The Clean Development Mechanism: A Comparison between South Africa and China

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Submitted in partial fulfilment of the requirements for the degree of Master of Law

College of Law and Management Studies

School of Law

University of KwaZulu Natal (Pietermaritzburg)

2012

Declaration

I Ryan Jeremiah Finbarr Murray do hereby declare that, unless specifically referenced, this dissertation consists of my own work and has not been submitted to any other university in full or partially fulfilment of the academic requirement of any other degree or other qualification.

Signed _____

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Acknowledgements

The journey to the completion of this paper has been a long and hard one with many external difficulties. I would like to thank Rosemary Kuhn for editing my work. The work she did editing was extremely helpful and I cannot express my gratitude in written words alone. I would also like to thank Avishkaar Ramdhin and Michael Kidd for the guidance they provided. It was extremely insightful and what I learnt through this process will be with me for the rest of my life. I would like to thank the University of Kwa-Zulu Natal for providing me with everything I needed to get this dissertation completed. The atmosphere that exists at the university while on campus was stimulating. I have fond memories of researching different topics solely for the sake of knowledge after a discussion with classmates left unanswered questions.

On a personal level I would like to thank my father for proof reading my work with me and spending much time as a fresh pair of eyes and I would like to thank the powers that be for allowing my father to remain with us after all that happened.

Thank you

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Abstract

The Clean Development Mechanism (CDM) is the only mechanism available for use by developing nations. It is there for highly important for the inclusion of these developing nations in the climate change regime. A consideration on the early implementation of the CDM in South Africa and China, being two countries with many similarities and differences and vastly different successes, provides important lessons on how to approach the climate change regime. Certain barriers exist purely due to the nature of countries in which the CDM applies as well as other barriers found within the CDM project life cycle and development. Through the comparison these barriers are explored and areas for development within South Africa are noted as well as weakness with the current climate change regime particularly the Kyoto Protocol.

Contents

Chapter 1

Background to the study

1.1. Introduction

Prevailing scientific evidence suggests that the Earth's climate is influenced to a large extent by concentrations of certain naturally occurring gases in the atmosphere.[1] These gases are commonly referred to as 'greenhouse gases' ('GHGs') and include, *inter alia*, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).[2] An important property of these gases is their ability to absorb and trap infrared radiation emitted by the Earth's surface.[3] This prevents the heat from escaping back into space, thereby resulting in a warming of the Earth.[4] This natural phenomenon, the so called 'greenhouse effect', is beneficial as it helps to maintain the overall temperature of the Earth.[5] There has been an increase in GHG gases due to human activity through the creation of electricity and other industrial processes through the use of fossil fuels.[6] Increasing concentrations of GHG's exacerbate the greenhouse effect thereby destabilising the Earth's natural atmospheric composition. This 'enhanced greenhouse effect', which has led scientists to predict an increase in the Earth's global average surface temperature, is known as global warming.[7]

As a result of global warming in particular, the international community has taken steps to assess the situation and collaborate around measures to combat the negative effects of climate change and reduce greenhouse gas emissions. One of the most notable developments has been the inception of the United Nations Framework Convention on Climate Change (UNFCCC) and the subsequent Kyoto Protocol. Within the ambit of this Protocol, various mechanisms have been developed to assist countries in meeting obligations to curb and reduce emissions. Different mechanisms cater for different groups of countries as will be explained later. One mechanism that accommodates developing countries, of which South Africa is one, is the Clean Development Mechanism

[1] Report of Panel on Climate Change in P Sands *Principles of International Environmental Law* (2003) 357-358.
[2] P Birnie, A Boyle & C Redgwell *International Law and the Environment* (2002) at 501.
[3] See generally EA Page *Climate Change, Justice and Future Generations* (2006) 24-25.
[4] P Szell 'Ozone layer and climate change" in W Lang, H Neuhold, & K Zemanek (eds) *Environmental Protection and International Law* (1991) at 174.
[5] E Louka *International Environmental Law: Fairness, Effectiveness and World Order* (2006) 356.
[6] Chapter 28: A Rumsey and N King, Climate change :Impacts, adaptation and mitigation' in H Strydom & N King (eds) *Environmental Management in South Africa* (2009) 1050.
[7] Ibid

1.2. Research question

This dissertation will focus on the question of whether South Africa has adequately applied the Clean Development Mechanism provided for in the Kyoto Protocol considering the progress the country has made with existing mechanisms. In order to address this issue, this dissertation will consider the development and application of CDM in South Africa and then provide a comparative analysis of the use of the CDM between South Africa and China. The basis for this comparison is that China and South Africa are both parties to the Kyoto Protocol as well as both being non-Annex I countries, ie developing countries.[8] South Africa and China are both major regional polluters and rely heavily on coal. Both are the most industrialised countries within their respective geographic regions. South Africa and China are part of the BASIC Group of countries which are considered to be the most developed of the developing nations.[9] Both have a range of regulatory measures to deal with combating climate change and both have embraced the CDM to varying degrees. Furthermore, China has been the most successful of the non-Annex 1 countries when applying the Clean Development Mechanism. With these apparent similarities in place as well as the differences in success each country has had with the mechanism it is clear that a comparison between these two countries would draw out the most pertinent results. This dissertation will also consider the broader issues of whether the CDM is the best way to include developing nations in the climate change regime; and whether there are other viable mechanisms that may be available in the future to developing nations in light of the current concerns of disproportionate responsibilities. The discussion will take place up until the outcomes of COP17 which outlines the planned future for the regime.

1.3. Global warming

Global warming is expected to increase water supply in already moist higher latitudes while reducing it in the lower more arid latitudes and will result in more damage suffered from floods, storms and droughts.[10] Therefore, under the pressures from global warming and

[8] China was an original signatory while south Africa joined via accession and ratification. Both parties have joined (via ratification) the Kyoto Protocol on the 29th of May 1998 and South Africa joined via accession on the 31st of July 2002 available at http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php, accessed 18/07/2011.

[9] M Olsson ... et al 'Together Alone? Brazil, South Africa, India, China (BASIC) and the Climate Change Conundrum'(2010) available at http://sei-international.org/mediamanager/documents/Publications/SEI-PolicyBrief-Olsson-BASIC-ClimateChangeConundrum.pdf, accessed 18/07/2011.

[10] RM Collin & RW Collin *Encyclopedia of Sustainability: Vol 1: Environment and Ecology* (2009) 18.

climate change, affected regions would be more susceptible to more extreme weather events.[11] Within the current climate change regime 'climate change' has been defined as 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability over comparable time periods'.[12] The main problem with climate change is that it potentially affects the entire world either through floods, droughts or just the increase in temperature of a region which would result in food shortages, damage to infrastructure and loss of lives. Examples of such instances can be seen in the floods in Pakistan,[13] landslides in China[14] and drought in East Africa.[15] There have been other varying effects that climate change has had on the planet, some most noticeable being:

- Weather pattern changes in Tropics and mid latitudes[16]
- Changes in the migration patterns of birds[17]
- Mass bleaching of corals[18]
- The loss of biodiversity.[19]

In order to mitigate the negative effects of climate change, the global community needs to be involved. This is because anthropogenic emissions are a product of nearly every country's economic and industrial growth. The resultant effect of these emissions, being climate change, would then affect every state on the planet regardless of the actual role that country played towards creating the problem and more likely than not it is the state that had the least to do with creating the problems, initially, that will feel the effects the worst as these countries are financially weaker than the already industrialised states.[20] Therefore, because the effects of the problem can be sourced back to individual states and the actual damage can

[11] United Nations Framework Convention on Climate Change (UNFCCC) 'Fact Sheet: Climate Change Science - the Status of Climate Change Science Today' (2011) available at http://unfccc.int/press/fact_sheets/items/4987.php, accessed 16/02/2011.
[12] Article 1 of UNFCCC (1992).
[13] BBC. 'BBC News South Asia' (6 August 2010) available at http://www.bbc.co.uk/news/world-south-asia-10896849 accessed 19/02/2011.
[14] BBC. 'BBC News Asia Pacific' (08 August 2010) available at http://www.bbc.co.uk/news/world-asia-pacific-10905399, accessed 19/02/2011.
[15] BBC News 21 September 2009 available at http://news.bbc.co.uk/2/hi/8267165.stm, accessed 19/02/2011.
[16] TM Letcher *Climate Change, Observed Impacts on Planet Earth* (2009) 165.
[17] Ibid 181.
[18] Letcher, op cit n14, 254.
[19] Ibid 263, 233,197.
[20] P Birnie, A Boyle & C Redgwell *International Law and the Environment* (2002) at 358; World Bank *Poverty and Climate Change: Reducing the Vulnerability of the Poor through Adaptation* (2003) 8-10.

be felt by the entire globe the individual states need to work together proportionally in order to combat the problem. In short, this global problem needs global action.

However, different countries would need to approach the problem in different ways because not all countries have the same capacity to rectify the situation and for this reason the Common but Differentiated Responsibilities Principle was developed.[21] This principle was defined and brought into the realm of international discourse at the 1992 Rio Declaration and can be found in many environmental treaties.[22] The principle has two main elements, namely that all states to the agreement need to participate in measures aimed at correcting environmental harm and it also acknowledges that different states should adopt and implement different commitments based on their differing circumstances, situation, capacities to do so, future development needs and their historical contribution to the harm.[23] When applying the Common but Differentiated Responsibilities Principle, socio and economic factors as well as any other relevant factors are taken into account.[24] The Principle follows the general principles of fairness with attention to the limitations of people.[25] A very important element in this consideration is that the impacts of climate change fall indiscriminately on those least able to cope and who had very little to do with creating the problem.[26]

1.4. An overview of the current climate change regime

Climate change has been a matter of concern since the late 1980's and was considered a 'common concern of mankind'[27]. In 1998, the Intergovernmental Panel on Climate Change was established by the United Nations Environmental Program and the World Meteorological

[21] P Birnie, A Boyle & C Redgwell *International Law and the Environment* (2002) at 132.
[22] T Honkonen 'The Principle of Common but differentiated Responsibility in post 2012 climate negotiations' (2009) 18(3) *RECIEL* 258.
[23] Ibid. Paraphrased From Birnie, Boyle and Redgwell op cit n 18 32-133.The standing assumption is that international law applies equally to all states but in practice distinctions are made between developing and developed nations. These distinctions are based on contextual differences as well as the differing capabilities of these states. With these differences in mind the states can be held accountable subject to differing standards based on their level of development.
[24] E Massawa ... et al *Negotiating Adaption : International Issues of Equity and Finance* (2009) . http://www.unep.org/climatechange/Portals/5/documents/UNEP-DiscussionSeries_3.pdf accessed 17/02/2011
[25] Social Work and Sustainable Development 'ENSACT Joint European Conference 26-29 April 2009' available at http://www.eassw.org/conferences/Dubrovnik/Presentations/9Pinia/Session3W21/SW_&_Sustainable_Development_ppt.pdf, accessed 17/02/2011.
[26] Ibid 4
[27] C Sunstein 'Of Montreal and Kyoto: A tale of two protocols' (2007) 31 *Harv.Env.LR* 24.

Organisation. The Panel consisted of scientific and political experts for the purpose of discovering possible measures that could be used to protect the atmosphere.[28] The Intergovernmental Panel on Climate Change in its third assessment report concluded that: 'there is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities'.[29] To address the threats of climate change the international community created the United Nations Framework Convention on Climate Change (UNFCCC) in 1992. The objectives of the convention are 'stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner'.[30] The UNFCCC was formulated with the idea that no one nation alone can remedy the effects that green house gases have had on the environment and therefore there is a need for widespread cooperation when it comes to combating climate change.[31] As the name suggests the UNFCCC is a framework convention and not a comprehensive convention and it did not supply any form of detailed regulations.[32]

The problem with the UNFCCC is that it creates a notion of blame rather than common responsibility. It is mentioned in the preamble that 'current global emission of greenhouse gases has originated in developed countries'.[33] This places a burden only on developed states as developing states are only limited by general and not specific reduction limits and this burden is perpetuated throughout the UNFCCC and developed states must bear a greater share of the responsibilities in comparison to developing states. This has been argued in reference to the 'polluter pays' principle and those who are responsible for the damage must bear the costs of rectifying it.[34] This can be considered to be an unfair weighting due to the fact that the historic polluters are no longer the main contributors to GHGs and China is the best example of this. A historic based 'polluter pays' principle cannot be considered fair.

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[28] A Kiss & D Shelton *International Environmental Law* 3ed (2003) 580; P Sands *Principles of International Environmental Law* 2 ed (2003) 337.
[29] H Winkler 'Climate change and developing countries'(2005) 101 *SA J Sci* 355.
[30] Article 2 of the United Nations Framework Convention on Climate Change (1992) (hereafter referred to as the UNFCCC).
[31]The Preamble to the UNFCCC (1992).
[32] P Birnie, A Boyle & C Redgwell *International Law and the Environment* 3ed, (2009) 357.
[33] The Preamble to the UNFCCC (1992).
[34] This argument can be found in numerous articles in some way or another: S Bauer & I Scholz 'Adaption to climate change in Southern Africa: New boundaries for development' (2010) 2(2) *Climate and Development* 85; M Manguiat 'Future directions for climate change' (2006) 13 *SAJELP* 216.

In order to show the divide between developed and developing states, the UNFCCC created two major groups of countries: Annex I countries and everyone else.[35] These Annex I countries are those countries considered to be developed and due to the fact that developed countries are held responsible for the state of the earth's current climate problems, these countries would bear more responsibilities than the developing non-annex I countries, , who did not have the opportunity to cause as much harm as the annex I countries. The 'polluter pays' principle is embedded in blame and so would perpetuate a notion of blame throughout the entire regime as opposed to mutual assistance. While blame and mutual assistance may not be mutually exclusive an agreement based on blame would receive more resistance from the international community especially when there is difficulty deciding which parties are those who should bear the blame.

Interestingly, the United States was the first country to ratify the UNFCCC Convention.[36] In spite of this, currently the United States is one of the countries with the biggest concerns towards the Protocol to the Convention and is not party to the Protocol. The United States wanted developing states to bear more responsibilities under the climate change regime and a near-unanimous resolution by the Senate of the United States directed their government not to enter any protocols or other agreements under the UNFCCC that would

> mandate new commitments to limit or reduce greenhouse gas emissions for the Annex I Parties, unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period[37]

The reason this is so important is because it shows that the United States reasoned that developing countries, though not as responsible as developed countries, should have a larger responsibility than at present. Furthermore, the responsibility of developing nations should not be as rigid a separation as Annex I versus non-Annex I as nations contribute to GHGs at different levels and there is no actual rigid separation when comparing countries. Countries that are considered non-Annex I may contribute more to GHGs than an Annex I country making this type of separation questionable against the purpose of the entire regime.

The commitments that were embodied in the UNFCCC were regarded as particularly weak which lead to the creation of the Kyoto Protocol on the basis that a more forceful reaction to

[35] Annex I and Article 4(2) to the UNFCCC (1992).
[36] C Sunstein 'Of Montreal and Kyoto: A tale of two protocols' (2007) 31 *Harv Env L R* 24.
[37] Ibid

international climate change was needed.[38] The initial strong mandate that came out of the first conference of the parties to the United Nations Framework Convention on Climate Change is commonly known as the 'Berlin Mandate' and established the basis for more rigorous obligations[39] with the aim of being consistent with the idea of common but differentiated responsibility. It was agreed that only developed states would apply binding emission limits.[40] Even though the Kyoto Protocol is more forceful and carries more weight than the measures[41] of the UNFCCC, it was never intended to be the lasting solution but more an initiating step towards a similar but more evolved Protocol which through experience, knowledge and technology gained would be better positioned to address the issues to which the Kyoto Protocol fell short.

Under the Clinton administration the Kyoto Protocol was signed by the United States but it was not presented to the senate for advice or consent and therefore was never ratified due to the condition that developing countries were given more responsibility, as prescribed by the senate, were not met.[42] This consideration that the United States Senate made is important as this is a similar view point which many other countries were expressing leading up to the 2011 Climate Change Conference in Durban and would play a large role as to the mechanism that would apply to developing nations in any future regime.

1.5. Mechanisms designed to help developed and developing countries meet emission targets

The Clean Development Mechanism (CDM) is one of three mechanisms created by the Kyoto Protocol to the UNFCCC. The Kyoto Protocol created these three mechanisms to assist both developing countries meet their general reductions as well as addressing sustainability, and developed nations meet their commitments. These three mechanisms are: Emissions Trading (ET), Joint Implementation (JI) and Clean Development Mechanism (CDM). Generally the purpose of these mechanisms is to assist contracting parties to comply with their emission targets that are set by themselves in terms of the Kyoto Protocol.[43] It was

[38] M Gerrard *Global climate change and U.S. law* (2006-2007) 36.
[39] P Birnie, A Boyle & C Redgwell op cit n2 360.
[40] M Gerrard op cit n36 36.
[41] J Cowie *Climate Change , Biological and Human Aspects* (2007) 403.
[42] S Fletcher *Global Climate Change: The Kyoto Protocol* (2005) available at www.au.af.mil/au/awc/awcgate/crs/**rl30692.pdf**, accessed 09/02/2011.
[43] Article 3, 6, 12, 17 of the Kyoto Protocol to the U NFCCC, (1998) (hereafter referred to as the Kyoto Protocol).

intended that the overall emission reductions would amount to a reduction of at least 5 per cent below the 1990 level for most developed states.[44] The ultimate purpose of the UNFCCC, and therefore Kyoto Protocol, is not to reduce global emissions but rather to stabilize greenhouse gas concentrations.[45] Similarly, the purpose of the various mechanisms is not to reduce emissions globally but rather create opportunities for more emissions in countries that are unable to meet their targets while not exceeding the global emission target. This occurs when countries cannot meet their reduction targets, they can then use these mechanisms provided to create reduction credits that could be used to offset the shortfall in their reductions.

1.5.1. Emissions Trading (ET)

Emissions trading (ET) is an innovative mechanism which allows a party which has a quantified emission limitation or reduction commitment in terms of the Kyoto Protocol (Annex B) to 'buy' emissions reductions credits which are Assigned Amounts Units (AAU) from another country which has made quantified emission limitation or reduction commitments as well[46]. As set out in Article 17 of the Kyoto Protocol, countries may sell their excess capacity, ie emissions that are spare and unused, to other countries that have exceeded their targets.[47] The United States was in strong support of this mechanism as they had great success and experience at a domestic level.[48] In contrast ET was strongly opposed by the group of 77 developing states and in particular China[49]. The compromise that was set was that the Annex B parties, being a sub category of Annex I parties, may participate in ET to fulfil their obligations but any such trading must be supplementary to what occurs at national level,[50] meaning that any national reduction objectives that would have normally occurred had there not been any mechanism in place would not be considered as generating emission reduction credits.

The rules and guidelines were not initially set out in the Kyoto Protocol for emissions trading as was the case for Joint Implementation (JI) as shown below. The rules are found in the

[44] P Birnie, A Boyle & C Redgwell op cit n2, 526.
[45] Article 2, Kyoto Protocol (1992).
[46] P Sands *Principles of International Environmental Law* 2 ed (2003) 372.
[47] The UNFCCC Kyoto Protocol website for section on 'Site Emissions Trading' available at http://unfccc.int/kyoto_protocol/mechanisms/emissions_trading/items/2731.php, accessed 08/10/2010.
[48] P Sands *Principles of International Environmental Law* 2 ed (2003),373.
[49] Ibid
[50] Ibid. The reductions that occur at national level cannot be counted for trading and then again for the countries total reductions as this would be double counting. The reductions for trading should be seen as separate.

Report of the Conference of the Parties serving as the meeting of the parties to the Kyoto Protocol in its first session, held at Montreal from 28 November to 10 December 2005[51]. Only Annex B countries may take part in ET and as will be shown below, although developing states can be the site of creation for tradable emission credits these countries do not trade them per se but rather host their creation. ET as a mechanism creates Assigned Amount Units (AAU)[52] but in general there is an array of tradable units which are created by all of the mechanisms. There are Emission Reduction Units (ERU)[53], Certified Emission Reductions (CER)[54] and Removal Units (RMU)[55]. In all cases, including AAU, the amount represented by the unit is one metric ton of carbon dioxide equivalent.[56] In order for the Emissions Trading mechanism to apply, the parties using the mechanism must be Annex I parties who have made reduction commitments and therefore Emissions Trading would not apply to developing states as these states do not make the necessary reduction commitments to qualify for the mechanism.

1.5.2. Joint Implementation (JI)

Joint Implementation (JI) is a compliance mechanism under the Kyoto Protocol which targets the project relationship between two Annex I countries.[57] This was a mechanism that the United States had vigorously supported in the development of the Kyoto Protocol in spite of opposition from the group of 77 developing countries as it was described as just another form of Emissions Trading which did not add more value than the ET system.[58] The United States wanted mechanisms to be provided that would assist heavy polluters whereby efficient carbon users could support inefficient ones.[59] How JI works is that two developed countries work together in order to meet their reduction targets jointly by one country using the lower cost of another country to implement projects which reduce anthropogenic emissions such

[51] Decision 11/CMP.1, available at http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=17, accessed 08/10/2010.
[52] P Sands op cit n46 372
[53] ERU's are those tradable emission units which are generated through Joint Implementation, see theKyoto Protocol website: Emissions Trading , Other trading units in the carbon market. Available at http://unfccc.int/kyoto_protocol/mechanisms/emissions_trading/items/2731.php, accessed: 11/10/2010.
[54] CERs are those Tradable Emission Units which are generated through the Clean Development Mechanism : ibid.
[55] RMU's are those tradable Emission Units which are generated though land use , land use change and Forestry such as reforestation ibid.
[56] Ibid
[57] Article 4 and 6 of the Kyoto Protocol(1998).
[58] V Nanda and G Pring *International Environmental Law for the 21st Century* (2003) 297.
[59] J Cowie *Climate Change: Biological and Human Aspects* (200) 401.

that they are a reduction over and above what would normally occur had the project not been undertaken. An example of this would be the Te Apiti Wind Farm in New Zealand, the other Annex I country being the Netherlands, which supplies renewable energy to the National Grid.[60] New Zealand is the host country in this instance and credits generated through this project will be provided to the Netherlands being the non-host country party.[61] In the JI mechanism both parties are Annex I countries and this is because JI can only apply to Annex I countries.[62] This would mean that both countries would have a specific reduction limit that they themselves have set as opposed to what occurs in non-annex I countries where no such specific reduction limit has been set.[63]

In order to engage as an eligible country there are certain requirements that have been set out in the Joint Implementation Guidelines.[64] The requirements are that the parties engaging in JI are parties to the Kyoto Protocol.[65] The host country's assigned emission amount in terms of Article 3 has been calculated and recorded in line with 13/CMP.1.[66] At national level there must be a system in place for the estimation of anthropogenic emissions by sources and anthropogenic removals by sinks of greenhouse gases which are not controlled by the Montreal Protocol under the guidelines of Article 5.[67] The country must have a national registry of anthropogenic emissions and follow the guidelines listed in Article 7(4) of the Protocol.[68] The most recent required inventory must have been submitted along with the national inventory report and follow the common reporting format focusing specifically on sources/sector.[69] The annual inventory on sinks and further supplementary information must also be submitted in accordance with article 7.[70] Where the party fails to meet the requirements its eligibility for JI may be suspended.[71]

[60] JI, Te Apiti Wind Farm available at http://ji.unfccc.int/JIITLProject/DB/SG6BVO4WM5CAVH52KKX7THQ289ICRK/details, accessed 20 March 2012.
[61] Ibid
[62] Article 6 of the Kyoto Protocol (1998).
[63] Article 3 and Annex B of the Kyoto Protocol (1998).
[64] Part D paragraph 21 of Decision 9/CMP.1 Guidelines for the Implementation of Article 6 of the Kyoto Protocol available at http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=2 , accessed 06/10/2010.
[65] Ibid
[66] Ibid
[67] Ibid
[68] Ibid
[69] Ibid
[70] Ibid
[71] Ibid Paragraph 22(b).

Where the party meets the requirements that are set out above, the "Track 1"[72] procedure, also known as 'party-verified projects',[73] may be applied. Thereafter there would be verification of reductions which are additional to any that would normally occur in the host country. The host party may then issue the appropriate quantity of ERUs.[74] However, in instances where the host party does not meet the requirements, the verification procedure under Article 6 supervisory committee may be used if the host country elects to do so.[75] This Article 6 supervisory committee was created at the first conference of the parties which served as the meeting of the parties. The Article 6 supervisory committee is also known as the Joint Implementation Supervisory Committee (JISC) and was created for the purposes of supervising and verification of the JI mechanism and its emission reductions. [76]

The procedure that the committee must follow as set out in the Guidelines for the implementation of Article 6 of the Kyoto Protocol relates to whether:

- the project has been approved by all parties concerned, whether the anthropogenic removals are additional
- a monitoring plan is in place which meets certain criteria
- there is a degree of public awareness and transparency
- confidentiality should also be considered where it is not required by the host country by law that such information be shared.[77]

In no area is there a requirement that countries engaging in JI need to fulfil sustainability in the host country to the project.[78] This would undoubtedly occur when better technologies are used but there remains no requirement for it to occur. This is a major difference between Clean Development Mechanism and Joint Implementation mechanism, which are two very similar mechanisms. Therefore when considering the Clean Development Mechanism sustainable development should be recognised as one of its defining qualities.

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[72]The Kyoto Protocol, Joint Implementation Requirements available at http://ji.unfccc.int/Eligibility/index.html, accessed 07/10/2010.
[73]Report of the Conference of the Parties serving as the meeting of the arties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005. Guidelines for the implementation of Article 6 of the Kyoto Protocol available at http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=2, accessed 11/07/2012.
[74] Ibid
[75] Ibid Paragraph 30-45 of Decision 9/CMP.1.
[76] JI Rule Book , Joint Implementation Rules , Practices and Procedures, Joint Implementation Supervisory Committee, available at : http://www.jirulebook.org/3288, accessed 09/07/2012.
[77] Ibid Paragraph 30 – 45 of Decision 9/CMP.1.
[78] Article 6, 12 of the Kyoto Protocol (1998).

1.5.3. Clean Development Mechanism (CDM)

The third and final mechanism in the regime is the Clean Development Mechanism. This mechanism applies to developing nations which are within the Non-Annex I category countries. This is the only mechanism available to these countries and has the objectives of capacity building to allow for sustainable development as well as the creation of emission reductions which can then be converted into credits which can be sold and used in Annex I countries to help those countries meet their reduction targets. This sale of credits and technology transfer would be the main beneficial aspect of the mechanism. The potential technology and skills could provide for new job opportunities as well as skills development. Additional to this the mechanism would create a large amount of funds that could be used to further develop a host country in which the project sits. Skills, jobs and funding are key aspects to a country's positive and meaningful development. These aspects will be discussed in later chapters. CDM is the mechanism which will be focused on throughout this thesis and conclusions drawn as to its effectiveness when being applied in South Africa. China and South Africa will be discussed and compared showing the strengths and weaknesses of these two countries which have had differing success with the climate change regime.

1.6. Scope of the thesis

As CDM was not a focal point of great review and change at COP17 this dissertation focuses primarily on developments prior to the COP17. This dissertation will consider South Africa and China up until that point in time.

1.7. Outline of the thesis

Chapter two will provide an in-depth discussion of the Clean Development Mechanism, its evolution, processes involved, implementation and problems. Chapter three will consider the development, adoption and application of the CDM in South Africa. Chapter four will discuss the development, adoption and application of the CDM in China. Chapter five will compare these two countries with respect to CDM. Chapter six will conclude the thesis.

Chapter 2

Clean Development Mechanism (CDM)

2.1. Introduction and general application

The Clean Development Mechanism (CDM) is one of the mechanisms which were created to assist with compliance and technology transfer and sustainable development and this is the purpose of the mechanism which is set out in the Kyoto Protocol under Article 12[79]. The CDM as well as the other mechanisms within the Kyoto Protocol have the purpose of providing the lowest cost opportunities for developed countries to meet their emission reductions targets.[80] The CDM operates whereby developed countries invest in developing countries, (Annex I countries investing in non Annex I countries), by creating projects that would reduce the amount of emissions in those host countries. CDM is the only mechanism which is available to developing states.[81] There are various types of projects which are used as CDM projects and these include but are not limited to: renewable energy such as wind energy, hydro energy or biomass energy, fuel switching and the capture of greenhouse gases which cause the most significant harm.[82] The cycle that CDM projects follow have a range of stages or levels that must be followed in order for the process to be able to generate Certified Emission Reductions (CERs).[83] These levels can be divided into two phases which are the development phase and the implementation phase.[84] Level one of the development phase of the processes on the road to gaining CDM recognition and CERs would be where the host country's Designated National Authority (DNA) provides a letter of approval to the project participants.[85] The approval would amount to confirming that the project contributes to sustainable development in the country and so would affirm that one of the required purposes of the CDM is met.[86] After receiving this letter of approval from the DNA the next step or

[79] P Birnie, A Boyle, C Redgwell *International Law and the Environment*, 3ed(2009), 363.
[80] C Toulmin *Climate Change in Africa* (2009), 21.
[81] P Birnie, A Boyle, C Redgwell op cit n2 364.
[82] Ibid
[83] Ibid 365; Certified Emission Reductions are the units that CDM projects create and represent 1 metric ton of CO_2 , Report of the Conference of the Parties serving as the meeting of the parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005, Decision 11/CMP.1available at ,http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=17, accessed 08/10/2010.
[84] P Birnie, A Boyle, C Redgwell, op cit n2 365.
[85] Ibid
[86] Article 12(2) of the Kyoto Protocol (1998).

level would be the preparation of the Project Design Document (PDD).[87] Information that must appear in the PDD includes the following:

- 'Impacts to the environment
- Comments from stakeholders
- Project participants and
- Location of the project.'[88]

The other very important insertion to the PDD is the assessment and demonstration of 'additionality'[89] which will be discussed separately later in this chapter. This PDD is necessary to obtain validation as a CDM project from a Designated Operational Entity (DOE).[90] This Designated Operational Entity is either a domestic legal entity or an international organisation which is accredited and designated by the CDM Executive Board for the purpose of validating and requesting registration of a proposed CDM project and for verifying emission reductions of a registered CDM project. [91] Thereafter the DOE requests certified emission reductions to be issued by the Executive Board.[92] After validation by the DOE the PDD is sent to the CDM Executive Council for registration.[93] Once the CDM Executive Board has registered the CDM project it is now able to generate Certified Emission Reductions and this would be the completion of the first phase, development phase, of the CDM cycle.[94]

Thereafter the implementation phase begins and the first level is monitoring which encompasses measurement and analysis of greenhouse gas emissions from a CDM project to discover the volume of emission reductions that will be created by the project.[95] After this there are periodic independent reviews and determination of reductions of greenhouse gas emissions by sources which are monitored in the level mentioned above. [96] These reviews are carried out by a Designated Operational Entity and this process is known as verification.[97]

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[87] P Birnie, A Boyle, C Redgwell, op cit n2 365; an actual copy of the Project design document can be found at : http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/PDD_form04_v03_2.pdf , accessed 13/10/2010.
[88] ibid
[89] Ibid B.5 of the Clean development Mechanism Project Design Document Form (CDM-PDD).
[90] P Birnie, A Boyle, C Redgwell ibid 365.
[91] Kyoto Protocol, Designated Operational Entities (DOE) available at http://cdm.unfccc.int/DOE/index.html, accessed 13/10/2010.
[92] Ibid
[93] P Birnie, A Boyle, C Redgwell op cit n2 365.
[94] Ibid
[95] Ibid
[96] P Birnie, A Boyle, C Redgwell op cit n2 at 365.
[97] Ibid

After this verification of the project by the DOE the relevant documentation is then sent to the CDM Executive Board to be certified[98] and the amount of greenhouse gas emissions that have been reduced is translated into an equivalent quantity of Certified Emission Reductions which is then issued to the parties involved and project participants.[99] The host country's greatest advantage in the entire process is the fact that technology transfer takes place. There is also a large amount of investment that takes place which is a further benefit to the host country.

2.2. Problems with the development and implementation phase of a CDM

One of the major problems that have been identified with this procedure is the Designated National Authority (DNA) which causes problems at the very beginning of the process.[100] In many instances it is this DNA that lacks the competency and capability to give the required letter of approval[101], through lack of skills education or drive to do so. In some cases the host countries lack a DNA entirely and this causes an unattractive delay for investors.[102] Certain scholars have attempted to identify the factors considered by investors when choosing a CDM host country and this can be described as the Investment Climate.[103] These factors are as follows:

- Macroeconomic and trade policy- This is the capacity of the domestic institutions to lower the cost of international trade and finance.[104] Therefore fluctuating values of currency which fall beyond an acceptable level would cause the country to be a less likely candidate for a CDM investment project where there would be a high risk atmosphere for investments[105].
- Microeconomic framework- this refers to whether or not the country has trade friendly regulations, whether the government can act in a predictive manner and how straightforward administrative processes are without causing unnecessary delays.[106] Also included would be the availability of

[98] DOE op cit n85.
[99] P Birnie, A Boyle, C Redgwell op cit n2 18.
[100] Ibid, 366.
[101] Ibid
[102] Ibid
[103]D Olawuyi 'Beautifying Africa for the Clean Development Mechanism: Legal and institutional issues' in B Richardson ...et al. *Climate Law and Developing Countries, Legal Policy Challenges for the World Economy,* (2009) 268.
[104] Ibid
[105] Ibid
[106] Ibid

skilled workers and any other sources of human capital which are available in the area. [107]

- Enabling infrastructure – this refers to whether or not key infrastructures are available such as electricity, security for the project, skilled employees, efficient transportation and land on which to site projects.[108]

When taking the above factors into account, investing states have generally moved away from African states which are considered unsafe and which appear on international lists as either failed states or unsafe.[109] An example of a state that did not meet factor 1 would be Zimbabwe as the state suffered from hyper inflation and so any international investment would have rapidly lost value once it entered the country. An example of factor 2 may be Gambia that lack skilled workers capable of carrying out the project. Finally a country failing factor 3 may be Nigeria as this country is regarded as being unsafe and has a high volume of kidnappings, violence and other civil unrest and so would fail to provide adequate security for investors.[110] At an absolute minimum a host country must have ratified the Kyoto Protocol, enacted legislation demonstrating this ratification, established a Designated National Authority, set out criteria and requirements for CDM projects and enacted comprehensive CDM laws which set out the procedure for CDM projects.[111]

Apart from the above factors which investors may take into account when considering a CDM host country there are also legal barriers which must be overcome. This may not relate to the stability of the country but are barriers none the less. These are the legal and institutional barriers and these occur when the host country does not sufficiently meet the minimum requirements for a host country to be attractive. Firstly, where no laws have been enacted it creates an uncertainty for the investor as to the applicability of the Kyoto Protocol in the host country.[112] In many African countries international treaties must be incorporated into domestic law before they gain effect.[113] This means that the mere fact that a country has signed the Kyoto Protocol in many instances means nothing in the eyes of investing states unless the national law reflects this signing. Existing laws may then conflict with CDM

[107] B Richardson ...et al (eds) *Climate Law and Developing Countries, Legal Policy Challenges for the World Economy* (2009) 25.
[108] Ibid
[109] Ibid
[110] Ibid
[111] Ibid 270.
[112] Ibid 271.
[113] Ibid

international provisions perpetuating this uncertainty and keeping investment at bay.[114] The second main barrier is the institutional barrier and this concerns the DNA. The problem arises where there is no DNA then there is no body that can authorise the project nationally and so without the DNA there can be no CDM. Where there is a DNA then it should set out the specific requirements necessary and procedures to be followed by investors and in many instances this does not happen or does not happen with sufficient certainty.[115]

2.3. Flexibility with the CDM process

There are various ways in which the CDM process can provide flexibility within the process. An example is the idea of the 'prompt start' which was initiated by the 2001 Marrakesh Accords in order to determine if operational improvements to CDM can be made.[116]"...certified emission reductions shall only be issued for a crediting period starting after the date of registration of a clean development mechanism project activity (17/CP.7, paragraph 12)."[117] The "prompt start" provides an exception to this rule which allows for market liquidity by creating Certified Emission Reductions (CER)[118] at a stage when normally there should not be any[119]. The way this works is that the CERs can be given for periods before the start of the CDM and before the registration of that CDM project, 'Commenced before the Registration of a CDM project'[120] and this allowed CDM projects to produce CERs as soon as the protocol was ratified as the projects could predate registration. This only applied to projects that were initiated early on when the Kyoto Protocol was first created and this was a way to get the mechanisms working while the finalities of the Kyoto Protocol were being determined by the different country parties.

In the absence of the prompt start, 'certified emission reductions shall only be issued for a crediting period starting after the date of registration of a clean development mechanism project activity'.[121] In order to qualify as a 'prompt start' project, that project must have commenced before the very first registration of any CDM project became possible, which

[114] B Richardson ...et al (eds) op cit n104 271.
[115] Ibid 277.
[116] S Rosenburg 'A "Prompt Start" for the CDM ?,Lessons from Early Experiences from South Africa'(2007) 1.
[117] Baker & McKenzie (Firm) *CDM Rule Book, Clean Development Mechanism rules, Practice & Procedures* available at http://www.cdmrulebook.org/530, accessed 20/09/2010.
[118] These certified emission reductions relate to carbon credits which are created through the clean development Mechanism. Kyoto Protocol Clean Development Mechanism available at http://cdm.unfccc.int/about/index.html, accessed 04/12/2010.
[119] Baker and McKenzie *CDM Rule Book* op cit n114, 39.
[120] Ibid
[121] Ibid

was on the 18th of November 2004. Furthermore, the projects must have been submitted for registration before the 31 December 2005 or registered by the CDM Executive Board by 2006.[122] What the 'prompt start' did was allow projects to begin and produce CER's in advance of the general allowable date. It also allowed a crediting period to commence before the date of registration of the activity. The reason it was necessary for this facility to come into being was due to concern that at the time existing delays may have rendered many projects not financially viable.[123]

Another way in which the CDM process has been modified is that it now allows for a unilateral CDM process. Unilateral CDM projects are CDM projects where there has been no letter of approval from an Annex I party at the time of registration of the project.[124] Normally what occurs, as is set out above, is that the Annex I party would play a major role throughout the various levels and phases of a CDM project cycle. However, in the case of a Unilateral CDM project, the Annex I country would not be involved in the project for most of the development phase and would only step in once the project entered the implementation phase as the Annex I country is only necessary for the issuance of Certified Emission Reductions.[125] Any party that engages in a unilateral CDM project bears the risk of the project not gaining a letter of approval from an Annex I country and therefore never amounting to a CDM project. Although the Annex I party is not needed for a large portion of a CDM's early development the Annex I party is needed for that project to be recognised as a CDM and gain the fruits of that recognition.

2.4. Additionality

One of the main factors that is taken into account when deciding whether or not to recognise a CDM project is 'additionality'. The idea of additionality is set out in the Kyoto Protocol and both Joint Implementation and the Clean Development Mechanism have this requirement.[126] Additionality in these projects is satisfied when the project provides an emission reduction which is over and above any reduction that would otherwise occur.[127] The idea of CDM and JI hinge on this idea of additionality because in order to create any tradable

[122] ibid 39.
[123] S Rosenburg *A "Prompt Start" for the CDM ?,Lessons from Early Experiences from South Africa* (2007) 13.
[124] Baker & McKenzie *CDM Rule Book* op cit n114 3.9.
[125] Ibid
[126]Article 6(b) and 12(c) of the Kyoto Protocol (1998).
[127] Ibid

emission units there must be a reduction in actual emissions. The 'Tool for the Demonstration and Assessment of Additionality in A/R CDM Project Activities'[128] sets out the approach that should be followed when attempting to demonstrate additionality in forestation of land.[129] There is also the "Combined Tool to Identify the Baseline Scenario[130] and Demonstrate Additionality".[131] This tool relates to both CDM projects and JI projects. The baseline scenario is what is used to describe a 'general concept in reference to a project, with little room for misunderstanding'.[132]

Matsuo provides a flow chart reflecting certain questions that should be asked in order to determine whether or not a project in question is additional or not (please see figure one below). The process follows various steps which are set out hereafter:

Step 1. The identification of alternative scenarios

This involves the identification of all alternative scenarios to the proposed CDM activity.[133] In addition to this project participants must provide outputs and services with comparable quality, property and application areas to the CDM project.[134] All realistic alternatives to the project must be listed and in so far as they comply with the mandatory legislation of the host country.[135] This is an extremely important consideration because:

> 'If the proposed project activity is the only alternative amongst the ones considered by the project participants that is in compliance with all mandatory regulations with

[128] UNFCCC. CDM Executive Board 'Annex 17 Tool for the Demonstration and Assessment of Additionality in A/R CDM Project Activities 'available at http://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-01-v2.pdf, accessed 20/09/2010.
[129] Ibid 1.
[130] The Baseline Scenario "Actual or assumed situation or state of affairs, used as the starting point in a comparison or projection exercise" available at http://www.businessdictionary.com/definition/baseline-scenario.html ; What is and how to set baselines of CDM Projects: "Baseline is the reference scenario to evaluate the emissions reductions, *i.e*., emission reductions are defined by baseline emissions minus emissions by the project",4 available at http://enviroscope.iges.or.jp/modules/envirolib/upload/1741/attach/baseline_general.pdf, accessed 18/10/2010.
[131] UNFCCC. CDM Executive Board 'A Methodological tool Combined tool to identify the baseline scenario and demonstrate additionality'(2006) available at http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-02-v2.2.pdf, accessed 18/10/2010.
[132] N Matsuo 'Proposal for Step-by-Step Baseline Standardization for CDM - From Project-Specific to Generalized Formula' (2003) available at http://enviroscope.iges.or.jp/modules/envirolib/upload/1740/attach/baseline_proposal_3.pdf, accessed 18/10/2010, 4.
[133] UNFCCC. CDM Executive Board op cit n128, Annex14, 4.
[134] Ibid
[135] Ibid

which there is general compliance, then the proposed CDM project activity is not additional.'[136]

Step 2. Barriers analysis

In this step barriers are identified, which include investment barriers, technological barriers, whether the project is the first of its kind (lack of prevailing practice) and any other identifiable barrier.[137] Once these barriers have been identified a decision needs to be made as to whether the alternatives that are identified in "Step 1" are prevented by these barriers.[138]

These first two steps are created to determine what alternatives there are to the CDM project. If there is only one alternative left after the first two steps and this project has not been registered as a CDM then the activity is not additional.[139] The project must have been initiated for the purpose of being a CDM project. Where the project is undertaken as a CDM it becomes the baseline scenario and it would have to be shown using qualities and quantities arguments how the registration of the CDM project will alleviate barriers that prevent the activity from occurring in the absence of CDM.[140] If the project alleviates barriers then proceed to Step 4 "Common Practice Analysis". If not then the project is not additional.[141]

Where there is more than one alternative, more considerations need to be made. Where the CDM project does not qualify for the list of projects remaining it must be shown through qualitative and quantitative arguments how the registration of the CDM activity would alleviate the barriers and if the CDM does alleviate such barriers the participating parties can choose whether to advance to step 3 or identify the lowest emission alternative and then make that the baseline project and proceed to step 4.[142] But where the CDM project is one of those which survives the first two steps then it can proceed to step 3 only.[143]

Step 3. Investment analysis

It is the purpose of this step to determine which alternative scenario is the most economically or financially viable or attractive.[144] This step is primarily for the identification of the

[136] Ibid
[137]UNFCCC. CDM Executive Board, n128 above, Annex 14, 6.
[138]Ibid Annex 14, 5.
[139] Ibid Annex 14, 7.
[140] Ibid
[141] Ibid
[142] Ibid Annex 14, 8.
[143] Ibid Annex 14, 7.
[144] Ibid Annex 14, 8.

baseline scenario. A sensitivity analysis is also undertaken to assess whether financial attractiveness is sturdy enough to resist reasonable variations to key points in the project.[145]

Where the sensitivity analysis is not conclusive then the alternative with the least emissions is considered as the baseline scenario. However, where the sensitivity analysis is conclusive then the most financially or economically attractive project is considered as the baseline scenario. If the proposed project activity undertaken without being registered as a CDM project activity is the baseline then there is no additionality. [146] The baseline scenario must be the project sought to be a CDM.

Step 4. Common practice analysis

This is the final step in the decision making process of whether or not a CDM project's potential emissions are additional or not. Projects that reach this step are either those that are undertaken as CDM projects and alleviate identified barriers or are the most economically and financially attractive or have the lowest emissions when compared to other alternative projects. The Common Practice Analysis sets out to show the extent to which the proposed project type has already been applied in the relevant sector and geographical area.[147] For instance where it can be shown that the proposed project already occurs in the sector and area as a non-CDM project it would be considered to be common practice and the similar proposed CDM project would fail the additionality test. When deciding on common practice other CDM projects are not considered.[148]

From the above it can be seen that the proposed CDM project must have been created with the intention of being a CDM project and must be either the most financially attractive, or produce the lowest amount of emissions between comparable alternative projects or must alleviate some existing barriers (where there is only one alternative). Once these are satisfied then it must be decided if the project is a common practice or not and only where it is not then the project satisfies additionality. Additionality is a highly complex analysis and does not only relate to whether the emission reductions are additional to those that would normally occur, even though this is how the factor for consideration is simplified, but also seems to involve economic considerations as well as legal considerations.

[145] Ibid
[146] UNFCCC. CDM Executive Board 'A Methodological tool Combined tool to identify the baseline scenario and demonstrate additionality' op cit n128, Annex 14, 8.
[147] Ibid
[148] Ibid

A graphic description of the process would be as follows:

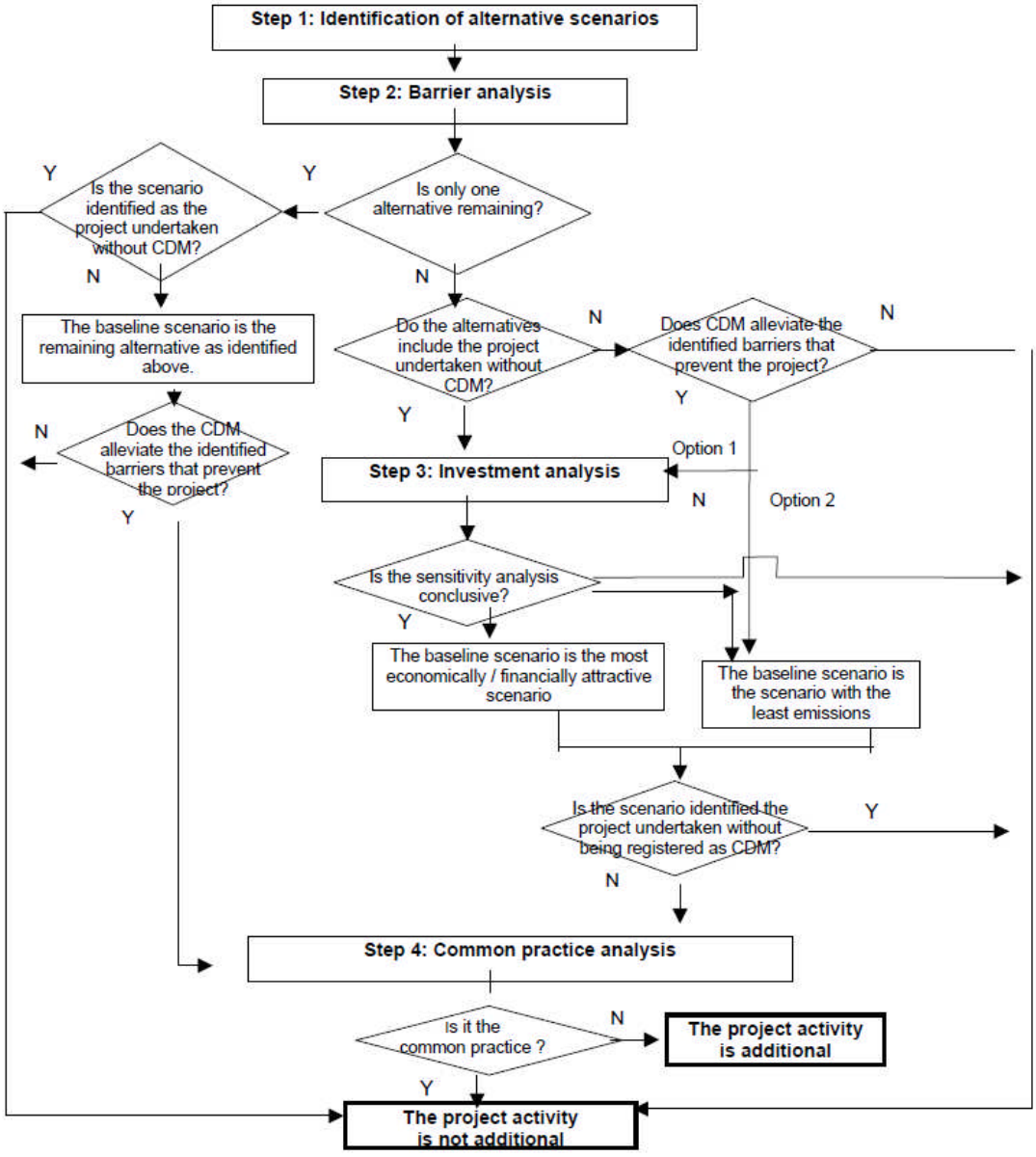

Figure 1: CDM Project process flow chart[149]

2.5. Conclusion

From the above discussion it can be seen that applying the CDM process involves many stages and levels and many different institutions with varying degrees of authority. This can

[149] N Matsuo 'Proposal for Step-by-Step Baseline Standardization for CDM - From Project-Specific to Generalized Formula' (IGES Quantifying Kyoto Workshop August 2003), available at http://enviroscope.iges.or.jp/modules/envirolib/upload/1740/attach/baseline_proposal_3.pdf, accessed 18/10/2010.

be problematic as it creates a process filled with a high administrative burden instead of a simple process to be applied by some of the least developed nations in the world. In light of this when considering the future of CDM, the difficulty of application by some undeveloped or developing states should be considered. A mechanism that has as its purpose inclusion of undeveloped or developing nations should be simple enough for those countries to be included.

When looking at the barriers that hinder CDM investment in certain projects, it can be seen that these barriers all concern the state of development of the host country. When considering that CDM is for the inclusion of these states it becomes quite apparent that the nature of these barriers is a problem of CDM and not the countries in which they occur. As CDM is applied in developing countries and so it would go without saying that the countries in which CDM would be applied would have a lower state of development than other countries. The CDM should therefore not be restricted by the development of potential host countries.

Another aspect that needs to be noted in this chapter is that JI and CDM have very similar forms of application and the fact that they both use additionality as a factor highlights this similarity. The key difference however is that JI applies to developed nations whereas CDM applies to developing nations and so the rules that these countries follow would be different as the countries follow different emission reduction standards within the climate regime.

The next chapter, chapter three, will examine how South Africa has embraced the Kyoto Protocol and implemented the CDM processes and problems associated with this implementation.

Chapter 3

South African application of CDM

3.1. Introduction

Generally the African continent's emissions are very low when compared to other continents or groupings of countries.[150] There is arguably no developed nation on the African continent for purposes of the Kyoto Protocol as there are no African countries listed in the Annex I countries register.[151] However, South Africa is still a major polluter when it is compared both to the region and other heavy polluting countries. South Africa is the continent's greatest emitter of greenhouse gases and this is due to her heavy reliance on coal as a power source.[152] South Africa generates approximately two thirds of Africa's electricity.[153] In 2000, South Africa established the National Climate Change Committee which is the leading institution for the coordination of climate change policy and implementation thereof in the country.[154] Alongside this was also the creation of the Government Committee on Climate Change whose responsibility it is to advise the Directorate of Climate Change and Ozone Protection on matters relating to national responsibilities concerning climate change and with regard to responsibilities found within the UNFCCC.[155] Furthermore, there are a further two committees that have been created, being the Interdepartmental Committee on Climate Change as well as the Interdepartmental Committee that provides technical support to the previous mentioned committees.[156] In total there are four committees dealing with Climate Change in South Africa, two governmental committees and two supporting committees. This, coupled with the Climate Change Response Strategy should be adequate for handling climate change policy in the country. This however appears to not be the case and the existence of so

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[150] J Kim 'Sustainable Development and the CDM: A South African case study'(2003) available at http://tyndall2.webapp3.uea.ac.uk/sites/default/files/wp42.pdf, accessed 20/10/2010.3.

[151] Annex I of the UNFCC C (1992).

[152] J Kim op cit n147, 3.

[153] S Moodley...et al 'Analysing scenarios for energy emissions reduction in South Africa' (2005) 16(4) *J Energy SA* 35.

[154] R Richards 'Assessing progress on climate change policy and practice' (2008) 21(1) *Policy: Issues and Actors* available at http://www.cps.org.za/cps%20pdf/pia21_1.pdf ,accessed 11/07 / 2011.

[155] Department of Environmental Affairs and Tourism (hereafter referred to as DEAT). *Climate Change: Responsibility in South Africa* (2003) available at http://www.environment.gov.za/documents/documents/2003may26/climate_change_sa_responsibility_26052003.html , accessed 11/07/2011 ; DEAT *A National Climate Change Response Strategy for South Africa* available at http://unfccc.int/files/meetings/seminar/application/pdf/sem_sup3_south_africa.pdf, accessed 11/07/2011.

[156] DEAT. *South Africa Country Report. Fourteenth Session of the United Nations Commission on Sustainable Development*, (2005) available at http://www.un.org/esa/agenda21/natlinfo/countr/safrica/atmosphere.pdf , accessed 11/07/2011.

many different institutions has the effect of slowing down the government processes to create and implement climate change policy.[157]

The fact that South Africa is the most developed nation in Africa and one of heaviest GHG emitters in the developing world led it to join together with other heavily industrialising countries within the developing world. This grouping of countries has aligned itself for the purpose of working together at the Conference of the Parties meetings and promoting their shared interest. This group is known as the BASIC Group. This Group is made up of four countries: Brazil, South Africa, India and China and form some of the heaviest GHG emitters of the developing world.[158] These countries decided to work together at the Copenhagen Conference of the Parties held in 2009 in order to reach a satisfactory result for the BASIC group.[159] The group was also seen as playing a pivotal role in decisions from Copenhagen and beyond.[160] The BASIC countries, being more highly developed than other developing nations, are the countries with higher capacity for greenhouse reductions and by inference a country that uses more GHG emitting energy sources would be a target for the Clean Development Mechanism (CDM). Thus the majority of CDM projects occur in these BASIC countries and most of the CDM's are found in China, followed by India and then Brazil.[161] South Africa does not even make the top 10 countries for CDM projects but the number of CDM projects in the country has increased and South Africa has the highest number of CDM projects in Africa be it only 19.[162] South Africa has the highest potential for emission reductions in Africa and is seen as a highly attractive country for CDM but it does

[157] Department of Environmental Affairs *Climate Change: Responsibility in South Africa*, 4 available at http://www.environment.gov.za/documents/documents/2003may26/climate_change_sa_responsibility_26052003.html, accessed 11/07/2011.
[158] C Warburton ...et al *Options for Greenhouse Gas Mitigation Mechanisms in South African Legislation* (2006)7 available at http://www.imbewu.co.za/documents/BASIC_imbewu_101106.pdf , accessed 20/10/2010.
[159] SL Dasgupta'Copenhagen Conference: India, China plan joint exit' *Times of India* (28 November 2009) available at http://timesofindia.indiatimes.com/world/china/Copenhagen-conference-India-China-plan-joint-exit/articleshow/5279771.cms, accessed 20/10/2010.
[160] J Battersby 'BASIC could guide the way to a new world order' (2010) *ReConnect Africa* available at http://www.reconnectafrica.com/africa/basic-could-guide-the-way-to-a-new-world-order-2.html, accessed 20/10/2010.
[161] Pew Center on Global Climate Change *Clean Development Mechanism Backgrounder,April 2009 Status Report* (2009) 3, available at http://www.pewclimate.org/docUploads/CDM-Backgrounder-April09.pdf , accessed 20/10/2010; UNFCCC *CDM in Numbers*, available at http://cdm.unfccc.int/Statistics/Registration/NumOfRegisteredProjByHostPartiesPieChart.html , accessed 20/10/2010.
[162] Ibid

not gain the attention that other countries with lower reduction potential seem to get.[163] The potential reasons for this will be discussed below.

3.2. South Africa and the Kyoto Protocol

South Africa ratified the Kyoto Protocol in July 2002 and the protocol entered in to force in the country in 2005.[164] As mentioned previously only Annex I countries can use Joint Implementation (JI) and Emissions Trading (ET) and only these Annex I countries can gain Certified Emission Credits (CER's) for the purpose of complying with their specific limits under the Kyoto Protocol. South Africa is not a listed Annex I country and therefore cannot utilise these mechanisms. Even the Clean Development Mechanism (CDM) is not used for the same purpose as used by Annex I countries.[165] In terms of being a non-Annex I country South Africa has no specific commitment to reducing emissions[166]. However, as a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) South Africa must submit a National Communications Report and greenhouse gas inventories[167]. These inventories apply to both emissions and sinks.[168] These are not the only obligations that South Africa should fulfil. In "A National Climate Change Response Strategy for South Africa"[169] of 2004, other obligations that South Africa needs to meet in terms of her international obligations have been identified and these include:

- The formulation and implementation of national and regional programmes in order to mitigate climate change and facilitate adaptation to climate change.
- Promote and cooperate in the development, application and diffusion of technologies, practices and processes that control, reduce or prevent emissions of greenhouse gases caused by man.

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[163] G Little...et al. 'Accelerating the Implementation of the Clean Development Mechanism in South Africa' (2007) 10 *SAJEMS* 396.
[164] The UNFCCC Kyoto Protocol website for section on 'Status of Ratification of the Kyoto Protocol", available at http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php, accessed on 09/07/2012.
[165] Article 12(2) of The Kyoto Protocol (1998).
[166] J Kim op cit n147 5; 'South Africa' (2006) *CDM Market Brief* May,available at http://www.gtai.de/DE/Content/__SharedDocs/Anlagen/PDF/CDM/cdm-markt-suedafrika-english,templateId=raw,property=publicationFile.pdf/cdm-markt-suedafrika-english?show=true , accessed 10/11/2010. (Since the new *Market Brief* for 2010 has been made available this 2006 version is no longer at this address.)
[167] S Moodley, RM Magubu, & R Hassan 'Analysing scenarios for energy emissions reduction in South Africa' (2005) 16(4) *J Energy SA* 35.
[168] DEAT *A National Climate Response Strategy for South Africa* (2004) iv, available at http://unfccc.int/files/meetings/seminar/application/pdf/sem_sup3_south_africa.pdf, accessed 03/11/2010.
[169] Ibid

- Promote sustainable management, and promote and cooperate in the conservation and enhancement of sinks and reservoirs of all green house gases.
- Cooperate in preparing for adaptation to the impacts of climate change.
- Take into consideration climate change when deciding on relevant social, economic and environmental policies and actions with the aim of minimising negative effects on the economy, public health and the quality of the environment.
- Promote and cooperate in scientific and other forms of research and the development of data archives related to the climate system and reduce uncertainties concerning current understanding.
- Promote full exchange of information related to the climate system and climate change.
- Promote and cooperate in education, training and public awareness related to climate change.[170]

In order to meet these obligations the national Department of Environmental Affairs and Tourism was designated as the lead agency to respond to climate change in South Africa. It was however recognised that when addressing climate change and applying the Kyoto Protocol there are cross cutting issues that need to be addressed by the different departments with responsibilities for climate change issues[171]. Therefore there would be a need for cooperation between the different departments concerning the implementation of climate change obligations.[172]

There have been various laws introduced into the South African regime concerning our emissions and at an early stage there was some belief that the National Environmental Waste Management Act 227 of 2000[173] would cover some responsibilities for of climate change and therefore may have some effect on CDM within the country. This is because the preceding early policy White Paper made specific reference to climate change as well as the climate change conventions.[174] Nevertheless, the progression from this White Paper to the current

[170] Ibid iv.
[171] Ibid 10.
[172] Ibid 10.
[173] The Act was preceded by a White Paper: DEAT *White Paper on Integrated Pollution Waste Management for South Africa: A Policy on Pollution Prevention, Waste Minimisation, Impact Management and Remediation* ,15,22, 66.
[174] Ibid

National Environmental Management: Waste Act 59 of 2008 (Waste Act) seems to have left the current Waste Act devoid of any mention of climate change.[175] This development has left an amount of uncertainty surrounding the state of South Africa's laws concerning climate change. The main Act dealing with emissions in South Africa is currently the National Environmental Management: Air Quality Act (NEM: AQA).[176] This Act makes specific reference to greenhouse gas emissions[177]. However, there are no specific provisions given in line with the Kyoto Protocol and greenhouse gas emission merely fall under the broad definition of air pollution found within NEM: AQA[178]. But provision is made within the licensing section of the Act for the holder of a licence who is obliged to engage in green house gas measurement and reporting.[179] Section 43(1)(l) states that: 'a provisional atmospheric emission license and an atmospheric emission license must specify greenhouse gas emission measurement and reporting requirements'.

This would then be used for building the country's inventories as mentioned above as required by the UNFCCC[180] which is needed for determining the countries reductions for projects. Currently there is no specific law that deals with climate change entirely in South Africa as a direct consequence of the UNFCCC or Kyoto requirements.

This means that in South Africa the bulk of the international conventions are implemented more through policy and then through the application of Acts already in existence rather than through a dedicated piece of legislation. This may be due to the fact that South Africa is not an Annex I country and so cannot engage in Emissions Trading which could be a reason that would drive a country more aggressively to make reductions in order to sell any excess gained, or, the fact that as a developing nation there is no need to make specific reductions.

In 2005 the Kyoto Protocol came into force[181] and in that same year South Africa created its Designated National Authority (DNA) in terms of the Regulations for the Establishment of a Designated National Authority for the Clean Development Mechanism.[182] These regulations

[175] National Environmental Management: Waste Act 59 of 2008.
[176] National Environment Management: Air Quality Act 39 of 2004.
[177] Preamble& sections 1& 43(1)(l) to the National Environment Management: Air Quality Act 39 of 2004
[178] Ibid Section 1.
[179] Ibid Section 43(1)(l).
[180] Article 1(a) UNFCCC (1992).
[181] 'Kyoto Protocol comes into force' *Guardian* (UK) (16 February 2005) available at http://www.guardian.co.uk/science/2005/feb/16/sciencenews.environment , accessed 08/11/2010.
[182] These 'Regulations for the Establishment of a Designated National Authority for the Clean Development Mechanism' were gazetted in RGN R721, GG 27788, 22 July 2005.

are aimed at creating an authority which is purely for the purpose of administrating and authorising the CDM projects within South Africa. At the time of its creation and in the early stages the South African DNA was said to lack capacity to fulfil its functions. This lack of capacity was predominantly due to a lack of skilled resources to make timely and informed decisions.

In some developing states the slow creation of a DNA and its framework legislations is a major barrier for the initiation of CDM projects.[183] In South Africa the DNA was created in the same year that the Kyoto Protocol came into force and this should have meant that South Africa was well positioned to effectively participate in CDM investments[184]. Even without the 'prompt start' already under way and so other countries had an early start advantage South Africa should have been better placed. However this was not the case and as was mentioned previously South Africa, being the country in Africa with the highest reduction / investment potential, wasted its opportunity to use CDM as compared to other BASIC countries in similar positions.[185]

3.3. CDM and sustainable development

As the benefit of CDM to host countries is to reach sustainable development it should be noted that when considering project applications the key consideration is whether or not sustainable development is reached or promoted by the proposed project.[186] Sustainable development has received attention in South African law and is specifically recognised in the South African Constitution of 1996.[187] It is also reflected within the National Environmental Management Act in the section 2 principles against which all interpretation of legislation and procures must be considered.[188] Sustainable development in the country means the consideration of three aspects, being the economic, social and environmental. This would

[183] D Olawuyi 'Beautifying Africa for the Clean Development Mechanisms : legal and institutional issues considered' in B Richardson ... et al *Climate Law and Developing Countries Legal Policy Challenges for the World Economy* (2009) 262-283.
[184] Ibid
[185] United Nations Industrial Development Organization (hereafter UNIDO) *Clean Development CDM Investor Guide South Africa* (2003), iii, 3 available at http://www.unido.org/fileadmin/user_media/Publications/Pub_free/CDM_investor_guide_South_Africa.pdfaacc essed 08/11/2010.
[186] Article 10, 12(2) of the Kyoto Protocol (1998).
[187] According to s 24(b)(iii) of the 1996 South African Constitution: "Everyone has the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development." M Kidd *Environmental Law* 2 ed (2011) 25.
[188] Section 2 of the National Environmental Management Act 107 of 1998.

amount to three specific questions being asked as to whether a project does in fact promote sustainable development in South Africa:

- Economic: Does the project contribute to national economic development?
- Social: Does the project contribute to social development in South Africa?
- Environmental: Does the Project conform to the National Environmental Management Act Principles of Sustainable Development?'[189]

This last point would open up an entire policy consideration into the South African notion of sustainable development. The legislation that South Africa already has that promotes sustainable development could in fact be seen as a barrier to CDM as the considerations that would have to be made, when the DNA considers granting its host country authorisations, may be more extensive than in other countries. Different countries in some instances focus on the different aspects of sustainability to a greater or lesser degree. This focus may make it easier or more difficult for the vision of sustainable development to be reached in each of those countries based on their different threshold of the idea itself.

Limited capacity in various areas has also been blamed for poor implementation of CDM projects in developing countries and this poor capacity has been identified as a problem in South Africa.[190] This inadequate capacity can be found in a variety of areas such as the Designated National Authority itself[191] and the lack of skilled workers which are needed for projects.[192] This lack of skilled workers in host countries can be considered a major barrier

[189]The exact criteria will be shown in chapter 5 . See also L Matooane *South Africa's Designated National Authority for Clean Development Mechanism* [PowerPoint presentation] (2007), Slide 5 available at http://www.ccs-africa.org/fileadmin/ccs-africa/user/docs/Gabarone_10_9/Gaborone_Matooane_10sept07_panel.pdf , accessed 07/07/2011; Department of Minerals and Energy 'Sustainable Development and the criteria for approval of Clean Development Mechanism Projects by the Designated National Authority of the CDM', (2004), available at http://www.energy.gov.za/files/esources/kyoto/Web%20info/Annex%203%20SA%20Sustainable%20Development%20Criteria.pdf , accessed on 07/07/2010.

[190] J Kim 'Sustainable development and the CDM: A South African case study'(2003), available at http://tyndall2.webapp3.uea.ac.uk/sites/default/files/wp42.pdf,, accessed 20/10/2010, ,5; C Olver *Practice Note on Municipal Landfill Gas Projects10* (2007) available at http://www.8linkd.com/sites/default/files//files/Expediting%20LFG%20Projects%20-%20final.pdf ,accessed 19/07/2012.

[191] Ibid

[192] D Olawuyi 'Beautifying Africa for the Clean Development Mechanisms : legal and institutional issues considered' in B Richardson ...et al *Climate Law and Developing Countries Legal Policy Challenges for the World Economy* (2009), 262-283, 269; Hanh, D & Michaelowa, A 'Lessons learned from CDM project

for CDM consideration.[193] This should be somewhat expected at some level because the promotion of sustainable development would require technology transfer and this would mean that new technologies not previously used in host countries would be imported. Therefore, not all the necessary skills can be presumed to be in the host country when this new technology is used.

This lack of skilled workers places South Africa in a precarious situation in which the country has the necessary infrastructure but lacks the skills necessary to construct and operate proposed projects.[194] Other problems for South Africa that have been noted when regarding it as a CDM destination are financial restrictions for foreign companies as well as there being security problems within the country.[195]

3.4. South Africa's Designated National Authority (DNA)

The responsibility of the South African DNA lies with the Director-General of the Department of Minerals and Energy.[196] Even though one department is appointed as the DNA the regulations recognise the trans-institutional nature of climate change and CDM processes and accordingly requires other departments to have a meaningful involvement in these processes.[197] The regulations create the steering committee that acts with the DNA authority when the DNA is fulfilling its functions under the regulations.[198] The Steering Committee is then given specific functions which include providing supervision and advice concerning operations, approving the CDM project procedure and evaluation as well as considering applications presented to it by the DNA and making recommendations to the DNA in respect of CDM projects which have been submitted to it.[199] The situation is then created that it is not only the Director-General of the Department of Minerals and Energy acting as the DNA that

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approval procedures in Southeast Asia' (2007) , 12, available at http://www.eurocapacity.org/downloads/ecbi_CDM_PA_Project_2007.pdf, accessed 10/11/2010.

[193] S Kamel *CDM PDD Guidebook: Navigating Pitfalls* 2 ed, (2005), 30 available at http://cd4cdm.org/Publications/PDDguidebook2ndEdition.pdf, accessed 08/03/2011.

[194] L Mokwena' Municipal Responses to Climate Change in South Africa, the case of eThekwini, the City of Cape Town and the City of Johannesburg' (2009) , 5 available at : http://www.cps.org.za/cps%20pdf/RR113.pdf, accessed 19/07/2012.

[195] Ibid. To give some examples of what is considered a security issue: these can be persistence of dictatorships, corruption, ineptitude of law enforcement agencies, ethnic and religious tensions and the fragile rule of law, see D Olawuyi op cit n180, 269.

[196] Regulation 2(1) of the 'Regulations for the Establishment of a Designated National Authority for the Clean Development Mechanism' , GN R721, GG 27788, 22 July 2005.

[197] Ibid Regs 3,4.

[198] Ibid Reg 3.

[199] Ibid Reg 3.

makes decisions but also members from a number of other departments which make up the steering committee.[200] A major failing within the South African regulations is that they do not provide for any instructions regarding the process for applications for CDM projects themselves and rely on some other source.[201] Although South Africa did create its Designated National Authority on time it still lacked adequate laws at that stage to enable effective implementation of CDM in the country and this absence is the most significant barrier to CDM. The South African DNA was more of an empty shell than a functioning authority. Potential project developers would require guidelines from the host country on how to gain authorisation and where no such guidance exists it is extremely difficult or unattractive for a CDM project to be initiated in South Africa.

Differing opinions seem to suggest that the South African DNA lacks capacity but in a recent study of South Africa's CDM potential it has been shown that South Africa's DNA no longer lacks capacity as it did in the past but rather that it is very 'helpful and competent' when compared to other countries in the region.[202] The problem with capacity does however persist through other levels of the government when investors have to deal with them.[203] The process for obtaining host country authorisation differs from what occurs internationally as in South Africa the owner of the project has to bear the costs for the validation, which does not happen in other countries.[204] This would create an unnecessary barrier especially when an investor has other countries to choose from where this does not occur.

The circumstances show that investors lack certainty when dealing with the South African DNA. The uncertainty comes into play when the DNA makes it known that they follow a very flexible approach and a project developer 'need not meet all (sustainability) requirements to be issued with a Letter of Approval.'[205] Though this flexible approach is meant to help developers it creates circumstances where certainty as regards the exact requirements is not known. A more specific approach would probably be a better option. It would add certainty and certainty is very important to an investor especially when South

[200] Ibid Reg 4.
[201] Ibid Reg 6(1).
[202] 'South Africa' (2006) *CDM Market Brief* October 3 available at http://www.gtai.de/DE/Content/__SharedDocs/Anlagen/PDF/CDM/cdm-markt-suedafrika-english,templateId=raw,property=publicationFile.pdf/cdm-markt-suedafrika-english?show=true, accessed 07/03/2011.
[203] Ibid
[204] Ibid
[205] 'South Africa' (2006) *CDM Market Brief* op cit n199.

Africa is one of the few developing countries where investors have to initially bear the costs for validation.[206]

Apart from these internal barriers, some external barriers have also been identified. These problems have to do with complaints that developers have concerning the Designated Operational Entity (DOE) assigned to South Africa.[207] The performance of the DOE has been described as erratic, frustrating and unprofessional.[208] These problems are exacerbated by the lack of local DOE and the unnecessary time constraints this causes.[209] It is also noted that there is a specific bureaucracy for CDM which results in ambiguous documents, quickly changing rules, as well as procedures that are overly complex.[210] The many redundant institutional bodies and the existing DNA cannot cope with these changes and so this would slow project throughput.

Relative to other countries in a similar state of development, South Africa has failed to adequately implement CDM. It has been shown however that there are many projects in the pipeline for consideration by the DNA.[211] The number of projects is still dwarfed by those of India and China as comparable states but as a comparable state South Africa still has vast potential.

3.5. The African Designated Operational Entity (DOE)

As set out in a previous chapter the DOE is required for verification of CDM projects. In Africa there has been no local DOE until recently. This was due to a lack of capacity to adequately fulfil the function. This lack of local DOE in Africa is a major factor as to why the region is struggling to implement CDM projects. With there being no local DOE African countries have had to use a foreign DOE/specialists which is very costly for the project developers and causes time delays that are not be present in other countries.[212] In 2011 Carbon Check (Pty) Ltd was granted the status of Designated Operational Entity (DOE) by

[206] Ibid 3.
[207] Department of Energy *CDM Status Review: Designated National Authority for the Clean Development Mechanism South Africa 2009*, 56, available at http://www.energy.gov.za/files/esources/kyoto/CDM.pdf, accessed 11/11/2010.
[208] Ibid 56.
[209] Ibid 56.
[210] Ibid 56.
[211] Ibid 37.
[212] Ibid

the CDM executive Board.[213] This should give a boost to CDM development in the country. This however comes a bit late as the first commitment period is set to end in 2012.

3.6. Climate Change Response Green Paper[214]

Recent emphasis placed on combating climate change within South Africa has created potential for CDM to be developed and reach its full potential within South Africa in the future. With this in mind there are forthcoming developments that may drastically affect the future of CDM and climate change law in South Africa. In 2010 a Green Paper covering climate change policy issues within South Africa was drafted in response to the general emission targets set by South Africa in the Copenhagen conference for the Kyoto Protocol the year before.[215] This Green Paper has been superseded by the National Climate Change Response White Paper[216] but there has not been any considerable differences noted in respect of the subject matter of this dissertation. The Green Paper includes proposals for: a tax on carbon emissions effective from 2012, fuel efficiency standards, building standards for commercial and residential buildings, carbon emission cuts on commercial buildings by 2015 and a roll out of solar water heaters among others.[217] An interesting approach that the Green Paper takes is that it divides the main thrust of the policy into two key areas, these being mitigation and adaptation.[218] These two areas are then sub-divided into key sectors. For adaptation the key sectors are water, agriculture and human health.[219] For mitigation the key sectors are energy, industry and transport.[220] This distinction between adaptation and mitigation is also reflected in the agreement reached at Cancun in 2010 which was the meeting of the parties to the Kyoto Protocol and concerned the future of the protocol after the first commitment period.[221]Adaptation is described as those short to mid-term responses to climate change.[222] These adaptation responses are just that, responses to the effect of climate

[213] Carbon Check (Pty) Ltd , available at http://www.carboncheck.co.za/, accessed 20/07/2011.
[214] Department of Environmental Affairs *National Climate Change Response Green Paper* (2010).
[215] Ibid; South Africa to complete green paper by year end, January 2010.
[216] Department of Environmental Affairs *National Climate Change Response White paper* (2011)
[217] Ibid
[218] Ibid 4.
[219] Ibid
[220] Ibid
[221] UNFCCC 'Climate Change Conference held in Cancun, Mexico in 2010. 'Outcome of the work of the Ad Hoc Working Group on Long Term Cooperative Action under the Convention', Part IV, Draft decision [1/CP.16], available at http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2, accessed on 11/11/2010.
[222] Green paper op cit n212, 8.

change where there is the potential for the greatest harm. The mitigation sectors are those where South Africa has the greatest potential to make mitigations in greenhouse gas emissions.[223] It is noted that the energy sector is the greatest contributor of greenhouse gases in South Africa out of all other sectors.[224] The Green Paper goes on to identify 24 measures that will be taken by South Africa to contribute to its "fair share to the global greenhouse gas mitigation effort".[225] These measures range from an Integrated Energy Plan, carbon taxing, development of a renewable energy policy, minimum energy performance standards to an energy management and awareness program.[226] There is little mention in either the Green Paper or White Paper on Climate Change concerning CDM within South Africa. This leaves us to surmise that South Africa may not be concerning itself with CDM as much as it should.

In early 2010 Eskom, South Africa's power provider, received $3.75 billion for the construction of a super critical coal power station.[227] On top of this South Africa was granted $500 million from the South African Clean Technology Fund in November 2009 for purposes of providing one million houses with solar powered water heating in the following five years[228] (which was mentioned in the Green Paper concerning climate change[229] and expressly expanded in the National Climate Change Response White Paper[230].). These large sums of money directed specifically at the development of cleaner technologies have the effect of significantly altering the path which South Africa would normally follow in the creation of electricity within the country. This change in direction will have a major impact on what projects can now fall under CDM especially when one considers the requirement of additionality or at least the original requirement of additionality. This could make it more difficult for projects to be considered as CDM projects, this is possible but not entirely the

[223] Ibid 9.
[224] Ibid 14.
[225] Ibid 15.
[226] Ibid 15-17.
[227] International Bank for Reconstruction and Development (hereafter IBRD) 'Project Information Document (PID) Appraisal Stage' (report AB 5486) available at http://siteresources.worldbank.org/PROJECTS/Resources/40940-1097257794915/537867-1136835492035/SouthAf-Eskom-PID.pdf, accessed on 11/11/2010; 7 ; J Roberts 'World Bank approves Eskom loan' *Mail and Guardian Online* (South Africa) (9 April 2010) , 4 available at http://www.mg.co.za/article/2010-04-09-world-bank-approves-eskom-loan, accessed 11/11/2010.
[228] Sustainable Energy Resource South Africa '$500 million Infusion Gives South Africa Critical Boost To Meet Ambitious Clean Energy Goals' (Tuesday 1 June 2010) available at http://www.energy-resource.co.za/content/energy-resource/ejournal/news-a-articles/news/item/268-$500-million-infusion-gives-south-africa-critical-boost-to-meet-ambitious-clean-energy-goals.html , accessed 08/10/2010.
[229] Green paper op cit n212, 14.
[230] National Climate Change Response White paper,(2011) 32

case but by lowering the emissions of the host country affects the reduction potential that CDM projects have within that country.

The Climate Change Response Strategy mentioned earlier is the main policy document dealing with climate change in South Africa. There are other documents that are also applicable to climate change, be it to a lesser extent. These include 'The Integrated Energy Plan 2003'[231] and the 'White paper on Renewable Energy'.[232] These latter documents do not deal specifically with climate change but rather consider it in their rationale. The two above mentioned documents are aimed at implementing renewable energy. However, they only consider this in relation to the most cost effective method, which is coal.[233] This would result in a somewhat stunted or stifled consideration of renewable energy sources as the targets set out in the White paper on the Renewable Energy Policy for the Republic of South Africa 2003 would only account for around 4% of the total electricity demand for the country.[234] The remainder of what would be coal and so these documents would result in having little to no effect at all on emission reductions and the creation of renewable energy sources.

3.6. Conclusion

South Africa has lacked the capability to properly implement the CDM and this is due to the many aforesaid reasons, both internal and external factors, ie issues that can be sourced either originating from outside the country or within its borders. The most difficult problem that can be identified is that the criteria on which the South African DNA bases its sustainability approval may be too strict. This is due to the South African consideration of sustainability being very developed in existing law. This cannot be considered a failing of South Africa. Sustainable development is critical for the country's growth but obviously tradeoffs present challenges. South Africa has received much funding from non-CDM sources which could either be due to its initial failure with the mechanism or because it was overlooked to other available sources of funding. Despite the country being less successful than its counterparts

[231] Department of Minerals and Energy *Integrated Energy Plan for the Republic of South Africa* (2003) available at http://www.info.gov.za/view/DownloadFileAction?id=124574, accessed on 07/07/2010; M Kidd *Environmental Law* 2 ed (2011) at 311.
[232] Published by the Department of Minerals and Energy November 2003, available at http://unfccc.int/files/meetings/seminar/application/pdf/sem_sup1_south_africa.pdf, accessed on 07/07/2010; M Kidd *Environmental Law* 2ed (2011) 82.
[233] M Kidd ibid 313.
[234] Ibid

within the BASIC Group, South Africa has made great advances in the way it handles CDM projects. With the second commitment period approaching South Africa is in a much better position than it was at the start of the first commitment period and is in a better position to benefit from the mechanism in the future..

The next chapter, chapter four, will examine China's involvement in the Kyoto Protocol and its response to the Clean Development Mechanism.

Chapter 4

China's application of Clean Development Mechanism (CDM)

4.1. Introduction

China is home to an extremely large population which is approximately one fifth of the world's population.[235] China is also rapidly industrialising[236] but is still considered a developing nation in terms of the UNFCCC and therefore is not bound to follow specific emission targets as the Annex I industrialised countries are. Currently, China has become the highest GHG emitter in the world. [237]

This realisation has devastating effects for the climate change regime. Considering the initial reason for the Developing / Developed divide in the protocol this realisation would show how it cannot only be the developed nations who are held accountable. Developing nations will become developed. The fact that China, for the purposes of the UNFCCC and its protocol, is still not considered a developed nation is a huge shortcoming for the climate change regime. However, with this in mind consideration must be given to the efforts China has made to assist the global effort to combat climate change.

China has been proactive in terms of addressing issues of climate change. In 1998 the National Coordination Committee on Climate Change (NCCCC) was established in China.[238] This committee was specifically created to coordinate and formulate China's climate change related measures and policies.[239] Significantly, this committee was formed in the same year as the Kyoto Protocol in 1998 and so could be presumed to be a direct result of the Kyoto Protocol. The National Development and Reform Commission (NDRC) chairs the NCCCC

[235] BJ Richardson ... et al *Climate Law and Developing Countries: Legal and Policy Challenges for the World Economy* (2009) 138.
[236] Ibid
[237] I Partridge and S Gamkhar 'The Role of the Clean Development Mechanism in a Post Kyoto Climate Agreement: effective participation by China and India' 2 available at http://www.aere.org/meetings/documents/partridge.pdf , accessed 20/09/2010. See also PBL Netherlands Environmental Assessment Agency stating that china had surpassed the US Emissions by 8% [2007] available at http://www.pbl.nl/en/dossiers/Climatechange/moreinfo/Chinanowno1inCO2emissionsUSAinsecondposition.html , accessed 20/09/2010; Reuters 'China admits it is top polluter' *The Telegraph* (Calcutta, India) (24 November 2010), available at http://www.telegraphindia.com/1101124/jsp/foreign/story_13214184.jsp, accessed 05/12/2010.
[238] BJ Richardson op cit n231 139; Mo Hong'e 'China's policies for addressing Climate Change' (28 October 2008), available at http://www.gov.cn/english/2008-10/29/content_1134544_10.htm , accessed 12/11/2011.
[239] Ibid

and acts as the secretariat to the committee.[240] Once China had ratified the Kyoto Protocol in 2002 it could establish the institutional framework to implement the Clean Development Mechanism (CDM) in China.[241] The NDRC, acting as China's DNA, was only established later in 2004.[242] The NDRC is the country's DNA when dealing with the Conference of the Parties[243] but in terms of actually approving CDM projects it is not only the NDRC that acts as the DNA in the approving process.[244] The National CDM board which is composed of the NDRC as well as other ministries such as the Ministry of Science and Technology, the Ministry of Foreign Affairs, State Environmental Protection Administration, Ministry of Finance and the Ministry of Agriculture, are all responsible for whether or not a CDM project is approved.[245] Furthermore, it is this National CDM board that advises the NCCCC on suggestions relating to CDM and other modifications to rules procedures and other significant considerations in CDM development within the country.[246]

The 'White Paper of China on Population, Environment and Development in the 21st Century' which was implemented in 2003[247], incorporated considerations of sustainable development in the country. From an early stage China was well placed to confront other issues that surfaced in the years leading up to the current climate change regime.[248] The problems that China then faced were those of improving enforcement of laws related to sustainable development and improving support systems for both national and local levels for enforcing the previously mentioned laws.[249] This was based on the idea that 'the value of sustainable development is predicated on its actual enforcement' which was formulated in China's Agenda 21 [250], which China started creating in 1992 the process which involved 300 experts from 52 organisations.[251] China's sustainability laws operated at both a national level as well as a local level as there was this belief that in order for such laws to be successful they

[240] S.Zheng 'Mitigating Climate Change through CDM: the case of China' (2004) 31(2) *Int R Env Strat* 290-291.
[241] Ibid
[242] G Heggelund 'China's Climate Change Policy: Domestic and international Developments' (2007) 31(2) *Asian Perspective* 155- 191.
[243] Ibid
[244] Ibid
[245] Ibid
[246] ibid 290-291.
[247] World Resources Institute *White Paper on China's Population, Environment and Development in the 21st Century*, available at :http://projects.wri.org/sd-pams-database/china/white-paper-chinas-population-environment-and-development-21st-century accessed 18/07/2012.
[248] Wang Xi et al, ' Implementing law for sustainable development in China: 10 years of experience since the Rio Summit UNCED 1992' (2006) 13 *SAJELP* 155.
[249] Ibid
[250] Ibid
[251] Available at: http://www.cicero.uio.no/media/175.pdf Accessed 18/07/2012.

needed to be adequately enforced at all levels. In addition to this seemingly all encompassing enforcement of sustainability laws, China also increased the amount of education which their government officials received and specifically educating these officials in the fields which applied to them.[252] The education of government officials at this pre United Nations Framework Stage was therefore very advanced when considering other developing nations. With this highly educated government and as well as the institutions and policy in place to adapt to new requirements, especially since their government authorities were also specifically trained in environmental fields as well as sustainable development, China was well suited and equipped to deal with the implementation of the Kyoto Protocol. It has been noted that China has 'the institutional infrastructure capable of translating their international commitments under the UNFCCC and the Kyoto Protocol into domestic action'.[253] This is most likely due to the above mentioned education and systems of education in place for the different areas of government.

When considering China's well informed and well positioned stance on climate change, it is no surprise that at an early stage China was the only country in its region to have 'clear arrangements for local government involvement in climate change programmes'.[254] The main driving force behind China's climate change policy seems to be focused on energy saving and reflects 'the need for the country to improve energy efficiency'[255] in order for the country to continue to grow as rapidly as it is now.[256]

Besides this foundation that China has when it deals with climate change, there exists a few key pieces of legislation and policy that are targeted at climate change and the development and promotion of renewable energy sources and therefore CDM. The two pieces of legislation that deal indirectly with the CDM are the 'Energy Conservation Law of the Peoples Republic of China' of 1997[257] and 'The Renewable Energy Law of the Peoples Republic of China'[258]of 2005. The document that is regarded as the main or 'flagship'[259]

[252] Wang Xi ...et al, op cit244 158
[253] BJ Richardson op cit n231, 139-140.
[254] Ibid 139.
[255] T Townshend ...et al *GLOBE Climate Legislation Study* (2011) 39 available at http://sd-cite.iisd.org/cgi-bin/koha/opac-detail.pl?biblionumber=51010, accessed 13/07/2011.
[256] Ibid
[257] Ibid; The Energy Conservation Law of the Peoples Republic of China no. 90 of 1997, (1997) available at http://www.asianlii.org/cn/legis/cen/laws/eclotproc501/, accessed 13/07/2011. From the date it can be seen that the piece of legislation predates the UNFCCC and was passed leading up to its coming into force. This shows the proactive nature of the Chinese government.
[258] The Renewable Energy Law of the Peoples Republic of China of 2005 (amended 2009) available at http://www.ccchina.gov.cn/en/NewsInfo.asp?NewsId=5371, accessed on 13/07/2011.

document concerning climate change in China is known as 'China's National Climate Change Program' of 2007[260]. This policy document sets outs the government's awareness of the need to combat climate change.[261] The policy document identifies five main key areas for which measures can be adopted to help combat climate change. These areas are

- GHG mitigation
- Climate change science and technology
- Public awareness on climate change
- Institutions
- Mechanisms.

The main thrust of the legislation is on energy efficiency[262] and this aspect of China's concern with climate change will be discussed below. Within the above five areas, it is the last two concerning Institutions and Mechanisms where the CDM would fall.[263] China sees CDM as a tool which it seeks to promote and use for combating climate change. A fund was also created by China which would specifically gain its income through the generation of CERs by CDM projects.[264] The fund would then assist in supporting the country's climate change activities such as science and research for combating climate change and increasing the national adaption and mitigation capacity.[265] From this brief review of one of China's main documents dealing with climate change it can be seen that CDM plays a very active role in the minds of the country's decision makers.

4.2. Success of CDM in China

Of all the developing nations, China has had the greatest success with CDM projects.[266] This could be due to the factors mentioned above, namely China's well educated people and well structured system which is capable of receiving and processing any international legal

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[259] T Townshend ... et al op cit n251 39.
[260] Prepared under the Auspices of the National Development and Reform Commission People's Republic of China, June 2007.
[261] T Townshend op cit n251 39.
[262] Ibid
[263] China's National Climate Change Program op cit n256 12.
[264] Ibid 57.
[265] Ibid
[266] PEW Center on Global Climate Change *Clean Development Mechanism Backgrounder* (2009) 3 available at http://www.pewclimate.org/docUploads/CDM-Backgrounder-April09.pdf , accessed 20/10/2010.

arrangement. Gechlik outlines what he thought were probably the main reasons for CDM's success in China.[267] The four main reasons for purposes of this discussion are the following:

- GDP growth
- Policy and regulatory framework
- Climate change perceived as an economic development issue
- Strong technological capabilities coupled with an emphasis on science and technology

i. GDP growth

GDP refers to Gross Domestic Product which is 'the total value of goods produced and services provided in a country during one year.[268] Therefore GDP growth would refer to the annual growth of GDP.

Gechlik notes that GDP growth in a country directly relates to the desirability that country would be as a host country for CDM projects.[269] Gechlik goes on to identify that: 'if a country's average GDP growth increases by one percentage point, the likeliness of technology transfer to that country rises by 19%'. [270]

Since China has the third fastest developing GDP in the world[271] it is well placed as a host country from a GDP point of view as its GDP would then have very high growth relative to other developing nations.[272]

ii. Policy and regulatory framework

This aspect has been discussed above and Gechlik notes that 'China has established quite an impressive legislative framework to regulate climate change and environmental

[267] M Gechlik 'Making transfer of clean technology work : Lessons of the Clean Development Mechanism', (2009) 11(1) *San Diego Int LJ* 227-285.
[268] OUP *Oxford Dictionary* available at http://oxforddictionaries.com/definition/gross+domestic+product, accessed 29/06/2011.
[269] Ibid page 236.
[270] Ibid
[271] Ibid
[272] Both America and Japan are considered developed in terms of the UNFCCC and China is not.

protection issues'.[273] He goes on to mention how the success of CDM in the country is as a result of ambitious energy efficiency targets.[274]

iii. Climate change perceived as an economic development issue

The government of China sees climate change as a threat to the country's economic development. It is noted in the work of Gechlik that the Chinese government directly relates the causes of natural disasters and the cost of such disasters to climate change.[275]

A perception of this kind would more than likely drive a government to actively pursue laws, policy and enforcement practices that would combat climate change and the effects of climate change in the country. China has done just that and in many instances the country has acted beyond what it is internationally obliged to do in terms of the UNFCCC and Kyoto Protocol because it sees climate change as a threat that must be addressed.[276]

With higher goals in place and a clear determination to combat climate change in a very serious manner China is extremely attractive to CDM projects.

iv. Strong technological capabilities coupled with an emphasis on science and technology

The final reason for China's CDM success is it has 'strong technological capabilities'. When Gechlik discussed China's capabilities he used the ArCo Index[277] which rates three key factors when analysing the capability of a country, which are:

- Creation of technology
- Technological infrastructures
- Development of human skills

When looking at the above it can be seen that two of the three factors have been barriers to CDM projects, namely technological infrastructures and the development of human skills as were discussed in earlier chapters. With this in mind it should be noted that China has placed a large emphasis on science and technology.[278] This emphasis along with China's above mentioned highly educated government authorities would allow for a better

[273] M Gechlik op cit n263 238.
[274] Ibid 238.
[275] Ibid 245.
[276] Ibid 243.
[277] Ibid
[278] Ibid 251.

understanding of what needs to be done when implementing new technologies or creating CDM projects.

v. China's CDM procedure

CDM projects in China are regarded as either new or renovation projects, and therefore follow the national or local approval procedures in relation to what kind of investment the project falls under.[279] in order for a project to be approved it must follow the normal procedures in relation to whether or not it is a new investment project or a renovation investment project. Thereafter there must be a CDM application by the project developer. The preliminary evaluation is then conducted by the NDRC. A full evaluation and approval is given by the CDM board followed by the granting of written authorisation.[280] This letter of approval is then submitted to the Executive Board and the international approval process would then begin[281], as has been set out in a previous chapter. The process for CDM authorisation and the committees in place were all ready by 2004, one year before the Kyoto Protocol came into force.[282] In August 2005 the 'Measures for Operation and Management of Clean Development Mechanism Projects in China'[283] was issued.[284] These measures can be compared to the South African criteria that must be met in order to be granted host country authorisation. These measures provide a 'clear description for the requirements of the:

- Eligibility of the project owner
- Institutional arrangement for project management
- Documents needed for submissions
- Detailed procedure for obtaining a letter of approval and

[279] S Zheng op cit n236 291.
[280] Ibid 293.
[281] Ibid
[282] UNFCCC 'Essential background: Kyoto Protocol' available at http://unfccc.int/essential_background/items/2877.php, accessed 30/06/2011; 'Kyoto Protocol comes into force' *Guardian* (UK) (16 February 2005) available at http://www.guardian.co.uk/science/2005/feb/16/sciencenews.environment, accessed on 30/06/2011.
[283] See the text of these measures available at http://cdm.ccchina.gov.cn/english/NewsInfo.asp?NewsId=905 accessed 13/07/2011. Article 26: These measures abolished the previous interim measures that were in place and took effect as of 12 October 2005.
[284] Q Wang and Y Chen 'Barriers and opportunities of using the clean development mechanism to advance renewable energy development in China' (2010) 14 *Renewable and Sustainable Energy Reviews* 1989-1998.

- Priority area for CDM activities'.[285]

This clear description no doubt assisted China in gaining much CDM investment. In spite of this clear description there is very little pertaining to the actual sustainable development goals within this document.[286] Article 6 states that CDM projects should be 'consistent with China's laws and regulations, sustainable development strategies and policies...'[287]
Besides Article 2 and 15 the above mentioned extract is the only relevant consideration of sustainable development that a project developer must consider when initialising a CDM project.[288] What this would essentially mean for the project developer is that he would only need to establish that his project breaks no laws or regulations and the CDM Project complies with the sustainable development strategy and policy. This is a very easy test to overcome as there are no particular factors to be considered as in other countries. The certainty of process and the relatively easy consideration of sustainable development to overcome would create a circumstance where project developers would be very interested in using China as a host country for their projects.

4.3. Conclusion

From the above it can be seen that China has and is proactive in terms of meeting its international obligations. China's approach as regards combating climate change seems to be driven by three main strategies, being:

- The Chinese government rapidly creates institutional bodies and frameworks in which the international obligations will be carried out. Having bodies in place at an early stage allows for more certainty at a later stage in the processes that need to be applied to implement the mechanism.
- Educating those who deal with the various aspects of climate change regime would allow for easier progress through the various institutions which can be a very bureaucratic process in other countries.

[285] Measures for Operation and Management of Clean Development Mechanism Projects in China op cit n279.
[286] Ibid
[287] Ibid Article 6.
[288] Article 2 amounts to an extract from the Kyoto Protocol and Article 15 is only relevant as far as it points out the responsibility of the CDM Board to consider the Expected Sustainable Development Effectiveness.

- The incorporation of climate change into the Chinese development strategy means that there is a focus and a drive to pursue the aspects of the regime that apply to the state. China sees CDM as a way of advancing her own economy as opposed to an obligation set by the international community.

On the negative side China is still the highest GHG emitter in the world and yet is regarded as a developing nation. The developing/developed split was created to identify who was responsible for historic emissions and so those countries could bear the brunt of the responsibilities as is the case when applying the polluter pays principle. In light of the current state of global emissions it would seem that a mere consideration based on historic emissions would be absurd and blatantly contrary to the objectives of the climate change regime. With that in mind China should probably be regarded as a developed nation for purposes of the Regime. The efficiency with which it applies its domestic responsibilities both proves that the country is as efficient as an industrialised country and would be able to handle the higher responsibility.

Another negative that may be identified is that the sustainability conditions are comparably easy to meet and so this may allow for projects that are not completely sustainable in the narrower sense. The huge inflow of projects partially due to this simplicity does create a positive outcome as a fund is in place that assists with the development of cleaner technology and science.

With all this China can be said to be the developing country of all developing countries with the greatest success with CDM and so can be considered the highest bar against which other countries can compare themselves.

The next chapter will provide a comparison of China and South Africa as regards success with CDM implementation.

Chapter 5

South Africa and China and the Clean Development Mechanism (CDM): a comparison

5.1. Introduction

From the information presented in the previous two chapters it can be noted that there are various key similarities and some glaring differences that exist when comparing South Africa and China as regards the implementation and success of CDM. The most notable similarities that exist are that the countries are both parties to the Kyoto Protocol as well as both being non-Annex I countries, ie developing countries.[289] South Africa and China are both major regional polluters and rely heavily on coal. Both are the most industrialised countries within their respective geographic regions. South Africa and China are part of the BASIC Group of countries which are considered to be the most developed of the developing nations.[290] Both have a range of regulatory measures to deal with combating climate change and both have embraced the CDM to varying degrees.

The major differences that affect CDM within the two countries are the following. China has a higher population than South Africa.[291] Due to this larger population China has much lower per capita GHG emissions than South Africa. Although South Africa and China are both heavy GHG emitters China is by far the greater emitter of the two and is currently the world's top emitter of GHGs.[292]

5.1. Pre-Kyoto situation

South Africa, being the most industrialised nation in Africa should have had a greater inflow of CDM projects. Through a look at the country which has had the greatest success with CDM factors and reasons can be shown as to why South Africa should have had greater

[289] China was an original signatory while south Africa joined via accession and ratification. Both parties have joined (via ratification) the Kyoto Protocol on the 29th of May 1998 and South Africa joined via accession on the 31st of July 2002 available at http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php, accessed 18/07/2011.

[290] M Olsson ... et al 'Together Alone? Brazil, South Africa, India, China (BASIC) and the Climate Change Conundrum'(2010) available at http://sei-international.org/mediamanager/documents/Publications/SEI-PolicyBrief-Olsson-BASIC-ClimateChangeConundrum.pdf, accessed 18/07/2011.

[291] BJ Richardson ... et al *Climate Law and Developing Countries: Legal and Policy Challenges for the World Economy* (2009) 138.

[292] L Ding 'China's Path to the World's Largest Economy: Limits of Extrapolations' (2010)available at http://www.eai.nus.edu.sg/BB554.pdf , accessed 18/07/2011.

success with the mechanism. This country is China. It can be seen that at an early stage after the creation of the UNFCCC, China took early steps to create an institution that would handle climate change within the country.[293] Two years later South Africa began its process of creating a vast array of institutions: the National Committee on Climate Change, the Government Committee on Climate Change as well as the two intergovernmental committees. In the latter two committees one would reinforce the other on technical issues. This proliferation of committees had the effect of slowing down implementations of climate change policy within South Africa, whereas in China the initial Committee was all that was needed for the clear implementation of policy and strategy.

The fact that China created this institution so early on in the existence of the regime shows that China was committed to combat climate change and that it was ready to implement any obligations or mechanisms that needed to be implemented at a later stage. This point cannot be stressed enough. China was ready.

Two years after China, in 2000, South Africa was drafting its 'White Paper on Integrated Pollution Waste Management for South Africa: A Policy on Pollution Prevention, Waste Minimisation, Impact Management and Remediation.'[294]

As was stated the document initially mentioned climate change as a part of waste management. However, when the Waste Management Act was eventually enacted in 2008 there was no mention of climate change.[295] However, in 2004 'A Climate Change Response Strategy for South Africa'[296] was drafted, which was largely created as a requirement for the UNFCCC.[297] This has been the strategy for South Africa since 2004.

China was well positioned to handle whatever would come next at this pre Kyoto Protocol stage. China also had an educational framework in place to help their government officials deal with the new regime and as was mentioned, additional education was encouraged and government officials were trained in their specific fields. This allowed the officials dealing with climate change policies, mechanisms or any other aspect relating to processes to ensure they take place efficiently. South Africa in comparison had no programs for the education of

[293] BJ Richardson op cit n287 139; Mo Hong'e 'China's policies for addressing Climate Change' October 28 2009, available at http://www.gov.cn/english/2008-10/29/content_1134544_10.htm, accessed 12/11/2011.
[294] DEAT *White Paper On Integrated Pollution Waste Management For South Africa A Policy On Pollution Prevention, Waste Minimisation, Impact Management And Remediation* (2000) 15,22, 66.
[295] National Environmental Management: Waste Act 59 of 2008.
[296] DEAT *A National Climate Change Response Strategy for South Africa* (2004) 2.
[297] Article 4(1)(a) , UNFCCC(1998).

officials. The array of institutions slowed down the entire CDM process as well as the education of officials is key to laying down a good foundation for future obligations and opportunities. It should be noted that there should only be one focused institution as opposed to many 'cooperative' institutions.

5.2. Designated National Authority (DNA) composition

South Africa established its DNA in 2005[298] and that same year the Kyoto Protocol came into force.[299] China established its DNA a year earlier in 2004 allowing it to more effectively implement CDM and be prepared for the obligations of the Kyoto Protocol. It would have enabled China to more effectively use the "prompt start" mechanism which was provided in the Marrakesh Accords as stated in previous chapters.

The composition of the DNA in the two countries shows that there is a consideration of the cross cutting nature of CDM. The South African Director General of the Department of Minerals and Energy is the designated DNA within South Africa[300] and this shows a focus of the South African DNA to Energy and Minerals. Directing the DNA is a steering committee which has a mainly advisory role to the DNA. The committee is made up of representatives from other departments most notably Environmental Affairs and Tourism, Trade and Industry and the Department of Science and Technology.[301] This committee must first approve the project evaluation and approval procedure before the DNA can apply it.[302] This ultimately leaves the DNA independent in its duties to apply the approved procedures. As has been noted earlier the South African DNA originally lacked capacity to fulfil its duties at the onset of the CDM. More recently there has been greater success and this reflects in the increase of CDM projects. China's DNA on paper is the National Development and Reform Commission (NDRC). This is not entirely the case because unlike the apparent independence that exists for the South African DNA the Chinese DNA is jointly run by the NDRC and the National CDM Board comprising of other ministries, similar to South Africa's position. The main difference here is the National CDM Board does not only have an advisory position as the steering committee does in South Africa, but is actually instrumental in deciding whether

[298] Regulation 2(1) of the Regulations for the Establishment of a Designated National Authority for the Clean Development Mechanism , GN R721, GG 27788, 22 July 2005.
[299] UNFCCC Kyoto Protocol available at http://unfccc.int/kyoto_protocol/items/2830.php, accessed 12/07/2011.
[300] Reg 2(1).
[301] Reg 4.
[302] Reg 5.

or not a CDM project is approved [303] This multi institutional DNA process could be seen as a negative. If China had been less successful in its handling of CDM projects this dual headed authorisation process would probably have been labelled as unnecessary and overly bureaucratic. However the success that China has enjoyed with CDM proves that this is not the case.

5.3. DNA processes and approval criteria

The DNA processes and approval criteria that the two countries have are a distinguishing point in terms of how project investors would view the country as a host country. The more difficult the process or criteria are to meet, the more likely a project investor look elsewhere to a host country that can create the same financial outcome but with less difficult requirements. The Chinese DNA process that has been established is fairly straight forward.[304] Though the actual decision to grant the host country authorisation is shared this does not affect the project developer who would only deal with the NDRC.[305] This authorisation by the National CDM Board would occur after the initial additional processes, which are based on whether the project is a new investment project or a renovation investment project.

The South African process is very similar to that of China's, however the steering committee only acts as an advisor if the DNA puts forward specific projects for consideration. In South Africa there is no dual procedure that a project investor would need to follow as in China. The South African process places an unnecessary burden on project developers as they must bear the cost of validation, which is considered an unusual practice.[306] The other main distinguishing aspect between the two CDM authorisation processes would be the criteria that the countries set out to be met by project developers. These criteria relate to whether the host country will accept the proposed project if it does not result in sustainable development. In China the criteria that have to be met are left entirely up to the host country and so this is

[303] G Heggelund 'China's Climate Change policy: Domestic and international developments' (2007) 31(2) *Asian Perspective* 155- 191.
[304] NCCCC 'Measures for Operation and Management of Clean Development Mechanism Projects in China' (2005) available at http://cdm.ccchina.gov.cn/english/NewsInfo.asp?NewsId=905, accessed 13/07/2011.
[305] S Zheng 'Mitigating Climate Change through CDM the Case of China' (2004) 5(1) *Int R Env Strat* 291.
[306] 'South Africa' (2006) *CDM Market Brief* op cit n199 3.2 available at http://www.gtai.de/DE/Content/__SharedDocs/Anlagen/PDF/CDM/cdm-markt-suedafrika-english,templateId=raw,property=publicationFile.pdf/cdm-markt-suedafrika-english?show=true Accessed 14/07/2011.

where the actual focus on the country's development can be seen. These criteria hold the subjective idea of what is sustainable within a host country and would show where a specific host country has focussed.

All of the requirements as set out by China can be summarised as follows:

- CDM projects must be consistent with China's existing laws, regulations, sustainability strategies and policies as well as the overall requirements for national economic and social development planning.
- The implementation of CDM project activities shall conform to the requirements of the Convention, the Kyoto Protocol and relevant decisions by the Conference of the Parties.
- The implementation of CDM projects shall not introduce any new obligation for China
- Funding for projects from developed nations shall be additional to their existing obligations.
- The CDM projects shall promote the transfer of environmentally sound technology to China.
- Chinese funded or Chinese-holding enterprises within China are eligible to conduct CDM projects with foreign partners.
- Project Managers need to submit the CDM design document, certificate of enterprise status, general information of the project, and a description of the project financing[307]

The requirements above set out what is required by the host country when it comes to CDM projects in China, and they also clarify certain aspects of the process for potential project developers. The requirements have the effect of reducing unnecessary CDM requests, for instance, if the funding was not additional the project developer could now take that into consideration before any documents are submitted. The requirements are extensive. However, at the same time they lack specificity about what is required from a host country when considering CDM applications. The main consideration that a host country makes should be

[307] Article 6 -12, 'Measures for Operation and Management of Clean Development Mechanism Projects in China' op cit n279.

whether or not sustainable development has been promoted by the project and so the main criteria that need to be addressed would be these sustainability requirements. China has not done this, it merely sets out that the CDM Project must 'be consistent with China's existing laws, regulations, sustainability strategies and policies as well as the overall requirements for national economic and social development planning'[308]. There are no specific requirements that need to be met in dealing with sustainable development. A consideration of consistency with existing laws differs from a consideration of actual criteria that would fulfil sustainable development. The sustainability requirement is left to a consideration of policy and law in China. This is somewhat redundant and unnecessary because this kind of consideration should go without saying as what country would implement a project that goes against its own law. The requirement is such that as long as laws and policies are adhered to then the project is permissible without any real criteria for sustainability being considered or met for that specific project. The above mentioned requirements do go as far as to require technology transfer.

The South African criteria for sustainability are as follows:

- Economic – Does the project contribute to national economic development?
- Social - Does the project contribute to social development in South Africa?
- Environmental - Does the project conform to the National Environmental Management Act principles of sustainable development? [309]

The 'Sustainability Criteria for Approval of Clean Development Mechanism Projects by the Designated National Authority of the CDM'[310] goes on to list some of the principles that need to be considered. However, this list does not cover all the principles in the National Environmental Management Act.[311] The principles set out in the criteria are as follows:

- That the disturbance of Ecosystems and loss of biological diversity are avoided or where they cannot be avoided, are minimised and remedied.

[308] Ibid Article 6.
[309] Department of Minerals and Energy 'Sustainability Criteria for Approval of Clean Development Mechanism Projects by the Designated National Authority of the CDM' (2004) 2 available at http://www.energy.gov.za/files/esources/kyoto/Web%20info/Annex%203%20SA%20Sustainable%20Development%20Criteria.pdf , accessed on 07/07/2010.
[310] Ibid
[311] Ibid , Section 2, National Environmental Management Act 107 of 1998.

- That pollution and degradation of the environment are avoided , or where they cannot be altogether avoided minimised and remedied.
- That the disturbances of the landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, minimised and remedied
- That waste is avoided, or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner
- That the use and exploitation of non-renewable resources is responsible and equitable, and takes into account the consequences of the depletion of the resource.
- That the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardized.
- That a risk averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions.
- That the negative impacts on the environment and people's rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.'[312]

Viewing the above criteria needed to fulfil South Africa's host country sustainability requirements, it is immediately apparent that they are far more involved than that of China's. Besides these numerous criteria that the South African DNA has to consider when granting its host country authorisation, the document also sets out project indicators that should be considered when determining whether or not the above mentioned criteria have been met.[313] There is no doubt that the consideration that the South African DNA makes is far more extensive than that of China's. In an attempt to alleviate the apparent pressure that the criteria place on project developers, the DNA has stated that when considering applications not all of the criteria need to be met in order for the project to be granted the authorisation. This creates a multitude of problems. For example, it would create a complete lack of certainty for project developers. For example, which criteria need not be met for which consideration economic,

[312] Sustainability Criteria op cit n305 2.
[313] Ibid. These further divide the already mentioned criteria into impact considerations.

environmental or social? Would this not go against what the current understandings of what sustainable development are and would such an overlooking of certain requirements result in developments that are not in fact sustainable? With regards to the criteria that each country requires there is no doubt that the criteria the DNA of China requires are much easier to fulfil. When placing the criteria of China side by side with South African criteria, a project developer would probably choose the easier criteria of China to meet. In this instance, the more developed and '3 pillar'[314] conscious approach of South Africa to sustainable development has in fact hindered CDM project creation in the country. This cannot and should not be considered a failure of the South African Country/Government as sustainable development principles are essential for long term goals as opposed to short term gains. A stricter approach to sustainability would result in CDM projects that more accurately fulfil their functions. In this instance South Africa has achieved a failure by success.

China saw the CDM as a way of bringing huge amounts of money into China and although the requirements were not as onerous as those of South Africa, China used the mechanism itself to advance its own sustainable development in a different way. It did this by creating a fund which received its income through CDM projects and the creation of CERs in the country. The fund is used to finance research into cleaner technology and in this way further clean sustainable development in the country. China has also benefited from CDM projects through the new technology it gains through the technology transfer part of the mechanism. Thereafter, because of the fund and the research it finances, China can develop and implement it own clean technology, the creation of which may only have been possible through the fund and therefore the CDM.

In South Africa there is no such fund and there is not a strong reliance on the CDM to create technological and financial opportunities for the country and to date only 19 CDM projects have been created in the country.[315] This is the highest number of CDM projects in Africa but is substantially less than the 1463 projects in China.[316] South Africa may not have created a fund as in China but it has had a certain amount of success procuring funds from other sources. South Africa was granted $500 million US dollars from the Clean Technology Fund

[314] M Kidd *Environmental Law* (2008) 16.
[315]UNFCCC 'About CDM :CDM in Numbers: Registration' (2011) available at http://cdm.unfccc.int/Statistics/Registration/NumOfRegisteredProjByHostPartiesPieChart.html , accessed 15/07/2011.
[316] Ibid

in November 2009 for purposes of providing one million houses with solar powered water heating for the following five years,[317] which has been mentioned in the Green Paper concerning climate change[318]and entrenched in the White Paper.[319] In early 2010 Eskom, South Africa's power provider, received 3.75 billion US dollars for the construction of a super critical coal power station In the Green Paper dealing with climate change very little was mentioned about CDM. Specifically it seems to be just listed as a potential source for addressing renewable energy support mechanisms.[320] The document is otherwise void of any other mention of CDM. At the moment this document is only a Green Paper but there is the intention that a formal climate change policy will arise from it in the near future and although government deadlines were missed for releasing the policy document there was a push to get it out before the COP in Durban in 2011.[321] China has recently stated that it will begin drafting a special law that would aim directly at climate change and that a proactive approach would be taken when combating climate change in the country.[322] This has only just been initiated and the process is still some distance away from the actual legislation. The fact that China is drafting a law and not policy as is the case with the South African 'National Climate Change Response White Paper' shows more commitment by that country. Currently South Africa and China largely only deal with climate change by the use of existing legislation and policy.

From start to finish China has been far more proactive in its approach to climate change and the CDM. This has been done through the education of officials, the institutional infrastructure that was created, as well as the mindset that CDM could actually be very profitable for the country as well as the view that the effects of climate change would drastically harm the economy.[323] This created the drive for China to more successfully

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[317] Alive2green.com '$500 Million Infusion Gives South Africa Critical Boost to Meet Ambitious Clean Energy Goals'(1 June 2010) *Sustainable Energy Resource South Africa* available at http://www.energy-resource.co.za/content/energy-resource/ejournal/news-a-articles/news/item/268-$500-million-infusion-gives-south-africa-critical-boost-to-meet-ambitious-clean-energy-goals.html, accessed 11/11/2010.

[318]Chapter 5.4 , DEA *National Climate Change Response Green Pape*r (2010), 14.

[319] National Climate Change Response White paper,(2011) 32

[320] Green paper op cit n314, 13.

[321] This was probably a strategic move so the host country could save face in light of not having any substantial policy on climate change. Despite this there is still very little in the document concerning CDM which may also be strategic.; S Blaine 'Climate-change paper delayed' *BusinessDay* (South Africa) (12 July 2011) available at http://www.businessday.co.za/articles/Content.aspx?id=148159, accessed 15/07/2011.

[322] Ministry of Environmental Protection (China) 'Ministry of Environmental Protection The Peoples Republic of China: China drafting special law on climate change' available at http://english.sepa.gov.cn/News_service/media_news/201104/t20110427_209808.htm , accessed 15/07/2011.

[323] With China focusing heavily on growth through the economy viewing this threat as such would drive the government to use the mechanism more rigorously.

implement the CDM. These are not the only factors as the economic and industrial circumstances as well as the annual GDP growth of the country also made it more attractive to investors who wanted a more lucrative return on their investment with the fewest number of barriers.

The African continent has been far from successful when considering the implementation of CDM. This can be plainly seen when South Africa, the most successful of the African countries, has only 19 projects to date. This is because of the relatively low annual GDP growth,[324] the barriers to CDM that exist in Africa,[325] as well as a lack of capacity and education within the countries to properly handle the processes necessary. The other key factor which needs to be considered is that there was a lack of local DOE which made CDM in Africa more time consuming and costly than was necessary. China has been more successful because cheaper easier reductions can be made. This is due to the objective of the mechanism which is to create cost effective offsets for the developed world while allowing for technology transfer and sustainable development.[326] What this has done is saturate a few countries with projects where the cheapest reductions can be made immediately while leaving out other countries partially and in some instances completely.[327] This cannot be good for technology transfer globally and nor would it help with long tern sustainable development.

South Africa has made huge advances in addressing climate change in the country. Its DNA is now more competent and the introduction of the National Climate Change Response White Paper are both examples of this advance. This all may be a little too late though as the future of the entire climate change regime is uncertain with the Kyoto Protocol set to expire in 2012[328] and new agreement in sight. If South Africa can both learn from the mistakes of the past and from successes such as China's with regards to CDM then there has been a positive development. With institutions in place to handle future obligations as well as more

[324] In 2008 South Africa had a GDP of 3.1%. That same year China had a GDP of 9.1%: United Nations *UNDATA: A, World of Information* available at http://data.un.org/CountryProfile.aspx, accessed 15/07/2011.
[325] D Olawuyi 'Beautifying Africa for the Clean Development Mechanism: legal and institutional issues considered' in B Richardson...et al (eds) *Climate Law and Developing Countries Legal Policy Challenges for the World Economy* (2009) 270.
[326] The cost effective requirement is found in within the additionality requirement which is set out in an earlier chapter.
[327] UNFCCC 'CDM Projects Interactive map' available at http://cdm.unfccc.int/Projects/MapApp/index.html?state=Registered Accessed 15/07/2011.
From this map on the CDM statistics it is shown that Africa is left dark and somewhat empty when compared to other CDM Host Countries
[328] Article 3 of the Kyoto Protocol to the United Nations Convention on Climate Change (1998).

competent climate aware government officials in positions to properly implement mechanisms, [329] South Africa should be in a better position to more effectively take advantage of any future regime. In order to take the best possible advantage of any future mechanism, be they new mechanisms or merely an extension of existing ones, South Africa needs to be more proactive in implementing laws as well as educating those who implement them.

5.4. Future of Kyoto and CDM

With the commitment period of the Kyoto Protocol coming to an end in 2012 there have been suggestions that it should be extended for another similar period without any changes. The question would then be whether or not the Kyoto protocol should be extended as is and whether or not the CDM should be in any future arrangement.

In order to enter into force the Kyoto Protocol had to be ratified by not less than 55 parties to the UNFCCC, and of those 55 parties the Annex I members had to account for at least 55 percent of the total carbon dioxide emissions in 1990.[330] This shows that the Protocol needed as much global support as possible as well as most of the global emissions to be contained under Annex I Parties. At the time of the entry into force this was successful and the Kyoto Protocol included those countries necessary to effect a meaningful difference. This situation has however changed.

The situation has changed now and the emissions levels of the parties when the Kyoto Protocol came into force have drastically been altered. Firstly, China is now the largest emitter in the world and its emissions have grown by 171% since the year 2000.[331] This country is considered a developing nation in terms of the Kyoto Protocol but clearly something needs to be done rectify this blatant wrong. Secondly, the Annex I countries within

[329] Presuming that should CDM fall away the institutional frame work that was in place for it would be used for whatever else takes its place.
[330] M Gerrard *Global Climate Change and US Law* (2006-2007) 37.
[331] S Rogers & L Evans 'World Carbon Dioxide emissions data by country: China speeds ahead of the rest' *Guardian* (UK) *Datablog*, (31 January 2011) available at http://www.guardian.co.uk/news/datablog/2011/jan/31/world-carbon-dioxide-emissions-country-data-co2#zoomed-picture , accessed 16/07/2011; US Department of Energy 'International Energy Statistics' available at http://www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=90&pid=44&aid=8&cid=CH,&syid=2005&eyid=2009&unit=MMTCD, accessed 16/07/2011.

the Kyoto Protocol no longer account for 55% of the global GHG emissions[332] and this would mean that the Kyoto Protocol is no longer covering a sufficient amount of the global emissions if it were to be left as is. In light of this an extension of the Kyoto Protocol as is would not satisfy the conditions of which it came into force. The Kyoto Protocol was never intended to be a lasting document and it was intended that after the first commitment period a new session of commitments would be introduced.[333] An extension of the Kyoto Protocol would not satisfy the intentions for which it was created, being that the majority[334] of the globe's emitters are given more obligations. Furthermore, the Kyoto Protocol itself was intended to only be a stepping stone to something else.

The Kyoto Protocol was created with the intention that the parties to it would bear responsibilities in such a way that considers them 'common but differentiated'. What will be addressed now is whether or not CDM promotes this principle and to what degree. The CDM[335] and Kyoto Protocol are to be considered as aiming to fulfil this principle.[336] However the differentiation that the Kyoto Protocol uses[337] has the effect of leaving some members of the global community out completely.[338] This cannot be considered a common approach to the responsibilities of signatory states, as a differentiation that leaves parties void of responsibilities is drastically 'unfair'.[339]

The fact that the Kyoto Protocol itself falls short of its creators' intentions and should not be extended does not mean that the CDM should be brought down with it. The positive aspects of the CDM can be shown from its purpose. The CDM helps developed nations meet their reduction targets, it allows for technology transfer between the developed and the developing nations, it encourages sustainable development in the developing world and it is a method of including developing nations in the climate change regime. With the mechanism providing so much should it even be considered that it not be extended in the future.

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[332] M Miyagaya 'Scale of emission reductions by Annex I parties and their contribution' available at http://unfccc.int/files/kyoto_protocol/application/pdf/1_2_japan.pdf, accessed 16/07/2011.
[333] TM Letcher *Climate Change, Observed Impacts on Planet Earth* (2009).
[334] The requirements for entry into force shows the intention to have more than half of the worlds emissions regulated by the protocol, see M Gerrard, op cit n325 37.
[335] T Honkonen 'The Principle of common but differentiated responsibility in post 2012 climate negotiations' (2009) 18(3) *RECIEL* 258.
[336] Article 10 , Kyoto (1998).
[337] Annex I and everyone else.
[338] T. Honkonen op cit n330 259.
[339] In the South African *Green Paper on Climate Change* the text makes reference to South Africa only being responsible for its "fair share" which is ironic considering South Africa is a non Annex I party and so her responsibilities are substantially less than if she were otherwise. This also shows a lack of proactivity on her part op cit n312 15.

The vast majority of CDM projects take place in China the Country which is now the heaviest emitter in the world and whose economy is rapidly growing. This country can be considered developed if compared to other developed nations such as Russia and so the country that is closest to being considered developed in the eyes of the international community for any purposes is the country receiving the most sustainable development assistance, which is meant to go to the developing world. This circumstance could have been created for a variety of reasons. All relating to how easy a country is to implement CDM projects.

- CDM requires a high GHG emission to make easier reduction in order to pass the additionality requirement.
- CDM projects require skills/education possessed by people of the host country.
- The DNA process and criteria to implement the projects needs to be relatively easy.
- The Annual GDP needs to be positive to attract investors.

This creates a situation where those least developed nations are barely considered and those most developed are targeted. As a result the mechanism that was meant to include the developing world only includes a minority of the countries with a huge variance in degree within in that minority. This also encourages developing nations to continue to use GHG emitting technology in order to be targeted for CDM. These are major flaws of CDM and need to be corrected.

5.5. Conclusion

This chapter has provided a comparison between China and South Africa in terms of their successes with the implementation of CDM. In the pre – Kyoto phase, South Africa was slower to implement CDM than China, China having put in place a more solid infrastructure and in particular, provided crucial training for involved officials. DNA processes and funding differences are also distinguishing features. Shortcomings on the Kyoto Protocol and the CDM have become apparent and were revisited during COP 17 in Durban in 2011. The final chapter, chapter six, will summarise the findings of this thesis.

Chapter 6

Conclusion

6.1. Introduction: overview of the thesis

This thesis has examined the Clean Development Mechanism (CDM) as one of three key mechanisms emanating from the Kyoto Protocol, aimed at assisting countries in meeting their obligations as regards greenhouse gas emissions. The CDM was specifically dealt with as it is the only mechanism available to developing countries as defined by the United Nations Framework Convention on Climate Change (UNFCCC). The countries of South Africa and China were the focus of the study as both are classified as developing nations and have been involved in the implementation of the CDM to varying degrees.

Firstly an overview of the inception of the Kyoto Protocol was provided, followed by an explanation of the three key mechanisms available via the Kyoto Protocol to assist countries in supporting the arrest of climate change damage. Chapter two outlined in detail the nature, processes, implementation and problems associated with CDM in particular as one of these mechanisms. Chapters three and four respectively looked specifically at how the CDM has been applied in the developing countries of China and South Africa. These countries were chosen because they are both developing countries so can avail themselves of the CDM mechanism, are the most industrialised countries within their respective geographic regions and form part of the BASIC group, an alliance of developing countries with a common agenda of combating climate change. These two countries have distinct differences which have affected their approach to and success with CDM. Chapter five then compared and contrasted the development and implementation of CDM in South Africa and China and assessed the shortcomings and potential of CDM over the period of time since the initiation of the CDM and the current time for these two countries. This final chapter concludes with a summary of the lessons learned during adoption of the CDM process and possible ways forward.

6.2. Lessons learned from CDM in South Africa

As one of the BASIC group and a regional powerhouse, South Africa should have had success comparable at the very least to the second worst performing BASIC group member. This has not been the case and through the course of this thesis the various reasons for this lack of success has been shown, namely lack of capacity, skills and education or the lack of a fully functional coordinated DNA[340], factors that have worked well in China. South Africa has shown much progress in the final years of this current commitment period and if the lessons learned in making this progress can be carried over to the following commitment period then meaningful progress has been made. In summary the lessons that should be built upon are the following:

- Educate officials and key industries concerning the Clean Development Mechanism as this would allow for better implementation and encourage South African industry to become more involved.
- Ensure that the authorities involved have the necessary work force skills and capacity to perform their functions. In the early years of the DNA the work force was not sufficient or competent enough to fulfil its function.
- Have a more proactive stance on climate change. Similar to that of China create a fund, encourage education, rapidly create only necessary institutions and encourage more South African participation. Unilateral CDM would be a good place for this focus.
- Have a clear understanding concerning the criteria used by the DNA for granting host country authorisation. If not all criteria are required this would create confusion as the exact necessary requirements if they are not specified.
- Have the understanding that although fulfilling these obligations may be onerous they have the potential to bring huge amounts of money into the country.
- Sustainability should not be viewed as an obstacle but rather a target that should be achieved. A high level and understanding of sustainable development would be beneficial in the long term. This is something we should all be striving for.

[340] The DNA has become more competent. This statement is made referring to the early years of its duties.

Though South Africa's own failings have been responsible for the lack of CDM implementation within the country there have been external issues that contribute to the already existing problems. The implementation of CDM favours the most developed of developing nations, and Africa is severely lacking in 'developed' countries. Project developers favour more general criteria for sustainable development that are easier to overcome.[341] The result is that few countries have been targeted for CDM development while others, arguably more needy countries, are left out. In order to achieve true sustainability all counties should implement clean sustainable technology and not the most attractive for investment. If countries are overlooked when providing for sustainable technology these countries will become the problems of the future.

6.3 Limitations of the Kyoto Protocol

The Kyoto protocol can no longer fulfil the criteria under which it was created, to hold the major emitters accountable. The differentiation that the UNFCCC and its Kyoto Protocol use has the effect of excluding a large portion of the global community. The CDM does not include enough of the developing community to encourage global sustainable development. The country where CDM is most applied has become the world's number one emitter and whether or not sustainable development has actually occurred in the country is questionable. With this in mind South Africa and the rest of the world should not, and arguably cannot[342], continue to use the Kyoto Protocol and its mechanisms to combat climate change in its current form.

In order to address these faults new consideration needs to be made both to the distinguishing factors concerning Annex I and non-Annex I countries as well as the criteria for implementing CDM projects. The dividing lines between these two groups of countries are too stark to create a condition for common but differentiated responsibilities to apply[343]. The developing nations need to be given more responsibility on a gradient based on their current emission levels. The idea that developed nations are responsible for historic and a large portion of current emissions is true but the polluter pays principle not only makes those

[341] This is not a problem with the host country as a stricter approach to sustainable development should encourage a greater standard of sustainable development but the opposite has occurred.
[342] The parameters for the Kyoto Protocols entry into force can no longer be met with the current differentiation of nations.
[343] T Honkonen 'The Principle of Common but differentiated Responsibility in Post 2012 Climate Negotiations' (2009) 18(3) *RECIEL* 259.

nations responsible but developing nations as well. With this change in divide amongst the developing and the developed world the need for a divide of mechanisms may be lost.[344] This would most likely result in a mechanism applicable between all countries and existing CDM projects CER's may just be converted as opposed to lost completely.

In order to promote a general understanding of sustainable development certain criteria should be placed in the protocol for the next commitment period. This would raise the standard of the idea of "sustainable development "in some countries, probably assist some countries in the creation of criteria, and where countries have a high standard of sustainability criteria these could remain at their discretion.[345]

The CDM may be coming to an end but its legacy is not. The lessons learned from the mechanism, both its failures and successes should be used when considering the future of the climate change regime. South Africa is well placed to learn and act from past mistakes and with this development the country is well placed to handle a similar future mechanism.

6.4 Latest Developments

With the Conference of the Parties (COP) which took place in Durban in from the 28th of November until the 11th of December 2011, there have been some important developments which need to be discussed. There was a lot of pressure placed on this Durban COP as a failure at this junction could result in a failure of the entire regime this is primarily due to the short comings described above. The process undertaken at the conference was a long and difficult one and this is shown through the fact that it ended on Sunday the 11th of December 2011 and not on the 9 of December 2011 as was originally planned. No new treaty or policy document was created, however a second commitment period was proposed.[346] This commitment period was supported by most parties however Japan, Canada and Russia made

[344] This refers to the Clean Development Mechanism and Joint Implementation Mechanisms and how they apply differently to developing and the developed world.
[345] The idea is standardised sustainable development principles that could act as a baseline or at the very least act as guidelines where countries could choose to use them or not.
[346] United Nations, Climate Change Secretariat, Press Release,' Durban conference delivers breakthrough in international community's response to climate change 'Available at http://unfccc.int/files/press/press_releases_advisories/application/pdf/pr20111112cop17final.pdf accessed 18/09/2012

it their intention to not be a part of it and officially refused to join the second period.[347] As with most highly anticipated and well covered events the results have left mixed emotions with many people across the globe.

The key outcomes of the event are as follows:

Green Climate Fund

The launch of the Green Climate Fund has been considered one of the most important outcomes of COP17 as it will provide much needed assistance to the developing world. A focused program on long term finance was agreed upon, however it failed to provide how long term finance would be raised and mobilised to support the developing nations as these were left to be decided at a later stage.[348]

Adaptation

The adaptation committee which was created at Cancun was now operationalised through an agreement reached on its members as well as its modes of work.[349] The Committee is composed of 16 members and are charged with the coordination of adaptation actions at a global level and to ensure that the most vulnerable gain better protection against the harmful effects of climate change.[350] A process was agreed on how to enable the least developed countries to formulate a national adaptation plan.[351]

Technology

The Technology mechanism which was created at Cancun was finalised and begins to operate in 2012. The mechanism is aimed at helping developing countries with mitigation and adaptation technologies.

.Support of developing country action

[347] Expert Advisory, Centre Legal Analytics, 'United National Climate Change', 12 of December 2011, available at http://legalanalytics.com.ua/en/cikavo0/podijifakty/88-durban3.html accessed 18/09/2012
[348] OP Cit 343, J. Morgan and E. Cameron, WRI Insights, 'Reflections on COP17 in Durban', 16 December 2011, Available at http://insights.wri.org/news/2011/12/reflections-cop-17-durban accessed 19/09/2012
[349] Ibid
[350] Ibid
[351] Ibid

"Governments agreed a registry to record developing country mitigation actions that seek financial support and to match these with support. The registry will be a flexible, dynamic, web-based platform." [352]

Other key decisions

"Under the Kyoto Protocol's Clean Development Mechanism, governments adopted procedures to allow carbon capture and storage projects. These guidelines will be reviewed every five years to ensure environmental integrity."[353]

"Governments agreed to develop a new market based mechanism to assist developed countries in meeting part of their targets or commitments under the Convention. Details of this will be taken forward in 2012." [354]

Overall the COP17 was very contentious as it did not allow for the inclusion of nations such as China or India which is important for a more fair approach to the common but differentiated principle. This has led to America continuing to stay away from the agreement as they will only make commitments at a stage where developing Nations bear more common responsibilities. Without the Durban Platform for Enhanced Action there would not have been a second commitment period under the Kyoto Protocol and in this way the COP17 was vital to the ongoing existence of a legally binding climate change regime.[355] The developments above are extremely positive but with even fewer countries accountable under the Kyoto Protocol there is a weakening of the Protocol as well as the regime. The second commitment period is said to end by 2017 with the discussion for a new regime being finalised by 2015. Ultimately this means that the climate change regime will be in a state of reduced capacity until such time as a new and ideally more inclusive regime comes into operation in 2020.

[352] Op cit 343
[353] Ibid
[354] Ibid
[355] Department of International Relations and Cooperation, 'Uniqueness of the Outcome of the Durban Climate Change Conference (COP17) with reference to previous Climate Change Conferences' , Internal Question Paper No 3-2012 Of 21 February 2012, available at : http://www.dfa.gov.za/docs/2012pq/pq11.html Accessed 17/090/2012

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Harv Int Env LR:	Harvard International Environmental Law Review
Int R Env Strat:	International Review for Environmental Strategies
J Energy SA:	Journal of Energy in Southern Africa
RECIEL:	Review of European Community and International Environmental Law
SA J Sci:	South African Journal of Science
SAJELP:	South African Journal of Environmental Law and Policy
SAJEMS:	South African Journal of Economics and Management Sciences
San Diego Int L J:	San Diego International Law Journal

Alive2green.com '$500 Million Infusion Gives South Africa Critical Boost To Meet Ambitious Clean Energy Goals'(1 June 2010) *Sustainable Energy Resource South Africa* available at http://www.energy-resource.co.za/content/energy-resource/ejournal/news-a-articles/news/item/268-$500-million-infusion-gives-south-africa-critical-boost-to-meet-ambitious-clean-energy-goals.html, accessed 11/11/2010.

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ABBREVIATIONS USED

AAU	Assigned Amounts Units
BASIC	Brazil, South Africa, India and China group of countries
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
COP	Conference of Parties
DNA	Designated National Authority
DOE	Designated Operational Entity
ERU	Emission Reduction Units
ET	Emission trading
GHGs	Green House Gases
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
NCCCC	National Coordination Committee on Climate Change
NDRC	National Development and Reform Commission
PDD	Project Design Document
RMU	Removal Units
UNFCCC	United Nations framework Convention on Climate Change

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

3 December 2012

Mr Ryan Jeremiah Murray 210528466
School of Law
Pietermaritzburg Campus

Dear Mr Murray

Protocol reference number: HSS/1288/012M
Project title: The Clean Development Mechanism: A Comparison between South Africa and China

EXPEDITED APPROVAL

I wish to inform you that your application has been granted Full Approval through an expedited review process.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Professor Steven Collings (Chair)

/pm

cc Supervisor: Professor Michael Kidd & Avishkar Ramdhin
cc Academic Leader: Professor M Carnelley
cc School Admin.: Mr Pradeep Ramsewak