



OCCASIONAL PAPER NO 168

Economic Diplomacy Programme

December 2013

South Africa's Green Economy Transition: Implications for Reorienting the Economy Towards a Low-Carbon Growth Trajectory

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SAIIA gratefully acknowledges the Swedish International Development Cooperation Agency, the Danish International Development Agency, the UK Department for International Development and the Swiss Development Corporation, which generously support the EDIP Programme.

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ABSTRACT

The notion of green economies seems to have gained momentum in both developed and developing countries. For South Africa, the transition to a green economy presents a mix of challenges and opportunities. This stems from the fact that South Africa faces myriad socio-economic realities that force the country to maintain a generation of industries that contribute directly to the production of greenhouse gases in order to reduce unemployment, poverty and inequality. This paper provides an overview of South Africa's attempts to migrate to a green economy. It specifically looks at the domestic and continental implications of South Africa's reorientation of its economy towards a low-carbon growth path. While the country has managed to put together impressive policies meant to steer it onto a trajectory of low carbon economic growth, the realities facing South Africa point to an opposite direction.

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ABBREVIATIONS AND ACRONYMS

BRICS	Brazil, Russia, India, China and South Africa
DBSA	Development Bank of Southern Africa
FAO	UN Food and Agriculture Organisation
GGND	Global Green New Deal
GHG	greenhouse gas
LTMS	Long-Term Mitigation Strategy
MTSF	Medium-Term Strategic Framework
NAMA	National Appropriate Mitigation Action
NDP	National Development Plan
NFSD	National Framework on Sustainable Development
NGP	New Growth Path
NSSD	National Strategy for Sustainable Development and Action Plan
SMMEs	small, medium and micro enterprises
UNEP	UN Environment Programme

INTRODUCTION

The new policy wave sweeping both developed and developing countries is the move towards green economies. The concept is the brainchild of developed countries and can be traced back to the 2008 global financial crisis. There was a realisation that neither the increased greenhouse gases nor the global financial crisis could be reversed through current industrial and production systems, which have a cumulative effect on the environment. In their quest to re-invigorate economic growth, global leaders decided to address the financial crisis along with other crises that acted as drivers of the global green economy transition, including energy and climate change.

Green economies are defined as economic systems that take into account holistic remedial measures incorporating economic, environmental (including ecological) and social challenges that stop or reduce economic activities and growth.¹ Central to the green economy is the desire to improve people's lives by combating climate change, energy insecurity and ecological instability.²

In line with this definition, the green economy in South Africa is viewed as a path to sustainable development based on its potential to address the interdependence among inclusive economic growth, social protection and natural ecosystems. It is defined as a 'system of economic activities related to the production, distribution and consumption of goods and services that result in improved human well-being over the long term, while not exposing future generations to significant environmental risks or ecological scarcities'.³ Developing a green economy implies decoupling resource use and environmental impact from economic growth. The green economy is characterised by substantially increased investment in green industrial sectors, supported by enabling policy reforms.

As with any other new policy initiative, the social and economic impact of the transition to a green economy, in both the short and the long term, is not yet fully understood. As such, it is important to assess the implications of this transition at country level using selected indices, given that each country has unique developmental challenges and aspirations. This paper provides an overview of South Africa's transition to a green economy. It specifically looks at the domestic and continental implications of South Africa's reorientation of its economy towards a low-carbon growth trajectory.

SOUTH AFRICA'S PUBLIC POLICY AGENDA AND GREEN ECONOMY TRANSITION

South Africa, like the other emerging economies within its economic trading group (the other countries being Brazil, India, China and Russia – a bloc popularly known as BRICS), is contending with reorienting its economy towards a low-carbon growth trajectory. The country has taken substantial strides in the transition towards a green economy through the development of a series of frameworks and actions plans. Efforts to reorient the economy can be traced to the 2008 National Framework on Sustainable Development (NFSD), which transcended into a systems approach to sustainability. This was done through the establishment of the first National Sustainable Development Action Plan (NSSD1). The 2009–2014 Medium-Term Strategic Framework (MTSF) highlights the need

to implement the NFSD to ensure that the country follows a sustainable development trajectory.⁴

The NFSD provides the basis for a long-term process of integrating sustainability as a key component of the development discourse. The NFSD further represents South Africa's commitment to the principles developed at international summits, including the 2002 World Summit on Sustainable Development, such as the principle of common but differentiated responsibilities as set out in Principle 7 of the Rio Declaration on Environment and Development.⁵ Governments, relevant international organisations, the private sector and all major groups should play an active role in changing unsustainable consumption and production patterns. Essentially, the green economy is driven by macro-level key risks to sustaining ecosystems, including the increasing effects of climate change, rapidly rising oil prices, and the unsustainable production and consumption of natural resources.⁶

Following the global economic crisis, the UN Environment Programme (UNEP) called for a Global Green New Deal (GGND). The GGND meant that governments were encouraged to support the respective economic transformation to greener economies that create green jobs, promote sustainable and inclusive growth and accelerate achievement of the Millennium Development Goals.⁷ The subsequent framework for South Africa's response to the international economic crisis recognised opportunities in the development of industries that would reduce the negative effects of climate change. The country then presented an agenda to develop strong capacity in green technologies and industries⁸ that would simultaneously lead to the creation of 'green jobs'. These green jobs are designed to mitigate impacts on the environment and natural systems. This implies massive investments in both public and private institutions, and a reconfiguration of businesses, infrastructure and institutions to allow them to adopt sustainable consumption and production processes. Such a reconfiguration will lead to a higher share of green sectors in the economy, more green and decent jobs, reduced energy and material intensities in production processes, less waste and pollution, and significantly reduced greenhouse gas (GHG) emissions.

DRIVERS OF THE GREEN ECONOMY PARADIGM IN SOUTH AFRICA

In the 2010 Green Economy Summit Statement the following issues were identified as the driving forces behind the green economy transition in South Africa.

- Growing concerns about the environmental unsustainability of past and current economic growth patterns: the summit recognised that functioning ecosystems underpinned all economic and social activity and that ecosystem failure would compromise the country's ability to meet economic priorities, even in the short term.
- Increased awareness of a potential future climate crisis: the summit highlighted the fact that substantial growth in investment was necessary to achieve climate change mitigation.
- The need for the substantial transformation of behaviour, as well as of industry technologies and structures.

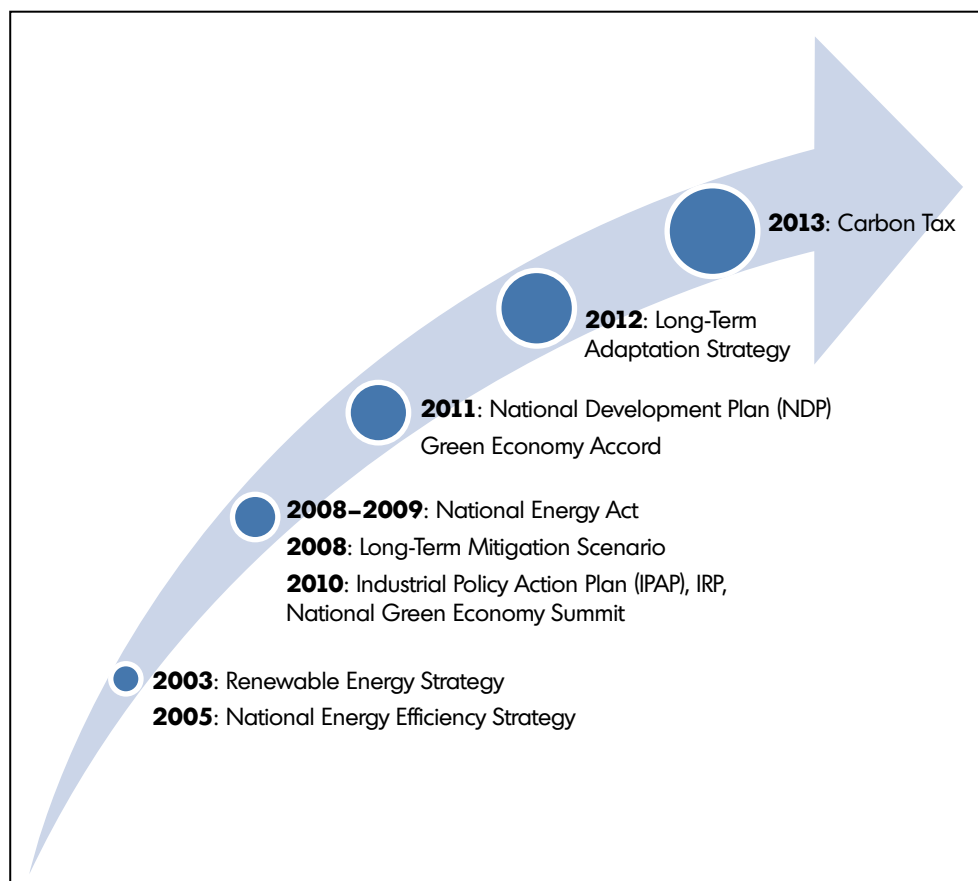
EVOLUTION OF SOUTH AFRICA'S GREEN ECONOMY POLICIES

Government institutions and the private sector have been the key pillars in formulating policy instruments that seek to support the transition to a green economy in South Africa.

The national approach thus far has consisted of the formulation of enabling and supporting policies for the transition to the green economy and making funds available to support green projects. Some of these policy frameworks include:

- the 2006 National Treasury Framework for Environmental Fiscal Reform;
- the 2008 Department of Science and Technology Ten-Year Innovation Plan;
- the 2009 National Planning Commission Medium-Term Strategic Framework 2009–2014 and later the National Development Plan in 2011;
- the 2011 Department of Environmental Affairs National Climate Change Response;
- the 2011 Department of Environmental Affairs National Strategy for Sustainable Development; and
- the 2012 Department of Trade and Industry Industrial Policy Plan.

Figure 1: Landmark development in South Africa's green economy space



Source: compiled by the authors.

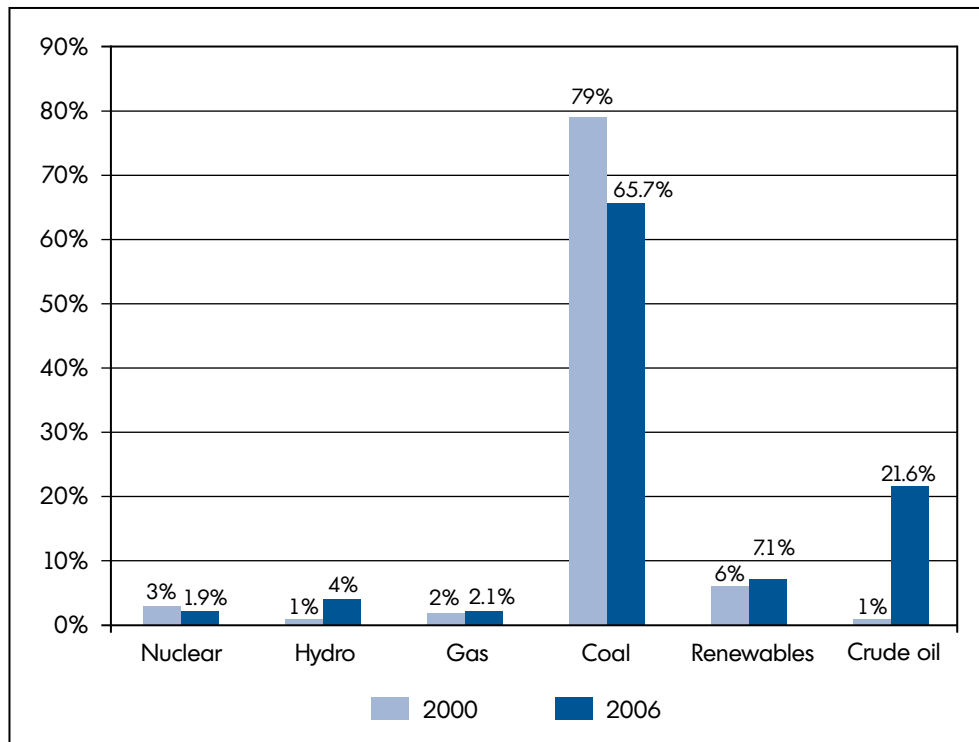
The landmark developments in the green economy policy space and initiatives are shown in Figure 1. A few cases regarding the landmark developments will be considered in brief below.

Renewable energy policies

Soon after the World Summit on Sustainable Development took place in 2002, the government of South Africa developed a White Paper on Renewable Energy. This White Paper highlighted the central role renewable energy could play in the country’s energy sector. Renewable energy was also viewed as a platform for enhancing and contributing towards sustainable development.⁹ The White Paper further provided certainty about South Africa’s future direction and commitment in terms of its energy transition.¹⁰ The government set targets of 10 000 GWh (0.8 million tonnes of oil equivalent, or Mtoe) renewable energy contribution to energy consumption by 2013.¹¹ Some of the envisaged benefits of this policy framework included:

- access to energy for rural communities far from the electricity grids;
- reduction in CO2 emissions;
- diversification of electrical supply and energy security; and
- promotion of the development of small, medium and micro enterprises (SMMEs).

Figure 2: Primary energy supply for the years 2000 and 2006



Source: Department of Minerals and Energy Annual Report, 2009.

The South African energy supply has always been dominated by coal, accounting for 79% and 65.7% of supply in 2000 and 2006 respectively, as shown in Figure 2. Since 2006, the use of renewable energy has gained momentum, although its overall contribution to the total energy supply of the country remains minimal.

National Energy Efficiency Strategy and the National Energy Act

The Department of Minerals and Energy also developed a National Energy Efficiency Strategy. The Strategy set a national target of 12% for energy efficiency improvement by 2014. This target was expressed in relation to the forecast national energy demand at that time, and therefore allowed for current expectations of economic growth.¹² Among the key goals of the strategy were improving the nation's health system, creating jobs, alleviating energy poverty, reducing environmental pollution and CO₂ emissions, improving industrial competitiveness and enhancing energy security.¹³

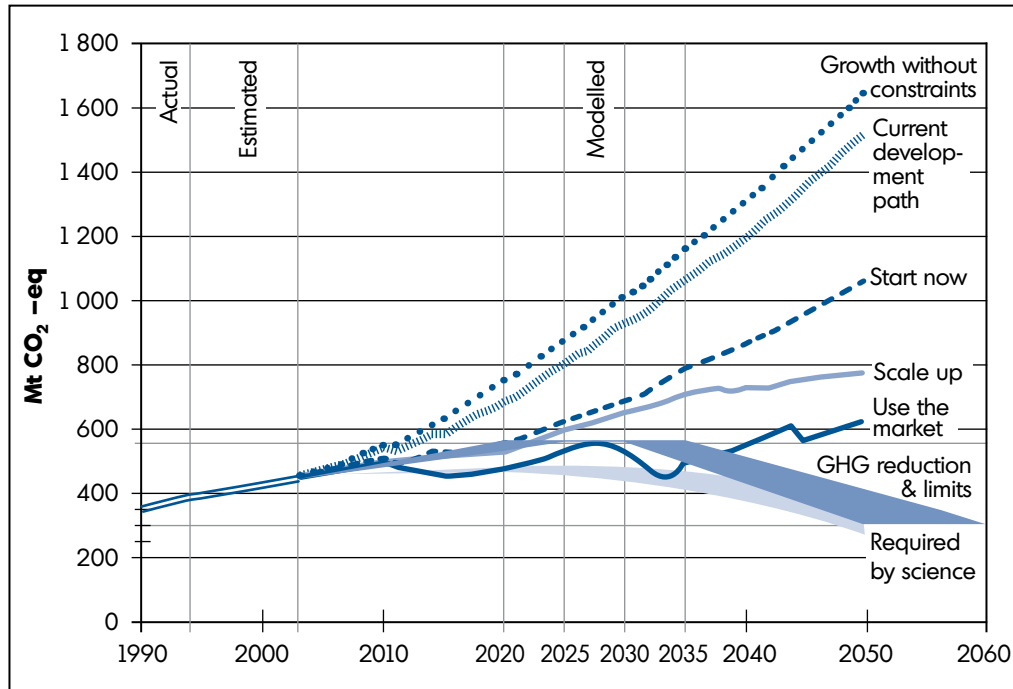
In addition, the South African government enacted the National Energy Act of 2008 as a regulatory framework that seeks to ensure that diverse energy mixes are available in sustainable quantities and at affordable prices. Such sustainable energy would support South Africa's economic growth and poverty alleviation efforts. The Act creates a platform for integrated energy planning, energy supply and optimisation.¹⁴

Other environmental policies and initiatives

In 2007 the South African cabinet approved the Long-Term Mitigation Strategy (LTMS). The LTMS presents trends and scenarios regarding South Africa's GHG emissions. It was developed to provide sound scientific analysis to be used as a basis for long-term climate policy development in the country. The LTMS clearly defines South Africa's position on the UN Framework Convention on Climate Change.¹⁵ From the LTMS, efforts to reduce GHG emissions in South Africa are informed by a scenario that would see the growth of carbon emissions peak (up to 2020), plateau (between 2020–2030) and decline (from 2035).¹⁶ These are represented in Figure 3.

Another initiative of interest is the 2011 National Strategy for Sustainable Development and Action Plan (NSSD3). The NSSD3 enshrined the green economy as a priority to facilitate a just transition towards a resource-efficient, low-carbon and pro-employment growth path.¹⁷ The NSSD3 prioritised effective responses to climate change, building sustainable communities and sustaining ecosystems through efficient use of natural resources. The NSSD3 was developed to create employment opportunities and industrial development, for an economic boost and environmental benefits. Financial resources amounting to approximately \$1.2 billion for industrial development, \$2.5 billion from the Development Bank of South Africa, \$10 billion from the private sector and \$80 million from the National Treasury were identified for green economy initiatives.¹⁸

Figure 3: South Africa's likely GHG emissions mitigation scenarios



Source: Figure supplied by Harald Winkler of the Energy Research Centre, University of Cape Town through personal communication on 24 October 2011, as published by Winkler H, *Taking Action on Climate Change: Long-Term Mitigation Scenarios for South Africa*. Cape Town: UCT Press, 2010.

ECONOMIC PLANNING FOR A GREENER GROWTH PATH

National Development Plan

The South African government has adopted the National Development Plan (NDP) as a road map to deliver public services efficiently up to 2030, in particular water, electricity, sanitation, jobs, housing, public transport, adequate nutrition, education, social protection, quality healthcare, recreation and a clean environment. The NDP outlines interventions that can put the economy on an environmentally friendly path, and its Chapter Five is wholly dedicated to addressing South Africa's agenda for a greener economy transition.¹⁹

Some of the significant strides made between 2009 and 2013 in reorienting the economy towards a green economy included \$86 billion spent on 'green' infrastructure, \$30 million on the Green Fund and \$40 million on green economy projects. Approximately 315 000 solar geysers were installed while 200 000 households were connected to the national electricity grid, following the NDP initiative.

Carbon tax

The NDP also calls on government to introduce a carbon tax. In his 2013 budget speech, Minister of Finance Pravin Gordhan highlighted the government's intention to price carbon by way of implementing a carbon tax with a proposal to initiate the carbon tax at \$12 per tonne of carbon dioxide equivalent (CO₂e), effective from 1 January 2015.²⁰ The proposal sought to soften the impact by introducing a tax-free exemption threshold of 60%, with additional allowances for emissions-intensive and trade-exposed industries.

Part of the strategic drive is to ensure that South Africa produces fuel that is more environmentally friendly, through support mechanisms for both bio-fuel production and the upgrade of oil refineries to cleaner fuel standards. The government is also encouraging the private sector and smaller public entities to be creative and develop low-carbon projects through the Green Fund. South Africa's National Appropriate Mitigation Action (NAMA) is a voluntary climate change mitigation initiative committed to reducing greenhouse emissions by 37% in 2020, and by 42% in 2025.²¹

New Growth Path

Following the global economic meltdown, the South African economy lost around 1 million jobs. As a consequence, unemployment has increased from 22.5% to more than 25%, thus posing a major challenge to the government.²² The government, the private sector and several public organisations arrived at a consensus that creating decent work, reducing inequality and defeating poverty could only happen through a new growth path. This meant restructuring the South African economy to improve its performance in terms of labour absorption as well as the composition and rate of growth.²³ The New Growth Path (NGP), released in 2010, outlined the government's approach to accelerate growth and employment, setting a goal of 5 million jobs by 2020. Subsequently in 2011, during COP-17, one of the key commitments was the Green Economy Accord, which was meant to provide a unique opportunity to create a considerable amount of jobs through partnerships among government, business representatives, organised labour and the community constituency.²⁴ The government's key role was to foster green industrial development through the provision of an enabling policy environment, institutional mechanisms and financial support. The implementation of the NGP was a hallmark of the government's partnership with constituencies identifying where they could make firm commitments and actions. Some of the commitments included:

- rolling out 1 million solar heating systems;
- increasing green economy initiative funding for the Industrial Development Corporation;
- procuring renewable energy, and investments in bio-fuels;
- launching clean coal initiatives and promoting energy efficiency; and
- waste recycling, reuse and recovery.²⁵

The Green Economy Accord marked a key point in the partnership between the South African government, business community, trade unions and community organisations. Noticeably, between 2009 and 2013, \$86 billion was invested in infrastructure projects,

while \$80 million was set aside as the Green Fund, with \$11 million earmarked for green economy projects.²⁶

CHALLENGES LINKED TO SOUTH AFRICA'S TRANSITION TO A GREEN ECONOMY

South Africa's main challenge is that, as a developing country, it now needs to overcome the socio-economic challenges of poverty and unemployment with industries that use resources that contribute directly to GHG production. South Africa's economy is still heavily reliant on extractive industries. It is among the leading countries in terms of gold and platinum production, and mining is thus the biggest consumer of energy. Given this background, the country faces a number of challenges in comprehensively transforming its economy to a green economy.

Since 1994, the country's job creation rate has lagged behind national economic growth.²⁷ This demands that South Africa intensifies its industrial development. Moreover, at an average of 3.5%, economic growth has been realised using dirty energy, from burning coal.²⁸ This suggests that, in the absence of alternative sources, South Africa will continue to rely on coal as its main source of energy. The adverse effects of this on the environment have been widely recognised as a threat to sustainable development in the country.

In recognition of these challenges, the NDP²⁹ states that the country will address both the climate change mitigation and adaptation agendas in its transition towards a green economy. The mitigation strategy is specifically meant to ensure that the transition to a green economy is well managed and that potential risks from the loss of jobs in the energy and mining sectors are minimised, with the most notable being a political promise to make electricity available to all citizens. Eskom, South Africa's major power supplier, has intensified its efforts to locate more coal reserves.³⁰ Its 'new build' budget for coal-fired power stations in 2013 is approximately \$38.5 billion and is expected to grow to more than a trillion rand by 2026.³¹ Due to its dwindling capacity to generate energy, South Africa intends to turn to nuclear power as a source of energy. This, however, presents the country with a dilemma, as other advanced economies like Germany are moving away from nuclear energy. The magnitude of the impact of nuclear energy as witnessed in Japan outweighs its benefits.

Apart from the potential loss of jobs in the energy and mining sector, the country also faces other possible challenges in implementing the transition to a green economy.

- There are national efforts to support research into development of the technology needed to support the transition, as well as innovations in technologies relevant to the green economy, but they are still taking place on a limited scale. The country will have to import or source some green technologies from developed countries if it is to achieve a complete greening of the local economy.
- South Africa has to develop local skills and an infrastructure base that can effectively implement and support the adoption, diffusion and effective use of green technologies, since these technologies require a minimum threshold of skills that are not fully available yet. The country should aggressively support human skills development in the area of green technologies. This has to be done against the backdrop of

science courses' low student uptake, which has proven a major challenge in terms of developing a highly skilled labour force in the country.

- Regulations to support the country's transition to green energy may increase the cost of living, and hence may be resisted. For example, the introduction of an emission tax on vehicles, as part of national environmental protection, could create an additional tax burden on those with older vehicles, especially the poor.
- Efforts to 'green' production will most likely increase short-term production costs, as new production techniques are introduced. This general increase in production costs may have an impact on the overall competitiveness of local products in international markets. Eventually the country could experience a bigger trade deficit than hitherto realised.
- The country may be forced to provide incentives and subsidies to local producers to encourage them to embrace green production, as is being done in developed countries. Such a policy would be yet another drain on the national revenue pool, which is already constrained by the government's many socio-economic expenditure commitments. Policies intended to support the move towards a green economy can act as non-tariff barriers against products from South Africa and those that South Africa sources from Africa with the view to export.
- The move also entails shifting the burden of climate change mitigation to the country. This is likely to compound the existing challenge of alleviating poverty, despite the relatively low economic growth that the country has been experiencing.

While the move towards a green economy is likely to provide growth opportunities, the transition has trade-offs in terms of the effort to realise national socio-economic priorities.

FUTURE PROSPECTS OF SOUTH AFRICA'S TRANSITION TO A GREEN ECONOMY

South Africa's transition to a green economy requires the development and translation of policies into actions that will allow for the adoption of the right mix of energy sources.

Benefits of the transition to a green economy

The transition to a green economy could accelerate economic growth in the country and create new green jobs. According to the Development Bank of Southern Africa (DBSA),³² an estimated 35 000 jobs could be created by 2013. In addition, the renewable energy sector could contribute \$500 million to the gross domestic product (GDP). By 2013 an income of approximately \$68.7 million could be realised by people with fewer economic opportunities. There is no evidence to show to what extent this has been realised.

The Economic Development Department estimates that 400 000 jobs could be created by 2030 as a result of the country going green.³³ These jobs would be created through the enhanced production of goods and services that support the green economy or that would be required as the country migrates to a green economy. If the country seriously embarks on greening the economy, the estimated potential job creation in bio-diversity and natural resource management is 35 000 jobs per year.³⁴

These potential employment figures are presented in isolation from the potential job losses from the same undertaking. South Africa's aggressive transition to a green economy will change the economy's employment dynamics. The change could imply new employment opportunities biased towards highly skilled people. Hence there is a high likelihood that more jobs will be lost than created. Polidano estimated job loss in the coal sector in South Africa, as a result of climate mitigation, to be as high as 17 000.³⁵

There are remedial measures that can be taken to lessen this job loss, such as training people in new skills. However, history shows that South Africa has not been very effective in new skills training as a means towards reducing unemployment.

There are several other advantages in transitioning to a green economy.

- Reductions in GHG emissions and the subsequent mitigation of global warming and its associated adverse effect on people's livelihoods.
- Putting a price on nature, which is otherwise a public good, that in turn makes its depletion more visible and felt by economic agents. This motivates conscious effort by economic agents to protect it.³⁶
- Reduction in deforestation and support of sustainable agriculture particularly for the rural poor.³⁷ According to the UN Food and Agriculture Organisation (FAO),³⁸ as many as 1 billion people in the world depend on forest goods and services.
- Enabling the world to feed its rapidly increasing population.³⁹

However, the adopting country must qualify these envisaged benefits. The articulation of benefits masks the challenges that individual countries will have to face before they can be realised.

Technology factor

To support its green economy transition, South Africa will need access to both local and imported appropriate green technology. The appropriateness of the technology will have to be judged based on the acquisition and maintenance costs versus quantifiable benefits to communities. Appropriateness will further be judged based on the local availability of skills needed to operate or take advantage of the technology, and the ability of locals to modify such technology to fit their needs.

Most importantly, the country should aim at acquiring inclusive green technology, which would enable more people to become part of the production systems rather than exclude them. It has been noted that most of the new technology that is being introduced in developing countries, such as solar and wind power, tends to favour people with the skills to participate in mainstream economic activities. Hence careful green technology assessment will have to form part of implementation strategies if the country is to make the transition successfully.

Despite these concerns over the green economy, the negative effects of South Africa's production model on the environment cannot be ignored indefinitely. The threat these effects pose to the country in terms of overcoming the problems of unemployment, inequality and poverty alleviation is real. There is every reason to seek to build a new development path for South Africa that is more inclusive, is less dependent on the

exploitation of non-renewable resources and uses renewable resources more sustainably and strategically.⁴⁰

SOUTH AFRICA'S COLLABORATION WITH OTHER AFRICAN COUNTRIES

South Africa could influence the transition to a green economy in Africa through lobbying for investment in green industries on the continent. As the only country in Africa that is a member of the G-20, South Africa is well positioned to articulate Africa's position on green economy in the world. In addition, as a member of BRICS (an internationally recognised economic bloc), South Africa could use its influence to promote investment in green industries. There are instances where South Africa has already demonstrated this leadership role. The country presented the continental position on the transition to a green economy at the UN Conference on Sustainable Development (Rio+20) in 2012. It emphasised that for Africa to benefit from the transition to a green economy, its promotion on the continent should be guided by national objectives, as well as social, economic and environmental development imperatives.⁴¹

Many African countries have expressed, in principle, the desire to switch their economies to a green economy. This is mainly due to the potential of the green economy to generate more jobs, and reduce poverty and inequality.⁴² However, many of these countries lack the resources and institutional structures to initiate the undertaking. Moreover, despite their interest in the green economy, many of these countries are sceptical about the implications of such a policy move for their respective local economies. Since South Africa has thus far taken more steps to support the transition, it could share these lessons with the rest of the continent. Aspects such as financing the transition, the role of the government versus the private sector in supporting the transition, and establishing the necessary institutions to keep the momentum going, could be shared with other African countries.

In as much as the green economy agenda sounds reasonable, the centrality of the climate change mitigation agenda has resulted in many African countries developing cold feet, given the unavailability of, or limited access to, resources to mitigate climate change. Many developing African countries are compelled to live with the changing climate through adaptation. It is realistic for South Africa to address both the climate mitigation and the adaptation agendas on equal footing, as the country is among the top 15 global GHG emitters. This twin agenda of adapting to and mitigating the negative impacts of climate change has often caused resentment during negotiations in international forums between the African Union and South Africa. However, given the fact that the green economy agenda is likely to be discussed more outside the formal multilateral, bilateral and unilateral platforms including trade issues, it makes sense that African countries learn early from South Africa and other progressive African countries when it comes to the green economy transition.

The successful transition to a green economy is also dependent on access to funding to initiate the readiness process, and to put in place relevant institutions to support the process. As noted earlier, South Africa has instituted a number of funding initiatives, one of which is the Green Fund, as a way of supporting the transition. Other African countries

can learn from the success of such initiatives. The success of the proposed green economy mechanism – an engagement platform between public and private financing institutions to advance the national green economy agenda – could serve as a useful reference case outlining the role of private sector and financial intermediaries in supporting the green economy agenda in developing countries.⁴³

At regional level South Africa could play a leading role as both an investor in, and policy developer of, industrial systems that can be adapted by neighbouring states. South Africa could also use its experience and expertise to support other countries on the continent in negotiating favourable agreements with developed countries pertaining to the green economy transition. The country has already demonstrated to some extent that it can champion the causes of other African countries with regard to such challenges. South Africa has demonstrated its leadership role through advancing policies that serve the best interest of other African countries. In 2012, it declined a request by Switzerland to work with it to convince developing nations, many of which were African, to accept adverse financing conditions relating to suggested efforts to mitigate climate change.⁴⁴

South Africa has the potential to collaborate with other African countries in leveraging the opportunities that the transition to a green economy offers, while guarding against compromising national development agendas.

CONCLUSION

South Africa is at a crossroads. While it has developed effective policies that are in line with international trends, placing the country on a low carbon trajectory, there is still a great need to overcome socio-economic challenges such as poverty and unemployment. At the moment these challenges can only be addressed through maintaining current industrial systems that directly contribute to GHGs.

The country's heavy reliance on coal as the main source of energy for both industrial development and household consumption means that South Africa will continue to be a significant contributor to the net GHGs that are emitted in the world. This contradicts the substantial milestone of the country's transition to a green economy. Notably though, South Africa's G-20 and BRICS membership provides it with greater opportunities and potential to influence national and continental migration to a green economy through green investment and industries.

ENDNOTES

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SAIIA'S FUNDING PROFILE

SAIIA raises funds from governments, charitable foundations, companies and individual donors. Our work is currently being funded by, among others, the Bradlow Foundation, the United Kingdom's Department for International Development, the European Commission, the British High Commission of South Africa, the Finnish Ministry for Foreign Affairs, the International Institute for Sustainable Development, INWENT, the Konrad Adenauer Foundation, the Royal Norwegian Ministry of Foreign Affairs, the Royal Danish Ministry of Foreign Affairs, the Royal Netherlands Ministry of Foreign Affairs, the Swedish International Development Cooperation Agency, the Canadian International Development Agency, the Organisation for Economic Co-operation and Development, the United Nations Conference on Trade and Development, the United Nations Economic Commission for Africa, the African Development Bank, and the Open Society Foundation for South Africa. SAIIA's corporate membership is drawn from the South African private sector and international businesses with an interest in Africa. In addition, SAIIA has a substantial number of international diplomatic and mainly South African institutional members.

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