactive contamination, global security concerns around the mining and use of uranium (a core element in the production of nuclear power) to make bombs and other explosives, as well as huge financial and technological investments that are involved. Against the backdrop of these challenges on the one hand, and the government's plan to generate an estimated 23 per cent of additional electricity capacity through the construction of a total of 20 or more Pressurised Water Reactors (PWRs) by 2050 as part of the IRP on the other, the issue that was of great interest to participants was the extent to which nuclear energy is seen as a green energy source.

According to C4, South Africa's chances of achieving a transition to a green economy as fast as possible, depends on whether or not if someone is seeing nuclear as a green technology. If South Africans consider nuclear as a green technology, then the transition will be fast achieved. But with most South Africans maintaining nuclear is not a green technology, it is too expensive, as well as other issues around nuclear energy, the low-carbon transition is likely to take longer than necessary because the political will is to establish a green transition on nuclear while the rest of the public based on public opinion is arguing that nuclear is not a good option.

Either way, nuclear is an open option that needs to be explored as an alternative energy source to coal in South Africa. However, as noted by A5, the manner in which it is pursued is a different ball game entirely. Similarly, other participants also shared their reservations regarding the nuclear option. A4, for instance, raised the financial argument that nuclear is costlier than renewable and coal and, as such, it may not be an easy option for South Africa. The comment by G9 that South Africa cannot afford nuclear energy going by the speculation that it will run into trillions of Rand is also very relevant. Also, in this connection, C1 observed that nuclear interventions are unlikely to be able to attract the funding require and for them to take place despite the political will from the highest level on the part of government to go down the nuclear power and the continued integration of further coal-fired power stations into the country's IRP.

Regarding its "green" status, G2 and G9 indicated that nuclear is green when viewed from the climate perspective even though it may not be so from a waste

perspective. G9 mentioned, in particular, that if South Africa is still struggling with dealing with domestic waste management and industrial waste, as well as incidences regarding industrial safety measures, then it is not likely that the country is capable or ready or will be able to cope with the radioactive and other by-products of nuclear energy generation in terms of technology, technical expertise and capacity. Hence, South Africa will need to learn best practices from other advanced countries that are already using nuclear energy. As far as the nuclear option is concerned, the likelihood is that the political class will look at it in terms of how they benefit from it monetarily without due consideration for its cost implication on the low and middle class in particular, and its untoward socio-economic and environmental impacts on the country as a whole.

It should be recalled that the Zuma-led administration entered into a nuclear energy deal with Russia's Rosatom State Atomic Energy Corporation in 2014 to build 6 to 8 nuclear reactors with about 9.6 GW by 2030 at an estimated cost of up to R1.6-trillion (\$100 billion) (EWN, 2014). Aside from the accusation that the deal was not transparent, a group of anti-nuclear energy activists reacted by way of open protests outside the South African Parliament in Cape Town on 28 July 2015 (Makoni, 2015). This was followed by a court action against the DoE by the ELA-JHB and the Southern African Faith Communities' Environment Institute (SAFCEI) to have the nuke deal set aside (Omarjee and le Cordeur, 2016). Moreover, others have raised serious concerns that fracking, carbon capture and storage, as well as nuclear power, are not acceptable as mitigation options (Dada, 2016; Sharife and Bond, 2013).

From the above analysis, coupled with heavy criticisms both within and outside against government's interest in nuclear power, the implementation of nuclear strategy in South Africa is likely to be delayed one way or the other. Evidence pointing in this direction is the routine delay and eventual cancellation of the construction of a demonstration pebble bed modular reactor by the South African government, while doling out the excuse that the state could not secure sufficient investment to keep the project going after huge investment (Greenpeace, 2011; McKune, 2010). Yet, it is expected that, in addition to the Koeberg nuclear power plant owned and managed by Eskom, more nuclear power stations will be constructed to compensate for the diminishing capacity of the existing and deteriorating coal-fired power plants in South Africa, especially in the face of the increasing demand for electricity on the one hand and the transition to a low-carbon growth on the other.

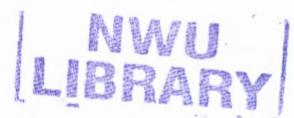
6.3.3.2 Agriculture and low-carbon transition

A6 established a linkage between the energy environment and the agricultural environment as two crucial elements to the whole idea of low-carbon transition in South Africa. From the energy efficiency perspective, the important issue is how much political interference in South Africa can anticipate within energy planning environment, while the other spectrum is how South Africa approaches its agricultural side. This becomes imperative, considering the fact that there are significant challenges from the agricultural sector in view of its contribution to GHGEs in South Africa and also the most impacted by climate change. Thus, managing the agricultural environment boils down to how the Department of Agriculture, in particular, chooses to go about creating necessary reforms and effectively build in climate-resilient agriculture into the South African economy (A6). The situation is further worsened based on the comment by C2 that the draft climate change sector plan for agriculture, which was developed in 2011 for COP17, has seen almost zero implementation.

From the review of relevant literature as contained in Chapter Two, it is established that agriculture, especially rain-fed agriculture, is a key vulnerability industry to climate change. Conversely, the sector (together with fossil fuel) is also a major source of GHGEs anywhere in the world. In South Africa, the situation becomes even more critical given the country's heavy dependence on fossil fuel and agriculture as key drivers of its economy. Juxtaposed with the above comments by A6 and C2, therefore, it could be concluded that the agricultural sector is key to achieving a low-carbon transition in South Africa, especially in view of its two-sided relationship with climate change, as well as the peculiarity of the South African coal-and mineral-energy complex.

6.3.3.3 International support

International support in the form of climate finance, capacity-building and technological transfer is a key element in the global efforts to curb GHGEs and, as such, deliver a green economy globally. From the perspective of technology, developed Parties to the UNFCCC are under obligation not only to develop appropriate green technologies but also to ensure their transfer for mitigation and adaptation purposes in non-Annex I countries. Similarly, from the climate finance perspective, the UNFCCC and its KP frameworks provide that developed countries should make available financial assistance to developing countries to enable them to



mitigate and adapt to the adverse impacts of climate change. Hence, the pledge of USD30 billion between 2010 and 2012 and another USD100 billion every year up to 2020 as mitigation and adaptation assistance to developing countries.

However, respondents reacted differently to the idea of international support for South Africa and, in particular, the idea that nuclear interventions as part of the country's low-carbon transition strategy, are unlikely to be able to attract the funding they require and for them to take place despite the political will from the highest level on the part of government to go down the nuclear power and the continued integration of further coal-fired power stations into the country's IRP (C1). F2 indicated, for instance, that funding in the form of adaptation technology and capacity-building for farmers will be needed in South Africa. These should, among others, include the production and distribution of: weather forecasting devices to farmers, as well as allocation of extension agents to assist them in the interpretation of weather information in order to make appropriate decisions concerning farm operations; agricultural cropping calendar which should be produced in local dialects to aid their knowledge of appropriate and best climate-friendly agricultural practices.

According to R1, South Africa needs international support, not necessarily to its own advantage, but to effectively act as a facilitator of the climate change space within the African continent, particularly in terms of capacity-building and technical model. According to C4, "South Africa needs development space. Hence, the main issue would not necessarily be that of finance but transfer of technology. Therefore, it will be unfair to expect that all funds will be facilitated from the international community." Reasoning along the same line, G1 maintained the issue is not much of international support; hence, it does not matter whether the money is made available to South Africa or other countries provided there is access to clean technology at a reasonable and affordable price. On this matter, A3 remarked as follows: "The question should rather be the extent to which technology transfer and climate of technology can be localised within South Africa without having to pay, for instance, CSP (concentrate solar power) development in Spain", while F4 stressed that it is less about climate funds, but mostly about the technology that South Africa can use and own.

From a somewhat different perspective, G2 stated that South Africa is not begging for money, and its contribution is not conditional. What South Africa assumes is that the whole world is investing in low-carbon technology which implies

that the current price of clean technology will be driven down. With such assumption, it is expected that there will be significant investments in clean technology of which South Africa stands to benefit greatly. However, G10 cautioned that even though South Africa will not necessarily say it does not need international funding and that funding should not be the only aspect put forward as the country will still need support mostly in terms of technical expertise and technology transfer, the issue is not just about what kind of technologies are out there but it is also important to bear in mind the implications of importing the technologies on national programmes. Similarly, F1 observed that climate change funding that comes into the country is being prioritised to the wrong place.

Based on the above comments, the dominant view is that South Africa may not need international support in the form of climate finance. This position seems not to align with the discourse in the literature review and chapter four regarding financial assistance to developing countries (South Africa inclusive) to help them mitigate and adapt to climate change, as well as other discussions in chapter five with regard to relevant provisions of existing policy frameworks aimed at addressing the challenge of climate change in South Africa. At the theoretical level, for instance, South Africa's NAMA commitment towards a BAU/PPD emissions reduction trajectory relative to the Copenhagen Accord was tied to international technological and financial assistance (Tyler, 2010: 577; Winkler *et al.*, 2011: 5818). In the same way, NCCR acknowledges that there are financial and capacity constraints to effectively mitigate climate change of which the international community has a crucial role to play in terms of resource interventions. The basic understanding is that dealing with climate change or, better still, transition to a low carbon and climate resilient South Africa is costly and, therefore, requires a holistic approach *vis-à-vis* resource mobilisation. The external finance option, as envisaged under the NCCR, will come from various sources, including grants for research and development, project development and technical cooperation, specialised environmental funds, as well as additional international resources through official development assistance (ODA) and bilateral development agencies (DEA, 2011b: 44).

Similarly, a key assumption of South Africa's INDC is that the Paris Climate Agreement will be enabled and supported by significant finance and investment, accessible and affordable technology and substantial capacity-building commitments by the international community. These interventions are required to enable and

support the deployment of low-carbon and adaptation technology, as well as building the capacity to govern, regulate, install and operate these technologies (UNFCCC, 2015d: 3; 8). Moreover, the idea that South Africa may not need international finance in order to deal with climate change also contradicts the earlier discussion that South Africa's involvement and, indeed, active role in the global climate change process is also about advocacy for global adaptation agenda of which climate finance, capacity-building, development and transfer of climate-friendly technologies are critical.

Based on the discourse in the literature review, there are currently a number challenges confronting the GCF and other financial instruments within the UNFCCC framework. These range from their non-compulsion that is largely voluntary (Klein *et al.*, 2003); their inadequacy both fiscally and technically (Amusan, 2010; Lalthapersad-Pillay and Oosthuizen, 2011); the concern that they may be diverted into more general development issues, many of which may not connect directly with climate change (Lattanzio, 2014); that the structure of the funds supports sector-specific adaptations rather than societal adaptations, which could bring about more benefits (Klein *et al.*, 2003); the delay on meeting pledges (Bond, 2012; Lalthapersad-Pillay and Oosthuizen, 2011); as well as other controversies around their sources, control mechanism, accessibility and implementation strategy (Bond, 2012 and 2011; Brunnee *et al.*, 2012).

Worst still, the latest Paris Climate Agreement treated climate finance elements with no specific changes except that, in addition to the previously agreed pledge of \$100 billion a year by developed countries, it seeks to establish by 2025, a new target to scale up climate finance. Additionally, it introduced a caveat that developing nations that are in a position to make financial commitments to support climate funds are also encouraged to do so. What readily comes to mind, however, is whether South Africa is in a position not only to source climate finance internally but also to commit in financial terms to support global climate fund in view of its "emerging" economy status. It also brings to attention the NCCR's recognition of domestic finance option to be sourced from commercial finance through debt and equity, concessionary finance, risk insurance, new capital market innovations like green and climate bonds, financing for biodiversity and other environmental resources, such as payment for ecosystem goods and services (DEA, 2011b: 44).

In this regard, A7 maintained "funds for mitigation and adaptation purposes can be mobilised within South Africa. If South Africa can mobilise a lot of bail out

for SOEs (state-owned enterprises), it can necessarily mobilise private equity and private finance within the public pension funds and sale of government bonds to facilitate and sign on different climate-friendly technology purchases in South Africa”, is also apt. In particular, G9 observed that climate fund facility provided under the newly established South African Green Fund (SA-GF), has not been effectively utilised. It should be pointed out that the SA-GF is being managed by the Development Bank of South Africa (DBSA) as the implementing agency for the fund on behalf of the DEA. According to G9, DBSA reports indicate that the proposals they are receiving are not of the required standards for it to release the funds, whereas looking at the proposal itself, it could be seen that there are a lot of gaps in terms of technical assistance to be able to develop a standard proposal. In addition, other funds that are being managed by the South African National Biodiversity Institute (SANBI), which focuses mainly on biodiversity and community, are also not being effectively utilised (G9).

Since it is not likely that South Africa will compromise its overriding priorities in terms of its socio-economic development as well as poverty eradication, it is expedient to conclude that international finance will still be needed alongside with whatever the state could mobilise internally.

6.3.3.4 Paris Agreement and South Africa’s low-carbon transition

Participants generally observed that the Paris Climate Agreement entered into and signed by nearly 200 UNFCCC Parties, in December 2015, represents a forward movement in the global efforts to return the climate to its pre-industrial status. C2 noted, for instance, that the Paris Climate Agreement is very positive, being the first time so many countries have signed a climate change agreement. G2 made indicated that South Africa has signed the Paris Climate Agreement and also that, at the moment, the country is in the process of ratifying it. His position concurs with the discussion in chapter four that the country is yet to ratify the Paris Climate Agreement even though it endorsed it in April 2016 and also that only 22 UNFCCC Parties had done so as at August 2016, whereas ratification by at least 55% of those responsible for GHGEs is required for the Agreement to come into force. However, as an update, it has been established that South Africa recently ratified the Agreement on 1st November 2016 and also that the Paris Climate Agreement entered into force on 4th November 2016, thirty days after the date on which at least 55 Parties to the

Convention accounting in total for at least an estimated 55% of the total global GHGs ratified the agreement (UNTC, 2016).

However, C4 explained that despite the entry into force of the Paris Climate Agreement, it is still likely that a lot of trust that has been built in trying to work on something post-2020 will be lost. Many UNFCCC Parties, including South Africa, will only sign and ratify the document, but will be going through emotions and, as such, will only be reporting and communicating without committing to any serious GHGs. Also, in this regard, A2 expressed the fear that the Paris Climate Agreement may go in the way of the Kyoto Protocol not in the sense that the USA will pull out again, but that there will be a lot of issues to be sorted out, especially in view of past experiences. For instance, it is observed that the provisions of the Paris Agreement regarding the return of the climate to not more than 2°C and, possibly, 1.5°C above the pre-industrial levels, are simply unattainable at the moment (C1). Also, C8 noted that the Paris Climate Agreement is still less far more ambitious in terms of what should be done at the domestic level, hence it offers little or no hope to assist developing countries to effectively mitigate and adapt to climate change.

Their concerns about the drawbacks of the Paris Climate Agreement speak to the observation that many operational details of the Paris Climate Agreement were left to be decided by future COPs (C2ES, 2015: 2). Besides, as discussed in chapter three, the Paris Climate Agreement introduced a ratchet mechanism, otherwise referred to as intended nationally determined contributions (INDCs) to be reviewed every five years. Even though the Agreement is legally binding, INDCs are not (Amusan and Olutola, 2016a: 10). The likelihood, therefore, is that some of the UNFCCC Parties, particularly developing countries like South Africa with relatively high rate of emissions, will capitalise on the loophole as a leeway to default on the agreement obviously for self-serving interest, while hiding behind national concerns and overriding preferences. However, G5 indicated that South Africa is committed to the Paris Climate Agreement even though there is nothing binding for any countries in the world regarding their INDCs. He further indicated that from the point of view of the South African Constitution, the Paris Climate Agreement, including its provision for INDCs, is legally binding on South Africa and, therefore, needs to be honoured.

From the above, it is established that the Paris Climate Agreement of which South Africa is a signatory, is crucial to the global efforts to transition to a green economy. Whether or not its demand for an end to fossil fuel is met by all UNFCCC

Parties and, in particular, South Africa, is yet another issue in view of the issues raised in connection with the Paris Climate Agreement on the one hand, and the country's carbon-intensive economy on the other. It thus implies that an end to fossil fuel in South Africa is not yet in sight in as much as coal remains the cheapest energy source of which the livelihood and businesses of millions of South Africans are currently largely sustained by coal energy in terms of electricity generation (Amusan and Olutola, 2016a: 12).

6.3.4 Multi-sectoral approach to addressing climate change

In responding to the challenge of climate change, South Africa has adopted a multi-sectoral approach. According to most participants, there are currently a number of challenges within the cross-sectoral approach in terms of policy framework, coordination and implementation. C2 stated, for instance, that although there are fantastic documents in place, the implementation is poor currently. According to G7, the policy framework is okay but there are challenges in implementing the existing policies with a view to moving forward, which has become a major challenge even though South Africa has a lot of good environment on legislation, including climate change. Similarly, A7 remarked that "a lot has been achieved with the multi-sectoral approach, especially in terms of policy initiatives. What is generally lacking, however, is proper coordination and implementation within government tiers and the bureaucratic circle.

According to A3, the policy frameworks are just one element in addressing the challenge of climate change, ensuring that the frameworks are implemented is also as important as putting them in place. In particular, A3 explained that there is nothing wrong with the integrated approach but government needs to focus more on the coordination and implementation frameworks, as well as a compliance mechanism, which at the moment, appears very weak. Beyond creating a favourable policy environment, it is also important to develop planned resilience building and effective mechanism that can be channeled into national planning, as well as local initiatives (C5). In the same vein, F3 is of the view that environmental issues, for the most part, are not taken into account in most government actions, while C1 revealed there is lack of proper coordination and implementation of climate change policies; hence, climate change is yet to be properly integrated into planning processes in other relevant national departments.

However, on a positive note, G9 pointed out that various government departments are now coming on board as far as dealing with climate change is concerned. According to him, adaptation plans are already integrated into planning in all the relevant departments like Agriculture and Forestry, Water and even the National Treasury that is coming up with a fiscal reform policy around climate change, all of which are triggered by Chapter 5 of the NDP which addresses environmental sustainability with good coordination coming from the DEA and participation by Metros such as the cities of Cape Town and eThekweni that have developed separate programmes and intervention tools to assist people in their localities to adapt to climate change. This shows that South Africa is maturing in terms of its understanding of climate change and how it should be dealt with at the local level even though not all the departments are moving at the same pace. This, according to A5, is because climate change is not an immediate priority, evidence of which is seen in different political speeches during election campaigns which say little or nothing about climate change agenda. Hence, political will is not supportive enough. In this regard, C4 explained that the sentiment within the politics is that climate change is not really a big issue that government should be dealing with right now as it is normally seen as an add-on or something that degrades the development gains that South Africa has already achieved. Therefore, climate change is not seen as an actual impact, but something that can earn so many problems. His view is in agreement with the earlier observation that climate change is seen as a by-the-way thing that comes from the Environment or a western thing that should not be taken seriously, which implies that climate change is perceived as a side-issue in the political consciousness of many South Africans. The blame for this, according to R1, should not be put entirely at the doorsteps of the political leadership.

6.3.4.1 Integration of existing policies into a distinct climate change Act

Most participants admitted that there are too many policy and other regulatory frameworks that are currently in place towards addressing the challenge of climate change in South Africa, and also that the situation presents a number of challenges which need to be locked into. However, the dominant view was that it may not be necessary to have these policies integrated into a single piece of legislation or a distinct national climate change act, considering the cross-cutting nature of climate change on the one hand, and the current structure in South Africa on the other.

According to G4, for instance, South Africa already has a lot of climate-energy environment in terms of legislation; hence, the need for a separate climate change act does not arise. In the same vein, G9 indicated as follows: “Right now, I won’t say we need to put in place a distinct national climate act separately though South Africa currently has too many legislation and sub-legislation and regulations. G1 put it more succinctly as follows:

The issue of a single piece of legislation for climate change or cross-cutting legislation or whether or not existing legislation are integrated into a single piece legislation is a debate that can be held in any country and, therefore, it is a choice that a country makes. But either way, it has the same effect. If South Africa had a piece of legislation, the implication is that such legislation would have to be implemented by many different Ministers because climate change is multi-sectoral. For instance, the Transport Minister will have a section; Agriculture Minister will have a section; Water Minister will have a section; and so on. The issue, therefore, transcends mere integration of the existing legislation.

Some participants, however, saw the need for some kind of policy adjustments in view of what they referred to as a weakness of the existing policy and regulatory frameworks. For instance, C3 stated that being one of the proponents for actual climate change legislation, it would be good for South Africa to develop a kind of legislative regime, though it has its benefits and disadvantages. Also, C5 observed that “as at the time the policies were drafted, they were fine. But things have changed and South Africa cannot go on with the same policies. The policies are becoming weak”. Reasoning along the same line, C4 opined that:

There may be a need for an act that will change the whole story, but given that the story still lies with the policy there are challenges to overcome. Continued reliance on policy will mean that going forward, the actual policy frameworks will be weak over time since the Department of Energy can take a unilateral decision to stop renewable energy power producing programmes to connect to the national grid or if the Department of Public Enterprises or Eskom can do the same

without consulting with the DEA, it really shows that the policies are not really working as they should.

As a way out, A7 advised that in view of the current challenges in terms of policy coordination and implementation, government may need to consider a review of existing policies as to whether they are still relevant or they should be merged together or a new legislation be developed with regulations around it. According to G10, one way of addressing the situation may be to amend NEMA and incorporate climate change issues into it. Alternatively, C6 advised that existing policies should rather be well-integrated into the existing nine departments that are concerned with climate change.

While the integration of existing policies into a single piece of legislation or a distinct national act may not be a likely option for now, it is important that climate change should be properly integrated into key sectors that are of primary concern with climate change in line with the NDP.

6.3.4.2 Establishment of a separate national department on climate change

Against the backdrop of the comment that the DEA is a small compartment compared to the Presidency and the Departments of Energy and Public Enterprises that literally bring in the money and the political capital (C4), majority of participants maintained the DEA is really a small player when weighted in terms of the political power and social capital between the different departments. However, they also maintained the solution did not lie in the creation of a separate department on climate change. It should be pointed out that the DEA currently coordinates national implementation regarding climate change in South Africa, together with the Department of International Relations and Cooperation when it comes to international issues. Besides, at the national level, the Presidency is in charge of climate change implementation within the NDP framework which also speaks to a lot of climate-resilient development pathways.

In this regard, G6 indicated that even though DEA is a small department, it has done a lot of work around environmental management and climate change, but the main challenge is that national focus is not on environment like is the case with developed countries where issues relating to the environment and climate change *vis-à-vis* development priorities have been sorted out. He stated further that, by any

standard, the DEA is not under-performing looking at the technical ability and feasibility of dealing with climate change, including technical expertise in terms of negotiating, lobbying for funding, amongst others. According to G1, he does not support the creation of a new department even though he understands that some countries have chosen to create climate change ministries, but the question is whether they are more affected by those countries that have not. G2 provided a more detailed discussion as captured in the excerpt below:

The decision to create or not to create a new department is a matter of choice. Why should we or why should we not? A country either integrates or creates an autonomous ministry. The problem with creating a single autonomous ministry is that other sectors are not likely to contribute or may not feel the ownership. The challenge, therefore, is to make sure that Agriculture takes climate issues and planning into consideration in agriculture; Transport does climate in transport; Trade and Industry does climate in industrial development; Mining does climate in mining; Energy does same in energy; and so on and so forth. The implication is that if you take an integrated approach, then you have to integrate climate change considerations into all relevant sectors. If you take a centralised approach, then those sectors do not have ownership of climate change actions. At present, South Africa has taken an integrated approach as against a centralised approach, and the approach is working perfectly well. Currently, there are eight flagship projects with each being led by the lead department. They include the land sector which is being led by the Department of Agriculture, Forestry and Fisheries; transport sector is being led by the Department of Transport; industrial sector is being led by the Department of Trade and Industry and the Department of Economic Development; economic instrument is being led by the National Treasury; and so on.

While it may not be necessary to create a separate department, the fact remains that the DEA is currently facing a lot of inaction in terms of acting fast concerning compliance with existing climate change policies, as well as bringing about significant policy changes that are required to ensure that South Africa is

addressing climate change more effectively (C5). In this regard, C1 indicated that “fragmentation of departments is not required. What is required is a better integration of climate planning into other line departments. The major challenge is that climate change is not yet mainstreamed to other relevant departments”. C3 also indicated that “there is no need for a separate national climate change department as it is not a big thing even though it is a good thing since in one sense, it would show that climate change is being taken seriously, but at the same time, such development will make the issue of climate change more constricted. A better way to deal with the situation, therefore, is to see that climate change is integrated into other relevant departments”. By the same token, C6 maintained that what is currently in place is a regulator or some functions that are given to energy regulator, but there must be a function that is given to the already established nine institutions or a regulator type of person to help climate change in there. In particular, C2 proposed that the DoE should really take climate change consideration into account in terms of what energy in South Africa would be going forward, while G8 advised it is not necessarily a separate department but some kind of actual discussions on how climate change should be elevated from policy to actual legislation. More extensively, G9 indicated as follows:

The issue of creating a separate climate change department still boils down to how people view environmental management and climate change in South Africa. The challenge is further worsened by the imbalances of the apartheid history which necessitates that government should focus on other pressing national concerns such as land issues, access to energy, access to water, access to sanitation and so on, which also tend to push purely environmental issues to the other side. Take the case of the Department of Energy as a national focal point of climate change, for instance, it is likely that the Department will be biased towards only energy components of climate change as it is not dealing with biodiversity issue and socio-economic points of view in terms of vulnerable communities. The DEA is not only looking at environmental issues like biodiversity, water, energy, it is also looking at the human part of it in terms of how to assist vulnerable communities. Some may also want to suggest that because climate change is a cross-cutting issue, it should be centralised in the national government in the Department of PME, but the problem again is

whether the PME has the expertise to deal with the technicalities of climate change. Just like the MDGs, would we say we need a separate department for it? So, to me, the issue is not moving the focal point of climate change here and there.

Based on the above discussion, it is established that the idea of creating a separate national department on climate change is not inappropriate even though it is at present, not a necessity in South Africa. This is because other sectors may not contribute to efforts towards addressing climate change or claim ownership of it, whereas climate change is a cross-cutting phenomenon. Besides, political consideration has overclouded climate change technicalities, which explains why climate change is at the moment being perceived as a side-issue as against an important national issue of immediate concern not only by the current political leadership, but also by majority of South Africans even with the reality of climate change around them almost on a daily basis. Hence, the solution to the current policy challenges lies in bringing about a tight and proper integration of climate change planning into all relevant sectors and levels of government across South Africa.

6.4 Chapter summary

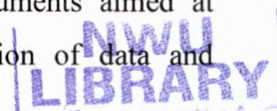
This chapter linked the discussion at the literature level with empirical findings. It established amongst others that: South Africa has a relatively high profile as a key player in the climate change process; the country's approach towards the global climate change process is multiple personalities' driven; corporate interest that seeks to ensure the continued use of coal as a key driver of South Africa's economy is a threat to low carbon transition even though the transition itself is moving at a very slow rate; climate change is yet to be properly mainstreamed as it is still seen as a by-the-way issue compared to other national concerns like eliminating poverty and eradicating inequality.

CHAPTER SEVEN

SUMMARY, CONCLUSION AND RECOMMENDATIONS

7.1 SUMMARY

The summary of the findings presented below are based on the aim and objectives of the study as outlined in Chapter One; the systematic exposition and adaptation of key theoretical underpinnings of “complex interdependence” and “second image reversed” as the theoretical basis for the study; a review of relevant literature along distinct thematic areas of primary concern to the focus of the study; the historical analysis of the trajectory of the global environmental and climate change regimes; discussions on different aspects of South Africa’s involvement in the global climate change process; an appraisal and review of South Africa’s domestic response in terms of specific policy and other regulatory instruments aimed at addressing the challenge of climate change; and the presentation of data and discussion in Chapter Six.



7.1.1 Global environmental/climate change regimes

With regard to global environmental/climate change regimes, it was established in the study that the 1972 UNCHE provided limited scope for climate change even though it represents the first international gathering of both state and non-state actors to discuss human interactions with the environment and the attendant environmental concerns. This is simply because the UNCHE Conference deals purely with environmental issues. Besides, the Conference was far from achieving the ultimate goal of any international environmental summits, which is to develop a global environmental regime. It was also discovered that the establishment of the United Nations Environmental Programme (UNEP) in 1982 as a key outcome of UNCHE and, in particular, the decision to have its headquarter situated in Nairobi, Kenya (a third world state), stemmed from the understanding that environmental impact is global in nature. Therefore, genuine efforts to deal with it will require the cooperation of all stakeholders, including governments and the private sector from both developed and developing states.

Additionally, it was observed that the 1985 Vienna Convention for the Protection of the Ozone Layer drew attention, for the first time, to the contribution of

human activities to modification of the ozone layer. Although it was less elaborately defined, the development provided a strong basis for subsequent research, particularly that of the IPCC regarding the anthropogenic climatic effects deriving from such modification. As a supplement to the Vienna Convention, the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer ranks as the first universally ratified environmental treaty with clear legally binding commitments to protect human health and the environment through the control of ozone depleting substances (ODSs) and, in particular, the use of hazardous chlorofluorocarbons (CFCs) which are the main chemical agents that deplete the ozone layer. In the process, the Montreal Protocol serves the purpose of protecting the climate system even though it was not formally designed to do so, considering that its control measures do not apply to some of the key GHGs.

With the establishment of the UNFCCC as a key regulatory framework for addressing specifically the challenge of global climate change, the 1992 Earth Summit serves as a fundamental basis for global actions on environmental security and, in particular, climate change. It was noted that the summit represents a forward movement in addressing the challenge of climate change as an important environmental phenomenon of global concern, and also that the UNFCCC had since become the pillar of multilateral discussions on climate change. In the same way, it stressed that a major accomplishment of the 2002 World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa, was the unprecedented recognition given to non-state stakeholders such as the global civil society, relevant international NGOs, indigenous people and local communities as exemplified in the so-called "Type-2 Agreements".

As an important addition to the discourse on global climate change, the researcher noted that the Rio+20 summit introduced the concept of green economy which seeks to establish a linkage between poverty eradication and sustainable development. This same concept, for the most part, pitched state actors in opposing camps reflecting, in most cases, the North-South rivalry underpinned by conflicting interests and viewpoints. Based on the findings of the study, this polar rivalry constituted the greatest single barrier to evolving a globally acceptable climate change regime over the years until late 2015 when the Paris Climate Agreement was struck. It was also found that during discussions at Rio+5, the WSSD and Rio+20 focused generally on environmental and sustainable development with less attention

to climate change simply because the UNFCCC, the KP and COP have been created and substantially taken over as multilateral platforms for discourse strictly on global climate change. In particular, it was noted that, as a framework system to cut global emissions, the KP, adopted at COP3, held in Kyoto Japan in 1997, could not deliver a globally acceptable climate change deal mainly because negotiations under it and, indeed, the entire global climate change process, including the COP arrangement, is governed by consensus. It is argued in the study that though the KP proceeded without the USA, its non-ratification by the USA dealt a serious blow and, substantially, represents a setback in the global actions on climate change. It also implies that the latest Paris Climate Agreement may not have been necessary had the U.S. ratified the KP.

Additionally, it was noted that the Marrakesh Accords which emerged as a key outcome of COP7 held in Marrakesh, Morocco in 2001, succeeded in adding flesh to some of the skeletal issues provided under the UNFCCC and its KP as it encapsulates principles and decisions that are of primary concern, particularly to developing countries. In the same vein, and as a long-term cooperative global action towards addressing the challenge of climate change in the post-KP (beyond 2012), the COP13 Bali Action Plan (BAP) highlighted four key elements namely, mitigation, adaptation, technology and finance, which became known as the “building blocks” of a future climate regime. Besides, the BAP not only replaced the UNFCCC/KP terminologies of “Annex I” and “non-Annex I” with a more easily understood appellation such as “developed” and “developing” countries, it also introduced the concept of Nationally Appropriate Mitigation Actions (NAMAs) for developing countries.

Though controversial and far from what was generally envisaged, the COP15 Copenhagen Accord delivered a political climate change agreement (as against a legally-binding post-KP climate deal), which nevertheless, serves as the bedrock for a future climate change regime. Moreover, the Accord laid a strong foundation for climate finance as typified in the pledge of US\$ 30 billion up to 2012, as well as additional US\$100 billion per year by 2020 by developed countries to assist their developing counterparts to cope and adapt to climate change. It was further established that the Cancun climate summit made some incremental achievements towards achieving the objective of UNFCCC. With regard to COP17 held in Durban, South Africa in December 2011, it was observed that the Summit succeeded in further

toning down of the North-South divide given its objective of evolving the widest possible single-track cooperation involving both developed and developing Parties with a long-term roadmap for implementation. Thus, having injected another lifeline into the KP by initiating a fresh round of negotiations for a new legal agreement that will include all major emitters, the Durban climate meeting, through its DPEA, was instrumental to the development of post-KP regime that is, the Paris Climate Agreement.

It was also observed that the 2012 Doha Climate Gateway brought to an end, the first commitment period of the KP, as well as kicked-start the process of a new era in the global climate change process with the implementation of the BAP under a single track, that is, the DPEA. Hence, it represents a fast-lane platform without which the Paris Climate Agreement would not have been brought about. Similarly, it was observed that the Lima Call for Climate Action heralded the Paris Climate Agreement with a draft negotiating text as a basis for discussion on a broad spectrum of issues to be included in the INDCs to be submitted by all UNFCCC Parties.

With the participation of nearly 200 countries (and the requirement for ratification by at least 55% of those responsible for GHGEs), the Paris Climate Agreement represents the most substantive climate change deal since the UNFCCC/KP, after strictly twenty years of unduly prolonged negotiations as evident in the fraught COP meetings. For the first time in the trajectory of global climate change, negotiations at the Paris Climate Agreement were governed by consensus, touching on virtually all hitherto contending issues that had provoked heated debates and walkouts at previous summits even though the core issue of reducing GHGEs remains a common feature of all global climate change summits. It was established in the study that though the Paris Climate Agreement is legally binding, its provision for a ratchet mechanism, otherwise referred to as INDCs to be submitted by all UNFCCC Parties with a five-year periodic review, is largely voluntary. Moreover, the Paris Climate Agreement treated climate finance elements with no specific changes except that, in addition to the previously agreed pledge of \$100 billion a year by developed countries, it seeks to establish by 2025, a new target to scale up climate finance, while introducing a caveat that developing nations that are in a position to make financial commitments to support climate fund, are also encouraged to do so. It was argued in the study that, in the circumstance, it will be more difficult for many developing countries whose economies are largely sustained by fossil fuel, to meet the demands

of the Paris Climate Agreement for a low-carbon transition since it would be counter-productive to expect them to divert their limited resources away from sustainable development priorities, especially within the socio-economic perennials to combat climate change.

The researcher is also of the view that some of the key blocking issues that characterised previous COP meetings such as lack of strong political will, North-South polarisation of climate talks, external interests and influence/lobby, as well as difficulty in achieving plurality consensus due largely to varying national circumstances, are likely to rear their ugly heads in subsequent COP meetings and, therefore, cut short the progress made in relation to the Paris Climate Agreement. This is more likely to be the case, considering that many operational details of the Paris Climate Agreement were left to be decided by future COPs.

7.1.2 Nature of South Africa's involvement in the global climate change process

It was noted in this study that prior to 1994 when South Africa held its first democratic elections and, in effect, officially rejoined the international community of nations after many years of isolation due to its apartheid policies, the country had for long been actively involved in terms of its commitment towards numerous multilateral environmental agreements (MEAs), particularly with regard to ecosystems and biodiversity. It was found, for instance, that South Africa was one of the 12 original signatories to the Antarctic Treaty with a clear demonstration of significant interest and active involvement in Antarctica; South Africa has been actively involved in guaranteeing the CITES since its inception as demonstrated by its participation in the 1973 Washington Conference and, indeed, became one of the first 15 contracting parties to the CITES; South Africa has been and is still a leading force in the area of nature conservation in view of its abundant wildlife that ranks first in sub-Saharan Africa and 25th in the world.

With particular regard to the global climate change process, it was established in the study that South Africa has a relatively high profile within the UNFCCC process even though its interaction on the international scene *vis-à-vis* global affairs generally has been quite convincing since the end of apartheid. Besides, it was discovered that South Africa's active involvement in the global climate change process is important for it to have some relevance or legitimacy within the global

climate negotiations, considering the fact that it has a lot of issues around mitigation and adaptation in that South Africa is both a contributor to climate change and one of the hardest-hit by its adverse impacts. In this regard, it is argued in this study that South Africa's active involvement in the global climate change process is directly motivated by its contribution to GHGEs, while conversely, its manner of approach towards addressing the challenge of climate change at the domestic level (which is seen by many as not doing enough) is constrained by its vulnerability to climate change. By the same reasoning, it was established that South Africa's involvement in the global climate change process is also about advocacy for adaptation and, as such, the country is more active in pushing for adaptation agenda which is crucial not just for the state but also for SADC member states and other African countries that are still struggling to adapt to the impacts of climate change. Furthermore, it was established that South Africa's involvement in the global climate change process is more or less a self-seeking ambition, thus advancing the continent's climate change agenda is not a first priority. At best, consideration for the African continent as far as South Africa's pursuit of climate change agenda at the global level is concerned may come second given that the country is also very active at the regional level through the African Union (AU) and the New Partnership for Africa's Development (NEPAD), particularly with regard to their environmental and climate change components.

Another key finding of the study is that South Africa's approach to global actions on climate change is multiple personalities' driven in view of its affiliation with different multilateral groupings with key interest in global climate negotiations. These include the African Group (AG), G77+China, IBSA (India, Brazil, South Africa), BASIC (Brazil, South Africa, India, China), BRICS (Brazil, Russia, India, China, South Africa) and the EU. The situation is brought about largely because of the increasing profile of climate change as a serious global issue of "high politics"; the pressing need for South Africa to be seen as playing a more responsible role in international affairs after many years of isolation; the importance of regional and trans-regional groupings as important platforms for dialogue and cooperation and, in particular, as key negotiating blocks for a common position among member states as far as climate negotiation is concerned. More specifically, it was found that South Africa established strong links with other emerging powers from the Southern hemisphere as exemplified in the country's membership and active role in key

coalitions such as IBSA, BASIC and BRICS, and that these strategic partnerships, to a large extent, are informed by climate change diversity to the effect that South Africa is in a similar position with emerging economies like China, India and Brazil, especially in terms of their status as both a contributor to climate change and also vulnerable to its negative impacts. Besides, the partnerships underscore the relevance of such emerging economies as major drivers of global economic growth and, in particular, in determining how climate change progresses going forward looking at the rate at which the population is growing and the demands they will put on resources in the future. The researcher also established that even though South Africa continues to remain as an increasingly relevant actor regarding its involvement in global climate negotiations, particularly in the context of the North-South geopolitics, its multiple alignments' approach presents both opportunities and challenges. Hence, South Africa needs to be careful in its approach, while it is also important that it balances its positions within the alignments.

In addition to hosting the WSSD in 2002 and the Durban COP17 in 2011, including its central/facilitating role in managing the proceedings at COP17 in particular which became a turning point in the climate change process, other issues that attest to South Africa's active involvement in the global climate change process were also discussed. These include the following: South Africa's election as the chair of the eleventh session of the UNCSD-11 in 2003 which clearly put the country in a front position as far as global environmental issues are concerned; its hosting of the CSLF annual meeting in June 2003 which advanced multilateral discourse in terms of facilitating the development and deployment of improved cost-effective technologies for the separation and capture of CO₂ for its transport and long-term safe storage, as well as promoting awareness about legal, regulatory, financial and institutional environments that are conducive to such technologies; and its role as coordinator of the AWG-KP on behalf of G77+China which, no doubt, marks its strategic entry and positioning not just as a continental representative but also the mouthpiece for the entire global South *vis-à-vis* global climate negotiations.

Others include South Africa's leadership commitment towards GHG emissions reduction under the Copenhagen Accord in 2009 as demonstrated by the country's open declaration of a NAMA in line with the BAU/PPD trajectory of 34 per cent by 2020 and 42 per cent by 2025; its election to represent Africa on the Adaptation Fund Board and its key role regarding the Adaptation Fund (AF) to assist other developing

countries in coping with, as well as building resilience to the impacts of climate change; its active role regarding the GCF and, in particular, its election as co-chair of the GCF-TC together with representatives from Mexico and Norway by which it stood out even though other African countries were equally part of the GCF-TC as African representatives; its contribution to the development of the World Bank CIFs and its key role in ensuring that the CIFs are operated in a fair, equitable and inclusive manner in order to take care of the interest of developing countries for which CIFs were originally created as additions to the existing ODA; the election of a South African Parliamentarian, Cedric Frolick, as President of GLOBE, which though an important side issue, speaks to the recognition of South Africa as a key player in the global actions on climate change, particularly within multilateral frameworks such as the UNFCCC, KP, and COP meetings on the one hand, and which also meant to send a strong message to the South African political leadership to prioritise legislation that specifically address environmental and climate change issues on the other.

In particular, it was observed that South Africa could not be said to be a leader in the global climate change process even though the country has been actively involved and also acknowledged to be playing an important coordinating role as a bridge builder between the global South and the global North in the climate negotiation process. This is because the leadership of the global climate change process could not be pinned to a single country as events over the years indicate that other countries, including the USA, the EU, China and Brazil have, at one point or the other, positioned themselves as leaders in the global climate change process. Besides, being a leader entails certain qualities, including visionary, selflessness, commitment, integrity and strategic planning of which South Africa is found wanting in demonstrating faithfulness to some of these qualities. Nevertheless, the researcher believes South Africa's active involvement in global climate negotiations are likely to continue given that the world is yet to see an end to the multilateral discussions on climate change.

7.1.3 Issues with South Africa's domestic policy on climate change

The researcher noted that coal is a major path of the South African economy and, therefore, a key factor in the country's domestic response to climate change as it has to decide whether or not to continue with the use of coal as a growth catalyst or use other energy sources with little or no carbon intensity. As a signatory to the

UNFCCC frameworks, including the latest Paris Climate Agreement, South Africa is under obligation to put an end to the use of coal (and other fossil fuel) by looking for ways to replace its coal with clean energy sources.

In addition to the provision for an environmental right as enshrined in section 24 of chapter 2 of the South African Constitution of 1996, note was taken of other existing policy and regulatory instruments aimed at addressing the challenge of climate change in South Africa of which it reviewed the 1998 NEMA and the 2011 NCCR as the two most crucial frameworks. It also appraised South Africa's BAU/PPD emissions reduction trajectory and, in particular, the country's INDC, which though, is a key requirement of the Paris Climate Agreement but also represents a domestic policy instrument to enable the country's low-carbon transition.

It was established that though the NEMA framework recognises the DEA as the coordinating entity for environmental matters within its cooperative governance structures and also distinguishes between the relevant national departments *vis-à-vis* the exercise of their functions in relation to environmental protection and management, it under-estimates the power relations, competing interests and potential conflicts between national departments with issues of concern with the environment (climate change inclusive), as well as the likely implications for inter-departmental collaboration and synergy. In particular, it drew attention to other issues such as limited capacity across the different institutions saddled with environmental protection and management functions; lack of provisions for relevant national departments to specifically note climate change related activities within their EIPs and EMPs, which implies that specific climate change action planning is either lacking or not well-defined; and difficulty in achieving its goal of integrating environmental issues within the equally challenging spectrum of sustainable development.

Unlike NEMA that muddles up mitigation and adaptation efforts aimed at addressing the environmental impacts of climate change, the NCCR as a deliberate policy instrument to mitigate and adapt to climate change in South Africa, distinguishes between the two approaches. Besides, the NCCR not only recognises the important roles of the various players in addressing climate change in South Africa, it also describes their roles for effective coordination purposes. Given its cross-sectoral and multi-stakeholders' approach, it was found that the NCCR acknowledged the contribution of individual citizens through climate-friendly lifestyles and habits to the

overall efforts aimed at tackling climate change in South Africa, while its greatest success feature lies in its commitment to moving the country from its high-carbon footprint to a climate-resilient growth predicated on a pro-growth, pro-development and pro-job creation strategy.

Similarly, the researcher noted that the BAU/PPD trajectory represents a transition from a high-carbon footprint (energy-intensive) to a low-carbon growth path (climate-resilient), which needs to be achieved through a strategic framework that is both pro-development and pro-job creation. It was established that the BAU/PPD trajectory typifies the first serious attempt by the South African government to look at ways through which its high-carbon footprint in GHGEs could be lowered, as well as provides a strong basis for the country's domestic climate change response policy and at the same time, set a benchmark through which its mitigation actions could be measured. It maintains that the BAU/PPD instrument may not be sufficient to deal with climate change in South Africa; the economic cost of realising the BAU/PPD is huge and, therefore, constitutes additional financial strain to the South African economy; and the swap in South Africa's renewable energy policy from the much anticipated REFIT to REBIDs generated some level of instability which, in turn, creates further challenges to the country's renewable low-carbon transition.

It was acknowledged that government has put in place a number of policy measures and initiatives to enable South Africa's low-carbon transition and also that South Africa has one of the most progressive renewable energy integration policies in the world and, indeed, ranks as one of the world's top 3 relative to solar and wind renewables. However, it was established that the transition to a low carbon and climate resilient South Africa is moving at a slow pace despite the avalanche of policy instruments and the so-called climate-friendly economy-wide sectoral plans. Other challenges to renewable energy shift in South Africa were also identified in the study. Key amongst them are: South Africa's continued reliance on the old development path which is predominantly coal-based; the difficulty in achieving the reach of 30% to 40% (as against the current 90%) target in terms of the contribution of coal to the energy mix by 2030 given that coal will continue to remain a major energy source and foreign income earner in South Africa at least for some time; the existence of a very strong basic fossil-fuel interest which makes it difficult for South Africa to move away from coal; the understanding that low-carbon transition anywhere in the world

comes at a cost financially, technically and technologically; the 2016-2020 set for renewable transition in South Africa is still a trial period given that there are currently no legislation or regulations and guidelines in place to enforce it, especially in terms of the carbon budget; the viability of carbon capture and storage mechanism, particularly in the context of coal- and mineral-energy complex in South Africa is not easily guaranteed; the political will around nuclear option as a strategy for achieving low-carbon transition in South Africa *vis-à-vis* issues relating to its “green” status in terms of radioactive and waste challenges; and a transition to low carbon society requires that citizens embrace and exhibit climate-friendly lifestyles and habits of which many South Africans are yet to be incentivised to such behavioural change. Hence, it is argued in this study that the extent to which such transition is achievable is also doubtful, especially in view of the country’s coal- and mineral-dominant energy mix on the one hand and the inherent difficulties in green economy changeover on the other.

Apart from the energy environment, agriculture was also singled out as a key sector towards achieving low-carbon transition in South Africa in view of its two-sided relationship with climate change. It was established that managing the agricultural environment boils down to how the Department of Agriculture, in particular, chooses to go about creating necessary reforms and effectively building in a climate-resilient agriculture into the South African economy. Regarding international support, the researcher is of the view that since it is not likely that South Africa will compromise its overriding priorities in terms of its socio-economic development as well as poverty eradication, it is expedient that the country will still need international financial support in addition to whatever the state could mobilise internally. Besides, it was found, in particular, that funding in the form of adaptation technology and capacity-building for farmers is needed in South Africa. In addition, it was discovered that climate fund facility under the newly established SA-GF, which is being managed by the DBSA as the implementing agency on behalf of the DEA, and that of the SANBI, which focuses mainly on biodiversity and community, have not been effectively utilised.

It was further established that from the point of view of the South African Constitution, the less binding and less voluntary Paris Climate Agreement, including its provision for INDCs, is legally binding on South Africa and, therefore, needs to be honoured. However, whether or not its demand for an end to fossil fuel is met by all

UNFCCC Parties and, in particular, South Africa, is another issue in view of the drawbacks of the Paris Climate Agreement on the one hand, and the country's carbon-intensive economy on the other. It is argued in the study that with the livelihood of millions of South Africans being sustained by coal-powered electricity and in as much as coal remains the cheapest energy source, the transition to a low-carbon economy in South Africa may take longer than necessary.

7.1.4 Imbalance in South Africa's global and domestic actions on climate change

Against the backdrop of the exposition above, it was found that South Africa has, no doubt, been active regarding its involvement in the global climate change process, particularly within the UNFCCC frameworks, while conversely, there are a number of issues with its domestic response to climate change which need to be looked into with a view to addressing them. Otherwise, it would be seen that the South African government is not doing enough in dealing with the problem of climate change at the domestic level.

In particular, it was established that climate change is still generally perceived as an add-on or a side-issue that degrades the development gains that South Africa has already achieved and, therefore, should not be taken seriously like other important national issues of immediate concern. Besides, South Africa is still used to the traditional ways of doing business which are mainly coal-driven and, therefore, do not incorporate or consider environmental issues or climate change impacts. In addition, it was found that the policy frameworks that South Africa currently uses in addressing the challenge of climate change are weak given the lack of inter-sectoral and inter-departmental synergy. Within the present policy frameworks, for instance, it is possible for the DoE, the DPE or even Eskom to take unilateral decisions concerning renewable energy power producing programmes (REPPPs) without consulting with the DEA. It was also discovered that at the national level, climate change considerations and planning are yet to be properly integrated into key national departments and other relevant sectors in line with the NDP framework.

With regard to the integration of existing policies, it was established that it may not be necessary to have the existing policies integrated into a single piece of legislation or a distinct national climate change act in view of the cross-cutting nature of climate change on the one hand and the current structure in South Africa on the

other. By the same reasoning, it is argued that though the idea about creating a separate national department on climate change is not inappropriate, it is, at present, not a necessity in South Africa simply because other sectors may not contribute to efforts towards addressing climate change or claim ownership of it. Furthermore, it was observed that though a small compartment compared to others like Energy, Public Enterprises and even the Presidency in terms of financial and social capital, as well as political will to get things done, the DEA could not be said to be underperforming in terms of technical expertise and feasibility of dealing with climate change.

Another key finding of the study is that South Africa's low-carbon transition, particularly in terms of renewables, is not developing at a speed to indicate a balance between the country's engagement in the global climate change process and its domestic climate change commitment in terms of policy measures and regulations. Moreover, at the national and corporate levels, advocacy and investment in coal-fired power plants continue with the construction of new coal-fired power stations such as Medupi and Kusile with each having a projected lifespan of 50 years and have both been rated two of the world's biggest coal-fired power plants. With the addition of more coal-fired power plants under whatever guise, coupled with the fact that less than one per cent of the country's electricity currently comes from renewables, South Africa apparently still has a long way to go in switching to an energy mix that is less carbonised. As a matter of fact, it is argued in the study that South Africa is actually working against the core objective of the UNFCCC in terms of GHGEs reduction, considering what the state is doing about maximising foreign income from international trade in coal.

7.1.5 Political interplay involved in South Africa's approach towards addressing climate change

Generally, it was established in the study that political considerations tend to overcloud climate change technicalities given South Africa's approach to climate change both at the global and domestic levels. At the global level, a case in point was the declaration of the NAMA commitment a day before the Copenhagen climate summit in December 2009 by President Jacob Zuma; whereas, it is expected that such commitment ideally should come from the bureaucracy rather than the political leadership of the country. In the same vein, it was found that Ministers, who are the

political heads, are usually the leaders of the country's negotiation teams to the UNFCCC meetings and, in most cases, they tend to uphold their political positions which are mostly informed by socio-economic and national development issues like eliminating poverty and eradicating inequality as against their technical positions which, ordinarily, should be about mitigating and adapting to climate change. Another key issue boils down to South Africa's continued dependence on coal rather than prioritising meeting its voluntary and over-ambitious emissions reduction target set at the international level, which simply implies that the government needs to stop the use of coal as a growth catalyst or any further investment in new coal-fired power plants since it is unrealistic to be building new coal-fired power stations when the country is expected to peak its emissions.

At the domestic level, evidences are seen in the sidelining of climate change as an environmental by-product which should not be taken seriously; the existence of political and business interaction to ensure that coal remains a major energy source in South Africa, with the business lobby group heavily dominated by Xstrata, Anglo-American, BHP Billiton, amongst others; political will around nuclear energy which is part of the planned energy mix to enable South Africa's low-carbon transition despite heavy criticisms against it from both within and outside South Africa; conflict of interest between government departments, duplication of policies relating to climate change, as well as lack of inter-departmental cooperation and synergy towards ensuring a tight and proper integration of all the policy instruments for effective implementation; lack of strong will by the current political leadership of South Africa to enforce green behaviour due to fear of loss of elections, considering that on the one hand, the dominance of the ANC as a ruling party since 1994 is being challenged by opposition parties, particularly the EFF, and on the other, that climate change is generally perceived a by-the-way thing in the political consciousness of many South Africans.

It was also found that the South African government is pursuing the low-carbon transition from more or less two conflicting angles, considering the fact that Eskom, as the national electricity utility, is domiciled within the DPE and not necessarily the DoE. Yet, within the DoE, there are energy efficiency and strategies which do not necessarily translate to how Eskom does its business under the DPE, which is to generate electricity and make income from it and not necessarily to address sustainability or climate change or energy efficiency issues.

7.1.6 Impact of the political interplay on efforts towards addressing climate change in South Africa

It was established that political interplay in terms of continued dependence on coal as a major energy source and lack of strong will from the highest political leadership *vis-à-vis* low-carbon transition, will not only diminish South Africa's active involvement in the global climate change process but also impact negatively on the country's overall efforts aimed at addressing the challenge of climate change. Another impact is that the perception of climate change as a side-issue, which should not be taken seriously, will persist in as much as political considerations are placed far and above technical positions as far as combating climate change in South Africa is concerned. Lastly, the integration of climate change considerations and planning into relevant departments and sectors will continue to be a challenge if climate change is not prioritised like other national concerns such as poverty eradication and the elimination of inequality, while it will also be a difficult thing to engender mitigation and adaptive lifestyles and habits among South Africans.

7.2 CONCLUSION

Basically, South Africa's approach to climate change is characterised by a political theatre. At the global level, the country has been actively involved in the global climate change process, particularly within the UNFCCC frameworks, while at the domestic level, there are challenges with its response in terms of policy frameworks aimed at addressing the problem of climate change. In this circumstance, it is seen that the South African government is not doing enough to indicate a balance between its interaction with climate change on the global scene and its climate change commitment at the domestic level. Much of the political interplay is reflected in the perception of climate change as an environmental byproduct and, therefore, a side-issue which should not be taken seriously compared to other pressing national priorities such as poverty eradication and elimination of inequality. The situation, no doubt, is further worsened by the imbalances of the apartheid era, which the government is also trying to address.

However, the political leadership cannot be entirely blamed for the situation, particularly in view of its failure to muster strong political will needed to bring about the desired changes which, among others, include an end to the use of coal as a major energy source and foreign income earner, neutralise basic fossil fuel interest which

seeks to ensure that coal remains a growth catalyst in South Africa, mainstream climate change considerations and planning into all relevant sectors and national departments, as well as pursue a more ambitious transition to a low carbon and climate resilient South Africa. Part of the blame also goes to majority of South Africans whose lifestyles and habits do not reflect mitigation and adaptive behaviour despite being faced with the reality of climate change virtually on a daily basis. Yet, strong political will and climate-friendly behaviour are critical to the overall efforts aimed at addressing the challenge of climate change in any society. With greater commitment and deliberate actions on the part of the South African government, including support from the international community, mostly in terms of capacity-building and technology transfer, it is concluded that the puzzling challenges are doable.

7.3 RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made:

- (1) There is a need for the South African government to approach its involvement in the global climate change process with some level of caution, particularly regarding its affiliation with many multilateral groupings with keen interest in global climate change negotiations. This is important in order to allow a balance of positions in line with the country's climate change agenda and national interest.
- (2) There is need on the part of the South African political leadership to reflect a balance between political considerations and genuine concern for addressing climate change, especially at the domestic level. Even though it is understood that South Africa is in a delicate situation, given its twin status as a contributor to climate change and one of the hardest-hit by its negative impacts, it is important that politics and vested corporate interests in coal-energy be separated from real efforts to transition to a low carbon and climate resilient South Africa.
- (3) South Africa's low-carbon transition needs to go through a fresh consultation phase to allow for public comments and national position in view of the divergent views about whether or not nuclear is a green energy source and, in particular, regarding its credibility as an alternative to coal in South Africa.
- (4) Existing climate change-related policies should be streamlined to enhance coherence for effective coordination and implementation, while climate change considerations and planning should be mainstreamed as part of core issues of

concern in all relevant national departments and key sectors in order to create multiple ownerships necessary for addressing climate change as a cross-sectoral phenomenon.

- (5) In particular, there is a need to urgently review the 2008 National Energy Act to accommodate new innovations in terms of renewable energy. This has become necessary in view of the fast-speed at which renewable energy is developing across the globe. In the same vein, efforts should be made to fast-track the process of implementing the carbon tax policy and, in particular, establishing legislation around carbon budgets for individual companies in South Africa, which are currently ongoing.
- (6) The DEA, as the national focal point of climate change in South Africa, needs to be strengthened in terms of institutional capacity to be able to bring about significant policy initiatives that are oriented towards low-carbon energy sector interventions in order to effectively address climate change in South Africa, as well as to effect compliance within the frameworks of existing climate change-related policies.
- (7) There is a need to address conflicts of interests, as well as promote inter-sectoral and -departmental synergy among key national departments with issues of primary concern with climate change. One way of achieving this is to clarify the current lines of responsibility within the energy sector departments such as DEA, DPE, DoE, DoT (Department of Transport), DAFF (Department of Agriculture, Forestry and Fisheries), DTI (Department of Trade and Industry), among others.
- (8) There is need to reprioritise the way Eskom does its business which, at present, is more concerned with generating electricity and making money from it rather than focusing on purely climate change issues in terms of energy efficiency and sustainability. If necessary, Eskom should be moved from the DPE to the DoE to be able to connect directly with the energy efficiency and sustainability mandate. Besides, there is need to consider the inclusion of Eskom in the IPPPP in order to create a balance within the IPPPP framework, thereby ensuring energy security in South Africa. Moreover, Eskom is currently muddled and needs to be broken down into pieces.
- (9) It is important that the South African government brings about the necessary political will towards addressing the challenge of climate change, as well as find ways to engage its citizenry in low carbon lifestyles and habits. These top-down

and bottom-up approaches are very crucial in combating climate change in South Africa.

- (10) The current mix in terms of perception around climate change with some of the politicians (policy-makers), officials in relevant national departments, as well as key stakeholders, including the civil society and South African citizens generally, should be urgently addressed with a view to prioritising climate change as an issue of national concern which should be taken seriously like other important national issues such as poverty eradication and elimination of inequality.
- (11) International support in the form of capacity-building and technology transfer will be needed to assist South Africa to mitigate and adapt to climate change and, in the process, fast-track its low-carbon transition. In particular, climate funding to aid adaptation technology transfer and capacity-building for farmers will be needed in South Africa. These, among others, may include production and distribution of weather forecasting devices to farmers, as well as allocation of extension agents to assist them in the interpretation of weather information in order to make appropriate decisions concerning farm operations; agricultural cropping calendars which should be produced in local dialects to improve farmers' knowledge of appropriate and best climate-friendly agricultural practices.
- (12) Lastly, the South African government should look for ways to mobilise sufficient funds internally to support a more aggressive low-carbon transition, as well as put in place mechanisms to ensure that the climate fund facilities provided under the SA-GF and the SANBI, are effectively utilised.

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APPENDICES

Appendix A (Interview Guide)

INTERVIEW (QUESTIONS) GUIDE

Thank you for agreeing to participate in this study, which primarily seeks to unearth the political interplay involved in South Africa's global actions and domestic policy on climate change. This interview guide is designed to capture useful information in this particular regard, and about the topic of the study: **Political anatomy of South Africa's climate change policy**. This study is conducted in partial fulfilment of requirements for the award of the degree of Doctor of Philosophy (PhD) in Political Studies, North-West University (Mafikeng Campus), North-West Province, South Africa. Hence, any information provided in this regard shall be kept confidential.

Questions

1. Are you aware that South Africa is a signatory to the United Nations Framework Convention on Climate Change (1992), the Kyoto Protocol (1997) and the latest Paris Agreement (2015), all of which seek to address the challenge of global climate change?
2. What is your general view about South Africa's involvement in the global climate change process?
3. It is observed that South Africa is heavily coal-dependent, with coal constituting the country's major energy source and a key driver of its economy. Do you think such coal-dependent economy is a challenge to the country's approach to climate change?
4. How would you assess South Africa's transition to a low carbon and climate resilient society?
5. Would you say there are issues regarding corporate interests in coal energy in South Africa?

6. What is your take concerning nuclear energy as a low-carbon strategy in South Africa?
7. What is your general assessment of South Africa's multi-sectoral approach towards addressing the challenge of climate change?
8. Would you subscribe to the view that South Africa is not doing enough in addressing the problem of climate change, especially at the domestic level?
9. South Africa currently has in place a number of policies and measures aimed at tackling the challenge of climate change. Would you consider the need for the integration of these policies into a distinct national climate change act?
10. Do you see the need for creating a separate national department on climate change as against the Department of Environmental Affairs that currently coordinates national implementation regarding climate change in South Africa, together with the Department of International Relations and Cooperation when it comes to international issues?
11. Recently at COP21, the UNFCCC Parties agreed to a new global climate agreement – Paris Agreement. How would you assess this agreement in the context of South Africa's transition to a low-carbon economy?

Thanks, once again, and God bless!

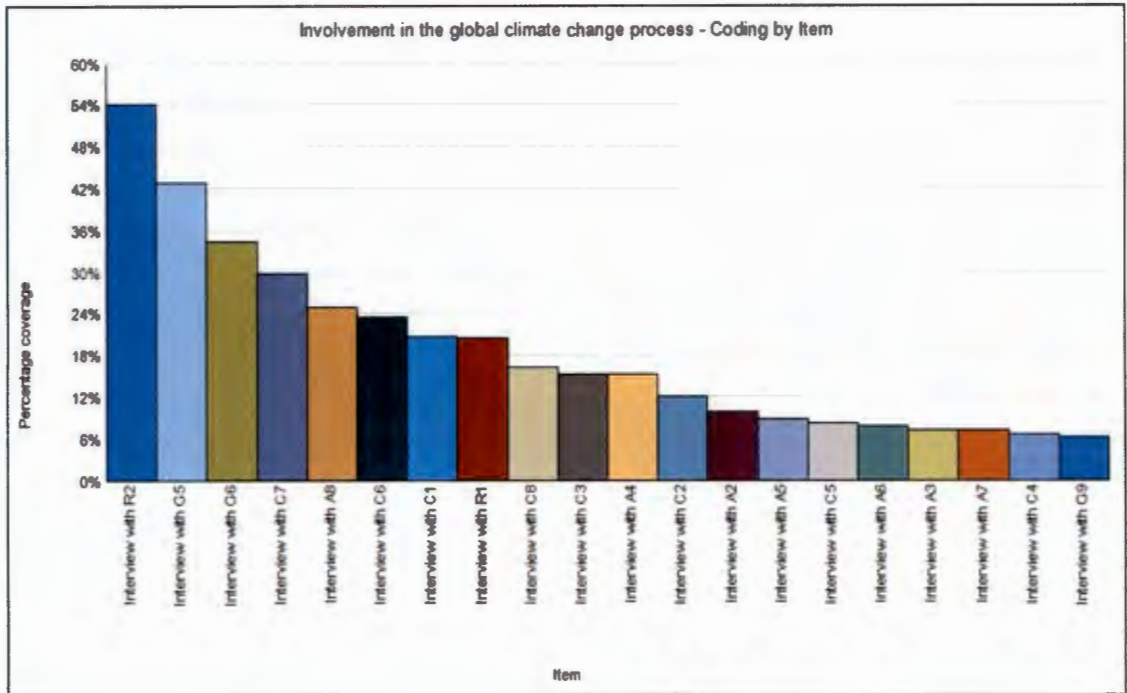
Appendix B (Political Map of South Africa)



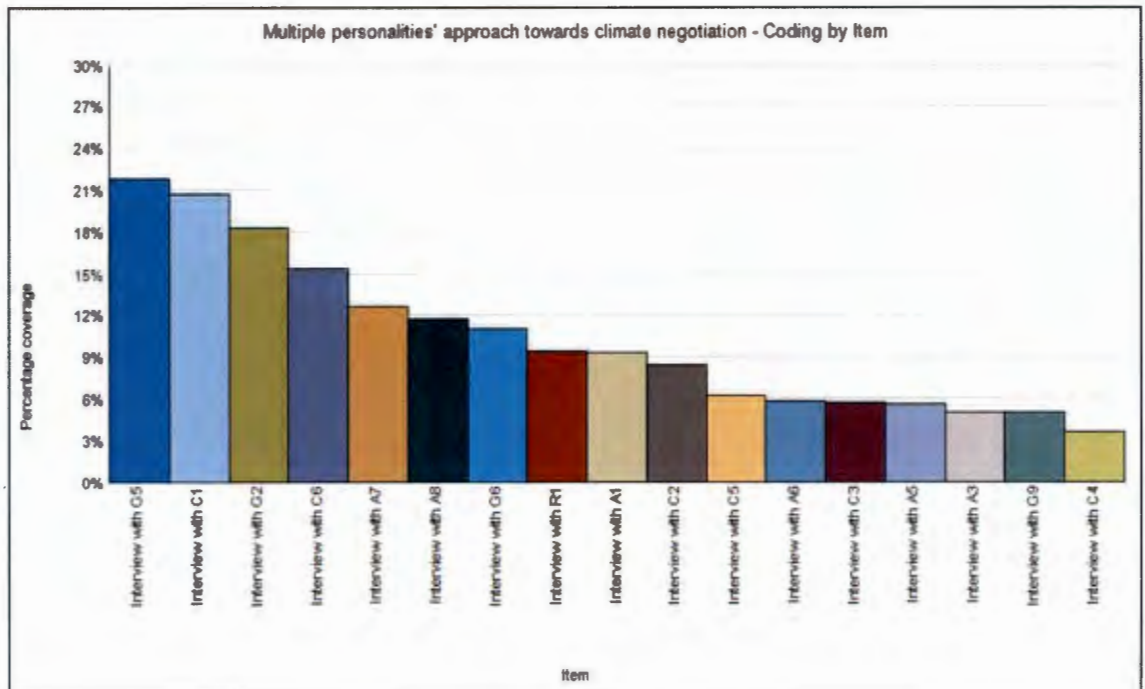
Appendix C (Climate Map of South Africa)



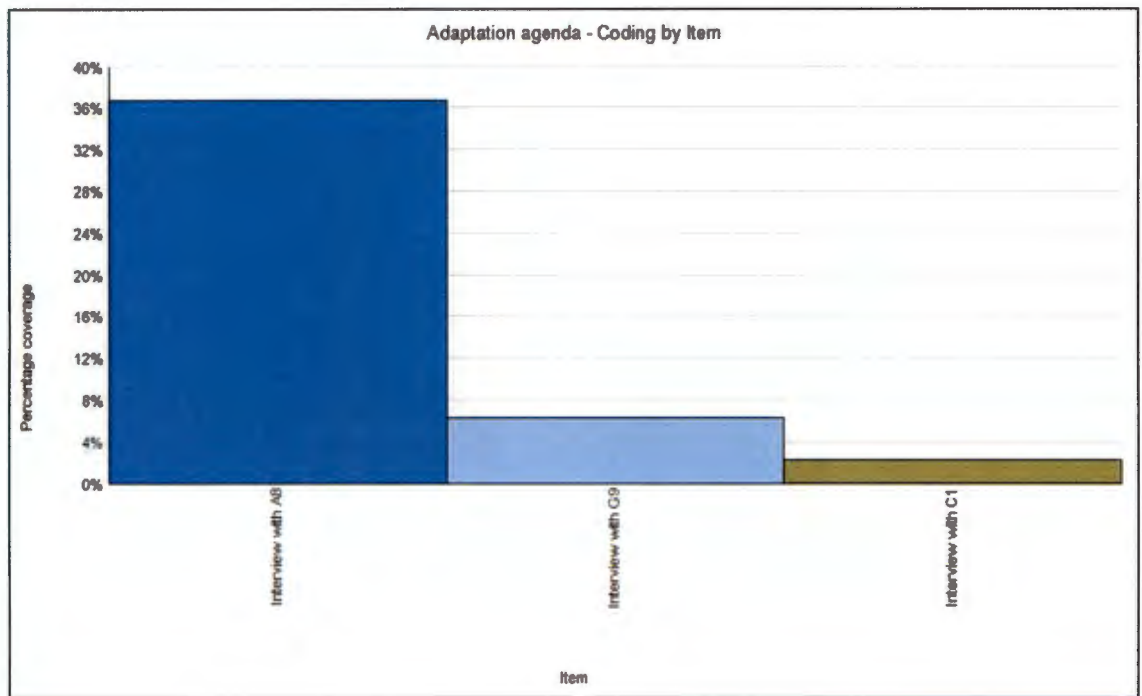
Appendix D (Involvement in the global climate change process - coding by item)



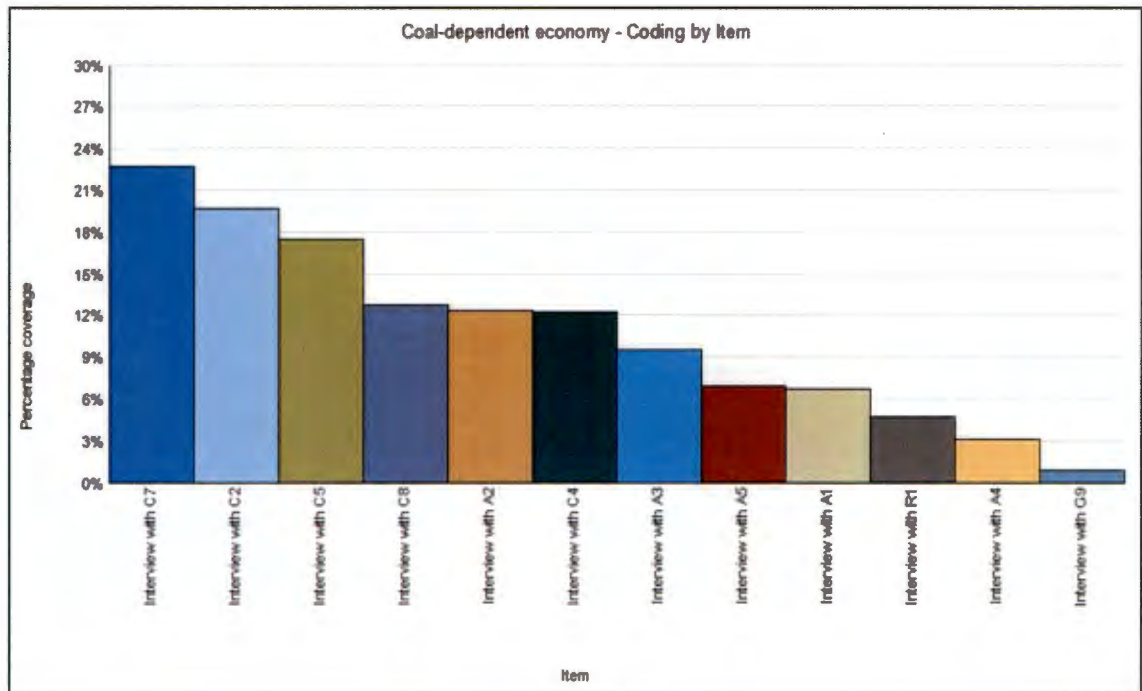
Appendix E (Multiple personalities' approach towards climate negotiation - coding by item)



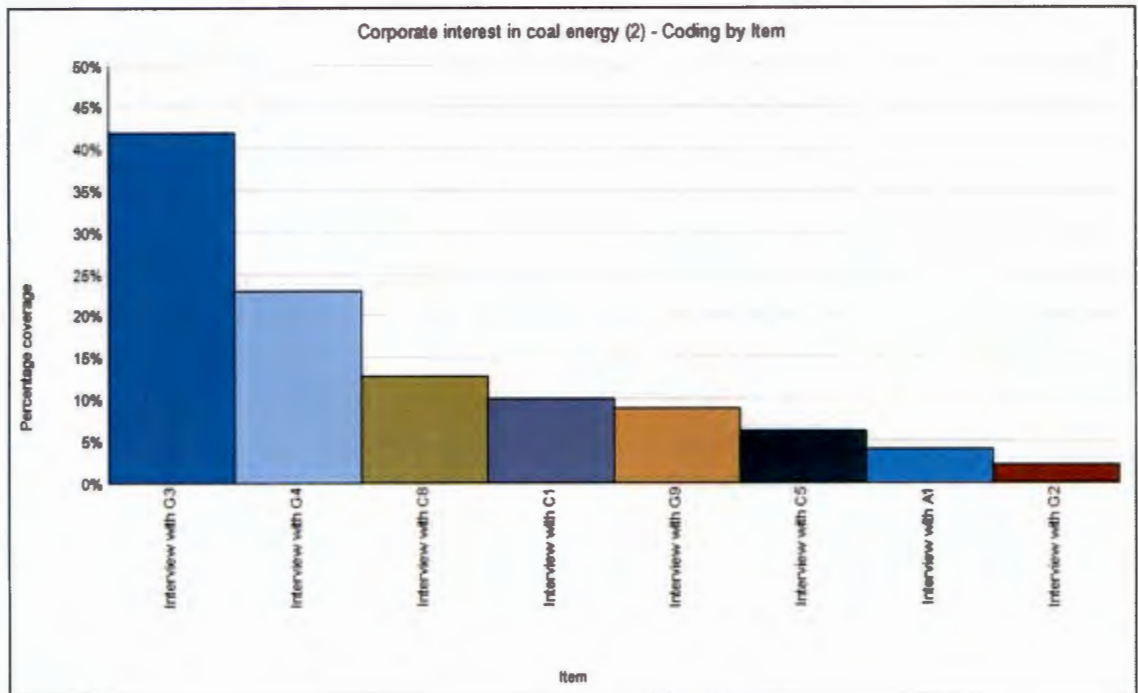
Appendix F (Adaptation agenda - coding by item)



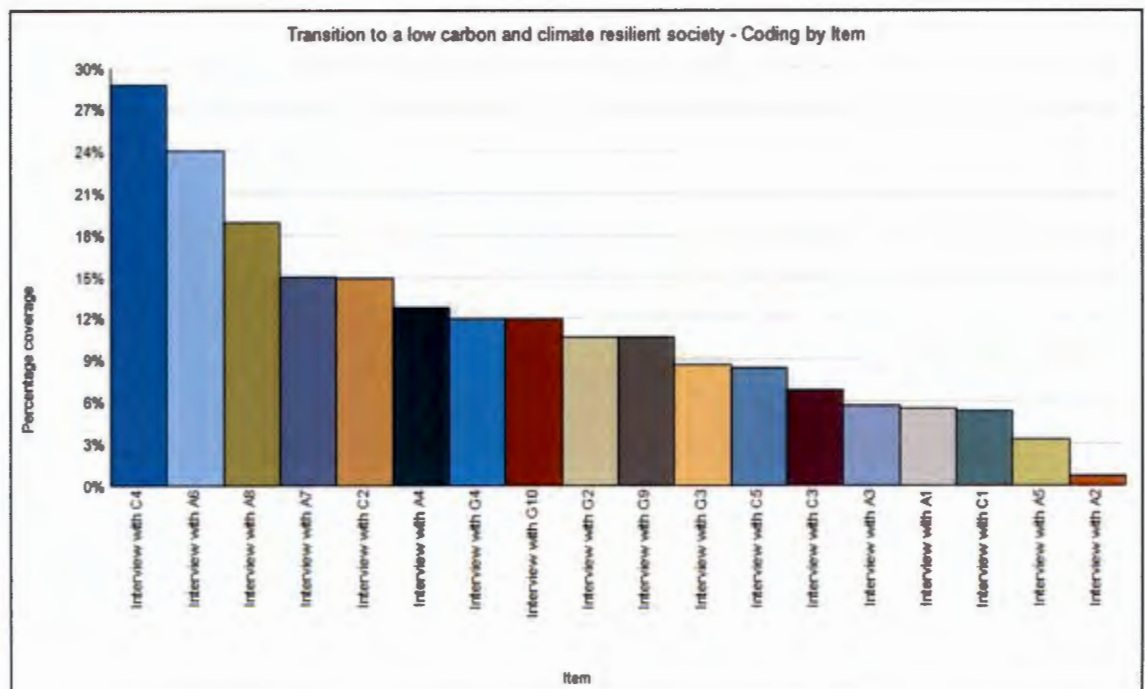
Appendix G (Coal-dependent economy - coding by item)



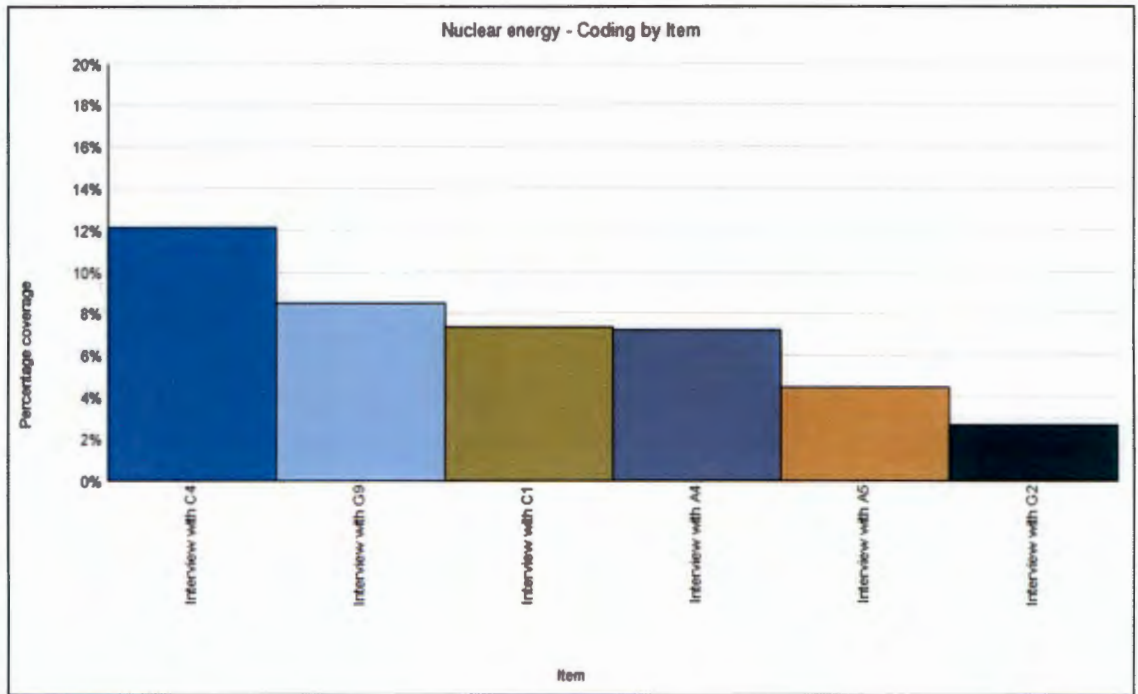
Appendix H (Corporate interests in coal energy - coding by item)



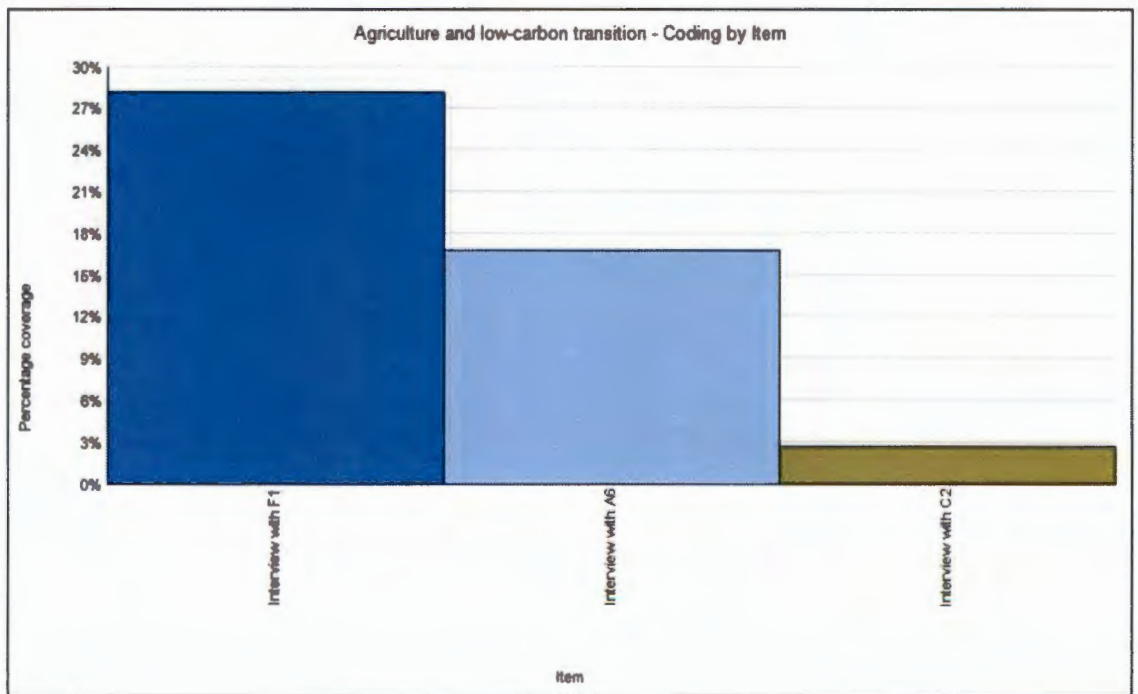
Appendix I (Transition to a low carbon and climate resilient society - coding by item)



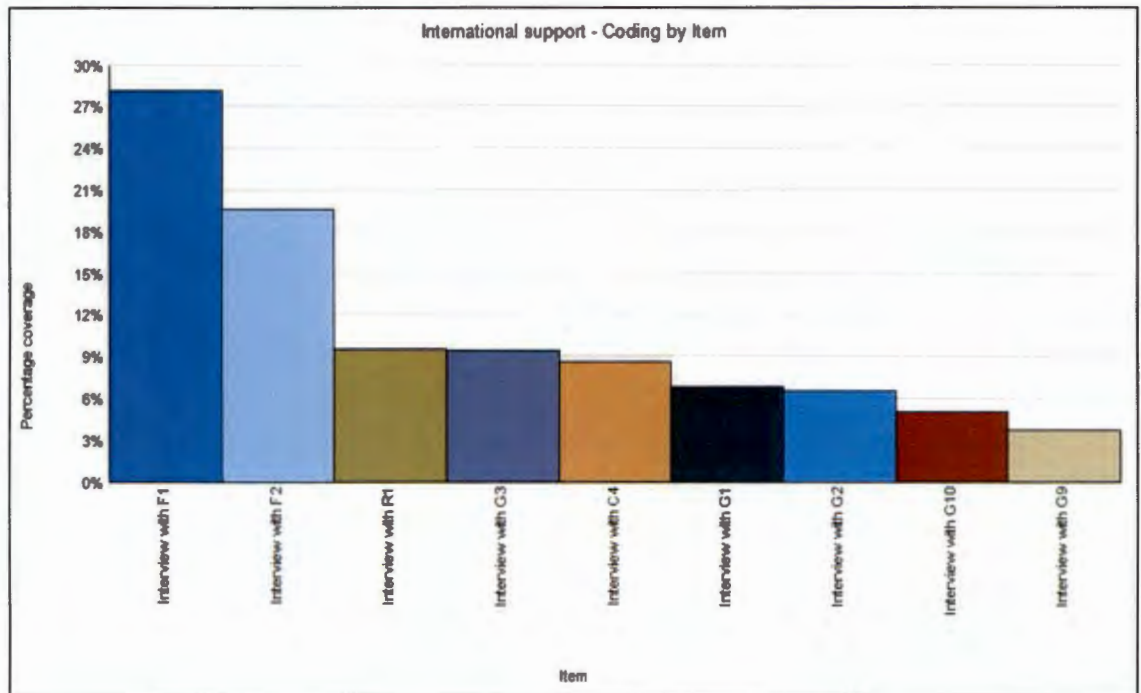
Appendix J (Nuclear energy - coding by item)



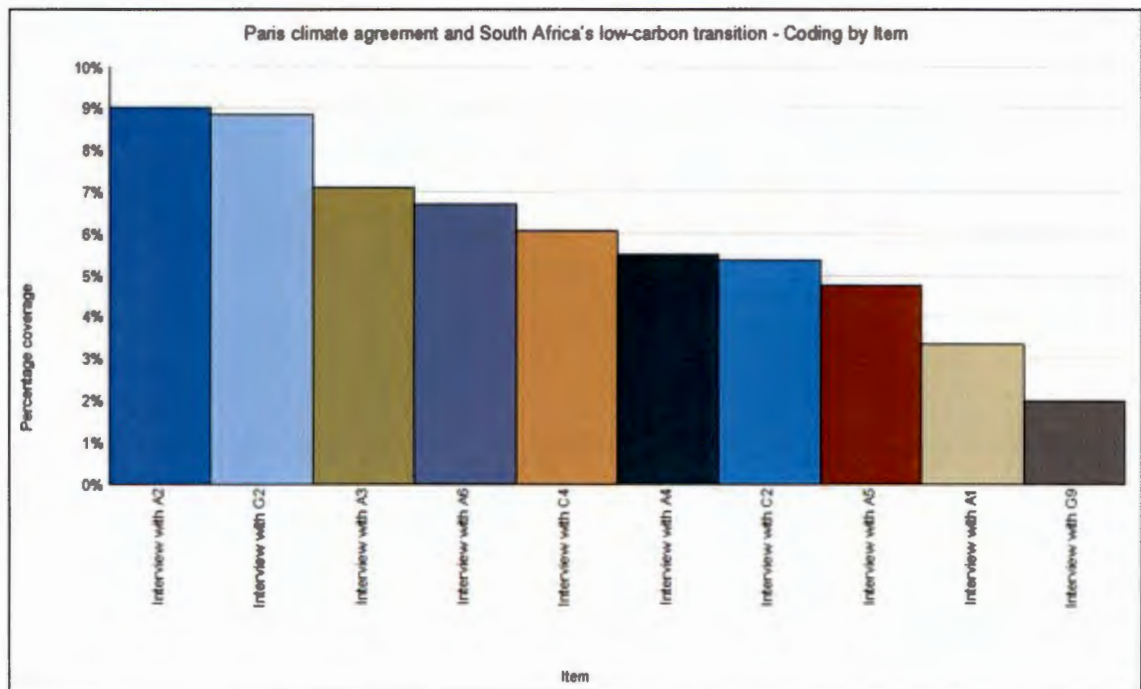
Appendix K (Agriculture and low-carbon transition - coding by item)



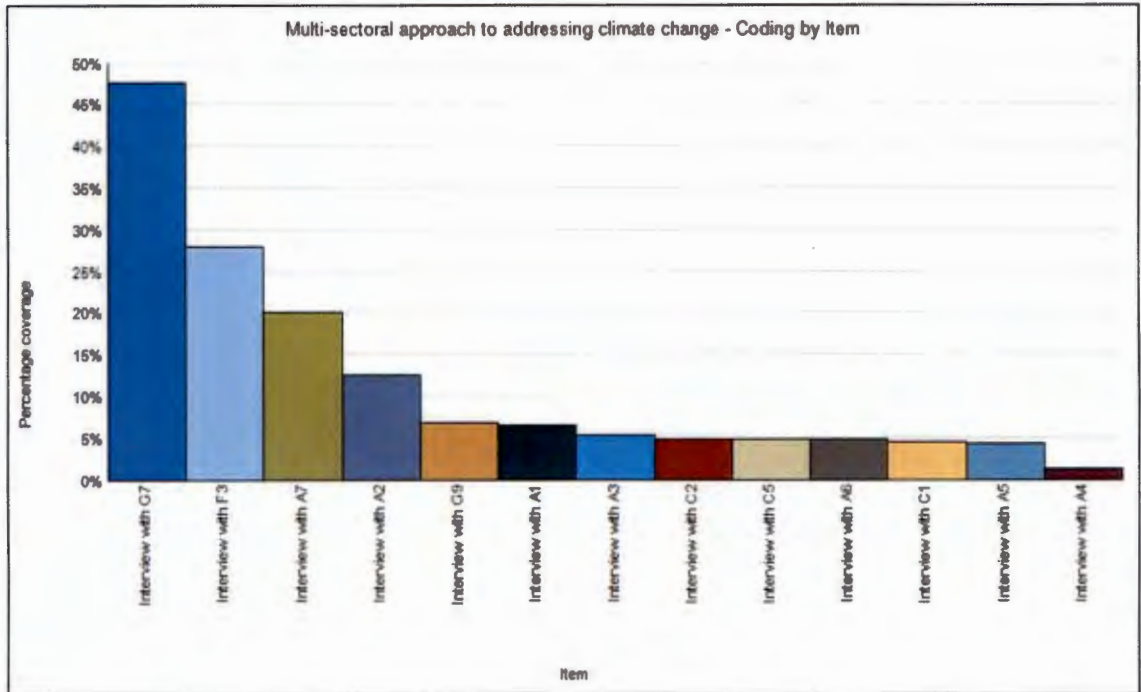
Appendix L (International support - coding by item)



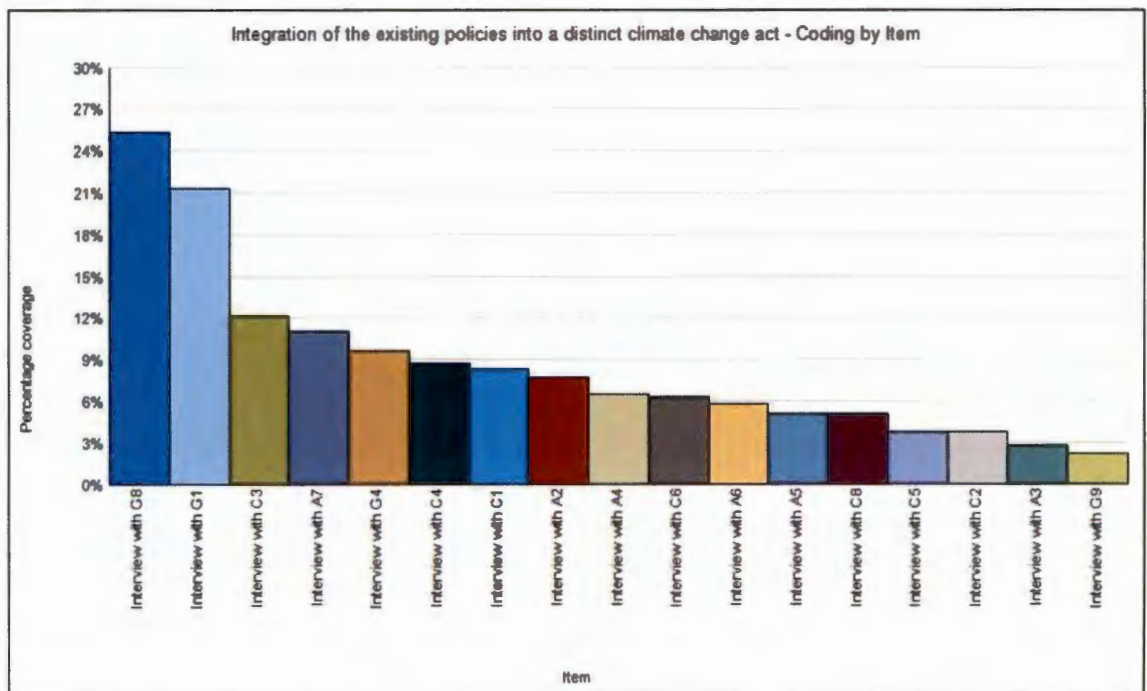
Appendix M (Paris climate agreement and South Africa's low-carbon transition - coding by item)



Appendix N (Multi-sectoral approach to addressing climate change - coding by item)



Appendix O (Integration of the existing policies into a distinct climate change act - coding by item)



**Appendix P (Establishment of a separate national department on climate change
- coding by item)**

