South Africa's Law and Policy Framework for the Regulation of the Clean Development Mechanism

Dissertation submitted in partial fulfilment of the requirements for the degree *Magister Legum* at the Potchefstroom Campus of the North-West University

By

Daniël Francois Humphris

12263176

Study supervisor: Prof Anél du Plessis

November 2011

INDEX

Opsomming

Die Skoon Ontwikkelings - Meganisme is ‘n veranderlike meganisme wat sy oorsprong vind vanuit internasionale reg met die doel om as ‘n klimaatsverandering mitigasie middel te dien. Klimaatsverandering as verskynsel in die natuur, gaan gepaard met dramatiese impakte op die omgewing. Suid - Afrika as lid van die internasionale gemeenskap is genoodsaak om dus ‘n aktiewe rol in die klimaatsverandering diskoers te speel. Vanuit ‘n regsperspektief, was daar in die afgelope jare indrukwekkende veranderinge in Suid Afrikaanse omgewingsreg. Om betekenisvolle kommentaar oor die huidige stand van Suid Afrika se omgewings beleid en regsraamwerk te lewer, poog hierdie studie om die wetlike en beleids aspekte ten opsigte van die Skoon Ontwikkelings - Meganisme krities te ontleed en moontlike insette te lewer oor die verbetering van die huidige beleids en regsraamwerk.

Summary

The Clean Development Mechanism is a flexible mechanism originating from international law to serve as a climate change mitigation vehicle. Climate change is an environmental phenomenon that will affect the world in a dramatic way. South Africa does not stand oblivious to these changes and must play an active role in the global community. From a legal perspective, recent years have generally seen significant developments in the domestic environmental law framework of South Africa. In order to focus and meaningfully comment on the status quo of South Africa’s existing legal framework, this study will critically evaluate the law and policy framework facilitating the Clean Development Mechanism in South Africa and propose possible improvements on the current system.

LIST OF ABBREVIATIONS

CDM	Clean Development Mechanism
CDM EB	Clean Development Mechanism Executive Board
CER	Certified emission reduction
COP	Conference of the Parties
DE	Department of Energy
DEA	Department of Environmental Affairs
DNA	Designated National Authority
DWA	Department of Water Affairs
EIA	Environmental Impact Assessment
EU	European Union
EU ETS	European Union Emissions Trading System
GCCC	Governmental Committee on Climate Change
GHG	Greenhouse gases
IPCC	Intergovernmental Panel on Climate Change
IRP	Integrated Resource Plan
LDC	Least developed country
LTMS	Long-Term Mitigation Scenario
MEC	Member of an Executive Council
MOP	Meeting of the Parties
NCCC	National Committee on Climate Change
NEMA	National Environmental Management Act 107 of 1998

NEMAQA	National Environmental Management: Air Quality Act 49 of 2004
NERSA	National Energy Regulator of South Africa
NGO	Non-governmental organisation
ODI	Overseas Development Initiative
PDD	Project Design Document
PIN	Project Idea Note
PNCP	Pilot National Cogeneration Programme
REFIT	Renewable Energy Feed-in Tariff
SANS	South African National Standard
TNA	Technology Needs Assessment
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

1 Introduction

"Climate change" defined by the *United Nations Framework Convention on Climate Change*[1] (hereafter the UNFCCC), refers to the change of the earth's climate owing to the harmful effects brought about by human activities in addition to natural climate variability observed over comparable periods. It is widely agreed that various human activities across the globe over time have had a cumulative impact on climate patterns and phenomena and the effects thereof feature increasingly in various countries in the southern and northern hemispheres.[2]

Climate change is further understood as the outcome of an increase in greenhouse gases (hereafter GHGs) in the atmosphere.[3] GHGs act like the roof of a greenhouse and prevent heat from escaping from the earth's atmosphere. The increase of these gases in the atmosphere causes temperatures to rise unnaturally.[4] The Intergovernmental Panel on Climate Change[5] (hereafter IPCC) has estimated that global atmospheric temperatures could rise by one to two degrees Celsius by 2050 and two to five degrees Celsius by 2100, depending on the additional quantity of GHGs humans release in the atmosphere in future. The current scientific consensus is that even if future warming can be limited to the lower end of this range (two degrees Celsius), there will be significant impacts on natural and human systems.[6]

Major reports, including the IPCC Fourth Assessment Report,[7]and the Stern Review: Economics of Climate Change,[8] provide a comprehensive assessment of the existing and future impacts of climate change.[9] Other reports, for example, the IPPC Special Report on Climate Change and Biodiversity[10] and the Arctic Impact

1 A 1 of the *United Nations Framework Convention on Climate Change* (1992).
2 Draper and Mbirimi *Climate Change & Trade* 97.
3 Hegerl *Understanding and Attributing to Climate Change* 665.
4 IPPC *Fourth Assessment Report* AR4 37.
5 The IPCC is an organization that was set up in 1988 to assess the scientific, technical and socio-economic information that relates to human induced climate change. For a more detailed discussion on the scientific effects of climate change, refer to IPPC Working Group III Report on Mitigation of Climate Change available at http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml.
6 Dawson and Spannagle *Complete Guide to Climate Change* 96–100.
7 IPPC *Fourth Assessment Report: Climate Change* 2007.
8 Stern *Review Economics on Climate Change* 2006.
9 See also Schellnhuber *et al Avoiding Dangerous Climate Change*.
10 IPPC *Technical Paper V* 2002.

Assessment Report,[11] have assessed specific impacts in more detail. The main message conveyed by these reports is that the impacts of climate change generally are likely to be overwhelmingly negative and that developing countries are likely to suffer greater impacts than wealthier industrialised countries.[12] The assumption one could draw from the afore-mentioned is that if GHG concentrations maintained at a constant level globally, anthropogenic warming and sea level rise are likely to continue for many centuries.[13] Rising sea levels will obviously bring about a complete rearrangement of the typography of the global landscape. This is only one of the prominent reasons why climate change mitigation and adaption strategies are necessary.

Generally, "climate mitigation" refers to strategies that aim to reduce GHG and thereby eliminate the acceleration of climate change.[14] Climate mitigation has a two-pronged approach. The first approach is addressing the reduction of the amount of GHG emitted by its source and the second is enhancing the sinks and reservoirs that remove GHG.[15] Climate adaption, in contrast, refers to implementing specific adaptive measures with the objective of minimising the harm caused by climate change and optimising human and ecosystem resilience.[16] Climate mitigation and, more specifically, the Clean Development Mechanism (hereafter CDM)[17] form the focus of this study.

Climate adaptation and mitigation must be understood against the background of that which is necessary for sustainable development. Climate change will affect the ability of countries to be sustainable.[18] Kotzé defines sustainability as:[19]

> The ability to maintain a desired condition over time without eroding natural, social and financial resource bases, through a process of continual improvement in the form of sustainable development … .

11 ACIA *Scientific Report* 2005.
12 Dawson and Spannagle *Complete Guide to Climate Change* 96.
13 UNEP *Climate in Peril* 14.
14 UNFCCC *Handbook* 74.
15 A "source" as defined in a 1 of the UNFCCC means any process or activity that releases a GHG,an aerosol or a precursor of a GHG into the atmosphere.
16 IPPC *Synthesis Report* 56.
17 The CDM is discussed in detail in section 3 of this study.
18 UNFCCC *Impacts, Vulnerabilities and Adaptation in Developing Countries* 5.
19 Kotzé *Integrated Environmental Governance* 254.

Climate change will then have a negative effect on South Africa's ability to achieve sustainable development too.[20] The impact of climate change on South Africa were identified as far back as 11 years ago in the report South Africa submitted to the United Nations (UN), which outlines the anticipated impacts of climate change on the country in 2000.[21] In the Initial National Communication Report[22] to the UN, based upon the information contained in the South African Country Studies Programme,[23] it was submitted that the areas of greatest vulnerability to climate change are the health sector, maize production (agriculture),[24] biodiversity, water resources and rangelands.[25]

The health consequences, *inter alia*, that will be brought about by climate change will have various types of detrimental effects. The warmer temperatures will, *inter alia*, assist the spread of vector-borne diseases and are predicted to facilitate the growth of the habitat for the host of *schistosomiasis* (bilharzia), thus exposing a large part of the population to this disease.[26]

South Africa, classified as a semi-arid country, will furthermore experience water difficulties. A warmer climate will have a significant impact on the intensity and seasonality of rainfall. Desertification is predicted to increase throughout the drier regions of the country.[27] Patterns of precipitation will shift with warmer temperatures and for this reason the rangelands in South Africa will also be impacted. Animal diseases will spread and drier grasslands will have an increased fire risk.[28] In addition, it is predicted that maize production will increase by 20% within the next 50 years owing to the hot and dry weather conditions and growing population.[29] It is calculated that 1.5% of land in South Africa is suitable for commercial afforestation.

---

20 For purposes of this study, sustainability will not be discussed in any detail. For further reading on sustainable development, see Kotzé *Integrated Environmental Governance* 19-254.

21 A 7 of the *Kyoto Protocol to the United Nations Framework Convention on Climate Change* (1997).

22 South Africa *Initial Communication to UNFCCC* 2000.

23 Rumsey and King *Climate Change* 1048-1055.

24 Rumsey and King *Climate Change* 1048-1055. See also Dawson and Spannagle *Complete Guide to Climate Change* 115.

25 Rumsey and King *Climate Change* 1048-1055.

26 IPCC *Working Group* II Report on Impacts, Adaptation and Vulnerability available at http://www.ipcc.ch/publications_and_data/ar4/wg2/en/contents.html.

27 Rumsey and King *Climate Change* 1048-1055. See also Dawson and Spannagle*Complete Guide to Climate Change* 100.

28 Rumsey and King *Climate Change* 1048-1055. See also DWEA *A National Climate Change Response Strategy for South Africa* 5.

29 Rumsey and King *Climate Change* 1048-1055.

The higher temperatures and changing rainfall patterns will have a significant impact on the forestry sector with regard to viable land.[30]

South Africa's biodiversity is predicted to be severely affected by the effects of climate change.[31] The biomes throughout South Africa are anticipated to shrink by up to 55% of their current area by the year 2050.[32] A total of 179 animal species were assessed and the habitat for 143 is predicted to shrink with four species becoming extinct.[33] The predicted rise in temperature will also have an effect on sea temperatures resulting in the migration of species residing in coastal waters.[34]

It is possible to argue that all of the above phenomena, with their scientific grounding, fall within the domain of the law. The law regulates the relationship between people and things and amongst, people themselves. It is therefore imperative to examine developments in law in light of climate change. Part of this examination may have to be an analysis, from a global and domestic perspective, of the legal measures taken to address climate change, including the Clean Development Mechanism (CDM) as a vehicle for climate change mitigation. In a nutshell, the CDM refers to a climate change mitigation mechanism developed to address climate change on a global level.[35] The CDM has its foundations in international law, and an assessment of South African law and policy in this regard is required to establish South Africa's take on this mechanism, specifically. Against the background above, this study sought to address the following question: To what extent is provision made for the CDM in South African law and policy? In determining the answer to this question, a literature review of related international law, South African legislation, policies and initiatives, journal articles and other relevant sources is conducted.

30 Rumsey and King *Climate Change* 1048-1055.
31 DWEA *A National Climate Change Response Strategy for South Africa* 2. See also section 4.3 for a more detailed discussion.
32 Rumsey and King *Climate Change* 1048-1055.
33 Rumsey and King *Climate Change* 1048-1055.
34 Rumsey and King *Climate Change* 1048-1055. See also Dawson and Spannagle *Complete Guide to Climate Change* 108.
35 Refer to section 2.2.2.

2 The international imperative and South Africa's response

2.1 Introduction

International law can best be described as rights, duties and relations between governments.[36] Sources of international law can be found in treaties, customs, general principles of law, judicial decisions, and teachings of highly qualified publicists.[37] Treaties, which are the source of international law considered in this study, are agreements between governments or between governments and international organisations, almost exclusively in written form.[38] They are very important because of the increasing need for co-operation in environmental and various other fields across national boundaries.[39] Various treaties have implications not only in the international law domain, but also for in-country municipal or domestic law. No government binds itself however by a treaty unless it has given its consent to it.[40] To be binding in international law, a treaty must first come into force. For a treaty to come into force, the will of the contracting state is of great importance.[41] In the case of multilateral treaties, the normal requirement is ratification by a predetermined number of states before it enters into force.

The specific legal implications of such a treaty within a state will depend on that state's constitutional law. South Africa, as a case in point, uses the *Constitution of the Republic of South Africa*, 1996 (hereafter the *Constitution*). From the *Constitution*, South Africa's international law duties are derived and serves as guideline with which the country must act in the international arena.[42]

36 Strydom and King (eds) *Environmental Management* 126.
37 A 38(1) of the *Statute of the International Court of Justice* (1946).
38 Dugard *International Law* 26.
39 Strydom and King (eds) *Environmental Management* 126.
40 Strydom and King (eds) *Environmental Management* 126.
41 A 24 of the *Vienna Convention on the Law of Treaties* (1969).
42 Refer to section 4.2.1.

2.2 Applicable international law

South Africa is listed as a Non-Annex I country in the UNFCCC referred to earlier.[43] The UNFCCC aims to stabilise GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.[44] In order for member states to achieve the afore-mentioned objective, anthropogenic emissions emitted by sources of sinks of all GHGs not controlled and referred to in the *Montreal Protocol on Substances that Deplete the Ozone Layer* (hereafter Montreal Protocol) identified in 1987, need to be addressed.[45]

Subsequent to the UNFCCC, the *Kyoto Protocol to the United Nations Framework Convention on Climate Change*[46] (hereafter Kyoto Protocol) was drafted. South Africa acceded to the Kyoto Protocol on 31 July 2002. However, unlike Annex I countries, the Kyoto Protocol places no binding international duty on South Africa to reduce its carbon emissions and therefore does not limit its carbon emissions. This is because South Africa is not listed as an Annex I country.[47] Although South Africa is not listed as an Annex I country and because international negotiations and climate law developments continue, it is not unthinkable that the country may in future incur an international law duty to make emission reduction commitments. South Africa is regarded as both a contributor to[48] and a victim of climate change[49]

---

43 Non-Annex I Parties are mostly developing countries. Annex I counties include the industrialised countries that were members of the Organisation for Economic Co-operation and Development in 1992, plus countries with economies in transition, including the Russian Federation, the Baltic States, and several Central and Eastern European States. Certain groups of developing countries are recognised by the Convention as being especially vulnerable to the adverse impacts of climate change, including countries with low-lying coastal areas and those prone to desertification and drought. Others (such as countries that rely heavily on income from fossil-fuel production and commerce) feel more vulnerable to the potential economic impacts of climate change response measures. The UNFCCC emphasises activities that promise to address the special needs and concerns of these vulnerable countries, such as investment, insurance and technology transfer.

44 A 2 of the UNFCCC.

45 A 4(1) of the UNFCCC. South Africa ratified the *Montreal Protocol* on 15 January 1990.

46 *Kyoto Protocol to the United Nations Framework Convention on Climate Change* (1997).

47 See UNFCCC *Handbook* 46.

48 South Africa produces 1.4 % of the world's total CO2. However, our CO2 emissions per person are more than double the world average. This is mainly because we have cheap energy, and so we use it inefficiently. Burning coal is the main source of CO2 (through burning it to generate electricity, or burning it directly for heating, cooking etc.)

49 Refer to section 1.

and should therefore actively participate in climate change mitigation and adaptation.[50]

2.1.2 The Clean Development Mechanism as instrument in international law

The Kyoto Protocol provides for Annex I parties to assist them in reaching their mitigation commitments through three innovative mechanisms by undertaking, financing or purchasing emission reductions generated in other countries.[51] These mechanisms are known as joint implementation,[52] the CDM[53] and emissions trading.[54] As was indicated earlier, this study focuses primarily on the CDM as a vehicle for climate change mitigation.[55] Ultimately, the CDM was established by the Kyoto Protocol to assist non-Annex I parties to achieve sustainable development and to contribute to the overall objective of the Kyoto Protocol as specified.[56]

With reference to the CDM project, a developing country party to the Kyoto Protocol may implement project activities that result in real, measurable and long-term mitigation of climate change,[57] and emission reductions that are additional to those that would have occurred.[58] The emission reductions referred to are known as certified emission reductions (hereafter CERs) and are utilised by developed country parties to assist in fulfilment of the article 3 targets set by the Kyoto Protocol.[59] The value tied to one CER is the equivalent of one metric ton of carbon dioxide.[60] These flexible mechanisms have resulted in the establishment of a carbon market.[61] Examples of such markets are the European Union Emissions Trading System

50 Zipplies *Bending the Curve* 140.
51 Yamin and Depledge *The International Climate Change Regime* 136.
52 A 6 of the Kyoto Protocol. Also see Decision 16/CP7.
53 A 12 of the Kyoto Protocol. Also see Decision 17 CP7.
54 A 17 of the Kyoto Protocol. Also see Decision 18 CP 7.
55 For an in depth, discussion on the CDM refer to 3.
56 A 3 of the *Kyoto Protocol* dealing with the duties of signatory countries.
57 A 12(5)(b) of the *Kyoto Protocol*.
58 A 12(5)(c) of the *Kyoto Protocol*.
59 A 12(3)(b) of the *Kyoto Protocol*.
60 Zipplies *Bending the Curve* 140.
61 Refer to section 3 for a more detailed discussion.

(hereafter EU ETS)[62] and the New South Wales Greenhouse Gas Reduction Scheme.[63]

2.3 Related developments in South Africa

Similar to other countries, South African law is not oblivious to the environment generally, or climate change specifically. Since the inception of constitutional change in 1996, much has been done to revitalise and develop South African environmental law. The country's environmental law framework is embedded in the Bill of Rights of the *Constitution*. Section 24 of the *Constitution* provides, *inter alia*, for the right of everyone to an environment not detrimental to their health or well-being. In addition to the *Constitution*, the *National Environmental Management Act*[64] (NEMA) and the *National Environmental Management: Air Quality Act*[65] (NEMAQA) are two of the statutes that contain general and specific provisions related to air quality management and indirectly, the combating and mitigation of climate change.[66] The Department of Water and Environmental Affairs (DWEA) has become the primary agent for climate mitigation and consequently published *A National Climate Change Response Strategy for South Africa to Address Climate Change* in 2004.[67] This 2004 strategy set out the objectives and challenges faced in the process of designing and implementing province-wide strategies to address the risks and consequences of climate change. The DWEA subsequently released its *National Climate Change Response Green Paper* (2010) (hereafter the Green Paper)[68] and most recently the *National Climate Change Response White Paper* (2010) (hereafter the White Paper),[69] which will be discussed in detail in this study.[70] As will be shown below the CDM is acknowledged in all three of these policy instruments. The CDM is a climate change mitigation measure that will be discussed in detail in below.

---

62 More information available at http://ec.europa.eu/clima/policies/ets/index_en.htm.
63 More information available at http://greenhousegas.nsw.gov.au/.
64 107 of 1998.
65 39 of 2004.
66 Glazewski *Environmental Law in South Africa* 5. This is not the whole spectrum of environmental statutes. Only the most pertinent for purposes of this study are discussed.
67 DWEA *National Climate Change Response Strategy for South Africa* September 2004.
68 The full text of the Green Paper is available at http://www.polity.org.za/article/national-climate-change-response-green-paper-2010-2010-11-18.
69 The full text of the White Paper is available at http://www.info.gov.za/view/DownloadFileAction?id=152834.
70 Refer to section 4.4.2 below.

2.2 Concluding remarks

South Africa is a participating country in climate change mitigation and adaptation from a global perspective. The law is not at all detached from the developments in this area. For a better understanding of the domestic law and policy framework specifically on the CDM as mitigation vehicle, it is necessary to investigate the concept of the CDM and to gain better insight into the establishment of a CDM project and the requirements set for CDM implementation. For this reason, the following section will aim to describe and explain the afore-mentioned.

3 The Clean Development Mechanism

3.1 Introduction

This section discusses the CDM, its origins and the formal requirements to which a developing nation is to adhere in implementing a CDM project. This serves also as the basis against which South Africa's legal framework was assessed, as will be discussed in section 4.

The Kyoto Protocol provides a voluntary mechanism to member states to develop and use environmentally sound technologies, practices, technical expertise and processes with regard to climate change and provides guidelines for the private sector to develop such technologies.[71] The CDM, as referred to in article 12 of the Kyoto Protocol, aims to assist developed nations in attaining their emission reduction targets. This can be achieved through investment in carbon-offset projects or GHG reduction in developing nations to achieve CERs in order to comply with the obligations set forth by the Kyoto Protocol.[72] Therefore, an argument can be made that the core of the CDM is the transfer and acquisition of emission reductions between developed and developing nations on the basis of a specific CDM project.

71 A 10(c) of the *Kyoto Protocol*.

72 CERs refer to one metric ton of carbon dioxide or its GHG equivalent reduced from the atmosphere by a mitigation activity. CERs are standardised GHG reduction credits that are becoming a commodity that can be bought and sold on the global market, and in some cases banked for the future by parties to the Kyoto Protocol. Developed countries bound by the Kyoto Protocol can in effect "buy extensions on their emission limits".

3.2 The nature of the CDM

The CDM mechanism was developed during the Kyoto Protocol negotiations to contribute towards sustainable development and to *inter alia* create CERs intended to direct private sector investment towards climate friendly projects with the financial benefits of CDM projects as reward.[73] Throughout the negotiations, developing nations opposed any emission reduction commitments. They alleged that climate change is a problem created by the North, and as such must be resolved by the North.[74] On the contrary, developed nations are of the view that global warming is a global problem and should be addressed by all nations through joint implementation strategies and market-based instruments.[75] The outcome was that the South proposed the placing of emission limits and penalties on industrialised countries and the North proposed the adoption of market-based routes and measures that will allow them to reduce emissions through investment in projects in other countries.[76]

This result is evident in article 12(2) of the Kyoto Protocol, which provides for two specific goals to by the CDM. These goals are:

(a) to assist developing countries in achieving sustainable development; and

(b) to assist industrialised countries in complying with their emissions reduction commitments, and to contribute to the attainment of the environmental goals of the Framework Convention.

The CDM aims to assist developed member countries to meet their emission reduction targets by obtaining CERs through investing in projects that would lead to reduced GHGs in a developing country.[77] In practice, this means that a project proponent (a developed country or investor) identifies a project that would lead to reduction in the emission of GHGs in a developing country of its choice and

73 Yamin and Depledge *The International Climate Change Regime* 160.

74 Olawuyi 2009 *African Journal of International and Comparative Law* 274. The North refers to the developed countries in the northern hemisphere and the South refers to developing countries in the southern hemisphere.

75 Olawuyi 2009 *African Journal of International and Comparative Law* 274. See also Yamin and Depledge *The International Climate Change Regime* 139.

76 This implies that developing countries must adhere to possible environmental constraints in their development process whereas developed nations did not find any of these constraints in their development in the past.

77 Yamin and Depledge *The International Climate Change Regime* 160.

approaches the government of the country in which the project is to be located in for its approval.[78] The government or its designated authority then decides whether such a project meets its sustainable development needs and then approves or rejects it as a CDM project. Thus, the supporters of the CDM views it as a mechanism which provides the developed country with the flexibility for achieving its emission reduction targets through investment into environmentally friendly technologies[79] and therefore, in principle, assists developing countries who host such projects to achieve sustainable development through the use of such environmentally friendly technologies.[80] It is held by the UN that a developing country is enabled through a CDM project to attract capital investments from developed countries for projects that assist in the shift to a less-carbon-intensive economy.[81] These investments encourage the active participation of both private and public sectors and provide a tool for technology transfer through projects that replace old, dirty and inefficient fossil technology with cleaner ones.[82] This will in turn create new industries using environmentally sustainable technologies and help define investment priorities in projects that meet sustainable development goals.[83] All of the above is from the perspective that the CDM can be a mutual beneficial mechanism for developed and developing nations.[84] There are however various conflicting theories and viewpoints in this regard.[85]

The majority view is that specific CDM project contributions to a developing country's sustainable development goals in the form of transfer of financial resources and technology[86] will, *inter alia*, be through sustainable energy production methods, energy efficiency and conservation, poverty alleviation owing to employment generation and local environmental side benefits.[87] In financial terms, Weiner[88] reiterates the afore-mentioned by stating that:

78 Olawuyi 2009 *African Journal of International and Comparative Law* 276.
79 Cottier, Nartova and Bigdeli (eds) *International Trade Regulation and Mitigation* 77. See also Dawson and Spannagle *Complete Guide to Climate Change* 80-81.
80 Olawuyi 2009 *African Journal of International and Comparative Law* 276.
81 UNEP *Introduction to CDM* 3.
82 UNEP *Introduction to CDM* 16. See also section 5 of this study.
83 UNEP *CDM Information and Guide Book* 14.
84 An example of this is the Spanish Endesa Generacion company purchasing CERs from the Ekurhuleni Metropolitan Municipality in their landfill gas recovery project. Various international experts were involved and their expertise were of great value to the local specialists.
85 This study will however not focus on the theories and viewpoints opposing the CDM.
86 UNEP *CDM Information and Guide Book* 15.
87 Olawuyi 2009 *African Journal of International and Comparative Law* 276.

> This system would benefit poorer societies. They would be able to sell extra allowances at a profit - a new and valuable asset. The magnitude of financial flows to major developing countries generated by a GHG allowance trading market could be substantial, rising from approximately $ 10 billion to over 100 billion per year (in constant dollars) in future decades.

The above statement suggests that the possible benefits of development afforded to developing countries should be a factor when a developing country considers the CDM.

In section 4 of this study South Africa's specific policies in terms of climate change are addressed and the alignment of the goals set in these policies and legislative developments with regards to the possible advantages and benefits as described are established. In order for a developing country to qualify for registration of a CDM project, it needs to meet certain requirements. These eligibility requirements to initiate a project are discussed in more detail in the following section.

3.3 Eligibility requirements

A developing country needs to meet certain eligibility requirements to attract CDM investments.[89] These are of two kinds: formal requirements and market eligibility requirements.

3.3.1 Formal requirements

The CDM rules, as elaborated on in the Marrakesh Accords[90] stipulate formal requirements any country aiming to benefit from the CDM should attain. These formal requirements are called the eligibility requirements. The rules provide for the identification of the nature of projects proposed as CDM projects, known as the project eligibility requirements. The eligibility requirements for CDM project implementation stipulate that both countries must have ratified the Kyoto Protocol,

88 Wiener *Global Environmental Regulation* 108. See also UNEP *Introduction to CDM* 17.
89 Olawuyi 2009 *African Journal of International and Comparative Law* 279. See also UNEP *Introduction to CDM* 19-23.
90 *Decision 17/COP 7 Modalities and Procedures for a CDM* 20. These decisions are referred to as the *Marrakesh Accords* (2001).

participation of the countries must be voluntary,[91] and that the government must designate a Designated National Authority (DNA) for the CDM.[92]

The DNA serves as the country's CDM monitoring body and is responsible for approving or rejecting a prospective CDM investment proposal. The DNA also ensures that the host country participates in the project voluntarily and that the project is aligned with the specific sustainable development goals set by that country.[93] The DNA is also tasked with determining the long-term mitigation benefits in real terms for the host country, other than GHG emissions reductions.

3.3.2 Market eligibility requirements

The CDM process involves trading CERs on a project basis and this platform of trading is referred to as the CDM market.[94] In this market, developed countries are searching for investment locations that will yield the maximum profit in the safest investment climate.[95] Factors that influence the attractiveness of a host country are mitigation potential, general investment climate, and the legal and institutional capacity of a CDM host country.[96]

3.3.2.1 Mitigation potential

The mitigation potential as a factor that influences the attractiveness of a host country refers to the level and cost of emission reduction in that particular country. A host country that offers a high emission reduction at the least cost is therefore measured to have high mitigation potential.[97] Mitigation potential is assessed by identifying the GHG emission intensity, the current use of dirty technologies and

91 This means that it is not mandatory for any party to the Kyoto Protocol to participate in CDM project investments. A developing country may therefore choose to accept or reject a proposal to host a CDM project activity, especially if it feels that such a project is not compatible with its national goals and policies. See Dawson and Spannagle *Complete Guide to Climate Change* 79.

92 Par 28-30 of the annex of *Decision 17/COP7 Modalities and Procedures of a CDM*.

93 Michaelowa 2003 *Mitigation and Adaptation Strategies for Global Change* 201.

94 The carbon market has been broadly classified as project-based (baseline and credit system), and allowance market (cap and trade system). The CDM falls under project-based systems because it allows developed nations to attain emission limits by investing in projects that reduce GHG emissions in developing countries. See Yamin and Depledge *The International Climate Change Regime* 139.

95 Profits here are measured in terms of which developing country generates more CERs at a lesser price.

96 Olawuyi 2009 *African Journal of International and Comparative Law* 282.

97 UNEP *Guidebook to Financing CDM Development* 9.

energy-efficient technologies, and the level of industrialisation.[98] Studies have shown that CDM investments will flow to countries that can create cheap CERs in sufficient volumes.[99] It can be concluded that, generally, developing countries with high GHG industries in principle offer emission reduction prospects to developed countries.[100]

3.3.2.2 Investment possibilities

The investment climate is determined by a variety of factors. These factors include government policies, institutional and physical infrastructure, social state and public administration, which play a decisive role in the level of certainty of CDM investment returns.[101] The three main areas used to measure the general investment climate of a country are macro-economic and trade policy, micro-economic framework and the enabling infrastructure.[102]

The macro-economic area refers to the capacity of domestic institutions to reduce the costs associated with international trade and finance, as well as assurance of consistently safe investment atmospheres. Developing countries plagued by war, political instability, dictatorships, absence of rule of law and high taxation levels, for example, are considered unsafe investment countries.[103]

The micro-economic framework includes conducive trade regulations, predictable government policies and avoidance of lengthy administrative processes within the particular government. Flexible rules on market entry and exit, a stable macro-economic atmosphere, comprehensive legal frameworks and a skilled workforce are factors indicative of a favourable micro-economic framework.[104]

Enabling infrastructure is measured by the availability of fundamental public infrastructure necessary for production activities and investments. For example,

98 Bowen and Fankhauser *World Economics* 145.
99 Bowen and Fankhauser *World Economics* 145.
100 Olawuyi 2009 *African Journal of International and Comparative Law* 282. See also UNEP *CDM Information and Guide Book* 18.
101 McGuigan, Reynolds and Wiemer 2002 http://www.odi.org.uk/resources/download/2578.pdf 20. See also Bowen and Frankhauser *World Economics* 158.
102 Olawuyi 2009 *African Journal of International and Comparative Law* 285.
103 Olawuyi 2009 *African Journal of International and Comparative Law* 285. See also McGuigan, Reynolds and Wiemer 2002 http://www.odi.org.uk/resources/download/2578.pdf 18.
104 Olawuyi 2009 *African Journal of International and Comparative Law* 286.

electricity, land, efficient security service systems and efficient transportation systems.

3.3.2.3 Legal and institutional framework

Quite importantly, the legal and institutional framework of a country is described as an important attractiveness indicator of a host country.[105] A host country is assessed based on its ability to implement laws important to further CDM implementation. Therefore, a host country should develop a clear understanding of its approval criteria and its sectoral and technological needs and priorities, bearing the competitive nature of a CDM project in mind.[106] A developing country must develop and implement adequate CDM laws and create an institutional framework for implementation to be considered as the desired destination for CDM projects.[107]

3.4 The process of establishing a Clean Development Mechanism project

A project starts with a project idea note (PIN) which provides a rough overview of the project by its project developer(s).[108] It contains information regarding possible anticipated emission reductions, the additionality[109] of the project, the project's contribution to sustainable development as well as a preliminary overview of the project's budget and expected returns. A PIN is not an obligatory step of the CDM project cycle, it is however useful *inter alia* for the presentation of the project to the host.[110]

The next step to establishing a CDM project is to submit a project design document (PDD). The PDD must include a monitoring plan, documentation relating to the environmental impacts of the activity, and a letter of approval from the

105 UNEP *Guidebook to Host Country Legal Issues* 20.
106 Olawuyi 2009 *African Journal of International and Comparative Law* 285.
107 Olawuyi 2009 *African Journal of International and Comparative Law* 285. See also UNEP *Guidebook to Host Country Legal Issues* 39 and section 4.
108 DE *Guidance for CDM in South Africa* 6.
109 Refers to whether a project has resulted in GHG emission reductions or removals in addition to what would have occurred in its absence.
110 DE *Guidance for CDM in South Africa* 6.

host/developing country that confirms the contribution of the proposed activity to the achievement of the goal of sustainable development.[111] This PDD must be submitted to the designated operation entity (DOE).[112]

The DOE in turn reviews the PDD and establishes whether all the relevant requirements have been met. This review entails the establishment of additionality. As referred to above, this term refers to whether the reductions in anthropogenic emissions are additional to any reduction that would have occurred in the absence of the activity. The host country, through the DNA determines whether the project would contribute to sustainability in the country.[113] An important means of achieving additionality is to ensure consistency in the measurement and accounting of emission reductions. For this reason, the CDM Executive Board[114] (CDM EB) must approve the methodology employed by a project proponent to qualify emission reductions.[115]

A CDM project can be classified under fifteen general categories.[116] An existing methodology may be used by the project proponent or a new, approved methodology may be used.[117] The CDM EB adopts a "case based" approach to establishing the validity of a methodology.[118] Any deviations from an established methodology must be justified and reviewed by the CDM EB.[119] The number of CERs generated by a project is calculated to be the baseline emissions.[120]

For example, a CDM project may involve the construction of a wind farm to supply renewable energy (a project with very few GHGs) to a national grid that is dominated by emission-intensive fossil-fuel plants. It can be assumed that the wind farm would replace or at least in part substitute electricity that would otherwise have been

111 Dawson and Spannagle *Complete Guide to Climate Change* 78.
112 Yamin and Depledge *The International Climate Change Regime* 163.
113 Decision 17/COP 7. See also Yamin and Depledge *The International Climate Change Regime* 176.
114 The CDM EB supervises the Kyoto Protocol's CDM under the authority and guidance of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol.
115 Decision 21/COP 8.
116 Dawson and Spannagle *Complete Guide to Climate Change* 78.
117 Methodology in this instance refers to the method employed by the project proponent to quantify emission reductions.
118 This implies that once a methodology has been approved, a pattern is established and similar projects can use the same methodology. See Dawson and Spannagle *Complete Guide to Climate Change* 79-80.
119 Olawuyi 2009 *African Journal of International and Comparative Law* 285.
120 Emissions that would have occurred in the absence of the project minus the project emissions.

generated by a fossil-fuel plant and therefore should be credited with reducing the fossil-fuel plant emissions. However, it is often much more complex to ascertain the amount by which a specific project reduces emissions across the system because there is a range of potential generating sources that could be displaced, some of which are also low emission sources.[121]

As soon as the DOE have confirmed the validity of a project, it is submitted to the CDM EB, who will supervise the implementation of the CDM. The CERs generated from such a registered project must be calculated in accordance with the methodology set out in the monitoring plan.[122]

The monitoring report must be verified by a different DOE than the one that undertook the initial validation. Verification will confirm the accuracy of the emission reduction claims. This will involve collection, testing and evaluation of evidence.[123]

3.5 Concluding remarks

The above shows that a developing country is required to meet considerable eligibility requirements to attract CDM investments. The following section of this study will consider the measures taken by South Africa to date with regard to its attractiveness as a host country for CDM investment.

An investigation into the mitigation and revenue generating potential of South Africa as a host country is necessary.[124] South Africa should thus have established the necessary policies and legislative measures to be eligible as a host country. The attractiveness of the general investment climate in South Africa would greatly depend on the political stability within the country and the effectiveness of the law.[125] South Africa should also be able to provide the necessary enabling environment in fundamental areas such as electricity generation and improvement of worker-skills.

121 Dawson and Spannagle *Complete Guide to Climate Change* 78.
122 Yamin and Depledge *The International Climate Change Regime* 175.
123 Dawson and Spannagle *Complete Guide to Climate Change* 82.
124 Through investigating government policies and legislation.
125 Political stability is not discussed in any detail in this research paper. The focus of this paper is on the legislative and policy framework enabling CDM in South Africa.

However, probably the most important requirement is South Africa's capacity to develop and implement CDM law and policy.

4 Provision for the Clean Development Mechanism in South African law and policy

4.1 Introduction

As indicated above, the legal framework of a developing country such as South Africa is one of the most important factors that influence the investment decisions of CDM investor countries. For this reason, the policies and legislation that align and support the CDM in the international domain need to be addressed.

As described in section 3.4 the DNA is responsible for assessing applications submitted for CDM projects for approval and for determining whether they comply with national and international criteria, and if so, issuing letters of approval,[126] which effectively grant the project applicant all rights and title to the emission reductions generated by the CDM project.[127]

South Africa also established the National Committee on Climate Change (hereafter NCCC) and the Governmental Committee on Climate Change (hereafter GCCC) as responsible departments.[128] The NCCC acts in an advisory capacity to the DE on issues related to climate change and is tasked with designing a process leading to the formulation of a national climate change policy and a national implementation strategy. Its composition includes officials from various government departments and representatives of non-governmental organisations (hereafter NGOs).[129] The GCCC is *inter alia* responsible for advising the Sub-Directorate of Climate Change and Ozone Layer Protection on climate change issues which includes the CDM and the other flexible mechanisms.[130]

---

126 Ss 3(1)(a) and (b) of GNR 721 in GG 27788 of 22 July 2005.
127 Ss 7(5)(f) of GNR 721 in GG 27788 of 22 July 2005.
128 DEA *Key Committees* available at http://www.environment.gov.za/ClimateChange2005/Key_Committees.htm [date of use 14 October 2011].
129 GN 721 in GG 27788 of 22 July 2005.
130 DEA *Key Committees* available at http://www.environment.gov.za/ClimateChange2005/Key_Committees.htm [date of sue 14 October 2011].

In South Africa, the Department of Energy (hereafter DE) was designated as the DNA for CDM projects in terms of section 25(3) of the *National Environmental Management Act* 107 of 1998 (NEMA).[131] According to the DE, to date, two hundred and twenty eight CDM projects have been submitted to the DNA. One hundred and eighty nine PINs and thirty nine PDDs. Of the thirty nine PDDs, twenty have been registered by the CDM EB as CDM projects (seven issued with CERs), and nineteen are at different stages of the project cycle. These stages differ from DNA approval to the validation stage and/or the request for review.[132] CDM projects in South Africa mainly involve fuel-switching, nitrous oxide abatement and landfill projects.[133]

4.2 The South African legal framework

The legal framework for CDM in South Africa can be found in various pieces of legislation. For purposes of this study, the legal framework enabling the CDM includes the *Constitution*, NEMA, NEMAQA, and the *National Energy Regulator Act* 40 of 2004. These laws are briefly discussed.

4.2.1 The Constitution

The *Constitution* is the supreme law that governs South Africa. In the *Constitution*, the Bill of Rights provides for a substantive and enforceable environmental right. The *Constitution* provides for the respect, protection and fulfilment of the rights referred to in the Bill of Rights, including the section 24 environmental right.[134] Each citizen's environmental right is specifically mentioned and the government is specifically mandated[135] to enact legislation and to take different other measures in achieving the goals mentioned in section 24(b). The *Constitution* also states that any international agreement becomes law when it is enacted into law by national

131 GN 721 in GG 27788 of 22 July 2005.
132 The complete list of registered CDM activities and phases in the registration process is available at http://www.energy.gov.za/files/esources/kyoto/kyoto_frame.html.
133 UNFCCC http://cdm.unfccc.int/Projects/projsearch.html.
134 S 7(2) of the *Constitution*.
135 Glazewski *Environmental Law in South Africa* 87.

legislation unless it is inconsistent with the *Constitution*.[136] Therefore, even though South Africa agreed to the climate change mitigation targets in the Kyoto Protocol voluntarily, this would be of a binding nature in light of the *Constitution*. The *Constitution* also prescribes directly that preference to reasonable interpretation of the legislation consistent with international law is necessary.[137]

The most important environmental statute to emerge in the South African environmental law landscape is the NEMA, which came into operation on 29 January 1999. The NEMA provides the overarching framework for integrating environmental management into all development activities, including those that result in GHGs.

4.2.2 The National Environmental Management Act

The NEMA was promulgated to serve as South Africa's environmental framework legislation.[138] It was designed to provide for co-operative and integrated environmental governance by establishing a general framework for decision-making on matters that affect the environment.

Chapter 6 of the NEMA empowers the Minister of DE to introduce legislation into Parliament, or to make such regulations as may be necessary, to give effect to an international environmental instrument to which the country is party.[139] The NEMA defines the term international environmental agreement to mean any international agreement, declaration, resolution, convention or protocol, which relates to the management of the environment. As such, the Kyoto Protocol would classify as an international environmental agreement in terms of the NEMA.

4.2.2.1 The environmental principles

For the purposes of this study, it is relevant to discuss some of the environmental principles established in NEMA. These principles "apply throughout the Republic to the actions of all organs of state that may significantly affect the environment."[140]

136 S 231(4) of the *Constitution*.
137 S 233 of the *Constitution.*
138 Nel and Du Plessis 2001 *SAJELP* 35.
139 S 25(3) of NEMA.
140 S 2(1) of NEMA.

These include the government's responsibility to respect, protect, promote and fulfil the social and economic rights contained in the *Constitution*.[141] The principles serve as guidelines in terms of which the government functions with regard to the environment and the manner in which the environment is managed and protected.[142] The CDM as climate change mitigation vehicle is relevant must be aligned with the mentioned principles.

The principles provide 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.[143] Sustainable development is also acknowledged as one of the principles. Sustainable development in this regard is development that is socially, environmentally and economically sustainable.[144] This principle of sustainable development is also directly linked to the principle of sustainability as contained in the UNFCCC.[145]

The importance of sustainable development in the environmental governance context necessitates the need to consider some of the other related principles of the NEMA briefly. The disturbance of ecosystems, the loss of biological diversity, environmental degradation, and pollution must be avoided, and where they cannot be avoided they must be minimised and remedied.[146] This holds direct bearing on climate change and the Kyoto Protocol and in effect the CDM as discussed in section 1 of this paper. The CDM is a mechanism specifically designed to minimise pollution and environmental degradation through the introduction of green and energy efficient technologies with mitigation potential. As such, the CDM contributes towards sustainable development in the cadre of climate change.

The NEMA's principles also establish that environmental management must be integrated[147] and intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment must be attained.[148] It is therefore important to consider the environment as a whole by integrating the stakeholders in

141 S 2(1)(a) of NEMA.
142 S 2(1)(c) and (e) of NEMA.
143 S 2(2) of NEMA.
144 S 2(3) of NEMA.
145 A 3 of the UNFCCC.
146 S 2(4)(a)(i) and (ii) of NEMA.
147 S 2(b) of NEMA.
148 S 2(l) of NEMA.

the South African economy and their role in climate change. The principles also provide that an all-inclusive decision-making process must be followed for matters relating to the environment.[149]

These principles are in accordance with the general principles contained in article 3 of the UNFCCC.[150] Both the UNFCCC and the NEMA contain the principles of sustainable development,[151] the precautionary principle,[152] and the duty to prevent and mitigate environmental damage.[153] As mentioned in section 3.2 the CDM has the potential to promote sustainable development using clean energy methods. The CDM furthermore has the precautionary principle embedded in its methodology and project PD phases.[154] The additionality feature, also clearly addresses the duty to prevent and mitigate environmental damage in terms of GHGs.[155]

4.2.2.2 The environmental provisions

The NEMA provides for the possibility of the private sector entering into a voluntary agreement with certain regulatory authorities for the purpose of promoting compliance with the NEMA principles. Such agreements are called Environmental Management Co-operation Agreements (EMCAs).[156] These agreements can also be seen as having a bearing on the CDM. In terms of EMCAs the private sector can also negotiate on a voluntary basis CDM project implementation with investor countries which, in turn will give effect to the above mentioned legislation as well as the Kyoto Protocol.

South Africa's international responsibilities relating to the environment are also provided for in that the actions of the state must be in the national interest.[157] This provision relates to the application of the UNFCCC and the Kyoto Protocol, and acknowledges that South Africa has international obligations that are of importance to the environment. The importance of this became evident when the Minister of

149 S 2(l) of NEMA.
150 Refer to section 2.1.2.
151 A 3.1 of the UNFCCC and s 2(3) of NEMA.
152 A 3.2 of the UNFCCC and s 2(4)(a)(vii) of NEMA.
153 A 3.2 of the UNFCCC and s 2(4)(a)(i), (ii) and (vii) of NEMA.
154 In as far as, development and the protection of the environment are concerned as referred to in section 4.2.2.1.
155 See section 3.4.
156 S 35 of NEMA.
157 S 2(4)(n) of NEMA.

Environmental Affairs published the Montreal Protocol in the Government Gazette for general information.[158] It also could be viewed as an indication of how South Africa should comply with its international obligations with national interest, specifically sustainable development, in mind. This requires that South Africa's climate change mitigation and adaptation responses (including involvement in CDM projects) be in the interest of the country, and not only to the benefit of the international community. In order to illustrate the further actions of the legislature to address climate change, legislation relating to air quality management will be discussed in the following section.

4.2.3 The National Environmental Management: Air Quality Act

In September 2004, NEMAQA was identified in the Climate Change Response Strategy as the foremost instrument in combating climate change with regard to GHG. To achieve this objective the act provides for a number of regulatory mechanisms. NEMAQA empowers the Minister of EA to make regulations in certain instances.[159] The instances provided for include, but are not limited to, any matter necessary to give effect to the government's obligations in terms of an international agreement relating to air quality.[160] The Minister is therefore empowered to actively promote the CDM as both a climate change mitigation mechanism as well as tool to enforce air quality compliance through the setting of standards.

The objective of NEMAQA is to reform the law regulating air quality to protect the environment through the provision of reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development, while promoting justifiable economic and social development.[161] NEMAQA addresses environmental management through the setting of standards.[162] This management approach was identified in 2000 with the Department of Environmental Affairs' publication of the *White Paper on Integrated Pollution and Waste Management for South Africa*.[163] The standards mentioned,

158 GN 201 in GG 33005 of 8 March 2010.
159 S 53 of NEMAQA.
160 S 53(a) of NEMAQA.
161 S 2 of NEMAQA.
162 S 63 of NEMAQA.
163 GN 227 in GG 20978 of 17 March 2000.

opens the possibility for GHG mitigation standards such as that envisaged by the CDM methodology. Approved methodologies for methane capture from animal manure management systems can be utilised and incorporated into the Waste Management standards to enable producers of animal manure to benefit from this through guidance, for example.[164] At domestic level the Mariannhill Landfill to Gas CDM project[165] in Durban is a shining example of a similar methodology that the South African government could syndicate nationwide. This methodology is applicable to landfill gas capture and electricity generation, where landfill can be utilised for the generation of methane voluntarily. This methodology has the potential, from a policy perspective, in assisting local government in playing an active role in the CDM process.[166]

Chapter 2 of the Act provides for the establishment of a national framework to address *inter alia* emission controls, monitoring, planning, and information management and compliance strategies.[167] There is direct relevance to the CDM in this regard. The CDM can be used as a vehicle through which emission controls concerning GHGs can be established. This can be achieved through actively quantifying the amounts of GHGs emitted by the private sector. These emissions are consequently measured in terms of the verification process discussed in section 3.4. The Minister of Environmental Affairs established national ambient air quality standards in December 2009.[168] The CDM, which deals with methodologies, is an excellent mechanism through which these air quality standards can be measured through quantifying the reduction levels and proven methods can be utilised to achieve the ambient air quality standards. This is possible by utilising the CDM methodology as a baseline measuring method for compliance. In South Africa's Initial Communication to the UNFCCC the need for an emission database was recognised. Section 53(m) of NEMAQA provides for this.

164 UNFCCC *Baseline and Monitoring Methodologies* available at http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html
165 More information can be obtained from http://www.enviros.com/PDF/CivilEngNov2007.pdf.
166 UNFCCC *Landfill gas capture and electricity generation projects where landfill gas capture is not mandated by law* available at http://cdm.unfccc.int/methodologies/approved.
167 GN 1138 in GG 30284 of 11 September 2007.
168 GN 1210 in GG 32816 of 24 December 2009.

Chapter 6 of NEMAQA further holds a bearing on the commitment of sustainable development and international cooperation with respect to air quality management. This chapter goes further by addressing international air quality management by providing the Minister with the means to be a "good neighbour". The Minister is empowered to investigate any situation with regard to trans-boundary air pollution and air pollution that may violate international agreements. This legal provision provides that the Minister can apply pressure on neigbouring countries (signatories to the Kyoto Protocol) to actively participate in the CDM process or more specifically utilise the methodologies used for the CDM in order to become a “good neighbour”. NEMAQA also provides for a series of air quality management measures, such as priority areas,[169] listing of activities that result in atmospheric emissions,[170] controlled emitters,[171] controlled fuels,[172] pollution prevention plans,[173] atmospheric impact reports[174] and recognition programmes.[175]

The Minister or Provincial Member of an Executive Council (MEC) responsible for the environment is empowered to declare an area as a priority area. This power may be exercised on the reasonable belief that ambient air quality standards are being, or may be, exceeded in the area, or if any other situation exists that is causing, or may cause, a significant negative impact on air quality in the area, and the area requires specific air quality management action to rectify the situation.[176]

Priority area management plans must be prepared for priority areas.[177] Such plans must be aimed at coordinating air quality management in the area, address issues related to air quality in the area, and provide for implementation by a committee that represents the relevant stakeholders.[178] Accordingly, the Minister published regulations for implementing and enforcing the Vaal Triangle Air-Shed Priority Air

169 S 18 of NEMAQA.
170 S 21 of NEMAQA.
171 S 23 of NEMAQA.
172 S 26 of NEMAQA.
173 S 29 of NEMAQA.
174 S 30 of NEMAQA.
175 S 31 of NEMAQA.
176 S 18(1) and (2) of NEMAQA.
177 S 19(1)(a) of NEMAQA. Priority areas are hotspot zones within the priority areas where intervention strategies will take priority based on the predicted ambient air concentrations from the priority pollutants and the exposure potential.
178 S 19(6) of NEMAQA.

Quality Management Plan.[179] This was also done for the Highveld area. These priority areas may serve as excellent CDM project investment areas. These priority areas consist of various heavy, energy-intensive and air-polluting industries. Declaration of priority areas intended to consider governmental capacity constraints by concentrating on pollution "hotspots". The government can utilise high concentrations of GHG emissions as an indicator and area specific CDM methodologies can be developed and utilised in these "hotspots". The CDM can thus prove to be a vehicle through which the methodologies identified can evolve into mandatory methods of pollution minimisation.

The Minister or MEC must further publish a list of activities that result in atmospheric emissions that are reasonably believed to have or possibly have a significant, detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage.[180] The list must establish the minimum emission standards of substances, including the permissible amount, volume, emission rate or concentration of substances emitted, that result from a listed activity and municipalities are charged with implementing the licensing system.[181] A list of factors to be taken into account by licensing authorities is also provided, which includes applicable minimum standards set for ambient air, any measures taken to protect the environment and any tradable emission scheme.[182] There are a number of emission trading schemes currently operating internationally within the Kyoto Protocol and outside the Kyoto Protocol.[183] This forms the basis that a tradable emission scheme has the potential of success. The approach of setting standards in line with CDM methodologies has the potential to expand the country's CDM capacity through the creation of a wider platform for more parties to become involved and the possibility of a domestic and even regional CDM based trading scheme is present.

The Minister or MEC also has the discretion to declare any appliance or activity, or any appliance or activity that falls within a specified category, a controlled emitter. This can be done on the basis that such appliance or activity, or such appliance or

179 GN 614 in GG 32254 of 16 July 2010.
180 S 21(1)(a) of NEMAQA.
181 S 21(3) of NEMAQA.
182 S 39 of NEMAQA.
183 Examples such as the EU ETS and the Regional Gas Initiative in the United States of America.

activity that falls within such category, results in atmospheric emissions that, through ambient concentrations, bio-accumulation, deposition or in any other way, present a threat to health or the environment.[184] Should a controlled emitter therefore be responsible for GHG emissions, the possibility of utilising the methodology from an approved CDM project could be put into place to address the emitter.

Regional programmes are also addressed in accordance with the commitments mentioned earlier. The Minister of Environmental Affairs, under section 46(1) of NEMA read with NEMAQA, published the Draft Model Air Quality Management By-Law for easy adoption and adaptation by municipalities.[185] The main aim of the Model Air Quality Management By-Law (model by-law) is to assist municipalities in the development of their air quality management by-law within their jurisdictions. It is also the aim of the model by-law to ensure uniformity across the country in addressing air quality management challenges. Therefore, the model by-law is generic in order to be applied to various air quality management challenges.[186] The CDM can be a huge enabler in this sense because CDM projects focussed on sector specific GHG emitters can be developed and investment in monetary terms will be the result for the surrounding communities. Generic methodologies can be utilised throughout the country, specifically to industries identified as controlled emitters. The specific CDM projects will therefore on a voluntary basis benefit that specific sector and surrounding community without government intervention.

4.2.4 The National Energy Regulator Act

Through the *National Energy Regulator Act*,[187] the National Energy Regulator of South Africa (hereafter NERSA) was established with the responsibility of overseeing the electricity, piped gas and petroleum industries. NERSA established the Energy Efficiency Strategy[188] with the goal, *inter alia*,[189] of reducing environmental pollution and carbon dioxide emissions. In achieving this goal, the strategy highlights

184 S 23(1) of NEMAQA.
185 GN 964 in GG 32394 of 15 July 2009.
186 GN 579 in GG 33342 of 3 July 2010.
187 40 of 2004.
188 GN 908 in GG 32342 of 26 June 2009.
189 The goals of the strategy are to improve national health, job creation, alleviate energy poverty, reduce environmental pollution, reduce carbon dioxide emissions, improve industrial competitiveness, enhance energy security, and reduce the need for additional generation capacity.

renewable energy and energy-efficiency interventions with the corresponding opportunities of CDM project implementation.[190]

NERSA commissioned the development of a Renewable Energy Feed-In Tariff (hereafter REFIT) in 2009.[191] The REFIT only applies to power generation from generators connected to the national grid and therefore excludes off-grid power generation. The REFIT presents opportunities for CDM project implementation because the pricing model does not take CDM into account and therefore any CDM revenue would be in addition to the tariffs being received, thereby increasing the financial viability of these projects. It will therefore be beneficial from a renewable energy production perspective, should the additionality requirements be fulfilled, as well as from the additional benefits from CDM implementation such as CERs. Unfortunately, REFIT is currently not in use.

The Pilot National Cogeneration Programme (hereafter PNCP) is another programme led by NERSA and Eskom with the objective of stimulating the development of cogeneration technologies in South Africa and in doing so, contribute to CDM project stimulation. As with the REFIT, the PNCP does not preclude investors from registering projects as CDM projects and thereby gaining financial support via the sales of carbon credits.[192] The incentives are therefore dualistic. Firstly through an influx of benefits from cogeneration and secondly through CDM project implementation and based on the success of the CDM, financial gain. There is also the added benefit to the environment through the minimisation of pollution.

4.2.5 Taxation legislation

In the draft *Taxation Laws Amendment Act* 2009,[193] an income tax incentive is proposed for any business that takes part in a CDM project.[194] The incentive would apply to the sale of carbon credits and would exempt the revenue from that sale from income tax. It provides furthermore for income tax reductions for energy-efficiency

190 DE *CDM Status Review* 26.
191 GN 721 in GG 32378 of 5 August 2009.
192 DE *CDM Status Review* 26.
193 17 of 2009.
194 S 12K of the *Taxation Laws Amendment Act,* 2009.

savings based on energy-efficiency savings certificates.[195] The tax reduction acts thus as an incentive for CDM project implementation for all the parties involved.

4.3 National Climate Change Response Strategy for South Africa

As mentioned before, South Africa as a signatory to the UNFCCC has to fulfil certain obligations. These obligations were distilled in September 2004 in the *National Climate Change Response Strategy* for South Africa.[196] These obligations include the establishment of a national inventory of GHGs, the Long Term Mitigation Scenario, and the Technology Needs Assessment Report, and are discussed below with reference to the CDM.

4.3.1 A national inventory of greenhouse gases

The first measure was the preparation of a national inventory of GHGs and sinks. The GHG inventory was developed using the 1996 IPCC Guidelines for National GHG Inventories and an official website was launched.[197] This inventory can be utilised to syndicate approved CDM methodologies throughout the country in an effort to reduce GHGs. The GHGs can serve as the baseline against which improvements can be measured.

4.3.2 Long Term Mitigation Scenario

South Africa formulated the Long Term Mitigation Scenario (hereafter LTMS) by means of a modelling exercise.[198] The LTMS addresses climate change imperatives whilst supporting economic growth. The scientific data and analysis drawn from the

195 S 12L of the *Taxation Laws Amendment Act,* 2009.
196 *National Climate Change Response Strategy*, 2007.
197 DEA GHG Inventory available at http://www.saaqis.org.za.
198 DEA http://www.environment.gov.za/HotIssues/2008/LTMS/A%20LTMS%20Scenarios%20for%20SA.pdf.

LTMS translated into six broad policy themes.[199] A discussion of these policy themes does not fall within the scope of this study.[200]

4.3.3 South Africa's Technology Needs Assessment Report

The third obligation to which South Africa had to adhere was to undertake a Technology Needs Assessment (hereafter TNA), which was undertaken in 2007 and a report on this assessment was issued.[201] This TNA Report, in respect of climate change, was submitted in 2007 to the secretariat of the UNFCCC as a National Communication to the Convention. The purpose of the TNA Report is to enable developed countries to utilise the findings of the report as a means to cooperate with developing countries in order to meet their obligations in terms of technology transfer with respect to climate change. The relevance to the CDM is that prospective developed countries can identify the specific needs where investment in South Africa will be most beneficial.

4.4 Policies and governmental measures specific to the Clean Development Mechanism

Quite laudably, various governmental policies provide for either specific or implied realisation of CDM project implementation. These policies include the *Integrated Resource Plan for Electricity*[202] and, most importantly the White Paper of 2011. Both of these policies will be discussed in the sections that follow.

4.4.1 Integrated Resource Plan for Electricity

The DE published the *Integrated Resource Plan* (hereafter IRP) for public comment on 8 October 2010.[203] The IRP proposes an energy source "mix" for South Africa, to consist of forty eight percent baseload coal energy, fourteen percent baseload

199 These themes are: Greenhouse gas emission reductions and limits; Build on, strengthen and/or scale up current initiatives; Implementing the "Business Unusual" Call for Action; Preparing for the future; Vulnerability and Adaptation; and Alignment, Coordination and Cooperation.

200 Policy themes available at http://www.environment.gov.za/hotissues/2008/ltms/A%20LTMS%20Scenarios%20for%20SA.pdf.

201 South Africa's *Technology Needs Assessment Synthesis Report* (2007).

202 GN 400 in GG 34263 of 6 May 2011.

203 DE IRP http://www.doe-irp.co.za/.

nuclear energy, sixteen percent renewable energy, nine percent open cycle gas turbine energy for peak hours, 6 percent pump storage for peak hours, 5 percent gas and 2 percent baseload imported hydro-energy.[204] This energy mix makes CDM project investment in alternative energy production or renewable energy production in terms of a recognised CDM methodology possible. This can be achieved by utilising alternative energy sources.

On 6 May 2011, the Minister of Energy promulgated the IRP 2010 into the schedule.[205] Changes to the plan subsequent to the public participation phase included additional cost-optimal scenarios. These include:

- The acceleration of the installation of renewable energy;[206]
- Specific accounting of the uncertainties associated with the costs of renewable energy and fuels;
- Maintaining the emission constraints;[207] and
- Energy-efficiency, demand-side management measures.[208]

The DE also established the Renewable Energy Finance and Subsidy Office, whose mandate includes the management of renewable energy subsidies and the offering of advice to developers and other stakeholders on renewable energy finance and subsidies.[209] This has the possibility to be utilised as another tool by project proponents to gain sufficient access to capital in the development of a CDM project.

204 http://www.info.gov.za/aboutsa/energy.htm.
205 GN 908 in GG 32342 of 26 June 2009.
206 Renewable energy refers to solar photovoltaic, concentrated solar power and wind options.
207 The constraints are 275 million tons of carbon dioxide per year after 2024.
208 Demand-side measures can be categorised into energy reduction programmes, which are aimed at reducing demand through more efficient processes, buildings or equipment; load management programmes, which are aimed at changing the load pattern and encouraging less demand at peak times and peak rates; and load growth and conservation programmes.
209 DE *CDM Status Review* 27.

4.4.2 National Climate Change Response White Paper

The White Paper presents the South African government's vision for an effective climate change response. This response has two objectives, which are effective management of climate change and stabilisation of GHGs.

Chapter 6 of the White Paper deals with the mitigation approach South Africa identified. In this context the approach is characterised within two contexts. The first is the acknowledgement of its contribution as a global responsible citizen with regards to emissions curbing. This is an extremely important acknowledgement from government to link itself to international agreements such as the Kyoto Protocol, which in effect gives more credibility to CDM projects.

The second characteristic is the effective management of developmental and poverty eradication challenges. The White Paper promotes mitigation measures to actualise sustainable development in socio-economic as well as environmental terms. The CDM, which stimulates the flow of foreign capital, can be argued to promote sustainable development through the additionality component and the socio-economic component through monetary investment and resulting job creation. The stabilisation of GHGs is also acknowledged to be attainable through international co-operation. This international co-operation is an integral part of CDM investment and is therefore stimulated by this notion of foreign capital stimulation.

The key elements in the overall mitigation approach are through utilising the following:[210]

- Mitigation through performance benchmarking.[211] The objective is to benchmark a National GHG Emissions Trajectory Range, against which the collective outcome of all mitigation actions are measured. It is submitted that this Trajectory Range can also be utilised as a "baseline" against which the effectiveness of the CDM for certain sectors can be measured.

210 White Paper 25.
211 White Paper 27.

- Identifying desired sectoral mitigation contributions.[212] These contributions will be identified by defining desired emission reduction outcomes for each significant sector and sub-sector of the economy based on an in-depth assessment of the mitigation potential, best available mitigation options, science, evidence and a full assessment of costs and benefits. The implication for the CDM in this regard could be that the costs and benefits of projects will be measurable prior to implementation.
- Through defining carbon budgets for significant GHG emitting sectors and/or sub-sectors. By adopting a carbon budget approach to provide flexibility and least-cost mechanisms for companies in relevant sectors and/or sub-sectors and, where appropriate, translating carbon budgets into company level desired emission reduction outcomes. The implication for the CDM will be that CDM projects will take place in the private sector and investors will be aware of this. The carbon budget approach will identify optimal combinations of mitigation actions at the least cost with the most sustainable benefits.[213]
- To require companies and economic sectors or sub-sectors for which desired emission reduction outcomes have been established, to prepare and submit mitigation plans that set out how they intend to achieve the desired emission reduction outcomes. From a CDM viewpoint, this will also be an enabling factor for CDM implementation by forming part of possible mitigation plans. This will change the culture with which companies approach projects and business. Sustainability will be a major consideration point for business when strategic planning takes place.[214]
- Development of a wide range and mix of different types of mitigation approaches, policies, measures and actions that optimise the mitigation outcomes as well as job creation and other sustainable developmental benefits. This optimal mix of mitigation actions will achieve the defined desired emission reduction outcomes for each sector and sub-sector of the economy by ensuring that actions are specifically tailored to the potential, best available solutions and other relevant conditions related to the specific sector, sub-sector or organisation

212 Par 6.1.2 of the White Paper 25.
213 Par 6.5 of the White Paper 28.
214 Par 6.1.4 of the White Paper 25.

concerned. The implication for CDM is that it will feature as a possible mitigation measure as identified in the White Paper.[215]

- Launching a range of economic instruments to support the system of desired emission reduction outcomes, including the appropriate pricing of carbon and economic incentives, as well as the possible use of emissions offset or emission reduction trading mechanisms for those relevant sectors, sub-sectors, companies or entities where a carbon budget approach has been selected. The price of CERs could possibly also become an increasingly popular tradable commodity.[216]
- Monitoring and evaluation of GHGs. This will be an existing feature of the CDM, making it a favourable mechanism. With additionality as requirement for a successful CDM project, the monitoring and evaluation methods are already part of the process. The monitoring and evaluating of the GHG reduction is a pre-existing factor of CDM projects.[217]

Mitigation opportunities identified in the White Paper are energy efficiency, demand management and moving to a less emissions-intensive energy-mix, with consequent economic benefits of improved efficiency and competitiveness as well as incentivising economic growth in sectors with lower energy intensities. The CDM could be auxiliary to all the aforementioned. Through the CDM energy efficiency and optimal energy consumption can be achieved whilst the CDM in itself provides for environmental and monetary incentives.

A mix of economic instruments, including market-based instruments such as carbon taxes and emissions trading schemes, supplemented by appropriate regulatory policy are facilitating mitigation efforts enables the CDM to play a crucial role with CER generation coupled with its tax benefits. The aforementioned should prove to be a valuable mitigation mechanism.

The White Paper also refers to the draft Environmental Fiscal Report Policy Paper entitled: A framework for Considering Market-Based Instruments to Support

215 Par 6.1.5 of the White Paper.
216 Par 6.1.5 of the White Paper 25. See also section 4.4.1.
217 Par 5.1.7 of the White Paper 25. See also section 3.4.

Environmental Fiscal Reform in South Africa. The outcome of this paper was the identification of the benefit of income tax exemption for revenue generated from the sale of CERs.[218] The White Paper also notes that the National Treasury will investigate the feasibility of an emissions trading scheme.[219]

4.5 Concluding remarks

The determination by the South African government to implement market-based mechanisms as significant contributors to South Africa's climate change response is evident from the discussion above. This effort was established by the LTMS and it continued through to the White Paper. The CDM is specifically identified as a part of the required mechanisms. It is clear from the former section that South African policies and legislation provide for the necessary vehicles to promote the CDM.

Chapter 6 of NEMAQA empowers the government to investigate any situation with regard to trans-boundary air pollution and air pollution that may violate international agreements.[220] This could be utilised to promote the CDM amongst other signatory countries on the African continent. NEMAQA also empowers the government further in terms of section 53(a) to establish regulations to give effect to international agreements, such as the Kyoto Protocol. NEMAQA makes it possible to promulgate regulations specific to CDM projects concerned with air quality. Therefore, the argument is possible that the enabling platform for CDM implementation is available in South African law. The list of activities published by the Minister that have or may have a detrimental effect on the environment provides a clear indication of the specific areas that would benefit from CDM project implementation.[221]

In addition, NEMAQA provides for the possibility of a tradable emission scheme, which is possible using CDM methodologies.[222] Approved CDM methodologies can accelerate the pace at which the strategies in the White Paper are implemented. Fundamental actions identified in the Climate Change Response Strategy have been

218 Par 10.7 of the White Paper.
219 Par10.7.2 of the White Paper.
220 Refer to section 4.2.3.
221 Refer to section 4.2.3.
222 Refer to section 3.4. and section 4.2.3.

implemented. These include the renovation of the air quality regime by the DEA and the all-important establishment of the DNA for the CDM through the use of the NEMA.

5 Status of the Clean Development Mechanism in South Africa

5.1 Introduction

As described in section 3, there are various formal requirements a developing country must meet to be eligible for CDM development. In this section, the analysis of South Africa's provision for these requirements is detailed.

The first formal requirement is that the developing/host country must have ratified the Kyoto Protocol. South Africa has ratified the Kyoto Protocol.[223] The second requirement is that the Kyoto Protocol must be domesticated through the enactment of domestic law. As described in chapter 4, the necessary legislation[224] and governmental policies[225] as vehicles for promoting the Kyoto Protocol have been enacted.[226] The third requirement is the establishment of a DNA to oversee projects. Such a DNA has been designated by the South African government.[227] The fourth requirement is that sustainable development criteria must be identified. This too has been done.[228] The fifth requirement is that a comprehensive CDM law that specifies the procedure for proposing CDM projects and for obtaining national approval must be enacted, which was fulfilled through the enactment of the CDM regulations.[229]

As South Africa has fulfilled all the necessary eligibility requirements, it is eligible for CDM development. From the actual *status quo* of CDM projects in South Africa, it is clear that the country is not attracting the number of CDM projects that it has the potential to attract. This is apparent because Africa as a whole has not attracted its share of CDM projects as envisaged by the UNFCCC.[230] It is therefore imperative to investigate the status of CDM project implementation in South Africa and the

223 Refer to section 3.
224 Refer to section 4.2.
225 Refer to section 4.3.
226 Refer to section 4.3.
227 GN 721 in GG 27788 of 22 July 2005.
228 Refer to section 4.
229 GN 721 in GG 27788 of 22 July 2005.
230 Africa only contributed 2.01% of total registered CDM projects with the UNFCCC. Contributors to CDM projects per continent are available at http://cd.unfcc.int.

effectiveness of the legislative and policy measures taken by the South African government. This study only provides a broad overview.

The first registered CDM project in South Africa was the Kuyasa low-cost urban housing energy upgrade project.[231] This project was identified as a gold standard project, which implies that it meets the highest sustainability criteria for CDM projects and earns certified carbon credits tradable in the international market.[232] It entailed changes to ceiling insulation and the installation of solar water heaters and the introduction of energy-efficient compact fluorescent lights. The result of this project has been a reduction of 2.85 tons of carbon dioxide per building per year. This CDM project was conducted over a period of three years through a partnership between SouthSouthNorth,[233] the local beneficiary community and the City of Cape Town as project owner. The Kuyasa CDM project is a sterling example of the possibility of success in the synergy between governmental and the private sector with respect to effective CDM project implementation as a specifically tailored solution.[234]

Despite such a successful model, the future of the CDM in South Africa was recently placed in peril. The European Union (hereafter EU) released a policy statement that EU ETS installations will in future not be permitted to use CERs generated by CDM projects from non-least developed[235] countries that achieve formal registration after 31 December 2012. This will have the negative effect that CDM projects developed after 31 December 2012 will run the risk of finding limited purchasers of their CERs.

231 The complete validation report is available at http://cdm.unfccc.int/filestorage/F/S/_/FS_305260458/Kuyasa%20Validation%20Report_Final.pdf?t=dGV8bHNyMm5wfDDJmd5nCNHP87ZrNj45JqJh.

232 One of the criticisms of CDM, however, is that this carbon trading scheme could ultimately allow industrialised countries to avoid making the GHG reductions themselves, while funding projects (and gaining credits) that would have gone ahead without CDM funding. Such a scenario would mean that the CDM would actually result in increased GHG emissions. In response to this concern, several groups developed the Gold Standard for CDM projects. This standard for designing and creating carbon-offset projects emphasises sustainability and environmental benefits, and insists that without the financial incentives of CDM, the project would not have otherwise been developed. The Gold Standard's main purpose is to ensure that CDM projects are both reducing carbon dioxide emissions and fostering sustainable development.

233 The SouthSouthNorth Project is a network of organisations, research institutions and consultants grouped into one developmental organisation with considerable expertise to help public and private stakeholders develop the necessary confidence for dealing effectively with the CDM.

234 Another example is the Mariannhill Landfill to gas project discussed in section 4.2.3.

235 A 4.9 of the UNFCCC recognises special situations of the least developed countries (hereafter LDCs) and states. A total of 49 countries were identified as LDCs and South Africa was not recognised as an LDC. A complete list of LDCs is available at http://www.uncclearn.org/sites/www.uncclearn.org/files/inventory/UNFCCC64.pdf.

This will result in large losses of carbon revenue for South Africa.[236] The motivation for this decision is currently still unclear.

5.2 Strengths and weaknesses of the Clean Development Mechanism in South Africa

The Gordon Institute of Business Science, University of Pretoria, conducted a very useful qualitative research project in 2007.[237] Semi-structured interviews with the various groups of stakeholders in the CDM field were held.[238] The results of this empirical study identified the following inhibiting factors in relation to CDM project development:[239]

- Low energy prices: The relatively low energy prices in South Africa create a disincentive to investors in CDM projects.[240]
- Insufficient capacity: There is insufficient capacity in the CDM process. The participants in this study identified a lack of action from role players (government and private industry) as the main inhibitor. They held that government does not actively promote the CDM.[241]
- Additionality evidence as a requirement: Additionality refers to whether a project has resulted in GHG emission reductions or removals in addition to what would have occurred in its absence.[242] The weakness in establishing additionality is the variations on interpretation on what constitutes additional benefits and the

236 Gilder, Jordaan and Nell *Business Day* available at http://www.businessday.co.za/articles/Content.aspx?id=154798.
237 Little *et al* 2007 *SAJEMS* 395-211.
238 Five groups of stakeholders were identified, these include: industry, government, policymakers, project developers and supporting catalysts. These groups of experts were interviewed using a questionnaire of descriptive open-ended questions over a twelve-week period from June 2006 to August 2006.
239 Little *et al* 2007 *SAJEMS* 396-409.
240 Canada has replaced South Africa as the cheapest provider of electricity amongst the sixteen countries covered in its 2011 *International Electricity Report and Price Survey*. Information available at http://www.engineeringnews.co.za/article/price-path-warnings-as-sa-loses-cheapest-power-spot-to-canada-2011-07-28.
241 Little *et al* 2007 SAJEMS 405.
242 Refer to section 3.4.

onus of proof on the CDM implementer of presenting evidence that the project would not have occurred otherwise.

- Conservative approaches by industry towards climate change:[243] The South African private sector is regarded as generally being more conservative in embracing changes than many other countries are.

- Price volatility of CERs: Since carbon became a tradable commodity, the price for 1 ton of carbon equivalent has fluctuated from below €10 to over €30. This volatility has caused project developers to be wary of investment in projects with a volatile outcome.

- Uncertainty regarding the Kyoto Protocol post-2012: The Kyoto Protocol only holds until 2012. Thereafter, a new mechanism needs to be developed. Participants in the CDM market need to make rapid progress if they are to maximise the number of CERs they create by 2012. Uncertainty regarding what follows 2012 is a major obstacle to the entire CDM process. The reason is that there are different schools of thought on the benefits of the CDM in the international arena.[244]

- Ineffective government policies and leadership about the actual implementation of the CDM: A number of potential CDM projects are shelved because of the concerns regarding national sustainable development targets and other socio-economic issues. Consideration about environmental permitting and authorisation is an obstacle in the CDM process.

- Environmental Impact Assessment (EIA) processes and protracted deregulation of the energy sector leads to complexity of the CDM: In terms of NEMA,[245] listed activities require environmental authorisations. There are two types of assessments based on the potential environmental impacts of the activity. These assessments are either a basic assessment or a full EIA. It is likely that a larger-scale CDM project will require a full EIA. The undertaking of a full EIA is

243 During a panel debate hosted by the Institute of Directors on Corporate Governance, the need for a new type of company director who would focus on the effects of climate change on company performance was highlighted. Refer to Temkin *Business Day* available at http://www.businessday.co.za/articles/Content.aspx?id=151004.
244 Refer to section 5.1.
245 S 24 of NEMA.

time consuming and cost intensive. Therefore, in CDM project implementation terms, it can be an obstacle. This obstacle is compounded by the environmental authorisations a project might be required to obtain.[246]

- High transaction costs: There are a number of costs involved in the CDM process, which is the responsibility of the developer prior to any return on investment. Due to this reason, projects need to have a fairly large emission reduction to be viable.

- Scepticism regarding the benefits of CDM: There appears to be some reticence in placing climate change on the national agenda. This is the principal barrier to the implementation of CDM projects. South Africa, along with the United States and Kenya ranked lowest concerning public perception regarding climate change or global warming due to the Greenhouse effect.[247]

The participants of the research project also identified various risk factors of CDM project implementation. These risks include the risk of a delay in the issuance of a letter of approval by the DNA, or a project failing to obtain a letter of approval.[248] Validation and registration with the CDM EB might also prove to be problematic should there be data inconsistencies or erroneous calculations of emission reductions or issuance of CERs. There is also the risk that the approval of a methodology may be put on hold.[249]

In contrast to the afore-mentioned, the following facilitating factors were identified by the same group of participants as strengths of South Africa as a host country for CDM projects:

- The active and growing carbon market and prices available are encouraging industry to implement CDM projects. This is the positive side from a market relatively unexplored by the private sector and government alike. The possibility

246 The type of activity would determine the type of authorisation required. It is important to note that the authorisation would be dependent on the environmental legislation specifically applicable to the aspect(s) of the project.

247 WPO *Worldwide census on climate change* available at http://www.worldpublicopinion.org/pipa/articles/btenvironmentra/187.php?nid=&id=&pnt=187&lb=bte

248 Refer to section 3.4.

249 The AM0006 ("GHG emission reductions from manure management systems") methodology was put on hold in May 2006. A description of this methodology is available at http://cdm.unfccc.int/methodologies/DB/M26OLGBH210R9JGLGQEAH8XJ90WYB9/view.html

of reaping the benefits of the CDM is a facilitating factor in a country such as South Africa

- South Africa has favourable established infrastructure that facilitates the implementation of industrial CDM projects. The view from the participants is that South Africa has a well-established infrastructure in terms of raw materials, transport, etc. Government also has the necessary policy framework available that could facilitate effective CDM project implementation.[250]
- South Africa has a favourable industrial baseline. The intensity of South Africa's reliance on coal in the energy sector,[251] and its status as emitter in Africa, makes it an ideal host to CDM projects. Many industrial manufacturing companies in South Africa are energy intensive with operational plants existing many years. These plants are ideal for CDM projects in energy efficiency. This is also in line with the IRP and the search for an ideal energy mix.
- South Africa has the capacity to facilitate the implementation of industrial CDM projects. The Kuyasa low-cost urban housing energy upgrade project illustrated that the capacity for South Africa to implement small-scale CDM projects is present.

5.3 Concluding remarks

The discussion above suggests that South Africa has had successes with regard to CDM project implementation. The Kuyasa low-cost urban housing energy upgrade project is a sterling example of this.

The findings of the study undertaken by the Gordon Institute of Business Science did however expose more weaknesses than strengths. The majority of the weaknesses identified however relates to ineffective processes. None of the participants reflected negatively on the governmental policies that enable CDM projects; rather, the problem appears to lie in the implementation of the policies and procedures owing to institutional incapacity.

250 Refer to section 4.
251 *National Climate Change Response Strategy* 8.

Developers of CDM projects are currently faced with the problem of having to decide whether to accelerate their project development in the hope of attaining registration prior to the cut-off date as prescribed in the Kyoto Protocol. This will create an overflow of applications before the DNA. As an alternative, project developers can simply proceed with their projects in blind faith that clarity from the upcoming Climate Change Conference in Durban (COP 17) (December 2011) will be provided to the benefit of South Africa.

6 Recommendations and conclusion

This study was conducted to assess the legal and policy framework that regulates the CDM in South Africa. It therefore necessitated research into the origins of the CDM and its applicability in South Africa. The concept and functioning of the CDM was examined in order to verify whether the flexible mechanism finds application in South Africa. As illustrated, the CDM does find application in South Africa and for this reason the policy and legal framework that enables the CDM were reviewed. The study concluded with an assessment of the current strengths and weaknesses of CDM projects in South Africa from a legal and regulatory perspective.

It is clear that from a global perspective climate change will have detrimental effects on the South African landscape.[252] It is also apparent that South Africa has committed itself to acting against climate change and that the CDM is a vehicle through which climate change mitigation is facilitated.[253] It was also apparent that South Africa, as a developing country, has the necessary capacity and infrastructure required from a legislative point, for successful CDM project implementation.[254] It is clear that the South African government intends for market-based mechanisms to contribute to South Africa's climate change response significantly as described in the White Paper.[255]

252 Refer to section 1 and 2.
253 Refer to section 4.
254 Refer to section 4.5.
255 Refer to sections 4.4.2.

The use of ambient air quality standards holds great potential with regard to a baseline against which a CDM project concerned with the reduction of air pollution could be measured.[256] Legislation empowers government to investigate any situation with regard to trans-boundary air pollution and air pollution that may violate international agreements and may serve as a significant enabler of cross-boundary CDM project implementation.[257] Legislation could also be utilised to promote the CDM amongst other signatory countries on the African continent. This can be achieved through energy providing CDM projects to give effect to the objective of sustainable development as called for in the NEMA as well as in the UNFCCC and its Kyoto Protocol. The tradable emission scheme provided for in NEMAQA could work in conjunction with the CDM methodologies.[258] The South African government has implemented fundamental actions identified in the Climate Change Response Strategy. Governmental policies such as the IRP provides the perfect platform in which CDM projects can be identified and syndicated.[259] Potential CDM projects mentioned in the White Paper also offer a positive outlook on possible syndication of CDM projects in line with the key elements.[260] There is evidence of successful projects, such as the Kuyasa low-cost urban housing energy upgrade project, in which active government participation accelerated and facilitated the complete CDM project life cycle.[261]

The weaknesses identified with the CDM and possible solutions to address these include:

- Insufficient levels of environmental awareness of the South African consumers and public. Few consumers are aware of the financial and environmental implications of rising electricity costs. The recommendation is for government to establish awareness campaigns, through the Department of Education, and to investigate the possibility of introducing formal primary and secondary education curricula specific to energy efficiency and renewable energy which will promote the CDM. Broader intergovernmental co-operation can contribute to this.

256 Refer to section 4.2.3.
257 Refer to section 4.2.3.
258 Refer to section 3.4.
259 Refer to section 4.3.
260 Refer to section 4.4.2.
261 Refer to section 5.2.

- The private sector must play a more decisive role in the CDM process, and must use initiatives such as public–private partnerships and corporate social investment initiatives more aggressively to address CDM investment. It is for this reason that the private sector must adopt a more active role in policy formation through intensive commentary sessions, industry specific, on the White Paper. Incentives to the private sector in the form of tax exemption can enhance possible subsidies from government for CDM project implementation.

- The additionality requirement of a project, requires that government bears a greater portion of the risk financially, as the prospect of a successful CDM project will benefit the country and will facilitate possible syndication of similar projects elsewhere in the country. The investment from the South African government may also contribute to socio-economic upliftment and environmental sustainability.

- Another recommendation is that the feasibility of providing a local share-trading platform with the Johannesburg Stock Exchange through which the local market will be able to trade more easily and freely with CERs be investigated. To enable to private sector further, listed companies must be able to identify possible CDM projects and this could be included in the Johannesburg Stock Exchange as a listing requirement.

- The South African government should also approach the Durban climate change negotiations (COP 17) on CDM in developing nations in such a manner as to promote an extension of the CDM as flexibility mechanism in the Kyoto Protocol.

- Government should renew its focus on CDM as a valuable mitigation tool and train the DNA sufficiently to expedite the CDM process in South Africa. It is suggested that significant investment with regard to employing fundamental personnel with the necessary specialist skills within the government be made. The recommendation is therefore that the recruitment and employment policies of the South African government should include an environmental focus in assessing employment equity.

- Tighter deadlines and greater urgency should be placed on the DNA to expedite EIA processes and fast track permits and authorisations with CDM registered projects.

- South Africa's higher education institutions must enter into a dialogue with government to address the possible skill shortages experienced in policy implementation and formulation.

Finally, there is a great need for South Africa to also respond firmly to the current EU ETS stance on the purchase of CERs. This will be imperative for the future of the CDM in South Africa. Market-based incentives must be at the forefront of government's policies and must serve as a discussion point across all sectors of government. Policy formulation is only the start of promoting the CDM, the challenge lies in the establishment of clear guidelines as to the achievement of policies and objectives. This should be the focus of policy formulators and legislators. South Africa should be able to demonstrate the practical implementation of policies such as the White Paper that can result in successful CDM project implementation to the EU and participating developed countries. With the afore-mentioned as evidence, the South African government must adopt a firm response to the current EU position and nurture the growth of CDM projects in South Africa. The importance of domestic law and policy in this respect, should not be underestimated.

Bibliography

Constitutions

Constitution of the Republic of South Africa, 1996

Government documents

GN 721 in GG 27788 of 22 July 2005

GN 201 in GG 33005 of 8 March 2010

GN 898 in GG 28016 of 9 September 2005

GN 220 in GG 33041 of 26 March 2010

GN 227 in GG 20978 of 17 March 2000

GN 1138 in GG 30284 of 11 September 2007

GN 1210 in GG 32816 of 24 December 2009

GN 579 in GG 33342 of 3 July 2010

GN 248 in GG 33064 of 31 March 2010

GN 614 in GG 32254 of 16 July 2010

GN 1083 in GG 33801 of 25 November 2010

GN 908 in GG 32342 of 26 June 2009

GN 721 in GG 32378 of 5 August 2009

GN 1193 in GG 32527 of 27 August 2009

Government publications

South Africa: Initial Communication under the United Nations Framework Convention on Climate Change, October 2000

Department of Energy *CDM Status Review*, July 2009

International instruments

Decision 17 of the COP-7 (2002)

Decision 21 of the COP-8 (2003)

Kyoto Protocol to the United Nations Framework Convention on Climate Change (1998)

Marrakesh Accords (2001)

Montreal Protocol on Substances that Deplete the Ozone Layer (1987)

Statute of the International Court of Justice 1946

United Nations Framework Convention on Climate Change (1992)

Vienna Convention on the Law of Treaties 1969

Internet resources

Creamer T 2011 Price path warnings as SA loses cheapest power spot to Canada [found on the internet] http://www.engineeringnews.co.za/article/price-path-warnings-as-sa-loses-cheapest-power-spot-to-canada-2011-07-28 [date of use 28 July 2011]

Department of Energy

http://www.energy.gov.za/ [date of use 18 April 2011]

http://www.energy.gov.za/files/esources/kyoto/kyoto_frame.html [date of use 7 June 2011]

Department of Environmental Affairs

Global Climate Change and Ozone Layer Protection: Key Committees 2005 http://www.environment.gov.za/ClimateChange2005/Key_Committees.htm [date of use 18 June 2011]

Long Term Mitigation Scenarios: Strategic Options for South Africa http://www.environment.gov.za/HotIssues/2008/LTMS/A%20LTMS%20Scenarios%20for%20SA.pdf [date of use 18 June 2011]

European Union Emission Trading Scheme

www.euets.com [date of use 23 March 2010]

Greenhouse Gas Reporting Scheme

www.greenhousegas.nsw.gov.au [date of use 23 March 2010]

Gilder A, Jordaan B and Nell L 2011 Emissions [found on the internet] http://www.businessday.co.za/articles/Content.aspx?id=154798 [date of use 9 November 2011]

Temkin S 2011 *King calls for new breed of directors* [found on the internet] http://www.businessday.co.za/articles/Content.aspx?id=151004 [date of use 9 November 2011]

United Nations Environmental Programme

CDM Guidelines
http://www.cd4cdm.org/Publications/cdm%20guideline%202nd%20edition.pdf [date of use 18 April 2011]

Introduction to CDM
http://cd4cdm.org/Publications/CDMintro.pdf [date of use 6 October 2011]

United Nations Framework Convention on Climate Change

http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php [date of use 26 August 2010]

http://www.basic-project.net/data/country%20information/sem_sup3_south_africa.pdf [date of use 18 June 2011]

http://cdm.unfccc.int/Projects/projsearch.html [date of use 7 June 2011]

McGuigan C, Reynolds R and Wiener D 2002 *Poverty and Climate Change: Assessing Impacts in Developing Countries and the Initiatives of the International Community* http://www.odi.org.uk/resources/download/2578.pdf [date of use 8 Nov 2011]

Legislation

Taxation Laws Amendment Act 17 of 2009

National Environmental Management Act 107 of 1998

National Environmental Management: Air Quality Act 39 of 2004

National Energy Regulator Act 40 of 2004

Literature

Bowen A and Fankhauser S *Low-Carbon Development for the Least Developed Countries* 2011 World Economics 145-160

Cottier T, Nartova O and Bigdeli SZ (eds) *International Trade Regulation and the Mitigation of Climate Change* 2nd ed (Cambridge University Press Cambridge 2010)

Dawson B and Spannagle M *The Complete Guide to Climate Change* (Routledge New York 2009)

Draper P and Mbirimi I *Climate Change & Trade* (Jacanda Media (Pty) Ltd 2010)

Dugard J *International Law* 2nd ed (Juta Cape Town 2003)

Glazewski J *Environmental Law in South Africa* (LexisNexis Durban 2000)

Hegerl GC *et al* "Understanding and Attributing Climate Change" in Solomon S *et al* (eds) *Climate Change 2007: The Physical Science Basis* (Cambridge University Press Cambridge 2007)

Michaelowa A Mitigation and Adaptation Strategies for Global Change 2003 *CDM Host Country Institution Building* 201-220

Nel J and Du Plessis W *An evaluation of NEMA based on a Generic Framework for Environmental Framework Legislation* 2001 *SAJELP* 1-36

Olawuyi DS *Achieving Sustainable Development in Africa through the Clean Development Mechanism: Legal and Institutional Issues Considered* 2009 *African Journal of International and Comparative Law* 270-301

Parry ML *et al* (eds) *Climate Change 2007: Impacts, Adaptation and Vulnerability* (Cambridge University Pres UK 2007)

Schellnhuber HJ *et al* (eds) *Avoiding Dangerous Climate Change* (Cambridge University Press Cambridge 2006)

South African Journal of Economic and Management Sciences

Little G, Maxwell T and Margie S *Accelerating the Implementation of the Clean Development Mechanism in South Africa* 2007 SAJEMS 395-411

Stern Review: *Economics on Climate Change* UK National Treasury 2006Strydom HA and King ND (eds) *Environmental Management in South Africa* 2nd ed (Juta Cape Town 2009)

United Nations Environmental Programme

C*DM Information and Guide Book* 2nd ed (UNEP Roskilde 2004)

Climate in Peril: A Popular Guide to the latest IPCC Reports (GRID Arendal 2009)

G*uidebook to Financing CDM Projects* (UNEP Roskilde 2007)

Guidebook to Host Country Legal Issues (UNEP Roskilde 2009)

United Nations Framework Convention on Climate Change

Handbook (Halesworth UK 2006)

Impacts, Vulnerabilities and Adaptation in Developing Countries (Climate Change Secretariat (UNFCCC) Germany 2007)

Scientific Report Cambridge University Press 2005
Climate Change 2007 Intergovernmental Panel on Climate Change Fourth Assessment Report (Synthesis Report 2007)

Wiener J and Baert J "Global Environmental Regulation: Instrument Choice in Legal Context" 1999 *Yale Law Journal* 108-120

Yamin F and Depledge J *The International Climate Change Regime: A Guide to Rules, Institutions and Procedures* (Cambridge University Press Cambridge 2004)

Zipplies R (ed) *Bending the Curve: Your Guide to Tackling Climate Change in South Africa* (Africa Geographic (Pty) Ltd Cape Town 2008)

Policy documents

Draft Integrated Resource Plan, October 2010

IPCC, 2007: Summary for Policymakers In: *Climate Change 2007: The Physical Science Basis Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* Solomon S *et al* (eds) Cambridge University Press, Cambridge

Long Term Mitigation Scenario: Strategic Options for South Africa, Scenario Building Team, 2007

National Climate Change Response Strategy, September 2004

National Climate Change Response White Paper, October 2011

The National Climate Change Response Policy, Discussion Document for the 2009 National Climate Change Response Policy development Summit, Gallagher Convention Centre Midrand 3-6 March 2009

South Africa's Technology Needs Assessment Report, September 2007

Thesis and dissertations

Kotzé LJ *A Legal Framework for Integrated Environmental Governance in South Africa and the North-West Province* (LLD Thesis North-West University 2006)