

**THE CARBON TAX AS A MARKET-BASED ENFORCEMENT MECHANISM TO
ENSURE COMPLIANCE WITH ENVIRONMENTAL LAW AND ADDRESS
POLLUTION**

by

TIMOTHY DAVID VAN DER MERWE

Student number: 58538666

submitted in accordance with the requirements for the degree of

MASTER OF LAWS

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISORS: MRS E. RAUBENHEIMER & MR. H. COETZEE

ACADEMIC HONESTY DECLARATION

Declaration: Timothy David van der Merwe

1. I understand what academic dishonesty entails and am aware of Unisa's policies in this regard.

2. I declare that this assignment is my own, original work. Where I have used someone else's work I have indicated this by using the prescribed style of referencing. Every contribution to, and quotation in, this assignment from the work or works of other people has been referenced according to this style.

3. I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.

4. I did not make use of another student's work and submitted it as my own.

NAME: Timothy David van der Merwe

SIGNATURE: 

STUDENT NUMBER: 58538666

MODULE CODE: DFCIL92

DATE: 4 December 2018

DECLARATION

I declare that

**THE CARBON TAX AS A MARKET-BASED ENFORCEMENT MECHANISM TO
ENSURE COMPLIANCE WITH ENVIRONMENTAL LAW AND ADDRESS
POLLUTION**

is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the dissertation to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.

ACKNOWLEDGEMENTS

For my father, who passed away during the writing of this dissertation. I would not be where I am today without your wisdom, guidance, love and enduring support. Thank you, Prof. This one's for you.

To my incredible mother, thank you for the continued support and love you have given me. Your seemingly endless patience and words of encouragement have helped me to finish what I started.

Thank you to my supervisors, Ms. Raubenheimer and Mr. Coetzee, for your assistance and guidance throughout.

And lastly, to Cass. Thank you for being by my side through it all.

ABSTRACT

This study emanates from the worldwide issue of climate change, as well as the need for all nations to make an effort to reduce their carbon emissions and move towards greener economies. It delves into South Africa's current command-and-control environmental enforcement regime and highlights the pitfalls that allow major air polluters to avoid sanction of any form in many instances. This poor environmental enforcement and compliance effectively means that South Africa is unlikely to be capable of meeting targets set under international agreements. The study confirms that environmental enforcement is inadequately addressed in South Africa. This is attributable to the inherent shortcomings of command-and-control approaches, including that they are inflexible and offer few incentives for firms to modify behaviour to reduce emissions. Poor enforcement of environmental legislation results in negative externalities caused by air pollution being borne by people who did not create such pollution. The study therefore advocates the use of market-based mechanisms as an alternative to traditional command-and-control approaches to environmental enforcement.

In light of the South African government's recent publication of the Draft Carbon Tax Bill, carbon taxes as a subset of market-based environmental enforcement mechanisms have the potential to better enforce the polluter pays principle. Mexico, arguably the most forward-thinking developing nation in terms of climate change mitigation, has taken numerous steps towards meeting international commitments, including the implementation of a carbon tax. While South Africa's proposed carbon tax does differ from Mexico's in some respects, the basic premise remains the same and some comparisons can be made in this regard, with accompanying lessons to be learned. Such lessons include that it is imperative that the carbon tax must be set at a high enough rate to meet international commitments whilst at the same time avoiding adverse economic effects, maintaining social welfare and stabilising economic output levels. The proposed carbon tax, while unable to achieve this on its own, is a good place to start and should be utilised in conjunction with the Draft Climate Change Bill to effectively and efficaciously bring about the required change. The proposed carbon tax undoubtedly has the potential to better hold major air polluters responsible for their CO₂ and other GHG emissions.

KEYWORDS

Climate change; Air pollution; Sustainable development; Polluter pays principle; Environmental compliance; Environmental enforcement; Command-and-control mechanisms; Market-based mechanisms; Carbon tax.

SUMMARY

This study examines South Africa's command-and-control environmental enforcement regime with a view to examining the effectiveness thereof. The study goes on to critically examine market-based enforcement mechanisms as an alternative to the traditional command-and-control mechanisms, with specific emphasis on carbon taxes and the proposed carbon tax in South Africa. A comparative study with Mexico provides insight into how carbon taxes operate in developing nations and whether they have been effective in promoting sustainable development and the polluter pays principle, whereafter recommendations are made concerning the most viable route forward for South Africa.

TABLE OF CONTENTS

ACADEMIC HONESTY DECLARATION	ii
DECLARATION	iii
ACKNOWLEDGEMENTS	iv
ABSTRACT	v
KEYWORDS	vi
SUMMARY	vi
LIST OF ABBREVIATIONS	xii
<u>CHAPTER 1: BACKGROUND AND GENERAL INTRODUCTION</u>	
1.1 Introduction	1
1.2 The position in South Africa	2
<i>1.2.1 Drivers, impacts and indicators of climate change</i>	3
1.3 Institutional framework for combating pollution and climate change in South Africa	5
<i>1.3.1 The application and interpretation of international law in South Africa</i>	5
<i>1.3.2 Climate change and policy commitments in South Africa</i>	7
<i>1.3.3 Financial and technical support for developing nations</i>	10
<i>1.3.4 Section 24 of the Constitution and Sustainable Development</i>	12
<i>1.3.5 The National Environmental Management Act (NEMA)</i>	14
1.3.5.1 The National Environmental Management: Air Quality Act	15
<i>1.3.6 Environmental compliance and enforcement in South Africa</i>	17
1.3.6.1 Command and control mechanisms	17
1.3.6.2 Incentive-based measures	19
1.3.6.3 The Environmental Management Inspectorate (EMI)	20
1.3.7 Summary	20

1.4 Research problem	22
1.5 Purpose of the study	23
1.6 Research questions	24
1.7 Methodology	25
1.8 Structure of the dissertation	26

CHAPTER 2: NEMA, SUSTAINABLE DEVELOPMENT AND THE POLLUTER PAYS PRINCIPLE

2.1 Introduction	28
<i>2.1.1 The foundational principles in Chapter 1 of NEMA</i>	28
<i>2.1.2 The international position on the concept of sustainable development</i>	31
2.1.2.1 The concept of sustainable development in South African law	32
<i>2.1.3 The development of the polluter pays principle</i>	37
2.1.3.1 The polluter pays principle in South African law	38

CHAPTER 3: COMMAND-AND-CONTROL ENFORCEMENT MECHANISMS IN SOUTH AFRICA

3.1. An introduction to command-and control measures for environmental enforcement	41
3.2 The criminal sanction	42
<i>3.2.1 The aims of the criminal sanction</i>	42
<i>3.2.2 Shortfalls of the criminal sanction</i>	43
<i>3.2.3 Alternatives to the criminal sanction</i>	46
3.3 Civil measures	46
<i>3.3.1 The form and operation of civil measures</i>	46
3.3.1.1 The interdict and relevant case law	46
3.3.1.2 Compensation for damages	49

3.3.1.3 Shortfalls of civil litigation in the environmental sphere	49
3.4 Administrative mechanisms	50
3.4.1 Directives and the duty of care in NEMA and NEM: AQA	50
3.4.2 Permits and regulation in terms of NEM: AQA	52
3.4.3 Penalties for the failure to obtain an AEL	53
3.4.4 Compliance notices	53
3.4.5 Abatement notices	54
3.4.6 Disadvantages of administrative measures	54
3.5 The Environmental Management Inspectorate	57
3.5.1 The EMI: shortfalls and inadequacies	58
3.6 Shortfalls of command-and-control regulation: a summary	60
3.7 Possible alternatives and the way forward	62
<u>CHAPTER 4: MARKET-BASED MECHANISMS FOR POLLUTION CONTROL</u>	
4.1 Alternatives to command-and-control mechanisms	64
4.2 A case for market-based enforcement mechanisms	65
4.2.1 Pollution and economic externalities	66
4.2.2 Market-based mechanisms and economic incentives	66
4.3 Types of market-based enforcement mechanisms	67
4.3.1 Carbon taxes vs cap-and-trade programmes	68
4.3 Environmental taxes	70
4.4 The Draft Carbon Tax Bill	71
4.4.1 Preamble to the Draft Carbon Tax Bill and the Modelling Report	72
4.4.2 The form and function of the proposed carbon tax	74
4.4.3 Tax base and tax rates	75

4.4.3.1 Tax free emissions	76
4.4.3.2 Emissions subject to tax phasing and allowances	76
4.4.4 Reporting requirements and administration of the carbon tax	77
4.4.5 Resistance to the first Draft Carbon Tax Bill	78
4.4.6 Potential issues with the proposed carbon tax in the first Draft Bill	79
4.4.7 Counter-arguments against the resistance to the proposed carbon tax	82
4.4.8 The Second Draft Carbon Tax Bill	83
4.4.9 Carbon Tax Bill tabled in the National Assembly	84
4.4.10 The Draft Climate Change Bill: A notable mention	85
4.5 Investigating the viability of carbon taxes in a developing country	86
<u>CHAPTER 5: MEXICO - A COMPARISON</u>	
5.1 Introduction and background	88
5.2 Mexico's international climate change commitments	89
5.3 Mexico and South Africa: a comparison of environmental legislative frameworks	90
5.3.1 Mexico's constitutional environmental right	90
5.3.2 Mexico's primary and supplementary environmental legislation	91
5.3.3 Air pollution limits and integrated environmental permitting regimes	92
5.4 Command-and-control measures for environmental enforcement in Mexico	93
5.4.1 The criminal sanction	93
5.4.2 Civil and administrative measures	94
5.4.3 Payment of fines and compensation for non-compliance	95
5.4.4 Shortcomings and the exploration of market-based mechanisms for environmental compliance and enforcement	95
5.5 Mexico's carbon tax and climate change mitigation regime	96

<i>5.5.1 Fundamental legislation for mitigating CO₂ emissions</i>	96
<i>5.5.2 Mexico's climate change strategy in terms of the General Law on Climate Change</i>	98
<i>5.5.3 Mexico's legislative and policy reforms and the introduction of the carbon tax in Mexico</i>	100
5.5.3.1 Carbon tax rate	101
<i>5.5.4 Issues with Mexico's carbon tax and exemptions</i>	102
<i>5.5.5 Mexico's carbon tax and the polluter pays principle</i>	103
5.6 Summary and conclusion	104
<u>CHAPTER 6: SUMMARY, RECOMMENDATIONS AND CONCLUDING REMARKS</u>	
6.1 Summary	105
6.2 Recommendations	108
6.3 Concluding remarks	111
<u>BIBLIOGRAPHY</u>	113

LIST OF ABBREVIATIONS

AEL	Atmospheric Emission License
APPA	Atmospheric Pollution Prevention Act
CO₂	Carbon dioxide
COP 13	13 th Conference of the Parties
COP 24	24 th Conference of the Parties
CSIR	Council for Scientific and Industrial Research
DEA	Department of Environmental Affairs
DACELA	Department of Agriculture, Conservation, Environment and Land Affairs
DoE	Department of Energy
EMI	Environmental Management Inspectorate
EPA	Environmental Protection Agency
GCF	Green Climate Fund
GEF	Global Environment Facility
GHGs	Greenhouse gases
IEL	Integrated Environmental License
INDC	Intended Nationally Determined Contribution
LUPO	Land Use and Planning Ordinance
LGEEPA	General Law on Equilibrium and Environmental Protection
NDC	Nationally Determined Contribution
NEMA	National Environmental Management Act

NEM: AQA	National Environmental Management: Air Quality Act
NECERs	National Environmental Compliance and Enforcement Reports
NPA	National Prosecuting Authority
OECD	Organisation for Economic Cooperation and Development
SAPS	South African Police Service
SARS	South African Revenue Services
SEMA	Specific Environmental Management Act
SEMARNAT	Secretariat of the Environment and Natural Resources
UNFCCC	United Nations Framework Convention on Climate Change

CHAPTER 1: BACKGROUND AND GENERAL INTRODUCTION

1.1 Introduction

Global warming and the climate change it causes is, universally, primarily attributable to the increase in greenhouse gases (GHGs) in the earth's atmosphere.¹ These gases have increased rapidly in concentration since the beginning of the Industrial Revolution, and effectively trap radiation that is emitted from the surface of the earth.² This additional heat is retained in the earth's atmosphere, resulting in more polluted air and a warmer climate.³ The question of whether climate change is in fact occurring is no longer one worthy of debate. The only question that remains is the extent to which the earth will heat up because of the observed increase in GHG emissions.⁴

It has been established that climate change impacts air quality, while the converse is also true.⁵ Carbon dioxide (CO₂) is the GHG primarily responsible for climate change and can stay in the earth's atmosphere for in excess of 100 years. Its effects on global climate change are thus long-lasting and result in extensive negative impacts on human health and ecosystems, with millions of people suffering premature deaths as a result of air pollution and the inextricably linked epidemic that is global climate change.⁶

Because society has failed to recognise the now undeniable connection between GHGs and climate change, emitters have historically not been held responsible for the pollution they cause.⁷ Thus, throughout the 20th century, human activities have

¹ "Why is this relevant to South African companies?" <http://www.thecarbonreport.co.za/why-is-this-relevant-to-south-african-companies/> (Date of use: 22 April 2017).

² Chandrappa R *Coping with Climate Change: Principles and Asian Context* (Springer 2011) 27.

³ Ruddiman WF *Plows, plagues and petroleum: How humans took control of climate* (Princeton University Press 2010) 3.

⁴ Ruddiman WF *Plows, plagues and petroleum: How humans took control of climate* (Princeton University Press 2010) 3.

⁵ EPA "Air Quality and Climate Change Research" <https://www.epa.gov/air-research/air-quality-and-climate-change-research> (Date of use: 7 November 2018).

⁶ IASS "Air Pollution and Climate Change" <https://www.iass-potsdam.de/en/output/dossiers/air-pollution-and-climate-change> (Date of use: 7 November 2018).

⁷ Clark D "What is the 'polluter pays' principle?" <https://www.theguardian.com/environment/2012/jul/02/polluter-pays-climate-change> (Date of use: 22 April 2017).

resulted in drastic increases in the levels of key GHGs, with the underlying cause being the burning and exploitation of fossil fuels.⁸ Humans are, through a range of activities, responsible for producing more GHGs than our planet can naturally reabsorb. The effect is potentially irreversible adverse climate change, both short and long term, with dire consequences that are already starting to manifest themselves today.⁹ As indicated, the primary GHG responsible for climate change is CO₂¹⁰, and international climate change agreements and protocols are focused on limiting the emissions of this GHG.¹¹ International cooperation is therefore important for the effective mitigation of global warming and climate change, as the impacts of global warming transcend state boundaries. In this sense, climate change has become a truly global issue. States have previously agreed to work together to tackle pressing and important global issues such as nuclear warfare and the depleting of the ozone layer, and there are many treaties in place that have facilitated and enforced these multilateral, bilateral and regional agreements, depending on the nature of the issue.¹²

1.2 The position in South Africa

South Africa's economy is among the most carbon-intensive in the world, which is largely attributable to the continued reliance on coal (particularly in the energy sector).¹³ Other drivers include a rapidly growing population, lifestyle changes, urbanisation, mining activities and a change in land use patterns.¹⁴ Consequently, South Africa's greenhouse gas (GHG) emissions rank in the top 20 countries in the

⁸ "Why is this relevant to South African companies?" <http://www.thecarbonreport.co.za/why-is-this-relevant-to-south-african-companies/> (Date of use: 22 April 2017).

⁹ Solomon S *et al* "Irreversible climate change due to carbon dioxide emissions" 2009 *PNAS* 1704.

¹⁰ Solomon S *et al* "Irreversible climate change due to carbon dioxide emissions" 2009 *PNAS* 1704.

¹¹ Solomon S *et al* "Irreversible climate change due to carbon dioxide emissions" 2009 *PNAS* 1704. The Paris Agreement, signed in 2015, states as follows in this regard: "This Agreement...aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by (b) increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development..."

¹² Hellenic Republic "Environment – Climate Change" <https://www.mfa.gr/en/foreign-policy/global-issues/environment-climate-change.html> (Date of use: 15 November 2018).

¹³ Altona T *et al* "Introducing carbon taxes in South Africa" 2013 *Elsevier* 1.

¹⁴ Gwaze P "Drivers of Air Pollution in South Africa" http://www.airqualitylekgotla.co.za/assets/2017_3.1-drivers-of-emissions-in-south-africa.pdf (Date of use: 15 November 2018).

world. The coal sector is responsible for 48% of these emissions, with the remainder coming from the metal products sector, the transportation sector, and the chemical, rubber and water-supply sectors.¹⁵ Due to these extremely high levels of carbon dioxide emissions (in the region of 10 metric tons per annum), climate change and the resultant impacts on South Africa are inevitable.¹⁶

1.2.1 Drivers, impacts and indicators of climate change

The repercussions of climate change are far reaching and increasingly prevalent, and developing countries like South Africa are particularly vulnerable.¹⁷ The climate change caused by excessive CO₂ emissions is a threat to South Africa's natural assets, as well as to the citizens living in the country. Over the past 60 years, temperatures have risen considerably, with a further 1-2°C increase expected in coastal areas and a 3-4°C rise in areas further inland by the year 2050.¹⁸ A further potential impact is the unpredictable changing of rainfall patterns. This is likely to negatively affect the agricultural sector, widely considered as being the most weather-dependant of all human enterprises.¹⁹ The consistent upward trajectory of temperatures in South Africa is also likely to influence this sector, with changes already starting to become more evident today.²⁰ Additionally, because such a large portion of the human population in South Africa lives in varying degrees of poverty, the lack of proper housing structures presents substantial risks to inhabitants in extreme weather conditions caused by climate change. Disease is more likely to spread, and the already restricted access to safe drinking water for many may be

¹⁵ Goitom H "South Africa: Carbon-Tax Legislation Proposed" <http://www.loc.gov/law/foreign-news/article/south-africa-carbon-tax-legislation-proposed/> (Date of use: 12 December 2016).

¹⁶ Goitom H "South Africa: Carbon-Tax Legislation Proposed" <http://www.loc.gov/law/foreign-news/article/south-africa-carbon-tax-legislation-proposed/> (Date of use: 12 December 2016).

¹⁷ Griffin J "The impact of climate change on South Africa" https://www.climateemergencyinstitute.com/cc_s_africa_griffin.html (Date of use: 15 May 2017).

¹⁸ Griffin J "The impact of climate change on South Africa" https://www.climateemergencyinstitute.com/cc_s_africa_griffin.html (Date of use: 15 May 2017).

¹⁹ Sultan B "Global warming threatens agricultural productivity in Africa and South Asia" 2012 *Environmental Research Letters* 1.

²⁰ Griffin J "The impact of climate change on South Africa" https://www.climateemergencyinstitute.com/cc_s_africa_griffin.html (Date of use: 15 May 2017).

limited even further.²¹ A further concern is the impact climate change has on the forestry industry. Commercial forests already place a massive demand on South Africa's precious water resources, and the change in rainfall patterns may mean that insufficient water will be available for the forestry sector.²² Additional indicators of environmental harm caused by climate change include severe droughts, reduced crop yields, the contamination of groundwater, biodiversity and habitat loss, rising sea levels and a higher frequency of natural disasters such as floods.²³

In urban areas, and particularly major cities, air pollution presents an array of health issues. The World Health Organisation in 2014 released a report stating that the most prevalent cause of premature death is air pollution, having recently overtaken the lack of clean drinking water and inadequate sanitation.²⁴ Various health complications have been identified as being directly related to air pollution, such as stroke, heart disease, lung cancer and respiratory infections.²⁵ The issue of air pollution is experienced to varying degrees in urban areas the world over, and South Africa is no exception. A recent study by the Council for Scientific and Industrial Research (CSIR) showed that areas such as the Vaal Triangle exceeded the required annual standards, due largely to coal mines, various industries, vehicles and power stations.²⁶

Much like the rest of the globe, South Africa is in a substantial environmental transformation, driven largely by the growing appreciation and realisation that society's current use of earth's resources is unsustainable.²⁷ Due to the excessively

²¹ Griffin J "The impact of climate change on South Africa" https://www.climateemergencyinstitute.com/cc_s_africa_griffin.html (Date of use: 15 May 2017).

²² Griffin J "The impact of climate change on South Africa" https://www.climateemergencyinstitute.com/cc_s_africa_griffin.html (Date of use: 15 May 2017).

²³ NASA "How climate is changing" <https://climate.nasa.gov/effects/> (Date of use: 15 November 2018).

²⁴ Kelly FJ & Fussell JC "Air pollution and public health: emerging hazards and improved understanding of risk" 2015 *Environ Geochem Health* 633.

²⁵ Kelly FJ & Fussell JC "Air pollution and public health: emerging hazards and improved understanding of risk" 2015 *Environ Geochem Health* 633.

²⁶ CSIR "CSIR study finds annual standards for air pollutants in the Vaal Triangle exceeded" <https://www.csir.co.za/csir-study-finds-annual-standards-air-pollutants-vaal-triangle-exceeded> (Date of use: 15 November 2018).

²⁷ Paterson A & Kotze LJ (eds) *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 1.

high levels of carbon dioxide emissions and the air pollution that results, it is necessary to set out South Africa's institutional framework for combating climate change and air pollution in the country.

1.3 Institutional framework for combating pollution and climate change in South Africa

States and international organisations are the legal subjects of international law, which deals with environmental matters that are of global or universal concern.²⁸ Pollution and climate change are undoubtedly two of the most potentially devastating issues facing humanity today. Additionally, international principles such as sustainable development and the polluter pays principle are playing an important role in this arena.²⁹ South Africa has signed a number of international agreements and instruments, which are aimed at protecting the environment, reducing GHG emissions, and ultimately combating climate change on a global scale. Examples of such instruments include the revolutionary Kyoto Protocol, as well as the Paris Agreement on Climate Change.³⁰ Evidently, international environmental law plays an important role in South African environmental law, and as such the application and interpretation of international environmental law in South Africa is briefly outlined as follows.

1.3.1 The application and interpretation of international law in South Africa

Section 233 of South Africa's Constitution states that our courts must prefer any reasonable interpretation of legislation that is consistent with international law and, when read with section 39, these sections clearly show that international law is an important and relevant source of environmental law in South Africa.³¹

²⁸ Abdulrahim W "A State as a Subject of International Law" <https://sites.google.com/site/walidabdulrahim/home/my-studies-in-english/5-a-state-as-a-subject-of-international-law> (Date of use: 27 February 2018).

²⁹ Further important environmental principles incorporated in NEMA include equitable access to resources, minimising/avoiding degradation of the environment, the application of a risk-averse and cautious approach, and that the use and exploitation of non-renewable resources is equitable and responsible.

³⁰ Purdy A "The Kyoto Protocol" <https://www.theguardian.com/environment/2005/feb/16/sciencenews.environment> (Date of use: 27 February 2018).

³¹ Constitution of the Republic of South Africa, 1996.

In terms of section 39 of the Constitution, read with section 233, international law is an important source of environmental law, as noted above. Section 39 (1)(b) obliges our courts to consider international law when interpreting any provision in the Bill of Rights. In addition to this, sections 239(1) and 233 of the Constitution obliges courts to interpret legislation in accordance with international law.³² This is of particular importance regarding cases or fields of law that the court may not be familiar with. Environmental law is, in South Africa, undoubtedly one such field, as will become evident during the course of the study.³³

Section 231(1) – (3) is important for purposes of determining whether a treaty binds South Africa in the international sphere.³⁴ The term ‘treaty’ is defined in the Vienna Convention on the Law of Treaties. According to the definition, ‘treaty’ is taken to mean an international agreement that is concluded between States that is governed by international law. The treaty must be written and can be contained in one or more instruments.³⁵ Section 231 (1) to (3) is important for purposes of determining whether a treaty (i.e. an international agreement) binds South Africa in the international arena. Then, if it is binding internationally, an international agreement is made law in South Africa when it is enacted into the law by the national legislature. The National Environmental Management Act (NEMA) also makes provision for international involvement in sections 25 and 26, bearing in mind that pollution and environmental degradation knows no boundaries. In instances where South Africa is not bound by an international environmental agreement or instrument, the Minister has the power to make recommendations regarding the ratification of and accession to such instruments.³⁶

Bearing in mind South Africa’s constitutional position in terms of recognising international law, and most notably that it is an important source of law in the Republic, it becomes pertinent to examine the various commitments made by South

³² De Wet E & du Plessis A “The meaning of certain substantive obligations distilled from international human rights instruments for constitutional environmental rights in South Africa” 2010 *African Human Rights Law Journal* 1.

³³ Craigie C, Snijman P & Fourie M “Dissecting environmental compliance and enforcement” in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 52.

³⁴ Constitution of the Republic of South Africa, 1996.

³⁵ Articles 2(1)(a) of the Vienna Convention on the Law of Treaties.

³⁶ Section 25 of the National Environmental Management Act 107 of 1998.

Africa relating to climate change and, essentially, giving effect to the environmental right as contained in section 24 of the Constitution.

1.3.2 Climate change and policy commitments in South Africa

The National Climate Change Response Policy White Paper reflects South Africa's optimistic climate change commitments, and effectively endorses the South African Government's long-term vision for an efficacious climate change response. Noteworthy, is that the policy specifically highlights the need to transfer to a low-carbon economy and society.³⁷ The White Paper puts forward two primary objectives, namely the objective to effectively manage the impacts of climate change through interventions that increase the country's environmental, social and economic resilience, and the objective to make a reasonable contribution to the ongoing global effort to reduce and stabilise GHG emissions and concentrations, ultimately culminating in development that is viewed as sustainable in terms of international standards.³⁸ The policy is guided by, *inter alia*, the principles laid out in NEMA³⁹ and the Constitution, and is aimed at reaching the goals laid out in terms of international commitments as follows.

The 1992 United Nations Framework Convention on Climate Change (UNFCCC) provides the backdrop against which the global effort to curb climate change began to take shape.⁴⁰ The Convention aims to achieve and maintain the stabilisation of GHG concentrations in the atmosphere, within a set time frame that allows natural ecosystems to adapt to climate change, as well as to ensure economically sustainable development and ensure unthreatened food production worldwide.⁴¹ The Kyoto Protocol, adopted in 1997, extends the 1992 UNFCCC and currently has 192 parties as signatories thereto. The Kyoto Protocol is an important international agreement that imposes limits on the emissions of CO₂ and other harmful gases. It was negotiated and signed in Kyoto, Japan in 1997, and at the time was ratified by

³⁷ National Climate Change Response Policy White Paper of 2012, 5.

³⁸ National Climate Change Response Policy White Paper of 2012, 5.

³⁹ National Environmental Management Act 107 of 1998.

⁴⁰ Article 2 of the United Nations Framework Convention on Climate Change, 1992.

⁴¹ Article 2 of the United Nations Framework Convention on Climate Change, 1992.

140 nations.⁴² South Africa signed this protocol in July 2002.⁴³ It is not a requirement that South Africa meet the emission reduction targets contained in the Kyoto Protocol.⁴⁴ However, the Minister of Environmental Affairs and Tourism indicated as early as 2007, during the 13th Conference of the Parties (COP 13) in Bali, that South Africa would begin taking “ambitious mitigation action”, and would contribute towards the nation’s common responsibility going forward.⁴⁵ Following this, at the 2009 Copenhagen Climate Change Conference, a commitment was made by South Africa to reduce GHG emissions by 34% below current levels by the year 2020, and then by 42% by 2025.⁴⁶ These commitments were reaffirmed at the 2015 United Nations Climate Change Conference in Paris (COP 21).⁴⁷ This is where the Paris Agreement on Climate Change was signed, a revolutionary and progressive accord by any standard.

The Paris Agreement is an international arrangement whereby countries endeavour to limit the global increase in temperatures to less than 2 degrees Celsius, with an ideal target of 1.5 degrees Celsius.⁴⁸ In the years preceding this landmark agreement, a global understanding began to form centred on the relationship between the need to lower GHG emissions, distinguishing between developing and developed countries, and the use of the necessary financial resources to give effect to these efforts aimed at halting climate change.⁴⁹ The international climate change regime is based largely on the Kyoto Protocol and the 1992 UNFCCC, although these instruments are generally seen as inadequate for purposes of properly

-
- ⁴² Purdy A “The Kyoto Protocol” <https://www.theguardian.com/environment/2005/feb/16/sciencenews.environment> (Date of use: 27 February 2018).
- ⁴³ National Climate Change Response Strategy for South Africa, 2004 (4).
- ⁴⁴ National Climate Change Response Strategy for South Africa, 2004 (4).
- ⁴⁵ Gilder A “To Tax or Trade (or Both or Neither)? The Confusing South African Status Quo on Carbon Taxation and Emissions Trading” 2012 *CCLR* 359.
- ⁴⁶ Goitom H “South Africa: Carbon-Tax Legislation Proposed” <http://www.loc.gov/law/foreign-news/article/south-africa-carbon-tax-legislation-proposed/> (Date of use: 12 December 2016).
- ⁴⁷ “South Africa’s Road to COP21 and the 2015 Climate Deal” <http://businessmediamags.co.za/south-africas-road-to-cop21-and-the-2015-climate-deal/> (date of use: 22 April 2017).
- ⁴⁸ “South Africa’s Road to COP21 and the 2015 Climate Deal” <http://businessmediamags.co.za/south-africas-road-to-cop21-and-the-2015-climate-deal/> (date of use: 22 April 2017).
- ⁴⁹ Rajamani L “Ambition and differentiation in the 2015 Paris agreement: Interpretative possibilities and underlying politics” 2016 *British Institute of International and Comparative Law* 2.

combating climate change issues on a global scale. The Paris Agreement is thus aimed at doing what the abovementioned measures could not, namely to regulate, govern and incentivise climate change actions in the future to allow for meaningful and necessary progress to be made.⁵⁰ The agreement is unique in that it realises and acknowledges the shortcomings of the Kyoto Protocol and is aimed at boosting efforts to mitigate the effects of air pollution and climate change. It is a hybrid of legally binding and non-binding provisions, and is also unique in that all countries (including developing nations) have committed to implementing measures to combat climate change.⁵¹ The Paris Agreement essentially consists of a primary agreement which governs the process to be followed internationally, whilst elements such as intended nationally determined contributions (expanded on below) are voluntary and may not be binding on an international level.⁵²

Parties to this agreement will, in a matter of years following the establishment of 2015's ambitious goals, be able to determine the extent to which they are able to meet the long-term temperature goal noted above. Parties will accordingly be able to determine the level of adaptation needed in order to comply with the obligations set out in the Paris agreement.⁵³ To expand on this, parties to the agreement are subject to binding obligations of conduct in order to reach the climate change mitigation contributions required. Article 4(2) is undoubtedly the most notable of these obligations, and reads as follows:

‘Each party shall prepare, communicate and maintain successive nationally determined contributions (NDCs) that it intends to achieve. Parties shall pursue

⁵⁰ Rajamani L “Ambition and differentiation in the 2015 Paris agreement: Interpretative possibilities and underlying politics” 2016 *British Institute of International and Comparative Law* 2.

⁵¹ UN “The Paris Agreement: Frequently Asked Questions” <https://www.un.org/sustainabledevelopment/blog/2016/09/the-paris-agreement-faqs/> (Date of use: 8 November 2018).

⁵² UN “The Paris Agreement: Frequently Asked Questions” <https://www.un.org/sustainabledevelopment/blog/2016/09/the-paris-agreement-faqs/> (Date of use: 8 November 2018).

⁵³ Rajamani L “Ambition and differentiation in the 2015 Paris agreement: Interpretative possibilities and underlying politics” 2016 *British Institute of International and Comparative Law* 3.

domestic mitigation measures, with the aim of achieving the objectives of such contributions.’⁵⁴

The United Nations published a report in November 2018 entitled “Emissions Gap Report 2018”, in which it is confirmed that the likelihood of reaching the goals set under the Paris Agreement is dwindling.⁵⁵ The report confirms that, for the first time in four years, there has been an increase in global emissions and just 57 nations (excluding South Africa) are currently on track and well-positioned to meet their international climate change commitments by 2030.⁵⁶ The 24th Conference of the Parties (COP 24) to the UNFCCC is expected to examine this state of affairs, whilst implementation guidelines for the Paris Agreement will also be adopted to determine how the goals are to work in practice.⁵⁷

1.3.3 Financial and technical support for developing nations

The Paris Agreement explicitly recognises “the specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change...” in the preamble to the agreement.⁵⁸ The agreement further notes that developing countries will take longer to realise their international commitments, particularly when submitting and working towards their NDCs.⁵⁹ Article 9 is of particular important for both South Africa and Mexico, and provides considerable impetus for these nations to take steps to mitigate climate change, including the introduction of a carbon tax. Article 9(1) reads as follows:

⁵⁴ Articles 4(2) of the United Nations Framework Convention on Climate Change (2015) *Adoption of the Paris Agreement*, 21st Conference of the Parties, Paris: United Nations.

⁵⁵ Mead L “UNEP Emissions Gap Report Warns of ‘Dwindling’ Potential to Bridge 1.5° <http://sdg.iisd.org/news/unep-emissions-gap-report-warns-of-dwindling-potential-to-bridge-1-5c-gap/> (Date of use: 4 December 2018).

⁵⁶ Mead L “UNEP Emissions Gap Report Warns of ‘Dwindling’ Potential to Bridge 1.5° <http://sdg.iisd.org/news/unep-emissions-gap-report-warns-of-dwindling-potential-to-bridge-1-5c-gap/> (Date of use: 4 December 2018).

⁵⁷ Mead L “UNEP Emissions Gap Report Warns of ‘Dwindling’ Potential to Bridge 1.5° <http://sdg.iisd.org/news/unep-emissions-gap-report-warns-of-dwindling-potential-to-bridge-1-5c-gap/> (Date of use: 4 December 2018).

⁵⁸ Preamble of the Paris Agreement on Climate Change.

⁵⁹ Article 4 of the Paris Agreement on Climate Change.

“Developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention.”⁶⁰

Several funds have been established to aid developing nations in mitigating the effects of climate change, including the Special Climate Change Fund, the Least Developed Countries Fund, the Adaptation Fund and the Standing Committee on Finance.⁶¹ In addition, the UNFCCC established a financial mechanism under Article 11, in terms of which developed countries must provide financial assistance to developing countries. This mechanism’s operation is partially entrusted to the Global Environment Facility (GEF), while the Green Climate Fund (GCF) has been established as the primary entity charged with operating the financial mechanism.⁶² In accordance with the above, a new technology framework, suitable financial flows and an improved capacity building framework will be established to assist developing and vulnerable countries reach their international commitments in line with their respective national objectives.⁶³

These intended nationally determined contributions (INDCs) are to be submitted at five-year intervals, each with steadily progressing degrees of ambition in terms of limiting the effects of climate change.⁶⁴ By becoming a signatory to this agreement, South Africa has recognised the need for all nations to take action to mitigate the harmful effects of CO₂ emissions. While many acknowledge that this is a step in the right direction, reaching these goals with the current enforcement mechanisms available in South Africa may prove challenging, as will be elaborated on in the chapters that follow. Most notable is that the agreements mentioned are centred

⁶⁰ Article 9(1) of the Paris Agreement on Climate Change.

⁶¹ UNFCCC “Climate Finance” <https://unfccc.int/topics/climate-finance/the-big-picture/climate-finance-in-the-negotiations> (Date of use: 30 October 2018).

⁶² UNFCCC “Climate Finance” <https://unfccc.int/topics/climate-finance/the-big-picture/climate-finance-in-the-negotiations> (Date of use: 30 October 2018).

⁶³ UNFCCC “The Paris Agreement” <https://unfccc.int/process/the-paris-agreement/what-is-the-paris-agreement> (Date of use: 1 November 2018).

⁶⁴ Savaresi A "The Paris agreement: A new beginning?" 2015 *Journal of Energy & Natural Resources Law* 7. The INDCs are aimed at reducing GHG emissions, with South Africa having endorsed its INDC by becoming a signatory to the Paris Agreement on Climate Change in November 2016.

largely on the concept of sustainable development, a notion contained in the Constitution and much of South Africa's environmental legislation.⁶⁵

Thus, South Africa's environmental right and accompanying legislation (such as NEMA and the SEMAs) will be examined further below.

1.3.4 Section 24 of the Constitution and Sustainable Development

South Africa's environmental right is contained in Section 24 of the Constitution, and reads as follows:

"24. Everyone has the right -

- (a) to an environment that is not harmful to their health or well-being; and
- (b) 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."⁶⁶

Section 24(a) centres on the global issue of climate change that has certain health implications for humans, and potentially devastating consequences for nature and natural resources that are in themselves essential for life on earth. The Interim Constitution contained an environmental right similar to that in section 24(a), however it failed to include the notion of sustainable development. The environmental right noted above was cemented in South Africa's legal dispensation with the advent of the Constitution in 1996, together with the concept of sustainable development, and ensures that the environmental right is secured as a basic right that is constitutionally recognised and protected.⁶⁷ Section 24(a) focuses on human

⁶⁵ Constitution of the Republic of South Africa, 1996. The concept of sustainable development is included in Section 24(b)(iii) of the Constitution and is an important concept for purposes of the topic at hand.

⁶⁶ Constitution of the Republic of South Africa, 1996.

⁶⁷ Constitution of the Republic of South Africa, 1996.

health and well-being, while section 24(b) is aimed at securing protection of the environment, albeit for ‘the benefit of present and future generations’.⁶⁸

Whilst the Interim and Final Constitutions of South Africa were being drafted, the international community was already giving effect and substance to the concept of sustainable development, most notably through the Rio Conference.⁶⁹ Section 24(b)(iii) of the Constitution appears to, at the very least, attempt to incorporate this important concept into South African law by making reference to ‘ecologically sustainable development.’⁷⁰ The section further makes specific reference to economic development, social development and environmental protection, all of which are regarded as the so-called ‘fundamentals of sustainable development’.⁷¹ While the phrase ‘sustainable development’ is open to subjective interpretation and is to date ill-defined, the most generally accepted definition of sustainable development is taken from the *Brundtland Report*, and reads as follows:

“Sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs”.⁷²

It is clear that, given the levels of GHG emissions and the observable changes in the global climate, the concept of sustainable development is not being given effect to in light of the above definition.⁷³ In particular, the needs of future generations will be severely compromised if sustainable development is not promoted, with emphasis on the needs of the poor.⁷⁴ In South Africa, this is particularly relevant as much of the population currently lives in a state of poverty. This has necessitated

⁶⁸ Constitution of the Republic of South Africa, 1996.

⁶⁹ Muir A *An interpretation of the South African Constitutional ‘Environmental Right’ and an Assessment of its relationship to Sustainable Development* (LLM University of Kwa-Zulu Natal 2014) 8.

⁷⁰ Constitution of the Republic of South Africa, 1996. These are also often referred to as the three pillars of sustainable development.

⁷¹ Muir A *An interpretation of the South African Constitutional ‘Environmental Right’ and an Assessment of its relationship to Sustainable Development* (LLM University of Kwa-Zulu Natal 2014) 8.

⁷² Paragraph 1 of Chapter 2 of the *Brundtland Report*.

⁷³ Benjamin C “South Africa comes last in sustainable development index” <https://mg.co.za/article/2013-09-20-00-south-africa-comes-last-in-sustainabledevelopment-index> (Date of use: 24 February 2018).

⁷⁴ Yu Shan T “What is Sustainable Development?” <https://sustainabilityx.co/what-is-sustainable-development-508beedcac0e> (Date of use: 30 October 2018).

the adoption and signing of the international agreements noted above, as well as certain legislation that is specifically geared towards regulating the way in which humans interact with the environment. Air pollution, specifically that caused by coal, is a cross-border issue that is responsible for approximately 6.5 million deaths worldwide each year.⁷⁵ It thus requires transformative action to mitigate its effects, and international agreements and cooperation between countries forms an important part of this process. South Africa's environmental legislative framework will therefore be examined below.

1.3.5 The National Environmental Management Act (NEMA)

NEMA, promulgated in 1998 and hailed as a pioneering piece of legislation, was designed to enhance the management of the environment in South Africa.⁷⁶ It is the framework legislation governing environmental issues in South Africa, and gives effect to the constitutionally mandated environmental right. It does so by fulfilling the section 24(b) duty placed on the state to provide protection for the environment through the use of reasonable legislative and other measures.⁷⁷ The preamble of NEMA makes specific reference to section 24 of the Constitution, and the Act itself is aimed at giving effect to the environmental right at a framework level. NEMA came into effect on 29 January 1999 and was promulgated 'to provide for co-operative environmental governance by establishing principles for decision-making on matters effecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of the state, to provide for certain aspects of the administration and enforcement of other environmental management laws; and to provide for matters connected therewith.'⁷⁸

The principles contained in NEMA serve as the general legislative and regulatory framework within which environmental compliance and management plans must be formulated, making it South Africa's most important and pivotal piece of

⁷⁵ "Air pollution – crossing borders" <https://www.thelancet.com/action/showPdf?pii=S0140-6736%2816%2931019-4> (Date of use: 30 October 2018).

⁷⁶ Milton J "Sharpening the dog's teeth: Of NEMA and criminal proceedings" 1999 *SAJELP* 53.

⁷⁷ Soltau F "The National Environmental Management Act and liability for environmental damage" 1999 *SAJELP* 33. "Other measures" can include an array of mechanisms, including international protocols and agreement such as the Rio Declaration and the Paris Agreement.

⁷⁸ Long Title of the National Environmental Management Act 107 of 1998.

environmental legislation.⁷⁹ One of the most fundamental principles contained in NEMA is that development must be socially, economically and environmentally sustainable.⁸⁰ This principle is concomitant with section 24 of the Constitution and has become a centre-point of environmental management over the years.

Over and above the recognition of the environmental right in section 24 of the Constitution and the subsequent promulgation of NEMA, South Africa has adopted numerous Acts geared towards the protection of the environment. These Acts vary in complexity and are generally referred to as specific environmental management Acts (SEMAs).⁸¹ For purposes of this study, the National Environmental Management: Air Quality Act is important and is described below.

1.3.5.1 The National Environmental Management: Air Quality Act

The National Environmental: Air Quality Act 39 of 2004 (NEM: AQA) is one of the SEMAs that was promulgated following the enactment of NEMA. The interpretation and application of NEM: AQA must be guided by the principles laid out in section 2 of NEMA (including the polluter pays principle and sustainable development), as the over-arching legislation governing environmental management in South Africa.⁸²

For purposes of air pollution abatement, NEM: AQA is important in that it aims to set a variety of standards and criteria that revolve around air quality monitoring, management planning, enforcement, and compliance with the provisions contained therein. The primary purpose of NEM: AQA is ultimately to give effect to the environmental right in section 24 of the Constitution by improving South Africa's ambient air quality.⁸³ It is evident from the wording of NEM: AQA that it is furthermore intended to restore, protect and enhance South Africa's continually worsening air

⁷⁹ Section 2(1)(b) of the National Environmental Management Act 107 of 1998.

⁸⁰ According to Section 1 of NEMA, 'sustainable development' is defined as 'the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations.'

⁸¹ Examples include the National Environmental Management: Biodiversity Act, the National Environmental Management: Protected Areas Act, the National Environmental Management: Integrated Coastal Management Act, and the National Environmental Management: Waste Act.

⁸² Section 5(2) of the National Environmental Management: Air Quality Act 39 of 2004.

⁸³ "Eskom's applications to delay compliance with emissions standards opposed by civil society groups" <https://cer.org.za/news/eskoms-applications-to-delay-compliance-with-emissions-standards-opposed-by-civil-society-groups> (Date of use: 2 August 2017).

quality, while considering existing activities and integrating air quality management and planning with such activities.⁸⁴

In terms of NEM: AQA, the object of the Act is to manage and prevent pollution through enhancing the quality of air in South Africa, preventing ecological degradation, and securing ecologically sustainable development in accordance with section 24 of the Constitution.⁸⁵ Section 3 of the Act is important in that it places a general duty on the state to improve the air quality as part of the obligation contained in section 24 of the Constitution. The section reads as follows:

"In fulfilling the rights contained in section of the Constitution, the State –

(a) through the organs of state applying this Act, must seek to protect and enhance the quality of air in the Republic; and

(b) must apply this Act in a manner that will achieve the progressive realisation of those rights."

Additionally, the Minimum Emissions Standards promulgated in terms of section 21 of NEM: AQA are of the utmost importance for purposes of reducing GHG emissions, in that they set standards for air pollution emissions that polluters are required to comply with.⁸⁶ These standards came into operation in April 2015 and are aimed at reducing the harmful health effects caused by air pollution.⁸⁷

Compliance with, and enforcement of, these regulations and both NEMA and NEM: AQA is vital for ensuring sustainable development and for South Africa to meet its international commitments elaborated on earlier. Accordingly, South Africa's environmental compliance and enforcement regime will be examined below.

⁸⁴ Gubb A http://www.enviropaedia.com/topic/default.php?topic_id=164 (Date of use: 2 August 2017).

⁸⁵ Section 2(a) of the National Environmental Management: Air Quality Act 39 of 2004.

⁸⁶ "Eskom's applications to delay compliance with emissions standards opposed by civil society groups" <https://cer.org.za/news/eskoms-applications-to-delay-compliance-with-emissions-standards-opposed-by-civil-society-groups> (Date of use: 2 August 2017).

⁸⁷ DEA "Minimum Emissions Standards issued for listed air quality activities" <http://www.sabinetlaw.co.za/environmental-affairs-and-water/articles/minimum-emissions-standards-issued-listed-air-quality-activ> (Date of use: 19 March 2018).

1.3.6 Environmental compliance and enforcement in South Africa

'Compliance' can be defined as acquiescence with a command or directive, and denotes an ideal scenario wherein all relevant stakeholders and role-players comply with any given set of legal standards.⁸⁸ 'Enforcement' concerns itself with direct actions taken by the state (and possibly other parties) to coerce relevant role-players to comply where compliance with rules and regulations is not present.⁸⁹ The reasoning behind compliance and enforcement, in the environmental sphere, is ultimately to improve the quality of the environment and ensure that non-compliant parties are held accountable for their actions. This is particularly important in light of the significant air pollution being experienced in South Africa at present, most notably in urban areas and those areas surrounding coal power plants.⁹⁰

Historically, enforcement of environmental rules and regulations in South Africa has been conducted using command-and-control regulations in order to compel compliance.⁹¹

1.3.6.1 Command and control mechanisms

Command-and-control mechanisms refer to direct regulation, in terms of which polluters are required by law to take certain measures and actions to mitigate the effects of the pollution they cause.⁹² These measures are state-centred and are based on regulations that prescribe certain directives.⁹³ They take several forms and are used for environmental compliance and enforcement in South Africa. These

⁸⁸ Craigie C, Snijman P & Fourie M "Dissecting environmental compliance and enforcement" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 41.

⁸⁹ Craigie C, Snijman P & Fourie M "Dissecting environmental compliance and enforcement" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 44.

⁹⁰ Pretorius I *Impacts and control of coal-fired power station emissions in South Africa* (PhD Geography and Environmental Management North West University 2015) 85.

⁹¹ Craigie C, Snijman P & Fourie M "Dissecting environmental compliance and enforcement" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 44.

⁹² "Command-and-control regulation" <https://www.khanacademy.org/economics-finance-domain/microeconomics/consumer-producer-surplus/environmental-regulation/a/command-and-control-regulation-cnx> (Date of use: 5 May 2017).

⁹³ Paterson A "incentive-based measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 297.

approaches to environmental enforcement can be broken down into three primary categories: criminal, administrative and civil mechanisms.

The primary command-and-control approach to securing environmental enforcement in South Africa is the criminal sanction.⁹⁴ The criminal sanction is evident in NEMA (in section 49A and 49B), and in certain sections in NEM: AQA. Chapter 7 of NEM: AQA deals with offences and penalties, with section 51 listing instances in which a person may be found guilty, including the failure to comply with the conditions of an atmospheric emission licence.⁹⁵ Section 52 lists the penalties for committing an offence listed in section 51, limited to a fine of R5 million or imprisonment of a maximum of 5 years for initial convictions, with these figures doubling respectively for subsequent convictions.⁹⁶ Criminal measures, as is evident from the above provisions, have the goal of punishing those who disregard the law, contravene regulations, and cause damage to the environment. They are thus punitive in nature and have been relied on heavily by environmental authorities in the past.⁹⁷

More recently, authorities have been utilising both administrative and civil measures for environmental compliance and enforcement. Administrative measures take the form of environmental directives, compliance and abatement notices, and the suspension and/or withdrawal of environmental authorisations. Essentially, the aforementioned administrative mechanisms identify the offending activity and prescribe the required corrective measures that the offending party must take to comply.⁹⁸ Such mechanisms are available to environmental officers in both NEMA and NEM: AQA, as will be more fully explained in Chapter 2. Civil measures, on the

⁹⁴ Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 53.

⁹⁵ Section 51(1)(e) of the National Environmental Management: Air Quality Act 39 of 2004.

⁹⁶ Section 52 of the National Environmental Management: Air Quality Act 39 of 2004.

⁹⁷ Craigie C, Snijman P & Fourie M "Dissecting environmental compliance and enforcement" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 52. Criminal measures have both advantages (branding an offender with a stigma and providing for punishment for serious offences) and disadvantages (time and cost of prosecution, the reactive nature of criminal law and discharging the burden of proof), which are discussed in detail in Chapter 2 (as per Kidd M "Criminal measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 242).

⁹⁸ Craigie C, Snijman P & Fourie M "Dissecting environmental compliance and enforcement" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 56.

other hand, are conducted through the courts and may include the use of interdicts, a claim for damages, or judicial review.⁹⁹

Alternatives to command-and-control enforcement mechanisms do exist, including incentive-based measures. Market-based mechanisms fall under this category and will be briefly introduced as a broad concept below.

1.3.6.2 Incentive-based measures

Market-based mechanisms for pollution abatement and control provide an economic incentive for firms to reduce their emissions.¹⁰⁰ One such mechanism is the carbon tax. While South Africa does not yet have legislation governing carbon emissions, the Draft Carbon Tax Bill¹⁰¹ has been published and indicates the South African government's intention to reduce emissions and comply with international commitments made in this regard.¹⁰² The Bill's preamble makes mention of the fact that global climate change has been scientifically confirmed, that it has become necessary to manage and mitigate the effects of this climate change, and that it has also become necessary to make a reasonable contribution to the global effort to reduce GHG emissions and CO₂ concentrations in the atmosphere.¹⁰³ This is directly in line with the objectives put forward in the National Climate Change Response Policy.

⁹⁹ Craigie C, Snijman P & Fourie M "Dissecting environmental compliance and enforcement" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 57.

¹⁰⁰ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017) .

¹⁰¹ The Draft Carbon Tax Bill was first published on 2 November 2015 and has since been re-published on 15 December 2017, after the first round of public comment was concluded. The second phase of public comment reached its end on 9 March 2018, and public hearings were held in Parliament on 14 March 2018. The tax is, *inter alia*, intended to contribute to the sustainability of South Africa's developmental framework.

¹⁰² "Why is this relevant to South African companies?" <http://www.thecarbonreport.co.za/why-is-this-relevant-to-south-african-companies/> (Date of use: 22 April 2017).

¹⁰³ Preamble to the Draft Carbon Tax Bill, 2015.

1.3.6.3 The Environmental Management Inspectorate (EMI)

The EMI was established in 2005 and is tasked with enforcing NEMA and the various SEMAs.¹⁰⁴ In the context of this study, the relevant SEMA is NEM: AQA. Environmental management inspectors (EMIs) are granted relatively wide powers, including the powers of investigation, inspection, enforcement and administration.¹⁰⁵ They play an important role in the criminal prosecution of offenders, as they also have the powers of search and seizure. As far as administrative mechanisms are concerned, EMIs play a vital role in issuing fines and ensuring compliance. This is done through the use of compliance notices and other administrative mechanisms for environmental law enforcement.¹⁰⁶ EMIs are thus tasked with enforcing the array of environmental legislation in South Africa, including that relevant to air pollution and CO₂ emissions.¹⁰⁷ They are of the utmost importance for purposes of holding major air polluters accountable (in terms of NEMA, NEM: AQA and other regulations such as the Minimum Emission Standards¹⁰⁸), enforcing the polluter pays principle, and ultimately assisting South Africa in achieving the global ideal of sustainable development and meeting its international climate change commitments.

1.3.7 Summary

Global warming and climate change, caused largely by unchecked excessive CO₂ emissions, continues to be a global issue, and is one that is progressively developing and worsening with each passing year. The effects on both human health and the environment are becoming increasingly prevalent. South Africa, due to its heavy reliance on coal as a source of power, experiences these issues on a globally relevant scale.

¹⁰⁴ Craigie C, Snijman P & Fourie M "Environmental compliance and enforcement institutions" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 89.

¹⁰⁵ Craigie C, Snijman P & Fourie M "Environmental compliance and enforcement institutions" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 90.

¹⁰⁶ Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 54.

¹⁰⁷ Craigie C, Snijman P & Fourie M "Environmental compliance and enforcement institutions" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 101.

¹⁰⁸ "Eskom's applications to delay compliance with emissions standards opposed by civil society groups" <https://cer.org.za/news/eskoms-applications-to-delay-compliance-with-emissions-standards-opposed-by-civil-society-groups> (Date of use: 2 August 2017).

The South African government has undoubtedly become more active in combating climate change. This is evident from the brief examination of the institutional framework for combating climate change in South Africa, with important international commitments being made under the Kyoto Protocol, the UNFCCC and the Paris Agreement, to name a few. The importance of international law in South Africa is evident, and it is thus imperative that South Africa meets its obligations in terms of these agreements. Certain legislation is important for purposes of securing the environmental right in section 24 of the Constitution and meeting international commitments, including NEMA and NEM: AQA as the legislation specifically governing South Africa's ambient air quality.

Command-and-control enforcement and compliance mechanisms, most notably criminal, civil and administrative mechanisms, are those predominantly used in South African environmental law today. Ensuring compliance with, and enforcement of, environmental legislation is vital if South Africa is to meet its commitments and become a global player in combating climate change. The EMI is particularly important in this regard given the scope of EMIs' powers and responsibilities.

In light of the above summary, the research problem is formulated as follows.

1.4 Research problem

CO₂ emissions and the resultant climate change (largely as a result of South Africa's dependence on coal as a source of power) are of great concern, particularly in light of the global move to combat climate change and the negative effects that accompany it. The air pollution caused by CO₂ emissions is at the very root of the problem being examined and, given the global issue of climate change, forms the crux of the present study. South Africa ranks in the top 20 countries in the world in terms of GHG emissions.¹⁰⁹

In view of the persisting situation in South Africa regarding excessive CO₂ emissions, the questions arise as to whether (i) the existing institutional framework is sufficient to combat such emissions and, if it is, whether it is properly implemented and enforced through the mechanisms presently available for such purposes; and (ii) the carbon tax, as a market-based instrument, has the potential to nudge South Africa towards a greener, low carbon economy by being a tool to encourage much-needed change towards sustainability. It is clear that South Africa is taking steps to reduce GHG emissions and combat climate change in accordance with its international obligations and the environmental right contained in section 24 of the Constitution.¹¹⁰ However, it is imperative that any process to reduce GHG emissions take into account the need to promote economic growth, increase and stabilise employment levels, and reduce the rampant poverty and inequality that exists in society today.¹¹¹ This is particularly challenging in developing countries like South Africa, and leaves doubts as to whether implementing such a mechanism can successfully be achieved without compromising the economy and negatively affecting the poor.

¹⁰⁹ Goitom H "South Africa: Carbon-Tax Legislation Proposed" <http://www.loc.gov/law/foreign-news/article/south-africa-carbon-tax-legislation-proposed/> (Date of use: 12 December 2016).

¹¹⁰ As noted above, this is also to give effect to the underlying environmental management principles of sustainable development and the polluter pays principle, both of which go hand-in-hand with the design and implementation of the proposed carbon tax.

¹¹¹ Masondo H "The Implementation of Carbon Tax" <http://www.cgcsa.co.za/resources/articles/environment/the-implementation-of-carbon-tax> (Date of use: 15 September 2016).

1.5 Purpose of the study

This study will accordingly examine the effectiveness of South Africa's current environmental enforcement and compliance regime provided for in NEMA and NEM: AQA (as the fundamental pieces of legislation governing air pollution and CO₂ emissions), and whether the current compliance and enforcement regime aids South Africa's compliance with international treaties and commitments. Criminal, civil and administrative mechanisms will be examined, as well as the role of the EMI in terms of applying these enforcement mechanisms. This study will thereafter investigate the use of an alternative approach to holding polluters accountable for air pollution (namely the carbon tax), by investigating the Draft Carbon Tax Bill (and subsequent drafts following public consultation) and the potential such a mechanism has for curbing the effects of air pollution in a developing country like South Africa.

To provide international context for the research, a comparative study with Mexico will be conducted. Much like South Africa, Mexico is a developing nation and is largely dependent on coal as a source of power. As a result, Mexico is the 11th largest emitter of pollution in the world and have begun to introduce various laws and mechanisms to combat this.¹¹² Mexico is regarded as one of the most active developing countries in terms of addressing air pollution and climate change, and South Africa could thus possibly learn some valuable lessons from them in this regard.¹¹³ Mexico's environmental right reads similarly to South Africa's, and is also a constitutional right.¹¹⁴ The comparative study will thus provide insight into the environmental legislation and carbon mechanisms being utilised in what is arguably the most progressive developing nation in this regard. Issues with implementation, enforcement¹¹⁵, and a look at whether the tax and other carbon pricing mechanisms have been effective, will aid in determining the most sustainable way forward for South Africa.

¹¹² Vance E "Mexico passes climate-change law" <http://www.nature.com/news/mexico-passes-climate-change-law-1.10496> (Date of use: 10 March 2017).

¹¹³ "Mexico: Assessment " <http://climateactiontracker.org/countries/mexico.html> (Date of use: 8 March 2017).

¹¹⁴ Diaz R "Mexico's 'new' environmental law" <http://xlcatlin.com/fast-fast-forward/articles/mexicos-new-environmental-law> (Date of use: 24 April 2017).

¹¹⁵ Vance E "Mexico passes climate-change law" <http://www.nature.com/news/mexico-passes-climate-change-law-1.10496> (Date of use: 10 March 2017).

1.6 Research questions

Based on the above, the research questions are as follows:

- 1) How effective are the available command-and-control mechanisms in ensuring compliance with environmental law (relevant to air pollution and CO₂ emissions) in South Africa?

- 2) How do market-based mechanisms (in particular carbon taxes) for pollution control (specifically air pollution related to GHGs) differ to the traditional command-and-control approaches used in South Africa at present?

- 3) Is a carbon tax likely to result in greater enforcement of the polluter pays principle, promote sustainable development in accordance with section 24(b)(iii) of the Constitution, and ultimately assist South Africa in combating climate change in accordance with international commitments and obligations?

- 4) Can the way in which carbon pricing mechanisms and taxes have been implemented in Mexico assist in formulating solutions for South Africa?

1.7 Methodology

Through the use of primary sources (legislation, court cases and regulations), as well as secondary sources (books, online articles, journal articles and dissertations), a critical and in-depth analysis will be conducted on the named topic. A comparative study, focusing on Mexico's environmental legislation and carbon pricing, will be conducted. It is trite that comparison is an inherent component of much research, and there are both advantages and disadvantages to performing such a study.¹¹⁶ A common disadvantage is “within-country differences”, including socio-economic, political and environmental differences, which may influence policy and legislative reform.¹¹⁷ However, by selecting only one country with which to compare South Africa, problems associated with comparability and so-called “concept-stretching” that arise when comparing numerous countries are avoided. Having selected an appropriate country, greater attention can be given to comparing specific elements from each country and thereby allowing for a more in-depth analysis.¹¹⁸

This study employs the use of a variety of research approaches, including doctrinal, comparative, and international¹¹⁹ methods. Doctrinal research is also known as black-letter-law¹²⁰ and is used as a fundamental research method in the study. The analytical and legal reasoning underpinning the research process is thus qualitative in nature.

¹¹⁶ Lor P “Methodology in comparative studies” 2011 *International and Comparative Librarianship* 2.

¹¹⁷ Lor P “Methodology in comparative studies” 2011 *International and Comparative Librarianship* 2.

¹¹⁸ Lor P “Methodology in comparative studies” 2011 *International and Comparative Librarianship* 14.

¹¹⁹ McConville and Chui WH "Introduction and Overview" in McConville and Chui WH (eds) *Research Methodology in Law* (Edinburgh University Press, 2007) 3. International and comparative laws have, in recent times, formed an integral part of legal research. The increased influence of international legal materials, a growing need for law scholars to utilise sources from various jurisdictions, and further an emerging expectation from law schools that students engage in critical thinking are all reasons for this. This method of research facilitates the understanding and appreciation of international law and other legal systems, and how they operate, in an era increasingly reliant on global interdependence between nations.

¹²⁰ Chynoweth P "Legal Research" in Knight A. and Ruddock L (eds) *Advanced Research Methods in the Built Environment* (Wiley-Blackwell, 2008) 29. This method of research refers to the study of legal texts and the formulation of legal doctrines. Such research focuses on the law as it is, describing it as a set of principles that are self-sustaining and require minimal reference to non-legal sources. By employing this method, the researcher places emphasis on legislation and judgments, searching for rational and coherent answers to legal questions.

Given the qualitative nature of this study, to ensure the findings are regarded as valid and reliable, or in qualitative parlance, credible, transferable and trustworthy, findings are based on sound evidence and reliable primary and secondary sources.¹²¹

1.8 Structure of the dissertation

Chapter 1

This chapter is a general introduction to the topic and serves to examine South Africa's institutional framework for combating climate change. It provides the necessary background and contains the problem statement, purpose of the study and research questions.

Chapter 2

The national environmental management principles in NEMA are examined, with specific emphasis on the principle of (i) sustainable development and, subsequently, (ii) the polluter pays principle (as a substantive element of sustainable development).

Chapter 3

This chapter examines the various command-and-control mechanisms for environmental compliance and enforcement in South Africa, with the aim of highlighting their strengths and/or weaknesses. The EMI, as the primary compliance and enforcement body for environmental legislation, will be examined in light of South Africa's present stance on environmental issues. Finally, the current environmental enforcement regime's effectiveness in aiding South Africa's compliance with international commitments will be analysed.

¹²¹ Golafshani N "Understanding reliability and validity in qualitative research" 2003 *The Qualitative Report* 600. The credibility of qualitative research depends on the ability and effort of the researcher. Accordingly, particular care has been exercised in identifying appropriate research methods and these will be employed with discernment to produce credible, trustworthy and transferable findings based on sound evidence and reliable primary and secondary sources.

Chapter 4

Market-based mechanisms for pollution control will be examined, followed by an analysis of the carbon tax as one of the market-based mechanisms for pollution control as opposed to South Africa's current command-and-control mechanisms. The various forms a carbon tax can take are also examined, with an emphasis on the Draft Carbon Tax Bill and the format of the proposed carbon tax.

Chapter 5

A comparison with Mexico, insofar as Mexico's international commitments, environmental legislative framework, existing command-and-control measures and their use of market-based mechanisms are carried out in this chapter.

Chapter 6

A summary of what has been examined, recommendations for the most viable route forward regarding South Africa's proposed carbon tax, and a conclusion centred on the research questions is dealt with. Emphasis has been placed on whether a carbon tax (or other mechanisms) will be effective in helping South Africa comply with its international climate change commitments.

CHAPTER 2: NEMA, SUSTAINABLE DEVELOPMENT AND THE POLLUTER PAYS PRINCIPLE

2.1 Introduction

NEMA contains numerous important environmental management principles. Generally, these principles are supposed to guide relevant stakeholders regarding the manner in which they interact with and manage the environment.¹²² Giving effect to these principles is important to ensure that South Africa meets the commitments it has made in terms of combating climate change and becomes an advocate for fighting global warming on the world stage.¹²³ In South Africa, environmental enforcement is carried out using command-and-control mechanisms.

It is therefore necessary to examine the principles in NEMA followed by an examination of sustainable development (on a global and localised scale), and the polluter pays principle as a substantive element of sustainable development

2.1.1 The foundational principles in Chapter 1 of NEMA

The principles contained in NEMA¹²⁴ serve as a basic framework governing environmental management, and guide stakeholders when making environmental decisions.¹²⁵ They are also designed to guide the interpretation, implementation and administration of NEMA, as well as any other law that relates to protecting the

¹²² “Environmental principles” http://www.waternet.co.za/policy/le_nema_envprin.html (Date of use: 22 March 2018).

¹²³ This is especially notable given the importance of international law in South Africa.

¹²⁴ Section 2 of NEMA contains the national environmental management principles, providing a framework for their implementation. Section 2(1) reads as follows; “The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affects the environment and – (a) shall apply alongside all other appropriate and relevant considerations, including the State’s responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the basic needs of categories of persons disadvantaged by unfair discrimination; (b) serve as the genera framework within which environmental management and implementation plans must be formulated; (c) serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment; (d) serve as principles by reference to which a conciliator appointed under this Act must make recommendations....”

¹²⁵ Blackmore A “The relationship between the NEMA and the public trust doctrine: The importance of the NEMA principles in safeguarding South Africa’s biodiversity” 2015 *South African Journal of Environmental Law on Policy* 7.

environment.¹²⁶ This is important as it clearly shows that, when implementing the provisions in NEM: AQA, the national environmental management principles contained in NEMA must be the guide that is used to do so.

The national environmental management principles are, by nature, broad and designed in such a way that they cover the widest possible spectrum of environmental issues. The national environmental management principles are aimed at protecting both people and the environment, and dictate that equal access to environmental resources to meet fundamental human needs must be pursued.¹²⁷

Section 2 (2) of NEMA states that “environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.”¹²⁸ Section 2(3) is important for purposes of this dissertation, in that it advocates that development must be environmentally, socially and economically sustainable.¹²⁹ Section 2(4)(a) states that sustainable development, the focus of section 2(3), requires the consideration of a number of factors, which the Act goes on to list.¹³⁰ Further examples of the national environmental management principles include the notion that environmental justice must be pursued in such a manner that adverse environmental impacts are not felt only by vulnerable members of the population, as well as the principle that equitable access to environmental resources and services must *inter alia* ensure human well-being.¹³¹ NEMA also incorporates important principles centred on the notion of sustainable development, including intergenerational equity (which entails the preservation of natural resources so that

¹²⁶ Section 2(1)(e) of the National Environmental Management Act 107 of 1998. ‘Any other law’ generally refers to the SEMAs noted above, although there are other pieces of legislation that can be used to protect the environment.

¹²⁷ Section 2 of the National Environmental Management Act 107 of 1998.

¹²⁸ Section 2(2) of the National Environmental Management Act 107 of 1998.

¹²⁹ Section 2(3) of the National Environmental Management Act 107 of 1998. This section does not go on to define ‘development’, thereby reinforcing the broad nature of this and many other national environmental management principles.

¹³⁰ Section 2(4) of the National Environmental Management Act 107 of 1998. Examples of such considerations include that pollution and degradation of the environment be avoided or minimised and remedied where it cannot be completely avoided, that waste is avoided, that a risk-averse and cautious approach be applied, that negative impacts on the environment be anticipated and prevented, and that the use and exploitation of non-renewable resources be equitable and responsible.

¹³¹ Section 2(4)(d) of the National Environmental Management Act 107 of 1998.

future generations may benefit), and intragenerational equity (which relates to the equitable use and exploitation of natural systems and resources).¹³²

A principle in NEMA that will be extensively looked at in this study is the polluter pays principle. This goes hand-in-hand with the duty of care principle contained in Section 28(1) of NEMA.¹³³ These principles (the polluter pays principle and duty of care principle) may, for purposes of the topic at hand, be read together with the principle contained in Section 2(4)(n) of NEMA, which states the following: “Global and international responsibilities relating to the environment must be discharged in the national interest.”¹³⁴ Thus, when aiming to reach the targets set out in the Paris Agreement, the South African government is obliged to do so in the interests of the country as a whole. A further principle is that of public trust, which is encapsulated in section 2(4)(o) of NEMA and effectively means that the government is obliged to act as trustee of the environment, thereby holding it in ‘trust’ for the public, as it were.¹³⁵ The principles in section 2 of NEMA that have been briefly mentioned above, when interpreted literally, are clearly based on the notion of sustainable development.¹³⁶ The broad and diverse nature of the environmental management principles has limited this study to two important principles that are encapsulated in section 2 of NEMA, and play vital roles in the fight against climate change worldwide.

These principles are sustainable development and the polluter pays principle. Given their importance in light of the present study, they will be examined in detail below, followed by a critical examination of the command-and-control mechanisms for environmental compliance and enforcement in South Africa, which, by default, are essentially responsible for ensuring that the national environmental management principles are applied.

¹³² Glazewski J *Environmental Law in South Africa* (Juta 2002) 16.

¹³³ This principle reads as follows: “Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.”

¹³⁴ Section 2(4)(n) of the National Environmental Management Act 107 of 1998.

¹³⁵ Blackmore A “The relationship between the NEMA and the public trust doctrine: The importance of the NEMA principles in safeguarding South Africa’s biodiversity” 2015 *South African Journal of Environmental Law and Policy* 7.

¹³⁶ Kotze LJ “The Constitutional Court’s contribution to sustainable development in South Africa” *PER* 2003 (6) 88.

2.1.2 The international position on the concept of sustainable development

In light of the international agreements noted in Chapter 1 above, it is apparent that the concept of sustainable development forms a pivotal notion on which these agreements are based.¹³⁷ The term itself can be separated into sustainability on the one hand and development on the other. It may be said that sustainability denotes the capability to achieve and maintain a certain condition, without detrimentally affecting social, financial or natural resources.¹³⁸ Development is a process rather than a goal and, through this process, sustainability can be achieved.¹³⁹ The concepts of sustainability and development, accordingly, cannot be separated in the context of the present study. Whilst the term has been around for some time now, the broad nature of sustainable development means that no agreement has been reached on its precise meaning.¹⁴⁰

This notion of sustainable development was first given international thought and recognition at the UN Conference on the Human Environment in Stockholm, 1972, and is the contemporary international environmental norm that generally forms the basis of environmental legal systems around the world.¹⁴¹ It went on to become the foundational principle at the Rio Conference in 1992¹⁴², a landmark conference that effectively marked the first international efforts to draw up and implement achievable plans and goals relating to sustainable growth and development on a global scale.¹⁴³ Pivotal historical academic works have focused on this concept, such as the 1987 report drawn up by the Brundtland Commission, aptly titled “Our Common Future” (the *Brundtland Report*, as alluded to above). The *Brundtland Report* was designed to investigate the many concerns that, in the preceding decades, had centred on the unsustainable use and destruction of the environment through human activities.¹⁴⁴

¹³⁷ Article 4 of the Paris Agreement on Climate Change.

¹³⁸ Kotze LJ “The Constitutional Court’s contribution to sustainable development in South Africa” *PER* 2003 (6) 86.

¹³⁹ Kotze LJ “The Constitutional Court’s contribution to sustainable development in South Africa” *PER* 2003 (6) 86.

¹⁴⁰ Coetzee JH *Sustainability – Environmental risks and legal liabilities of South African banks* (LLM University of the North-West 2013) 9.

¹⁴¹ Glazewski J *Environmental Law in South Africa* (Juta 2002) 15.

¹⁴² Rio Declaration on Environment and Development, 1992.

¹⁴³ Sustainable Development Commission “History of Sustainable Development” http://www.sd-commission.org.uk/pages/history_sd.html (Date of use: 27 April 2018).

¹⁴⁴ Sustainable Development Commission “History of Sustainable Development” http://www.sd-commission.org.uk/pages/history_sd.html (Date of use: 27 April 2018).

The Kyoto Protocol further refers to sustainable development as a vital ideal for mitigating the effects of climate change.¹⁴⁵

The United Nations further adopted the 17 Sustainable Development Goals on 25 September 2015, with goal number 13 entitled “Climate Action” and aimed at combating climate change. The following extract from the United Nation’s website finds relevance: “Emissions anywhere affect people everywhere. It is an issue that requires solutions that need to be coordinated at the international level and it requires international cooperation to help developing countries move toward a low-carbon economy.”¹⁴⁶

The World Summit on Sustainable Development (Johannesburg, 2002) examined the progress made since the Rio Conference in 1992. Attended by representative from 191 nations, the summit most notably culminated in the Johannesburg Plan of Implementation, which contained numerous key commitments, such as sustainable energy use and access to basic human resources such as water and sanitation.¹⁴⁷ Given that South Africa has, in recent times, become increasingly involved in such international conferences, negotiations and treaties, it becomes necessary to examine the vitally important concept of sustainable development as it exists in South Africa’s legal dispensation.

2.1.2.1 The concept of sustainable development in South African law

In South Africa’s legal dispensation, the concept of sustainable development is rooted in our Constitution. It is explicitly mentioned in section 24(b)(iii), as has been noted above. It advocates that “Everyone has the right... to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that... secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social

¹⁴⁵ Coetzee JH *Sustainability – Environmental risks and legal liabilities of South African banks* (LLM University of the North-West 2013) 7.

¹⁴⁶ “Goal 13: Take urgent action to combat climate change and its impacts” <https://www.un.org/sustainabledevelopment/climate-change-2/> (Date of use: 22 August 2018).

¹⁴⁷ Sustainable Development Commission “History of Sustainable Development” http://www.sd-commission.org.uk/pages/history_sd.html (Date of use: 27 April 2018).

development.”¹⁴⁸ The concept of sustainable development is also contained in the National Framework for Sustainable Development, legislation and case law.¹⁴⁹

In terms of NEMA, sustainable development requires the consideration of a number of factors. As noted above, these factors are included in section 2(4) and range from the notion that pollution and degradation of the environment should be avoided, to the application of a risk-averse and cautious approach bearing in mind the limitations of our current knowledge.¹⁵⁰ Sustainable development is defined in NEMA as “the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves and present and future generations.”¹⁵¹ Furthermore, NEMA advocates that the disturbance of ecosystems, loss of biological diversity, pollution and degradation of the environment, the disturbance of landscapes and waste must be avoided. Where such consequences cannot be avoided, they must at the very least be minimised and remedied.¹⁵² The development, exploitation and use of ecosystems and renewable resources must not jeopardise the integrity of such ecosystems and resources, and any negative impacts on the environment and on the environmental right in section 24 of the Constitution must be reasonably anticipated and prevented, or minimised and remedied where they cannot be prevented completely.¹⁵³

It is clear from the principles in NEMA regarding sustainable development that they correlate with the definition taken from the *Brundtland Report* above. These principles are designed so as to ensure that development meets the present-day needs of all citizens, but (if properly given effect to) also meet the needs of future generations. It is also clear that sustainable development relates to the sustainable use and exploitation of natural resources, but additionally that the quality of citizens’ lives must be enhanced through the use of effective constitutional governance.¹⁵⁴

¹⁴⁸ Constitution of the Republic of South Africa, 1996.

¹⁴⁹ Coetzee JH *Sustainability – Environmental risks and legal liabilities of South African banks* (LLM University of the North-West 2013) 18.

¹⁵⁰ Section 2(4)(a) (i) to (viii) of the National Environmental Management Act 107 of 1998.

¹⁵¹ Section 1 of the National Environmental Management Act 107 of 1998.

¹⁵² Section 4(a)(i) – (iv) of the National Environmental Management Act 107 of 1998.

¹⁵³ Section 4(a) (vi) & (viii) of the National Environmental Management Act 107 of 1998. Be more specific.

¹⁵⁴ Kotze LJ “The Constitutional Court’s contribution to sustainable development in South Africa” *PER 2003 (6)* 81.

To expand on the notion of sustainable development, an examination of how our courts have interpreted and given effect to the term is important.

In the case of *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs*¹⁵⁵, the applicant had made an application for authorisation to develop a filling station on a piece of land that it owned. The Department of Agriculture, Conservation, Environment and Land Affairs (hereafter DACELA) had initially declined the application based on environmental factors, in accordance with the Environmental Impact Assessment administrative guideline.¹⁵⁶ The applicant, however, contended that DACELA had in fact based its refusal decision on the fact that there were already two filling stations within a 3 kilometre radius of the applicant's proposed facility, and had thus relied on economic factors relating to competition in the area, rather than on environmental factors. The applicant alleged further that DACELA was in violation of the constitutional principle of legality, as well as that DACELA's conduct amounted to unreasonable administrative action in breach of its limitations in respect of same.¹⁵⁷

The court, on review, disagreed with these allegations and held that DACELA was acting within its statutory powers and was in fact obliged to act as it had done. In elaborating on this, the learned Judge Claassen stated that the respondent (the MEC) and DACELA are subject to the provisions in the Bill of Rights, including the environmental right contained in section 24 of the Constitution, and are obliged to promote, protect and fulfil such rights. Thus, the court held further that the MEC and DACELA were obliged to aid in giving effect to the provisions of section 24.¹⁵⁸ Most notably, the court emphasised the need to "secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development", as well as take measures to promote development that is environmentally, economically and socially sustainable. The court dismissed the application, stating that the "Department's mandate was the consideration of socio-

¹⁵⁵ *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs* [2004] 3 All SA 201 (W).

¹⁵⁶ *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs* [2004] 3 All SA 201 (W).

¹⁵⁷ *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs* [2004] 3 All SA 201 (W).

¹⁵⁸ *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs* [2004] 3 All SA 201 (W).

economic factors as an integral part of its environmental responsibility”, as well as that DACELA was under an obligation to take into account the environmental management principles contained in NEMA, as it had duly done.¹⁵⁹

The South African courts had further occasion to consider the concept of sustainable development in the case of *Fuel Retailers Association of Southern Africa v Director-General Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province and Others*.¹⁶⁰ The matter, after having been lost by the applicant in the High Court and Supreme Court of Appeal respectively, was taken to the Constitutional Court. The Constitutional Court, in a majority judgment, set aside the orders of the courts *a quo* and effectively ordered the first and second respondents (the environmental authorities) to reconsider the application for authorisation.¹⁶¹

Focusing on the three pillars of sustainable development (economic development, environmental protection and social development), the court stated that sustainable development creates a framework on which environmental protection and socio-economic development can be made congruent and harmonised. When taking a decision, as the Town Planning Authorities had done in the present case, environmental authorities are obliged to consider section 24 of the Constitution. This is to ensure that their socio-economic decisions are rooted and entrenched in environmental considerations, so as to achieve the ideal of sustainable development.¹⁶²

The interpretation of sustainable development in the above cases is reaffirmed by the judgment in *Khabisi NO and Another v Aquarella Investment 83 (Pty) Ltd and*

¹⁵⁹ *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs* [2004] 3 All SA 201 (W).

¹⁶⁰ *Fuel Retailers Association of Southern Africa v Director-General Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province and Others* 2007 (10) BCLR 1059 (CC).

¹⁶¹ *Fuel Retailers Association of Southern Africa v Director-General Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province and Others* 2007 (10) BCLR 1059 (CC).

¹⁶² *Fuel Retailers Association of Southern Africa v Director-General Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province and Others* 2007 (10) BCLR 1059 (CC).

Others.¹⁶³ In this case, a certain type of development had been undertaken that, according to a compliance notice issued to the offending party, would cause serious damage to the environment. The court had the following to say in this regard: "...in terms of section 24(b)(iii) of the Constitution, the applicants owe the public a duty to ensure ecologically sustainable development and the use of natural resources which is consonant with the ethos of the Constitution."¹⁶⁴

Despite progressive and encouraging judgments such as those above, South Africa's poor air quality and excessive CO₂ emissions indicate that the principle of sustainable development is either not being given effect to or, if it is, not to the extent required. This is especially true in cases concerning air pollution. In a recent study conducted by Standard Chartered Bank, which took into account numerous factors such as gross domestic product per capita, education, the health and sustainability of the environment and life expectancy of the average citizen, it was found that South Africa ranked in last place (31st) of all the countries looked at. This was largely due a fall in life expectancy in recent times, as well as the plummeting sustainability of the environment.¹⁶⁵

In light of the above, it is clear that sustainable development can be looked at as a general principle of any legal dispensation that ventilates certain sub-principles, including the polluter pays principle.¹⁶⁶ This is evidenced by Principle 16 of the Rio Declaration, which encompasses the polluter pays principle, and the various Principles that speak to sustainable development on which the agreement is based.¹⁶⁷ Considering this, it is apparent that the polluter pays principle is a

¹⁶³ *Khabisi NO and Another v Aquarella Investment 83 (Pty) Ltd and Others* Case 9114/2007 (T) June 2007.

¹⁶⁴ *Khabisi NO and Another v Aquarella Investment 83 (Pty) Ltd and Others* Case 9114/2007 (T) June 2007. The court effectively provided an exposition on the duty of the relevant authorities to ensure sustainable development in a manner consistent with the Constitution.

¹⁶⁵ Benjamin C "South Africa comes last in sustainable development index" <https://mg.co.za/article/2013-09-20-00-south-africa-comes-last-in-sustainable-development-index> (Date of use: 25 April 2018).

¹⁶⁶ Aviles LA "Sustainable development and environmental legal protection in the European Union: A model for Mexican courts to follow?" 2014 *Mexican Law Review* 251.

¹⁶⁷ These include Principles 3, 4, 5, 6, 7, 8, 9, 12, 20, 21, 22, 24, and 27.

substantive element of sustainable development in that it forms part of a broader set of principles aimed at guiding sustainable development worldwide.¹⁶⁸

2.1.3 The development of the polluter pays principle

The notion that polluters should be made to pay for the environmental damage they cause is long-standing and well documented in Western legal history.¹⁶⁹ The polluter pays principle was first mentioned at an international level by the Organisation for Economic Co-operation and Development (OECD) in 1972, through its Council on Guiding Principles.¹⁷⁰ The principle is also included in the 1992 Rio Declaration, and reads as follows: "National authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment."¹⁷¹ The principle is further mentioned in the World Summit on Sustainable Development Johannesburg Plan of Implementation, and is a foundational principle of the European Community's environmental policies.¹⁷²

On face value, it is apparent that the principle is tantamount to the basic ideals of fairness and reasonableness, which is why it appeals to our sense of justice.¹⁷³ While a precise legal definition for the principle is difficult to establish, the essence of the principle is derived from the fundamental principles of justice, fairness and reasonableness, and the underlying notion that firms must be held accountable for the pollution they cause, whether such pollution was deliberate or not.¹⁷⁴

¹⁶⁸ "What is the polluter pays principle?"

<https://www.theguardian.com/environment/2012/jul/02/polluter-pays-climate-change> (Date of use: 23 March 2018)

¹⁶⁹ Luppi B, Parisi F and Rajagopalan S "The rise and fall of the polluter-pays principle in developing countries" 2012 *International Review of Law and Economics* 135.

¹⁷⁰ De Lucia V "Polluter pays principle" http://www.eoearth.org/article/Polluter_pays_principle (Date of use: 19 December 2016).

¹⁷¹ Principle 16 of the Rio Declaration on Environment and Development, 1992.

¹⁷² De Lucia V "Polluter pays principle" http://www.eoearth.org/article/Polluter_pays_principle (Date of use: 19 December 2016).

¹⁷³ Cordato RE "The polluter pays principle: A proper guide for environmental policy" 2001 *IRET* 1.

¹⁷⁴ Joseph S "The polluter pays principle and land remediation: A comparison of the United Kingdom and Australian approaches" 2014 *Australian Journal of Environmental Law* 26.

When a firm emits pollution, the damage caused to the environment is seen as a social cost, paid for by society rather than the polluter.¹⁷⁵ This 'payment' manifests itself in the form of damage to human health, property, air quality, water supplies, and so forth. As this cost is not included in the price of goods and/or services produced by the polluter, it is referred to as an externality. Because this social cost is not being borne by the polluter and incorporated into his or her private costs, an inefficient allocation of economic and natural resources in society results.¹⁷⁶ The immediate goal of the polluter pays principle is to internalise these negative environmental externalities arising from any given economic activity, thereby allowing for goods and services to accurately reflect the costs of production.¹⁷⁷

The polluter pays principle has thus developed from being a predominantly economic principle, designed to internalise negative externalities, to becoming an accepted legal doctrine forming an integral part of environmental law.¹⁷⁸ By forcing polluters to bear the costs of their pollution, any externalities that arise are effectively internalised and paid for by the polluter. The polluter pays principle thus aids in achieving an efficient and sustainable allocation of resources. It promotes efficiency and justice and assists the State in determining how to properly allocate costs.¹⁷⁹ It is a vital component of environmental law and, if properly applied, has the potential to effect considerable positive change.

2.1.3.1 The polluter pays principle in South African law

The polluter pays principle is a national environmental management principle contained in NEMA and reads as follows:

"The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution,

¹⁷⁵ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017) 1.

¹⁷⁶ Munir M "History and evolution of the polluter pays principle: How an economic idea became a legal principle" https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=2322485 (Date of use: 16 February 2017).

¹⁷⁷ Nabileyo O *The polluter pays principle and environmental liability in South Africa* (LLM North West University 2009) 9.

¹⁷⁸ Khan MR "Polluter-pays principle: The cardinal instrument for addressing climate change" 2015 *Laws* 640.

¹⁷⁹ De Lucia V "Polluter pays principle" http://www.eoearth.org/article/Polluter_pays_principle (Date of use: 19 December 2016).

environmental damage or adverse health effects must be paid for by those responsible for harming the environment."¹⁸⁰

The principle is designed to assist in shaping and guiding the manner in which people and companies interact with the environment, and acts as an anchor of sustainable development.¹⁸¹ Additionally, the principle promotes economic efficiency and pressurises businesses into adopting greener practices and technology.¹⁸² Our courts had occasion to make reference to section 28 of NEMA, which articulates the polluter pays principle, in the case of *Hichange Investments (Pty) Ltd v Cape Produce Co (Pty) Ltd t/a Pelts Products and Others*¹⁸³. In this case, the first respondent was the owner and operator of a tannery adjacent to the applicant's premises, which housed motor vehicles before their delivery to various locations. The applicant alleged that the respondent's tannery operations released noxious fumes into the atmosphere, corroding the applicant's metal structures and causing a foul odour in the area. The fourth respondent was the head of the Department of Economic Affairs and Tourism, Eastern Cape. After due consideration of the facts, the court ordered the fourth respondent to direct the first respondent to investigate, evaluate and assess the impact of the gases emitted from the tannery, to report on such impacts, and to take any further steps that may be required to ensure compliance with NEMA, in accordance with section 28 of this Act.¹⁸⁴ This is, however, one of very few cases dealing with this section (and accordingly with the polluter pays principle).

In South Africa, poor enforcement of environmental legislation and regulations results in major polluters not being held to account for their emissions. Society as a whole pays for this pollution, which seen as an economic externality, in the form of damage to ecosystems and natural resources, as well as health complications.¹⁸⁵

¹⁸⁰ Section 2(4)(p) of the National Environmental Management Act 107 of 1998.

¹⁸¹ "Polluter pays as environmental management principle" <http://www.herald.co.zw/polluter-pays-as-environmental-management-principle/> (Date of use: 30 April 2017).

¹⁸² "Polluter pays as environmental management principle" <http://www.herald.co.zw/polluter-pays-as-environmental-management-principle/> (Date of use: 30 April 2017).

¹⁸³ JDR 0040 (E) 1050/2001.

¹⁸⁴ JDR 0040 (E) 1050/2001 at page 27.

¹⁸⁵ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017).

This is in direct contradiction with the environmental right contained in section 24(a) of the Constitution, which guarantees the right of all to an environment that is not harmful to their health or well-being.¹⁸⁶ It is also in direct contradiction of the principle of sustainable development. This is shown in the following quote:

“Under the polluter pays principle, the community effectively ‘owns’ the environment, and forces users to pay for the damage they impose. By contrast, if the community must pay the polluter, the implicit message is that the polluter owns the environment and can use and pollute it with impunity. This message is inconsistent with the principles of sustainable development.”¹⁸⁷

In view of South Africa's current CO₂ emissions levels and the resulting air pollution, the institutional framework is evidently not achieving its goals.¹⁸⁸ This requires an examination of environmental compliance with, and enforcement of, environmental legislation in South Africa.

¹⁸⁶ Constitution of the Republic of South Africa, 1996.

¹⁸⁷ Moffet J and Bregha F “The role of law in the promotion of sustainable development” 1996 *Journal of Environmental Law and Practice* 8.

Chapter 3: Command-and-control enforcement mechanisms in South Africa

3.1. An introduction to command-and control measures for environmental enforcement

Command-and-control measures for environmental enforcement refer to direct regulation in terms of which polluters are required by law to take certain measures and actions to mitigate the effects of the pollution they cause.¹⁸⁹ Specific legal obligations are prescribed in various pieces of legislation and regulatory provisions, with the aim of ensuring compliance through a range of enforcement mechanisms.¹⁹⁰ These measures are specifically designed to compel compliance, as well as punish non-compliance and deter polluters from contravening environmental regulations.¹⁹¹ These measures are thus two-fold: they lay down certain legal requirements (which forms the command aspect of the process), and then allow for the enforcement of compliance through the use of certain enforcement mechanisms (which forms the control part of such measures).¹⁹²

In the context of air pollution and CO₂ emissions, this type of regulation sets emissions limits, or alternatively mandates that certain technologies be developed and/or implemented to reduce pollution.¹⁹³ Command-and-control mechanisms are the predominant environment compliance and enforcement tools in South African law; however, the effectiveness of such tools has come under scrutiny in recent times.¹⁹⁴

Proper and effective enforcement of environmental rules and regulations is of critical importance for South Africa in its quest to mitigate the effects of air pollution and

¹⁸⁹ "Command-and-control regulation" <https://www.khanacademy.org/economics-finance-domain/microeconomics/consumer-producer-surplus/environmental-regulation/a/command-and-control-regulation-cn/x> (Date of use: 5 May 2017).

¹⁹⁰ Hugo RE *Administrative penalties as a tool for resolving South Africa's environmental compliance and enforcement woes* (LLM University of Cape Town 2014) 10.

¹⁹¹ Craigie C, Snijman P & Fourie M "Dissecting environmental compliance and enforcement" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 51.

¹⁹² Craigie C, Snijman P & Fourie M "Dissecting environmental compliance and enforcement" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 51.

¹⁹³ "Command-and-control regulation" <https://www.khanacademy.org/economics-finance-domain/microeconomics/consumer-producer-surplus/environmental-regulation/a/command-and-control-regulation-cn/x> (Date of use: 5 May 2017).

¹⁹⁴ Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 53.

thereby meet international standards and obligations. The existing command-and-control measures available for such enforcement will be examined, with a view to establishing reasons for their ineffectiveness. The criminal sanction, as the predominant command-and-control environmental enforcement mechanism in South Africa, will firstly be discussed, followed by alternative mechanisms such as civil and administrative measures.

3.2 The criminal sanction

The default punishment for the commission of an environmental crime is the criminal sanction, which manifests itself in the form of either a fine or incarceration (and, in some instances, both).¹⁹⁵ South Africa's environmental legislation (before NEMA was promulgated) contained numerous criminal measures, which were used as the main enforcement mechanisms to punish environmental offences. While the introduction of NEMA initially indicated a shift towards a more administrative approach to enforcement, new criminal offences have been introduced in the SEMAs. Most notably for purposes of the present study, NEM: AQA has created around thirteen new environmental offences relating to air pollution.¹⁹⁶ In addition to this, NEMA makes provision for offences and subsequent penalties in section 49A and 49B respectively. In the event that one of the offences listed in section 49A is committed, section 49B provides for penalties ranging from one-year imprisonment and a fine, 5 years imprisonment and a fine, or 10 years imprisonment and a fine, depending on the nature and severity of the offence.¹⁹⁷

3.2.1 The aims of the criminal sanction

The criminal sanction is most notably identified by the fact that it aims to stigmatise offenders (a feature that carries with it both economic and social consequences). It also allows for the punishment of certain acts and omissions, as well for the incarceration of convicted offenders.¹⁹⁸ Social condemnation of certain acts is also an important aspect of the criminal sanction, which can impact negatively on a firm's

¹⁹⁵ Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 53.

¹⁹⁶ Craigie C, Snijman P & Fourie M "Dissecting environmental compliance and enforcement" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 53.

¹⁹⁷ Section 49B of the National Environmental Management Act 107 of 1998.

¹⁹⁸ Kidd M "Criminal measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 240-241.

or an individual's reputation and can potentially result in a loss of business and/or clients.¹⁹⁹ Historically, the criminal sanction has been imposed on offenders for retributive reasons, as well as for its deterring effects. Retribution concerns the notion that society will condemn an offender's actions once such an offender has been convicted of a crime, whereas deterrence prevents individuals from committing the same or similar offences and sends a general message to society at large to deter others from committing offences.²⁰⁰ Within the context of South African environmental law, criminal sanctions are generally used for their deterring effects. Because of this, the effectiveness of these sanctions is determined by the presence of a genuine threat of a wrongdoer's arrest and subsequent successful prosecution.²⁰¹

To ensure that an offender of any given provision in South Africa's environmental law regime pays a punitive monetary penalty and/or is incarcerated, such an offender must be prosecuted in the appropriate court, after which the magistrate is required to take into account all evidence presented to him or her, and subsequently decide on the most appropriate penalty (if one is warranted).²⁰² Although the promulgation of NEMA and the SEMAs appears to be a progressive move towards holding major air polluters accountable and thus promoting the environmental right afforded to all South African citizens, the criminal sanction is littered with inherent and contingent issues, some seemingly insurmountable in the context of South Africa's socio-economic and political landscape.²⁰³

3.2.2 Shortfalls of the criminal sanction

While the criminal sanction does possess the advantages of retribution, deterrence, publicly shaming offenders and possible imprisonment, such measures are fraught with weaknesses that undoubtedly outweigh the above advantages, particularly

¹⁹⁹ Kidd M "Criminal measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 241.

²⁰⁰ Kidd M "Criminal measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 241.

²⁰¹ Hugo RE *Administrative penalties as a tool for resolving South Africa's environmental compliance and enforcement woes* (LLM University of Cape Town 2014) 11.

²⁰² Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 3.

²⁰³ Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 54.

insofar as environmental crimes are concerned.²⁰⁴ The criminal sanction has thus largely been ineffective for purposes of adequately enforcing compliance in South African environmental law.²⁰⁵

Inherent weaknesses include the fact that criminal prosecutions are notoriously lengthy, slow and onerous.²⁰⁶ This is largely because the evidence collected must be capable of proving the alleged violation beyond a reasonable doubt, a difficult burden to discharge²⁰⁷ (particularly in cases of air pollution, as is the focus of this study). Prosecutions require extensive resources and place a heavy burden on society and the state, as it is costly to place offenders in prison.²⁰⁸ Furthermore, officials are generally unwilling to prosecute offenders for environmental offences, as such offences are not traditionally perceived as being morally wrong.²⁰⁹

Certain contingent issues exist, generally specific to prosecutions centred on environmental law, and are often insurmountable in the context of South Africa's socio-political climate. These include the fact that, due to the technical and complex nature of environmental law, highly skilled and knowledgeable prosecutors are needed to prosecute such cases. There is, however, insufficient expertise in this field and judicial officers are not usually exposed to many environmental law cases. There is no standard training for the prosecution of environmental crimes and their impacts, resulting in the under-investigation and subsequent under-prosecution of such offences.²¹⁰ Additionally, numerous cases are dismissed on the basis of technical grounds, or simply because the prosecutor is of the view that it is not in the public interest to prosecute. In a justice system already overburdened with high levels of violent crime cases, attempting to prosecute all environmental crimes

²⁰⁴ Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 4.

²⁰⁵ Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 4.

²⁰⁶ Kidd M "Criminal measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 242.

²⁰⁷ Kidd M *Environmental Law* 2nd ed (Juta 2011) 270 – 272.

²⁰⁸ Kidd M *Environmental Law* 2nd ed (Juta 2011) 270 – 272.

²⁰⁹ Kidd M "Criminal measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 243.

²¹⁰ Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 1.

would ultimately prove impracticable.²¹¹ This is especially true in the context of South Africa's socio-political landscape, where courts are inundated on a daily basis with crimes such as murder, rape and robbery, all of which are generally viewed as far more serious than environmental violations.²¹² Insufficient policing, a lack of awareness from the general public regarding environmental offences, the considerable challenges of investigating such offences, and insufficient cooperation with the criminal justice process are all further issues that compound the failure of the criminal sanction as an adequate and effective measure for holding major air polluters accountable.²¹³

Additionally, and in the context of environmental law, NEMA (when read together with the Criminal Procedure Act)²¹⁴, allows individuals to institute private criminal prosecutions for purposes of the protection of the environment. However, despite the fact that these provisions have been in existence for around 20 years, there have been very few reported cases concerning private prosecutions to date.²¹⁵ For regulatory offences in South Africa, criminal prosecution may also be considered disproportionate and undue for certain offences regarded as being relatively minor in nature.²¹⁶

In support of the above notions, authors have noted that the yardstick by which environmental enforcement progression is measured, is the number of successful prosecutions, rather than verifiable environmental enhancement.²¹⁷ The consequence of such an approach is that more and more technical violations are prosecuted (such as permit irregularities and other administrative issues), together with other offences that are relatively easy to prove. The prosecution of more

²¹¹ Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 2.

²¹² Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 1.

²¹³ Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 1.

²¹⁴ Act 51 of 1977.

²¹⁵ Tucker C "Private prosecution of environmental crimes" <http://www.bowmanslaw.com/article-documents/Private-criminal-prosecution-of-environmental-crimes.pdf> (Date of use: 1 May 2018).

²¹⁶ Kidd M *Environmental Law* 2nd ed (Juta 2011) 276.

²¹⁷ Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 53.

harmful environmental crimes is avoided, leaving much to be desired in the way of proper environmental enforcement.²¹⁸

3.2.3 Alternatives to the criminal sanction

Because of the failures of the criminal sanction insofar as environmental crimes are concerned, numerous authors have propagated the idea that alternatives to this be adopted for purposes of adequately addressing environmental violations in South Africa.²¹⁹ These include both civil and administrative mechanisms.

3.3 Civil measures

Civil measures for environmental compliance, protection and enforcement are based on the common law, which in itself refers to custom and judicial precedent as it has evolved on a case-by-case basis.²²⁰ These remedies can be used to restrain or prevent certain types of illegal conduct from occurring or, where such conduct has already commenced, recurring.²²¹

3.3.1 The form and operation of civil measures

Civil measures are made up of abatement orders (which allow the relevant authority to assuage and alleviate a situation that is creating pollution), interdicts, compensation for damages and judicial review, amongst certain others.²²² Compensation for damages and interdicts, of all the common law civil remedies available, are most applicable to cases involving CO₂ emissions and air pollution. Based on the law of delict, these measures operate as follows.

3.3.1.1 The interdict and relevant case law

The interdict is granted following completion of the judicial process in a civil court, whereby a party is ordered to cease and desist with a certain act or conduct (which is a prohibitory interdict), or is ordered to take a prescribed act to prevent or limit

²¹⁸ Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 53.

²¹⁹ Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 53.

²²⁰ Summers M "Common-law remedies for environmental protection" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 339.

²²¹ Kaka I *Corporate self-regulation and environmental protection* (LLM North West University 2012) 17.

²²² Summers M "Common-law remedies for environmental protection" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 345.

harm (known as mandatory interdict).²²³ In the context of environmental law, interdicts have been used with some degree of success in South Africa in the past.²²⁴ In an effort to highlight the operation of interdicts in public interest environmental litigation,²²⁵ case law will be examined as follows.²²⁶

A serious potential impediment to effective civil environmental litigation when seeking an interdict is the issue of *locus standi*.²²⁷ The court in *Tergniet and Toekoms Action Group v Outeniqua Kreosootpale (Pty) Ltd*²²⁸ (hereafter *Tergniet*) pondered and deliberated on this issue, arriving at a conclusion that the learned Professor M. Kidd dubs “anachronistic and unacceptable”.²²⁹

Tergniet and Toekoms Action Group is a voluntary association representing the collective interests of Toekoms and Tergniet. These are residential areas located in close proximity to the respondent’s creosote treatment plant, and the application was based on the desire of the group and other residents of these areas to bring to a halt the operations of the respondent through the use of an interdict.²³⁰ The matter was founded on an allegation that the respondent was acting in contravention with the Atmospheric Pollution Prevention Act 45 of 1965 (APPA) and the Land Use and Planning Ordinance 15 of 1985 (LUPO), and thus the interdict was sought until the Respondent complied with the APPA and LUPO.²³¹ The court, in this case, agreed with the respondent’s contention that, because the first applicant was an organisation that lacked a constitution and the capacity to sue, it could not institute the action on behalf of the above communities. The court found that the APPA was

²²³ Summers M "Common-law remedies for environmental protection" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 346.

²²⁴ Kaka I *Corporate self-regulation and environmental protection* (LLM North West University 2012) 17.

²²⁵ It is common knowledge that, because damage to the environment affects so many, litigation in this regard is almost always done in the public interest.

²²⁶ Kidd M “Public interest environmental litigation: recent cases raise possible obstacles” 2010 *PER* 27.

²²⁷ Kidd M “Public interest environmental litigation: recent cases raise possible obstacles” 2010 *PER* 27.

²²⁸ *Tergniet and Toekoms Action Group v Outeniqua Kreosootpale (Pty) Ltd* Case 10083/2008 (C) 23 January 2009 (unreported).

²²⁹ Kidd M “Public interest environmental litigation: recent cases raise possible obstacles” 2010 *PER* 30.

²³⁰ Kidd M “Public interest environmental litigation: recent cases raise possible obstacles” 2010 *PER* 27.

²³¹ Kidd M “Public interest environmental litigation: recent cases raise possible obstacles” 2010 *PER* 28.

enacted in the interest of the communities and people who live in the areas surrounding premises where processes are occurring that release GHGs into the atmosphere, and that it was not promulgated in the interests of society at large.²³²

This appears to be in direct contradiction with section 32 of NEMA (which allows any person or group of persons to seek relief when there has been a breach of a statutory provision relating to the protection of the environment)²³³, as well as section 38 of the Constitution (which in itself contains the so-called ‘class action’ provision, and allows for anyone listed in the section to seek appropriate relief when a right in the Bill of Rights has been infringed upon or threatened).²³⁴ In this case, it is clear that the court erred in failing to adopt a wider approach when deliberating on the issue of *locus standi* that was so fundamental to the cause of action. In arriving at its conclusion, the court used the approach generally followed prior to the enactment of the Constitution, thereby failing to adopt a progressive approach that environmental jurisprudence so desperately needs.²³⁵

In addition to the above issue of *locus standi*, the requirements for an interdict also present significant issues when considering public interest matters. It is, especially in cases of air pollution, extremely difficult to ascertain a ‘clear right’, which is the first requirement for an interdict to be granted. Because the applicant (as in *Tergniet*) may not be a natural person, it is particularly difficult to demonstrate that a clear right exists.²³⁶ It is equally (if not more) challenging to fulfil the second requirement, namely that the activity seeking to be interdicted has caused injury and resultant prejudice. In most cases involving harm to the environment, there is no direct observable injury to a human complainant. In cases involving air pollution, it becomes even more difficult to prove that such pollution was the cause of whatever health problems the complainant may be suffering from.²³⁷ Compliance with the third requirement, namely that there is no other remedy available to the applicant, is

²³² Kidd M “Public interest environmental litigation: recent cases raise possible obstacles” 2010 *PER* 30.

²³³ Section 32 of the National Environmental Management Act 107 of 1998.

²³⁴ Constitution of the Republic of South Africa, 1996.

²³⁵ Kidd M “Public interest environmental litigation: recent cases raise possible obstacles” 2010 *PER* 33.

²³⁶ Kidd M “Public interest environmental litigation: recent cases raise possible obstacles” 2010 *PER* 35.

²³⁷ Kidd M “Public interest environmental litigation: recent cases raise possible obstacles” 2010 *PER* 40.

academic if either of the first two requirements are not met, which is often the case in matters of environmental concern.

3.3.1.2 Compensation for damages

Compensation for damages is provided for through the use of the *Aquilian* action and does not lend itself towards proper environmental enforcement and compliance. This is especially true in the case of air pollution and similar forms of environmental harm, where it can be considerably difficult to identify the correct perpetrator.²³⁸ In order to establish delictual liability, the plaintiff is required to furnish proof that the defendant's actions caused actual damage to him or her. Furnishing such proof (especially in cases of air pollution) is often difficult, lengthy and financially impracticable. It is for these reasons that this measure has seldom been utilised to hold major polluters accountable.²³⁹

3.3.1.3 Shortfalls of civil litigation in the environmental sphere

In addition to the above issues inherent to interdicts and actions in which compensation for damages is sought, the application of common law measures is hampered by the litigation process through which they are enforced. Litigation is, by its very nature, time-consuming and financially demanding, offering no guarantee of a favourable result.²⁴⁰ The judicial officers required to preside over these cases are generally not sufficiently exposed to environmental matters, and do not receive any form of standardised training in this field of law.²⁴¹ Additionally, common law remedies are intended to provide protection for individual rights to property. Thus, for purposes of giving effect to the over-arching purpose of environmental law (that is, to protect the environmental as a common resource), these remedies have proven largely ineffectual.²⁴² Environmental protection is a matter of public concern,

²³⁸ Kaka I *Corporate self-regulation and environmental protection* (LLM North West University 2012) 18.

²³⁹ Summers M "Common-law remedies for environmental protection" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 368.

²⁴⁰ Summers M "Common-law remedies for environmental protection" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 368.

²⁴¹ Craigie C, Snijman P & Fourie M "Environmental compliance and enforcement institutions" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 99.

²⁴² Summers M "Common-law remedies for environmental protection" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 369.

and alternative remedies for the enforcement of environmental laws must thus be examined.

3.4 Administrative mechanisms

Administrative mechanisms are, after criminal measures, the second most frequently used measures for environmental compliance and enforcement.²⁴³ They can be used instead of criminal measures, or in conjunction with the criminal sanction. In short, administrative measures have the underlying aim of permitting officials to direct polluters and other environmental offenders to comply with the law(s) they have contravened, and to remedy any damage or harm they may have caused to the environment, directly or indirectly.²⁴⁴ Administrative measures are thus not punitive in nature, but rather aim to bring offenders into compliance and ensure the environmental harm ceases. Since such measures can be used to direct polluters to take steps to remediate damage caused, they have the potential to give effect to the polluter pays principle if properly enforced.²⁴⁵ They include an array of mechanisms, including directives, compliance and abatement notices and the withdrawal or suspension of environmental authorisations.²⁴⁶

3.4.1 Directives and the duty of care in NEMA and NEM: AQA

Directives establish a duty of care and grant environmental officials the power and authority to direct a person or firm to take certain steps to remedy harm to the environment, or alternatively to refrain from doing something in order to limit environmental harm.²⁴⁷ There are many directives contained in a variety of pieces of legislation, however those relevant to environmental law are those issued in terms of section 19 of the National Water Act, section 31A of the Environment Conservation Act, section 45 of the Mineral and Petroleum Resources Development Act, and section 28 of NEMA.²⁴⁸ It must be noted that NEM: AQA does not provide

²⁴³ Paterson A & Kotze LJ "Introduction" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 6.

²⁴⁴ Winstanley T "Administrative measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 225.

²⁴⁵ Winstanley T "Administrative measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 238.

²⁴⁶ Winstanley T "Administrative measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 225.

²⁴⁷ Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 54.

²⁴⁸ Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 53.

for such a directive, and that section 28 of NEMA is thus the provision most applicable to air pollution and CO₂ emissions.

The duty of care in section 3 of NEM: AQA only places a general duty on the state to protect the environment and enhance South Africa's ambient air quality, as part of the general obligations mentioned in Section 24 of the Constitution above.²⁴⁹ The duty in section 28 of NEMA is more extensive than that found in NEM: AQA in that it places a duty on 'every person', rather than just the state, to take reasonable measures to prevent pollution or degradation from occurring. Section 28 of NEMA articulates the polluter pays principle in section 2(4)(p) and imposes a general duty on every person to take reasonable measures to prevent pollution from occurring, continuing or recurring.²⁵⁰ Accordingly, the operation of this directive is triggered when the above duty of care is breached by an offender.²⁵¹ The duty contained in section 28 of NEMA reads as follows:

"Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment."²⁵²

The above provision is clearly analogous to the polluter pays principle in section 2(4)(p) of NEMA in that it places a duty on a polluter to either prevent the pollution from occurring, or alternatively to minimise and rectify such pollution, with the remainder of section 28 laying out the various steps for enforcement thereof. Practically speaking, section 28 entails the notion that any person who is involved in any activity that causes pollution of the environment should bear the burden of the costs of such pollution, instead of transferring such responsibilities onto

²⁴⁹ Section 3 of the National Environmental Management: Air Quality Act 39 of 2004.

²⁵⁰ De Wet T "What does 'polluter pays' mean in South Africa" <http://www.mondaq.com/southafrica/x/66202/Environmental+Law/What+Does+Polluter+Pays+Mean+In+South+Africa> (Date of use: 30 April 2017).

²⁵¹ Winstanley T "Administrative measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 226.

²⁵² Section 28 of the National Environmental Management Act 107 of 1998.

someone else.²⁵³ This principle is key in reducing negative economic externalities, although section 28 is widely regarded as being too cumbersome and largely toothless when practically applied.²⁵⁴

3.4.2 Permits and regulation in terms of NEM: AQA

Section 21 of NEM: AQA is important in that it requires the Minister of Environmental Affairs to publish a list of activities which have or may have a significant detrimental impact on the environment. This pertains to social and economic conditions, health, and cultural heritage, and such list may be amended when required.²⁵⁵ This list of activities must be published in the Government Gazette, which was subsequently done in Government Notice 893 of 22 November 2013 and made provision for minimum emissions standards for a range of activities. These standards, amongst other requirements, state that new energy plants must comply with the emission level limitations on the date of first publication of the Notice, while all existing plants are required to comply within five years of publication.²⁵⁶

Most importantly for purposes of this study, the list includes carbonization and coal gasification²⁵⁷, thus providing for the control of CO₂ and other harmful emissions which, as stated above, are caused largely by South Africa's continued reliance on coal as a primary source of power. Accordingly, any person or firm who commences with a listed activity is required to first obtain an atmospheric emission license (AEL), which lists the minimum emission standards. The length of the licence, if granted, depends on the views of the relevant administrative authority, and may vary according to the potential environmental impacts the activity may cause.²⁵⁸ Companies who need an AEL often apply for the postponement thereof, citing an inability to meet the minimum emission standards. Such postponements may be granted for a period of five years at a time, although the standards must be met by 2020 at the latest. These postponement applications have often been subject to

²⁵³ Kidd M *Environmental Law* 2nd ed (Juta 2011) 7-8.

²⁵⁴ Kidd M "Some thoughts on statutory directives addressing environmental damage in South Africa" 2003 *SAJELP* 210. Professor Kidd, in this article, unequivocally states that Section 28 suffers from a variety of shortcomings and is ineffective for achieving the goals it was intended to.

²⁵⁵ Section 21(1) of the National Environmental Management: Air Quality Act 39 of 2004.

²⁵⁶ Section 5 of the Minimum Emissions Standards Notice.

²⁵⁷ Government Notice 893 of 22 November 2013, 18.

²⁵⁸ Section 22 of the National Environmental Management: Air Quality Act 39 of 2004.

challenges (particularly Eskom's applications), highlighting that the link between energy production and climate change is becoming more and more mainstream in South Africa.²⁵⁹

3.4.3 Penalties for the failure to obtain an AEL

In cases where a polluter fails to obtain an AEL in terms of section 22 of NEM: AQA, there are certain consequences that exist. These were introduced with the promulgation of the National Environmental Management: Air Quality Amendment Act in 2014 and are contained in section 22A.²⁶⁰ Where a polluter conducts a listed activity that causes atmospheric emissions without an AEL having been granted, this is considered an offence in terms of section 51 of NEM: AQA. Where a polluter is found guilty of an offence in terms of this section, that offender is liable in terms of section 52, which prescribes the penalties for such offences. These include a fine of R5 million or imprisonment not greater than 5 years (for initial offences), or alternatively both a fine and imprisonment.²⁶¹

3.4.4 Compliance notices

Compliance notices are a recently introduced administrative enforcement mechanism, and aim to compel compliance where non-compliance with environmental legislation, permits or authorisations by an offender is detected.²⁶² An environmental management inspector (EMI) is empowered to issue such a notice in instances where "there are reasonable grounds for believing that a person has not complied with a provision of the law for which that inspector has been designated... or with a term or condition of a permit, authorisation or other instrument issued in terms of such law."²⁶³ Such a notice must include details of the illegal conduct in question, the steps that the offender must take to comply, the time-frame within which such compliance must be achieved, and the process the offender

²⁵⁹ Strydom M "Environmental enforcement trends in South Africa" https://www.bowmanslaw.com/wp-content/uploads/2017/07/Enforcement-trends_-Melissa-Strydom-July-2017-final.pdf (Date of use: 22 August 2018).

²⁶⁰ Section 22A of the National Environmental Management: Air Quality Act 39 of 2004.

²⁶¹ Section 52 of the National Environmental Management: Air Quality Act 39 of 2004. This section, as well as Section 51, was briefly mentioned in Chapter 1 above.

²⁶² Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 54.

²⁶³ Section 31L(1) of the National Environmental Management Amendment Act 62 of 2008.

must follow in the event that he or she wishes to lodge a complaint or objection.²⁶⁴ It is important to note that failure to comply with a compliance notice constitutes a criminal offence, and can also lead to the permit or authorisation granted to the polluter being suspended or, in more serious cases, withdrawn completely.²⁶⁵

3.4.5 Abatement notices

Abatement notices allow the relevant authority to assuage and alleviate a situation that is creating pollution. These notices, because of the limited number of authorities granted the power to issue them, are only applicable to very specific cases. As a result, the directives mentioned above are far more useful and are generally used in more cases than abatement notices.²⁶⁶

3.4.6 Disadvantages of administrative measures

Administrative measures do possess certain advantages that the criminal sanction does not. They are less expensive, they eliminate the stigma and intimidating aspects of the criminal sanction, they need only be proven on a balance of probabilities, and they are suitable for offences that are not seen as particularly shocking or flagrant and thus do not justify criminal prosecution and the accompanying disgrace and ensuing consequences thereof.²⁶⁷ They are, however, subject to certain disadvantages that result in poor enforcement of environmental rules and regulations, including those relating to air pollution and GHG emissions. These disadvantages are in addition to those generally experienced with command-and-control regulation (as expanded on above). This has ultimately contributed to the poor command-and-control based environmental enforcement regime in South African law.

Firstly, an administrative penalty system in South Africa requires either the expansion of existing institutions, or the establishment of new institutions to preside over alleged contraventions of environmental rules and legislation. This would prove

²⁶⁴ Winstanley T "Administrative measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 234 – 235.

²⁶⁵ Winstanley T "Administrative measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 235.

²⁶⁶ Winstanley T "Administrative measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 236 – 237.

²⁶⁷ Hugo RE *Administrative penalties as a tool for resolving South Africa's environmental compliance and enforcement woes* (LLM University of Cape Town 2014) 19.

costly, and would require new presiding officers with sufficient expertise to be engaged as part of the process.²⁶⁸ At present, and given that NEMA is the most important piece of environmental legislation in South Africa, it is pertinent to note that it does not make provision for the establishment of a tribunal or other body that could perform the role of adjudicating alleged violations of NEMA.²⁶⁹ Alternatively, using a civil judicial system for the penalisation of offenders would simply make use of the existing civil court structure, although this in itself would present issues similar to those mentioned above regarding the overburdening of courts in the criminal justice system and the extensive resources required to bring a case before a competent court.²⁷⁰

Further to the above, the only punitive administrative penalty in NEMA is contained in section 24G.²⁷¹ This section is ineffective as it allows for the authorisation of illegally commenced activities after the fact²⁷², and has been plagued by interpretation issues as it appears to allow polluters to commence an illegal activity if the projected benefits surpass the perceived costs in the event that they are found guilty under the section. Alternatively, if a firm harbours doubts as to whether authorisation will be granted, they are permitted to commence with the illegal activity and subsequently seek authorisation in terms of the section.²⁷³ In May 2014, the National Environmental Management: Air Quality Amendment Act came into effect, and most notably introduced an administrative fine in terms of section 22A(4).²⁷⁴ This provision, however, suffers from the same drawbacks as section 24G of NEMA, as it is similarly worded and ultimately allows firms to apply for the *ex post facto* granting of an AEL, and thus does not have the desired effect in most cases.²⁷⁵ In

²⁶⁸ Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 19.

²⁶⁹ Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 19.

²⁷⁰ Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 19.

²⁷¹ Section 24G of NEMA came into effect in 2004 with its purposes stated as follows: "to allow for the rectification of unlawful commencement or continuation of a listed activity" that has been conducted without the required environmental authorisation.

²⁷² Section 24G of the National Environmental Management Act 107 of 1998.

²⁷³ Hugo RE *Administrative penalties as a tool for resolving South Africa's environmental compliance and enforcement woes* (LLM University of Cape Town 2014) 55.

²⁷⁴ Section 22A of the National Environmental Management: Air Quality Amendment Act 20 of 2014.

²⁷⁵ Hugo RE *Administrative penalties as a tool for resolving South Africa's environmental compliance and enforcement woes* (LLM University of Cape Town 2014) 55.

fact, section 24G of NEMA has been seen as an impediment to sustainable development, a concept that must be given effect to if South Africa is to meet international commitments in the arena of climate change.²⁷⁶

The costs of enforcing an environmental law through the use of an administrative mechanism, while less expensive than those incurred through the criminal sanction or civil measures, are incurred whether a violation is detected or not. The lack of human, financial and technical resources for environmental inspections also impacts on the efficiency of an administrative enforcement system.²⁷⁷ Administrative penalties must also be set high enough to sufficiently deter polluters from violating environmental legislation. Furthermore, companies will often tend towards negotiation with environmental authorities because of the technical and disputed nature of findings of non-compliance. This is also a simpler route for environmental officials to take, as they then avoid confrontation with polluters (who have vast financial resources and human capital in the form of lawyers).²⁷⁸ These negotiations, together with compliance strategies, can often continue for extensive periods of time and burden authorities with expensive and time-consuming dialogue. It is also of concern that a number of polluters are repeat offenders, pointing to the fact that negotiation with environmental authorities following a finding of non-compliance is not an adequate deterrent.²⁷⁹ Companies, specifically the larger ones which are responsible for the majority of the emissions forming the basis of this study, most likely see the costs of paying for such negotiations and/or non-compliance as insignificant when compared to the costs they would incur if, for example, they were to develop or change their procedures (such as adopting new technologies) in order to meet the standards prescribed by law. This is made clear by instances where the

²⁷⁶ Kohn L "The Anomaly that is Section 24G of NEMA; An Impediment to Sustainable Development" <http://www.laurenkohn.co.za/publications/journal-articles/the-anomaly-that-is-section-24g-of-nema-an-impediment-to-sustainable-development/> (Date of use: 27 April 2018).

²⁷⁷ Hugo RE *Administrative penalties as a tool for resolving South Africa's environmental compliance and enforcement woes* (LLM University of Cape Town 2014) 23.

²⁷⁸ "Enforcing the law: the challenges undermining environmental compliance monitoring and enforcement in South Africa" <http://fulldisclosure.cer.org.za/2015/enforcing-the-law> (Date of use: 17 May 2017).

²⁷⁹ Hugo RE *Administrative penalties as a tool for resolving South Africa's environmental compliance and enforcement woes* (LLM University of Cape Town 2014). 24.

penalties are too low, allowing for firms to easily accommodate such expenses in their respective budgets.²⁸⁰

3.5 The Environmental Management Inspectorate

The EMI was created in 2005 pursuant to an amendment to NEMA. Known as the "Green Scorpions", environmental management inspectors are charged with environmental protection through the enforcement of environmental legislation, including the provisions in NEMA and NEM: AQA.²⁸¹ They have a wide range of powers relating to both the criminal sanction (the primary command and control mechanism for environmental enforcement in South Africa), and administrative measures such as those in section 28 (directives) and section 31L (compliance notices) of NEMA, as expanded on above.

The powers vested in EMIs include investigating, inspecting, enforcing and administrating. In order to perform these tasks, they are required to ensure compliance with the SEMAs that they are mandated to enforce in accordance with their relevant designation.²⁸² They play an important role in the criminal prosecution of offenders, as they also have the powers of search and seizure. As far as administrative mechanisms are concerned, EMIs play a vital role in issuing fines and ensuring compliance. This is done through the use of compliance notices and the other administrative mechanisms for enforcement.²⁸³ EMIs are thus tasked with bridging the obvious gap between environmental legislation as it exists on paper, and the actual enforcement thereof. They are key for giving effect to the polluter pays principle and have the ability to reduce South Africa's air pollution and GHG emissions if they exercise their duties and responsibilities correctly and effectively.

²⁸⁰ Hugo RE *Administrative penalties as a tool for resolving South Africa's environmental compliance and enforcement woes* (LLM University of Cape Town 2014) 26.

²⁸¹ Craigie C, Snijman P & Fourie M "Environmental compliance and enforcement institutions" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 92. In relation to laws regulating water use and protection, the "Blue Scorpions" are relevant. However, for purposes of the study at hand, the "Green Scorpions" and the powers vested in them will be focused on.

²⁸² Craigie C, Snijman P & Fourie M "Environmental compliance and enforcement institutions" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 92.

²⁸³ Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 54.

However, the enforcement process has been hampered by a range of issues experienced by EMIs, as explained below.

3.5.1 The EMI: shortfalls and inadequacies

EMIs receive basic training as standard practice across the board. However, this training does not adequately prepare them for conducting in-depth investigations similar to those conducted by the South African Police Service (SAPS) in non-environmental matters. This ultimately results in the inadequate and drawn-out investigation of environmental crimes, or the failure to hold polluters accountable entirely.²⁸⁴ The EMI is also required to work in conjunction with the SAPS and National Prosecuting Authority (NPA) in certain criminal investigations. Most members of the SAPS and NPA are not familiar with environmental legislation and, as a result, many environmental crimes go unpunished.²⁸⁵ Additionally, members of the SAPS have the same powers as EMIs under NEMA and the SEMAs; however, they do not receive any formal training for enforcement of the provisions in these Acts.²⁸⁶

To compound the above issues, it is simply too easy for companies to avoid discovery of their environmental violations, as well as too easy to burden the EMI with complex and time-consuming negotiations and disputes about whether the alleged violations have in fact occurred. This unfortunate state of affairs is largely due to the way environmental authorisations are drafted by authorities, making compliance monitoring a challenging process. Years can pass between an inspection taking place and enforcement action, highlighting the issue that if enforcement is not immediate and expected, companies will inevitably continue to take risks with environmental violations.²⁸⁷ Furthermore, companies have a tendency to view the reports and findings of the EMI as mere opinions, using this

²⁸⁴ Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 5.

²⁸⁵ Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 5.

²⁸⁶ Craigie C, Snijman P & Fourie M "Environmental compliance and enforcement institutions" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 95.

²⁸⁷ "Enforcing the law: the challenges undermining environmental compliance monitoring and enforcement in South Africa" <http://fulldisclosure.cer.org.za/2015/enforcing-the-law> (Date of use: 17 May 2017).

view as a means to support their reluctance to spend the necessary resources to comply with environmental laws and regulations. This lack of respect for the expertise of environmental officials is coupled with the fact that insufficient funds and resources are allocated to environmental compliance. These diminishing budgets mean less inspections can take place, the process of finalising reports is lengthy and drawn out, and ultimately fewer polluters are held accountable.²⁸⁸ The above all impacts negatively on the effective implementation of an administrative penalty system and undermines the competency and potency of EMIs.

This is supported by the statistics in the National Environmental Compliance and Enforcement Reports (NECERs), which are released on an annual basis by the Department of Environmental Affairs (DEA). In the 2014/15 report, 2019 criminal dockets were registered, and 257 cases were handed over to the NPA. The NPA declined to prosecute 24 of these, 15 resulted in plea bargains being reached, 6 resulted in acquittals, and there were just 65 convictions. Just 100 section 24G administrative fines were paid, with a total value of just over R14 million.²⁸⁹ These statistics are similar to those from previous years, indicating little to no improvement in environmental compliance and enforcement, and underscoring the fact that major air polluters are in general, and in line with a noticeable trend, emitting more than is permitted by law.

The EMI has thus made very limited progress in bettering environmental compliance and enforcement. Despite the Department of Environmental Affairs and Tourism's (DEAT's) intention to consolidate environmental enforcement, there remains fragmentation due to the fact that EMIs operate within a limited mandate, meaning that the enforcement of numerous important environmental laws is outside of their powers.²⁹⁰ The failures of the EMI to enforce the current command-and-control mechanisms available in South Africa today further exacerbates the over-arching issue of failing to hold major air polluters accountable for their CO₂ and other harmful emissions. Possible alternatives to these measures, specifically for purposes of

²⁸⁸ "Enforcing the law: the challenges undermining environmental compliance monitoring and enforcement in South Africa" <http://fulldisclosure.cer.org.za/2015/enforcing-the-law> (Date of use: 17 May 2017).

²⁸⁹ 2014 – 2015 NECER 9.

²⁹⁰ Craigie C, Snijman P & Fourie M "Environmental compliance and enforcement institutions" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 101.

reducing air pollution and enforcing the polluter pays principle in this regard, must therefore be examined.

3.6 Shortfalls of command-and-control regulation: a summary

Command-and-control approaches to environmental enforcement have historically suffered from a variety of shortcomings, and rarely provide for proper and efficient enforcement of the polluter pays principle.²⁹¹ In addition to the issues specific to the various command-and-control mechanisms noted above, there are general issues that must also be examined.

Included in these is the fact that enforcement authorities require extensive resources and sufficient capacity, both human and financial, in order to compel compliance where a breach of an environmental law or regulation has been detected.²⁹² Command-and-control regulation also offers very limited flexibility in terms of giving environmental authorities the volition to develop compliance and enforcement measures to suit specific polluters. The same standard is generally required for all polluters, regardless of a firm's financial capability to meet the set standards. Larger firms find it easier to meet the requirements with relative ease, while smaller firms, being subject to the same standards, often suffer financially as a result.²⁹³ As soon as the command-and-control regulation has been fulfilled, there exists no further impetus for polluters to reduce their pollution to improve the quality of the environment.²⁹⁴ Polluters have no compelling justification to innovate (particularly insofar as introducing new technology goes) and reduce pollution even further.²⁹⁵

²⁹¹ Craigie C, Snijman P & Fourie M "Dissecting environmental compliance and enforcement" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 45.

²⁹² Craigie C, Snijman P & Fourie M "Dissecting environmental compliance and enforcement" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 52.

²⁹³ "Command-and-control regulation" <https://www.khanacademy.org/economics-finance-domain/microeconomics/consumer-producer-surplus/environmental-regulation/a/command-and-control-regulation-cnx> (Date of use: 5 May 2017).

²⁹⁴ "Command-and-control regulation" <https://www.khanacademy.org/economics-finance-domain/microeconomics/consumer-producer-surplus/environmental-regulation/a/command-and-control-regulation-cnx> (Date of use: 5 May 2017).

²⁹⁵ "Command-and-control regulation" <https://www.khanacademy.org/economics-finance-domain/microeconomics/consumer-producer-surplus/environmental-regulation/a/command-and-control-regulation-cnx> (Date of use: 5 May 2017).

To compound the above inherent problems, command-and-control regulation is written and put together by the Environmental Protection Agency (EPA) and legislators. They are not immune to political influence, a notion demonstrated by firms (specifically larger firms such as Eskom), that lobby against such regulations and argue that these standards should not apply to them.²⁹⁶

The above issues thus highlight the ineffectiveness of the traditional enforcement mechanisms in use today, as well as the issues plaguing the EMI as the primary environmental compliance and enforcement body.²⁹⁷ While NEMA has been commended for its attempts to enforce the polluter pays principle (which is most evident in administrative measures), there are still notable shortfalls that persist in South Africa's command-and-control environmental enforcement regime.²⁹⁸ This general culture of non-compliance is particularly concerning given the South African government's international commitments to reduce CO2 emissions, and thereby combat climate change.

The following quote from the case of *Director: Mineral Development, Gauteng Region v Save the Vaal Environment*²⁹⁹ finds relevance here and aptly summarises the fact that change must occur if the environmental right is to be given effect to (and, accordingly, international obligations and commitments):

“Our Constitution, by including environmental rights as fundamental, justiciable human rights, by necessary implication requires that environmental considerations be accorded appropriate recognition and respect in the administrative processes in our country. Together with the change in the ideological climate must also come a change in our legal and administrative approach to environmental concerns.”³⁰⁰

Despite the tools needed to effect the required change being available, the legal fraternity has been slow to make use of them. Thus, the progressive change needed

²⁹⁶ "Command-and-control regulation" <https://www.khanacademy.org/economics-finance-domain/microeconomics/consumer-producer-surplus/environmental-regulation/a/command-and-control-regulation-cnrx> (Date of use: 5 May 2017).

²⁹⁷ Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 53.

²⁹⁸ Winstanley T "Administrative measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 238 – 239.

²⁹⁹ *Director: Mineral Development, Gauteng Region v Save the Vaal Environment* 1992 2 SA 709 (SCA).

³⁰⁰ *Director: Mineral Development, Gauteng Region v Save the Vaal Environment* 1992 2 SA 709 (SCA) para 20.

has been slow in coming. It is doubtful that, even if environmental legislation were properly enforced, this would be sufficient for purposes of reaching the goals set under the Paris Agreement and other international agreements.³⁰¹ As noted earlier, only 57 nations are on track to reach their goals under the Paris Agreement, and South Africa is not one of them.³⁰²

Polluters are not being made to internalise the negative external costs associated with their pollution (specifically major players in the coal industry, such as Sasol³⁰³ and Eskom)³⁰⁴, and consequently effect is not being given to the fundamental national environmental management principles in NEMA, as well as section 24 of the Constitution. The most notable of these principles, for purposes of the study at hand, are the polluter pays principle and sustainable development. There are numerous alternatives to these command-and-control mechanisms, including market-based incentives, regulatory incentives and information-based incentives, and it is here that we see the potential a carbon tax has to better hold polluters accountable in South Africa.³⁰⁵

3.7 Possible alternatives and the way forward

An alternative mechanism that is increasingly being made use of by a number of jurisdictions around the world (in both developed and developing countries) is that of a carbon tax.³⁰⁶ The carbon tax is just one of many market-based mechanisms available, and puts in place various pollution control incentives that traditional command-and-control approaches do not.³⁰⁷ In South Africa, the government has

³⁰¹ Hughes R *A critical review of South Africa's future carbon tax regime* (LLM University of Cape Town 2017) 9.

³⁰² United Nations "Emissions Gap Report 2018".

³⁰³ Sasol generates more emissions than Portugal each year and has been identified as one of the 100 companies globally that contributes to approximately 71% of international GHG emissions. As per Crotty A "Shareholders grill Sasol over greenhouse gas emissions" <https://www.businesslive.co.za/bd/companies/energy/2018-11-19-shareholders-grill-sasol-over-greenhouse-gas-emissions/> (Date of use: 27 November 2018).

³⁰⁴ Eskom emitted over 62% of South Africa's total emissions in 2011. This is more than Denmark, Switzerland, Norway, Finland and Sweden combined. Sasol is the world's largest point-source emitter of CO₂. As per Steele M "Written comments on the Draft Carbon Tax Bill, 2017" 2018 *CER* 2.

³⁰⁵ Paterson A "Incentive-based measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 298 – 305.

³⁰⁶ Numerous countries have either implemented a carbon tax or similar mechanism, such as Japan, Sweden, China, New Zealand, Thailand, Mexico, Denmark and Switzerland.

³⁰⁷ Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 53.

made its intentions clear with the publication of the Draft Carbon Tax Bill. It thus becomes pertinent to examine the likelihood that the carbon tax will result in greater enforcement of the polluter pays principle, promote sustainable development in accordance with section 24(b)(iii) of the Constitution, and ultimately assist South Africa in combating climate change in accordance with international commitments and obligations.

CHAPTER 4: MARKET-BASED MECHANISMS FOR POLLUTION CONTROL

4.1 Alternatives to command-and-control mechanisms

The following chapter serves as a general overview of market-based mechanisms for pollution control as an alternative to the existing command-and-control mechanisms discussed above. The chapter then goes on to discuss the carbon tax as a market-based mechanism specifically geared towards mitigating the effects of air pollution and CO₂ emissions.

There are various alternatives to traditional command-and-control mechanisms, some of which are being used and gradually implemented with varying degrees of success the world over. Such measures include voluntary compliance measures³⁰⁸ and market-based incentives.³⁰⁹ Voluntary compliance denotes the idea that polluters may choose to comply with certain environmental rules and regulations, and that in the event of non-compliance, no sanction will befall them.³¹⁰ Whilst voluntary compliance can and does work in certain instances (with one example being the INDCs under the Paris Agreement and the accompanying financial aid making voluntary compliance beneficial), it is largely ineffectual when it comes to taxation.³¹¹ In a country such as South Africa, the lack of sanctions and limited enforcement means that voluntary compliance mechanisms would likely prove to be too lenient, which in turn would be further hampered by a lack of initiative on the side of the taxpayer.³¹²

³⁰⁸ Lehmann K "Voluntary Compliance Measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 269.

³⁰⁹ Paterson A "Incentive-based Measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 296.

³¹⁰ Lehmann K "Voluntary Compliance Measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 269. Voluntary compliance (self-regulation) is hindered by limited enforcement, and very rarely achieves its objectives effectively. On a global scale, it may be observed that compliance with voluntary measures (specifically those relating to climate change) is driven by a nation's ethical views, as well as how that country wishes to be perceived on the international stage. Non-compliance with voluntary programmes may lead to reputational damage, but beyond this the consequences are minimal (as per Pineiro-Chousa J *et al* "Managing reputational risk through Environmental Management and Reporting: An Options Theory approach" 2017 *Sustainability* 1).

³¹¹ Dinku T & Alamirew A "External Factors Affecting Voluntary Taxpayers Compliance" 2018 *Journal of Business and Financial Affairs* 5.

³¹² Kaka I *Corporate self-regulation and environmental protection* (LLM North West University 2012) 39.

4.2 A case for market-based enforcement mechanisms

Market-based incentives are, unlike command-and-control mechanisms, not state-centred and are instead initiated and regulated by industry as a whole.³¹³ These mechanisms aim to (i) internalise the negative externalities associated with pollution and environmental harm and (ii) giving polluters greater incentives to reduce pollution (by investing in green technologies etc.). Market-based incentives and enforcement mechanisms may provide for better enforcement of the polluter pays principle as they promote the efficient use and protection of environmental goods and services).³¹⁴

There is an emerging trend that such mechanisms should be applied worldwide to combat air pollution and climate change, thus resulting in sustainable development and a healthier environment for all.³¹⁵ This forms part of the neo-liberal approach to environmental regulation, whereby market-based mechanisms (amongst others) are used to achieve social benefits and environmental protection. This approach describes governance through a dependence on market relationships and the extension of such relationships, the abandonment of the notion of state-centred political practice, and an increased reliance on market processes to achieve environmental goals.³¹⁶ Market-based mechanisms for environmental compliance and enforcement will therefore be examined below.

³¹³ Lehmann K "Voluntary Compliance Measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 298. It is now common cause that CO₂ is the pollutant most responsible for climate change. This pollutant is mainly released into the atmosphere through the energy industry (the burning of fossil fuels and other industrial processes), whilst other industries contribute to a lesser extent, such as the forestry industry, agriculture, refrigeration and the use of certain consumer products (as per EPA "Global greenhouse gas emissions data" <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data> (Date of use: 21 August 2018)).

³¹⁴ Lehmann K "Voluntary Compliance Measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 299.

³¹⁵ Khan MR "Polluter-pays principle: The cardinal instrument for addressing climate change" 2015 *Laws* 638.

³¹⁶ Czarneski J "The neo-liberal turn in environmental regulation" 2016 *Pace Law Faculty Publications* 1-2.

4.2.1 Pollution and economic externalities

It is common knowledge that environmental pollution (and specifically air pollution) imposes costs on people who are not responsible for the creation of such pollution. This pollution is thus an economic externality, whereby the creator of the pollution is not made to pay for the damage caused to society and the environment (such as the impacts of climate change, including rising sea levels, health problems associated with air pollution, and the destruction of ecosystems).³¹⁷ Externalities can be divided into positive and negative externalities, with pollution falling into the negative category.³¹⁸ Polluters focus on achieving short-term profits and disregard the impacts of pollution on society and the environment, resulting in a form of market failure that causes social inequity.³¹⁹ As a result, it becomes clear that the polluter pays principle and the notion of sustainable development is not being given effect to in such a situation.

4.2.2 Market-based mechanisms and economic incentives

Market-based mechanisms are able to better reduce GHG emissions through the financial and economic incentives they create, meaning that it becomes financially beneficial for polluters to take extra steps in order to emit less.³²⁰ These mechanisms aim to correct the form of market failure we see above, where polluters are not made to pay for their emissions and there is thus an inefficient allocation of economic resources.³²¹ Rather than having their behaviour regulated through the use of

³¹⁷ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017).

³¹⁸ While it may not always be possible to place an exact monetary value on air pollution, researchers are able to determine the costs of pollution on health, thereby arriving at an overall social cost of such pollution (as per Harvey C "The staggering economic cost of air pollution" https://www.washingtonpost.com/news/energy-environment/wp/2016/01/29/the-staggering-economic-cost-of-air-pollution/?noredirect=on&utm_term=.e71fda37bec6 (Date of use: 21 August 2018)).

³¹⁹ Gonzalez T & Saarman G "Regulating pollutants, negative externalities, and good neighbour agreements: Who bears the burden of protecting communities?" 2014 *Ecology Law Quarterly* 49.

³²⁰ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017).

³²¹ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017).

directives and other command-and-control mechanisms, polluters must decide on the extent to which they wish to reduce their pollution in order to benefit from the financial incentives that market-based mechanisms provide.³²² Thus, these mechanisms encourage firms to innovate and develop new technology to reduce pollution in their own interests. They also allow for greater flexibility, meaning firms that may not have the financial resources to adopt new technology have options at their disposal. This is in direct contrast with command-and-control mechanisms which, as noted earlier, advocate that the same standards be met by all polluters, regardless of their financial capability to do so.³²³ Furthermore, because CO₂ and other GHG emissions cause environmental damage on a global scale, market-based mechanisms are more flexible and allow for cheaper and more efficient emissions reduction, making them the preferred choice in recent times.³²⁴

4.3 Types of market-based enforcement mechanisms

Market-based enforcement mechanisms can take many forms, such as taxes, subsidies, cap-and-trade programmes, pollution charges and tradable permits, amongst others.³²⁵ Presently, there are two approaches that can be used to tax carbon directly, namely either a carbon tax or an emissions trading scheme/cap and trade programme.³²⁶ There is a global debate as to whether cap-and trade programmes or carbon taxes are more efficient in terms of reducing GHG emissions and thus combating climate change.³²⁷ The two market-based enforcement mechanisms are described in the ensuing paragraphs.

³²² Zhang B "Market-based solutions: An appropriate approach to resolve environmental problems" 2013 *Chinese Journal of Population Resources and Environment* 87.

³²³ "Command-and-control regulation" <https://www.khanacademy.org/economics-finance-domain/microeconomics/consumer-producer-surplus/environmental-regulation/a/command-and-control-regulation-cnx> (Date of use: 5 May 2017).

³²⁴ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017).

³²⁵ Zhang B "Market-based solutions: An appropriate approach to resolve environmental problems" 2013 *Chinese Journal of Population Resources and Environment* 88.

³²⁶ Draft Memorandum for the Carbon Tax Bill 2015, 3.

³²⁷ Avi-Yonah S & Uhlmann DM "Combating global climate change: Why a carbon is a better response to global warming than cap and trade" 2009 *Stanford Environmental Law Journal* 5.

4.3.1 Carbon taxes vs cap-and-trade programmes

Cap-and-trade programmes operate on the idea that the relevant authority will determine the maximum quantity of pollution permitted (i.e. a cap), and polluters will be penalised if they have insufficient emissions allowances to cover their pollution levels.³²⁸ Because there are a certain number of these allowances in play, this creates a demand for them and firms are forced to either reduce their emissions in accordance with the emissions allowances they do have, or purchase such allowances from firms that have managed to meet their pollution expectations and thus have allowances to spare.³²⁹ Such a program would therefore create a market for carbon allowances, and if properly applied would force polluters to internalise the negative costs of pollution and thereby give effect to the polluter pays principle.³³⁰

Carbon taxes differ from cap-and-trade programmes in that they set a price on each unit of pollution (typically per ton of CO₂ for purposes of this study), and the polluter will then incur a cost based on the level of pollution emitted, expressed per unit of pollution.³³¹ A unit of pollution (i.e. a carbon unit) is a *sui generis*³³² right in that it refers to a right to emit which is created through a polluter engaging in activities which reduce its emissions, rather than referring to a physical unit of CO₂.³³³ A carbon tax will also provide for the internalisation of negative economic externalities, shifting these costs back onto the polluter and removing this burden from society entirely.³³⁴ Such taxes are levied on point sources of emissions in order to allow for

³²⁸ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017).

³²⁹ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017).

³³⁰ Avi-Yonah S & Uhlmann DM "Combating global climate change: Why a carbon is a better response to global warming than cap and trade" 2009 *Stanford Environmental Law Journal* 5.

³³¹ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017).

³³² *Sui generis* literally means "of its own kind" and refers to a right which is unique in nature (as per Kalaskar BS "Traditional Knowledge and Sui Generis Law" 2012 *International Journal of Scientific and Engineering Research* 2).

³³³ Davies E "Recommendations for an International Carbon Currency Market under Article 6 of the Paris Agreement" 2018 *CCLR* 133.

³³⁴ Avi-Yonah S & Uhlmann DM "Combating global climate change: Why a carbon is a better response to global warming than cap and trade" 2009 *Stanford Environmental Law Journal* 7. One argument that arises is that companies with vast reserves of capital can simply keep

easy implementation.³³⁵ Authors have suggested that a carbon tax will prove more efficient than a cap-and-trade programme for purposes of combating global climate change³³⁶, for the reasons that follow.

A cap-and-trade system would take considerable time to implement, with challenges such as the setting of fair and effective baselines for emissions targets, and difficulties in altering the price of the carbon cap if it is initially set too low or too high.³³⁷ It has been noted by numerous authoritative authors that cap-and-trade systems are more likely to result in price volatility, which in turn is likely to delay or deter long-term investment in such a system.³³⁸ Furthermore, such an approach in South Africa would likely prove impracticable due to the oligopolistic nature of the energy industry, meaning that only a few companies dominate the market for GHG emissions.³³⁹ Certain companies come to mind in this regard, including coal giant Sasol and state-owned electricity provider Eskom. On the other hand, carbon taxes are generally viewed as being far easier to implement and enforce, as well as simpler to alter and adjust if the ensuing changes are either insufficient or overly demanding on industry. The tax can thus easily be adjusted to the point where it creates the most efficient incentive for firms to reduce their emissions. A carbon tax would provide greater certainty and would require far less institutional capacity building than a cap-and-trade system.³⁴⁰ An important consideration to take into

on polluting, even with the introduction of such a tax. A prime example is Eskom, the ailing parastatal that uses taxpayers' money to continue with business as usual. Some argue that Eskom should be privatised to prevent taxpayers from having to foot the bill for corruption and mismanagement, as South African Airways has recently done with the indication that they will be securing a strategic partner, thereby opening up to a form of privatisation (as per Khumalo J "Privatise Eskom and avoid its looming bankruptcy" <https://citypress.news24.com/News/privatise-eskom-and-avoid-its-looming-bankruptcy-20180724> (Date of use: 22 August 2018)).

³³⁵ Paterson A "Incentive-based measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 302.

³³⁶ Metcalf GE & Weisbach D *The design of a carbon tax* (Harvard Environmental Law Review 2009) 556 and Zhang B "Market-based solutions: An appropriate approach to resolve environmental problems" 2013 *Chinese Journal of Population Resources and Environment* 88.

³³⁷ Avi-Yonah S & Uhlmann DM "Combating global climate change: Why a carbon tax is a better response to global warming than cap and trade" 2009 *Stanford Environmental Law Journal* 6.

³³⁸ Metcalf GE & Weisbach D *The design of a carbon tax* (Harvard Environmental Law Review 2009) 519 and Goulder LH and Schein AR "Carbon taxes vs cap and trade: A critical review" 2013 *Climate Change Economics* 3.

³³⁹ Draft Memorandum for the Carbon Tax Bill 2015, 3.

³⁴⁰ Draft Memorandum for the Carbon Tax Bill 2015, 4.

account, and a major benefit of a carbon tax, is that it has the potential to give the implementing nation some bargaining power when negotiating international treaties and obligations related to global warming and CO₂ emissions limits.³⁴¹

The description above shows why carbon taxes are generally favoured over cap-and-trade programmes. This has been established in literature for some time now.³⁴² It therefore becomes pertinent to examine the operation of environmental taxes in general, as well as the operation of the proposed carbon tax as a specific tax falling under the broader spectrum of environmental taxes.

4.3 Environmental taxes

Taxation has a multi-faceted role in society. It has significant influence in the social, political and economic realms, and is progressively being implemented as an environmental tool on a global scale.³⁴³ Taxes are able to foster and sustain economic enabling environments and are used to stimulate budgetary reform.³⁴⁴ Environmentally related taxes, if properly implemented and diligently governed, give polluters an incentive to adjust and modify production and consumption habits, something that traditional command-and-control regulatory pollution control measures do not encourage.³⁴⁵ A carbon tax, as indicated, falls into this environmental tax bracket, and generally aims to impose a charge on GHG emissions that is equal to the costs that arise through future climate change.³⁴⁶

A carbon tax is, in its simplest form, an energy-related tax. When applying the basic formula for taxation, it can be defined as the tax base (which is the energy source subject to the tax) multiplied by the tax rate (which, for our purposes, is a certain

³⁴¹ Avi-Yonah S & Uhlmann DM "Combating global climate change: Why a carbon tax is a better response to global warming than cap and trade" 2009 *Stanford Environmental Law Journal* 7.

³⁴² Metcalf GE & Weisbach D *The design of a carbon tax* (Harvard Environmental Law Review 2009) 556.

³⁴³ Khan MR "Polluter-pays principle: The cardinal instrument for addressing climate change" 2015 *Laws* 638.

³⁴⁴ Barnard M "Koolstofbelasting as voorgestelde ekologiese fiskale hervormingsmatriel in Suid-Afrika" 2016 *LitNes Akademies* 801.

³⁴⁵ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017).

³⁴⁶ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017).

sum of money per ton of CO₂ emitted), which determines the tax revenue.³⁴⁷ A carbon tax limits the tax base to fossil fuels, with the most important one being coal in terms of South Africa's present situation. It has been noted that, given the global climate change dilemma, taxing carbon specifically may be preferred as it is directly linked to the source of the environmental issue (the excessive emissions of CO₂).³⁴⁸ In the absence of a carbon tax, individuals are faced with distorted prices as they are not made to take into account the costs that the CO₂ emissions impose on the environment, as well on other individuals. A tax, however, forces individuals to consider to full extent of the environmental damage and other consequences of air pollution.³⁴⁹

In South Africa, the government has indicated its intention to give effect to international obligations and commitments regarding climate change and, more specifically, CO₂ emissions with the publication of the Draft Carbon Tax Bill in 2015.³⁵⁰ In light of the above overview of market-based mechanisms, environmental taxes and carbon taxes, the Draft Bill will be scrutinised in an attempt to arrive at a conclusion regarding its potential to hold major air polluters accountable in accordance with the under-enforced polluter pays principle, thereby promoting sustainable development in accordance with section 24(b)(iii) of the Constitution.³⁵¹

4.4 The Draft Carbon Tax Bill

In light of recent international commitments to reduce GHG emissions and limit air pollution, the South African government deemed it appropriate to release the Draft Carbon Tax Bill for public comment in November 2015.³⁵² The reasons for this move are numerous³⁵³, but the most notable include the fact that carbon taxes are

³⁴⁷ Milne JE, Speck S, Skou Andersen M & Duff DG *The reality of carbon taxes in the 21st century* (Vermont Journal of Environmental Law 2008) 4.

³⁴⁸ Milne JE et al *The reality of carbon taxes in the 21st century* (Vermont Journal of Environmental Law 2008) 4.

³⁴⁹ Metcalf GE & Weisbach D *The design of a carbon tax* (Harvard Environmental Law Review 2009) 500.

³⁵⁰ "Why is this relevant to South African companies?" <http://www.thecarbonreport.co.za/why-is-this-relevant-to-south-african-companies/> (Date of use: 22 April 2017).

³⁵¹ Constitution of the Republic of South Africa, 1996.

³⁵² Altona T et al "Introducing carbon taxes in South Africa" 2013 *Elsevier* 2.

³⁵³ Another major reason for introducing the Draft Carbon Tax Bill relates to international funding. Article 9 of the Paris Agreement states that developed countries must provide financial support and financial resources to developing countries, to promote both mitigation and adaptation of climate change and to enable such countries to reach their obligations

progressively being introduced in other nations, as well as the now undeniable indications that the future impacts of climate change could be potentially disastrous. This is particularly true for developing countries like South Africa.³⁵⁴ Further reasons for the enactment of the Draft Bill are contained in the preamble.

4.4.1 Preamble to the Draft Carbon Tax Bill and the Modelling Report

The long title of the Draft Carbon Tax Bill summarises the purposes of the proposed tax, and simply reads as follows:

“To provide for the imposition of a tax on the carbon dioxide (CO₂) equivalent greenhouse gas emissions; and to provide for matters connected therewith.”³⁵⁵

The preamble to the Draft Bill effectively summarises several reasons for the proposed implementation thereof. These reasons are directly linked to the overarching aim of providing for the imposition of a carbon tax, which is equal to the cost imposed on society by the pollution forming the basis of the tax.³⁵⁶ They are summarised as follows.

The government's proposed imposition of a carbon tax is motivated by the fact that the link between the increase in GHG emissions and global climate change has been scientifically verified and confirmed through numerous studies and, more recently, practical observations.³⁵⁷ The government has thus acknowledged that it is necessary to take steps to improve South Africa's environmental, economic and social resilience, and thereby make a meaningful contribution to the ongoing global effort to reduce climate change. Importantly, the Draft Bill also explicitly states that one motivation for implementing the carbon tax is to ensure that those responsible for causing damage to the environment must be forced to pay for it. The Draft Bill thus makes direct mention of the polluter pays principle, highlighting that

under the Paris Agreement. This principle is also recognised in Article of 11 of the Kyoto Protocol, and four separate funds have subsequently been established, namely the Special Climate Change Fund, the Least Developed Countries Fund, the Adaptation Fund and the Standing Committee on Finance. This information is taken from UNFCCC “Climate Finance” <https://unfccc.int/topics/climate-finance/the-big-picture/climate-finance-in-the-negotiations> (Date of use: 30 October 2018).

³⁵⁴ Altona T et al "Introducing carbon taxes in South Africa" 2013 *Elsevier* 2.

³⁵⁵ Preamble to the Draft Carbon Tax Bill, 2015.

³⁵⁶ Preamble to the Draft Carbon Tax Bill, 2015.

³⁵⁷ Preamble to the Draft Carbon Tax Bill, 2015.

enforcement of this principle is key if South Africa is to reach the optimistic emissions reduction targets set by the government. Finally, the preamble states that by using a range of economic (i.e. market-based) instruments to impose a carbon tax and provide for tax incentives, the appropriate price signals will be provided for, thus assisting South Africa's economy in following a more sustainable growth path.³⁵⁸ The intentions of the government therefore appear to be in line with the global standard and, if given effect to, should assist South Africa in reducing CO₂ emissions in accordance with international commitments (namely a reduction of 34% by 2020, and a further 42% by the year 2025).³⁵⁹

In support of these figures, the National Treasury published a report entitled "Modelling the Impact on South Africa's Economy of Introducing a Carbon Tax" in November 2016, which is essentially an assessment of the carbon tax and the impacts it may have on reducing GHG emissions, employment, industry growth and competitiveness and economic development.³⁶⁰ The model clearly indicates that the carbon tax, as has been hypothesised, could well be an effective tool for reducing South Africa's GHG emissions and assisting the country in reaching international commitments. This is highlighted by the suggestion in the carbon tax modelling report that the proposed tax policy would reduce emissions by between 13 and 14.5% by 2025, and by between 26 and 33 percent by 2035.³⁶¹ These figures are based on simulations conducted as part of putting the modelling report together. The report further shows that the carbon tax will reduce the economy's average annual growth rate by between 0.05 and 0.15 percentage points below business as usual, figures that can be considered marginal by any standards.³⁶²

The form and function of the tax itself is examined in the paragraphs that follow.

³⁵⁸ Preamble to the Draft Carbon Tax Bill, 2015. The preamble in both the Draft Carbon Tax Bill and the Second Draft Carbon Tax Bill remains the same.

³⁵⁹ Masondo H "The Implementation of Carbon Tax" <http://www.cgcsa.co.za/resources/articles/environment/the-implementation-of-carbon-tax> (Date of use: 15 September 2016).

³⁶⁰ First Draft Carbon Tax Bill 2015: Response Document, December 2017, 15.

³⁶¹ Modelling the Impact on South Africa's Economy of Introducing a Carbon Tax, November 2016, 9. This figure is supported by numerous sources and appears to be the benchmark in terms of emissions reduction.

³⁶² Modelling the Impact on South Africa's Economy of Introducing a Carbon Tax, November 2016, 9.

4.4.2 The form and function of the proposed carbon tax

The Draft Carbon Tax Bill specifically refers to the polluter pays principle, and reads as follows:

"AND SINCE the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment (the polluter pays principle)."³⁶³

The need to promote sustainable growth and economic, social and environmental development is also explicitly noted in the preamble, indicating the over-arching intention to give effect to the environmental right in section 24 and also meet international obligations and commitments.³⁶⁴ The preamble further indicates the government's belief that imposing a carbon tax on GHG emissions, as well as associated measures such as tax incentives to reward efficient energy use, will ultimately drive the economy towards a more sustainable growth path.³⁶⁵

Section 2 of the Draft Bill makes provision for the imposition of a carbon tax, and reads as follows:

"There must be levied and collected for the benefit of the National Revenue Fund, a tax to be known as the carbon tax."³⁶⁶

A person is a taxpayer for purposes of the proposed Act if such person "conducts an activity as set out in Annexure 1 to the Notice issued by the Minister responsible for environmental affairs in respect of the declaration of greenhouse gases as priority pollutants under section 29(1) read with section 57(1) of the National Environmental Management: Air Quality Act, 2004."³⁶⁷ Accordingly, polluters will be held liable for their fossil fuel combustion emissions (most importantly the burning

³⁶³ Preamble to the Draft Carbon Tax Bill, 2015.

³⁶⁴ Preamble to the Draft Carbon Tax Bill, 2015.

³⁶⁵ Draft Carbon Tax Bill, 2015. The Bill makes it clear that, amongst other aims, these are the goals it is designed to achieve.

³⁶⁶ Section of the Draft Carbon Tax Bill, 2015.

³⁶⁷ Section 3(b) of the Draft Carbon Tax Bill, 2015.

of coal to provide the nation with electricity); certain industrial processes and product use emissions, as well as fugitive emissions³⁶⁸ (such as those from coal mining).³⁶⁹

The tax will be levied per ton of CO₂ emitted by a taxpayer and is set at R120 in the Draft Bill.³⁷⁰ While the calculation of the tax is expressed as a complex formula in section 6 of the Draft Bill, this takes into account allowances, emissions offsets, the tax rate (given that the tax will gradually be phased in), and the tax period in which the tax will be levied. Despite this, the carbon tax is effectively the same as the basic formula above. Once offsets, allowances and so forth have been calculated, the formula is the tax base multiplied by the tax rate, determining the tax revenue to be paid to the National Revenue Fund.³⁷¹ In other words, the carbon tax liability of any given entity, firm or polluter will be calculated as the tax base (being the total amount of GHG emissions from fossil fuel combustion, industrial processes and fugitive emissions reduced in accordance with the tax-free allowances) multiplied by the tax rate.³⁷²

The tax is to be implemented as an environmental levy in accordance with the Customs and Excise Act.³⁷³ This Act is to be amended by the Draft Bill and, according to section 54A, the levy shall be "collected and paid in respect of the carbon tax imposed in terms of the Carbon Tax Act."³⁷⁴ The proposed tax base and tax rates, taking into account the allowances contained in the Draft Bill, are examined below.

4.4.3 Tax base and tax rates

If the carbon tax is levied in its present form (as expanded on above), there are certain factors that would impact on the tax base and the tax rate. These are aimed at reducing and alleviating the economic burden some firms may experience through the imposition of the tax. This is done through the proposed phasing in of

³⁶⁸ Fugitive emissions are, according to Section 1 of the Draft Bill, those emissions that occur due to the release of GHGs in the process of extracting, processing and delivery of fossil fuels.

³⁶⁹ Section 1 of the Draft Carbon Tax Bill, 2015.

³⁷⁰ Section 5 of the Draft Carbon Tax Bill, 2015.

³⁷¹ Section 6 of the Draft Carbon Tax Bill, 2015.

³⁷² Draft Memorandum for the Carbon Tax Bill 2015, 6.

³⁷³ Section 54A of the Customs and Excise Act 91 of 1964.

³⁷⁴ Section 54A of the Customs and Excise Act 91 of 1964.

the tax, as well as the provision of certain tax-free allowances. The tax would be levied on Scope 1 emissions, which are emissions from sources that are directly controlled or owned by the relevant entity.³⁷⁵

4.4.3.1 Tax free emissions

Scope 2 emissions will not be subject to the carbon tax. These are emissions that occur as a result of the generation of electricity, heating and cooling, or steam that is generated off site but is purchased by the entity in question. Scope 3 emissions are indirect emissions that do not form part of Scope 2 emissions and come from sources that are not owned or controlled by an entity, but are directly related to the activities of that entity. These will also be exempt from the tax as it exists in the Draft Bill.³⁷⁶ An important aspect of the Draft Bill is that, in the initial implementation phase, the carbon tax will not be levied on activities that involve waste, forestry and agriculture or other land use functions.³⁷⁷ This is largely because of the presence of difficulties in accurately measuring and verifying GHG emissions from these sectors.³⁷⁸

4.4.3.2 Emissions subject to tax phasing and allowances

The tax rates determined by the Draft Bill vary according to the industry being taxed, and certain tax-free allowances exist that make provision for the progressive phasing in of the levy. For fossil fuel combustion, there will be a basic tax-free allowance of 60% of the total percentage of GHG emissions, for any given tax period, in respect of the taxable activity being performed by that entity.³⁷⁹ Industrial process emissions will be afforded a 70% tax-free allowance, while fugitive emissions will be subject to the same allowance but with an additional 10% being given to sectors with fugitive emissions, as well as to those entities that are exposed

³⁷⁵ Draft Memorandum for the Carbon Tax Bill 2015, 6.

³⁷⁶ Goitom H "South Africa: Carbon-Tax Legislation Proposed" <http://www.loc.gov/law/foreign-news/article/south-africa-carbon-tax-legislation-proposed/> (Date of use: 12 December 2016).

³⁷⁷ Goitom H "South Africa: Carbon-Tax Legislation Proposed" <http://www.loc.gov/law/foreign-news/article/south-africa-carbon-tax-legislation-proposed/> (Date of use: 12 December 2016).

³⁷⁸ Draft Memorandum for the Carbon Tax Bill 2015, 30.

³⁷⁹ Section 7 of the Draft Carbon Tax Bill, 2015.

to international competition.³⁸⁰ A further allowance of up to 5% may, in terms of section 11 of the Draft Bill, be given to entities that have put in place additional measures³⁸¹ aimed at reducing GHG emissions.³⁸² A 5% allowance is also available to those firms that comply with the mandatory carbon budgeting reporting requirements, as well as to firms in certain industries that purchase carbon offsets in order to minimise their tax liability.³⁸³ The Draft Bill caps the tax-free allowance that an entity may be afforded at 95% of that entity's total emissions.³⁸⁴

The effective rate of the carbon tax, taking into account these allowances, falls drastically from the initial R120 per ton expressed in the Draft Bill. Polluters will be required to pay between R6 and R48 per ton of CO₂ emitted, and as a result the tax itself will be revenue-neutral for the first five years following its implementation.³⁸⁵ This effectively means that any revenue from the tax will be used to provide tax relief of some form.³⁸⁶ The Draft Bill further makes provision for mandatory reporting requirements. These requirements, together with administration of the carbon tax are discussed below.

4.4.4 Reporting requirements and administration of the carbon tax

According to section 19 of the Draft Bill, the Commissioner³⁸⁷ is required to submit a report to the Minister within the 6 months following the end of any given tax period. The tax period, for purposes of the carbon tax, will run from 1 January and will end on 31 December of the same year.³⁸⁸ The document must contain the GHG

³⁸⁰ Goitom H "South Africa: Carbon-Tax Legislation Proposed" <http://www.loc.gov/law/foreign-news/article/south-africa-carbon-tax-legislation-proposed/> (Date of use: 12 December 2016). That is, firms that are subject to competition from foreign/international entities will be afforded a further tax-free allowance under the proposed carbon tax.

³⁸¹ Such measures may include sustainable procurement, implantation of greener technologies, efficient use of energy, and recycling programmes.

³⁸² Section 11 of the Draft Carbon Tax Bill, 2015.

³⁸³ Goitom H "South Africa: Carbon-Tax Legislation Proposed" <http://www.loc.gov/law/foreign-news/article/south-africa-carbon-tax-legislation-proposed/> (Date of use: 12 December 2016).

³⁸⁴ Section 14 of the Draft Carbon Tax Bill, 2015.

³⁸⁵ Swart I "Draft carbon tax bill released" <https://www2.deloitte.com/za/en/footerlinks/pressreleasespage/carbon-tax-bill.html> (Date of use: 29 August 2017).

³⁸⁶ Milne JE et al *The reality of carbon taxes in the 21st century* (Vermont Journal of Environmental Law 2008) 5.

³⁸⁷ As per section 1 of the Draft Carbon Tax Bill, 2015, "Commissioner" means the Commissioner for the South African Revenue Service.

³⁸⁸ Section 17 of the Draft Carbon Tax Bill, 2015.

emissions reported, as well as the total amount of carbon tax that was collected in that tax period.³⁸⁹ The tax will be administered on a self-assessment basis, whereby polluters will be required to submit six monthly assessments bi-annually. These reports must contain the company's carbon emissions during the relevant time period.³⁹⁰

The tax is to be treated as an environmental levy in terms of the Customs and Excise Act (as noted above). Successful implementation and administration of the carbon tax, as with any system of this nature, depends on the presence of an accurate monitoring, reporting and verifying system.³⁹¹ The authority tasked with assessing a polluter's tax liability will be the South African Revenue Service (SARS), to be duly assisted by the DEA and the Department of Energy (DoE), which will ultimately be tasked with leading the process of monitoring, reporting and verifying emissions.³⁹² By collecting the GHG emissions data, the DEA will determine the tax base and subsequently calculate the tax to be paid by an entity.³⁹³

With the form, function, operation and proposed administration of the carbon tax explained, it becomes necessary to examine the possible consequences of the tax if implemented in its current state.

4.4.5 Resistance to the first Draft Carbon Tax Bill

Following the publication of the Draft Carbon Tax Bill in 2015, many stakeholders, businesses and polluters came forward saying that the tax would have a negative impact on the economy's competitiveness, and would ultimately cost the country numerous jobs and investment.³⁹⁴ An argument that is frequently made by those who will be affected by the proposed tax is that, if it were to be implemented, South Africa's economic growth would suffer, while the comparative reduction of GHG

³⁸⁹ Section 19 of the Draft Carbon Tax Bill, 2015.

³⁹⁰ Duvenage W "Submission on proposed Carbon Tax Bill (2017)" <https://www.outa.co.za/wp-content/uploads/2016/09/OUTAs-Submission-Carbon-Tax.pdf> (Date of use: 5 September 2017).

³⁹¹ Draft Memorandum for the Carbon Tax Bill 2015, 6.

³⁹² SARS will have access to the DEA emissions database. SARS will be duly assisted by the DEA to verify the emissions reported by polluters.

³⁹³ Draft Memorandum for the Carbon Tax Bill 2015, 6.

³⁹⁴ Masondo H "The Implementation of Carbon Tax" <http://www.cgcsa.co.za/resources/articles/environment/the-implementation-of-carbon-tax> (Date of use: 15 September 2016).

emissions would most likely prove insubstantial.³⁹⁵ However, most empirical studies currently available do not consider the benefits of mitigating global warming. Generally, these studies find that the introduction of a carbon will cause a country's economy to shrink, and this is something that much of the resistance to South Africa's proposed tax is founded on.³⁹⁶

Civil society groups are also concerned about the effect of increased energy prices, especially on poorer households, highlighting the general resistance to the proposed carbon tax.³⁹⁷ These arguments were submitted during the public comment phase required for the introduction of a Money Bill in terms of section 77 of the Constitution. Money Bills contain as a sub-category tax bills, such as the Draft Carbon Tax Bill.³⁹⁸ However, the above arguments centred on decreased foreign investments and greater unemployment in South Africa can be rebutted by numerous counter-arguments that favour the introduction of a carbon tax to enforce the polluter pays principle and promote sustainable development.

4.4.6 Potential issues with the proposed carbon tax in the first Draft Bill

The opposition to the Draft Carbon Tax Bill indicates that, apart from firms attempting to avoid the tax for reasons motivated by profit, there may be certain inherent issues with the proposed tax. Many of these issues were captured and discussed in the First Draft Carbon Tax Bill 2015: Response Document, published

³⁹⁵ Masondo H "The Implementation of Carbon Tax" <http://www.cgcsa.co.za/resources/articles/environment/the-implementation-of-carbon-tax> (Date of use: 15 September 2016).

³⁹⁶ Timilsina G "Where is the carbon tax after 30 years of research?" 2018 *World Bank* 27.

³⁹⁷ Altona T et al "Introducing carbon taxes in South Africa" 2013 *Elsevier* 1.

³⁹⁸ Constitution of the Republic of South Africa, 1996. The process for introducing a money bill is governed by the Money Bills Amendment Procedure and Related Matters Act, which is to be read together with the Rules of Parliament. Tax bills are published initially as draft bills, following which the public has an opportunity to submit comments to National Treasury. The draft bill is then submitted to the Standing Committee on Finance for its input and due consideration, whereafter the committee calls for public comments. The National Treasury is then required to submit a response document to all public comments received. The Standing Committee on Finance then finalises the Bill by making necessary changes (taking into account the public comments received), and the Minister of Finance then tables the Bill in the National Assembly. This information is taken from the following media report: National Treasury "Release of Carbon Tax Bill for Introduction in Parliament and Public Comment" http://www.treasury.gov.za/comm_media/press/2017/2017121401%20MEDIA%20STATEMENT%20-%20CARBON%20TAX%20BILL.pdf (Date of use: 1 May 2018).

in December 2017, which effectively summarises comments received from 91 stakeholders during the public comment time period.³⁹⁹

It has been argued that the system is too complicated and may not be properly understood by the average person or company.⁴⁰⁰ This has caused uncertainty amongst those who are to be affected by the tax and has played a role in the opposition to the tax.⁴⁰¹ It has also been noted that the tax, in its current form, fails to make provision for firms to become carbon neutral through offset mechanisms and carbon trading schemes.⁴⁰² This ultimately means that firms will not be able to reach a zero-carbon taxation status, limiting the incentive to invest in greener technologies and hampering the effectiveness of the tax. This is not in line with the United Nations Framework Convention on Climate Change (UNFCCC), which mandates full carbon neutrality and encourages participating countries to make provision for this.⁴⁰³

Some stakeholders raised the point that the Draft Bill fails to include a commitment for revenue recycling⁴⁰⁴, and concerns were raised regarding the possible exclusion of such an allowance in future.⁴⁰⁵

Concerns were also raised regarding the electricity price and electricity levy, as well as the potential for double taxation as stakeholders have argued that the Renewable Energy Independent Power Producer Procurement Programme and the electricity

³⁹⁹ First Draft Carbon Tax Bill 2015: Response Document, December 2017.

⁴⁰⁰ Duvenage W "Submission on proposed Carbon Tax Bill (2017)" <https://www.oua.co.za/wp-content/uploads/2016/09/OUTAs-Submission-Carbon-Tax.pdf> (Date of use: 5 September 2017).

⁴⁰¹ Duvenage W "Submission on proposed Carbon Tax Bill (2017)" <https://www.oua.co.za/wp-content/uploads/2016/09/OUTAs-Submission-Carbon-Tax.pdf> (Date of use: 5 September 2017).

⁴⁰² Duvenage W "Submission on proposed Carbon Tax Bill (2017)" <https://www.oua.co.za/wp-content/uploads/2016/09/OUTAs-Submission-Carbon-Tax.pdf> (Date of use: 5 September 2017).

⁴⁰³ Duvenage W "Submission on proposed Carbon Tax Bill (2017)" <https://www.oua.co.za/wp-content/uploads/2016/09/OUTAs-Submission-Carbon-Tax.pdf> (Date of use: 5 September 2017).

⁴⁰⁴ Revenue recycling, in this scenario, refers to a situation wherein the revenue collected by the carbon tax is recycled and used to fund energy efficient investments, develop green technology, pay negatively affected stakeholders, and subsidise electricity prices for poorer households, ensuring the revenue-neutral nature of such a tax (as per Timilsina G "The role of revenue recycling schemes in environmental tax selection: A general equilibrium analysis" 2007 *The World Bank Development Research Group* 3).

⁴⁰⁵ First Draft Carbon Tax Bill 2015: Response Document, December 2017, 7.

generation levy are similar to the proposed carbon tax.⁴⁰⁶ Section 6(2) of the Draft Bill deals specifically with the calculation of taxes to be paid by entities which generate electricity, such as Eskom, and it further takes note of any energy produced through the use of renewable energy sources.⁴⁰⁷ Such entities will be given credit for the use of renewable energy sources, thus lessening the effects of the proposed carbon tax on electricity prices and circumventing the possibility of double taxation occurring.⁴⁰⁸

Certain commentators⁴⁰⁹ were unsure as to whether the proposed carbon tax will be tax deductible for purposes of calculating income tax, as the Draft Bill fails to mention this and, as a result, standard tax laws and principles would then need to be used. However, as provided for in the Income Tax Act⁴¹⁰, an expense which is deemed to be incurred in the production of income will be deductible for income tax purposes. The carbon tax, when forming part of an entity's business expenses, will thus be deductible.⁴¹¹

A further consideration to take into account is the timing of the Draft Bill, published during an economically volatile period in South Africa's history. With more and more people losing trust in the government, and strong opposition to numerous recent taxes of late, it is obvious that trust in the government needs to be restored before such a tax is likely to be accepted by society.⁴¹² It is also difficult to implement a tax of this nature in a developing country, as such a tax may negatively impact on the economy if implementation is not properly managed and policed.⁴¹³

⁴⁰⁶ First Draft Carbon Tax Bill 2015: Response Document, December 2017, 4.

⁴⁰⁷ First Draft Carbon Tax Bill 2015: Response Document, December 2017, 6.

⁴⁰⁸ First Draft Carbon Tax Bill 2015: Response Document, December 2017, 6.

⁴⁰⁹ As per the First Draft Carbon Tax Bill 2015: Response Document, such commentators include NGOs and academia.

⁴¹⁰ Section 11A.

⁴¹¹ First Draft Carbon Tax Bill 2015: Response Document, December 2017, 13.

⁴¹² Duvenage W "Submission on proposed Carbon Tax Bill (2017)" <https://www.oua.co.za/wp-content/uploads/2016/09/OUTAs-Submission-Carbon-Tax.pdf> (Date of use: 5 September 2017).

⁴¹³ Duvenage W "Submission on proposed Carbon Tax Bill (2017)" <https://www.oua.co.za/wp-content/uploads/2016/09/OUTAs-Submission-Carbon-Tax.pdf> (Date of use: 5 September 2017).

4.4.7 Counter-arguments against the resistance to the proposed carbon tax

As indicated, the proposed carbon tax is designed in such a way so as to gradually be implemented. Numerous tax-free allowances, expanded on in the Draft Bill, allow for a smooth transition to a greener, low carbon economy.⁴¹⁴ It is important to note that electricity prices have, in any event, increased in recent times. This effectively means that polluters who have successfully adjusted to these increased prices will find themselves in stronger positions than those firms that have failed to invest in new technologies or business models, rendering them reliant on carbon-intensive methods of production.⁴¹⁵ Investing in energy efficient methods of production is therefore sensible whether the carbon tax is implemented or not.⁴¹⁶ The DEA, in an effort to allow firms to become familiar with the administration and reporting of GHG emissions, introduced the mandatory GHG Emissions Reporting Regulations in April 2017.⁴¹⁷

The fairness of the proposed carbon tax is further augmented by the fact that polluters and industries that take early action to reduce their emissions will have a distinct advantage over those industries that fail to do so. By encouraging greater investment in new technology to improve energy efficiency, the carbon tax has the potential to make such investments financially astute, whereas previously they were not considered economically viable or even sensible.⁴¹⁸ Additionally, the phasing in of the tax will ensure that South Africa's economic competitiveness is not negatively affected.⁴¹⁹ As mentioned earlier, the tax will be revenue neutral for five years immediately following its implementation. All revenue collected from the tax will go towards reducing electricity prices in vulnerable households, rebates for firms using renewable energy, tax incentives for those firms saving energy and using it

⁴¹⁴ Draft Memorandum for the Carbon Tax Bill 2015, 4.

⁴¹⁵ Reeler J & Fakir S "A low carbon future – the meaning of carbon tax and offsets" <https://www.dailymaverick.co.za/article/2016-07-01-op-ed-a-low-carbon-future-the-meaning-of-carbon-tax-and-offsets/#.WaVRatd96Uk> (Date of use: 29 August 2017).

⁴¹⁶ Reeler J & Fakir S "A low carbon future – the meaning of carbon tax and offsets" <https://www.dailymaverick.co.za/article/2016-07-01-op-ed-a-low-carbon-future-the-meaning-of-carbon-tax-and-offsets/#.WaVRatd96Uk> (Date of use: 29 August 2017).

⁴¹⁷ First Draft Carbon Tax Bill 2015: Response Document, December 2017, 19.

⁴¹⁸ Reeler J & Fakir S "A low carbon future – the meaning of carbon tax and offsets" <https://www.dailymaverick.co.za/article/2016-07-01-op-ed-a-low-carbon-future-the-meaning-of-carbon-tax-and-offsets/#.WaVRatd96Uk> (Date of use: 29 August 2017).

⁴¹⁹ Draft Memorandum for the Carbon Tax Bill 2015, 4.

efficiently, as well as to funding public transport initiatives.⁴²⁰ This revenue recycling approach is supported by numerous studies and is the most sensible approach for South Africa to take, given that it is a developing nation.⁴²¹

In addition, a carbon tax has the potential to, if correctly implemented and properly enforced, produce other environmental benefits besides the over-arching goal of reducing GHG emissions. Included in these benefits is that a carbon tax would result in a substantial decrease in local environmental pollution, something that would consequently lead to improved health levels amongst the general population.⁴²² One can therefore adequately deduce that the carbon tax has the potential to achieve a number of positive outcomes. It is likely to stimulate investment in and development of new technologies, resulting in increased energy efficiency and increased growth in the renewable energy sector. Furthermore, it cannot be ignored that the carbon tax (through the stimulation of investment in new technologies) will create new product lines and thus result in job creation.⁴²³ However, as with any system of this nature, there are certain pitfalls that may hamper the successful introduction of the tax in South Africa.

4.4.8 The Second Draft Carbon Tax Bill

The National Treasury published the Second Draft Carbon Tax Bill for introduction in Parliament on 14 December 2017, taking into account that the main comments received on the first draft of the Carbon Tax Bill related to electricity prices, tax rates, carbon offset allowances, and certain technical administrative and legal aspects. Certain revisions were made, relating primarily to competitiveness and design of the trade exposure allowance, performance allowances, carbon budgets and certain other aspects of the Bill, as discussed in detail earlier.⁴²⁴

⁴²⁰ Draft Memorandum for the Carbon Tax Bill 2015, 4. However, this is currently not guaranteed as the revenue received from the tax will not be ring fenced, but will be recycled. This may present an issue that will need to be addressed before the implementation of the tax (as per Visser A "Carbon tax will harm SA" <https://www.iol.co.za/business-report/economy/carbon-tax-will-harm-sa-1942529> (Date of use: 22 August 2018)).

⁴²¹ Timilsina G "Where is the carbon tax after 30 years of research?" 2018 *World Bank* 29.

⁴²² Timilsina G "Where is the carbon tax after 30 years of research?" 2018 *World Bank* 29.

⁴²³ Reeler J & Fakir S "A low carbon future – the meaning of carbon tax and offsets" <https://www.dailymaverick.co.za/article/2016-07-01-op-ed-a-low-carbon-future-the-meaning-of-carbon-tax-and-offsets/#.WavRatd96Uk> (Date of use: 29 August 2017).

⁴²⁴ National Treasury "Release of Carbon Tax Bill for Introduction in Parliament and Public Comment"

Comments for this Second Draft Bill closed in March 2018, following which the Carbon Tax Bill has been tabled by the Minister of Finance to the National Assembly. The second Draft Carbon Tax Bill is aimed at alleviating the concerns of stakeholders who took part in the public comment process. Commentators⁴²⁵ have raised concerns that the tax rate is not sufficient to cause a change in the behaviour of major polluters, based mainly on the fact that no clear method of calculating future increases in the already moderate tax rate.⁴²⁶ Commentators have also once again mentioned that the second Draft Bill fails to promote the meaningful reduction of GHG emissions, and thus fails to adequately promote the polluter pays principle. Once again, this inadequacy stems from the modest tax rate that has been put forward, as well as the various tax-free allowances the Bill makes provision for.⁴²⁷ Of particular importance is the fact that the second Draft Bill retains the allowances for industrial process emissions and fossil fuel combustion emissions, meaning that companies such as Sasol and Eskom will have limited exposure to the provisions of the Bill.⁴²⁸ Despite the above, the majority of the Draft Bill remains the same.

4.4.9 Carbon Tax Bill tabled in the National Assembly

On 20 November 2018, the Carbon Tax Bill was introduced in the National Assembly. It includes a schedule proposing maximum allowances and thresholds (as above) and confirms the initial tax rate of R120 per ton of CO₂.⁴²⁹ This rate will increase in line with consumer price inflation for the preceding tax period, plus 2%, until 31 December 2022.⁴³⁰ The Carbon Tax Bill is set to take effect from 1 June

http://www.treasury.gov.za/comm_media/press/2017/2017121401%20MEDIA%20STATEMENT%20-%20CARBON%20TAX%20BILL.pdf (Date of use: 1 May 2018).

⁴²⁵ As noted earlier, such commentators include NGOs and academia.

⁴²⁶ Steele M “Written comments on the Draft Carbon Tax Bill, 2017” 2018 *CER* 2.

⁴²⁷ Steele M “Written comments on the Draft Carbon Tax Bill, 2017” 2018 *CER* 2.

⁴²⁸ Steele M “Written comments on the Draft Carbon Tax Bill, 2017” 2018 *CER* 2.

⁴²⁹ Ensor L “Tito Mboweni introduces Carbon Tax Bill” <https://www.businesslive.co.za/bd/national/2018-11-20-tito-mboweni-introduces-carbon-tax-bill/> (Date of use: 27 November 2018).

⁴³⁰ Ensor L “Tito Mboweni introduces Carbon Tax Bill” <https://www.businesslive.co.za/bd/national/2018-11-20-tito-mboweni-introduces-carbon-tax-bill/> (Date of use: 27 November 2018).

2019. Parliament's Finance Committee is expected to have the Bill processed before the end of 2018, however it is not likely to vote on the Bill until early 2019.⁴³¹

4.4.10 *The Draft Climate Change Bill: A notable mention*

In bolstering the South African government's commitment to reducing climate change, the draft Climate Change Bill was published on 8 June 2018. The DEA has since completed a road show across South Africa to canvass further comments and hold meetings with stakeholders. Comments received will be considered and incorporated into the drafting of a revised Bill.⁴³²

The Bill goes hand-in-hand with the draft Carbon Tax Bill and is primarily aimed at creating objectives, targets, bodies and strategies for climate change mitigation and adaptation. Included in this is a national GHG emissions trajectory, an important addition to South Africa's body of environmental legislation in light of the forthcoming carbon tax.⁴³³ The participation of various industries in the anticipated emissions reporting schemes will further boost the government's efforts to fine-tune its climate change mitigation measures, as is evidenced by the gradual implementation of laws governing air quality (such as NEM: AQA), which has in turn allowed government to better monitor major polluters and levy a carbon tax accordingly.⁴³⁴ The preamble to the Bill effectively summarises and shows how it is related to the Draft Carbon Tax Bill, and reads as follows:

“To build the Republic's effective climate change response and the long term, just transition to a climate resilient and lower carbon economy and society in

⁴³¹ Ensor L “Tito Mboweni introduces Carbon Tax Bill” <https://www.businesslive.co.za/bd/national/2018-11-20-tito-mboweni-introduces-carbon-tax-bill/> (Date of use: 27 November 2018).

⁴³² Christie C & Pillay D “Feeling the heat: the draft Climate Change Bill, 2018” <https://www.ensafrica.com/news/Feeling-the-heat-the-draft-Climate-Change-Bill-2018?Id=3174&STitle=natural%20resources%20and%20environment%20ENSight> (Date of use: 30 September 2018).

⁴³³ Christie C & Pillay D “Feeling the heat: the draft Climate Change Bill, 2018” <https://www.ensafrica.com/news/Feeling-the-heat-the-draft-Climate-Change-Bill-2018?Id=3174&STitle=natural%20resources%20and%20environment%20ENSight> (Date of use: 30 September 2018).

⁴³⁴ Christie C & Pillay D “Feeling the heat: the draft Climate Change Bill, 2018” <https://www.ensafrica.com/news/Feeling-the-heat-the-draft-Climate-Change-Bill-2018?Id=3174&STitle=natural%20resources%20and%20environment%20ENSight> (Date of use: 30 September 2018).

the context of an environmentally sustainable development framework; and to provide for matters connected therewith.”⁴³⁵

The Bill promotes and advance the potential carbon trading scheme (discussed above). Such a carbon trading scheme is a market-based mechanism, directly in line with the proposed carbon tax. The introduction of this draft Climate Change Bill is, perhaps, a promising sign that South Africa’s carbon tax will finally be introduced in the near future. The two pieces of proposed legislation thus have the potential to be utilised in conjunction to effectively combat climate change in South Africa, including building an effective climate change response, moving towards a low-carbon economy, and promoting the ideal of sustainable development.⁴³⁶ This is important given that South Africa is not one of the 57 nations currently on track to meet commitments under the Paris Agreement by 2030.⁴³⁷

Bearing this in mind, it is important to look at the viability of a carbon tax in a developing country, as this is undoubtedly one of the major barriers facing the successful implementation of such a tax in South Africa today.

4.5 Investigating the viability of carbon taxes in a developing country

Developing countries are unique in that a fine balance must be struck between environmental protection, economic growth and development, and social upliftment.⁴³⁸ These are the so-called “pillars” of sustainable development, and implementing a carbon tax in a developing nation must take cognisance of the need to ensure economic growth and stability, increase employment levels, and reduce poverty and social inequality that is so prevalent in countries like South Africa.

In order to provide possible solutions for this challenge, a comparative study may prove useful to determine whether carbon taxes and similar mechanisms have been successfully implemented in other developing nations. For purposes of this study, a

⁴³⁵ Preamble to the Draft Climate Change Bill, 2018.

⁴³⁶ BusinessTech “South Africa has a new Climate Change Bill” <https://businesstech.co.za/news/energy/250747/south-africa-has-a-new-climate-change-bill-heres-what-you-need-to-know/> (Date of use: 15 November 2018).

⁴³⁷ United Nations “Emissions Gap Report 2018”.

⁴³⁸ Glazewski J *Environmental Law in South Africa* (Juta 2002) 15.

comparison with Mexico is conducted. The reasons for this selection vary and are expanded on in the chapter that follows.

CHAPTER 5: MEXICO - A COMPARISON

5.1 Introduction and background⁴³⁹

Mexico, like South Africa, is heavily reliant on coal for their energy supply. As a result, they are the 11th largest emitter of CO₂ in the world.⁴⁴⁰ It is predicted that Mexico will have the world's 5th largest economy, up from 11th at present.⁴⁴¹ As per the pollution index (2018 mid-year), Mexico ranks 41st for all pollutants with a pollution index of 66.19.⁴⁴² This is similar to South Africa's index, which currently stands at 59.19 (ranked 55th).⁴⁴³ It is also important to note that, as far back as 1992, the United Nations listed Mexico City's⁴⁴⁴ air as "the most polluted on the planet".⁴⁴⁵ Now, 26 years later, the situation has not improved due largely to Mexico's reliance on coal for their power, exponential industrial growth, and a population boom from 3 million in 1950, to approximately 20 million today.⁴⁴⁶ The Mexican economy is thus extremely carbon intensive and the measures taken by the Mexican government to combat climate change are thus largely aimed at disassociating emissions from economic growth.⁴⁴⁷

It is apparent that the situation concerning air pollution (and specifically CO₂ emissions) in Mexico is markedly similar to that in South Africa. It therefore becomes necessary to examine Mexico's approach to environmental enforcement generally,

⁴³⁹ As noted in Chapter 1, one country has been selected for the comparative study to avoid so-called "concept-stretching" and to allow for a more in-depth study.

⁴⁴⁰ Vance E "Mexico passes climate-change law" <http://www.nature.com/news/mexico-passes-climate-change-law-1.10496> (Date of use: 10 March 2017).

⁴⁴¹ Dahan L *et al* "Mexico: An emissions trading case study" http://www.ieta.org/resources/Resources/Case_Studies_Worlds_Carbon_Markets/mexico_case_study_may2015.pdf (Date of use: 11 March 2017).

⁴⁴² "Pollution index for country: 2018 mid-year" https://www.numbeo.com/pollution/rankings_by_country.jsp (Date of use: 8 October 2018). Numbeo is the largest database in the world that provides user-contributed data about countries and major cities globally, including information about living conditions, cost of living, health care, traffic and pollution.

⁴⁴³ "Pollution index for country: 2018 mid-year" https://www.numbeo.com/pollution/rankings_by_country.jsp (Date of use: 8 October 2018).

⁴⁴⁴ Mexico City is the capital of Mexico and is the most densely populated city in North America.

⁴⁴⁵ Hibler M "Taking control of air pollution in Mexico City" <https://www.idrc.ca/en/stories/taking-control-air-pollution-mexico-city> (Date of use: 8 October 2018).

⁴⁴⁶ Hibler M "Taking control of air pollution in Mexico City" <https://www.idrc.ca/en/stories/taking-control-air-pollution-mexico-city> (Date of use: 8 October 2018).

⁴⁴⁷ Dahan L *et al* "Mexico: An emissions trading case study" http://www.ieta.org/resources/Resources/Case_Studies_Worlds_Carbon_Markets/mexico_case_study_may2015.pdf (Date of use: 11 March 2017).

followed by a closer look at the nation's approach to combating climate change. In the paragraphs that follow, various comparisons between Mexico and South Africa will be drawn, beginning with a comparison of the international commitments and the existing environmental legislative frameworks, followed by an exposition of command-and-control mechanisms for environmental enforcement as they currently exist in each of the named nations and their respective legal regimes. This comparison is based on the elements explored earlier in chapters two and three.

5.2 Mexico's international climate change commitments

Mexico does not have any binding GHG emissions reduction targets under the 1992 UN Declaration on Environment and Development (the Kyoto Protocol). Under the protocol, the government merely encourages the development and subsequent application of clean energy mechanisms, as well as the adoption of climate change mitigation actions.⁴⁴⁸ Mexico is thus not bound by Annexure I of the Kyoto Protocol, as is the case in South Africa. It is therefore clear that neither Mexico nor South Africa have binding targets under the Kyoto Protocol and both nations fall under the Non-Annexure I countries.⁴⁴⁹ Mexico has made notable strides in its climate change policy in recent times.⁴⁵⁰ It is worth noting that, despite Mexico's heavy dependence on oil exports, it was the first nation to ratify the Kyoto protocol.⁴⁵¹

Mexico is recognised as one of the more progressive developing nations in terms of combating climate change, further evidenced by the fact that Mexico played host to COP16 in Cancun in May 2010, where the nation played an integral role in saving the unruly multilateral climate change negotiations that had taken place in Copenhagen a year earlier.⁴⁵² Mexico became a party to the United Nations Paris Agreement, and went on to ratify this agreement on 21 September 2016. This meant that Mexico's Intended Nationally Determined Contribution (INDC) became its

448 Aneiros C & Pasquel AC "Environmental law and practice in Mexico: overview" 2015 *Environmental Global Guide* 6.

449 Annexure I to the Kyoto Protocol, 1997.

450 Dahan L *et al* "Mexico: An emissions trading case study" http://www.ieta.org/resources/Resources/Case_Studies_Worlds_Carbon_Markets/mexico_case_study_may2015.pdf (Date of use: 11 March 2017).

451 Hobson B "Mexico, a global climate change leader" <http://thehill.com/blogs/ballot-box/311325-mexico-a-global-climate-change-leader> (Date of use: 29 August 2017).

452 Hobson B "Mexico, a global climate change leader" <http://thehill.com/blogs/ballot-box/311325-mexico-a-global-climate-change-leader> (Date of use: 29 August 2017).

Nationally Determined Contribution (NDC), and it thus went from being intended to unconditional. Under this NDC, Mexico pledged to reduce GHG emissions by 25% below business as usual by the year 2030, as well as by 50% by 2050.⁴⁵³ These goals are not dissimilar to those set by the South African government,⁴⁵⁴ providing a further rationale for selecting Mexico for the international comparative study under consideration.

5.3 Mexico and South Africa: a comparison of environmental legislative frameworks

Beginning in 1972, when the Federal Law to Prevent and Control Environmental Pollution was passed, Mexico underwent a series of environmental legislative reforms and developments.⁴⁵⁵ This Act, which has since been repealed, was command-and-control in nature, as was much of Mexico's early environmental legislation.⁴⁵⁶ As a result, no innovative instruments for environmental protection were introduced, with no provision made for environmental rehabilitation.⁴⁵⁷

Beginning in 2010, Mexican environmental law underwent significant constitutional reform aimed at addressing and facilitating access to environmental justice and the promotion of laws that focus on the restoration of environmental damage.⁴⁵⁸

5.3.1 Mexico's constitutional environmental right

Article 4 of Mexico's Constitution provides for the right to a healthy environment that lends itself to human development and wellness⁴⁵⁹, much like section 24 in the South African Constitution.⁴⁶⁰ The reform of articles 4, 17, 94, 103, 104 and 107 of the Mexican Federal Constitution bolsters and strengthens this right, as well as the

453 "Mexico: Assessment " <http://climateactiontracker.org/countries/mexico.html> (Date of use: 8 March 2017).

454 As elaborated on above, these goals are a reduction in GHG emissions of 34% below current levels by 2020, and 42% below current levels by 2025.

455 Montelongo I & Gonzalez JJ "Recent Progress in the Development of Mexican Environmental Law" *IUCNAEL EJournal* 213.

456 Montelongo I & Gonzalez JJ "Recent Progress in the Development of Mexican Environmental Law" *IUCNAEL EJournal* 213.

457 Montelongo I & Gonzalez JJ "Recent Progress in the Development of Mexican Environmental Law" *IUCNAEL EJournal* 214.

458 Montelongo I & Gonzalez JJ "Recent Progress in the Development of Mexican Environmental Law" *IUCNAEL EJournal* 214.

459 Diaz R "Mexico 'new' environmental law" <http://xlcatalin.com/fast-fast-forward/articles/mexicos-new-environmental-law> (Date of use: 31 August 2017).

460 Constitution of the Republic of South Africa, 1996.

right of all to have access to environmental justice.⁴⁶¹ A further important reform to Mexico's Constitution came in 2013, when amendments were made to articles 25, 26 and 28, which opened up opportunities for investment (national, foreign and private) into Mexico's energy sector, whilst considering environmental impacts and sustainability.⁴⁶² The polluter pays principle, as a substantive element of sustainable development, is included in Mexico's environmental regime in the Federal Law of Environmental Responsibility, which governs environmental liability.⁴⁶³ This is an important piece of legislation which complies with the principles of the Rio Declaration and the Mexican Constitution. It creates a legal framework that regulates environmental liability arising from damage caused to the environment, including restoration and compensation.⁴⁶⁴

5.3.2 Mexico's primary and supplementary environmental legislation

Bearing the above reforms in mind, it is important to note that Mexico's primary environmental law is the General Law on Equilibrium and Environmental Protection, 1988 (LGEEPA). This piece of legislation authorises Congress to distribute certain powers to the three different levels of government⁴⁶⁵ (much like the structure we see in South Africa today in terms of NEMA).

Supplementary legislation also exists⁴⁶⁶, similar to the SEMAs in South Africa, however the most important one for purposes of this study is the General Law on Climate Change.⁴⁶⁷ In South Africa, the most important piece of supplementary legislation is NEM: AQA. In terms of air emissions in Mexico, the regulations to enforce the environmental laws relevant to this sector are made available by the

⁴⁶¹ Montelongo I & Gonzalez JJ "Recent Progress in the Development of Mexican Environmental Law" *IUCNAEL EJournal* 215.

⁴⁶² Montelongo I & Gonzalez JJ "Recent Progress in the Development of Mexican Environmental Law" *IUCNAEL EJournal* 217.

⁴⁶³ Hennessy M & Guillamont A "Mexico's new environmental law entrenches 'polluter pays' principle" <https://insuranceprofessionalsmiami.com/2014/06/30/mexicos-new-environmental-law/> (Date of use: 31 October 2018).

⁴⁶⁴ Hennessy M & Guillamont A "Mexico's new environmental law entrenches 'polluter pays' principle" <https://insuranceprofessionalsmiami.com/2014/06/30/mexicos-new-environmental-law/> (Date of use: 31 October 2018).

⁴⁶⁵ Aneiros C & Pasquel AC "Environmental law and practice in Mexico: overview" 2015 *Environmental Global Guide* 1.

⁴⁶⁶ Examples of Mexico's supplementary environmental legislation includes the General Act of Ecological Balance and Environmental Protection, the Environmental Liability Act and the General Act of Wild Life.

⁴⁶⁷ General Law on Climate Change, 2012.

administrative agency that is tasked with managing the specific sector. The primary government agency tasked with enforcing environmental rules and regulations is the Secretariat of the Environment and Natural Resources (SEMARNAT)⁴⁶⁸, while in South Africa it is the Department of Environmental Affairs (DEA), which is also the custodian of the national climate change policy.⁴⁶⁹

5.3.3 Air pollution limits and integrated environmental permitting regimes

The Mexican Official Norms are a set of technical standards, similar to the Minimum Emissions Standards promulgated in terms of section 21 of NEM: AQA (above), and prescribe certain binding specifications relating to air pollution, including the maximum pollutant limits for air contamination.⁴⁷⁰ The quantity of pollution emitted may not be greater than that prescribed by the limits set out in the Mexican Official Norms. Furthermore, SEMARNAT can issue additional specific maximum air emissions limits for sources of pollution that make use of certain listed processes, which may result in firms being unable to comply with the limits set in terms of the Mexican Official Norms.⁴⁷¹

Mexico, like South Africa, has an integrated environmental permitting regime.⁴⁷² Emitters are required to obtain an Integrated Environmental License (IEL), which encompasses a variety of environmental matters in a single procedure, including air pollution and GHG emissions. Included in this is an integrated reporting regime,

⁴⁶⁸ Aneiros C & Pasquel AC "Environmental law and practice in Mexico: overview" 2015 *Environmental Global Guide* 1.

⁴⁶⁹ Gilder A "To Tax or Trade (or Both or Neither)? The Confusing South African Status Quo on Carbon Taxation and Emissions Trading" 2012 *CCLR* 358.

⁴⁷⁰ Aneiros C & Pasquel AC "Environmental law and practice in Mexico: overview" 2015 *Environmental Global Guide* 1.

⁴⁷¹ Aneiros C & Pasquel AC "Environmental law and practice in Mexico: overview" 2015 *Environmental Global Guide* 5.

⁴⁷² In South Africa, an integrated environmental permitting regime exists but, like other environmental legislation in existence, is not effectively used. The regime is designed to provide for the joint exercise of administrative powers by the authorities in cases where a listed activity is also regulated by another existing piece of legislation. NEM: AQA provides for an integrated permitting regime, whereby the process for the granting of Atmospheric Emissions Licenses is aligned with the processes needed for granting environmental authorisations (as per Rumble O and Dhladhla B "Environment – South Africa" <https://www.ensafrica.com/news/Environment-South-Africa?Id=843&STitle=environmental%20ENSight#> (Date of use: 20 August 2018)).

whereby polluters are required to provide data on their emissions on an annual basis to be included in the Emissions and Transfer of Contaminants Register.⁴⁷³

The above laws, rules and accompanying regulations have historically been enforced through command-and-control measures⁴⁷⁴, mirroring the approach taken in South Africa and possibly providing a sound reason as why Mexico ranks so highly on the list of the world's top polluters.

5.4 Command-and-control measures for environmental enforcement in Mexico

Having discussed the form and operation of command-and-control mechanisms as the traditional means for environmental compliance and enforcement in Mexico, it is necessary to identify and unpack possible shortcomings.

As with most developing countries, Mexico's environmental enforcement leaves much to be desired. Generally, the reasons for this can be traced back to the continued use of command-and-control mechanisms, based on inflexible, rigid legislation that advocates that certain standards be met, regardless of a polluter's ability to do so.⁴⁷⁵ As is the case in South Africa, command-and-control mechanisms form the basis of environmental enforcement in Mexico, and a lack of human and financial resources means major polluters have historically not been held liable for their GHG emissions.⁴⁷⁶ Inadequate policing and poor environmental enforcement (issues also plaguing South Africa) hinder Mexico and, by and large, developing countries around the world.⁴⁷⁷

5.4.1 The criminal sanction

In Mexico, the criminal justice system has exhibited high levels of dysfunction and criminal impunity. There are low levels of public confidence in the system and

⁴⁷³ Aneiros C & Pasquel AC "Environmental law and practice in Mexico: overview" 2015 *Environmental Global Guide* 3.

⁴⁷⁴ Montelongo I & Gonzalez JJ "Recent Progress in the Development of Mexican Environmental Law" *IUCNAEL EJournal* 214.

⁴⁷⁵ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017).

⁴⁷⁶ Aneiros C & Pasquel AC "Environmental law and practice in Mexico: overview" 2015 *Environmental Global Guide* 2.

⁴⁷⁷ Aneiros C & Pasquel AC "Environmental law and practice in Mexico: overview" 2015 *Environmental Global Guide* 2.

citizens generally do not trust law enforcement officials, who are often inadequately trained, particularly when the prosecution of environmental crimes is concerned. In fact, only 25% of crimes in Mexico are reported.⁴⁷⁸ In a country where high levels of violent crime are prevalent (such as rape and murder) and organised crime runs rampant (such as money laundering, drug smuggling, arms smuggling and bank robberies), very little focus is placed on the enforcement of environmental laws, rules and regulations, including those relevant to climate change.⁴⁷⁹

This presents a situation similar to that in South Africa where, despite several progressive environmental laws being implemented, poor enforcement and a lack of knowledge on the part of the police force, prosecutors and the judiciary results in these laws not being given effect to.⁴⁸⁰

5.4.2 Civil and administrative measures

Mexico has several civil and administrative measures for environmental enforcement. The so-called *Amparo* is the most relevant for purposes of this study. An *amparo* action relates to an injunction (interdict) and operates in a similar manner to the interdict in South African law. The Mexican government, during the period of judicial reform post-2010, changed article 107 of the Federal Constitution so that such an action protects indirect and collective legal interests, rather than simply individual and direct interests.⁴⁸¹ This article essentially provides for class action lawsuits, as in section 38 of the South African Constitution⁴⁸² and section 32 of NEMA.⁴⁸³

Civil measures in Mexico are plagued by issues similar to those experienced in South Africa's environmental legislative regime. Litigation, which is the primary manner in which civil measures are enforced, is time-consuming and expensive,

⁴⁷⁸ Shirk DA "Justice Reform in Mexico: Change and Challenges in the Judicial Sector" 2010 *Woodrow Wilson International Centre for Scholars* 4.

⁴⁷⁹ Shirk DA "Justice Reform in Mexico: Change and Challenges in the Judicial Sector" 2010 *Woodrow Wilson International Centre for Scholars* 4.

⁴⁸⁰ Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 1.

⁴⁸¹ Montelongo I & Gonzalez JJ "Recent Progress in the Development of Mexican Environmental Law" *IUCNAEL EJournal* 215.

⁴⁸² Constitution of the Republic of South Africa, 1996.

⁴⁸³ Section 32 of the National Environmental Management Act 107 of 1998.

with no guarantee of a favourable outcome.⁴⁸⁴ Judicial offers are not sufficiently exposed to environmental cases and a lack of training in this field results in very few successful cases being concluded. As noted above, civil remedies are designed to provide protection for individual rights to property and are not effective when protecting the environment as a common resource. Additionally, an absence of reliable precedent due to the historical lack of focus on environmental crimes means that interpretation of environmental rules and regulations is severely hampered.⁴⁸⁵

5.4.3 Payment of fines and compensation for non-compliance

It is also pertinent to note that Mexico's environmental law does not provide for the payment of fines or compensation in cases of GHG emissions and other forms of air pollution.⁴⁸⁶ This is in contrast with the situation in South Africa, where provision is made for clean-up costs and compensation where polluters are responsible for damaging the environment.⁴⁸⁷ In any event, the poor enforcement of this particular provision (section 28 of NEMA and the corresponding duty of care) in South Africa means that the situation does not differ greatly to that in Mexico where, as mentioned above, no such provision exists in any form.

5.4.4 Shortcomings and the exploration of market-based mechanisms for environmental compliance and enforcement

As is the case in South Africa, consequences and penalties for non-compliance with Mexico's environmental laws are usually apparent and clearly set out, as well as accessible to all stakeholders. The procedures required to compel compliance are also clear and visible to all relevant parties. The issue, as in South Africa, is not with the legislation itself but rather with the effective and proper enforcement thereof. Despite this, a number of issues still exist regarding Mexico's environmental enforcement regime.⁴⁸⁸ Many of these issues are similar to those experienced in South Africa and are common to many developing nations. These include the fact

⁴⁸⁴ Summers M "Common-law remedies for environmental protection" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 368.

⁴⁸⁵ Aneiros C & Pasquel AC "Environmental law and practice in Mexico: overview" 2015 *Environmental Global Guide* 2.

⁴⁸⁶ Aneiros C & Pasquel AC "Environmental law and practice in Mexico: overview" 2015 *Environmental Global Guide* 5.

⁴⁸⁷ This is in accordance with the general duty of care contained in s28 of NEMA (see above).

⁴⁸⁸ Aneiros C & Pasquel AC "Environmental law and practice in Mexico: overview" 2015 *Environmental Global Guide* 2.

that command-and-control regulation is inflexible⁴⁸⁹, and that these measures offer little to no financial incentive for firms to reduce their emissions beyond the required standard.⁴⁹⁰

Given the above, it is apparent that Mexico's traditional command-and-control approach to environmental compliance and enforcement has resulted in insufficient and ineffective environmental policing and is unlikely to aid Mexico in reaching the goals it has set under international agreements. As a result, the Mexican government began to investigate the viability of alternatives to command-and-control mechanisms, including market-based mechanisms and, more specifically, a carbon tax. The Mexican government has taken several progressive steps since 2010 aimed at combating climate change and making good on international commitments. These include the implementation of a carbon tax, as well as increased tax rates on transport fuels.⁴⁹¹ These mechanisms will be examined in the paragraphs that follow.

5.5 Mexico's carbon tax and climate change mitigation regime

The carbon tax and the increased tax rate on transport fuels in Mexico are based on legislation and a basic climate change strategy. The fundamental legislation for mitigating CO₂ emissions and climate change strategy will first be discussed, followed by the introduction and form of the carbon tax in Mexico

5.5.1 Fundamental legislation for mitigating CO₂ emissions

The most important recent legislation in Mexico for purposes of combating emissions is the General Law on Climate Change, which was promulgated subsequent to the National Climate Change Strategy of 2007.⁴⁹² Passed by

⁴⁸⁹ As per <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017), command-and-control regulation is inflexible as it advocates that all polluters must meet a certain standard, without taking into account each polluter's ability or inability to do so.

⁴⁹⁰ Craigie C, Snijman P & Fourie M "Dissecting environmental compliance and enforcement" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 52.

⁴⁹¹ Arlinghaus A & van Dender K "The environmental tax and subsidy reform in Mexico" 2017 *OECD Taxation Working Papers* 6.

⁴⁹² Dahan L et al "Mexico: An emissions trading case study" http://www.ieta.org/resources/Resources/Case_Studies_Worlds_Carbon_Markets/mexico_case_study_may2015.pdf (Date of use: 11 March 2017).

Congress in April 2012, the General Law on Climate Change contains emissions reduction targets that are not dissimilar to those set by the South African government when ratifying the Paris Agreement.⁴⁹³ According to the General Law on Climate Change, the Mexican government aims to reduce its emissions by 25% below business as usual by 2020, with an additional goal of a 50% reduction below those levels recorded in 2000 by the year 2050. These targets have been set in accordance with Mexico's NDC. Because Mexico is a developing nation its aim is very much on growing its economy to combat poverty and so forth. The emissions reduction goals are therefore formidable and will require significant effort to achieve).

Parties to the Paris Agreement seem to have recognised the plight of developing countries and have indicated that reaching targets for developing countries depends largely on financial and technical support from the international community.⁴⁹⁴ As noted earlier, the UNFCCC established a financial mechanism under Article 11 for developing countries to obtain financial resources from developed countries (the so-called Annexure II countries). The mechanism is operated by both the GEF and the GCF, whilst numerous funds have been established by parties to the UNFCCC.⁴⁹⁵ Such funds include the Special Climate Change Fund, the Least Developed Countries Fund, the Adaptation Fund and the Standing Committee on Finance.⁴⁹⁶

In South Africa, the government's long-term vision for combating emissions is reflected in the National Climate Change Response Policy, which elaborates on South Africa's international climate change commitments and confirms the nation's goals in this regard.⁴⁹⁷ This policy also reaffirms South Africa's INDC made under the Paris Agreement: to reduce GHG emissions by 34% below current levels by the

⁴⁹³ Dahan L et al "Mexico: An emissions trading case study" http://www.ieta.org/resources/Resources/Case_Studies_Worlds_Carbon_Markets/mexico_case_study_may2015.pdf (Date of use: 11 March 2017).

⁴⁹⁴ Dahan L et al "Mexico: An emissions trading case study" http://www.ieta.org/resources/Resources/Case_Studies_Worlds_Carbon_Markets/mexico_case_study_may2015.pdf (Date of use: 11 March 2017).

⁴⁹⁵ UNFCCC "Climate Finance" <https://unfccc.int/topics/climate-finance/the-big-picture/climate-finance-in-the-negotiations> (Date of use: 30 October 2018).

⁴⁹⁶ UNFCCC "Climate Finance" <https://unfccc.int/topics/climate-finance/the-big-picture/climate-finance-in-the-negotiations> (Date of use: 30 October 2018).

⁴⁹⁷ National Climate Change Response Policy White Paper of 2012.

year 2020, and then by 42% by 2025.⁴⁹⁸ South Africa's contribution to the challenge of climate change is further reflected in its National Development Plan of 2012, which acknowledges that South Africa's GHG emissions are expected to peak during the period of 2020 to 2025, remain constant for approximately 10 years, and then steadily decline thereafter.⁴⁹⁹ Ultimately, both nations have based their commitments to addressing climate change on the principles of science and equity, and to promote their status as responsible global citizens.⁵⁰⁰

5.5.2 Mexico's climate change strategy in terms of the General Law on Climate Change

The General Law on Climate Change makes provision for the establishment of a Commission on Climate Change, which in itself has the authority to pioneer the creation of a local carbon market. Legislation further mandates the establishment of the Mexican Green Fund, tasked with the primary objective of channelling funds and other resources towards climate change abatement and emissions reduction.⁵⁰¹ The General Law on Climate Change is thus vitally important in order for Mexico to reach its emissions reductions goals, as it provides certainty and continuity to the nation's climate change policy and allows for the establishment of legal frameworks and institutions to set the country on a path towards a low carbon economy.⁵⁰² The National Climate Change Strategy was adopted in July 2013, which expands on the actions that need to be taken to reduce emissions up until 2040. The strategy centres on climate change and the reduction of GHG emissions, focusing on reducing the nation's vulnerability to climate change, the transition towards sustainable city models and renewable energy sources, and a move towards a low

⁴⁹⁸ Goitom H "South Africa: Carbon-Tax Legislation Proposed" <http://www.loc.gov/law/foreign-news/article/south-africa-carbon-tax-legislation-proposed/> (Date of use: 12 December 2016).

⁴⁹⁹ "South Africa's Intended Nationally Determined Contribution: Discussion Document" https://www.environment.gov.za/sites/default/files/docs/sanational_determinedcontribution.pdf (Date of use: 8 October 2018).

⁵⁰⁰ "South Africa's Intended Nationally Determined Contribution: Discussion Document" https://www.environment.gov.za/sites/default/files/docs/sanational_determinedcontribution.pdf (Date of use: 8 October 2018).

⁵⁰¹ Dahan L et al "Mexico: An emissions trading case study" http://www.ieta.org/resources/Resources/Case_Studies_Worlds_Carbon_Markets/mexico_case_study_may2015.pdf (Date of use: 11 March 2017).

⁵⁰² Nachmany *et al* "Climate change legislation in Mexico: An excerpt from the 2015 Global Climate Legislation Study" 2015 *Grantham Research Institute on Climate Change and the Environment* 6.

carbon environment.⁵⁰³ In achieving this, the strategy also reiterates and reinforces the Mexican government's ambitious GHG reduction targets outlined above.⁵⁰⁴

Mexico's National Development Plan (2013-2018) is intended to reinforce the above climate change policy, and aims to decarbonise the Mexican economy whilst maintaining its competitiveness and economic resilience.⁵⁰⁵ In South Africa, the National Development Plan of 2012 mandates similar goals and reinforces the international commitments made under the Paris Agreement.⁵⁰⁶ South Africa's 2030 National Development Plan reinforces this and is focused on building environmental resilience and sustainability, educating people on climate change, and building the resilience of South Africa's economy to climate change.⁵⁰⁷ The Special Programme on Climate Change is to run during this same time period, and provides for the establishment of goals, targets, and certain methods for achieving these climate change objectives.⁵⁰⁸

It can be argued that Mexico has established itself as an international leader in the mitigation of GHG emissions and the resultant climate change, leading the developing world in adopting policies, practices, taxes and various pieces of legislation to ultimately promote a greener, low carbon economy that takes into account the constitutional right to a clean and healthy environment and also promotes sustainable development.⁵⁰⁹ In order to further promote the polluter pays principle as an internationally recognised cornerstone of environmental law, the

⁵⁰³ Nachmany *et al* "Climate change legislation in Mexico: An excerpt from the 2015 Global Climate Legislation Study" 2015 *Grantham Research Institute on Climate Change and the Environment* 2 – 3.

⁵⁰⁴ Nachmany *et al* "Climate change legislation in Mexico: An excerpt from the 2015 Global Climate Legislation Study" 2015 *Grantham Research Institute on Climate Change and the Environment* 3.

⁵⁰⁵ Nachmany *et al* "Climate change legislation in Mexico: An excerpt from the 2015 Global Climate Legislation Study" 2015 *Grantham Research Institute on Climate Change and the Environment* 3.

⁵⁰⁶ "South Africa's Intended Nationally Determined Contribution: Discussion Document" https://www.environment.gov.za/sites/default/files/docs/sanational_determinedcontribution.pdf (Date of use: 8 October 2018).

⁵⁰⁷ National Development Plan, 2030.

⁵⁰⁸ Nachmany *et al* "Climate change legislation in Mexico: An excerpt from the 2015 Global Climate Legislation Study" 2015 *Grantham Research Institute on Climate Change and the Environment* 6.

⁵⁰⁹ Gerrard MB & Siders A "Mexico's general climate change law" 2012 *The Mexico – US Climate Law Network* 85

Mexican Government introduced a carbon tax in 2012.⁵¹⁰ This tax will be examined below, as well its prospects of success and how it compares to the proposed carbon tax in South Africa.

5.5.3 Mexico's legislative and policy reforms and the introduction of the carbon tax in Mexico

Mexico has undergone significant environmental tax reform since the General Law on Climate Change was promulgated in 2012.⁵¹¹ Following amendments made to the Special Tax Law on Production and Services in 2012 that allowed for the introduction of a carbon tax in Mexico, the environmental tax reform was set in motion as part of the broader set of policy changes (as outlined above).⁵¹² The tax was initially imposed on all fossil fuels sales, as well as imports by producers and manufacturers, and was capped at a maximum of 3% of the total sales price of the fossil fuel in question.⁵¹³ Instead of charging for the full environmental cost of the carbon content of these fuels, legislation taxed the emissions generated over and above those that would have been generated had natural gas been used instead.⁵¹⁴

In October 2013, the Mexican Congress received a proposal for a carbon tax to be levied on fossil fuel production as well as on sales and imports. Following approval of the Bill in that same October, Mexico established a voluntary carbon trading scheme, giving firms greater means to comply with the new legislation.⁵¹⁵ This voluntary trading scheme was established in terms of the General Climate Change

⁵¹⁰ Nachmany *et al* "Climate change legislation in Mexico: An excerpt from the 2015 Global Climate Legislation Study" 2015 *Grantham Research Institute on Climate Change and the Environment* 10.

⁵¹¹ Arlinghaus A & van Dender K "The environmental tax and subsidy reform in Mexico" 2017 *OECD Taxation Working Papers* 11.

⁵¹² Nachmany *et al* "Climate change legislation in Mexico: An excerpt from the 2015 Global Climate Legislation Study" 2015 *Grantham Research Institute on Climate Change and the Environment* 10.

⁵¹³ Nachmany *et al* "Climate change legislation in Mexico: An excerpt from the 2015 Global Climate Legislation Study" 2015 *Grantham Research Institute on Climate Change and the Environment* 10.

⁵¹⁴ Natural gas has certain distinct advantages over other energy forms, such as crude oil and coal, in that it removes the dangers of carbon monoxide build up and the burning thereof sends on average 25% more CO₂ into the atmosphere than oil. It is thus cleaner and as a result is not subject to the same taxation regimes as other energy forms which, as has been noted above, produce massive amounts of CO₂ (as per Hecht A "Crude Oil versus Natural Gas: Competing Energy" <https://www.thebalance.com/crude-oil-versus-natural-gas-competing-energy-markets-808876> (Date of use: 20 August 2018)).

⁵¹⁵ Dahan L *et al* "Mexico: An emissions trading case study" http://www.ieta.org/resources/Resources/Case_Studies_Worlds_Carbon_Markets/mexico_case_study_may2015.pdf (Date of use: 11 March 2017).

Law, and entails the provision of carbon credits to firms that develop and advance environmentally beneficial projects in Mexico. The credits earned through this scheme can then be used to offset and, to some extent, neutralise the costs incurred as a result of complying with the new carbon tax.⁵¹⁶ In November 2016, Mexico also launched a program called MEXICO2, a voluntary carbon market simulation designed to assist companies in familiarising themselves with the form and function of carbon trading. As no real emissions will be traded, this is purely a teaching exercise. The viability and value of the simulation has been boosted by the participation of Mexico's state-owned oil and electricity firms (two of the largest emitters of CO₂ and other pollutants in the country).⁵¹⁷

5.5.3.1 Carbon tax rate

The carbon tax rate initially put forward was in line with the level of carbon pricing in markets in Europe and the United States. This was significantly altered before the tax was introduced, and fossil fuel emissions are now taxed at rates much lower than those contained in the initial proposal.⁵¹⁸ At present, the carbon tax rate is at \$3.50 per ton of CO₂ emissions.⁵¹⁹ When converting to South African Rands, this equates to a similar rate to that proposed in the Draft Bill (between R6 and R48 per ton of emissions).

By introducing a carbon tax, Mexico has taken a significant step towards reaching its international commitments under the Paris Agreement. While this should assist Mexico in mitigating and adapting to climate change and air pollution, there are a number of issues with the tax itself. These will be examined below.

⁵¹⁶ Altamirano J & Martinez J "Mexico's 3 big steps towards comprehensive carbon pricing" <http://www.wri.org/blog/2017/04/mexicos-3-big-steps-towards-comprehensive-carbon-pricing> (Date of use: 4 September 2017).

⁵¹⁷ Altamirano J & Martinez J "Mexico's 3 big steps towards comprehensive carbon pricing" <http://www.wri.org/blog/2017/04/mexicos-3-big-steps-towards-comprehensive-carbon-pricing> (Date of use: 4 September 2017).

⁵¹⁸ Arlinghaus A & van Dender K "The environmental tax and subsidy reform in Mexico" 2017 *OECD Taxation Working Papers* 16.

⁵¹⁹ Altamirano J & Martinez J "Mexico's 3 big steps towards comprehensive carbon pricing" <http://www.wri.org/blog/2017/04/mexicos-3-big-steps-towards-comprehensive-carbon-pricing> (Date of use: 4 September 2017).

5.5.4 Issues with Mexico's carbon tax and exemptions

In terms of the relevant legislation, natural gas is exempt from the carbon tax as it is viewed as being the cleanest fossil fuel available in Mexico.⁵²⁰ This dilutes the potential effectiveness of the carbon tax as 45% of Mexico's energy comes from natural gas, while the CO₂ emissions from energy sources powered by natural gas are not significantly lower than those from other sources.⁵²¹ Additionally, outside of road transport, Mexico's carbon tax remains the only tax that is applicable to the use of fossil fuels. This presents an issue as the tax prices GHG emissions at relatively low and modest rates, meaning that the tax rates are insufficient to adequately force polluters to internalise the costs of energy use that are ultimately placed on society rather than polluters themselves. This indicates poor enforcement of the polluter pays principle and means that the tax is not sending meaningful price signals to the market to properly mitigate GHG emissions in accordance with international and local policy.⁵²²

As noted above, Mexico's CO₂ tax rate is just \$3.50 per ton of emissions. A recent study found that if the tax were set at \$15 per ton, Mexico would meet just 12% of its reduction targets under the Paris Agreement and its NDC.⁵²³ This is vastly below the targets set by Mexico, and means that the tax will need to be markedly increased in the near future if the nation is to have any meaningful prospects of meeting its targets. It is also trite that one of the primary impediments to successful implementation of a carbon tax (in any country) is the potentially adverse economic effects, including decreased social welfare and decreased economic outputs.⁵²⁴ However, most empirical studies to date fail to take into account the benefits of reducing climate change when introducing a carbon tax, meaning that the majority of findings are that carbon taxes cause economies to decline, reducing gross domestic product (GDP), household welfare and international trade competitiveness

⁵²⁰ Arlinghaus A & van Dender K "The environmental tax and subsidy reform in Mexico" 2017 *OECD Taxation Working Papers* 11.

⁵²¹ Arlinghaus A & van Dender K "The environmental tax and subsidy reform in Mexico" 2017 *OECD Taxation Working Papers* 16.

⁵²² Arlinghaus A & van Dender K "The environmental tax and subsidy reform in Mexico" 2017 *OECD Taxation Working Papers* 17.

⁵²³ Altamirano J & Martinez J "Mexico's 3 big steps towards comprehensive carbon pricing" <http://www.wri.org/blog/2017/04/mexicos-3-big-steps-towards-comprehensive-carbon-pricing> (Date of use: 4 September 2017).

⁵²⁴ Timilsina G "Where is the carbon tax after 30 years of research?" 2018 *World Bank* 26.

in the process.⁵²⁵ These negative effects are, however, reduced significantly when the numerous benefits of introducing a carbon tax are considered, such as the reduction of GHG emissions and local environmental pollution and the resultant improvement of overall health and wellness levels, amongst others.⁵²⁶

5.5.5 Mexico's carbon tax and the polluter pays principle

It is thus apparent that the Mexican carbon tax does not reflect the true underlying carbon content of the fossil fuels being used in energy production. This results in polluters not being made to take into account the external costs associated with energy production, and essentially means that the reduction of GHG emissions is likely to be inadequate for purposes of Mexico meeting the international commitments it has made under the Paris Agreement (as outlined earlier).⁵²⁷ The polluter pays principle, therefore, is not being given effect to in Mexico. This is further exacerbated by potential issues inherent to the General Law on Climate Change. One such example is that, if Mexico is to reach its ambitious targets under this legislation, they will require substantial international funding, as has been provided for in the UNFCCC and the various funds established by parties to the UNFCCC.⁵²⁸ It follows that, without this funding, effective implementation and enforcement may be lacking and will thus dilute the efficiency and impact the new laws (and the associated carbon tax) will have on reducing GHG emissions.⁵²⁹

South Africa, as a fellow developing nation reliant on coal for power and on the cusp of introducing its own carbon tax, could thus learn some valuable lessons from Mexico's approach to reducing CO₂ emissions. It is important to note that South Africa can learn such lessons from Mexico's successes (such as the voluntary emissions trading scheme) and failures (such as the tax rate being too low) in implementing the proposed carbon tax.

⁵²⁵ Timilsina G "Where is the carbon tax after 30 years of research?" 2018 *World Bank* 27.

⁵²⁶ Timilsina G "Where is the carbon tax after 30 years of research?" 2018 *World Bank* 30.

⁵²⁷ Arlinghaus A & van Dender K "The environmental tax and subsidy reform in Mexico" 2017 *OECD Taxation Working Papers* 23.

⁵²⁸ UNFCCC "Climate Finance" <https://unfccc.int/topics/climate-finance/the-big-picture/climate-finance-in-the-negotiations> (Date of use: 30 October 2018).

⁵²⁹ Dahan L *et al* "Mexico: An emissions trading case study" http://www.ieta.org/resources/Resources/Case_Studies_Worlds_Carbon_Markets/mexico_case_study_may2015.pdf (Date of use: 11 March 2017).

5.6 Summary and conclusion

Although South Africa's proposed carbon tax does differ from Mexico's in some respects, the basic premise remains the same and some comparisons can be made in this regard.

It is important to note that the selection of a carbon tax, rather than a cap and trade system, means that administration will be easier and collection of the tax simplified. In developing countries and emerging markets this stands out as the main advantage of a carbon tax, and it therefore appears that both Mexico and South Africa have, on the face of it, made the correct choice in this regard.⁵³⁰ Additionally, it is clear that the Mexican government is taking meaningful steps and making a concerted effort to give effect to the environmental right contained in their constitution, as well as to comply with international obligations and commitments made under the Paris Agreement. The South African government is showing similar initiative with the publication of the Draft Carbon Tax Bill, as well as the Draft Climate Change Bill⁵³¹. However, the fact that the implementation of the Draft Bill has been significantly delayed (largely due to lobbying from major polluters) is concerning for South Africa's prospects of properly meeting international obligations within the required time frame.⁵³²

⁵³⁰ Arlinghaus A & van Dender K "The environmental tax and subsidy reform in Mexico" 2017 *OECD Taxation Working Papers* 2.

⁵³¹ The first draft of this Bill was published on 8 June 2018, with a national road show to elicit comments from stakeholders following for the ensuing months.

⁵³² Gardener W & Penn N "South Africa delays implementation of carbon tax and carbon reporting" <http://www.ey.com/gl/en/services/tax/international-tax/alert--south-africa-delays-implementation-of-carbon-tax-and-carbon-reporting> (Date of use: 4 September 2017).

CHAPTER 6: SUMMARY, RECOMMENDATIONS AND CONCLUDING REMARKS

6.1 Summary

The purpose of this study was, firstly, to examine South Africa's command-and-control mechanisms for environmental compliance and enforcement. In looking at these, it was confirmed that environmental enforcement is inadequately addressed in South Africa.⁵³³ This is attributable to the inherent shortcomings of command-and-control approaches, including that they offer little to no flexibility and do not provide meaningful incentives for firms to modify their behaviour and reduce their GHG emissions.⁵³⁴ Further, the criminal sanction (as South Africa's primary enforcement mechanism) is fraught with weaknesses, particularly insofar as the prosecution of environmental crimes is concerned.⁵³⁵ Similarly, alternative command-and-control measures (i.e. civil and administrative mechanisms) suffer from their own set of pitfalls, and inadequate enforcement of environmental rules and regulations by the EMI (the primary environmental protection agency in South Africa) means that the issue of air pollution is not properly addressed. Negative externalities caused by excessive CO₂ emissions are borne by people who did not create the pollution, resulting in the all-important polluter pays principle not being given effect to.⁵³⁶ The underlying concept of sustainable development, as contained in NEMA and initially defined on a global level in the *Brundtland Report*, is therefore being neglected in such a scenario.

As a signatory to the Paris Agreement, and with a commitment to reduce GHG emissions substantially by 2025, South Africa has indicated that it has intentions to

⁵³³ Kidd M "Some thoughts on statutory directives addressing environmental damage in South Africa" 2003 *SAJELP* 201.

⁵³⁴ "Command-and-control regulation" <https://www.khanacademy.org/economics-finance-domain/microeconomics/consumer-producer-surplus/environmental-regulation/a/command-and-control-regulation-cnx> (Date of use: 5 May 2017).

⁵³⁵ Kidd M *Environmental Law* 2nd ed (Juta 2011) 270. As indicated above, the 2014/15 National Environmental Compliance and Enforcement Report showed that 2019 criminal dockets were registered, and 257 cases were handed over to the NPA. The NPA declined to prosecute 24 of these, 15 resulted in plea bargains being reached, 6 resulted in acquittals, and there were just 65 convictions. Just 100 section 24G administrative fines were paid, with a total value of just over R14 million.

⁵³⁶ Altona T et al "Introducing carbon taxes in South Africa" 2013 *Elsevier* 1.

become a world player in global climate change mitigation.⁵³⁷ This efficacious climate change response is reaffirmed in the National Climate Change Response Policy, and highlights the need to move towards a low carbon society.⁵³⁸ However, given South Africa's poor environmental enforcement and compliance regime, these international commitments are not likely to be achieved in the prescribed time period. Given the ineffectiveness of the current environmental enforcement regime, the study went on to examine the potential that market-based mechanisms have to better hold major air polluters accountable, as these measures are regulated by industry rather than the state.⁵³⁹ They create financial incentives for firms to reduce GHG emissions in their own interests, thereby internalising any economic externalities caused by air pollution and shifting the burden back onto the polluter. They allow for greater flexibility and, if properly implemented, more efficient emissions reduction.⁵⁴⁰ Thus, in conducting research on market-based mechanisms, it was shown that they differ from command-and-control measures in many respects, and ultimately have great potential to better hold polluters responsible.

A carbon tax, to be levied on Source 1 emissions, has been preferred over a cap-and-trade system by the South African government. Reflected in the Draft Carbon Tax Bill, the tax is aimed at promoting enforcement of the polluter pays principle, meeting global climate change commitments, improving South Africa's social, economic and environmental resilience, and assisting the economy in following a path of sustainable growth.⁵⁴¹ This is in accordance with the environmental right in Section 24 of the Constitution, as well as international commitments and the National Climate Change Response Policy. The carbon tax is likely to promote investment in new technologies, greener business models, and ultimately better hold major air polluters (particularly Sasol and Eskom, amongst others) accountable

⁵³⁷ "South Africa's Road to COP21 and the 2015 Climate Deal" <http://businessmediamags.co.za/south-africas-road-to-cop21-and-the-2015-climate-deal/> (date of use: 22 April 2017).

⁵³⁸ National Climate Change Response Policy White Paper of 2012, 5.

⁵³⁹ Lehmann K "Voluntary Compliance Measures" in *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009) 298.

⁵⁴⁰ Center for Climate and Energy Solutions "Market mechanisms: Understanding the options" <http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017).

⁵⁴¹ Preamble to the Draft Carbon Tax Bill, 2015.

for their GHG emissions. The gradual phasing in of the tax, including the provision of numerous tax-free allowances, will allow for a smooth transition to a greener, low-carbon economy.⁵⁴² Furthermore, the revenue neutral nature of the tax for five years following its implementation means that the money collected will go towards reducing electricity prices in poorer households, giving rebates to firms that use renewable energy and invest in new technologies, as well as providing tax incentives for firms saving energy and polluting less.⁵⁴³ Thus, a carbon tax is likely to result in greater enforcement of the polluter pays principle, promote sustainable development in accordance with Section 24(b)(iii) of the Constitution, and ultimately assist South Africa in combating climate change in accordance with international commitments and obligations. However, as with any tax of this nature, there will be opposition. Furthermore, implementing such a tax in a developing country is especially difficult. To expand on this, the study investigated Mexico's carbon tax regime in an attempt to elaborate on any lessons South Africa can learn in this regard.

It appears from the research conducted that, by selecting a carbon tax over a cap-and-trade system, both South Africa and Mexico have made the sensible choice. Carbon taxes are generally easier to administer, and collection of the tax is simplified. In Mexico, the tax has been introduced at a very low rate, as is proposed in South Africa. This rate is, by any international standard, insufficient if Mexico is to meet its own targets set under the Paris Agreement, and South Africa should thus aim to better reflect the underlying costs of pollution when implanting the carbon tax. In terms of gradually introducing companies to the tax, as well as preparing them for it, Mexico introduced a voluntary carbon trading simulation, as well as a voluntary carbon trading scheme. This scheme allows for carbon credits to be granted to firms that have invested in environmentally beneficial projects, allowing them to offset and, in some cases, neutralise the costs associated with the carbon tax.⁵⁴⁴ No such carbon trading scheme is included in the Draft Carbon Tax Bill, which may dilute its effectiveness to some extent.

⁵⁴² Draft Memorandum for the Carbon Tax Bill 2015, 4.

⁵⁴³ Draft Memorandum for the Carbon Tax Bill 2015, 4.

⁵⁴⁴ Altamirano J & Martinez J "Mexico's 3 big steps towards comprehensive carbon pricing" <http://www.wri.org/blog/2017/04/mexicos-3-big-steps-towards-comprehensive-carbon-pricing> (Date of use: 4 September 2017).

6.2 Recommendations

Considering the above, certain recommendations can be made regarding South Africa's proposed implementation of a carbon tax. While the study is somewhat limited as the carbon tax has not yet been introduced in South Africa, certain observations can be made as to its impact and effectiveness in a developing country by looking at the situation in Mexico.

If and when South Africa's carbon tax is finally implemented, it should aim to better reflect the underlying cost of the carbon content of fossil fuels in order to properly harness the potential power of market-based mechanisms for purposes of pollution control. This includes giving polluters the flexibility as to how much they wish to reduce their emissions by (accompanied by a proportional financial benefit), as well as encouraging polluters to develop and adopt new technologies in their own interests.⁵⁴⁵ By doing this, the full social cost is incorporated into the price of energy production, eliminating any negative environmental externalities and better enforcing the polluter pays principle. Further, if either of these nations are to meet international obligations and commitments, the tax rate would need to properly encompass all costs associated with energy production through the use of fossil fuels.⁵⁴⁶

Thus, to be effective, Mexico will need to gradually increase its carbon tax rate to fall in line with international standards. South Africa may need to re-evaluate its tax rate to incorporate all costs associated with CO₂ emissions. It is imperative that South Africa's carbon tax be set high enough to internalise the costs of emissions, while ensuring that economic growth is not unduly hampered and further preventing any increase in the cost of living. Provided that the tax revenue goes towards reducing electricity prices and providing rebates and tax incentives to polluters, this is feasible for South Africa.⁵⁴⁷ By introducing the carbon tax at a low rate (as is proposed in South Africa), the stage has been set for future increases. Gradual increases in the carbon tax may present many benefits, most notably higher tax

⁵⁴⁵ Zhang B "Market-based solutions: An appropriate approach to resolve environmental problems" 2013 *Chinese Journal of Population Resources and Environment* 87.

⁵⁴⁶ Arlinghaus A & van Dender K "The environmental tax and subsidy reform in Mexico" 2017 *OECD Taxation Working Papers* 23.

⁵⁴⁷ As noted above, this is not yet ring fenced and should be done so before implementation of the proposed carbon tax.

revenues that can go towards reducing electricity prices in poor and vulnerable households, giving rebates to firms using renewable energy sources, and providing tax incentives to polluters modifying and improving production methods. This is in line with the Draft Carbon Tax Bill⁵⁴⁸, and bodes well for the possibility of the successful introduction of the carbon tax in South Africa. A further benefit of gradually increasing the tax rate is that, if planned increases are announced well before they take effect, firms would be given ample opportunity to modify their behaviour and thus adapt while the tax rate is comparatively low.⁵⁴⁹

South Africa could benefit significantly from the introduction of a voluntary carbon trading simulation, as Mexico has, to reduce political, social and economic resistance to the implementation of the tax. This may also increase certainty regarding the proposed tax and the economic impacts it is likely to have, and thus provide for greater support from major players in the fossil fuels industry, as well as from society as a whole.⁵⁵⁰ Such an exercise is also likely to assist government in drafting clear and concise rules and regulations relating to the carbon tax and its accompanying market, as well as result in quicker implementation of the tax. If successful, this has the potential to set a powerful example for other developing countries to follow suit and make increased efforts to combat global climate change.⁵⁵¹ South Africa, like Mexico, may require foreign assistance to develop and implement new technology and additional resources in order to achieve international commitments.⁵⁵² Such funding is available through the GCF, GEF and various funds

⁵⁴⁸ Draft Memorandum for the Carbon Tax Bill 2015, 4.

⁵⁴⁹ Arlinghaus A & van Dender K "The environmental tax and subsidy reform in Mexico" 2017 *OECD Taxation Working Papers* 23.

⁵⁵⁰ Altamirano J & Martinez J "Mexico's 3 big steps towards comprehensive carbon pricing" <http://www.wri.org/blog/2017/04/mexicos-3-big-steps-towards-comprehensive-carbon-pricing> (Date of use: 4 September 2017).

⁵⁵¹ Altamirano J & Martinez J "Mexico's 3 big steps towards comprehensive carbon pricing" <http://www.wri.org/blog/2017/04/mexicos-3-big-steps-towards-comprehensive-carbon-pricing> (Date of use: 4 September 2017).

⁵⁵² Dahan L et al "Mexico: An emissions trading case study" http://www.ieta.org/resources/Resources/Case_Studies_Worlds_Carbon_Markets/mexico_case_study_may2015.pdf (Date of use: 11 March 2017). It may be necessary for external (foreign) funding to be obtained in order to enable developing nations to effectively implement a carbon tax, particularly when it comes to funding for technical support. Developed nations have the technological and monetary capacity to lead the required investment, and leadership from decision makers in such nations is vital to ensure that the necessary funding and technological support reaches developing countries that are aiming to meet international climate change commitments (as per Anandarajah G *et al* "Carbon tax vs. Cap-and-trade: Implications on developing countries emissions" *UCL Energy Institute*

established by parties to the UNFCCC. The extent of the required funding remains to be seen and will need to be determined sometime after the carbon tax takes effect in South Africa.

On a localised basis, there are other recommendations (based on the Draft Carbon Tax Bill and current format of the tax) that can be made to assist in the successful introduction of the carbon tax. Firstly, implementation of the tax is dependent on proper and accurate monitoring, reporting and verifying of emissions by the DEA and DoE, as well as accurate tax liability assessments by SARS. To ensure proper administration of the tax, existing monitoring and evaluation processes need to be significantly improved.

Secondly, simplifying the tax when presenting it to the public is vital for purposes of certainty, trust, and improving peoples' understanding of the necessity for climate change mitigation measures to be adopted as a matter of urgency. It can also be argued that, by introducing a carbon trading scheme together with the tax, firms will be able to offset the costs of the tax and effectively become carbon neutral. This provides a massive incentive for polluters to invest in new low-carbon technologies, modify pollution habits, and ultimately reduce pollution in their own financial interests. While the Draft Carbon Tax Bill makes brief mention of offsets, there is no concrete carbon trading scheme put in place and the legislature would perhaps be wise to include such a scheme. By providing for offsets and carbon neutrality, South Africa would be following the protocols under the UNFCCC, thereby promoting international recognition and acceptance.⁵⁵³

In terms of addressing issues raised through the public comment process, such as the possibility of double taxation, whether the tax will be tax deductible for purposes of income tax, and the fact that the Draft Bill does not confirm the revenue-neutral nature of the tax, many steps have already been taken in analysing the comments

553 11). This is supported by a finding made by parties to the UNFCC, who requested in 2007 that the UNFCC Secretariat analyse and assess the investment flows required to combat climate change as effectively as possible, with specific focus on the needs of developing nations (as per Marshall F *et al* "Climate change and international investment agreements: Obstacles or opportunities?" 2010 *International Institute for Sustainable Development* 14).
Duvenage W "Submission on proposed Carbon Tax Bill (2017)" <https://www.oua.co.za/wp-content/uploads/2016/09/OUTAs-Submission-Carbon-Tax.pdf> (Date of use: 5 September 2017).

to mitigate and eliminate these issues. This issue can be solved by including a provision in subsequent Draft Bills that effectively and transparently confirms the revenue-neutral nature of the proposed carbon tax, as well as through developing clear guidelines which dictate how the revenue generated by the carbon tax will be used to ensure improved environmental quality and better energy management.⁵⁵⁴

The second Draft Carbon Tax Bill took into account these public comments, in accordance with the procedure for introducing a Money Bill under Section 77 of the Constitution, and aims to alleviate the concerns raised.

6.3 Concluding remarks

To conclude, the proposed carbon tax undoubtedly has the potential to better hold major air polluters responsible for their CO₂ and other GHG emissions. This is a notion demonstrated by Mexico's adoption of such a tax, amongst other innovative and forward-thinking climate change mitigation policies adopted by the Latin American nation.

It is imperative that the South African government passes the Draft Carbon Tax Bill (albeit modified to reflect the above and other improvements), so that it may take effect as the Carbon Tax Act and thus begin the daunting but ultimately vital road towards meeting international climate change agreements and combating global warming. This must be done in conjunction with the Draft Climate Change Bill, passed in June 2018 and aimed at establishing an effective and well-coordinated framework for the mitigation of potentially devastating anthropogenic climate change.⁵⁵⁵ The implementation of the proposed carbon tax is highly desirable as the Carbon Tax Act will aid (in a least cost manner) in lowering GHG emissions, and will help to ensure that South Africa meets the international commitments it has made, as discussed above. As noted earlier, the Carbon Tax Bill was tabled in the National Assembly and is intended to take effect from 1 June 2019, with the tax rate remaining at R120 per ton of CO₂. The likelihood of the carbon tax being as effective

⁵⁵⁴ First Draft Carbon Tax Bill 2015: Response Document, December 2017, 4.

⁵⁵⁵ Christie C & Pillay D "Feeling the heat: the draft Climate Change Bill, 2018" <https://www.ensafrica.com/news/Feeling-the-heat-the-draft-Climate-Change-Bill-2018?Id=3174&STitle=natural%20resources%20and%20environment%20ENSight> (Date of use: 30 September 2018).

as it needs to be with this tax rate is low, however the full extent of this can only be determined once the tax has been operational for some time.⁵⁵⁶

It is now common knowledge that humans are effectively destroying the very means by which life is sustained. Advocating for, implementing and ultimately ensuring environmentally sustainable growth is no longer an option and, unless we have already left it too late, must be achieved in a relatively short time-frame if we are to prevent disastrous climate change from occurring. The proposed carbon tax, while unable to achieve this on its own, is a good place to start and must be utilised in conjunction with the Draft Climate Change Bill to effectively and efficaciously bring about the required change.

⁵⁵⁶ First Draft Carbon Tax Bill 2015: Response Document, December 2017, 7.

BIBLIOGRAPHY

Journal Articles

A

Altona T *et al* "Introducing carbon taxes in South Africa" 2013 *Elsevier* 1 – 26.

Anandarajah G *et al* "Carbon tax vs. Cap-and-trade: Implications on developing countries emissions" *UCL Energy Institute* 1-14.

Aneiros C & Pasquel AC "Environmental law and practice in Mexico: overview" 2015 *Environmental Global Guide* 1 – 16.

Arlinghaus A & van Dender K "The environmental tax and subsidy reform in Mexico" 2017 *OECD Taxation Working Papers* 1 – 23.

Avi-Yonah S & Uhlmann DM "Combating global climate change: Why a carbon is a better response to global warming than cap and trade" 2009 *Stanford Environmental Law Journal* 3 – 50.

Aviles LA "Sustainable development and environmental legal protection in the European Union: A model for Mexican courts to follow?" 2014 *Mexican Law Review* 251 – 272.

B

Barnard M "Koolstofbelasting as voorgestelde ekologiese fiskale hervormingsmaatregel in Suid-Afrika" 2016 *LitNes Akademies* 800 – 826.

Blackmore A "The relationship between the NEMA and the public trust doctrine: The importance of the NEMA principles in safeguarding South Africa's biodiversity" 2015 *South African Journal of Environmental Law and Policy* 1-30.

Blignaut JN & Heymann EF "Development and the environment: Some basis issues" 1998 *SAJE* 1-9.

C

Cordato RE "The polluter pays principle: A proper guide for environmental policy" 2001 *IRET* 1-15.

Czarnecki J "The neo-liberal turn in environmental regulation" 2016 *Pace Law Faculty Publications* 12-40.

D

De Wet E & du Plessis A "The meaning of certain substantive obligations distilled from international human rights instruments for constitutional environmental rights in South Africa" 2010 *African Human Rights Law Journal*.

Dinku T & Alamirew A "External Factors Affecting Voluntary Taxpayers Compliance" 2018 *Journal of Business and Financial Affairs* 1 - 5.

F

Feris LA "Compliance notices – A new tool in environmental enforcement" 2006 *PER* 53 – 66.

Feris LA "The role of good environmental governance in the sustainable development of South Africa" 2010 *PELJ* 73-100.

Fourie M "How civil and administrative penalties can change the face of environmental compliance in South Africa" 2009 *SAJELP* 1 – 25.

G

Gerrard MB & Siders A "Mexico's general climate change law" 2012 *The Mexico – US Climate Law Network* 85 – 87.

Gilder A "To Tax or Trade (or Both or Neither)? The Confusing South African Status Quo on Carbon Taxation and Emissions Trading" 2012 *CCLR* 358 – 364.

Golafshani N "Understanding reliability and validity in qualitative research" 2003 *The Qualitative Report* 597 – 606.

Goulder LH and Schein AR "Carbon taxes vs cap and trade: A critical review" 2013 *Climate Change Economics* 1 – 28.

Gonzalez T & Saarman G "Regulating pollutants, negative externalities, and good neighbour agreements: Who bears the burden of protecting communities?" 2014 *Ecology Law Quarterly* 37-79

J

Joseph S "The polluter pays principle and land remediation: A comparison of the United Kingdom and Australian approaches" 2014 *Australian Journal of Environmental Law* 24 – 36.

K

Kalaskar BS "Traditional Knowledge and Sui Generis Law" 2012 *International Journal of Scientific and Engineering Research* 1 – 8.

Kates RW, Parris TM and Leiserowitz AA "What is sustainable development? Goals, indicators, values and practice" 2016 *Environment* 1-13.

Kelly FJ & Fussell JC "Air pollution and public health: emerging hazards and improved understanding of risk" 2015 *Environ Geochem Health* 631 – 649.

Khan MR "Polluter-pays principle: The cardinal instrument for addressing climate change" 2015 *Laws* 638 – 653.

Kidd M "Some thoughts on statutory directives addressing environmental damage in South Africa" 2003 *SAJELP* 201 – 211.

Kidd M "Public interest environmental litigation: recent cases raise possible obstacles" 2010 *PER* 27-46.

Kotze LJ "The Constitutional Court's contribution to sustainable development in South Africa" *PER* 2003 (6) 81-95.

L

Lor P "Methodology in comparative studies" 2011 *International and Comparative Librarianship* 1 – 21.

Luppi B, Parisi F and Rajagopalan S "The rise and fall of the polluter-pays principle in developing countries" 2012 *International Review of Law and Economics* 135 – 144.

M

Marshall F *et al* "Climate change and international investment agreements: Obstacles or opportunities?" 2010 *International Institute for Sustainable Development* 1 – 86.

Metcalf GE & Weisbach D *The design of a carbon tax* (Harvard Environmental Law Review 2009) 500 – 556.

Milton J "Sharpening the dog's teeth: Of NEMA and criminal proceedings" 1999 *SAJELP* 53 – 60.

Montelongo I & Gonzalez JJ "Recent Progress in the Development of Mexican Environmental Law" *IUCNAEL EJournal* 213 – 223.

Moffet J and Bregha F "The role of law in the promotion of sustainable development" 1996 *Journal of Environmental Law and Practice*.

N

Nachmany *et al* "Climate change legislation in Mexico: An excerpt from the 2015 Global Climate Legislation Study" 2015 *Grantham Research Institute on Climate Change and the Environment* 1 – 13.

P

Patton MQ "Enhancing the quality and credibility of qualitative analysis" 1999 *HSR* 1189 – 1208.

Pineiro-Chousa J *et al* "Managing reputational risk through Environmental Management and Reporting: An Options Theory approach" 2017 *Sustainability* 1-15.

R

Rajamani L "Ambition and differentiation in the 2015 Paris agreement: Interpretative possibilities and underlying politics" 2016 *British Institute of International and Comparative Law*.

S

Savaresi A "The Paris agreement: A new beginning?" 2015 *Journal of Energy & Natural Resources Law* 7.

Scholtz W "The anthropocentric approach to sustainable development in NEMA and the Constitution" 2005 *TSAR* 69 – 85.

Shirk DA "Justice Reform in Mexico: Change and Challenges in the Judicial Sector" 2010 *Woodrow Wilson International Centre for Scholars*.

Solomon S et al "Irreversible climate change due to carbon dioxide emissions" 2009 *PNAS* 1704 – 1709.

Soltau F "The National Environmental Management Act and liability for environmental damage" 1999 *SAJELP* 33 – 51.

Sultan B "Global warming threatens agricultural productivity in Africa and South Asia" 2012 *Environmental Research Letters* 1 – 4.

T

Timilsina G "The role of revenue recycling schemes in environmental tax selection: A general equilibrium analysis" 2007 *The World Bank Development Research Group* 1 – 50.

Timilsina G "Where is the carbon tax after 30 years of research?" 2018 *World Bank* 1 – 86.

W

Watson M "The enforcement of environmental law: civil or criminal penalties?" 2005 *ELM* 3 – 6.

Whittemore R, Chase SK and Mandle CL "Validity in qualitative research" 2001 *Qualitative Health Research* 522 – 537.

Z

Zhang B "Market-based solutions: An appropriate approach to resolve environmental problems" 2013 *Chinese Journal of Population Resources and Environment* 87 – 91.

Internet Sources

A

Abdulrahim W "A State as a Subject of International Law"
<https://sites.google.com/site/walidabdulrahim/home/my-studies-in-english/5-a-state-as-a-subject-of-international-law> (Date of use: 27 February 2018).

Altamirano J & Martinez J "Mexico's 3 big steps towards comprehensive carbon pricing"
<http://www.wri.org/blog/2017/04/mexicos-3-big-steps-towards-comprehensive-carbon-pricing> (Date of use: 4 September 2017).

"Air pollution – crossing borders"
<https://www.thelancet.com/action/showPdf?pii=S0140-6736%2816%2931019-4>
(Date of use: 30 October 2018).

B

Benjamin C "South Africa comes last in sustainable development index"
<https://mg.co.za/article/2013-09-20-00-south-africa-comes-last-in-sustainable-development-index> (Date of use: 25 April 2018).

BusinessTech "South Africa has a new Climate Change Bill"
<https://businesstech.co.za/news/energy/250747/south-africa-has-a-new-climate-change-bill-heres-what-you-need-to-know/> (Date of use: 15 November 2018).

C

"Carbon tax or cap-and-trade?" <http://www.davidsuzuki.org/issues/climate-change/science/climate-solutions/carbon-tax-or-cap-and-trade/> (Date of use: 11 March 2017).

Center for Climate and Energy Solutions "Market mechanisms: Understanding the options"
<http://www.c2es.org/publications/market-mechanisms-understanding-options> (Date of use: 5 January 2017) .

Christie C & Pillay D "Feeling the heat: the draft Climate Change Bill, 2018"
<https://www.ensafrica.com/news/Feeling-the-heat-the-draft-Climate-Change-Bill-2018?Id=3174&STitle=natural%20resources%20and%20environment%20ENSight>
(Date of use: 30 September 2018).

Clark D "What is the 'polluter pays' principle?"
<https://www.theguardian.com/environment/2012/jul/02/polluter-pays-climate-change> (Date of use: 22 April 2017).

"Command-and-control regulation" <https://www.khanacademy.org/economics-finance-domain/microeconomics/consumer-producer-surplus/environmental-regulation/a/command-and-control-regulation-cnx> (Date of use: 5 May 2017).

Crotty A "Shareholders grill Sasol over greenhouse gas emissions" <https://www.businesslive.co.za/bd/companies/energy/2018-11-19-shareholders-grill-sasol-over-greenhouse-gas-emissions/> (Date of use: 27 November 2018).

CSIR "CSIR study finds annual standards for air pollutants in the Vaal Triangle exceeded" <https://www.csir.co.za/csir-study-finds-annual-standards-air-pollutants-vaal-triangle-exceeded> (Date of use: 15 November 2018).

D

Dahan L *et al* "Mexico: An emissions trading case study" http://www.ieta.org/resources/Resources/Case_Studies_Worlds_Carbon_Markets/mexico_case_study_may2015.pdf (Date of use: 11 March 2017).

DEA "Minimum Emissions Standards issued for listed air quality activities" <http://www.sabinetlaw.co.za/environmental-affairs-and-water/articles/minimum-emissions-standards-issued-listed-air-quality-activ> (Date of use: 19 March 2018).

Dechert S "Mexico will launch carbon pricing in November" <https://cleantechnica.com/2016/09/07/mexico-will-launch-carbon-pricing-november/> (Date of use: 9 March 2017).

De Lucia V "Polluter pays principle" http://www.eoearth.org/article/Polluter_pays_principle (Date of use: 19 December 2016).

De Wet T "What does 'polluter pays' mean in South Africa" <http://www.mondaq.com/southafrica/x/66202/Environmental+Law/What+Does+Polluter+Pays+Mean+In+South+Africa> (Date of use: 30 April 2017).

Duvenage W "Submission on proposed Carbon Tax Bill (2017)" <https://www.oua.co.za/wp-content/uploads/2016/09/OUTAs-Submission-Carbon-Tax.pdf> (Date of use: 5 September 2017).

Diaz R "Mexico 'new' environmental law" <http://xlcatlin.com/fast-fast-forward/articles/mexicos-new-environmental-law> (Date of use: 31 August 2017).

E

"Eskom's applications to delay compliance with emissions standards opposed by civil society groups" <https://cer.org.za/news/eskoms-applications-to-delay-compliance-with-emissions-standards-opposed-by-civil-society-groups> (Date of use: 2 August 2017).

"Enforcing the law: the challenges undermining environmental compliance monitoring and enforcement in South Africa" <http://fulldisclosure.cer.org.za/2015/enforcing-the-law> (Date of use: 17 May 2017).

"Environmental principles" http://www.waternet.co.za/policy/le_nema_envprin.html (Date of use: 22 March 2018).

EPA "Global greenhouse gas emissions data" <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data> (Date of use: 21 August 2018)

EPA "Air Quality and Climate Change Research" <https://www.epa.gov/air-research/air-quality-and-climate-change-research> (Date of use: 7 November 2018).

Ensor L "Tito Mboweni introduces Carbon Tax Bill" <https://www.businesslive.co.za/bd/national/2018-11-20-tito-mboweni-introduces-carbon-tax-bill/> (Date of use: 27 November 2018).

G

Gardener W & Penn N "South Africa delays implementation of carbon tax and carbon reporting" <http://www.ey.com/gl/en/services/tax/international-tax/alert--south-africa-delays-implementation-of-carbon-tax-and-carbon-reporting> (Date of use: 4 September 2017).

Goitom H "South Africa: Carbon-Tax Legislation Proposed" <http://www.loc.gov/law/foreign-news/article/south-africa-carbon-tax-legislation-proposed/> (Date of use: 12 December 2016).

Griffin J "The impact of climate change on South Africa" https://www.climateemergencyinstitute.com/cc_s_africa_griffin.html (Date of use: 15 May 2017).

Gubb A "National Environmental Management: Air Quality Act (39 of 2004)" http://www.enviropaedia.com/topic/default.php?topic_id=164 (Date of use: 2 August 2017).

Gwaze P "Drivers of Air Pollution in South Africa" http://www.airqualitylekgotla.co.za/assets/2017_3.1-drivers-of-emissions-in-south-africa.pdf (Date of use: 15 November 2018).

H

Harvey C "The staggering economic cost of air pollution" https://www.washingtonpost.com/news/energy-environment/wp/2016/01/29/the-staggering-economic-cost-of-air-pollution/?noredirect=on&utm_term=.e71fda37bec6 (Date of use: 21 August 2018).

Hecht A "Crude Oil versus Natural Gas: Competing Energy" <https://www.thebalance.com/crude-oil-versus-natural-gas-competing-energy-markets-808876> (Date of use: 20 August 2018).

Hellenic Republic "Environment – Climate Change" <https://www.mfa.gr/en/foreign-policy/global-issues/environment-climate-change.html> (Date of use: 15 November 2018).

Hennessy M & Guillamont A “Mexico’s new environmental law entrenches ‘polluter pays’ principle” <https://insuranceprofessionalsmiami.com/2014/06/30/mexicos-new-environmental-law/> (Date of use: 31 October 2018).

Hibler M “Taking control of air pollution in Mexico City” <https://www.idrc.ca/en/stories/taking-control-air-pollution-mexico-city> (Date of use: 8 October 2018).

Hobson B "Mexico, a global climate change leader" <http://thehill.com/blogs/ballot-box/311325-mexico-a-global-climate-change-leader> (Date of use: 29 August 2017).

Holley C & Shearing C “Environmental Policing: Harms, Enforcement and Collaboration” <https://uk.sagepub.com/en-gb/eur/the-sage-handbook-of-global-policing/book243543> (Date of use: 21 August 2018).

I

IASS “Air Pollution and Climate Change” <https://www.iass-potsdam.de/en/output/dossiers/air-pollution-and-climate-change> (Date of use: 7 November 2018).

ICLG "Mexico: Environment & Climate Change Law 2016" <http://iclg.com/practice-areas/environment-and-climate-change-law/environment-and-climate-change-law-2016/mexico> (Date of use: 9 March 2017).

K

Kaufman N "Carbon tax vs. cap-and-trade: What's a better policy to cut emissions?" <http://www.wri.org/blog/2016/03/carbon-tax-vs-cap-and-trade-what%E2%80%99s-better-policy-cut-emissions> (Date of use: 12 March 2017).

Khumalo J “Privatise Eskom and avoid its looming bankruptcy” <https://citypress.news24.com/News/privatise-eskom-and-avoid-its-looming-bankruptcy-20180724> (Date of use: 22 August 2018).

Kohn L “The Anomaly that is Section 24G of NEMA; An Impediment to Sustainable Development” <http://www.laurenkohn.co.za/publications/journal-articles/the-anomaly-that-is-section-24g-of-nema-an-impediment-to-sustainable-development/> (Date of use: 27 April 2018).

M

Masondo H “The Implementation of Carbon Tax” <http://www.cgcsa.co.za/resources/articles/environment/the-implementation-of-carbon-tax> (Date of use: 15 September 2016).

Mead L “UNEP Emissions Gap Report Warns of ‘Dwindling’ Potential to Bridge 1.5°” <http://sdg.iisd.org/news/unep-emissions-gap-report-warns-of-dwindling-potential-to-bridge-1-5c-gap/> (Date of use: 4 December 2018).

"Mexico: Assessment " <http://climateactiontracker.org/countries/mexico.html> (Date of use: 8 March 2017).

Munir M "History and evolution of the polluter pays principle: How an economic idea became a legal principle" https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=2322485 (Date of use: 16 February 2017).

N

National Treasury "Release of Carbon Tax Bill for Introduction in Parliament and Public Comment" http://www.treasury.gov.za/comm_media/press/2017/2017121401%20MEDIA%20STATEMENT%20-%20CARBON%20TAX%20BILL.pdf (Date of use: 1 May 2018).

Nel G "Environmental Law and Liability" http://www.enviroaedia.com/topic/default.php?topic_id=293 (Date of use: 19 December 2016).

P

Parry I and Wingender P "The overwhelming case for a carbon tax in China" <https://blog-imfdirect.imf.org/2016/07/27/the-overwhelming-case-for-a-carbon-tax-in-china/> (Date of use: 2 February 2017).

"Pollution index for country: 2018 mid-year" https://www.numbeo.com/pollution/rankings_by_country.jsp (Date of use: 8 October 2018).

"Polluter pays as environmental management principle" <http://www.herald.co.zw/polluter-pays-as-environmental-management-principle/> (Date of use: 30 April 2017).

Purdy A "The Kyoto Protocol" <https://www.theguardian.com/environment/2005/feb/16/sciencenews.environment> (Date of use: 27 February 2018).

R

Reeler J & Fakir S "A low carbon future – the meaning of carbon tax and offsets" <https://www.dailymaverick.co.za/article/2016-07-01-op-ed-a-low-carbon-future-the-meaning-of-carbon-tax-and-offsets/#.WwVRatd96Uk> (Date of use: 29 August 2017).

S

Sampson I "Environmental Liability" <http://www.ee.co.za/wp-content/uploads/legacy/Environmental-Liability.pdf> (Date of use: 19 December 2016).

“South Africa’s Intended Nationally Determined Contribution: Discussion Document” https://www.environment.gov.za/sites/default/files/docs/sanational_determinedcontribution.pdf (Date of use: 8 October 2018).

"South Africa's Road to COP21 and the 2015 Climate Deal" <http://businessmediamags.co.za/south-africas-road-to-cop21-and-the-2015-climate-deal/> (date of use: 22 April 2017).

Strydom M “Environmental enforcement trends in South Africa” <https://www.bowmanslaw.com/wp-content/uploads/2017/07/Enforcement-trends - Melissa-Strydom-July-2017-final.pdf> (Date of use: 22 August 2018).

Sustainable Development Commission “History of Sustainable Development” http://www.sd-commission.org.uk/pages/history_sd.html (Date of use: 27 April 2018).

Swart I "Draft carbon tax bill released" <https://www2.deloitte.com/za/en/footerlinks/pressreleasespage/carbon-tax-bill.html> (Date of use: 29 August 2017).

Szabo M "South African government to revise carbon tax bill following consultation" <https://carbon-pulse.com/16167/> (Date of use: 8 March 2017).

T

Tucker C & Mandlana W "Green Scorpions – Environmental Management Inspectorate" http://www.enviropaedia.com/topic/default.php?topic_id=127 (Date of use: 19 July 2017).

Tucker C “Private prosecution of environmental crimes” <http://www.bowmanslaw.com/article-documents/Private-criminal-prosecution-of-environmental-crimes.pdf> (Date of use: 1 May 2018).

U

UNFCCC “Climate Finance” <https://unfccc.int/topics/climate-finance/the-big-picture/climate-finance-in-the-negotiations> (Date of use: 30 October 2018).

UNFCCC “The Paris Agreement” <https://unfccc.int/process/the-paris-agreement/what-is-the-paris-agreement> (Date of use: 1 November 2018).

UN “The Paris Agreement: Frequently Asked Questions” <https://www.un.org/sustainabledevelopment/blog/2016/09/the-paris-agreement-faqs/> (Date of use: 8 November 2018).

V

Vance E "Mexico passes climate-change law" <http://www.nature.com/news/mexico-passes-climate-change-law-1.10496> (Date of use: 10 March 2017).

Visser A "Carbon tax will harm SA" <https://www.iol.co.za/business-report/economy/carbon-tax-will-harm-sa-1942529> (Date of use: 22 August 2018).

W

"What is emissions trading?" <https://www.theguardian.com/environment/2011/jul/05/what-is-emissions-trading> (Date of use: 10 March 2017).

"Why is this relevant to South African companies?" <http://www.thecarbonreport.co.za/why-is-this-relevant-to-south-african-companies/> (Date of use: 22 April 2017).

Y

Yu Shan T "What is Sustainable Development?" <https://sustainabilityx.co/what-is-sustainable-development-508beedcac0e> (Date of use: 30 October 2018).

Books

B

Boon EK "An overview of sustainable development in Africa" in *Area Studies – Africa: (Regional Sustainable Development Review) Volume 1* (2009) 1-23.

C

Chandrappa R *Coping with Climate Change: Principles and Asian Context* (Springer 2011) 27 – 43.

D

De Sadeleer N "The polluter-pays principle in EU law – Bold case law and poor harmonisation" in *Pro Natura: Festschrift Til H. C. Bugge*, Oslo, Universitetsforlaget(2012) 405 – 419.

K

Kidd M *Environmental Law* 2nd ed (Juta 2011).

M

Milne JE, Speck S, Skou Andersen M & Duff DG *The reality of carbon taxes in the 21st century* (Vermont Journal of Environmental Law 2008).

P

Paterson A & Kotze LJ (eds) *Environmental compliance and enforcement in South Africa: Legal Perspectives* (Juta 2009).

R

Ruddiman WF *Plows, plagues and petroleum: How humans took control of climate* (Princeton University Press 2010).

Dissertations and Theses

C

Coetzee JH *Sustainability - Environmental risks and legal liabilities of South African banks* (LLM University of the North-West 2013).

H

Hughes R *A critical review of South Africa's future carbon tax regime* (LLM University of Cape Town 2017).

Hugo RE *Administrative penalties as a tool for resolving South Africa's environmental compliance and enforcement woes* (LLM University of Cape Town 2014).

K

Kaka I *Corporate self-regulation and environmental protection* (LLM North West University 2012).

M

Muir A *An interpretation of the South African Constitutional 'Environmental Right' and an Assessment of its relationship to Sustainable Development* (LLM University of Kwa-Zulu Natal 2014) 2.

N

Nabileyo O *The polluter pays principle and environmental liability in South Africa* (LLM North West University 2009).

P

Pretorius I *Impacts and control of coal-fired power station emissions in South Africa* (PhD Geography and Environmental Management North West University 2015).

Legislation

C

Constitution of the Republic of South Africa, 1996.

Customs and Excise Act 91 of 1964.

D

Draft Carbon Tax Bill.

Draft Climate Change Bill.

F

Federal Law of Environmental Responsibility, 2013 (Mexico).

Federal Law to Prevent and Control Environmental Pollution, 1972 (Mexico).

G

General Law on Climate Change, 2012 (Mexico).

General Law on Equilibrium and Environmental Protection, 1988 (Mexico).

N

National Environmental Management Act 107 of 1998.

National Environmental Management Amendment Act 62 of 2008.

National Environmental Laws Amendment Act 14 of 2009.

National Environmental Management: Air Quality Act 39 of 2004.

National Environmental Management: Air Quality Amendment Act 20 of 2014.

Case Law

B

Bengwenyama Minerals (Pty) Ltd and Others v Genorah Resources (Pty) Ltd and Others 2011 (3) BCLR 229 (CC).

BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs [2004] 3 All SA 201 (W).

D

Director: Mineral Development, Gauteng Region v Save the Vaal Environment 1992 2 SA 709 (SCA).

F

Fuel Retailers Association of South Africa v Director-General Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province and Others 2007 (10) BCLR 1059 (CC).

H

Hichange investments (Pty) Ltd v Cape Produce Co (Pty) Ltd t/a Pelts Products and Others JDR 0040 (E) 1050/2001.

K

Khabisi NO and Another v Aquarella Investment 83 (Pty) Ltd and Others Case 9114/2007 (T) June 2007.

T

Tergniet and Toekoms Action Group v Outeniqua Kreosootpale (Pty) Ltd Case 10083/2008 (C) 23 January 2009 (unreported).

Other Sources

B

The *Brundtland Report*.

D

Draft Memorandum for the Carbon Tax Bill, 2015.

F

First Draft Carbon Tax Bill 2015: Response Document, December 2017.

G

Griffiths & Armour *Environmental Liability: Air Pollution Risk Management Matters* (2012) 1-8.

K

Kyoto Protocol, 1997.

M

Montevideo Convention on the Rights and Duties of States, 1933.

N

National Climate Change Response Policy White Paper of 2012.

National Climate Change Response Strategy for South Africa, 2004.

R

Rio Declaration on Environment and Development, 1992.

S

Steele M "Written comments on the Draft Carbon Tax Bill, 2017" 2018 *CER* 1 – 5.

T

The World Bank "State and Trends of Carbon Pricing" 2015.

U

United Nations Emissions Gap Report, 2018.

United Nations Framework Convention on Climate Change (2015) *Adoption of the Paris Agreement*, 21st Conference of the Parties, Paris: United Nations.

United Nations Framework Convention on Climate Change, 1992.