

CHAPTER 1: INTRODUCTION

1.1. OVERVIEW

This study is not intended as an exhaustive report on CDM investment potential in South Africa, rather it serves to act as an indicative analysis and is targeted at policy makers in Government, business, and organized labour. The objective of the United Nations Framework Convention on Climate Change (UNFCCC) as stated in Article 2 is to stabilize greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.. This objective is to be pursued in a time frame that allows ecosystems to adapt naturally to climate change, so that food production is not threatened while allowing economic development to proceed in a sustainable manner. The UNFCCC allows for cooperative efforts by interested Parties to the Convention in order to positively address climate change. The Kyoto Protocol is an international instrument that provides for specific co-operative mechanisms that can be used to achieve the emission reductions required in the developed countries. One of these, the Clean Development Mechanism (CDM), allows developed and developing countries to work together to achieve the objectives of the Protocol.

The Kyoto Protocol to the UNFCCC defines distinctive roles and responsibilities of Developed and Developing countries in relation to measures taken to reduce climate change. It proposes the Clean Development Mechanism which defines how Non-Annex I countries (developing countries who do not have obligations to reduce emissions) to the UNFCCC can achieve sustainable development while assisting in mitigating climate change, either independently or with Annex I countries (developed countries who are obliged to reduce emissions in terms of targets set by the UNFCCC) who can utilize emission reductions emanating from such projects for their own compliance purposes.

Emission reduction targets for select Annex 1 countries are listed as annex B in the Kyoto Protocol and are expressed as quantified emission limitation or reduction commitment as a percentage of a base year (1990 emissions).

Developing countries have a varied propensity to offer opportunities for CDM projects to be located in their territories. This is dependent on their current state of development, natural and climatic endowments, energy profile and consumption, and institutional readiness & capacity. Attracting CDM investment is regarded as a competitive process which mirrors efforts of attracting Foreign Direct Investment (FDI). Hence developing countries will have to ensure that their economies offer market potential, policy congruency, financial/non financial inducements, and efficient institutions to promote and attract CDM investment. CDM is a relatively new area of FDI and the approach that various countries are employing to attract this investment and the manner in which other developed countries are pursuing this investment bears analysis for a South African model to optimise this locally. Due to the novel nature of CDM and an evolving rule based system within the UN, very few countries have developed extensive experience or mechanisms to attract or pursue such projects. Those that have done so are pioneers and constantly rely on the evolving nature of the procedures to guide them in implementing CDM projects.

1.2. SOUTH AFRICA'S OBJECTIVES REGARDING CDM PROJECTS

The South African Government has ratified the Kyoto Protocol and subscribes to the ideals of the UNFCCC as mentioned in various official communications to the UN. Beyond the environmental objectives of the Convention, the CDM presents South Africa with an opportunity to assist in meeting varied domestic objectives. The key areas of interest for South Africa relating to CDM are to:

- Utilize the CDM to leverage foreign investment (and hence create employment opportunities) in the sectors that may be able to achieve emission reductions

Figure 1: FDI flows to RSA (R)

Year	RSA inward FDI stock	World inward FDI stock	RSA a % of world FDI
1980	16,519	699,415	2.36
1990	9,121	1,954,203	0.47
1995	15,099	3,001,995	0.50
2000	47,418	6,146,656	0.77
2001	50,246	6,606,698	0.76
2002	50,998	7,122,350	0.72

Source: World Investment Report 2003, Country Fact Sheet: South Africa

- Utilize CDM investment to promote various policy initiatives that could also contribute to emission reductions
- Use the CDM to leverage the transfer of technology that could underpin the achievement of policy objectives relating to increased competitiveness and value addition

The purpose of this project is the development of an investment strategy to attract a substantial portion of the available CDM investment funds to South Africa, by looking at the policy context in SA, what comparable developing countries are doing to attract investment, how developed countries are making investment decisions, and also how the global rules, institutions and procedures are evolving in this regard.

1.3. SCOPE OF THIS REPORT

This report analyses the following areas:

- Policy consistency and reinforcement by CDM in various key SA policy areas
 - An analysis of the objectives of major South African policy areas that would be reinforced by CDM such as energy, renewable energy, air quality, transport policy, agriculture & forestry policy, industrial policy, and technology.
- A determination of how domestic incentives can lower transaction costs for CDM

- An understanding of the cost implications for CDM project activity and how domestic incentives can lower transaction, export, technology and investment costs in South Africa.
- How incentive and investment promotion agencies can adapt to support CDM projects locally.
 - How **the dti** via its Trade and Investment South Africa division as the primary investment promotion organization can meet the challenge of effectively promoting CDM investment as part of its mandate of attracting FDI into the country
 - A view on how **the dti** via the Enterprise Organization division can position itself to accommodate CDM incentives both structurally and within its various schemes that could lower costs for such investments.
- What developing countries are doing to attract CDM investment
 - In this regard the report examines the experiences of three developing countries namely; Brazil, India, and China, and seeks to clarify how these CDM players have created institutions, procedures, and how coordination takes place in order to facilitate CDM projects in their jurisdictions
 - An analysis of how these three countries try to offset costs for CDM projects by instituting various domestic incentives and measures including how they support Designated Operating Entities.
 - A sense of how CDM projects are promoted in these countries will also be covered.
- How developed country investors in Netherlands, Denmark, and the UK are targeting potential CDM investment destinations and the key lessons for South Africa are considered within the following context:
 - The various institutions, procedures, and structures that assist in outward CDM investment facilitation are considered for these three selected investor nations.
 - The support structure and vehicles as well as the current sector focus of these countries are analysed.

- The factors used by these investor nations in assessing the attractiveness of developing country destinations are also considered.
- The role of global institutions, rules and procedures to enable CDM projects.
 - The UNFCCC and its related Protocols and institutions which have oversight over the CDM process will be unpacked together with the processes that arise for the successful implementation of CDM projects
 - The roles of the Designated National Authority and how South Africa can foster local Designated Operating Entities will also be examined within the context of these global agreements.
 - A consolidation of the current areas of international investment and the relevance for South Africa will be drawn out to suggest sectors with the highest potential for CDM investment in the South African context.
- How Government needs to respond to these challenges and the impact on local institutions and collaboration by Government;
 - Key lessons of the study in terms of policy reinforcement, lessons from competitors, investor nations, how institutions should evolve, incentives and promotion measures, and next key steps for Government and other key stakeholders to execute a successful CDM strategy.

CHAPTER 2: AN ANALYSIS OF SPECIFIC POLICY AREAS WHERE OBJECTIVES CAN BE PROMOTED AND SUPPORTED BY CDM.

CONVERGENCE OF CDM WITH THE INVESTMENT STRATEGY, APPLICABLE INCENTIVES TO LOWER TRANSACTION COSTS FOR CDM PROJECTS AND AN ASSESSMENT OF THE INVESTMENT PROMOTION INSTITUTIONS.

2.1 OVERVIEW

Government has a series of policy measures and instruments to address sustainable development in South Africa. In order for these policy measures to be successful it is critical that an enabling economic environment conducive to growth that promotes employment and equity is prevalent. CDM investment presents an opportunity for Government to attract foreign and domestic investment that will address a number of equally important policy objectives, including a cleaner environment, employment, competitiveness, technology transfer and diffusion, sustainable transport and energy infrastructure.

CDM investors will however locate their investments in destinations that offer cost effective options in terms of project implementation costs, operating costs, efficient regulatory procedures, incentives that mitigate CDM project development and implementation costs. Although South Africa is currently under no obligation to reduce Green House Gas (GHG) emissions, GHG mitigating projects allows South African companies the benefit of improved market access to consumers who prefer goods manufactured by environmentally sensitive companies. This experience will also hold the country in good stead should international GHG obligations for developing countries manifest itself. Certain South African multinationals would also utilize CER's earned locally to offset obligations in Annex 1 markets.

Hence, GHG mitigating investments will locate in destinations that offer low cost carbon credits, where set up and implementation costs are low or can be offset, where institutional structures for approving projects are efficient, and in countries that have stable macro-

economic policy and economies. The South African economy - which is characterized by a shift in emphasis from energy intensive mining to energy- intensive manufacturing in the iron & steel, petrochemicals, & chemical industries¹ - could therefore be an attractive investment location for GHG mitigating projects.

2.2. HOW CDM CAN SUPPORT REINFORCE CERTAIN SOUTH AFRICAN POLICY OBJECTIVES

The Clean Development Mechanism (CDM) is useful to South Africa as it can assist in the reinforcement of certain important policy objectives. CDM projects can contribute to achieving government policy objectives in areas related to, energy policy, renewable energy strategy, air quality management, clean fuels policy, transport policy, agriculture policy, relevant industrial sector strategies, & technology transfer policy and support measures. This section will examine the major policy objectives and the manner in which CDM assists in supporting these policy imperatives. Of equal importance are the policy objectives, including a cleaner environment, employment, competitiveness, technology transfer and diffusion, & sustainable transport and energy infrastructure.

2.2.1. Energy Policy

2.2.1.1. Policy Context

The White Paper on the Energy Policy of South Africa (1998) ([D:\APPENDIX A \(white paper on renewable energy\).pdf](#)) recognizes that energy carriers (and electricity specifically) form the infrastructure base for growth in major sectors of the economy. It also recognizes that energy policy usually commences from a demand side analysis – called Integrated Energy Planning, which acknowledges that energy is not an end good but consumed as a means to an end. It thus seeks to make policy that facilitates optimal energy consumption and production to meet social needs.

¹ Department of Trade and Industry (**the dti**), 2002, *Accelerating Growth and Development: Contribution of an Integrated Manufacturing Strategy*

Energy policy is thus situated in a context which highlights the international dynamics shaping it such as diversity & flexibility of supply, a greater emphasis on market based pricing, cross border trade in energy and increased competition

There is recognition that the energy sector has greater environmental impacts than most other economic sectors, and that new energy investments need to reduce emissions. A greater focus on how efficiently energy is consumed by end users, as well as the mechanisms to promote alternative and renewable energy sources is advocated. In the national context energy policy is located as a facilitator of growth & development via investments, exports, employment and providing infrastructure for households.

2. 2.1.2. Policy objectives

The foundation of the South African energy policy is based on five major objectives which the policy seeks to achieve in both the short (1-2 years) to medium term (3-7 years). This includes:

- **Promoting access to affordable energy services** for disadvantaged rural and urban households, small businesses & farms, and community services. This would include evaluating grid or non grid options to meet this objective, and in particular renewable energy options will be considered.
- **Improving energy governance**, which has implications for the free flow of information as well as increased broad stakeholder consultation and representation on issues relating to energy policy and investment. This would also involve the restructuring of state energy assets and creating the capacity to implement energy efficiency programmes. The role of the NER in regulating the sector is emphasized and its stated aim of ensuring South Africa's position as a low cost electricity supplier has implications for energy options.
- **Stimulating economic development and empowerment** via the creation of SMME's, entry of HDP into the energy sector, promoting energy efficiency in all sectors of the economy, and encourage competition within energy markets. Intervention where market failures are identified will be via transparent, regulatory and other carefully defined measures. Establishing the regulatory and legislative framework for the natural gas industry to develop is also a priority.

- **Managing energy related environmental and health impacts** by promoting access to basic energy services where the use of certain fuels result in negative health problems, establishing broad targets for the reduction of harmful energy related emissions, and thus establish energy efficiency targets and energy conservation efforts. A balance between exploiting fossil fuels and maintenance of acceptable environmental requirements is promoted. An active role in the international negotiations around global climate change is regarded as priority action.
- **Securing supply through diversity of supply sources** in particular via energy trade and active cooperation in the Southern African region, reappraise coal resources and supporting other primary energy carriers is to be embarked upon. Privately owned generators of their own electricity are allowed subject to National Electricity Regulator (NER) approval.

2.2.1.3. How CDM supports energy policy objectives

The potential for CDM to be a strategic support programme for many policy objectives becomes evident as one examines the possibilities for CDM projects to support many aspects of energy policy objectives. The recent Mitigation Studies on the Energy Sector and Residential Sector point to numerous opportunities in this sector for CDM projects. While these studies have limitations it is one of the few attempts to catalogue GHG reducing projects which could be possible CDM projects. Preparing more detailed cost implications and how traditional methods of energy sources can be changed, is an option for project participants looking to invest in areas proposed. This will be covered in the section detailing support for project development and could be an area of support to CDM project sponsors.

2.2.1.4 CDM assisting disadvantaged household's access to energy services

CDM presents an opportunity for providing non grid services to remote areas that would be expensive to roll the grid out to. CDM presents real opportunities for Government to meet its objective of broadening energy access to rural & urban disadvantaged households. While the White Paper on energy acknowledges that the household electrification programme has been successful, rural energy access is premised on the fact that it may also include off grid access to energy. This is due to the high costs of establishing on the grid connectivity for remote and low intensity settlements. Mitigation options for the residential sector are detailed in the Country Strategy report "Greenhouse gas baseline and mitigation options for the residential

sector”². These include non electrified houses from converting paraffin to gas stoves, using wind energy, solar home systems, using natural gas or LP gas for heating, & improving the efficiency of wood burning stoves. The policy priority of setting up voluntary guidelines for the thermal performance of low cost housing is also identified as a CDM mitigation option in the Country Strategy Report. The upfront costs for these mitigation options are calculated as life cycle costs versus costs of conventional energy options, but they are high and typically relate to low income households who can ill afford this investment. Hence the aim of Energy Policy of making electricity tariffs cost-reflective attempts to incorporate these costs versus costs related to the extension of the grid. The option of subsidies via the National Electricity Fund is possible to promote these off grid electrification for remote households. CDM investments provide an opportunity to reduce some of the costs of these investments

2.2.1.3.2 CDM stimulating economic development in the energy sector and diversity of supply

CDM projects involved in GHG reducing energy generation and energy efficiency projects have the ability to stimulate small scale projects in the economy. These have been identified as wind generation energy projects, the use of landfill gas to generate energy, small rural or urban businesses in the manufacture of appliances and distribution of energy, and energy efficiency projects in various sectors of the economy. Small scale projects in the agriculture arena include manure management, minimum tillage and burning, and animal management. These CDM projects have high transaction costs and therefore would benefit from lower obligations provided for small scale projects. The SA National Strategy Study³ recommends that public funding such as the World Bank Prototype Carbon Fund or other public funding be considered for such projects.

The Executive Board of the CDM has instituted on the recommendation of the Conference of the Parties (COP) a lower threshold of regulation and hence lower costs involved in registering and implementing small scale projects. This is evident in the decision of the COP which is documented at [D:\APPENDIX B \(CDM simplified modalities and procedures for sma.doc](#) which allows for differential treatment of small scale projects. The COP classifies

² De Villiers, M & Matibe K, 2000, *Greenhouse gas baseline and mitigation options for the residential sector*, Unpublished report, Energy & Development Research Centre, University of Cape Town (Prepared for SA Country Studies).

³ Goldblatt, M., 2002, *South African National Strategy Study on the Clean Development Mechanism*, paper prepared for National Strategy Studies

small scale projects as that which generates less than the equivalent of 15MW of power for renewable energy projects, or that which results in energy savings of 15 GW hours. The CDM makes marginal small scale natural gas usage economical if credits for GHG abatement are acceptable to the Executive Board. Thus CDM allows for a wider source of energy to be contemplated in the energy sector and this allows for increased competition in energy supply.

Energy policy takes cognisance of the dependence in South Africa of coal as a source of energy, accounting for approximately 90% of electricity contribution. Energy Policy thus advocates mechanisms which are detailed in the “Emissions from Coal Mining, SA Country Studies”⁴ on the scope for reducing emissions via improving mining operations. These include removing methane prior to mining, using improved coal washing technologies, using improved coal discard combustion technologies – all these are mitigation options which can be considered for CDM benefits. Comparative mitigation options and their costs compiled (Loyd, 2000) suggest that combustion of coal discard has the best potential for CDM activity in South Africa with the highest negative cost ie. it offers a low cost option for CER’s generated and thus offers a viable CDM project option.

2.2.2. Renewable Energy (RE) Strategy

2.2.2.1 Policy Context

The Department of Minerals and Energy (DME) published its White Paper on the Promotion of Renewable Energy and Clean Energy Development in 2002, and the RE Strategy Plan is expected to be finalized by the end of 2003. The White Paper supplements the broader energy policy of Government. The main position underpinning Energy Policy for renewable energy is that from an integrated resources planning perspective “an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options”⁵. The issue of diversification in order to ensure energy security is a driving force and what is proposed for renewable energy is a programme to develop the country’s renewable energy resources in order to reduce the need for coal-based power generation.

⁴ Loyd, PJD, van Wyk D, Cook, A, &Prevost X, I, 2000, *Emissions from Coal Mining*, Prepared for the SA Country Studies

⁵ Department of Minerals and Energy (DME), 2002, *White Paper on the Promotion of Renewable Energy & Clean Energy Development: Part One – Promotion of Renewable Energy*

The key challenges recognized are entrepreneurship and innovativeness of the industrial and financial sectors, Government policy and framework to guide the private sector, as well as financial incentives. The fact that fossil fuel energy is well established and has relatively low costs compared to renewable energy warrants incentives from Government, private sector and international sources. The White Paper also makes specific mention that its development occurs in the context of the UNFCCC, world market for renewable energy, & South Africa's re-integration into the global economy. Government's long term target is to establish a renewable energy industry producing modern energy carriers that will offer a sustainable, fully non-subsidized alternative to fossil fuels. It quantifies this 10 year target as:

“An additional 10 000 GWh renewable energy contribution, to final energy consumption by 2112, to be produced mainly from biomass, wind, solar, and small scale hydro.”

Government views the strategy as a flexible, phased plan which will see early “win” investments spread across relatively low cost technologies such as biomass-based cogeneration, and then moving to technologies with larger scale applications such as solar water heating, wind & small hydro. The rationale for this being to keep the subsidy requirement low while social spending on uplifting poor communities is higher for the fiscus. This is in response to the unknown quantum of investment funds available via the CDM. The strategy proposes that the potential exists to finance such projects via international sources such as the Prototype Carbon Fund, the Global Environment Facility, and the Clean Development Mechanism and from bilateral sources such as ODA for the first investments in renewable energy.

The strategy foresees that over time as energy demand increases, the costs of coal based generation will increase, which will improve the financial viability of renewable energy and further reduce the amount of subsidy. It is predicted that within this time frame a sense of the amount of investment funds available for RE will be known while demands on the fiscus for greater social spending will have abated. Hence the strategy assumes that it will allow rapid progress to the next phase (2008-2012).

The vision for the role of renewable energy in the energy economy is quoted as “an energy economy in which modern renewable energy increases its share of energy consumed and provides affordable access to energy throughout South Africa, thus contributing to sustainable development and environmental conservation”

2.2.2.2. Strategic goals and objectives

These are informed by clear developmental objectives to provide access to adequate and affordable energy to developing communities through a balanced mix of alternative energy resources at a reasonable cost. The purpose is to satisfy the basic needs of the developing sector, at the same time to promote the effective utilization of South Africa's vast alternative energy sources. The goal of the DME is to access appropriate and cost effective alternative energy resources to support the upliftment and development of the developing sector. The main objective of renewable energy should be the empowerment of the deprived so that development and job creation can take place.⁶

The four key strategic instruments to promote RE are identified as:

- **Financial instruments** to ensure equitable investment of national resources versus other energy supply options, via public resource targets supplemented with international resources, with appropriate new fiscal incentives, using existing financial support measures, that attracts foreign and local investors
- **Legal instruments** that provide an effective legislative system that enables an attractive regulatory framework for pricing and tariff structures, integrates Independent Power Producers (IPP) onto the existing grid, and integrates local producers of liquid fuels and gas from renewable resources into their respective systems
- **Technology development** that promotes standards and guidelines, codes of practice, as well as local R&D and manufacturing
- **Awareness raising, capacity building and education** in order to increase the use of RE, by disseminating information on the economic, social and environmental benefits of RE, providing training via Government funded institutions, include women in decision making and promote empowerment, increase knowledge & interaction of RE at all spheres of Government.

2.2.2.3. How CDM can assist in renewable energy implementation

⁶ DME, 2002, Deputy Minister's Foreword, *White Paper on the Promotion of Renewable Energy & Clean Energy Development: Part One – Promotion of Renewable Energy*

The White Paper acknowledges that CDM can be a major source of investment and a catalyst to RE investment in South Africa. The RE policy at this stage is based and promoted on the basis of incentives but is not regarded as mandatory. The White Paper points to the potential application of CDM projects in the following areas of RE:

- **Solar energy** for generating electricity, heating water, regulating light and temperature in buildings. The use of photovoltaic cells to capture energy or the use of intensifying the heat of the sun to create heat which could drive a steam turbine or heat engine which could then generate electricity.
- **Wind energy** using windmills to generate electricity which could charge batteries or pump water, or large modern wind turbines in a wind farm which could power utilities. The scope of small turbines to meet local energy needs is also acknowledged
- **Biomass energy** from organic matter is used to provide heat, conversion to liquid fuels, gas and to generate electricity. The emphasis on wood fuel as an unsustainable resource is recognized although the use of waste and residues from agriculture and forestry as well as organic residue from industrial processes is considered a viable RE source. Landfill gas (biogas) is considered a valuable RE biomass source.
- **Bio fuels in liquid form** produced from the conversion of biomass and used for transportation are listed as RE source. In this regard, ethanol from carbohydrates and bio-diesel from vegetable/animal fats are regarded as the two most common bio fuels.
- **Hydropower** using the movement of water under gravitational force to drive turbines for electricity generation is listed here.
- **Wave power, tidal power, and ocean currents** used to drive turbines are also considered. It is noted that the technologies to capture this power is currently being developed to the stage of commercialisation.
- **Geothermal activity** in the earth's crust derives from the hot core of the earth and include natural geysers and hot water sources which can generate power or be used as space heat

CDM potential in these various sectors of RE have been identified in the Mitigation Studies on the Bulk Energy Sector⁷. It was acknowledged from a mitigation option perspective that solar power RE in various forms implemented currently will only be possible if Government

⁷ Howells M.I., 1999, *Baseline and GHG Mitigation Options for Bulk Energy Supply*, South African Country Studies Mitigation Study, Energy Research Institute, University of Cape Town.

or international incentives to mitigate costs is available. This eases the case for financial “additionality” using CDM credits and the expected GHG abatement in these instances will need to be offset by the high capital costs for these diluted sources of energy. Photovoltaic cells have approximately 12% conversion efficiency and this makes it difficult to compete with other sources of energy with lower capital costs and higher efficiencies.⁸

- Wind Energy: CDM mitigation in the wind generated energy field is also regarded as an option that will require a subsidy in some form. The current wind generation projects in South Africa such as Klipheuwel is estimated to produce power at about 45c (SA) kWh, and will need to be subsidized since current power costs from the grid would range from 5-7 cents kWh.⁹ This is acknowledged in the White Paper and the impact that CDM can have on these projects if Certified Emission Reduction credits (CERs) and a subsidy were applied to make these projects viable. The wind-power potential was mapped for various areas of the country and the most suitable areas were identified as the entire coastal region with a wind-speed in excess of 6m/s and where power exceeds 200W/m².¹⁰
- Biomass: CDM options around biomass are considered more favourably in the Bulk Energy Country Study due to the current usage of biomass in sugar & pulp mills. The current regulations around the sale and the price they can fetch of power produced by Independent Power Projects (IPP's) will have an effect on the extent of how much power is generated by these industries. Managing woodlands for rural households who currently generate almost all RE from wood is a priority identified in the White Paper and is currently a subject for strategy development at the Department of Water Affairs and Forestry. This has an interesting potential for CDM credits on the basis of a carbon sink being preserved and a RE source being managed in a sustainable manner. Options around bio-diesel from sunflower, rapeseed, soybeans, and jatropha are currently being investigated by the DME, **the dti** and National Treasury and the viability rests on adjustments to the fuel levy currently in place for diesel fuel as well as the long term trends in the price of crude oil.¹¹ Land fill gas projects are currently

⁸ op cit.

⁹ DME, Interview with Kevin Nassiep Chief Director Energy Planning, 2003, Interview on CDM projects in South Africa

¹⁰ Diab, 1995, Generalised map of wind power potential in South Africa.

¹¹ **the dti**, Interview with Andre Kudlinsky, 9/2003, Interview on South African Strategy for Biofuels

being exploited with PCF assistance in Durban where a \$15m investment in utilizing a 7.8mtCO₂e/21 years GHG mitigation project is underway. Other municipalities are also gearing themselves to look at these “low hanging fruit” which are regarded as low cost CDM projects.

- Waste: Energy from waste was identified as a potential source of energy and offered opportunities for CDM projects. The most feasible site would be the Gauteng area and the energy potential was estimated at 17PJ per annum. The energy from sewage derived methane was also recognized as a source of 1.1. PJ per annum. These options are currently being examined and will likely look for CDM credits for the operations.
- Hydro: Hydro power potential in South Africa is estimated 8360 MW or 73 230 GWh per annum, while actual installed capacity is 667MW (DME:2000) with a 10 licenced installations at present. This offers significant scope to increase hydro projects, especially with regional locations in the Lesotho Highlands Project offering a 600MW potential. The potential for small scale <10MW hydro generators as stand alone or used in conjunction with other RE and conventional technologies is possible. As the RE strategy is unfolded and the application of subsidies and funding is understood, this offers itself as potential CDM project, though the regional power dynamics of long transmission lines and the jurisdiction of CER generated would need to be investigated.
- Wave energy: Current projects of utilizing the wave energy and ocean currents such as the Agulhas Current are being investigated by Eskom and CSIR. The main problem generally with this process is around technology development, and the high capital costs. The South African coastline is highly favourable for this form of energy generation.

The main driver in RE development is technology development to reduce costs and improve energy efficiency, while the White Paper recommends the establishment of technology support centres in existing research institutes as a mechanism to advance this. The establishment of Integrated Energy Centres is advocated in the White Paper to allow energy services to reach disadvantaged communities but to also bring health and other social &

economic services to these stakeholders. This will allow significant economic activity and could be the basis for cooperatives to boost economic activities. CDM projects would be well placed at various scales to engage with this concept. Black Economic Empowerment (BEE) can be facilitated by the RE strategy and in both the energy generation but also in the manufacture of new equipment and the use of cheaper RE fuel like bio-diesel to generate other economic activity.

2.2.3. Air Quality Bill

2.2.3.1 Policy context

The draft South African National Climate Change Response Strategy (SANCCRS)¹² makes reference to domestic legal obligations but concedes that none exist for climate change either within the overarching legislation of the National Environmental Management Act of 1998 or in any other legislation. The SANCCRS does indicate that the impending National Environmental Management: Air Quality Act will specifically contain provisions for greenhouse gas emissions. The Air Quality Bill in its current form is intended to reform the law regulating air quality and enhance the quality of air in the Republic, while taking into account the need for sustainable development. It will replace the current Atmospheric Pollution Prevention Act. The Bill is intended to provide national norms and standards regulating air quality monitoring, & management and control by all spheres of government for specific air quality measures. It would thus cover National, Provincial, and local ambient air quality and emission standards.

2.2.3.2 Policy objective

Thus the objective is to protect and enhance the quality of air and to reduce risks to human health and the environment while taking into account the need for sustainable development. The National Environmental Management Act of 1998 guides the interpretation and application of this Bill. It is proposed that a listing of activities resulting in atmospheric emissions may be gazetted and that this would result in such activities needing special permission to proceed with such emissions. Standards for controlled emitters and pollution

¹² Department of Environmental Affairs and Tourism (DEAT) (2003), *Draft South African National Climate Change Response Strategy*, version 2003

prevention plans are possible actions. The Bill allows the Minister to make regulations effecting the Republic's international obligations on air quality, and regulations relating to emissions, and their prohibition. The Bill allows the Minister to provide incentives to encourage a change in behaviour towards air pollution by all sectors of society.

2.2.3.3 How CDM activities can reinforce this Bill

The intention of the Bill is to improve air quality and emissions which include greenhouse gases. The objective of the United Nations Framework Convention on Climate Change (UNFCCC) as stated in Article 2 is to stabilize greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The main objective of CDM projects is to reduce GHG emissions and is thus a direct link to what will be a part of the objective of this Bill.

The implications are thus that all CDM projects will eventually positively impact upon the objectives of the Bill and would thus be supportive of its main intent. There are areas where the impact of non GHG from CDM projects which may be controlled by the Bill will have an adverse impact on the objectives of general air quality rather than climate change. In these instances the impact of the Bill will have to be considered by CDM project participants and mitigating measures may have to be applied if it is in conflict with the legislation. The Bill's intent to control nitrous oxide will offer CDM project potential and support objectives of the Bill.

2.2.4 Transport policy

2.2.4.1 The Policy context

Transport policy emanates from the National White Paper of 1996 and from the Moving South Africa Action Agenda of 1998 ([D:\APPENDIX C \(White Paper on National Transport policy\).doc](#)). The vision of the White Paper was to “*Provide safe, reliable, effective, efficient, and fully integrated transport operations and infrastructure which will best meet the needs of freight and passenger customers at improving levels of service and cost in a fashion*

which supports government strategies for economic and social development whilst being environmentally and economically sustainable ”

The policy goals for land passenger and land freight transport aligned to address the sector's energy and environmental impacts:

- To support the goals of the RDP for meeting basic needs, growing the economy, developing human resources, and democratising decision making;
- To enable customers requiring transport for people or goods to access the transport system in ways which best satisfy their criteria;
- To improve the safety, security, reliability, quality and speed of transporting goods & people;
- To improve South Africa's competitiveness and that of its transport infrastructure and operations through greater effectiveness and efficiency to better meet the needs of different customer groups, both locally and globally;
- To invest in infrastructure or transport systems in ways which satisfy social economic, or strategic investment criteria; and
- To achieve the above objectives in a manner which is economically and environmentally sustainable, and minimises negative side effects

The MSA project sought to establish a national strategy for transport to the year 2020. The main policy thrusts of MSA in terms of passenger, freight transport, and special attention to urban transport were established. The passenger sector objectives included densification of corridors or nodes, and the competitive tendering of the private sector service providers. The optimisation of nodes through better infrastructure and subsidy for these optimal nodes was also targeted. A system of competitive tendering to the private sector with incentives for productivity innovations, effectively regulating all modes, especially taxis, and improving sustainability through capital investment was advocated.

The objectives for freight transport included building density in the transport system through focusing freight flows in select corridors by supporting and reinforcing current trends to build the backbone of the system. The goal of building economies of scale within the different modes by focusing the role of the various modes, & maximizing scale economies within each mode while offering differentiated services where economically sustainable would be pursued. It was also advocated in MSA that the improvement of firm level competitiveness by

removing obstacles, improving integration, ensuring sufficient reinvestment to maintain infrastructure, restoring price and value signals between customers and providers and building an industry platform which drives differentiation and innovation would be pursued..

Urban passenger transport was segmented and a profile of the various categories of passengers was built to understand the segments that would have the greatest impact on energy consumption and the reasons for this behaviour was ascribed to the inadequate infrastructure and lack of access to adequate public transport. The impact of high dependence on cars and the fact that previous urban planning was sub-optimal compounded this behaviour of what was called the “stubborn segment”

2.2.4.2 CDM options that support this policy context

The GHG mitigation study/Country Studies in the Transport Sector¹³ identified mitigation options but did not give costs implications for specific mitigation options. This did not allow for a process of understanding which options would be viable from a CDM perspective. However the study did calculate that the sector was responsible for about 10% of GHG emissions.

The study investigated various mitigation options which would contribute to the stated aims of the Transport Policy and MSA above which would lower GHG emissions. These included an analysis of options proposed in MSA, such as :

- The option of implementing the taxi re-capitalization programme where the older 300 000 current 16 seater taxi would be replaced by more fuel and load efficient 18 & 35 seat taxis with electronic monitoring and management systems which would have a significant impact on fuel consumption via the introduction of fuel efficiency improvements.
- A fuel tax would be collected to mitigate GHG emissions by improving the public transport system which would impact on the numbers of cars on the road.
- A switch to cleaner fuels and more RE sources for vehicles was assumed to lower emissions

¹³ Naude, CM., Meyer, A., Coovadia, T., & Pretorius, J., 2000, *Mitigating Options :Transport Sector Report*, Unpublished paper prepared for SA Country Studies Programme.

- A system of travel demand management as evidenced in Asia and Europe was advocated to lower emissions from passenger vehicles to force the use of public transport (mode switching) by the “stubborn segment” identified in MSA.

The opportunity to utilize these areas for CDM opportunities exists and would need to be considered in terms of the various parameters set for CDM projects. The major areas coming out of the transport sector study comprises projects which may not be easily sold as CDM projects. Many of the projects relate to demand side behavioural changes (traffic demand management) or fuel tax changes to modify consumption of fossil fuel related products. It would thus be difficult to justify these projects as CDM projects within the CDM parameters currently in place.

The most plausible projects suggested by the Country Strategy study, from a CDM perspective, will be fuel switching projects eg. LPG, Compressed Natural Gas, solar power technologies for vehicles or hybrid power vehicles, and the use of biological fuels such as bio-diesel as mentioned earlier in the section on RE policy. Since this sector is the largest consumer of liquid fuels the options for GHG reduction will hinge on the technology and its costs for alternative sources of fuels. Again, as was indicated in the RE analysis, the level of subsidy and the costs of carbon credits in these projects will determine how feasible CDM projects appear.

2.2.5. Agriculture policy

2.2.5.1 Policy context

The main pillars of agricultural policy in South Africa are premised upon market deregulation and the ability of the sector to achieve international competitiveness, while being able to maintain food security. The sector is further characterized by an absence of subsidies and production is dominated by large scale commercial farms. Creating sustainable long term employment is also a major goal for the sector. The policy vision for the sector¹⁴ aims for sustained profitable participation in the South African agricultural economy by all stakeholders. It recognizes the need to maintain and increase commercial production, to build

¹⁴ National Department of Agriculture, 2002, *The Strategic plan for South African Agriculture*

international competitiveness and to address the historical legacies and biases that resulted in skewed access and representation. The strategic plan consists of three core strategies:

- **Equitable access and participation**, with the objectives of this strategy being to enhance equitable access to and participation in agricultural opportunities; to de-racialise land and enterprise ownership; and to unlock the full entrepreneurial potential in the sector.
- **Global competitiveness and profitability**, here the aim of is to enhance profitability through sustained global competitiveness in the agricultural sector's input supply, primary production, agro-processing and agro-tourism industries.
- **Sustainable resource management** aims to enhance farmers' capacities to use resources in a sustainable manner and to ensure the wise use and management of natural resources.

Some elements of the core strategies are complementary and will contribute towards creating and restoring confidence in agriculture. With this in mind, a number of essential supporting and enabling strategies were identified. These included,

- Good governance
- Integrated and sustainable rural development
- Knowledge and innovation
- International cooperation
- Safety and security

2.2.6 Forestry Policy

The Forestry White Paper was approved by Cabinet on 6 March 1996. This document now describes the official government policy on forestry while the National Forestry Action Programme (NFAP)¹⁵ is essentially a programme for implementing the new forestry policy as set out in the White Paper. The NFAP is a plan of action, with clear objectives, schedules, and responsibilities, and this vehicle is identified in the White Paper as crucial for implementation. The Department of Water Affairs and Forestry (DWAFF) has responsibility

¹⁵ Department of Water Affairs and Forestry, 1998, *National Forestry Plan*

for the policy and regulation controlling stream flow taxation and forestry permits. The NFAP did not address these regulatory issues and this is subject to procedures outside of the action plan.

The NFAP has the following characteristics:

- It is a framework for action, rather than a blueprint
- addresses national, provincial and local needs, while meeting our international obligations, e.g. in terms of Agenda 21
- is based on adequate and proper consultation involving a broad range of relevant stakeholders
- is focused on mobilising human resources, especially women
- incorporating the three principal components of the forest sector, i.e. industrial forestry, community forestry, and natural forests and woodlands, into an integrated whole
- being integrated with wider Government policies and strategies, in particular rural development and industrial development
- incorporating the best lessons that can be learnt from experiences within and outside of South Africa
- being realistic in its objectives and feasible in terms of the resources required to achieve them
- ensure that the forest sector is fully integrated into wider resource management strategies emphasizing linkages with land-use planning and integrated catchments management – this has a major impact on the scale on which forestation can occur due to the water permit system regulating stream flow usage in South Africa.

2. 2.6.1. How CDM supports Agriculture and Forestry Policy

The links between CDM and Agriculture and Forestry are extremely strong, and the policy imperatives of both Agriculture and Forestry are closely allied to the issues of sustainable development which guides the UNFCCC around the impact that climate change has had on food production and the manner in which it has affected these sectors ability to survive. The policies of both sectors are premised on the principle of integrated rural sustainable

development that supports the uplifting of rural communities in a manner that does not impact on their future ability to thrive and succeed.

The County Studies report on the “Mitigation of Climate Change through Land Use Practises”¹⁶ acknowledges that the sector has a relatively low impact on GHG reduction versus other more energy intensive sectors but the cost potential for GHG projects are regarded as low and therefore are quite attractive for small scale projects which can have a major influence on the sustainability of CDM projects. The GHG mitigation impact is estimated at 10-15% of 1990 levels of GHG emissions by Naude et al (2000).

Individual projects identified which could be of interest to project participants include:

- **Reducing Enteric Fermentation and improved livestock handling**, both of which can be financially beneficial to the farm enterprises can be implemented for GHG reduction. The Mitigation Study estimates that methane emission from enteric fermentation is 916 Gg CH₄/year in 1990, and is the largest single source of methane emission in the country. Mitigation options of reducing the herd via lower levels of free grazing, moving 15% of the herd to feedlots and high protein feeding ingredients would be both beneficial for the farmer as well as a source of GHG reduction. Lower herd numbers were also shown to sequestrate more carbon in the ground while increasing meat production through feedlot practices.
- **Manure handling** which is also recognized as a major source of energy as evidenced in the options covered in the section on RE has a number of options for CDM projects. These range from anaerobic fermentation in lagoons where the methane is trapped and then piped out for conversion to energy, the use of the manure to generate biomass which is dried and then used to generate heat and electricity. Another option would be to use this for fertilizer via composting and returning the carbon to the ground, hence sequestering it. Higher costs associated this practice were acknowledged in the Study and the impact of CDM or subsidies on the viability of this activity may offset high cost option
- **Reduced sugar cane & savannah burning** had beneficial impacts on GHG emission but was considered expensive, labour reducing an also had an impact of reducing

¹⁶ Scholes, RJ., van der Merwe, MR., Kruger AJ., & Crookes D, 2000, *Mitigation of Climate Change through Land Use Practices*. Prepared for the South African Country Studies Programmes.

flatland cane planting if incentives were given for reduced burning on steep-land cane. These negative effects would need to be balanced against the how this activity affects sustainable development criteria if CDM projects are to be considered.

- **Fire frequency reduction** tends to have the lowest cost for implementation in this sector and the ability to keep sequestered carbon in trees and shrubs with fire detection and fire prevention offers the potential for improving agricultural and forestry performance as well as possible GHG reducing options. Calculations of baselines and the effective benefit of farmers of sequestering carbon rather than improving their grazing area would determine if this is a viable CDM project option.
- **Afforestation** options in South Africa would be are limited by stream flow taxation currently in place and the issues identified in the NFAP which are the subject of negotiation between the forestry industry and the DWAF. Projects involving out-grower schemes which may be able to overcome regulatory and policy constraints on stream flow taxes and permits, whereby CDM credits would offset distance to mills etc and sustain black, rural households is an option and the forestry industry would be keen to assist the DWAF improve the marginal outlying areas that pose logistical problems to get the timber to mills for black out-growers.¹⁷

2.2.7. Industrial Policy

Industrial policy in South Africa is framed by the Department of Trade and Industry (**the dti**) which published its “Accelerating Growth and Development: Contribution of an Integrated Manufacturing Strategy” in 2002¹⁸ ([D:\APPENDIX D \(Accelerating Growth and Development.pdf\)](#).) The IMS provides an industrial policy path that focuses “manufacturing at the centre of its analysis, given South Africa's current economic, industrial and manufacturing capacity, the changes in the processes of production and the basis of competitiveness, and the significant changes in the global economy”. It makes the assumption that the manufacturing sector provides a focal point for stimulating the growth of other activities, such as services, and achieving specific outcomes, such as value addition, employment creation, and economic empowerment. The IMS also contends that it should be viewed as a series of integrated interventions. These interventions include market access, beneficiation and value addition, regional production, equity and economic participation, knowledge-intensity and services

¹⁷, John Hunt (PAMSA) and John Scotcher (SAPPI), 9/2003 Interview on CDM and Forestry Industry

¹⁸ Department of Trade and Industry (2002) *Accelerating Growth and Development*

integration, and the development of integrated value matrices. Integrated value matrices are considered in terms of the value addition process, how employment is created at each stage of production, and increasingly this value addition emanates from the incorporation of business services (marketing, distribution, branding), using information and communication technology in any business process, and efficient logistics into the various production and distribution stages.

The IMS is seen as direct response to the Micro-economic Reform Strategy¹⁹ announced by the President early in 2002, which is a series of microeconomic interventions that are to be implemented and is seen trying to positively impact on six key performance areas, namely, growth, competitiveness, employment, small business development, black economic empowerment, and geographic spread of economic activity.

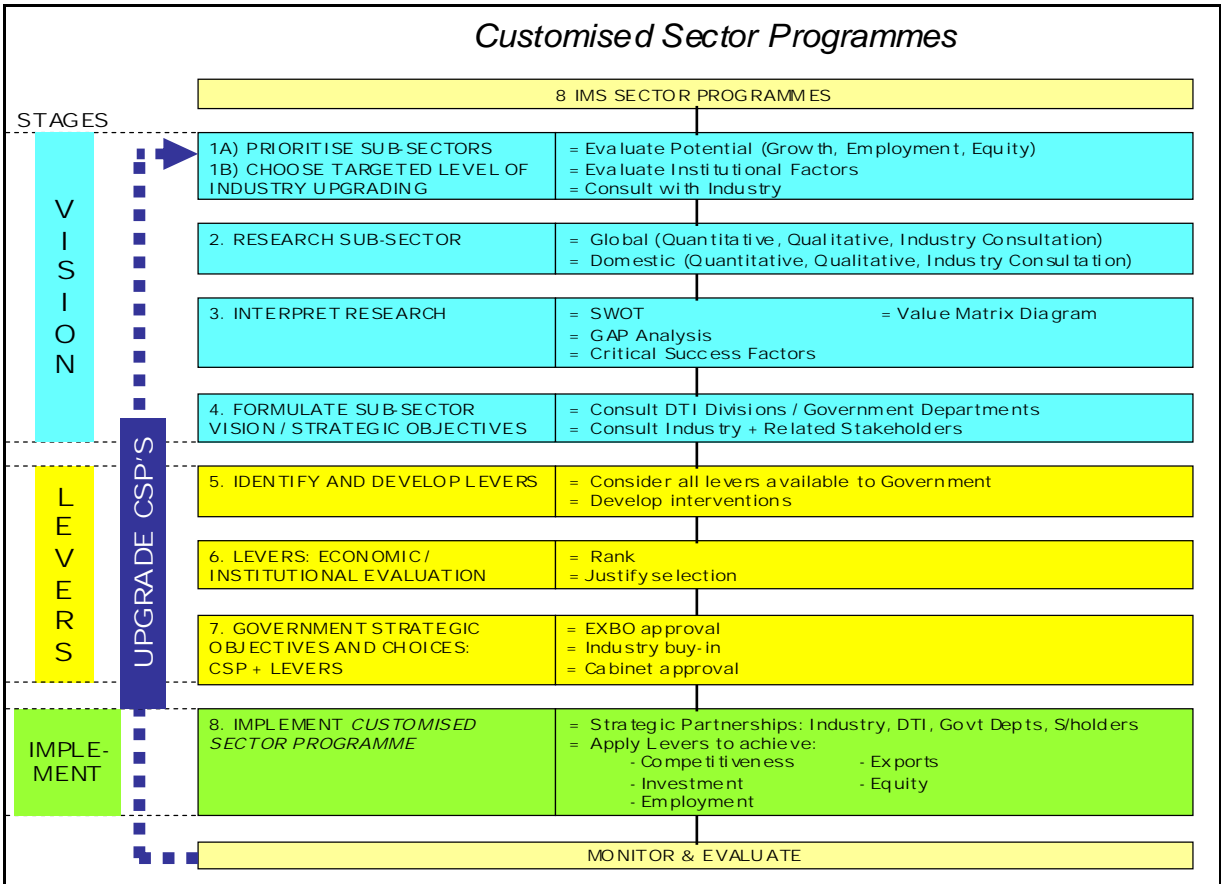
An implementation strategy for the IMS termed Customized Sector Programmes (CSP) are the vehicles that will drive

- Current competitiveness and future competitiveness, long-term outlook for the sector domestically and globally
- Market access and tariff structure
- Opportunities for value addition and beneficiation, upstream and downstream from the core manufacturing platform both locally and internationally
- Benchmarking the sector against relevant competitors
- Ownership patterns and levels of concentration
- Possibilities for using the National Industrial Participation Programme to leverage investment in the sector
- Firm sizes
- Consumer market trends
- Opportunities to expand geographic, gender and racial equity
- Opportunities to increase innovation, technology take-up and knowledge intensity
- Employment and labour market dynamics and opportunities for employment generation in the value chain, and
- Required skills and competencies for the future economy

¹⁹ THE THE DTI, 2002, *Microeconomic Reform Strategy*,
(<http://www.thedti.gov.za/downloads/microeconomicreform.pdf>)

Initially 6 sectors were identified in the IMS as areas of focus; this was subsequently expanded and refined to include 8 sectors of which the following have relevance for CDM. These relevant sectors are clothing textile & footwear, chemicals & petrochemicals, automotive aerospace & marine, metals and mineral beneficiation, capital equipment, agro-processing. The process and thinking leading up to the CSP is summarized in the following diagram:

Figure 2: Customised Sector Programmes



Source: TISA, CSP Presentation to THE THE THE DTI Executive Board, 2003

Three areas of the CSP strategies are most relevant to the CDM strategy, and are analysed in greater detail here: the chemical & petrochemical sectors, automotive sector and the capital equipment sector. The main focus of this analysis is to understand the emphasis these sectors are placing on issues relating to sustainable development and hence the closer fit with the CDM objectives. These CSP's are were formulated as an in-house model by TISA to tackle implementation of sector strategies.

The critical success factors for the Petrochemicals and chemicals sectors are cited as::

- Cost Of Production including raw material cost, labour cost, energy cost, & capital cost
- Access to markets, export agreements on tariffs, technical barriers etc
- Technology and innovation for new products, processes, incentives
- Reliable supply to customers with efficient logistics
- Product diversification to limit over reliance by country

A critical growth issue is the desire to see a higher degree of the utilization of vegetable material to manufacture renewable high value chemicals, utilize waste for energy, and the production of bio-chemicals from local crops. The use of organic material to produce bio-diesel is cited as an area of opportunity for increasing growth in the sector. A growth issue identified is to treat the waste streams coming out of the pulp and paper industry and manufacture high value products. A further area identified with local partners would be mineral recovery from coal ash. The identification of these projects as growth issues for the sector indicates that CDM projects would find resonance with the basic thrust of the sector. The broad issue around energy costs being a critical success factor indicates that such energy efficiency projects would find common ground with the sector strategy. This sector is highly regulated in many developed markets and consumers tend to have high expectations on clean production systems, low emissions, and responsible manufacturing practices from the sector. CDM is thus a valuable instrument to assist the sector achieve some of these consumer preferences and remain competitive in difficult markets.

The Automotive sector is at the hub of a whole range of manufacturing industries that are geared to supply into this assembly industry. Its vision in the CSP is “to establish a viable competitive industry locally and abroad capable of achieving both continuous growth and sustainable job creation”

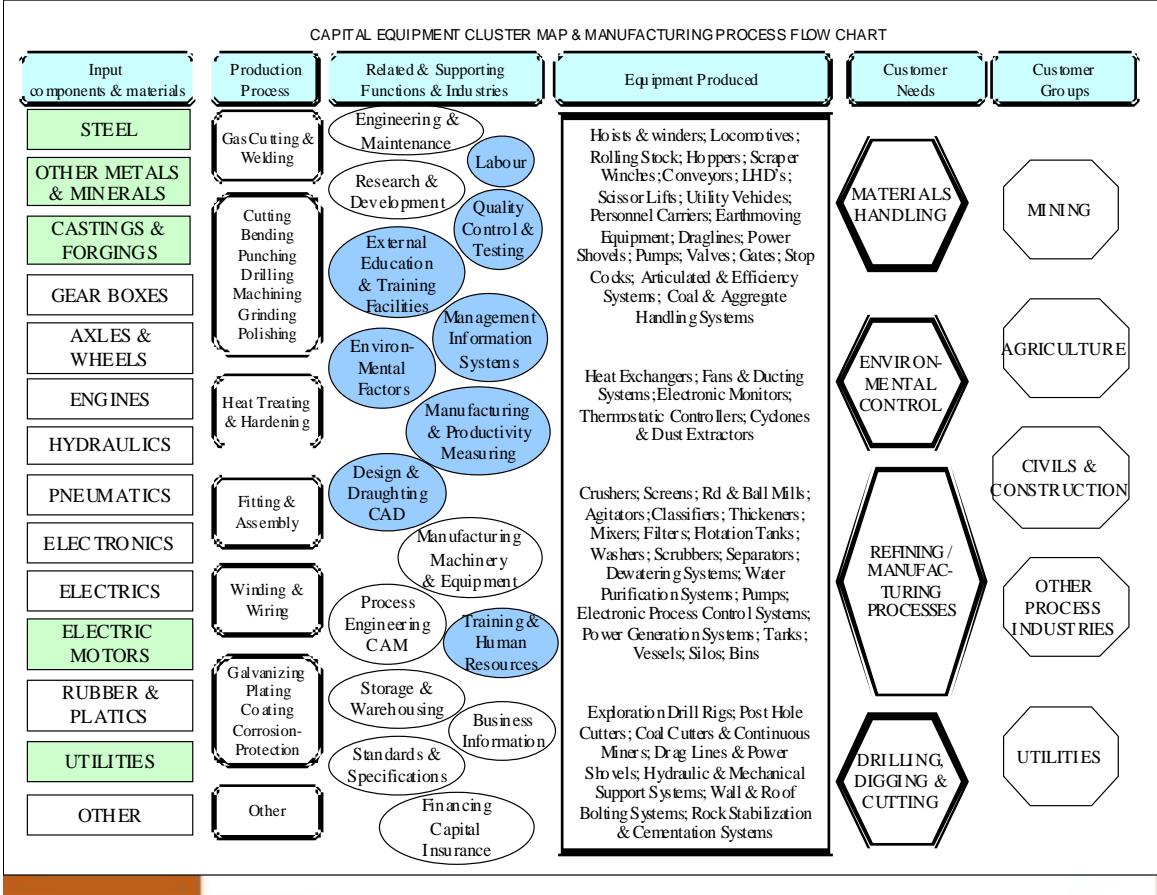
The inputs for the sector range from the textile sector, to plastics, metals, rubber, and a variety of composite materials. The sector in South Africa is heavily dependent on export market access to sustain production in a limited domestic market. The industry is also very cost sensitive and is notorious for the low margins offered to the supplier industry. The products of

this sector (vehicles) are also the major contributors of GHG emissions in South Africa (10% of total GHG emissions). Thus as the major focus for this sector is exports to developed countries, high emission standards for the vehicles apply and no differentiation is applied in local and export production. An example would be catalytic converters that are fitted in local and export vehicles even though these emission standards are non-existent in South Africa. The Eurotype emissions testing standards which apply to the industry is a case in point. This would not have an impact on GHG emissions but on broader air quality standards only.

This suggests that the automotive industry in South Africa would be open to projects that offer energy efficiency which would lower costs. It suggests further that process and technology options which retain market access from an environmental perspective to its main export clients in Europe and other developed countries will also be pursued. This sector is also very affected by standards and practices adopted in its export markets on a variety of fronts which include cleaner production, ISO 14000, and safety issues. This presents synergies for the sector and its component industry to focus on programmes which do not disadvantage market access. Technologies that promote the development of more natural based and renewable composites will also be favoured by the sector in meeting environmental standards in certain markets. CDM projects that offer these advantages will be favoured if costs are contained or if regulations in global markets can be met.

The capital equipment sector is made up of a plethora of industries which utilize a range of raw materials which are converted via the application of technology to produce capital equipment which are used in the operation and manufacture of other goods and in the various processes. The diagram below describes how the cluster is configured:

Figure 3: Capital equipment cluster map and manufacturing process flow chart



Source: TISA, CSP, Capital Equipment Cluster Diagram, 2003.

The major factors driving this sector are lower input costs such as raw materials, energy, project finance facilities, risk cover, and market access opportunities. The ability to prove sound environmental practices is usually a pre-requisite in the final utilization of machinery etc in this sector. This would apply to for example machinery and the level of energy it consumes, its direct emissions if fuel based, and the materials & processes used to construct this product. In some respects CDM projects can assist this sector in these areas and cost effective options would be considered if it helped this sector achieve its primary goals. The sector will also be dependent on how technology development occurs in the CDM arena and the kinds of capital equipment it will demand from the sector.

Overall, the CSP and other sector initiatives will be supported by CDM if energy efficiency projects are implemented at low cost. This would also apply if new technologies allow for greater competitiveness for certain sectors and also reduce GHG emissions. The issue of

market or consumer pressure in developed markets would be a major driver for CDM being supported.

2.2.8. Technology transfer policy

2.2.8.1 Policy context and objectives

The context of **the dti** Industrial Technology Strategy²⁰ is to provide a strategic model of technological development for South African industries through the provision of support systems that will enable and facilitate the commercialisation of technology (products and/or processes). The policy also acts to support technology transfer activities that raise the competitiveness of South African economic operators. Thus the overall goal for the policy is to “enhance industrial development and global competitiveness of South African industries through technology support measures”

The objectives of the policy are stated to be the promotion, enhancement, and facilitation of:

- technology innovation and development.
- technology transfer and diffusion processes.
- technology-based firms.
- protection of intellectual property by supporting and exploiting it locally.
- the knowledge economy.
- environmental technologies.
- intellectual and knowledge capital.

The policy further intends to implement technology development mechanisms by various measures. In the field of supporting industrial innovation it intends specifically to “supporting development of environmental technologies which includes cleaner production, climate control and energy efficient technologies.”

In the field of technology transfer and diffusion it proposes to “actively support technology transfer agencies, technology for cleaner production, climate control, and

²⁰ **the dti**, 2003, **the dti** *Industrial Technology Strategy*.

energy efficiency, and using the technology venture capital industry to support small firms”

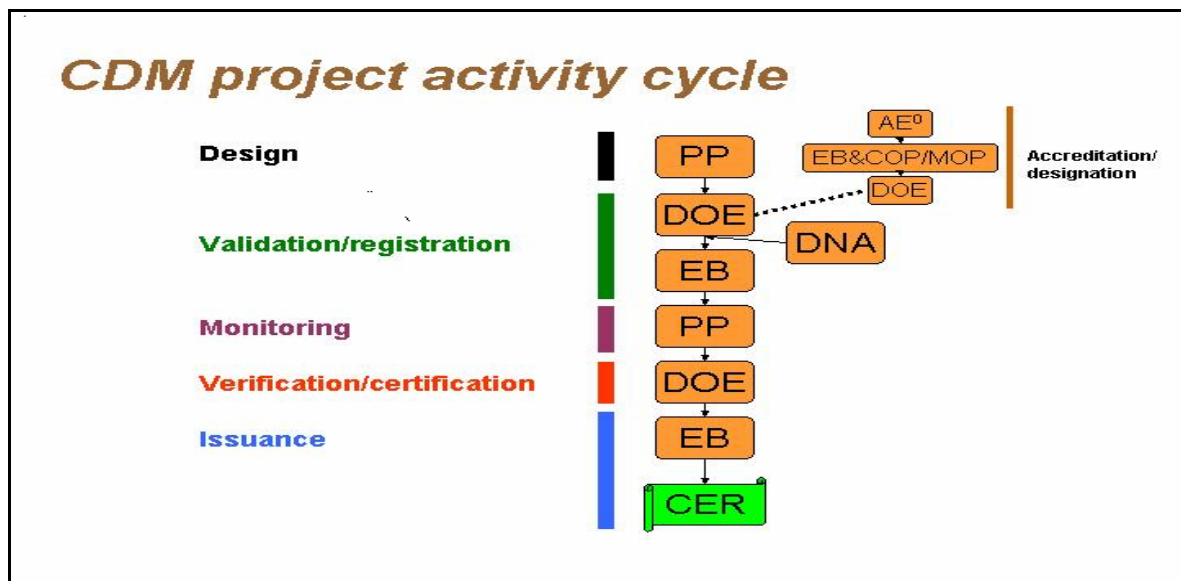
Financial support for technology incubators and demonstration centres is advocated and is currently being implemented in applied in plant fibre, furniture, biotechnology, floriculture, medical equipment, small scale mining, metals finishing, and ICT.

The technology innovation and diffusion policy locates itself in the context of global trends in environmental support for such enabling technology. It also provides such support for the transfer of such technology to the domestic economy. The general policy environment acknowledges the role that technology transfer can play in the environmental arena and in the economy in general. The strategy with regard to technology innovation and diffusion allows for various support measures and in particular support through the proposed “environmental support fund” for cleaner production and energy efficient/renewable energy technologies and their diffusion. This suggests areas where the CDM would have definite overlaps and support this policy as well as derive support from the various programmes that exist to support the policy.

2.3. A DETERMINATION OF HOW INCENTIVE SCHEMES CAN LOWER TRANSACTION COSTS FOR CDM

The slide below indicates the various steps in the CDM project activity cycle that has an impact on the project participants (PP) in terms of effort and costs involved in a CDM project prepared for the issuance of credits. Project Activity Cycle (PAC) includes:

Figure 4: CDM project activity cycle



Source: UNFCCC, Project Activity Cycle, 2003

2.3.1. Overview of costs areas in CDM project process

The implementation of CDM projects have costs associated that the COP has sought to make lower for small scale projects. These costs are incurred by both large and small scale project participants in the following areas:

- Proposing New Baseline and/or Monitoring Methodology
- Using the Approved Baseline and/or Monitoring Methodology
- Validating the CDM project activity using the DoE approved by the EB
- Registering the CDM project activity
- Certify/Verify the emission reductions (ERs) of a CDM project activity by DoE
- Request issuance of CERs related to a CDM project activity

Small scale projects would have their own modalities and procedures to lower transaction costs; this is detailed in [FINAL CDM\APPENDIX B \(CDM simplified modalities and procedures for small scale\).doc](#) with simplified project design, baseline methodologies, validation, monitoring, etc. These costs can have a detrimental impact on whether CDM projects are actually viable in developing countries since PP may have to buy in skills for various stages of the PAC.

These skills will also have a foreign component to it and in the case of South Africa; costs associated with Designated Operating Entities currently will be pegged in foreign hard currencies. The issue of cultivating DoE's in the local economy will be covered in chapter 4 of the study. Currently of the 17 DoE applications, none are from South Africa or Africa. COP has ruled that an even geographic spread exist for DoE's approved as decided in COP 8 at [D:\APPENDIX E \(Rules and Procedures of the Executive Board of t.pdf](#) .

The current PDD asks specifically for details on public funding from Annex I countries for CDM projects. This is to confirm that such Annex I funding does not breach the Kyoto Protocol undertaking that CDM funding will not result in a diversion of Overseas Development Assistance (ODA). As such no limitation is placed on developing countries to support from public funds the implementation of CDM projects.

2.3.2. Applying incentives to lower transaction & investment costs in South Africa

2.3.2.1 Incentives supporting the PAC

- **Establishing baseline methodologies, new methodologies and monitoring costs** could be offset via **competitiveness enhancing incentives and grants** include in the main funds such as the Competitiveness Fund (CF), & the Sector Partnership Fund (SPF). These schemes are designed to assist firms improve their competitiveness by applying better environmental practices or improve their innovation via technology development and innovation. These schemes could be applied to costs incurred for establishing Baseline Methodologies, new methodologies, and monitoring methodology and plan for both large and small scale projects in the PAC. These would necessitate costs from PP's to hire in skills or apply in-house skills to comply with this requirement. Ongoing costs for monitoring could also be offset by these schemes. **Currently environmental impact** assessments are required for certain categories for projects domestically and this would be acceptable for CDM purposes as suggested by the PDD section "F".
- **DoE validation and verification** has the potential to increase transaction costs if the DoE's are currently not in the territory of where the project is being implemented. While the small scale modalities and procedures allows for combining the validation and verification stages this still poses a high cost. Incentives to offset this would

reduce the overall cost of the project and increase viability for implementation in South Africa. The current competitiveness schemes could offset these costs and the governance of the schemes would need to be revised to allow this to occur.

- **Project registration costs** are currently pegged for developing countries at the rates established by the EB which is to be found at [D:\APPENDIX F \(Project registration fee\).pdf](#). The EB can adjust this fee which is currently related to the abatement levels of CO₂ based on the motivation by PP, these fees range from \$US5000 – 30 000.
- **Fostering local DoE** is covered in chapter 4 of the report, but the issues of using current incentives to build the capacity of local DoE's to be registered suppliers can be considered here. The current training grants can be provided to services sector firms via the services Skills Education & Training Authorities (SETA) for the acquisition of new skills by firms seeking to enter new areas of service. Programmes in this regard will depend on the demand for DoE skills in the local, regional and global market place. The use of Skills Support Fund at the the the dti for acquisition of new skills could also offer an opportunity to train local personnel in DOE processes.

2.3.3. Incentives supporting investment costs for CDM

The areas covered examining how projects can support policy in South Africa indicate that many projects may be unfeasible when compared to the low energy costs currently in place due to low fossil fuel cost. Many of the policy areas advocate some form of subsidy to enable these high capital costs to be ameliorated. This together with supply side incentives can provide a platform for marginal projects to be improved. The table below shows the disincentive to higher energy costs outside of coal generated electricity.

RANKING OF INTERNATIONAL ELECTRICITY COSTS, in 2000
(Ranking in order from low est-cost to highest-cost)

Country	Current rank	Previous rank	Cost, US cent / kWh
South Africa	1	2	2.74
Sweden	2	1	2.80
Finland	3	4	3.25
Australia	4	3	3.73
Canada	5	5	3.78
Spain	6	13	4.78
France	7	7	4.81
Germany	8	11	4.88
Denmark	9	6	5.00
United Kingdom	10	8	5.11
Belgium	11	12	6.31
The Netherlands	12	9	6.40
United States	13	10	6.70
Italy	14	14	8.06

Source: South Africa's Mineral Industry, 2000/2001, publication of the SA Department of Minerals and Energy / Mineral Economics Directorate (December 2001 publication) quoting from the National Utility Service Group, International Electricity Report, 2001.

Investment establishment incentives can effectively allow for new domestic and foreign investment via grants reflecting total establishment costs such as the Small Medium Enterprise Development Programme (SMEDP) for investments up to R100m with a cash grant for two years based on a maximum of 26% of total investment made. Regulations and requirements are at <http://www.thedti.gov.za> or email enterprise@thedti.pwv.gov.za. CDM projects that are foreign or local and which are new or expansion projects can apply.

Strategic Investment Projects (SIP) intended for larger CDM projects that meet conditions in the area of specified employment creation, linkages with small businesses, are using new technologies, products or processes, are value adding, and fill cluster gaps can apply for 50%

of investment costs as a tax rebate for investments under R300m, or 100% of investments costs as a tax rebate for investments under R600m. The current requirements do not mention environmental issues and this would need to be addressed in CDM projects which may meet other criteria of SIP. Applicants can contact the SIP secretariat to establish the position of their projects at (www.thedti.gov.za/ or email enterprise@thedti.pwv.gov.za). Foreign relocation grants are also available from the THE THE THE DTI for the transfer costs of equipment up to a maximum of R3m. CDM investments which are regarded as critical infrastructure for anchor investments would be able to claim up to 30% of the infrastructure investment costs.

Preferential financing models which lower establishment cost of capital via the IDC (www.idc.co.za), or loan schemes & loan guarantee schemes which lower borrower risk profile targeted at small businesses by Khula (www.khula.co.za or email info@khula.co.za) and improve access to finance at reasonable rates

Targeted schemes such as NEF and Umsobomvu Youth Fund which focus largely on BEE and youth projects are also available for PP. The DBSA²¹ have indicated that they are positioning themselves to become an agent in Southern Africa for the Prototype Carbon Fund. This will allow them to evaluate and assess viability for CDM projects trying to access PCF funding.

The DME²² indicated that the new RE strategy will also make recommendations around subsidies, and it is not clear if this will include establishment cost subsidies or only price subsidies. The RE Strategy is due for public comment at the end of 2003.

2.3.4. Incentives supporting technology transfer and innovation

As indicated earlier the technology policy makes specific reference to technology support for those activities assisting with climate change. This appears in the policy document and is designed to assist those firms seeking to utilize the incentives available such as the Technology Innovation Schemes (Support Program for Industrial Innovation (SPII), Partnership for Industrial Innovation (PII), Technology Human Resource in Industry

²¹ Development Bank of Southern Africa, 9/2003, Interview with Rob Short, Environmental Specialist at DBSA

²² Department of Minerals and Energy Affairs, 10/2003, Kevin Nassiep, Chief Director Energy Planning, interview on CDM and Renewable Energy

Programme (THRIP), & Innovation Fund). These schemes would thus be available for projects involved in innovative technology activities in the CDM arena. The support programmes are administered by the IDC and National Research Foundation but can be accessed via the department at www.thedti.gov.za, or the NRF at www.innovationfund.ac.za.

2.3.5. Export support schemes

These are available to all exporters of South African products and are called the Export Marketing Investment Allowance (EMIA). The support would be for market research to support exports or attract foreign investment or buyers. Assisting organized export sectors is also provided for. Exhibition allowances are also provided for approved events. These would provide some assistance to projects involving CDM where an export function is foreseen. The use of the scheme by local project developers who are keen on attracting PP partners for the CDM project would also be useful.

Key areas of support EMIA can offer CDM projects would include:

- investment mission support
- assistance in foreign exhibition participation
- FDI research
- outward selling missions for CDM projects

2.4. HOW CAN INCENTIVE AND PROMOTION INSTITUTIONS BE GEARED TO ASSIST IN CDM INVESTMENT ATTRACTION

2.4.1 Trade and Investment South Africa (TISA)

Discussion with the Chief Executive²³ of the investment promotion organ of Government (Trade and Investment South Africa) suggest that there is some understanding of the CDM but this is not included in the policy or operational plans of the institution. The CEO expressed a view that this investment facilitation of CDM projects could fit into the CSP investment strategy and that TISA marketing offices abroad in selected investment destinations could be utilized to promote the CDM potential in South Africa. The organization

²³ Lungisa Magwentshu, 10/2003, Interview with TISA, CEO on CDM and the role of TISA,

was keen to lend its resource base as the national investment and trade promotion organization to attract CDM projects and facilitate their implementation in South Africa.

An expectation was expressed that proper training for the foreign based marketing officers and other key staff at home would be useful in order for CDM promotion to effectively occur at TISA. The CSP process was seen as open to suggestions and the CDM could be slotted in relevant sector programmes. This gap would need to be addressed by the DNA as it decides on its promotion function, capacity building, infrastructure building, and incentives for CDM.

2.4.2 The Enterprise Organization (TEO)

TEO is a division of **the dti** and is currently responsible for an estimated R800m of incentives under the competitiveness and investment establishment schemes with a further R10bn of incentives available over 10 years as tax credits via Strategic Investment Programme.²⁴ The CEO was open to information on the CDM and how it could stimulate more local and foreign investment. The organization did not have any plans to incorporate this into their many schemes but was positive about the scheme and offered preliminary suggestions on how many of the schemes could be tailored to cater for CDM investments.

A capacity constraint on the part of staff about knowledge of CDM would need to be addressed via a training programme, and the organization was keen to embark upon this as soon as possible. Various incentive schemes are governed by independent boards and managed by TEO staff that act as secretariats to these incentives. It was proposed by the CEO that a programme which was general in nature be established for the organization and that the secretariats & Boards also be given detailed information on CDM and a process of incorporating CDM into the normal application process of the Boards and secretariats be undertaken. This process will need to be managed by the DNA and the appropriate funding mechanisms in place such as the DME led SA-Danish CDM capacity building programme be implemented to provide this training.

²⁴ Dr Mahlape Mohale, 10/2003, Interview with CEO of TEO Division, the dti, on CDM and impact in incentives

2.5. CONCLUDING REMARKS FOR CHAPTER 2

It is evident that CDM can reinforce a wide raft of policy areas in South Africa. It is also evident that in many instances there is a symbiosis between CDM and these policy imperatives. This thus points to a departure point for the utilization of CDM in a manner that is strategic in the South African context. It also emerges that CDM can actively assist in the attainment of certain key policy objectives and act as catalyst of funds and action in achieving certain implementation objectives of policy.

A point which is also evident is that CDM can contribute to these policy objectives and implementation measures if certain financial support catalyses CDM projects in South Africa. CDM can also in some instances act a cost mitigating factor where Government would have had to spend much more in terms of achieving these policy objectives.

Institutional readiness to embrace CDM projects as a form of investment in South Africa was very positive. This needs to be encouraged by putting in place training and learning schemes to further the broader understanding of CDM amongst policy makers and implementing agencies. In this regard the role of the DNA will be paramount in leading this process to encourage CDM investment to locate in South Africa.