

Regulating the adaptation to climate change impacts in the Limpopo Province agricultural sector



I Mkhawane
orcid.org/0009-0004-0033-987X

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Supervisor: Prof M Barnard

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ABSTRACT

Climate change poses a significant risk to production in the agricultural sector of Limpopo province and is a serious threat to sustainable development. The Limpopo provincial climate change laws and policies have developed positively to implement adaptation measures.

The Limpopo Provincial Government responded by aligning with national legislation and policies to fulfil the international agreement on climate change adaptation. This dissertation aimed to determine the nature of the policies and the legal framework regulating climate change adaptation in the Limpopo province, specifically referring to the agricultural sector.

The study entailed a literature review to examine the above issue in primary and secondary sources. The researcher analysed international law and policy frameworks, national legislation, and provincial legislation and policies relating to climate change adaptation. The objectives of this study were to identify the policies and legal framework that guides adaptation to climate change impacts on the agricultural sector in Limpopo province, to determine the policies and statutes that may be used in Limpopo province to improve and strengthen resilience to climate change impacts on the agricultural sector; and to identify the institutions that could promote the implementation of policies to adapt to climate change.

This study was guided by Chapter 6 of the *Constitution of the Republic of South Africa, 1996*, which provides that the provincial executive has the authority to develop and implement legislation and policies, in this case, to regulate the climate change adaptation of the agriculture sector as indicated on Schedule 4 of the *Constitution*.

The study consists of five chapters. Chapter 1 provides the background, problem statement and research methods as the point of departure to outline the aim of the study; Chapter 2 analyses the international and regional climate change policies and legal framework to which South Africa is a party to assist the provincial government to reach the objectives; Chapter 3 provides the existing SA climate change laws and

policy framework specific to climate change adaptation plans and strategies; Chapter 4 analyses the Limpopo provincial climate change legislation and policy framework that regulates the adaptation to the climate change impacts on the agriculture sector; and Chapter 5 concludes by recommending that the Limpopo provincial government should develop, draft and implement climate change legislation and policy framework to regulate climate change impacts on the agriculture sector.

Key words: adaptation; agriculture; climate change; regulation; Limpopo province

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LIST OF ABBREVIATIONS

AU	African Union
AEL	Atmospheric emission license
AHRLJ	African Human Rights Law Journal
AQMP	Air quality management plan
CCA	Climate Change Act
CCSAP	Climate Change Strategy and Action Plan
CBDR-RC	Common but differentiated responsibilities and respective capabilities
CDM	Clean development mechanism
CEC	Committee for Environmental Coordination
CER	Certified emission reduction
CH ₄	Methane
CIFOR	Centre for International Forestry Research
CPJ	Climate Policy Journal
CO ₂	Carbon dioxide
COP	Conference of the Parties
COGHSTA	Cooperative Governance, Human Settlement and Traditional Affairs
DALRRD	Department of Agriculture, Land Reform and Rural Development
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DFFE	Department of Forestry, Fisheries and the Environment
DMRE	Department of Mineral Resources and Energy
DNE	Designated National Authority
DPEA	Durban Platform for Enhanced Action
EAB	Environmental advisory bodies
ELM	Environmental Law and Management
EIA	Environmental impact assessments
EU	European Union
GCP	Glasgow Climate Pact
GHG	Greenhouse Gas
IBERJ	International Business and Economic Research Journal

IGCCC	Intergovernmental Committee on Climate Change
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
JCJE	Journal of Criminal Justice Education
JAS	Journal of Agricultural Science
KP	Kyoto Protocol
LDP	Limpopo Development Plan
LEDET	Limpopo Department of Economic Development, Environment and Tourism
LEGDP	Limpopo Employment Growth and Development Plan
LGEP	Limpopo Green Economy Plan
LEOR	Limpopo Environment Outlook Report
LEMA	Limpopo Environmental Management Act
LPG	Limpopo Provincial Government
LSDF	Limpopo Provincial Spatial Development Framework
MBA	Master of Business Administration
MDG	Millennium Development Goal
MEC	Member of Executive Council
MSc	Master of Science
NAMA	Nationally Appropriate Mitigation Action
NAP	National Adaptation Plan
NAPA	National Adaptation Plans of Action
NCCAS	National Climate Change Adaptation Strategy
NCCRGP	National Climate Change Response Green Paper
NCCRP	National Climate Change Response Policy
NCCRWP	National Climate Change Response White Paper
NDC	Nationally Determined Contribution
NDP	National Development Plan
NEAF	National Environmental Advisory Forum
NEMA	National Environmental Management Act 107 of 1988
NEM: AQA	National Environmental Management: Air Quality Act 39 of 2004
NEM: WA	National Environmental Management: Waste Act

NWA	National Water Act
NGO	Non-governmental organisation
PILR	Pace International Law Review
PCCRS	Provincial Climate Change Response Strategy
RECIEL	Review of European Community and International Environmental Law
RPR	Review of Policy Research
SA	South Africa
SADC	South Africa Development Community
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technology Advice
SEMA	Specific Environmental Management Act
TSAR	Tydskrif vir die Suid-Afrikaanse Reg
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
USA	United States of America
WMO	World Meteorological Organisation
YJIL	Yale Journal of International Law

Chapter 1: Introduction and background

1.1 Background

The agricultural sector plays an important role in the economy, both locally and globally. In South Africa (SA), the sector creates sustainable jobs for both experienced and inexperienced workers. It can potentially contribute to the provincial economy by applying climate change adaptation techniques.¹ Limpopo province is one of the nine provinces confronted with risk due to vulnerability to climate change, especially in changes in rainfall patterns, livestock, crop production, and reduced forestry plantations.²

Indeed, SA depends on the agricultural sector for food security. According to Akinngbe and Irohibe, agricultural activities contribute to climate change impacts by producing greenhouse gas (GHG) emissions like chlorofluorocarbon, coming in third after the energy sector.³ Farmers need background knowledge about the GHG emissions caused by agricultural activities.⁴ Carbon dioxide (CO₂) is one of the GHGs that farmers use as chemicals to spray crops, not knowing that they are causing air pollution.

The SA government has subsequently drafted several policies and legislation to address the impacts of climate change. This study identifies the policies and laws that regulate climate change adaptation related to the agricultural sector at the international, national and provincial levels. SA, as a developing country,⁵ decided to become a signatory to international instruments on climate by participating in the

¹ Pienaar, Coetzee and NemaKonde 2021 *Journal for Transdisciplinary Research in South Africa AOSISOpen Access* 1.

² Fuggle and Rabie *Environmental Management in South Africa* 797.

³ Akinngbe and Irhohibe 2014 "Agricultural adaptation strategies to climate change impacts in Africa: A Review" 407.

⁴ Maponya and Mpadeli 2012 *JAS* 48.

⁵ *UNFCCC Kyoto Protocol* (KP), Non-Annex https://unfccc.int/Kyoto_protocol.

Conference of Parties of the *United Nations Framework Convention on Climate Change* (hereafter *UNFCCC*)⁶ and the *Paris Agreement*.⁷

The *UNFCCC* is an international treaty that came into force in 1994. Different heads of state agreed on international instruments that will help reduce the impacts of climate change.⁸ In 1997, SA became a signatory to the *UNFCCC*,⁹ and then, in 2002, it acceded to the Kyoto Protocol (hereafter the *Kyoto Protocol*).¹⁰ The *Kyoto Protocol*, adopted in December 1997, provides that the developed countries referred to as Annex I are not required to reduce their GHG emissions at an average of 5, 2% below levels.¹¹ As a developing country referred to as Non-Annex I, SA is not expected to reduce its GHG emissions in terms of the Kyoto Protocol.¹²

The above international instruments focus much on limiting the GHG emissions relevant to mitigation, whereas this study deals with adaptation. SA is legally bound to comply with the recent *Paris Agreement* and has obligations to stabilise GHG concentrations trapped in the atmosphere by implementing environmental policies to address climate change regarding social and economic factors.¹³

In 2020, the SA government responded by adopting the *National Climate Change Adaptation Strategy* (hereafter the *NCCAS*), which provides climate change adaptation information, as well as the National Adaptation Plan (NAP) in order to align with the commitment required in terms of Article 7 of the *Paris Agreement* to the *UNFCCC*.¹⁴ The SA as a developing country is binding by this agreement, represented by its government. In terms of section 40 of the *Constitution* states that government is constituted by national, provincial and local government.¹⁵

⁶ United Nation Framework Convention on Climate Change (UNFCCC), 1992.

⁷ The *Paris Agreement*, 2015 <https://unfccc.int/process-meetings/the-paris-agreement>.

⁸ Beukes *et al Environmental Law* 71.

⁹ Dugard International law: *A South African Perspective* 407.

¹⁰ Denga *A critical review of the consideration of climate change risks and opportunities in Environmental Impact Assessments* 11.

¹¹ Beukes *et al Environmental Law* 72.

¹² Fuggle and Rabie *Environmental Management in South Africa* 751.

¹³ Article 4 of the *UNFCCC*.

¹⁴ South Africa First National Determined Contribution under the Paris Agreement 2021 5.

¹⁵ Section 40 of the *Constitution of the Republic of South Africa*, (hereafter the

The responsibility to implement international duties are rest on all spheres of government taking into account their legally defined powers and functions. Therefore, it is also binding on the Limpopo province.

This *NCCAS* policy can guide the agricultural sector in implementing climate change adaptation, and it is not limited to the other sectors. Other SA climate change policy developments and legislation that align with international agreements include but are not limited to the *National Climate Change Response Policy (NCCRP)*, *Climate Change Act* 22 of 2024; National Development Plan (NDP); *National Climate Change Response White Paper* (2011); *National Climate Change Response Green Paper* (2010); *Nationally Determined Contribution; Long Term Adaptation Scenarios* (2013 and 2015); *Green Economy Summit* (2010); and *National Environmental Management Act*, 107 of 1988 (hereafter NEMA).¹⁶

1.2 Problem statement

Limpopo province, one of the poorest provinces in the country,¹⁷ faces a lack of rainfall due to climate change. This has resulted in higher temperatures, droughts, deforestation, and changes in seasonal levels that negatively affect farmers' agricultural production. Agriculture is one of the sectors that play an essential role in our economic development by providing food security. It is the pillar of sustainable development, but only if climate change policies and legislation are implemented to address this situation.

According to Dugard, climate change is caused by increased greenhouse gas concentrations in the atmosphere.¹⁸ Climate change is not something you can handle and touch physically, and it is not visible because there are gases that remain in the atmosphere. The whole world today faces serious environmental challenges when it comes to climate change issues.¹⁹ SA is classified as a developing country

Constitution), 1996.

¹⁶ Fuggle and Rabie *Environmental Management in South Africa* 762.

¹⁷ Maponya and Mpandeli 2012 *Journal of Agricultural Science* 39.

¹⁸ Dugard International law: A South Africa Perspective 410.

¹⁹ Linn and Maenhout 2019 *Open Access* 1.

in terms of the *Kyoto Protocol*, and the agricultural sector faces serious threats to production because of climate change.²⁰

The *UNFCCC* defines climate change as a change in climate caused directly or indirectly by human activity that changes the atmosphere globally over time.²¹ The human activities that cause environmental harm centre on the increase in GHG concentrations, including CO₂, methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulphur hexafluoride (SF₆).²²

SA is counted as one of the countries that emits high levels of CO₂. Most come from the energy sector, while CH₄ emissions from agriculture contributed between 1990 and 1994.²³ According to the World Bank group, researchers found that SA recorded temperatures of 18, 3°C monthly minimum average, reaching between 22°C during summer down to 11° C during winter receiving around 456.0 mm of rain.²⁴ The higher the temperature, the more climate change affects the distribution and availability of water. Water shortages negatively affect the economy, people, and ecosystem, as well as changes in agricultural activities.²⁵

Climate change poses a dangerous threat to the agricultural sector in Limpopo province. Therefore, this study seeks to investigate whether there is legislation, policies and strategies that guide adaptation to the climate on the agricultural sector in the province. The national legislation, policies and strategies could benefit the Limpopo province if its align with them in terms of adaptation to climate change in agricultural sector. The lack of access to information and knowledge related to

²⁰ Pinaar *An exploration of commercial and subsistence farmers climate change adaption Strategies in the Ditsobotla local municipality, North-West Province, South Africa* 4.

²¹ Article 1 of the *UNFCCC*.

²² Annex A of the *Kyoto Protocol*.

²³ South Africa Initial National Communication under UNFCCC 2000 iii.

²⁴ Bronkhorst World Bank Group 2021 5 <https://climate.knowledgeportal.worldbank.org/site/default>

[files/country-profiles/159932-WB_South%20Africa%20country20Profile-WEB.pdf](https://climate.knowledgeportal.worldbank.org/files/country-profiles/159932-WB_South%20Africa%20country20Profile-WEB.pdf).

²⁵ Department of Water and Sanitation Climate Change Policy 13.

climate change adaptation measures is affecting farmers differently in terms production in the Limpopo province.²⁶

This study is based on Schedule 4 of the *Constitution of the Republic of South Africa, 1996 (Constitution)*, where the agriculture sector is mandated as a functional area of concurrent national and provincial legislative competence.²⁷ Chapter 6 of the *Constitution* states that the provincial executive has the authority to develop and implement legislation and policies.²⁸ Therefore, the Limpopo provincial executives have the legal duty to govern, and to develop and implement policies. It also has the environmental responsibility to promote a safe and healthy environment in the province. The provincial executives must consider constitutional rights²⁹ when they draft, develop, and implement policies and legislation that will govern climate change adaptation.

Furthermore, the study expands on the national and provincial legal and policy frameworks that address climate change, including the *NCCAS*. The *NCCAS* policy aligns with *Paris Agreement* on climate change and meets its mandate.³⁰ The main objectives of *NCCAS* are to show commitment to the *Paris Agreement* by guiding adaptation to build climate resilience, adaptive capacity to response to climate change risk, vulnerability, and to promote development by planning and implementing the policies.³¹

The other related national and provincial policies and legislation are the *National Climate Change Response Policy (NCCRP)*, *Nationally Determined Contribution (NDC)*, *National Development Plan (NDP)*, *NEMA, (1998)*; *National Environmental*

²⁶ Article 6 of the *UNFCCC* 1992.

²⁷ Schedule 4 of the *Constitution*.

²⁸ Section 125 of the *Constitution*.

²⁹ Section 24 of the *Constitution*, provides that every person has the right to have an environment that is not harmful to their health and well-being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

³⁰ Department of Forestry, Fisheries and the Environment 2020 <https://www.dffe.gov.za>.

³¹ *NCCAS* 7.

Management: Air Quality Act (NEM: AQA, 2004); Limpopo Development Plan (LDP 2020-2025); Limpopo Environmental Management Act (LEMA,2003); Limpopo Green Economy (2013); and Climate Change Act (2024). The SA Constitution, in Chapter 2, the Bill of Rights, provides the right to a safe and healthy environment, as stated in Section 24. This provision gave guidance when drafting the NCCAS.³²

1.3 Research aim and objectives of the study

The aim of this mini-dissertation is to determine the nature of the policies and the legal framework regulating climate change adaptation in Limpopo province's agricultural sector.

In order to reach the aim of this study, the objectives are as follows:

- (1) Objective one: To identify the policies and legal framework that guide adaptation to the climate change impacts on the agricultural sector in Limpopo province;
- (2) Objective two: To determine the policies and statutes that may be used in Limpopo province to improve and strengthen resilience to climate change impacts on the agricultural sector; and
- (3) Objective three: To determine the institutions that could promote the implementation of policies in order to adapt to climate change.

1.4 Definition of related terms

- (i) According to *UNFCCC*, "adaptation" is defined as:

Adjustments in ecological, social or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices and structures to moderate potential damages or benefit from opportunities associated with climate change.³³

³² First *NDC* 2021 6.

³³ *UNFCCC* <http://unfccc.int/topics/adaptation-and-resilience/the-big-picture>.

- (ii) The term "Agriculture" is the science, art, practice or occupation concerned with the active production of useful plants, fungi or animals for the production of food, fibre, fuel or other products, for the primary purpose of sustaining life, and in varying degrees the preparation and marketing of the resulting products.³⁴
- (iii) "Climate change" refers to changes in temperature and rainfall seasons attributed directly or indirectly to human activity that alters the composition of the global atmosphere. It is observed over comparable time periods in addition to natural variability.³⁵

The Intergovernmental Panel on Climate Change (IPCC) further defines "climate change" as a change in the state of the climate that can be identified by changes in the mean and the variability of its properties, and that persists for an extended period, typically decades or longer.³⁶

The two above definitions differ in that the *UNFCCC* mention human activity, whether directly or indirectly, and IPCC does not stipulate whether human activity is affecting the state of climate.

Climate change affects many industries in the world, including agricultural activities, and is considered the worst threat to sustainable development.³⁷ Researchers Khavhagali *et al*/state that "climate change" is a key socioeconomic and environmental concern in SA.³⁸ Applying Khavagali statements to this study, the provincial governments should develop climate change adaptation policies

³⁴ Department of Agriculture, Forestry and Fisheries 2016 <https://cer.org.za/wp-content/uploads/2016/09-Drat-Bill-2016.pdf>.

³⁵ Article 1 of the *UNFCCC* definitions.

³⁶ Intergovernmental Panel on Climate Change (IPCC) 2007 <https://www.ipcc.ch/about>.

³⁷ Akinagbe and Irhohibe 2014 "Agricultural adaptation strategies to climate change impacts in Africa: A Review" 407. *NEMA*, PREAMBLE outlines sustainable development that it requires the integration of social, economic and environmental factors in the planning, implementing and evaluation of decisions to ensure that development serves present and future generation.

³⁸ Khavhagali *et al Open Access* 458.

that align with national policies to help agricultural activities achieve sustainable projects.

(iv) The terms “policies and measures” are defined as the way a national, provincial, or local government organ of state exercises powers or performs a function in response to climate change by implementing instruments, policies and programmes to mitigate emissions relating to the requirements stipulated by the United Nations Framework Convention on Climate Change, the Paris Agreement or any other global climate change agreement under the United Nations Framework Convention on Climate Change.³⁹

1.5 Study area

The Limpopo province is one of the nine provinces of the Republic of SA and one of the poorest.⁴⁰ It is the northernmost province and shares borders with neighbouring countries such as Botswana to the west, Mozambique to the east and Zimbabwe to the north.⁴¹ The name derives from the well-known Limpopo River that forms the border between Zimbabwe and Botswana.⁴²

The province is constituted of five provincial district municipalities and 22 local municipalities.⁴³ The districts are Waterberg, Capricorn, Vhembe, Mopani, and Sekhukhune.⁴⁴ The capital city of the province is Polokwane in the Capricorn District Municipality. According to the Limpopo Development Plan, the population in 2019 was estimated at 5 985 854. The official languages are English, Afrikaans, Sepedi, Xitsonga, and Tshivenda. The most frequently spoken home language is Sepedi, followed by Tshivenda and then Xitsonga.⁴⁵

³⁹ Draft Climate Change Bill 2021 11.

⁴⁰ Maponya and Mpandeli *JAS* 39.

⁴¹ Limpopo Provincial Government https://www.limpopo.gov.za/?page_id=3412.

⁴² Limpopo Provincial Government https://www.limpopo.gov.za/?page_id=3412.

⁴³ Limpopo Development Plan 2020-2025 2021 180 <https://www.Limpopo.gov.za/Limpopo.Development-Plan-2020-2025.pdf>.

⁴⁴ Municipalities of South Africa <https://municipalities.co.za/vacancies/index/5/limpopo>.

⁴⁵ Limpopo Development Plan 2021 41 <https://www.Limpopo.gov.za/Limpopo.Development-Plan-2020-2025.pdf>.

1.6 Research methodology

Research methodology refers to the different steps taken by a researcher to study and address a problem in a logical manner.⁴⁶ According to Marubini, research methodology focuses on the research process, steps, tools, and procedure within the area of study.⁴⁷ Therefore, the research methodology may consist of various steps to conduct a study, such as a literature review.⁴⁸

A literature review requires a clear understanding of the research question to be studied⁴⁹ and involves a comprehensive overview of prior research on a specific topic.⁵⁰

The researcher conducted a literature review to address the research question. The study consulted primary and secondary sources, including international law, regional treaties, national legislation, provincial legislation and policies relating to climate change adaptation. All the Limpopo provincial legislation and policy documents on climate change adaptation related to the agricultural sector were reviewed to address the purpose of this research study.

Secondary sources were consulted by means of desktop research involving the North-West University library, Google, Google Scholar, academic journal articles, academic books, government publications, and dissertations.

⁴⁶ Only study guide for LME3701 *Legal Research Methodology* 14.

⁴⁷ Marubini *The effect of climate change on the farming business in Nwanedi irrigation scheme in Musina Local Municipality, Limpopo Province* 22.

⁴⁸ Bredenkamp *Agricultural adaptation to intensifying El Nino and La Nina periods within North West, South Africa* 11.

⁴⁹ Denney and Tewksbury 2013 *JCJE* 221.

⁵⁰ Denney and Tewksbury 2013 *JCJE* 218.

Chapter 2: International, regional legal and policy framework

2.1 Introduction

On this chapter main focus is on the first research objective, which states to identify the policies and legal framework that guide adaptation to climate change impacts on the agricultural sector in Limpopo province. The different international instruments will be discussing in manner that is understood and aligned with national legislation and policies, aiming to achieve the first objective of this study. This chapter outline different international legal instruments on climate change both mitigation and adaptation, including the *UNFCCC*, the *Kyoto Protocol*, the *Paris Agreement* and the *Glasgow Climate Pact*.

The United Nations General Assembly (UNGA), initiated the development of the field of international climate change law by passing Resolution 15/212.⁵¹ The UNGA is official international organisation for negotiations for an international climate change treaty. The international community realised that climate change is a global problem and decided to develop the treaty, protocol and regulations for implementation at all levels of governance. Within two years, the UNGA adopted the *UNFCCC*.⁵²

2.1.1 The Intergovernmental Panel on Climate Change, 1988

The Intergovernmental Panel on Climate Change (IPCC) is one of the main independent bodies established in 1988 under the World Meteorological Organization (WMO) and the United Nations Environmental Programme (UNEP).⁵³ The IPCC is mandated to provide policymakers with a synthesis report on scientific processes based on climate change and its impacts, considering options for mitigation, adaptation, and future risk assessment.⁵⁴

⁵¹ Carlarne, Gray and Tarasofsky *International Climate Change Law* 4.

⁵² Carlarne, Gray and Tarasofsky *International Climate Change Law* 4, UNGA Resolution that requires a framework that includes binding obligations and reflects continuing resistance by a few developing countries to agree to legally binding commitments that would be applied to all.

⁵³ UNFCCC <https://unfccc.int/topics/science/workstreams/cooperation-with-the-ipcc>.

⁵⁴ IPCC <https://www.ipcc.ch/site/assets/uploads/2024/04/IPCCfacts-what-is/ipcc.pdf>.

The IPCC does not undertake scientific research,⁵⁵ but it reviews and assesses the scientific information produced by different international institutions from climate change science.⁵⁶ The different institutional bodies in the UNFCCC, namely, the Conference of the Parties (COP),⁵⁷ the Subsidiary Body for Scientific and Technology Advice (SBSTA),⁵⁸ and the Secretariat, have demonstrated their appreciation of the good work that the IPCC contributes to the nations.

In 2023, the IPCC recently produced a Synthesis Report of the Sixth Assessment Report. It indicated that to reach the Paris Agreement commitment to reduce global temperature by around 2°C and limit the temperature increase to 1.5°C,⁵⁹ global emissions should be reduced by around 43% in 2030.⁶⁰ The IPCC further indicated that all sectors are in the advanced stages of adaptation planning and implementation of their climate policies.⁶¹

2.1.2 The United Nations Framework Convention on Climate Change, 1992

The *UNFCCC* was adopted in 1992 at the Rio Earth Summit to address international environmental problems, specifically the consequences of climate change. It came into force on 21 March 1994.⁶² The *UNFCCC* is an international legal instrument ratified by around 198 countries, aiming to incorporate it to combat climate change.⁶³ Those countries that ratified the Convention are named Parties to the Convention. In 1993, the SA government signed and ratified the Convention in August 1997.⁶⁴ Therefore, SA is a Party to the *UNFCCC*.

⁵⁵ Fuggle and Rabie *Environmental Management in South Africa* 738.

⁵⁶ Beukes *et al Environmental Law* 71.

⁵⁷ Article 7 of the *UNFCCC*.

⁵⁸ Article 9 of the *UNFCCC*.

⁵⁹ Article 2 of the *Paris Agreement* 2015.

⁶⁰ UNFCCC <https://unfccc.int/news/statement-by-simon-stiell-un-climate-change-executive-secretary-on-the-ipcc-s-synthesis-report-of>.

⁶¹ IPCC 2023 Summary for Policymakers 8.

⁶² UNFCCC <https://unfccc.int/process-and-meeting/what-is-the-united-nations-frameworkconvention-on-climate-change>.

⁶³ Beukes *et al Environmental Law* 71

⁶⁴ Glazewski *Environmental Law in South Africa* 3.2.1.1.

According to Article 2 of the *UNFCCC*, its objective is to:

“achieve stabilisation of greenhouse gas concentration in the atmosphere at the 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.”⁶⁵

The term ‘dangerous’ refers to the mandate to limit the average global temperature increase to less than 2°C by means of political pressure.⁶⁶ This objective says much about mitigation over adaptation.⁶⁷ The primary policy response in terms of *UNFCCC* is mitigation rather than adaptation.⁶⁸ The term “climate change” is defined in Article 1 of the *UNFCCC*.⁶⁹

The *UNFCCC* has two annexes, so developed countries that are party to the Convention are signed with different obligations. Annex I countries have market economies, while countries listed in Annex II are not.⁷⁰ The *UNFCCC* approach is different from the Kyoto Protocol discussed later on. SA, as a developing country, is not listed in the annexes but has general obligations in terms of the *UNFCCC*. Developed countries listed in Annex I are advancing towards a market economy. SA belongs among the Annex II Parties, which are developing countries.⁷¹

The *UNFCCC* aims to achieve the above objective by implementing the following principles that guide all Parties in their response to climate change:

- (a) Common but differentiated responsibilities and respective capabilities (CBDR-RC), called “fairness” and “equity” principle;⁷²

⁶⁵ Article 2 of the *UNFCCC*.

⁶⁶ Hermwille *et al* “UNFCCC before and after Paris” 11.

⁶⁷ Bodansky 1993 *YJIL* 500.

⁶⁸ Schipper 2006 *RECIEL* 86.

⁶⁹ Article 1 of the *UNFCCC*. Provide that “climate change” means 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.

⁷⁰ Glazewski *Environmental Law in South Africa* 3.2.1.1.

⁷¹ Fuggle and Rabie *Environmental Management in South Africa* 749.

⁷² Article 3(1) of the *UNFCCC*. Which requires that the developed and developing country have obligations of combating climate change but each country have different responsibilities depending on their resources.

- (b) The precautionary principle;⁷³
- (c) Developing countries should be considered;⁷⁴
- (d) Promoting sustainable development;⁷⁵ and
- (e) All Parties need to promote economic growth through international trade.⁷⁶

The two above principles underlying the *UNFCCC*, namely, sustainable development and the precautionary measure, align with environmental principles in section 2 of the *NEMA*.⁷⁷ The international environmental law and SA environmental legislation, policies and principles are similar in their efforts to combat climate change.

The principle of CBDR-RC is further explained in more detail in terms of Article 4 of the *UNFCCC*, which defines the commitments of Annex I (developed countries) and Annex II (developing countries). These are required in the *Kyoto Protocol*.⁷⁸ This study focuses on adaptation, not mitigation. Therefore, from the commitments points of view, there are a few stipulations that deal with adaptation with respect to both developed and developing countries as follows:

- “(i) Developed and developing countries have to formulate, implement, publish and regularly update national and regional programmes containing measures to facilitate adaptation to climate change.⁷⁹

⁷³ Article 3(3) of the *UNFCCC*. Which requires that the countries should take precautionary measures to anticipate, prevent or minimise the cause of climate change and mitigate its adverse effects.

⁷⁴ Article 3(2) of the *UNFCCC*. The developing country especially those that are particular Vulnerable to the adverse effects of climate change should be given full consideration.

⁷⁵ Article 3(4) of the *UNFCCC*. Policies and measures needs to be taking into consideration whereby economic development is essential for adopting measures to address climate change.

⁷⁶ Article 3(5) of the *UNFCCC*.

⁷⁷ Section 2(3) (4) and 2(4) (a) (vii) of the *NEMA*. Section 2(3) of the Act states that development must be socially, environmentally and economically sustainable. Section 2(4)(a)(vii) of the same must be socially, environmentally and economically sustainable. Section 2(4)(a)(vii) of the same Act, provides that a sustainable development requires the consideration of all relevant factors that Ac, provides that a sustainable development requires the consideration of all relevant factors that a risk-averse and cautions approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions.

⁷⁸ Bodansky 1993 *YJIL* 503.

⁷⁹ Article 4(1) (b) of the *UNFCCC*.

- (ii) All Parties have to cooperate in preparing for adaptation to the impacts of climate change, especially water resources and agriculture in Africa.⁸⁰
- (iii) Parties have to promote and cooperate in scientific, technological, technical, and socio-economic endeavours to reduce the causes of climate change. This commitment supports the IPCC working group programmes.⁸¹
- (vi) Annex I and Annex II countries are required to promote and cooperate with education, training, and public awareness about climate change.”⁸²

The *UNFCCC* requires developed countries to continue with adaptation duties to help developing countries financially to meet the adaptation commitment⁸³ and to facilitate and finance technology.⁸⁴ As a developing country that is vulnerable to the adverse effects of climate change, SA should be assisted financially and with new technology from developed countries to meet the adaptation commitment in terms of the *UNFCCC*.⁸⁵

Mitigation and adaptation are applied in terms of the *UNFCCC*, which supports research and systematic observation, education, training, and public awareness.⁸⁶ The *UNFCCC* established different institutions and bodies that deal with environmental issues, specifically climate change impacts, adaptation and vulnerability.⁸⁷ The different institutions and bodies include the Conference of the Parties (COP), the Subsidiary Body for Scientific and Technology Advice (SBSTA),

⁸⁰ Article 4(1) (e) of the *UNFCCC*.

⁸¹ Article 4(1) (g) of the *UNFCCC*.

⁸² Article 4(1) (j) of the *UNFCCC*. See also Article 6 that including national, sub – regional and regional levels.

⁸³ Article 4(4) of the *UNFCCC*.

⁸⁴ Article 4(5) of the *UNFCCC*.

⁸⁵ Article 4(8) of the *UNFCCC*. Including other developing country Parties arising from the adverse effects of climate change and the impact of the implementation of response measures especially on a small island countries; countries with low-lying coastal areas; countries with arid and semi-arid, forested areas and areas liable to forest decay; countries with areas prone to natural disasters; countries with areas of high urban atmospheric pollution; countries with areas liable to drought and desertification; countries with areas with fragile ecosystem, including mountainous ecosystem; countries whose economies are highly dependent on income generated from the production, processing and export, and on consumption of fossil fuels and associated energy intensive products; and land-locked and transit countries.

⁸⁶ Article 5 and 6 of the *UNFCCC*.

⁸⁷ Fuggle and Rabie *Environmental Management in South Africa* 750.

the Subsidiary Body for Implementation (SBI), the Secretariat, the Least Developed Countries Expert Group, the Technology Executive Committee, and the Standing Committee on Finance.

2.1.2.1 Conference of the Parties

The COP is the supreme decision-making body of the *UNFCCC*.⁸⁸ It is responsible for reviewing reports submitted by its subsidiary bodies and making recommendations for implementing the Convention.⁸⁹ The other primary function of the COP is to promote and guide development, to check the agreed methodology and to prepare inventories of GHG emissions by sources and removals by sinks.⁹⁰

2.1.2.2 Subsidiary Body for Scientific and Technology Advice

The SBSTA was established to provide the COP and other subsidiary bodies with information and advice on scientific and technological issues related to the *UNFCCC*.⁹¹ This body outlines the scientific, technical and socio-economic details of the impacts of climate change, and the vulnerability and adaptation to it.⁹² The IPCC makes recommendations based on scientific information to support developing countries and advise the COP.⁹³

2.1.2.3 Subsidiary Body for Implementation (SBI)

The SBI's primary function is to assist the COP in performing their duties.⁹⁴ This body is guided by the COP to consider Article 12, paragraphs 1 and 2. The body also helps climate change negotiations, and financial and technology transfer to support developing countries.⁹⁵

⁸⁸ Article 7 of the *UNFCCC*. See also Bodansky 1993 *YJIL* 533.

⁸⁹ Article 7(2) (j) and (g) of the *UNFCCC*.

⁹⁰ Article 7(d), 4(2) (c) of the *UNFCCC*.

⁹¹ Article 9(1) of the *UNFCCC*.

⁹² Forner 2024 *CIFOR* 101.

⁹³ Bodansky 1993 *YJIL* 535.

⁹⁴ Article 10(1) of the *UNFCCC*.

⁹⁵ Fuggle and Rabie *Environmental Management in South Africa* 750.

2.1.2.4 Secretariat

The *UNFCCC* established the Secretariat⁹⁶ with the primary function of providing services to the COP, SBSTA, SBI and other bodies established under the Convention.⁹⁷ According to Article 8(2)(c), supports particularly developing countries in identifying methods and other resources for assessing the impacts of and vulnerability to climate change.⁹⁸

2.1.3 *The Kyoto Protocol (KP), 1997*

The *Kyoto Protocol* (KP) is an international agreement under the UNFCCC, which requires certain State Parties to commit to internationally binding emission reduction targets.⁹⁹ In 1997,¹⁰⁰ the KP was adopted by the COP and it was finalised in 2005.¹⁰¹ The COP of the KP serves as the meeting point for the Parties.¹⁰² The KP has 192 State Parties,¹⁰³ and it includes 28 Articles and 2 Annexes.

Annex B names developed countries committed to reducing their GHGs emissions by at least 5% below 1990 levels in the commitment period 2008 to 2012.¹⁰⁴ These developed countries are legally bound by their commitment.¹⁰⁵ Non-Annex B are developing countries that are not required to limit their GHG based on the principle of CBDR, but that can be signatories to benefit from emission trading.¹⁰⁶ SA, as a developing country, acceded to the KP on 31 July 2002. It came into effect on 14 February 2005.¹⁰⁷ In terms of the KP, SA is not required to reduce its GHG emissions.

⁹⁶ Article 8 of the *UNFCCC*.

⁹⁷ Article 8(2) (a) of the *UNFCCC*.

⁹⁸ Forner 2024 *CIFOR* 99.

⁹⁹ Fuggle and Rabie *Environmental Management in South Africa* 750.

¹⁰⁰ Beukes *et al Environmental Law* 72.

¹⁰¹ Rossouw *A human rights based approach to climate change adaptation in the Au* 14.

¹⁰² Article 2 of the KP.

¹⁰³ https://unfccc.int/kyoto_protocol.

¹⁰⁴ Article 3(1) of the KP.

¹⁰⁵ Beukes *et al Environmental Law* 72.

¹⁰⁶ Fuggle and Rabie *Environmental Management in South Africa* 751.

¹⁰⁷ Denga *A critical review of the consideration of climate change risks and opportunities in Environmental Impact Assessments* 34.

The developed countries that did not agree to the commitments under the KP included the United States of America (USA), which contributed 36% of 1990 global emissions,¹⁰⁸ Canada, and Japan.¹⁰⁹ The KP established three flexible mechanisms for Annex B Parties to comply with the commitment to reduce their GHG emissions, namely, joint fulfilment of commitments,¹¹⁰ the clean development mechanism (CDM),¹¹¹ and international emissions trading.¹¹² This study focuses on adaptation rather than mitigation, and therefore only CDM is considered in relation to developing countries.

2.1.3.1 The clean development mechanism (CDM)

The CDM is the only mechanism that allows developed countries to buy the emissions that were generated by projects implemented in developing countries to meet their emission reduction targets.¹¹³ It gives developed countries a green light in return of Certified Emission Reductions (CERs).¹¹⁴

This mechanism also provides for adaptation as the financial profit generated from certified projects should be used to assist the developing countries to meet the costs of adaptation.¹¹⁵ The main purpose of the CDM is to help developing countries like SA achieve sustainable development,¹¹⁶ supported by developed nations, to achieve the GHG emission reduction targets. In SA, sustainable development is described in section 2(4) of the *NEMA*. Therefore, any projects should be aligned with the principles of *NEMA* and the CDM in terms of the KP.

¹⁰⁸ Fuggle and Rabie *Environmental Management in South Africa* 752.

¹⁰⁹ Beukes *et al Environmental Law* 72.

¹¹⁰ Article 4 of the KP.

¹¹¹ Article 12 of the KP.

¹¹² Article 17 of the KP.

¹¹³ Ramiah and Gregoriou *Environmental and Sustainable finance* 12.

¹¹⁴ Muller-Pelzer 2004 15 <https://econostor.eu/bitstream/10419/32924/396019161.pdf>.

¹¹⁵ Article 12(8) of the KP.

¹¹⁶ Article 12(2) of the KP.

In order to participate in CDM activities, South Africa had to draft regulations for the Designated National Authority (DNA). The Department of Mineral Resource and Energy (DMRE) did this in the form of section 25(3) of the NEMA.¹¹⁷

According to the UNEP, there are 71 CDM projects in SA that were allocated to different industries, including the agricultural sector.¹¹⁸ According to Pillay, the Free State, Limpopo and Mpumalanga province had a lowest numbers of CDM projects compared to Gauteng, Eastern and the Western Cape.¹¹⁹

The Western Cape was the first province to register a CDM project. It was registered in Khayelitsha as the Kuyasa low-cost urban housing energy project. It involved the installation of water heaters, ceiling insulation and energy-efficient lighting, which resulted in energy savings and emissions reduction.¹²⁰ Agricultural projects that were supported by CDM financially includes those that use agricultural by-products as an energy sources, like biogas and other agricultural activities that capture CH₄.¹²¹

Since 1995, the COP under the *UNFCCC* has been meeting annually to improve the past international climate change agreements.¹²² The section below highlights some of these agreements.

2.1.4 Copenhagen, 2009

The Copenhagen Accord resulted from a joint international conference of the 15th COP under the UNFCCC, held in December, 2009.¹²³ The Copenhagen conferences aimed to resolve the questions left by the KP since it came into force and once the first commitment period ended. On 18 December 2009, some countries agreed to

¹¹⁷ GN R721 in GG 27788 of 22 July 2005, Section 25(3) of the *NEMA*, states that the Minister may introduce legislation in Parliament or make such regulations as may be necessary for giving the effect to an international environmental instruments to which the Republic is a Party.

¹¹⁸ Pillay 2015 *IBERJ* 782.

¹¹⁹ Pillay 2015 *IBERJ* 783.

¹²⁰ Glazewski *International climate change law* 3.2.2.5.

¹²¹ Larson, Dinar and Frisbie 2011 *Policy Research Working Paper* 5621.

¹²² Beukes *et al Environmental Law* 72.

¹²³ Glazewski *International climate change law* 3.3.2.2.

the Copenhagen Accord. These countries were motivated by political influence,¹²⁴ rather than legally binding instruments.¹²⁵

The negotiations in Copenhagen are regarded as failed negotiations.¹²⁶ Nonetheless, at this conference, South Africa agreed to reduce its GHG emissions by 34% by 2020 and 42% by 2025 below business as usual.¹²⁷

2.1.5 Cancun, 2010

The 16th International Climate Change Conference was held in Cancun Mexico, from 29 November to 11 December 2010.¹²⁸ It resulted in several agreements, collectively called the Cancun Agreements.¹²⁹ The Cancun Agreements endorsed the Copenhagen Accord,¹³⁰ and it included a formal COP decision that made it legally binding to limit global average temperature rise to 2°C.¹³¹

The objective of the Cancun Agreements was to enhance action on adaptation through international cooperation and consideration of matters relating to adaptation under the Convention. It included the establishment of the Cancun Adaptation Framework¹³² and the Adaptation Committee.¹³³ The Cancun Agreements furthermore agreed that developing countries should take nationally appropriate mitigation actions (NAMAs) with international support through technology, finances and capacity building.¹³⁴ The Cancun Agreements established

¹²⁴ Massai 2010 *RECIEL* 118.

¹²⁵ Glazewski *International climate change law* 3.3.2.2

¹²⁶ Dimitrov 2010 *RPR* 808.

¹²⁷ DFFE National Climate Change Response Green Paper 2010 16.

¹²⁸ Dickason The evolution of the climate change regime after the Copenhagen Accord 31.

¹²⁹ Glazewski *International climate change law* 3.3.2.3.

¹³⁰ UNFCCC/CP/2010/7/Add.1 Decision 1/CP.16 outcome of the work of the Ad hoc Working Group on Long-term Cooperative Action under the Convention.

¹³¹ Pallangyo *Climate change and Africa: The normative framework of the African Union* 111.

¹³² Article 13 of the Cancun Agreements.

¹³³ Article 20 of the Cancun Agreements.

¹³⁴ Article 53 of the Cancun Agreements.

green climate change,¹³⁵ which was introduced under the Copenhagen Accord,¹³⁶ and a technology mechanism.¹³⁷

The Cancun Agreements tried to restore confidence in the multilateral system after negotiation failed at the Copenhagen conference,¹³⁸ but there was some disagreement from parties that did not sign or ratify the treaty, like the USA and some of the least developed countries.¹³⁹

2.1.6 Durban, 2011

The 17th International Climate Change Conference took place in Durban, KwaZulu-Natal, from 28 November to 11 December 2011.¹⁴⁰ This COP serves as a meeting of the Parties to the Kyoto Protocol to follow up on climate change decisions and to implement the 2010 Cancun Agreement.¹⁴¹ It focused on the second commitment of the KP, namely a new international legal agreement that will go beyond 2020.¹⁴²

The Durban International Climate Change Conference resulted in the establishment of an ad hoc working group called the Durban Platform for Enhanced Action (DPEA).¹⁴³ Its mandate was to create a plan to keep global warming below 2°C.¹⁴⁴

The decision was made that Green Climate Fund would be administered by the COP, with a balanced and comprehensive governing instrument guided by the principles of the provisions of the Convention.¹⁴⁵ The agreement was reached and concluded

¹³⁵ Article 102 of the Cancun Agreements.

¹³⁶ Olutola *Political Anatomy of South Africa's climate change policy* 122.

¹³⁷ Article 117 of the Cancun Agreements.

¹³⁸ Pallangyo *Climate change and Africa: The normative framework of the African Union* 112.

¹³⁹ Dickason *The evolution of the climate change regime after the Copenhagen Accord* 35.

¹⁴⁰ Pallangyo *Climate change and Africa: The normative framework of the African Union* 113.

¹⁴¹ Pallangyo *Climate change and Africa: The normative framework of the African Union* 113.

¹⁴² Beukes *et al Environmental Law* 73.

¹⁴³ UNFCCC 2012 FCCC/CP/2011/9/Add.1 <https://unfccc.int/resource/docs/2011/co17/eg/09a01.pdf>.

¹⁴⁴ Fuhr, Schalatek and Omari 2011 https://za.boell.org/sites/default/files/uploads/2011/12schalatek_COP17_in_durban.pdf

¹⁴⁵ UNFCCC 2012 FCCC/CP/2011/9/Add.1 Decision 3/CP.17.

without mention of the key policy involved in climate change negotiations, namely adaptation and technology transfer.¹⁴⁶

2.1.7 Doha, 2012

The 18th COP to the UNFCCC took place from 26 November to 8 December at the Qatar National Convention Centre in Doha, Qatar.¹⁴⁷ This International Climate Change Conference was the 8th meeting of the COP as the Meeting of the Parties to the KP. The Parties agreed that the KP second commitment period that started in 2012 will end at the end of 2020,¹⁴⁸ and most developed countries committed to emission reduction targets for the second commitment period.¹⁴⁹

An international instrument was also adopted to address the loss and damage caused by climate change in developing countries,¹⁵⁰ assisting those nations financially so that they can implement NAPs. It also promoted climate change education and training to encourage green technologies.¹⁵¹

2.1.8 Warsaw, 2013

The 19th COP met between 11 and 23 November 2013 in Warsaw, Poland. It primarily wanted to establish what will be expected from the new climate change regime in the COP 21.¹⁵² The Warsaw Conference made significant progress.¹⁵³ All the Parties were expected to submit intended nationally determined contributions (INDCs) in order to provide their contribution to decrease their GHG emissions.¹⁵⁴

¹⁴⁶ Banerjee 2012 https://openeaccess.city.ac.uk/id/eprint/6085/1/climate_for_change_OSpaperfina.pdf.

¹⁴⁷ UNFCCC 2012 Doha <https://unfccc.int/conference/doha-climate-change-conference-november-2012>.

¹⁴⁸ Glazewski *International climate change law* 3.3.2.5.

¹⁴⁹ Sofferman 2014 *PILR* 41.

¹⁵⁰ Monyake *The common but differentiated responsibilities and respective capabilities principle in global climate change mitigation: a legal appraisal* 18.

¹⁵¹ Pallangyo *Climate change and Africa: The normative framework of the African Union* 116.

¹⁵² Olutola *Political Anatomy of South Africa's climate change policy* 130.

¹⁵³ Galarraga and Roman 2013 https://addi.ehu.es/bistream/handle/10810/14176/BC3PB-2013-SI_01_EN.pdf?sequence=1.

¹⁵⁴ Beukes et al *Environmental Law* 73.

The Warsaw International Mechanism for Loss and Damage and the Warsaw Framework for Reducing Emission from Deforestation and Forest Degradation Plus (REDD+) were drafted to help developing countries.¹⁵⁵ The Warsaw negotiations indicated that different countries were engaging adaptation activities.¹⁵⁶

2.1.9 Lima, 2014

The 20th COP was held in Lima, Peru, from 1 to 12 December 2014.¹⁵⁷ The Lima conference served as preparation for the 21st COP to be held at the end of 2015 in Peru.¹⁵⁸ The draft climate policy negotiations agreed on a limit of an average global 2°C temperature increase from pre-industrial times.¹⁵⁹

The Lima first draft agreement maintained the pathway that countries had to comply with when providing information regarding INDCs for assessment.¹⁶⁰ It also established whether the INDCs would have to be review or assessed to check its adequacy and suitability prior to the adaptation of the Paris agreement.¹⁶¹

The developing countries demanded that the developed countries provide the assistance with adaptation, financed, technology and capacity building, and that this must be legally binding in terms of the KP.¹⁶² The outcomes were regarded as a positive achievement and can be view as a way forward for climate actions.¹⁶³ In the last hours of the last day, the Lima conference agreed on the Lima Call for Climate Action, which was attached as an Annex and named Elements for a Draft Negotiating Text.¹⁶⁴

¹⁵⁵ Galarraga and Roman 2013.

¹⁵⁶ Sterk *et al*/2013 https://epub.wupperinst.org/frontdoor/deliver/index/docid/5194/file/5154_warsaw_Report.pdf.

¹⁵⁷ COP 20 <https://unfccc.int/event/cop-20>.

¹⁵⁸ Glazewski International climate change law 3.3.2.7

¹⁵⁹ Tschakert 2015 <https://links-springer.com/com/content/pdf/10.1186/S40665-0150010-Z.pdf>.

¹⁶⁰ Ott *et al*/2014 *ELM* 152.

¹⁶¹ Olutola Political Anatomy of South Africa's climate change policy 131.

¹⁶² Ott *et al*/2014 *ELM* 152.

¹⁶³ Ott *et al*/2014 https://wupperinst.org/fa/redaktion/downloads/publications/lima_results.pdf.

¹⁶⁴ Ott *et al*/2014 *ELM* 151.

2.1.10 The Paris Agreement, 2015

The 21st COP was adopted by 196 Parties at the UNFCCC in Paris, France, on 12 December 2015. It became the *Paris Agreement*, which it is a legally binding international treaty on climate change. On the 4th of December 2016 the agreement entered into force.¹⁶⁵

According to Article 2 of the *Paris Agreement*, provides a long-term temperature goal, aimed to strengthen the global response to climate change in the context of sustainable development and efforts to eradicate poverty. It requires States to implement policies to keep the increase in the global average temperature to well below 2⁰ C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C.¹⁶⁶

The above *Paris Agreement* is legally binding on all State Parties. They have to meet the determine targets and implement adaptation measures. All Parties are expected to communicate or update their NDCs with the Secretariat body regularly.¹⁶⁷ It further required that developed countries should undertake economy-wide absolutes when it comes to emission reduction targets, while the developing countries are inspired to move towards economy-wide targets over time.¹⁶⁸

SA is a party to the *Paris Agreement* on climate change and has ratified the agreement. On 25 September 2015, SA communicated as required in terms of Article 3 of the *Paris Agreement* by submitting INDCs before COP21. It became our first NDC on 1 November 2016.¹⁶⁹ The *UNFCCC* did not list SA in Annex I, but in terms of the *Paris Agreement* it is regarded as a developing country. This first NDC submitted covered all aspects of the principles and provisions of the *Paris*

¹⁶⁵ UNFCCC The Paris Agreement <https://unfccc.int/process/the-paris-agreement>.

¹⁶⁶ Frugge and Rabie *Environmental Management in South Africa* 753.

¹⁶⁷ Article 3 of the *Paris Agreement*.

¹⁶⁸ Article 4 of the *Paris Agreement*.

¹⁶⁹ NDP (2030) 2021 [https://unfccc.int/sites/default/files/NDC/2022-06/SouthAfricaupdatedfirst NDP September 2021.pdf](https://unfccc.int/sites/default/files/NDC/2022-06/SouthAfricaupdatedfirst%20NDP%20September%202021.pdf).

Agreement, including adaptation, mitigation, finance, technology and capacity support.¹⁷⁰

SA has committed to its emissions peaking between 2020 and 2025, remaining stable for a while and declining in absolute terms from around 2035. The GHG emissions will peak in the period 2020 to 2025 between 398 and 583 Mt CO₂ –eq respectively, follow a plateau for up to ten years after the peak range between 398 and 614 Mt CO₂ –eq, then from 2036 will decline between 212 and 428 Mt CO₂ –eq by 2050.¹⁷¹ This mitigation commitment clearly indicates that SA is prepared to achieve the objectives of the *Paris Agreement* by drafting and implementing measures that will reduce GHG emission targets.

2.1.11 The Glasgow Climate Pact, 2021

The 26th COP to the UNFCCC was hosted by the UK in partnership with Italy. It took place in the Scottish Event Campus in Glasgow, United Kingdom, from 31 October to 12 November 2021.¹⁷²

The conference took place in the midst of the Covid-19 pandemic. Despite this, it was the most successful and productive COP since the 2015 *Paris Agreement* where over 50 formal decisions were adopted.¹⁷³ The COP 26 outcome was the Glasgow Climate Pact (GCP), which was adopted and also supported 1.5°C as the primary global temperature target.¹⁷⁴

The GCP requested that all Parties revisit and strengthen the 2030 targets in their NDC to ensure that they align with the *Paris Agreement* temperature goal by the end of 2022 and to consider the different nations' circumstances.¹⁷⁵

¹⁷⁰ See the above footnote no 169.

¹⁷¹ National Climate Change Response White Paper 2011 https://www.gov.za/sites/default/files/gcis_documents/201409/nationalclimatechangereposewhitepaper0.pdf.

¹⁷² UNFCCC 2021 <https://unfccc.int/conference/glasgow-climate-change-conference/october-november-2021>.

¹⁷³ Depledge, Saldivia and Penasco 2022 *CPJ* 147.

¹⁷⁴ Glazewski *International climate change law* 3.3.2.11.

¹⁷⁵ Article 29 of the *Glasgow Climate Pact*.

The nations agreed on the launch of the Glasgow-Sharm el-Sheikh work programme to support full and sustained implementation of the global adaptation goal.¹⁷⁶ The Parties agreed to implement National Adaptation Plans of adaptation actions¹⁷⁷ the local, national and regional levels.¹⁷⁸ They agreed to support developing countries by providing financially, capacity building and transfer technology, to enhance adaptive capacity, to strengthen resilience, and to reduce vulnerability to climate change by using advanced science.¹⁷⁹

Developed countries were encouraged to at least double their collective provision of climate finance for adaptation to assist developing countries, starting from 2019 to 2025.¹⁸⁰ SA as a developing country qualified to benefit from the provision of climate finance support funds.

2.1.12 June meeting ahead of COP 29

The Bonn Climate Change Conference was held from 3 to 13 June 2024. It was an important mid-year meeting to prepare for COP 29, to be held in November 2025 COP 29 in Baku, Azerbaijan.¹⁸¹

The June meetings was hosted to cover certain areas of progress, including a New Collective Quantified Goal on Climate Finance, steps towards building resilience and adaptation, increasing transparency, progress on international carbon markets, and lastly, requesting Parties to submit their next phase of NDC.¹⁸² Unfortunately this dissertation was submitted before the COP 29 commence.

¹⁷⁶ Lyster 2023 *Open Access* 387.

¹⁷⁷ Lyster 2023 *Open Access* 387.

¹⁷⁸ Article 9 of the Glasgow Climate Pact.

¹⁷⁹ Article 15 of the Glasgow Climate Pact.

¹⁸⁰ Article 18 of the Glasgow Climate Pact.

¹⁸¹ Halfway to COP 29 <https://illumine.com/illuminevoices/halfway-to-cop29-what-is-bonn-climate-change-conference-and-why-does-it-matter>.

¹⁸² UN Climate Press Release 2024 <https://unfccc.int/news/june-meetings-take-modest-steps-forward-steep-mountain-still-to-climb-ahead-of-cop29>.

2.1.13 Regional climate change policy framework

In 2002 the African Union (AU) was introduced to replace the Organisation of African Unity (OAU).¹⁸³ The AU main objectives as an organisation of African countries that works together for aiming for promote unity, economic growth, and development. On 6 June 1994,¹⁸⁴ SA joined the AU aiming to ensure that international climate change addresses the impact of climate change in the regions.¹⁸⁵

The Southern African Development Community (SADC) is a Regional Economic Community (REC) which was established in 1992. The SADC region established the SADC Climate Change Strategy and Action Plan (CCSAP), which provides directions and coordinates the regional and national actions to address the impacts of the climate change. The SADC CCSAP aims to draft and implement policies and legislation that will help members reach the objectives of the UNFCCC, the African Union Commission and the Regional Development Agenda.¹⁸⁶

The SADC provides objectives that include promoting sustainable, equitable economic growth, and socio-economic development that will alleviate poverty, effective protection of the environment, promote the development of policies, and transfer and master technology.¹⁸⁷ The SADC objectives do not include the climate change directly.¹⁸⁸ There are number of policies relevant to climate change adaptation at a regional level, including the SADC Policy Paper on Climate Change and the SADC water Sector Climate Change Adaptation Strategy.¹⁸⁹

¹⁸³ https://www.google.com/search?q=What+is+African+union&oq=What+is+Africa+union&gs_lcrp=EgZjaHJvbWUyBggAEEUYOdIBCjEyMzIxajBqMTWoAgiwAgHxBTPOkogSc2K&sourceid=chrome&ie=UTF-8

¹⁸⁴ https://www.google.com/search?q=south+africa+is+a+member+of+african+union&sca_esv=ec1d9ca90aff3fe1&sxsrf=AHTn8zq4mxH1e5KPyEIUmupz40oe_M1xA%2FA1739981839

¹⁸⁵ Pallangyo *Climate change and Africa: The normative framework of the African Union* xi.

¹⁸⁶ SADC Version 24 July 2015 4.

¹⁸⁷ Article 5 (1) (a) (g) and 5(2) (d) (f) of the SADC, <https://www.sadc.int>.

¹⁸⁸ Libebe *Climate change governance in the SADC Region: Towards development of an Integrated and comprehensive framework policy or protocol on adaptation* 44.

¹⁸⁹ DEA Perspectives for SADC.

2.2 Conclusion

This chapter has provided the guidelines regarding the objective one, namely, to identify the policies and legal framework that guide adaptation to the climate change on the agricultural sector in Limpopo province. The international law instruments outlined in different COP to addresses the climate change adaptation are relevant to this study, namely, *UNFCC*, the *Kyoto Protocol*, the *Paris Agreement*, and the *Glasgow Climate Pact*.

SA has made a communication in relation to international climate change under *Paris Agreement* to submit INDCs regularly in order to comply with the principles and provision of this agreement in terms of adaptation, finance, technology and capacity support.¹⁹⁰ It further agreed to develop and implement NAP of adaptation actions in all spheres of government in terms of the Glasgow Climate Pact.¹⁹¹

The regional climate change policy framework drafted under two bodies, namely, the AU and the SADC. SA is a member of both organisation, therefore is legal binding by their climate change adaptation legal framework. The SADC recognised number of policies that leads to the climate change adaptation on agricultural sectors, includes the SADC Policy Paper on Climate Change and the SADC Water Sector Climate Change Adaptation Strategy.¹⁹²

The international instruments and regional climate change policy provided above leads to the next chapter where the SA climate change adaptation legislation and policies will be discussed in a broad context.

¹⁹⁰ See paragraph 2.1.10 of Chapter 2 at page 23.

¹⁹¹ See paragraph 2.1.11 of Chapter 2 at page 24.

¹⁹² See paragraph 2.1.13 of Chapter 2 at page 26.

Chapter 3: South Africa climate change legislation and policy framework

3.1 Introduction

The purpose of this chapter is to address the two objectives of this study, namely, to identify the policies and legal framework that guide adaptation to the climate change impacts on the agricultural sector, and to determine the policies and statutes that may be used in Limpopo province to improve and strengthen resilience to climate change impacts on the agricultural sector.¹⁹³

This chapter begin by explaining chapter 2 of the *Constitution* in terms of section of 24, chapter 6, schedule 4 as well as *NEMA*, which are relevant to the development and drafting for legislation and policies that have ability to regulate the climate change adaptation in SA. The *Climate Change Act* and relevant existing SA climate change adaptation policies will be discussed later on.

3.1.1 *The Constitution of the Republic of South Africa, 1996*

The *Constitution*,¹⁹⁴ is the supreme law of the republic.¹⁹⁵ Chapter 2 of the *Constitution* provides the Bill of Rights, which is considered as the foundation of democratic government.¹⁹⁶ Section 24 of the *Constitution*,¹⁹⁷ provides for the protection of the environment by putting positive duties on everyone to create an environment that is not harmful to another's health or well-being.¹⁹⁸ The environment should be to the benefit of present and future generations, so the *Constitution* tasks the state with the responsibility to enact reasonable legislation and other measures that promote conservation and secure ecologically sustainable

¹⁹³ See paragraph 1.4 of Chapter 1 page 6.

¹⁹⁴ *Constitution of the Republic of South Africa*, 1996.

¹⁹⁵ Section 2 of the *Constitution*.

¹⁹⁶ Skhosana *The laws regulating affirmative action in the workplace and its impact on Covid-19 pandemic* 10.

¹⁹⁷ Section 24 of the *Constitution*.

¹⁹⁸ Rantlo *Environmental impact assessment legislation in Lesotho, Swaziland, and South Africa* 71.

development and use of natural resources, while promoting justifiable economic and social development.¹⁹⁹

The *Constitution* provides the fundamental rights, such as the right to life, water, and food may be threatened by climate change impacts on agricultural productivity. The state has the responsibility of respecting, promoting, protecting and enforcing these human rights.²⁰⁰ Section 24 of the *Constitution* ensures that all policies that relate to climate change drafted by any sphere of government must consider the principles of sustainable development.²⁰¹ Sustainable development mentioned in the *Constitution* also appears section 2(4) of the NEMA, and is again promoted in terms of Article 3(4) of the UNFCCC. Any projects should also comply with the CDM in terms of the KP.²⁰²

Schedule 4 of the *Constitution* lists environmental tasks that should be performed as a functional area of concurrent national and provincial legislative competence.²⁰³ Other functional areas listed in Schedule 4 include agriculture, soil conservation, nature conservation, and consideration of the environment when national and provincial governments draft legislation and policies. This means that the legislative authority of the provincial sphere of government is vested in the provincial legislatures.²⁰⁴

Chapter 6 of the *Constitution* provides that the provincial executive has the authority to develop and implement legislation and policies.²⁰⁵ The provincial climate change adaptation legislation and policies should be prioritised, especially with respect to agricultural activities. The provincial executives have a legal obligation to consider the above constitutional rights and to have the environmental responsibility to promote the health and well-being of every person in their own province.

¹⁹⁹ Section 2(b) of the *Constitution*.

²⁰⁰ Section 7(2) of the *Constitution*.

²⁰¹ Brits The regulatory regime for bio-fuels in South Africa 50.

²⁰² Article 12(2) of the KP.

²⁰³ Schedule 4 Part A of the *Constitution*.

²⁰⁴ Section 43(b) of the *Constitution*.

²⁰⁵ Section 125 of the *Constitution*.

The Bill of Rights in our *Constitution* aligns with Article 24 of the African Charter,²⁰⁶ which addressed human rights before emergence of environmental management and protection.²⁰⁷ It is now clear that there is a link between climate change and human rights that needs attention to avoid threats.

3.1.2 *Climate Change Act, 2024*

SA enacted the *Climate Change Act (CCA)*²⁰⁸ on 23 July 2024 in GN 5050 in GG 50966 of 23 July 2024. The Act is structured into a preamble, six chapters, and three schedules. The *CCA* aims to develop an effective national climate change response in terms of mitigation and adaptation plans. It further states that a long run, it seeks to ensure that the transition to a low-carbon and climate-resilient economy and society is based on the policies that are related to climate change response.²⁰⁹

This law was drafted to align with the Bill of Rights contained in section 24 of the *Constitution* and to comply with the Article 4 of the *Paris Agreement*.²¹⁰ The Act further promotes an effective climate change response as set out in the NCCRWP, to ensure that the country meets the commitments in their NDC under the Paris Agreement.

The Act contains six objectives, namely, (a) to provide for a coordinated and integrated climate change response by promoting the economy and society; (b) providing for effective management that will respond to the climate change impacts; (c) making fair contribution by aiming to reduce GHG emission as committed to the international instruments; (d) to ensure that the country transitions to a low-carbon and climate-resilient economy and society are considered nationally; (e) give effect to the SA's international commitments in terms of the climate change response; and (f) ensuring the protection and preservation of the planet for the benefit of present

²⁰⁶ Article 24 of the African Charter, states that all peoples shall have the right to general Satisfactory environment favourable to their development.

²⁰⁷ De Wet and Du Plessis 2010 *AHRLJ* 350.

²⁰⁸ *Climate Change Act 22 of 2024* GN 5050 in GG 50966 of 23 July 2024.

²⁰⁹ Long Title of the *CCA*.

²¹⁰ Preamble of the *CCA* and see the above footnote 168.

and future generations.²¹¹ These objectives should be met order to achieve climate change responses in the national key sectors outlined in terms of NCCRWP, including the agricultural sector, to boost economy.

The principles of environmental governance should be interpreted and implemented in terms of section 2 of the *NEMA* and the *UNFCCC*.²¹² The Act indicates that it prevails if there are any conflicts between the provisions and other legislation only in relation to climate change, whether with regard to the mitigation or adaptation.²¹³

The Act also stipulates the alignment of policies and arrangements of institutions in all spheres of government to perform their function as guided by the objectives and the principles in relation to the climate change impacts.²¹⁴ It further establishes the provincial and municipal forums on climate change in terms of the provisions of the *Intergovernmental Relations Framework Act*,²¹⁵ to coordinate climate change response actions.²¹⁶ The *CCA* points out the primary functions of the Presidential Climate Commissions, which includes giving advice on the country's climate change response to reach the aims and objectives of this law. ²¹⁷

Provinces should also respond to climate change measures in terms of adaptation.²¹⁸ The MEC is required to publish a Provincial Adaptation Strategy and Plan specifically for climate change response in the agricultural sector. Chapter 4 provides the adaptation objectives and scenarios that the Minister should consider to achieve the national adaptation plans.²¹⁹

²¹¹ Chapter 2 of the *CCA*, the objective 12.

²¹² Section 3 of the *CCA*.

²¹³ Section 6 of the *CCA*.

²¹⁴ Chapter 2 section 7 of the *CCA*.

²¹⁵ Section 16 and 24 of the Intergovernmental Relations Framework Act 13 of 20025.

²¹⁶ Section 2 section 8 and 9 of the *CCA*.

²¹⁷ Section 11 of the *CCA*.

²¹⁸ Chapter 3 section 17 of the *CCA*.

²¹⁹ Chapter 4 section 19 and 20 of the *CCA*.

3.1.3 National Environmental Management Act

The *NEMA* does not specifically refer to climate change impact, but indirectly established the principles that guide decision making on matters that affect the environment, includes the agricultural sector.

The *Constitution* requires that legislation be adopted to protect human rights. One piece of legislation is the *NEMA*,²²⁰ which came into effective in January 1999.²²¹ The *NEMA* is an environmental legislative framework that requires all sectors to apply its provisions.²²² It further provides the overarching act for environmental governance,²²³ together with the environmental assessments.²²⁴

The main objectives of the *NEMA* are:

“to provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for co-ordinating environmental functions exercised by organs of states; and to provide for certain aspects of the administration and enforcement of other environmental management laws; and to provide for matters connected therewith.”²²⁵

Chapter 1 of the *NEMA* provides some of the national environmental management principles that serve as a general framework for all government departments. It requires them to consider environmental management and to implement plans to promote the protection of the environment.²²⁶ These Act further stipulates that any development projects must be socially, economically and environmentally sustainable.²²⁷

The anthropocentric approach in Section 24 of the *Constitution*, which promotes sustainable development, is strengthened by the principle of environmental

²²⁰ *National Environmental Management Act* 107 of 1998.

²²¹ Glazewski *Environmental law in South Africa* 19.8.2.

²²² Shakung *Protection of the procedural rights of indigenous people affected by mining in South Africa* 57.

²²³ Khumalo *Overview of the National Environmental Management Act 107 of 1998* 2.

²²⁴ Denga *A critical review of the consideration of climate change risks and opportunities in Environmental Impact Assessment* 36.

²²⁵ *NEMA Act*.

²²⁶ Section 2(1) (b) of the *NEMA*.

²²⁷ Brits *The regulatory regime for bio-fuels in South Africa* 52; *Section 2(3) of the NEMA*.

management. This principle requires that people's health and well-being of people are achieved through good administration and the implementation of legislation.²²⁸ The principle of sustainable development is also present in the *NEMA*,²²⁹ which requires that the development projects must be socially, economically and environmentally sustainable including the agricultural activities.

The *NEMA* principle of sustainable development shares similarities with international law such as Article 3 of the *UNFCCC*,²³⁰ and Article 12 of the *KP*.²³¹ This shows that SA is responding positively as a developing country by complying with the international obligation to consider projects that are sustainable and friendly to climate change. Sustainable development should also apply to provincial projects, specifically with climate change adaptation measures for agricultural activities.

The *NEMA* further outlines provisions for cooperative environmental governance as one of the principles that requires the national, provincial, and local governments to be coordinated when drafting policies, legislation and actions relating to climate change adaptation with respect to the agricultural environment.²³²

Chapter 2 of the *NEMA* provides for the establishment of two institutions, namely the National Environmental Advisory (NEAF) and the Committee for Environmental Coordination (CEC).²³³ The primary function of NEAF is to inform and advise the Minister of Environmental Affairs regarding any activities that relates to environmental management and government, including matters related to climate change. The main objective of the CEC is to achieve the goals of environmental implementation plans and environmental management plans, which include the Director-General of the DEA and other representatives from provincial and local

²²⁸ Scholtz 2005 *TSAR* 70.

²²⁹ Fuggle and Rabie *Environmental Management in South Africa* 139; Section 2(3) -(4) of the *NEMA*, Sustainable development defined in terms of *NEMA* means "the integration of social, economic and environmental factors into planning, implementation and decision-making to ensure that development serves present and future generations"

²³⁰ Article 3(5) of the *UNFCCC*.

²³¹ Article 17 of the *KP*.

²³² Section 2(4) (l) of the *NEMA*; Fuggle and Rabie *Environmental Management in South Africa* 144.

²³³ Glazewski *Environmental law in South Africa* 7.2.3.

governments to govern the actions.²³⁴ Environmental implementation and management plans should also address climate change impacts in relation to agricultural activities.

Chapter 5 of the *NEMA* provides for integrated environmental management to deal with development activities by introducing environmental impact assessments (EIA).²³⁵ EIA Regulations is a legislated measure to consider the impact of a project before it commences. It includes recommendations following public participation.²³⁶ The *NEMA* does not provide a definition for EIA. It does define it in the EIA Regulations of 2014, where it is described as a systematic procedure of identifying, assessing and providing a report on environmental impacts associated with a project. It includes basic assessment, and a scoping and environmental impact reporting process.²³⁷

Section 24 of the *NEMA* empowers the competent authority to identify listed activities that may not take place without environmental authorisation,²³⁸ including some of the agricultural activities.

The EIA Regulations that were published in Government Notices R982, R983 (Listing Notice 1), R984 (Listing Notice 2), and R985 (Listing Notice 3) in Government Gazette 38282 of 4 December 2014 do not provide for climate change specifically but indirectly considers it in terms of section 24 of the *NEMA*.

The decision of the court in *Earthlife Africa Johannesburg v Minister of Environmental Affairs and Others (Thabametsi case)*,²³⁹ indicated that not even the

²³⁴ Olutola *Political Anatomy of South Africa's climate change policy* 170.

²³⁵ Schoeman *A critical analysis of the role of local government in South Africa's legal response to climate change* 45.

²³⁶ Pape *A critical analysis of the evolution of public participation in environmental decision-making in the South African mining sector* 14.

²³⁷ Beukes *et al Environmental Law* 167.

²³⁸ Section 24(2) (a) of the *NEMA*.

²³⁹ *Earthlife Africa Johannesburg v Minister of Environmental Affairs and Others* (2017) JOL 37526 (GP).

NEMA or any other government policy documents on climate change provides for climate change impact assessment directly.²⁴⁰

Chapter 6 of the *NEMA* provides for international obligations and instruments, which requires the Minister to introduce the necessary legislation or regulations to give effect to an international environmental instrument to which the SA is a member.²⁴¹ Therefore, the Minister as the national government has a legal obligation to introduce legislation or regulations that relate to climate change to comply with international environmental instruments such as *UNFCCC*, *KP* and *Paris Agreement*. These provisions may be introduced at the provincial level only if the Minister required the relevant authority to include climate change adaptation in their provincial legislation and regulations.

3.1.4 Specific Environmental Management Acts (SEMA)

There are number of Specific Environmental Management Acts (SEMA) that give effect to the *NEMA*.²⁴² Some of the SEMAs objectives are to regulate agricultural activities in relation to climate change and to administer this within the relevant specific environmental departments. The SEMAs that are related to this study include the *National Environmental Management: Air Quality Act (NEM: AQA)*,²⁴³ *National Environmental Management: Waste Act (NEM: WA)*,²⁴⁴ and *National Water Act (NWA)*.²⁴⁵

The *NEM: AQA* regulates air quality. The preamble of this Act states that air quality in our country is not conducive to the people's health. This means the environmental rights in terms of section 24 of the *Constitution* are not fulfilled. Reasonable measures are required to ensure the protection of air quality and the prevention of air pollution.

²⁴⁰ Jegede and Makulana 2019 *OBITER* 399.

²⁴¹ Section 25(3) of the *NEMA*

²⁴² Lamine 2021 *OBITER* 168.

²⁴³ *NEM: AQA* 39 of 2004.

²⁴⁴ *NEM: WA* 59 2008.

²⁴⁵ *NWA* 36 of 1998.

The objectives of the *NEMA: AQA* includes taking reasonable measures to protect and enhance air quality in our country.²⁴⁶ It further provides for the prevention of air pollution and ecological degradation,²⁴⁷ and ensures that ecologically sustainable development is secured.²⁴⁸

The *NEM: AQA* binds all organs of state, including the national, provincial and local spheres of government.²⁴⁹ It mandates the drafting of air quality management plans or implementation plans to achieve the objectives.²⁵⁰ The provincial sphere of government are legally bound to draft policies and legislation that align with the national level when the relevant authority implements an air quality management plan.

The competent authorities, which include the Minister or the MEC, may publish lists of activities and associated minimum emission standards that result in atmospheric emissions if they have a reasonable belief that may have significant detrimental effect on the environment.²⁵¹ The Minister has published a national list of activities that are reasonably believed to affect air pollution.²⁵² Some apply to the provincial MEC.

Any listed activities that have been identified by the Minister or the MEC, may not be conducted without a provincial atmospheric licence or atmospheric emission licence.²⁵³ The application for an atmospheric emission licence requires the same process needed when submitting application for environmental authorisation in terms of section 24 of the *NEMA*, which includes an EIA assessment.²⁵⁴

The listed activity in category 10²⁵⁵ for animal matter processing requires an atmospheric emission licence in terms of section 21 of the *NEMA*. Other agricultural

²⁴⁶ Section 2(a) (i) of the *NEMA: AQA*.

²⁴⁷ Section 2(a) (ii) of the *NEMA: AQA*.

²⁴⁸ Section 2(a) (iii) of the *NEMA: AQA*.

²⁴⁹ Section 4(2) (a) of the *NEMA: AQA*.

²⁵⁰ Fuggle and Rabie *Environmental Management in South Africa* 405.

²⁵¹ Section 21(1) (a) of the *NEM: AQA*.

²⁵² Section 21(2) of the *NEM: AQA*.

²⁵³ Section 22 of the *NEMA: AQA*, consequences of listing activities.

²⁵⁴ Fuggle and Rabie *Environmental Management in South Africa* 417.

²⁵⁵ GN 893 in GG 37054 of 22 November 2013

activities that should be considered to reduce the GHG emissions that cause air pollution includes chemical fertilizer, the management of manure from different animals and the burning of agricultural residues to produce biogas or fossil fuel.²⁵⁶ CO₂ as the one of the GHGs that contribute to global warming and causes climate change, is emitted during the burning of fossil fuels such as when driving tractors.²⁵⁷

The *NWA* provides licensing for irrigation to address climate change adaptation on agricultural sector.²⁵⁸ Section 26 of the *NWA*, which provides the procedural requirements for licence and authorisation to use water applications.²⁵⁹

3.1.5 National Climate Change Response Strategy, 2004

The National Climate Change Response Strategy (NCCRS)²⁶⁰ is SA's first policy framework in response to the impact of climate change at the national level.²⁶¹ The NCCRS as a climate change adaptation policy considers climate change as a global threat through environmental impact and a threat to sustainable development projects. It therefore requires reasonable measures to be implemented.

The main objective of the NCCRS is to provide the necessary support to the policies and principles of the *Government White Paper on Integrated Pollution and Waste Management* and other national policies relating to energy, agricultural and water.²⁶² It further supports the adoption measures to reduce the adverse impact of climate change on agriculture, livestock, fisheries, forestry and natural resources.²⁶³

SA as a developing country and a member to the UNFCCC, states in the NCCRS that the DEAT is one of the institutions with responsibilities for coordinating and

²⁵⁶ Bredenkamp *Agricultural adaptation to intensifying El Nino and La Nina periods within North West, South Africa* 41.

²⁵⁷ Fuggle and Rabie *Environmental Management in South Africa* 322.

²⁵⁸ Beukes et al *Environmental Law* 78.

²⁵⁹ Regulation 2 GN 131 in GG 40621 of 17 February 2017.

²⁶⁰ DEAT 2004 National Climate Change Response Strategy.

²⁶¹ Khavhagali *et al*/2024 "Climate Policy" *Open Access* 463.

²⁶² DEAT 2024 NCCRS iii.

²⁶³ FAO/FAOLEX/ECOLEX <https://www.informe.org/en/content/legislation/national-climate-change-response-strategy-south-africa>.

responding to the climate change to give effect to the international agreements.²⁶⁴ It further outlines the cooperation needed for adaptation to the impacts of climate change.²⁶⁵

The strategy provides a number of principles that must be considered and implemented to assist the SA as a developing country in achieving and promoting sustainable development as mentioned in terms of the *NEMA*,²⁶⁶ also included in the *UNFCCC*.²⁶⁷ Since SA is vulnerable, it is essential to consider adaptation to the negative impacts of climate change in all spheres of government.²⁶⁸

Some of the interventions that relate to this study provided in terms of the NCCRS address adaptation in agricultural sector. It requires adaptation of agricultural activities by implementing new agricultural management practices such as precision irrigation, crops rotation, and nutrient management.²⁶⁹ Irrigation farming is very costly in terms of installation of pipes, pumps and sprinklers but is currently used to supplement agricultural systems.²⁷⁰

Adaptation changes in agricultural management practices should be developed more scientifically. Crops resistant to low temperatures and drought will benefit national food production. The use of seed banks will give farms an opportunity to decide on practices to use to counteract the effects of climate change to benefit and maintain food security and profitability.²⁷¹

These changes in agricultural management practices may be also adopted as a matter of urgency at the provincial level and by small farmers. The practices and

²⁶⁴ Koch, Vogel and Patel 2006 *Mitig Adapt Strat Glob Change Springer* 3.

²⁶⁵ DEAF NCCRS 9.

²⁶⁶ Section 2(3) (4) of the *NEMA*.

²⁶⁷ Article 3(5) of the *UNFCCC*.

²⁶⁸ DEAF NCCRS 17.

²⁶⁹ DEAF NCCRS 20, agricultural management practices refer to a change in planting dates, row spacing, planting density and cultivator choice, and other measures which would counteract the effects of limited moisture?

²⁷⁰ Fuggle and Rabie *Environmental Management in South Africa* 320.

²⁷¹ DEAF NCCRS 20.

procedures could reduce water consumption but would not reduce crop yields, and it would show resilience in adapting to climate change.²⁷²

3.1.6 National Climate Change Response Green Paper, 2010

The DEA, now the DFFE, drafted the policy known as the National Climate Change Response Green Paper (NCCRGP),²⁷³ which was published in Government Notice 1083 in Government Gazette 33801 of November 2010. The NCCRGP was structured into nine chapters.

This policy indicates the government commitment to response to climate change in to achieve the objectives of the *UNFCCC*. It further outlined the government obligation to promote sustainable development projects and the vision that provides an effective climate change response, keeping to a climate resilient, low-carbon economy and society.²⁷⁴

Chapter 2 of the NCCRGP states that the SA government should consider the principles of equity and the CBDR-RC in all sphere of governments, including the inter-generational obligation in terms of section 24 of the *Constitution*. Therefore, the following climate change response objective should be taken into account:

“making a fair contribution to the global effort in order to achieve the stabilisation of GHG concentration in the atmosphere at a level that prevents dangerous anthropogenic interference with the climate change; and to provide effectively adapt to and manage unavoidable and potential damaging climate change impacts through interventions that build and sustain SA’s social, economic and environmental resilience and emergency capacity.”²⁷⁵

Chapter 3 provides the number of principles that should be implemented to achieve the above climate change response objective. These principles are aligned with the Bill of Rights stipulated in the *Constitution*, section 2(4) of the *NEMA*, and other provisions in international agreements like *UNFCCC*.²⁷⁶ The principles include the

²⁷² DEAF NCCRS 20.

²⁷³ DEA NCCRGP 2010 https://www.dffe.gov.za/sites/default/files/legislation/national_climatechange_response_0.pdf.

²⁷⁴ DEA NCCRGP 2010 7.

²⁷⁵ DEA NCCRGP 2010 7.

²⁷⁶ DEA Chapter 3 of the NCCRGP 7.

CBDR-RC, the precautionary principle, the polluter pays principles, a people-centred approach, informed participation, and inter-generational rights.²⁷⁷

The NCCRGP set out the strategies that should be implemented by all spheres of government to achieve its climate change response objective.²⁷⁸ The implementation of certain policies require the consideration of short to medium term needs that relate to climate change adaptation measures. The sector that are most affected by climate change and that require adaptation measures and actions to be implemented is agricultural sector.²⁷⁹ This study focuses much on climate change adaptation, especially in the agricultural sector.

The NCCRGP provides for key adaptation in the agricultural sector. It indicates that national economy relies on this sector as it contributes considerably to the GDP. Agricultural activities are one of the sources of GHG due to waste products, fermentation and manure released by animals.²⁸⁰

The adaptation policy approaches and action plan should be implemented, including the changes in agricultural management practices. Short, medium and long-term adaptation strategies should be investigated by assessing the policies to reduce the climate change impacts on agricultural activities. Early warning indicators can help farmers pick up early warnings to prevent weather disruptions and any kinds of animal diseases.²⁸¹ Enough funds should be allocated to promote climate change adaptation education and awareness in rural communities for both subsistence and commercial farmers.²⁸²

However, in terms of the mitigation, SA committed to reduce its GHG emissions by 34% by 2020 and 42% by 2025.²⁸³ In terms of the *KP*, it was not compulsory to commit to reducing GHG emissions.

²⁷⁷ DEA Chapter 3 of the NCCRGP 8.

²⁷⁸ DEA Chapter 4 of the NCCRGP 8

²⁷⁹ DEA Chapter 5 of the NCCRGP 9.

²⁸⁰ DEA Chapter 5.2 of the NCCRGP 12.

²⁸¹ DEA Chapter 5.2.4 of the NCCRGP 13.

²⁸² DEA Chapter 5.2.5 of the NCCRGP 13.

²⁸³ DEA Chapter 5.4 of the NCCRGP 16.

3.1.7 National Climate Change Response White Paper, 2011

The SA government responded to its international commitments by drafting the National Climate Change Response White Paper (NCCRWP),²⁸⁴ which provides an effective climate change response plan. This includes a transition to a climate-resilient, lower-carbon economy and society.²⁸⁵ The NCCRWP consists of 13 chapters.

The NCCRWP outlines two main objectives namely mitigation and adaptation. Several key sectors are affected by climate change. Its main response to climate change are as follows:

- “(i) 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
- (ii) to make fair a contribution to the global effort to achieve the stabilisation GHG concentrations in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a time frame that enables economic, social and environmental development to proceed in a sustainable manner.”²⁸⁶

This NCCRWP policy demonstrates SA’s commitment to achieve its objective and sets out to protect the country and its people from the impacts of inevitable climate change.²⁸⁷ The government has indicated that achieving the above objective will require drafting and implementing national policy to ensure a coordinated, coherent, efficient and effective response to the global issues related to climate change.²⁸⁸

The NCCRWP outlines SA’s response to climate change as a number of principles.²⁸⁹ These principles are not based on the Bill of Rights in the *Constitution* only but also include the *NEMA*, the MDGs and the *UNFCCC*. This policy is based on principles of CBDR-RC, equity, the precautionary principle, the polluter pays principle, informed participation, the special needs and circumstances, uplifting the poor and

²⁸⁴ DEA National Climate Change Response White Paper 2010.

²⁸⁵ DEA NCCRWP 5.

²⁸⁶ DEA NCCRWP 5, also see Chapter 2.

²⁸⁷ DEA NCCRWP 10.

²⁸⁸ DEA NCCRWP 5.

²⁸⁹ DEA Chapter 3 of the NCCRWP 12.

vulnerable, intra- and inter-generational sustainability, and economic, social and ecological sustainability.²⁹⁰

Chapter 4 of the NCCRWP calls the responses to the climate change impacts on adaptation. It further sets out the time frame for a climate change response policy to be implemented and become effective as short, medium or long-term planning (up to 2050).²⁹¹

A number of strategic priorities were provided and are aligned with the above principles. To build resilience climate change on agricultural sector needs to implement the following strategic plans including, risk reduction and management; mitigation actions with significant outcomes; policy and regulatory alignment; sectoral responses; integrated planning; informed decision making and planning; technology research, development and innovation; behaviour change through choice; facilitated behaviour change; and resources mobilisation.²⁹²

Chapter 5 of the NCCRWP explains that the development of climate change adaptation strategies in different sectors should be based on risk and vulnerability reduction. This requires enough resources like technology to share with the regional areas.²⁹³ It further describes that the objectives for adaptation should adjust to changing circumstance in different time frames. This will produce an effective response that should also create more employment, especially green jobs. It could contribute to the principle of sustainable development.

An institutional sub-committee of the IGCCC was established in terms of NCCRWP to perform cooperative governance and analyse climate change in all department sectors that are relevant.²⁹⁴ The IGCCC is empowered to review of the National

²⁹⁰ See the previous footnote.

²⁹¹ DEA Chapter 4 of the NCCRWP 13.

²⁹² DEA Chapter 4 of the NCCRWP 15

²⁹³ DEA Chapter 5 of the NCCRWP Adaptation 16.

²⁹⁴ DEA NCCRWP 37.

Climate Change Response Policy and its implementation.²⁹⁵ Each province should also have their own institution to review and implement provincial policies.

Effective adaptation measures have to be integrated into different sector plans to boost the economy by implementing the agricultural sector policies.²⁹⁶ The NCCRWP describes the agricultural sector as the sector where the most measures for adaptation should be implemented.

In order to sustain the agricultural sector, adaptation policies should be implemented to build resilience to climate change as priority, including: the integration of agricultural and forestry and climate change resilience in rural projects to address job creation, food security and livelihoods;²⁹⁷ supporting the agricultural proactive efforts to expand to new areas and new crops;²⁹⁸ investing in and improving research on water, nutrient and soil conservation technologies and techniques; development of climate-resistant crops and livestock including agricultural production, ownership, and financing stages to promote the development of climate-smart agriculture;²⁹⁹ using early warning system to inform farmers about adverse weather and disease;³⁰⁰ and providing climate change education and awareness in rural communities to respond and adapt to the challenges of climate change.³⁰¹

3.1.8 National Development Plan, 2012

During 2012, the National Planning Commission implemented a plan at the national level to eliminate poverty and reduce inequality by 2030. It is called the National Development Plan (hereafter the NDP).³⁰² The NDP is considered the guiding

²⁹⁵ DEA NCCRWP 38.

²⁹⁶ DEA Chapter 5 of the NCCRWP 16 till to 24.

²⁹⁷ DEA Chapter 5.3.1 of the NCCRWP 18.

²⁹⁸ DEA Chapter 5.3.2 of the NCCRWP 18.

²⁹⁹ DEA Chapter 5.3.3 of the NCCRWP 18.

³⁰⁰ DEA Chapter 5.3.4 of the NCCRWP 19.

³⁰¹ DEA Chapter 5.3.5 of the NCCRWP 19.

³⁰² NDP 2024 Department of the Presidency National Planning Commission [https://www.nationalplanningcomission.org.za/National Development Plan](https://www.nationalplanningcomission.org.za/National%20Development%20Plan).

document and serves as an action plan to secure the future of the SA as provided in the *Constitution*.³⁰³

The NDP provides six objectives that have to be achieved by 2030, namely, to eliminate poverty and reduce inequality by creating more jobs; to strengthen democracy by fighting corruption and holding the government accountable; to improve economic growth; to build a capable state; and to provide quality, capable leadership that will unite the nations.³⁰⁴

The NDP is divided into 15 Chapters, where Chapter 5 is titled “Ensuring environmental sustainability and an equitable transition to low carbon economy”.³⁰⁵ It indicates that the country has taken environmental challenges seriously by aiming to develop policies and implement measures to adapt and mitigate climate change.³⁰⁶ The country has taken major steps by committing to reduce its GHG emission between 2020 and 2025.³⁰⁷

The NDP further points out that any development project that promotes environmental sustainable development and builds resilience to the effects of climate change, especially in rural areas.³⁰⁸

It sets the objectives that the country should achieve by 2030 to ensure that the transition to an environmentally sustainable, climate-change resilient, low-carbon economy and just society are met. This includes the development of long-term adaptation strategies and implementation; reducing its carbon emission to align with the international commitments; developing policy and regulatory framework for land use; and investing publicly in agricultural technologies that build resilience and promote environmentally sustainable strategies by supporting the rural farmers.³⁰⁹

³⁰³ NDP 2024 Department of the Presidency National Planning Commission https://www.nationalplanningcommission.org.za/National_Development_Plan.

³⁰⁴ NDP 2024 Department of the Presidency National Planning Commission https://www.nationalplanningcommission.org.za/National_Development_Plan.

³⁰⁵ NDP 2024 Chapter 5 198.

³⁰⁶ Glazewski *Environmental Law in South Africa* 3.4.3.9.

³⁰⁷ NDP 2024.

³⁰⁸ NDP 2024 Chapter 5 198.

³⁰⁹ NDP 2024 Chapter 5 199.

The NDP points out that strong policies should be drafted to adapt to climate change by looking the technical understanding and operational capacity in each sector, including agriculture.³¹⁰ It further outlines that all sphere of governments should draft climate change adaptation policies and take measures that are well coordinated and motivated.³¹¹

3.1.9 Long Term Adaptation Scenario, 2013

The DEA in 2013 published the Long Term Adaptation Scenarios (hereafter the LTAS),³¹² which respond to the notional policy in terms of the NCCRWP. The LTAS objectives are to develop national and sub-national adaptation scenarios for SA under plausible future climate conditions and development pathways.³¹³

The LTAS uses the four contrasting period terms in SA, namely: Hot-Dry, Hot-Wet, Warm-Dry and Warm-Wet.³¹⁴ In the agriculture and forestry sector it further indicates that only a warmer-wetter and hotter-drier are applicable for future climate scenario.³¹⁵

The NDP points out the number of climate change adaptation responses and research requirements that would apply in relation to the agriculture and forestry sector. This includes an integrated approach that requires multiple stressors, using both indigenous knowledge and experience with the current scientific information; national to local government strategies for water resources allocation; application of agricultural management practices based on the principles of ecosystem, community-based adaptation, conservation agriculture, climate-smart agriculture; diversification methods and climate advisory services.³¹⁶

³¹⁰ NDP 2024 Chapter 5 209.

³¹¹ NDP 2024 Chapter 5 2029.

³¹² DEA 2013 Long-Term Adaptation Scenarios.

³¹³ DEA 2013 LTAS 2.

³¹⁴ Ziervogel *et al*/2014 WIREs Climate Change Overview 607.

³¹⁵ DEA 2013 LTAS 9.

³¹⁶ DEA 2013 LTAS 10.

3.1.10 Nationally Determined Contribution, 2015

In 2021, Parliament approved SA's updated communication of its nationally determined contribution (NDC) as required in terms of the *Paris Agreement*.³¹⁷ NDCs have to be communicated every five years as stipulated in the decision 1/CP21.³¹⁸ The Intended Nationally Determined Contribution (INDC), was submitted on 25 September 2015 and it was considered as the first NDC on 1 November 2016 after SA became a Party to the *Paris Agreement*.³¹⁹

The second NDC response will be communicated in 2025 and this updated NDC is structured into three parts, namely mitigation, adaptation and both together. The first adaptation component was communicated and submitted as part of its NDC that aligns with the *Paris Agreement* as required in terms of Article 7.³²⁰ It further outlines certain goals that include the adaptation objectives, implementing the evolution of scientific and technological knowledge, and promoting the investment and cost adaptation.³²¹

The above explanation paves the way for a mitigation component of the NDC, which provides that SA has committed to emission peaking between 2020 and 2025, remaining stable for around a decade, and declining in absolute terms from 2035.³²² This mitigation component provides mitigation targets in terms of the principle of CBDR-RC, which takes the form of a peak, plateau and decline trajectory.³²³

SA's GHG emissions will peak at 398 and 583 Mt CO₂-eq for year 2020-2025, plateau after 10 years to range between 398 and 614 Mt CO₂-eq, and then from 2036

³¹⁷ South Africa 2021 First National Determined Contribution under the Paris Agreement [https://unfccc.int/sites/default/files/NDC/2022-6/South Africa updated first NDC September 2021](https://unfccc.int/sites/default/files/NDC/2022-6/South%20Africa%20updated%20first%20NDC%20September%202021.pdf). NDC is defined in terms of Climate Change Act 2024 that it means NDC as "amended from time to time, prepared in terms of Article 4(2) of the Paris Agreement and submitted by the Republic to the Secretariat of the UNFCCC in terms of Article 4(12) of the Paris Agreement".

³¹⁸ Article 4.9 of the *Paris Agreement*.

³¹⁹ South Africa 2021 first NDC 2.

³²⁰ South Africa 2021 first NDC 5.

³²¹ Preamble *Paris Agreement* 2015.

³²² NDP 2024 Department of the Presidency National Planning Commission https://www.nationalplanningcommission.org.za/National_Development_Plan.

³²³ South Africa 2021 first NDC 15.

onwards will decline between 212 and 428 Mt-CO₂-eq.³²⁴. This indicates that SA is prepared to achieve the objective to produce fair contribution to the long-term mitigation goal as provided in Article 4.1 of the *Paris Agreement*.³²⁵

3.1.11 National Climate Change Response Strategy, 2019

In 2020, the SA government approved the National Climate Change Adaptation strategy (NCCAS),³²⁶ which provides a climate change adaptation vision to focus on transition to a climate resilient. This vision draws from the NCCRP, the NDP, the National Strategy for Sustainable Development, the adaptation component commitments provided in its NDC, the sector adaptation plans, and the provincial and municipality adaptation plans.³²⁷

The SA's NAP is the NCCAS and it fulfils SA's commitment to its international obligations stated in provision of Article 7.9 of the *Paris Agreement* under the *UNFCCC*.³²⁸ The NCCAS was drafted considering the country's legislation and policy, including the principles contained in the international agreements, the *NEMA*, and the *SA Constitution*, specifically section 24, and the Bill of Rights which speaks to the right to a safe and healthy environment.³²⁹

This NCCAS is considered the cornerstone of climate change adaptation and it provides the strategic objectives, strategic interventions and strategic outcomes. The NCCAS strategic objectives are:

“to building climate resilient and adaptive capacity to respond to climate change risk and vulnerability; promoting the integration of climate adaptation into

³²⁴ DEA NCCRWP 27.

³²⁵ Article 4.1 of the *Paris Agreement*, which states that “in order to achieve the long term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty”.

³²⁶ South Africa first NDC 5.

³²⁷ DEA 2019 National Climate Change Adaptation Strategy https://www.dffe.gov.za/sites/default/files/docs/nationalclimatechangadaptationstrategy_eu10november2019.pdf.

³²⁸ DEA NCCAS 10.

³²⁹ DEA NCCAS 10.

development objectives, policy, planning and implementation; improving to understand the climate change impacts and capacity to respond to these impacts; and enduring resources and systems are in place to enable implementation of climate changes responses".³³⁰

It also points out the strategic intervention in the agriculture sector, which stipulates that adaptation projects needs knowledge and information to focus on building the resilience and capacity of farmers to be ready for changes in climate conditions.³³¹ It further promotes climate-smart agriculture projects, such as precision irrigation system; planting drought resistant crop; crop diversification; and livestock integration as some of the sustainable ways of producing more and reducing GHG emissions. Provincial early warning systems committees should be developed to assist farmers to respond quickly.³³²

The climate change adaptation responses should be implemented by all spheres of government and in relevant sectors, including the provincial government in agricultural sector.³³³

3.2 Conclusion

The conclusion on this chapter set out to address the first and second objectives, namely, to identify the policies and legal framework that guide adaptation to the climate change impacts on the agricultural sector in Limpopo province; and to determine the policies and statutes that may be used in Limpopo province to improve and strengthen resilience to climate change impacts on the agricultural sector.³³⁴ Considering these objectives in respect to reach the regulation the adaptation to climate change impacts in Limpopo province on agricultural sector.

The author concluded by summarising this chapter as follows:

Recognising section 24 of the *Constitution*, as well as national environmental management principles in chapter of the *NEMA*, placed the initiation to guide the

³³⁰ DEA NCCAS 21.

³³¹ DEA Draft NCCAS 21 GN 644 in GG 42446 of 6 May 2019.

³³² DEA NCCAS 32.

³³³ DEA NCCAS 49.

³³⁴ See paragraph 1.3 of Chapter 1 page 6.

development and drafting of the legislation and policies framework in SA. This section of the *Constitution*, emphasised when the development of reasonable legislation and other policies needs to promote and secure ecologically sustainable development. Including the development of the environmental provincial legislation and policies that was vested in the provincial legislature,³³⁵ such as regulating climate change adaptation on agricultural sector.

The identified one of the NEMA principle, namely cooperative environmental governance that required the national, provincial and local government to worked together when drafting environmental legislation and policies, specifically relation to climate change adaptation on agricultural sector.³³⁶

The *Climate Change Act* promote the provincial climate change adaptation and is aligned with section 24 of the *Constitution*, therefore is related to this dissertation. The recognition of NDP 2030, that promote the development of long-term adaptation strategies and implementation, reducing its carbon emission to align with the international commitments, developing policy and regulatory framework for investing in agricultural technologies, such agricultural management practice and planting resistant crops.³³⁷ This NDP concurred with this dissertation in terms of developing the provincial legislation and policies that regulate the adaptation on agricultural sector.

The NCCAS indicated that intervention in the agricultural sector in terms of climate change adaptation projects required knowledge and information to build resilience and capacity of farmers in order to promotes climate-smart agriculture. This climate-smart agriculture should be implemented in the provincial government like Limpopo province. The climate change adaptation legislation and policies for national level leads and guide the provincial government that will be discuss below.

³³⁵ See paragraph 3.1.1 of Chapter 3 page 29.

³³⁶ See paragraph 3.1.3 of Chapter 3 page 33.

³³⁷ See paragraph 3.1.8 of Chapter 3 page 44.

Chapter 4: Limpopo province climate change legislation and policy framework

4.1 Introduction

Chapters 2 and 3 outlined the legal and policy frameworks related to climate change adaptation issues at the international, regional, and national level. Since this study's focus is adaptation to the climate change, climate change legislation and policy of the Limpopo province are discussed below to determine whether they align with the objectives mentioned in this study. The provincial legislation and policies such as *Limpopo Environmental Management Act*; *Provincial Air Quality Management Plan*; *Limpopo Green Economy Plan*; *Limpopo Environmental Outlook Report*; *Limpopo Provincial Climate Change Response Strategy*; *Limpopo Development plan*.

4.1.1 Limpopo Environmental Management Act, 2003

The *LEMA* outlined its objectives as follows: (a) to ensure that the managing and protecting the environment in the province are up to date; (b) to secure ecologically sustainable development and accountability when using natural resources; (c) to promote the environmental right enshrined in section 24 of the *Constitution*; and (d) to give effect to international agreements (including the *Paris Agreement*) on environmental management that are binding on the national and provincial government.³³⁸ This Act should be interpreted in line with the national environmental management principles contained in section 2 of the *NEMA*.³³⁹

The Limpopo provincial government governs climate change adaptation legislation and policies at the provincial level. The process requires the MEC to first publish notice in the Provincial Gazette before policies would be binding on all provincial departments including provincial organs.³⁴⁰

³³⁸ *Limpopo Environmental Management Act 7 of 2003* <https://www.cer.org.za/virtual-library/legislation/provincial/limpopo/Limpopo-environmental-management-act-7-of-2003>.Section 2(1) of the *LEMA*.

³³⁹ Section 2(2) of the *LEMA*.

³⁴⁰ Section 3 of the *LEMA*.

The Environmental Advisory Bodies (EAB) established by the MEC are responsible for environmental management. They can publish notices in the Provincial Gazette and have other primary functions and powers.³⁴¹ The *LEMA* does not mention climate change adaptation specifically, but the EABs should consider climate change adaptation measures when advising the MEC.

4.1.2 Provincial Air Quality Management Plan, 2013

The Limpopo Department of Economic Development, Environment and Tourism (LEDET) published the Provincial Air Quality Management Plan (AQMP) in October 2013,³⁴² to align with sections 15 and 16 of the *NEM: AQA*.³⁴³

The objective of the provincial AQMP was to provide the Province with an implementable AQMP that leads progress in all district municipality AQMPs and that align with the national requirements stipulated in the *NEM: AQA*.³⁴⁴ The primary aim

³⁴¹ Section 4 Chapter 2 of the *LEMA*.

³⁴² Limpopo Provincial Government Department of Economic Development, Environment And Tourism Provincial Air Quality Management Plan October 2013
<https://www.saaqis.environment.gov.za/documents/AQPlanning/LIMPOPO%20AQMP.pdf>.

³⁴³ LEDET Provincial Air Quality Management 2013 1. Section 15 of the *NEM: AQA* states that each national department or province responsible for preparing an environmental management plan must include an AQMP as required in terms of Chapter 3 of the NEMA. Section 16 further provides the AQMP which includes:

- (a) Within the domain of the relevant National Department, Province or Municipality, seek:
 - (i) to give effect, in respect of air quality, in Chapter of the NEMA to the extent that the Chapter is applicable to it;
 - (ii) to improve air quality;
 - a. to identify and reduce the negative impact on human health and the environment of poor air quality;
 - (iii) to address the effects of emission from use of fossil fuels in residential application;
 - (iv) to address the effects of emission from industrial sector;
 - (v) to address the effects of emission from any point or non-point source of air pollution other than those contemplated in subparagraphs (iii) and (iv);
 - (vi) to implement the Republic's obligations in respect of international Agreements; and
 - (vii) to give effect to best practice in Air Quality Management;
- (b) Describe how the relevant National Department, Province or Municipality will give effect to its AQMP; and
- (c) Comply with such other requirements as may prescribed by the Minister.

³⁴⁴ Section 2(3) (4) of the *NEMA*.

is to protect air quality to ensure that human health and well-being are taken into consideration in terms of the section 24 of the *Constitution*.

To maintain air quality in the environment, the Province implements clean air management programmes. This provincial AQMP regulates air quality management in five district municipalities, although only three districts are currently compliant.³⁴⁵ LEDET is responsible for ensuring that air quality by-laws and regulations, norms and standards for AQMPs are developed in all districts, and it also handles all AEL applications.³⁴⁶

The Steering Committee, the consulting team and the air quality officers have to ensure that air quality is protected. They also assist in the decision making³⁴⁷. This document indicated output of the summary objective where the baseline assessment needs to consider climate change and look out the current intervention regarding the mitigation of the GHG emissions.³⁴⁸

Air pollution and climate change contributes when it comes to affecting the agriculture sector, therefore, the adaptation in terms of air quality indicators should consider as the solution.³⁴⁹

4.1.3 Limpopo Green Economy Plan, 2013

In 2013, the LEDET published the Limpopo Green Economy Plan (LGEP) as a response to climate change in the Province.³⁵⁰ This policy outlines the Limpopo Employment Growth and Development Plan (LEGDP), of which the main objective is to ensure the quality of life of the people in the province and the transition to a green economy plan.³⁵¹ It further address the issue of the living conditions of the people in the province.

³⁴⁵ LEDET AQMP 2.

³⁴⁶ DEA 2015 National Air Quality Officer's Report on Air Quality Management 23
https://saaqis.environment.gov.za/Pagesfiles/NAQO's_Annual%20Report_2015.pdf.

³⁴⁷ LEDET AQMP 2.

³⁴⁸ LEDET AQMP 4.

³⁴⁹ LEDET AQMP 5.1 page 38.

³⁵⁰ Limpopo Provincial Government LEDET Limpopo Green Economy Plan 2013.

³⁵¹ LEDET LGEP 4.

The LGEP focuses on the quality life of people with the promotion of the green economy. The LGEP states that the green economy is environmentally sustainable, socially just, and locally rooted.³⁵² Environmentally sustainability means that the economic systems should be created in such a way that it is respected and it promotes the integrity of the ecosystem, including an ecological, low carbon, and circular economy.³⁵³

The LGEP strategy to promote a green economy policy are aligned with the national programmes that support a transition to a green economy to respond to the climate change impact. The Limpopo province has indicated that has capabilities to implement its green economy plan.³⁵⁴ The LGEP mentioned short, medium, and long-term goals to achieve the above objective.

The province will focus of the following key areas, namely: sustainable production and consumption; water management; sustainable waste management and practices; clean energy and energy efficiency; resource conservation and management; agricultural, food production and forestry; green buildings and build environment; sustainable transport and infrastructure; green municipalities; and cross-cutting.³⁵⁵

In terms of short to medium-term legislation, policy review and coordination, the provincial government must ensure that all stakeholders are informed, including the general public.³⁵⁶ Achieving the green economy system will require a review of all provincial policies and legislation, including the municipal by-laws.

The Limpopo province still considers the agriculture sector as one that promotes sustainability by providing organic and local products and urban agriculture. The water efficiency, appropriate crops, feed lot regulation, companion agriculture,

³⁵² LEDET LGEP 8.

³⁵³ LEDET LGEP 30.

³⁵⁴ LEDET LGEP 8.

³⁵⁵ LEDET LGEP 30.

³⁵⁶ LEDET LGEP 8.

permaculture, biofuel resources, seed bank, food labelling, and food banks should be managed properly.³⁵⁷

4.1.4 Limpopo Environmental Outlook Report, 2016

The Limpopo Environmental Outlook Report (LEOR) was published by the LEDET in 2016³⁵⁸ and includes five chapters.³⁵⁹ The LEOR outlines the current situation and future prospects in relation to the environment, including climate change. It further indicates how the environment affects the health or well-being of the people and guides how effective environmental response measures can be implemented to improve this condition in order to achieve the provision stipulated in terms of section 24 of the *Constitution*.³⁶⁰

The other objective of the LEOR is to create public awareness about the interrelatedness of people and the environment,³⁶¹ specifically in this study related to the climate change impacts on the agricultural sector. Limpopo province is the first province that compiled an LEOR to comply with the national directive in terms of the DEA. The *NEMA* states that it is mandatory obligation to compile an Environment Outlook Report in both national and provincial spheres of government.³⁶²

The LEOR states that it is a key governance tool that guides the province in achieving a green economy action plan and informing all stakeholders before decision making. It aims to improve the quality of life of the people in the province.³⁶³ Achieving the green economy plan will require LEDET to make measures and policies understandable.

³⁵⁷ LEDET LGEP 30.

³⁵⁸ Limpopo Provincial Government (LPG) LEDET Limpopo Environmental Outlook Report 2016
file:///F:/Research%20assist%20studies/Limpopo%20Articles/300819113929_Limpopo_Environment_Outlook_Report_2016.pdf.

³⁵⁹ LPG LEDET LEOR 2016 v.

³⁶⁰ LPG LEDET LEOR 2016 2.

³⁶¹ LPG LEDET LEOR 1.1.

³⁶² LPG LEDET LEOR 3.

³⁶³ LPG LEDET LEOR 1.1.

This LEOR evaluates the effectiveness of environmental policies that should enhance environmental resilience in terms of climate change adaptation in the province by means of measures, strategies, plans, programmes, projects, and actions.³⁶⁴

The objectives of the Environment Outlook Report are provided in terms of the draft directives in the *National Environment Management Laws Second Amendment Act*,³⁶⁵ as follows:

- Giving accurate and scientific acceptable environmental information;
- Increasing stakeholder environment awareness and understand how the climate change affects causes and consequences;
- Ensuring that measures are fulfilled to achieve environmental norms, standards, and targets;
- Placing early warnings as indicators in relation to the environmental degradation;
- Ensuring that the environmental policies are strengthened, influenced and recommended to achieve the remediation of the environmental degradation;
- Improving decision making at the national and provincial levels; and
- Providing and environmental report to check the progress, improvement of quality, accessibility and information relating to the decision making in order to adopt a long-term response.³⁶⁶

The LEOR takes a positive attitude towards environmental policy formulation, implementation and recommendation in terms of short to medium term to achieve sustainable development in the longer run. The LEOR outlines the responsibility of the LEDET in terms of the development of the provincial policy, plans, strategies, vision and legal for environmental governance.³⁶⁷

³⁶⁴ LPG LEDET LEOR 3.

³⁶⁵ *National Environment Management Laws Second Amendment Act* 30 of 2013.

³⁶⁶ LPG LEDET LEOR 106.

³⁶⁷ LPG LEDET LEOR 106.

4.1.5 Limpopo Provincial Climate Change Response Strategy, 2016-2020

The LEDET took steps to respond to climate change by publishing the Provincial Climate Change Response Strategy (PCCRS) that covers from 2016 to 2020.³⁶⁸ This strategy was developed in the province after agreeing with stakeholders to tackle climate change in order to boost the economy, to protect any citizen in the province from severe climate condition, and to improve the health and well-being in resulting to benefit for quality of life.³⁶⁹

This policy gives the province a positive direction to address climate change impacts in terms of mitigation and adaptation by identifying the measures that should be implemented.³⁷⁰ This study focuses on climate change adaptation in the Limpopo province's agricultural sector. The PCCRS states that adaptation "are actions initiatives and measures to reduce vulnerability of natural and human systems against actual or expected climate change effects."³⁷¹

It further provides the Limpopo province with a vision for addressing climate change challenges, followed by a mission and a number of the objectives. The PCCRS objectives are as follows:

- providing an updated profile and giving clarity about how the province can proactively and positively respond to climate change impacts;
- promoting the provincial vision in order to develop a common climate change agenda;
- improving provincial public climate change awareness; and
- promoting the climate change response among different sectors and active provincial management.³⁷²

³⁶⁸ LPG LEDET Provincial Climate Change Response Strategy 2016-2020 file:///F/Research%20assist%20studies/Limpopo_Climate_Change_Response_Strategy_2016_2020_Final (4).pdf.

³⁶⁹ LPG LEDET PCCRS 2016-2020 9.

³⁷⁰ LPG LEDET PCCRS 2016-2020-10.

³⁷¹ LPG LEDET PCCRS 2016-2020 67.

³⁷² LPG LEDET PCCRS 2016-2020 10.

Climate change adaptation measures are considered the best policy'.³⁷³ In the Limpopo province there are recommendations for climate change adaptation measures for the agricultural sector.³⁷⁴ These recommendations for climate change adaptation align to achieve the objective of the LGEP strategies. The recommendations of provincial stakeholders were included in the Climate Smart Agriculture programme to achieve sustainability in the agricultural sector.³⁷⁵ In May 2015, provincial stakeholders and experts gathered to reformulate and modify the recommended adaptation strategies. The resulting strategies are as follows:³⁷⁶

- Implementing the Climate Smart Agriculture programme to help farmers promote these practices, such as different soil type and different staple food and diary patterns;
- Promoting further efforts to involve conservation agriculture;
- Adopting climate change adaptation programmes for cattle ranching or livestock; and
- Providing enough funds to ensure that climate change public awareness and skills building programmes are implemented to the farmers.³⁷⁷

4.1.6 Limpopo Development Plan, 2020–2025

The Limpopo provincial cabinet adopted the Limpopo Development Plan (LDP) 2020–2025, which was published in March 2021.³⁷⁸ The LDP takes initiatives to align with the NDP vision 2030 by aiming to eliminate poverty, reduce inequality and ensure that quality of life improves.³⁷⁹ It is a five-year complete Growth and Development Plan divided into 12 chapters.

The purpose of the LDP is to contribute towards the NDP by creating a framework that would promote strategic plans for provincial government departments and

³⁷³ LPG LEDET PCCRS 2016-2020 67.

³⁷⁴ LPG LEDET PCCRS 2016-2020 74.

³⁷⁵ LPG LEDET PCCRS 2016-2020 74.

³⁷⁶ LPG LEDET PCCRS 2016-2020 8.1.5.

³⁷⁷ LPG LEDET PCCRS 2016-2020 74.

³⁷⁸ Limpopo Development Plan 2020-2025 [https://www.Limpopo.gov.za/Limpopo Development Plan-2020-2025.pdf](https://www.Limpopo.gov.za/Limpopo%20Development%20Plan-2020-2025.pdf).

³⁷⁹ NDP 2024 Chapter 5 198.

municipalities, and establishing active stakeholders who would be prepared to achieve the provincial objectives.³⁸⁰

The LDP provides the development objectives that guide the province to implement social and economic plans in order to improve quality of life by:

- Promoting sustainable development;
- Improving people's quality of life;
- Providing skilled employment to boost economic growth and sustainable livelihoods;
- Considering social protection and social investment;
- Promoting vibrant and equally sustainable communities; and
- Ensuring that effectiveness and efficiency is developed in the public service.³⁸¹

This policy prioritises the transformation and modernisation of the provincial economy, which includes the agricultural sector, to achieve the above objectives.³⁸²

It further indicates that this province has been considered the most vulnerable one when it comes to climate change impacts on agriculture from the high number of small-scale farms.³⁸³

The LDP identified provincial agriculture sector growth as outcome one, and the second refers to responding to climate change and building active capacity by providing the following key activities:³⁸⁴

- Creating a climate-smart agriculture plan;
- Promoting further efforts that involve conservation agriculture;
- Continuing the climate change adaptation programme for cattle ranching; and

³⁸⁰ LDP 2020-2025 2021 2.

³⁸¹ LDP 2020-2025 2021 200.

³⁸² LDP 2020-2025 2021 198.

³⁸³ LDP 2020-2025 2021 200.

³⁸⁴ LDP 2020-2025 2021 201.

- Providing funding and to ensure that the climate change public awareness and skills building programmes are implemented.³⁸⁵

4.1.7 Limpopo Provincial Spatial Development Framework, 2022

In 2021, the Limpopo Office of the Premier reviewed the 2016 Limpopo Provincial Spatial Development Framework (LSDF) in collaboration with the Provincial Department of Cooperative Governance, Human Settlement and Traditional Affairs (COGHSTA), and National Department of Agriculture, Land Reform and Rural Development (DALRRD).³⁸⁶

The 2016 LSDF document was drafted to better align provincial plans with global, national and provincial spatial and economic development projects and policies. It furthermore indicated the challenges development projects as facing as a result of the climate change response policy.³⁸⁷

The LSDF provides the Agricultural and Agro-Processing master plan (AAPM), aiming to promotes inclusive growth, competitive, transformation, employment and food security.³⁸⁸ The objective of the AAPM is to enhance resilience to the effect of climate change and promote sustainable management in the agriculture sector.³⁸⁹

4.2 Conclusion

The purpose of this dissertation was to determine the nature of the policies and the legal framework regulating climate change adaptation in Limpopo province on agricultural sector. Therefore, this chapter address the second and third objectives of this study, namely, to determine the policies and statutes that may be used in Limpopo to improve and strengthen resilience to climate change impacts on the

³⁸⁵ LDP 2020-2025 2021 202.

³⁸⁶ Limpopo Provincial Government Limpopo Provincial Spatial Development Framework 2022 https://www.limpopo.gov.za/WebDocs/SDF/Limpopo%20SDF_Phase%201_VO9.pdf.

³⁸⁷ LPG LSDF 2022 11.

³⁸⁸ LPG LSDF 2022 52.

³⁸⁹ LPG LSDF 2022 paragraph 2.3.9.4.

agricultural sector; and to determine the institutions that could promote the implementation of policies in order to adapt to climate change.

The Limpopo provincial government govern the *LEMA*, which is aligned with section 24 of the *Constitution* and it should be interpreted in line the national environmental management principles provided in terms of section 2 of the *NEMA*.³⁹⁰ The established of the EAB by MEC is recognised to review the *LEMA* to insert the clause that considering the regulating the adaptation to climate change impacts on agricultural sector.

By recognising the PCCRS as currently the most provincial climate change policies that deals with the climate change adaptation on agriculture sector, where it promotes the implementation of the Climate Smart Agriculture programme.

³⁹⁰ See paragraph 4.1.1 of Chapter 4 page 50.

Chapter 5: Conclusions and recommendations

5.1 Introduction

The main purpose of this dissertation was to determine the nature of the policies and the legal framework that regulates climate change adaptation in the Limpopo province with respect to the agriculture sector.³⁹¹

The objectives of this research were formulated as follows:

- (1) Objective 1: To identify the policies and legal framework that guides adaptation to climate change impacts in the agricultural sector in Limpopo province;
- (2) Objective 2: To determine the policies and statutes that may be used in Limpopo province to improve and strengthen resilience to climate change impacts in agricultural sector; and
- (3) Objective 3: To determine the institutions that could promote the implementation of policies to adapt to climate change.

5.2 Conclusion

Chapter 1 offered the background of the study, including the problem statement, aim and objectives. It also outlined the study area, the definitions of relevant terms and the research methodology of a literature view.³⁹²

The following conclusions emerge from Chapter 1:

- The agricultural sector is one of the sectors that contributes to climate change impacts by producing GHG emissions, among others chlorofluorocarbon and CO₂.³⁹³

³⁹¹ See the above para 1.3 of Chapter 1 page 13.

³⁹² See the above para 1.5 and 1.6 Chapter 1.

³⁹³ See the above Chapter 1 para 1.1 8.

- The point of departure was the Limpopo provincial legislation and policy documents on climate change adaptation in the agricultural sector.³⁹⁴

Chapter 2 examined the international climate change treaties that cascade down to the regional level to national to provincial legislation, policies and strategies. The UNGA is the main international player that promotes the development of treaties, protocols and regulations on climate change adaptation at all levels of governance.³⁹⁵

The following conclusions emerge from Chapter 2:

- The SA government signed the *UNFCCC* and ratified it. SA is a Party to the *UNFCCC* even though it is not listed in the annexes. The country still has a general obligation to develop and implement climate change adaptation policies.³⁹⁶
- The establishment of international institutions and bodies in terms of the *UNFCCC* indicates the positive direction that SA should take by means of the LPG climate change adaptation policies.
- SA ratified the *KP*, where the country is listed as a developing country that qualifies to participate in CDM. This can guide provincial agricultural activities to achieve sustainable development by implementing climate change adaptation policies. SA is not legally bound to reduce GHG emission in terms of the *KP*, but can receive adaptation funding, technology, and capacity building.³⁹⁷
- SA is complying with communication as required in terms of the Article 3 of the *Paris Agreement*. The country submitted its first NDC, which includes climate change adaptation, mitigation, finance, technology and capacity support. Indeed, our country aligned with the objectives of the *Paris Agreement*.

³⁹⁴ See the above para 1.6 Chapter 1 16.

³⁹⁵ See the above para 2.1 Chapter 2 17.

³⁹⁶ See the above para 2.1.2 Chapter 2 18

³⁹⁷ See the above para 2.1.3.1 Chapter 2 24.

- In relation to regional perspective, SADC was established for developing countries and signed an agreement that aligns with the *Paris Agreement*.³⁹⁸ The SADC objectives are to develop and implement climate change adaptation policies and legislature that align and comply with the objectives of the UNFCCC. These climate change adaptation policies and laws have to flow from the SADC level, to the national and provincial government. SADC developed a number of policies to govern climate change adaptation.

Chapter 3 evaluated SA climate change legislation and policy frameworks, serving as the roadmap to achieve the aim and objectives of the study. In SA there are different laws and policies that deal with the environmental issues. In this chapter I first discussed the *Constitution* section 24, which protects environmental rights. The *Constitution* indicates that the state has a responsibility to enact reasonable legislation and other measures that promote sustainable development.

It is clear from the *Constitution* that the government should enact laws and policies that are compliant and aligned from this section. The provincial executives are empowered by the *Constitution* to develop and implement climate change adaptation legislation and policies.³⁹⁹

The following conclusions emerge from Chapter 3:

- The *NEMA* is the SA environmental legislation that provides for environmental governance.⁴⁰⁰ The *NEMA* does not explicitly address climate change adaptation but establishes the principles that guides the decision making on matters affecting the environment. The principle for cooperative environmental governance shows the link between the national, provincial and local government when drafting legislation, policies and other measures on climate change adaptation in agricultural activities.⁴⁰¹ Institutions can be established in terms of Chapter 2 of the *NEMA* at the provincial level.

³⁹⁸ See the above para 2.1.13 Chapter 2 33.

³⁹⁹ See the above para 3.1.1 Chapter 3 36.

⁴⁰⁰ See the above para 3.1.2 Chapter 3 37.

⁴⁰¹ See the above para 3.1.2 Chapter 3 38.

- The different national policies and their objectives play a vital role in climate change adaptation measures for the agricultural sector.
- The recently published CCA was drafted to be in compliance with the Bill of Rights in terms of section 24 of the *Constitution* and to align with Article 4 of the *Paris Agreement*. It promotes the implementation of effective climate change adaptation response and the establishment of provincial forums.⁴⁰²

Chapter 4 of this study sought to probe the existing Limpopo provincial climate change legislation and policy framework to reach the aim of this research. The conclusions for this chapter are discussed at the hand of the study objectives:

5.2.1 Objective 1: To identify the policies and legal framework that guide adaptation to climate change impacts in the agricultural sector in Limpopo province

The LPG established the LEDET, which is the responsible for environmental legislation and policies in the province in relation to climate change adaptation. The national legislation that guide the LPG is section 24 of the *Constitution*, which implores the state to take responsibility for developing, formulating and implementing legislation and other measures related to climate change adaptation on agricultural sector. The LPG aligns with the national policies.

The LGEP promote a green economy policy as identified as one that will guide the provincial to fast track to implement the climate change adaptation measures in the agricultural sector. The PCCRS objectives and a mission indicates positive response to the provincial stakeholders to reduce vulnerability of natural and human systems against or expected climate change effects.⁴⁰³ These two above policies not limited to others are identified as that will achieved by the provincial to be guided to implement climate change adaptations measures in the agriculture sector.

⁴⁰² See the above par 3.1.10 Chapter 3 57.

⁴⁰³ See the above footnote 377.

5.2.2 Objective 2: To determine the policies and statutes that may be used in Limpopo province to improve and strengthen resilience to climate change impacts on agricultural sector

The CCA promotes the LPG to draft and develop policies that should respond to climate change, specifically adaptation. The LPG responded by publishing the PCCRS as one of the policies that align with the NCCRS to promote climate change adaptation practices.⁴⁰⁴ The NEMA provides principles for cooperative governance in relation to draft the legislation, policies and other measures that align with the LEMA to govern climate change impacts on agricultural activities.

5.2.3 Objective 3: To determine the institutions that could promote the implementation of policies in order to adapt to climate change

The LEDET as the department that governs the climate change policies established several provincial institutions, namely the EAB, the Steering Committee, air quality officers, the LEGDP, and provincial stakeholders. These institutions and parties assist, advise, review and implement environmental management policies to achieve the provincial objectives. LEDET is aligned with the provision of NEMA in Chapter 2 that identifies two institutions to advise and inform national executives about environmental management and governance, namely the NEAF and CEC.⁴⁰⁵

5.3 Recommendations

The following recommendations for further research emerge from the findings:

- The LPG should develop, draft and implement climate change adaptation legislation and policy frameworks to regulate the impacts on agriculture sector.
- The LEMA should be amended to include provisions that accommodate climate change adaptation.

⁴⁰⁴ See the above para 4.5 Chapter 4 65.

⁴⁰⁵ See the above para 3.1.2 Chapter 3 36.

- Provincial policies should allocate climate change adaptation funding to support agricultural activities.
- Climate change adaptation awareness, education and technology should be promoted to ensure that farmers are equipped with knowledge.
- The LPG, should assist the LEDET and Limpopo Department of Agriculture and Land Development to draft and implement the environmental legislation and policies that regulates the adaptation to climate change on agricultural sector.

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