1 Introduction

> "Over the long term we will redefine our competitive advantage and structurally transform the economy by shifting from an energy-intensive to a climate-friendly path as part of a pro-growth, pro-development and pro-jobs strategy."
>
> - South African Climate Change Summit 2009: Conference Statement

1.1 Background

Climate change is now recognised as having significant potential impacts on the development and prosperity of nations.

Much of this attention is focused on the physical impacts of climate change on agricultural production, changes in weather patterns and an increased propensity of extreme weather events. South Africa is by no means immune to these adverse effects, with numerous local and international studies outlining risks for the country and African continent as a whole (see Midgley et al., 2007; IPCC, 2007). This report acknowledges the significant ramifications that direct climate change impacts could have on the South African economy, brought about by:

- An increase in air temperature of between 1℃ to 3 ℃ over the next three to five decades
- An expected increase in evapotranspiration of between by 5 to 15% by 2050 for Southern Africa, with concerns for available water resources in the country
- Challenges for agricultural production in both the summer and winter rainfall areas by mid-century, with particular concern for the maintenance of rural livelihoods
- Changes in the territorial range and prevalence of a variety of vector borne diseases such as malaria and schistosomiasis (bilharzia), as well as a potential increase in the spread of food and water borne diseases
- An increase in the frequency and intensity of extreme weather events such as flooding and wild fire, with heightened requirements for effective disaster management (Midgley et al., 2007)

Readers wishing to obtain a greater understanding of predicted physical impacts for South Africa are advised to consult recent publications in this regard (Schulze, 2005; Midgley et al., 2007; Walker and Schulze, 2008; Benhin, 2008).

However, equally important are the 'secondary' impacts of climate change for national economies. These secondary impacts relate to local, national, regional and global responses to the climate challenge, and how this range of responses influences trade, investment and the competitiveness of nations.

These secondary or indirect impacts, related to areas such as climate change regulation, changes in consumer preferences and the development of the global carbon market, are arguably as significant as the physical impacts of climate change. As some have argued, climate change is characterised by two key dimensions: the environmental-climatic dimension, which is concerned with physical risks, and the regulatory-market economy dimension, which focuses on the indirect implications of climate change (Deutsche Bank Research, 2007).

This study therefore focuses on understanding and unpacking the secondary impacts of climate change, referred to collectively in this report as 'mitigation response measures', as a relatively unexplored area for South Africa. The document has two key objectives, namely to:

1. Support the identification and management of climate change related risks throughout the South African economy, in order to ensure industrial competitiveness, economic growth and market access
2. Help chart a course for the country in which effective climate change opportunities are recognised, evaluated and implemented

The announcement of a national emission reduction target[1] by President Jacob Zuma in December 2009, and the country's further commitments to this target outlined in its submission to the Copenhagen Accord, highlights the significant structural shifts in the economy that could be brought by a coherent South African response to climate change. Many of these changes also offer substantial opportunities for socio-economic advancement in South Africa, including benefits for energy security, employment creation and poverty alleviation. The consideration of these opportunities therefore requires further attention and scrutiny.

South Africa is both an energy and carbon intensive economy, characterised by a reliance on coal-based power generation and limited access to effective public transport and low carbon freight. However, just as the country is exposed to a number of potential carbon related liabilities, so the opportunities to access international support for infrastructure investment and improved efficiencies have never been greater.

Effectively positioned, the South African economy is capable of weathering any severe 'climatic' storms, whilst maximising on commercial opportunities and new markets.

1.2 Scope of Work

The scope of this study is focused upon the secondary impacts of climate change brought about by local, national, regional and international responses to this global challenge. The term 'responses' is used in a broad sense to include policy shifts, changes in legislative conditions, the adoption of various formal and informal plans, the implementation of measures, changes in sentiment etc. These secondary impacts bring about a range of risks and opportunities for the public and private sector, a topic that is discussed in detail in Section 3 below.

Specifically excluded from this study is consideration of physical impacts from climate change. Nevertheless, it is clearly acknowledged that physical risks from climate change could have strong significance for the country, and that both observed and predicted impacts could have an important bearing on the national economy. It is also recognised that appropriate responses to the adaptation challenge could offer certain economic opportunities, through, for example, job creation in adaptation related programmes or activities.

Finally, it should be noted that the analysis contained in this report is focused on providing a framework and overview for evaluating the economic implications of climate change for South Africa. The objective of the report is therefore not to provide an exhaustive assessment, but rather to act as a precursor and supportive tool to the development of more detailed climate change analysis for key sectors or industries in South Africa.

[1] *In the lead up to the Copenhagen Climate Summit, South Africa announced an emission reduction target made up of 'a deviation below the current emissions baseline of around 34% by 2020 and by around 42% by 2025.This level of effort enables South Africa's emissions to peak between 2020 and 2025, plateau for approximately a decade and decline in absolute terms thereafter.' (The Presidency, 6 December 2009). This target is conditional, however, on a fair, ambitious and effective international climate change agreement being reached, and on the country receiving finance, technology transfer and capacity building support from the international community, particularly from developed countries.*

1.3 Document Structure

This document is structured as follows:

Section 2	**National Context: Outline of the South African Economy** ▪ Provides a brief outline of the economy, including key trends and recent developments
Section 3	**Climate Change: Overview of Risks and Opportunities** ▪ Provides a summary of the secondary risks and opportunities brought about climate change, as contextual background for the remainder of the report
Section 4	**Risks and Opportunities for the South African Economy** ▪ Considers the risks and opportunities for each sector of the South African economy in more detail, outlining key areas in which responses are required and commercial opportunities are present
Section 5	**Key Areas for Consideration** ▪ Drawing on Sections 3 and 4, this section outlines a number of key issues to be considered and debated in the framing of a holistic climate change response
Section 6	**Envisaging a Way Forward for South Africa** ▪ Provides input towards the development of a low carbon growth plan for South Africa that minimises risks and harnesses economic opportunities
Section 7	**Conclusion** ▪ Provides an overall conclusion to the study