

4 Risks and Opportunities for the South African Economy

“Climate change regulation may impact the following Group businesses directly or indirectly: Bidtravel and Bidserv’s aviation services businesses due to a possible increase in aviation fuel or flight taxation; Bidfreight with its dependence on international ocean shipping; Bidauto as motor retail sales mix and volume changes due to possible future regulation penalising high emissions vehicles; and Bidpaper Plus as paper costs increase due to pressures on the paper and pulp industry to reduce their carbon intensity.”

- The Bidvest Group, Carbon Disclosure Project 2009

The section below considers the current and potential implications of climate change for the South African economy, from both a secondary risks and opportunities perspective. A sector based approach is followed in order to link with existing work to promote climate response measures in key national sectors, and work undertaken globally to identify and evaluate the consequences of climate change for particular industries.

It should be noted that in the interest of brevity this analysis does not discuss all foreseeable or potential implications for a particular sector, but rather, focuses on areas of immediate threat and opportunity, as well as areas considered of key importance both now and in the future.

The analysis that follows considers the following sectors⁶ in South Africa:

No.	Sector
Primary Sector	
1.	Agriculture, Forestry and Fishing
2.	Mining & Quarrying
Secondary Sector	
3.	Manufacturing
4.	Utilities (Electricity, Gas and Water)
5.	Construction
Tertiary Sector	
6.	Trade, Catering and Accommodation Services
7.	Transport, Storage and Communication
8.	Financial, Insurance, Real Estate and Business Services

⁶ The sector classification system employed in this analysis is based on Level 3 of the Quantec Standardised Industrial Classification (SIC). The analysis excludes the ‘Community, Social and Personal Services’ sector.

Agriculture, Forestry and Fishing

Sector Overview:	<ul style="list-style-type: none"> ▪ A key sector in government's quest to halve unemployment and eradicate poverty by 2014 ▪ Contribution to total GDP has declined as South Africa has diversified production to other areas ▪ Total employment declined since the mid-1990s, raising concerns for the employment of many impoverished people, particularly black women ▪ Cereals and grains are key crops, occupying more than 60% of area under cultivation. Corn, the country's most important crop, is a dietary staple, source of livestock feed and an export crop. Corn production reached its second highest level in 2008 at 12.7 million tons ▪ Key exports include wine, citrus fruit, grapes, apples, pears, quinces and sugar ▪ Key imports include rice, wheat, soya-beans, palm oil, undenatured ethyl alcohol and fish products ▪ The UK, Netherlands, Germany, Mozambique and United States are major export destinations ▪ Sector achieved its greatest ever trade surplus of R11.2 Billion in 2008 ▪ Exports grew annually by 9.5% between 2000 and 2008 ▪ Agriculture and forestry's net contribution to South Africa's greenhouse gas (GHG) emissions is 4.7% (2000 baseline)
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Risks	Opportunities	Growth of Existing Markets & Industries
<p>Regulatory</p> <p>Agricultural industries in South Africa are unlikely to face sectoral emissions targets in the foreseeable future, either through international or national measures. However, 2 emission sources are of importance:</p> <ol style="list-style-type: none"> i. Enteric fermentation by livestock, which results in the release of methane through animal belching. This contributes 4.4% to national emissions, and ii. Indirect emissions of nitrous oxide (N₂O) from managed soils in the form of fertilisers, contributing 4% to national emissions <p>As single activities these areas contribute a significant portion to national emissions. Options exist to alleviate enteric fermentation through the increased use of feedlots or through supplying livestock with dietary additives. However, reducing emissions in enteric</p>	<p>The major industry opportunities from climate change in this sector relate to the development of:</p> <ol style="list-style-type: none"> i. Organic farming ii. Biofuels iii. Biomass power and heat generation <p><i>Organic farming:</i></p> <p>The cultivation of organic produce, although requiring substantial requirements for certification, offers a number of benefits for farmers and wider communities. Aside from broader environmental benefits and estimated carbon emission reductions of between 48 to 68%, organic produce:</p> <ul style="list-style-type: none"> ▪ Is associated with a considerable price premium and significantly expanding consumer demand in Europe 	<p>Growth of Existing Markets & Industries</p>

Risks	Opportunities
<p>fermentation could come at a considerable economic cost, estimated recently at R325 million per annum for increased feedlot use (Taviv et al., 2007).</p> <p>Efficient fertiliser practices, low input farming and organic agriculture are the main alternatives to excessive fertiliser use. Addressing N₂O emission in this sector offers more attractive options, discussed under the 'Opportunities' category.</p> <p>Despite these risk related activities, the agricultural industry is unlikely to face regulatory sanction on climate change given its role in food production and rural development. Key emission sources are therefore unlikely to be targeted for emission reductions in the short to medium-term. However, indirect impacts, such as through raised electricity prices and fuel costs from climate change regulation, could have a significant bearing on this sector unless appropriate mitigation measures are employed. This could include reduced viability for agricultural production areas located at large distances from markets.</p> <p>In the forestry industry, two key emitters are present, Sappi and Mondi, with reported emissions of 6.9 million tonnes and 6 million tonnes respectively, placing them amongst the highest corporate emitters in the country (CDP, 2009). Despite efforts to promote paper recycling and other environmental measures, both companies face potentially significant financial risk from the implementation of carbon pricing in the national economy (either through carbon taxation or a domestic cap and trade scheme). This financial risk starts at R695 million and R600 million per annum respectively for a preliminary R100/tonne carbon tax.</p> <p>Increased operational costs for the forestry sector through carbon taxation could also impact on pulp and paper exports (commodities that make up close to 2% of</p>	<p>and North America, both of which are key national trading partners</p> <ul style="list-style-type: none"> ▪ Offers a significant potential export opportunity for developing countries, especially in light of consumer concerns over product food miles ▪ Promotes reduced operational costs over the longer-term in comparison to conventional farming methods in which yields progressively decline resulting in increased input requirements ▪ Is associated with labour intensive farming methods, requiring on average 30% more labour than conventional farming (UNEP, 2009) <p>The expansion of organic farming in South Africa thus offers an opportunity to support smallholder, community and large-scale farming in a manner supportive of rural development. Labour intensive farming methods can also assist in combating currently declining employment levels in this sector. This includes offering vitally needed jobs for unskilled and semi-skilled workers.</p> <p><i>Biofuels:</i></p> <p>The development of biofuels represents a potentially sizeable commercial opportunity in South Africa. Much of this market remains untapped, and despite concerns over competition with food production and rising food prices, areas of opportunity remain, including in the use of waste vegetable oils and surplus sugarcane production.</p> <p>Within viable areas, the development of biofuels offers additional commercial benefits, namely:</p> <ul style="list-style-type: none"> ▪ Substantial employment generation opportunities through labour intensive production methods ▪ The procurement of higher prices for farmers producing bioenergy products <p>Despite restricted licensing conditions, it is estimated that</p>

Risks	Opportunities	
<p>national exports and which could experience good growth in the foreseeable future) by rendering these exports less competitive in relation to emerging paper producers such as China and India.</p>	<p>the current national biofuels target could generate 25 000 jobs and generate R1.7 Billion in balance of payments savings (DME, 2007). Finally, substantial opportunities are presented to support the commercialisation of biofuels within the SADC region, as part of a regional biofuel development strategy.</p> <p><i>Biomass power and heat generation:</i></p> <p>A variety of biomass sources have been assessed for their commercial viability in power generation in South Africa (DME, 2004b). This assessment highlights the considerable potential of sugarcane bagasse for power generation export to the national grid, estimated at 2 100 GWh or in the region of 260MW of biomass based power.</p> <p>Whilst offering additional support for energy security objectives, the development of bagasse power generation can also be financed through a Renewable Energy Feed-In Tariff (REFIT), offering improved certainty for investors and opportunities for international funding assistance.</p> <p>Opportunities should also be explored in the development of biomass based power generation in the burning of alien trees and vegetation, particularly wattle. The spread of alien vegetation remains an important area of concern in South Africa, addressed at this stage through the Working for Water (WfW) programme. Opportunities may exist to complement the WfW initiative through biomass based power generation where this biomass is not better employed in secondary industries such as furniture and craft manufacture.</p> <p>A number of opportunities also exist to provide biomass resources such as soya husks and other agricultural residues as boiler inputs for heat generation in industrial applications. This fuel switching activity reduces company emissions and is often a cost saving measure in relation to existing inputs used such as coal.</p>	

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<p>Trade and Market Access</p>	<p>Shifts in consumer preferences away from the purchasing of carbon intensive products are of important concern in this sector. This is particularly the case for South Africa given that:</p> <ul style="list-style-type: none"> ▪ The majority of our agricultural exports are destined for more environmentally sensitive EU and US consumer markets, and require long distance shipping or air freight ▪ The requirement for long distance air freight has been used as a crude (and often inaccurate) indicator for certain consumers of the relative carbon footprint associated with products. This situation has in turn helped promote consumer support for buying local' in the UK and Europe, with obvious prejudice for imported goods ▪ Agricultural products such as fruit and wine have a direct consumer interface, are a key export 	<p>Finally, the promotion of improved manure management in livestock and poultry feedlots can support the development of organic fertiliser ('kraal manure') which can be sold as a commodity and reduce both methane and nitrous oxide emissions. It is estimated that an 80% adoption of this practice in feedlots would result in reduced emissions of approximately 1 million tonnes per annum and an annual saving of R19.6 million relative to business as usual (Taviv R. et al., 2007).</p> <p>Concerns related to the widespread adoption of agricultural methane (biogas) projects for South Africa are noted (Taviv R. et al., 2007). Biogas projects will also need to address potential socio-cultural acceptance issues in the implementation of rural waste to energy projects, however, opportunities for localised power generation and employment can be harnessed if these issues are addressed.</p> <p>The growth of the voluntary carbon in recent decades has served to highlight the opportunities available in the global carbon market for smaller, community based projects. A number of land use management and forestry initiatives across the globe have benefitted from this form of carbon finance, supported through the growing market for carbon offsets.</p> <p>Whilst South Africa's offset opportunities are more limited in large-scale afforestation and reforestation programmes, considerable opportunity exists to access carbon finance for carbon sequestration in tree planting, thicket restoration and wooded savannah (bushveld) thickening.</p> <p>For example, initiatives are already underway in the country that provide employment and support rural livelihoods through the development of voluntary carbon credits through indigenous tree planting.</p>	<p>Carbon Markets</p>

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<p data-bbox="392 256 1064 491">commodity for the agricultural sector Effective measures are required to ensure a balanced assessment of the 'air miles' associated with food and other products. This includes requirements to support the life cycle analysis of product emissions, as opposed to relying on air freight as a proxy, and the consideration of overall sustainable development objectives.</p> <p data-bbox="392 512 1064 959">Supply Chain Arguably the most significant climate risk to this sector lies in retailer and industry association led action to green global supply chains. Thus whilst attention is placed on potential trade barriers through regulations and international agreements, retailers and others have moved ahead with both influencing and responding to consumer choice on climate change in key South African export countries. This raises important concerns for South African market access and growth in key destination markets. The work of Tesco's, Marks and Spencer and other retailers to carbon label goods, reduce their reliance on air freighted produce and other measures could all act to prejudice South African exports for environmentally conscious consumers.</p> <p data-bbox="392 979 1064 1294">Industry associations may also have their own commercial interest in supporting climate change mitigation efforts. For example, the Waste and Resources Action Programme (WRAP) in the UK, an initiative supported by British Glass, supports the bulk shipping of wine to Britain to reduce transportation related emissions. However, this activity also stands to provide commercial benefit to British Glass, as they will provide for the required bottling of bulk shipments entering the UK.</p> <p data-bbox="392 1315 1064 1436">Finally, a number of domestic retailers are taking action to lower the carbon footprint of their supply chains, with a strong emphasis on farming related activities. Companies and industries that rely to a considerable</p>	<p data-bbox="1093 512 1787 603">Activities with a climate change benefit in the agricultural and forestry sector that support broader competitiveness and cost reduction include:</p> <ul data-bbox="1093 619 1787 1177" style="list-style-type: none"> ▪ The specification of improved efficiencies for industrial equipment such as pumps and motors. This has the potential to reduce fuel or electricity consumption requirements for a variety of users ranging from commercial farmers to plantation managers. Vulnerability to price volatility is also lessened through this activity ▪ Enhanced crop productivity, an activity that also assists in the enhanced storage of carbon within soils ▪ Efficient fertiliser use. Precision farming, for example, is increasingly being employed as a cost saving measure by farmers in developed countries through reducing the amount of fertiliser required as an input. Nevertheless, it is acknowledged that fertiliser use per hectare is relatively low in South Africa, with the result that the uptake of this technology may be more limited than in the United States, for example <p data-bbox="1093 1193 1787 1436">In addition, activities to support fire control and savannah thickening are regarded as having overall economic benefits for the country, resulting in net emission reductions of 9.5 million tonnes and cost savings of R196 million per annum (Taviv R. et al., 2007). Significant fire suppression is possible in South Africa, reducing the loss of life and damage to infrastructure, whilst supporting savannah thickening without risk of ecological damage.</p>	<p data-bbox="1809 512 2033 639">Risk Management, Efficiencies & Competitiveness</p>

Risks		Opportunities	
	<p>extent on more proactive clients such as Woolworths and Pick n Pay stand to lose out if they are unable to adapt their methods, and /or deliver the energy and carbon savings requested of them.</p>	<p>Fire suppression efforts can also be used in supporting job creation, most notably within Fire Protection Associations or the Working on Fire (WoF) initiative under the Expanded Public Works Programme (EPWP).</p>	<p>Country Level Investment & Technology Transfer</p>
Reputational	<p>Ecological concerns have achieved greater priority in the forestry sector in recent years, such as through the Forest Stewardship Council (FSC), and reputational losses could be experienced for South African companies in this industry if appropriate measures are not taken to reduce carbon emissions as part of ongoing environmental stewardship.</p>	<p>Opportunities exist in the agricultural sector to benefit from financial support and technology transfer in support of more advanced and costly mitigation measures including enteric fermentation, conservation farming, reduced tillage and no tillage farming practices, as well as agricultural methane projects.</p>	
Investor	<p>Investor risk is also of concern in the forestry sector, where both Mondi and Sappi are listed on domestic and international stock exchanges (the London Stock Exchange (LSE) and New York Stock Exchange (NYSE) respectively). Heightened shareholder pressure both domestically and internationally could occur if the financial and other climate risks associated with each entity are not adequately addressed.</p>		

Summary:	<p>Taken as a whole, the agricultural sector could benefit significantly from both national and global climate change measures, including through the promotion of organic farming, managed biofuel development, improved fire control, biomass based power generation and the promotion of land based carbon offset programmes.</p> <p>Substantial opportunities for supporting labour intensive production in an increasingly capital intensive sector are also evident. This includes significant opportunities for employment creation for unskilled and semi-skilled workers in the country. However, key risks to the sector, most notably concerns over food miles and the larger carbon footprint of the major forestry companies in the sector, will need to be effectively managed.</p>
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