Western Cape Government

BETTER TOGETHER.

# Green is Smart

## Western Cape Green Economy Strategy Framework

**2013**

Green is Smart

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110% GREEN

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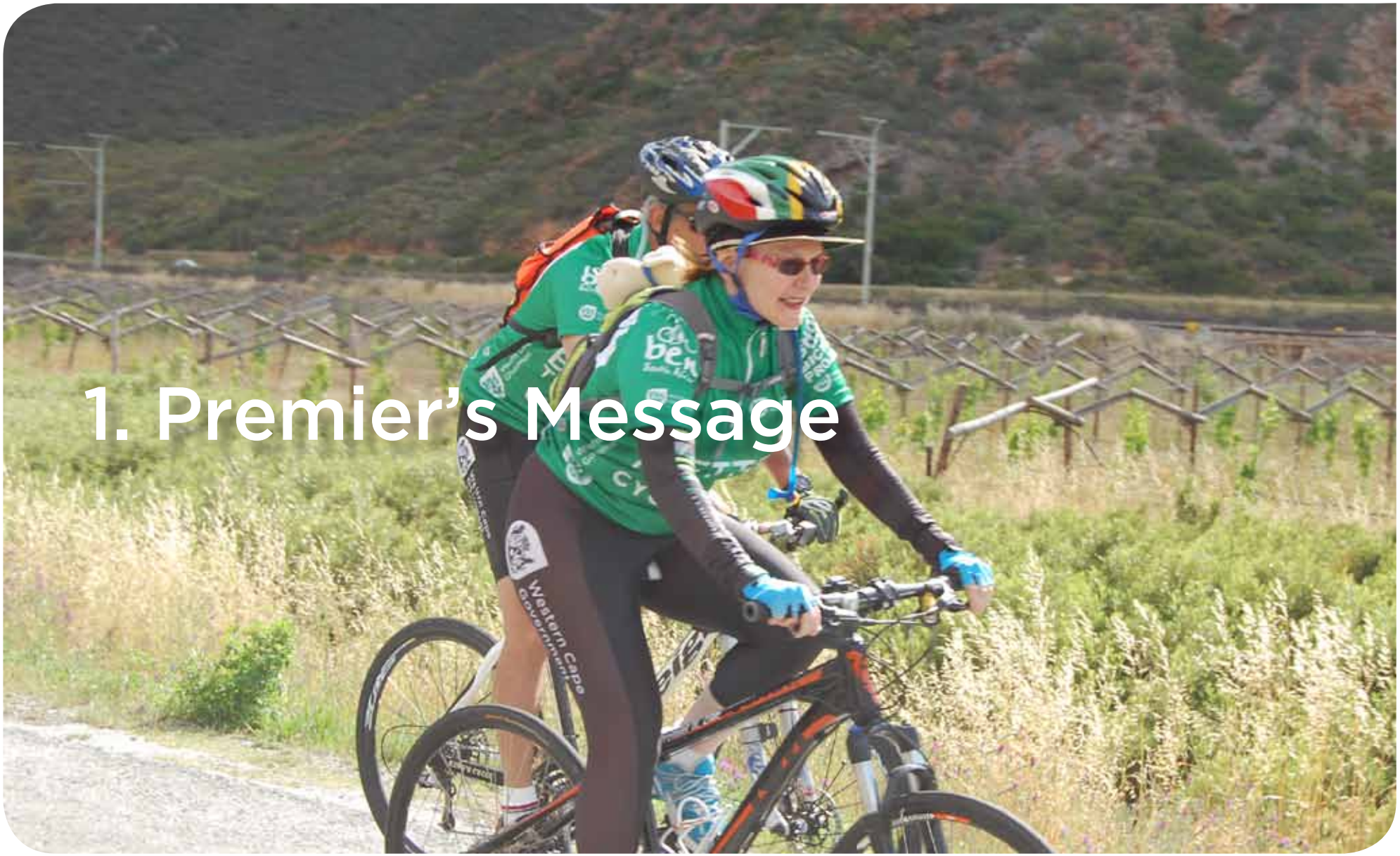


# 1. Premier's Message

# The Premier's Message

Green is Smart is the Western Cape's roadmap to become the leading green economic hub on the African continent. We have extraordinary natural assets, expertise, design capabilities and diverse economic activity that support a pioneering role for the province as South Africa steers towards a greener growth path.

However, we expect to be particularly impacted by climate change. Drought and water shortages will place the country's most significant natural assets and agricultural export region at risk.

Green is Smart considers our strengths and risks in building a matrix of opportunities that supports the whole of society. Crucial components are an ambitious plan to become the lowest carbon province; to redesign the way we live and work in our cities and towns; to harness the innovative energy of our globally recognised information and communications technology (ICT) sector to develop solutions appropriate to emerging market conditions; and to become a globally preferred investment centre.

We see private enterprise as the driver of the green economy, with government as a responsive partner, doing its utmost to streamline regulation, to ensure sufficient and resilient infrastructure, and most importantly, to educate and train our people for a different future.

Green is Smart is an aspirational and practical roadmap that seeks to be a catalyst for bold public and private action. There are already many exciting and pioneering green and environmental activities taking place throughout our society. This makes me feel confident that we will realise our goals.

But, we need to approach this journey with openness and flexibility. We are traversing new territory, alongside an increasing number of nations, regions and cities. There is a growing realisation – and evidence – that it is not just good to be green, but that going green is the smart thing to do. So, there is undoubtedly a green race heading in a direction that is not altogether certain.

Green is Smart is a living document. We need to engage further, particularly with businesses and municipalities. Given the pace of global and local change, the strategy needs to be dynamic. We need to learn through action. Success needs leadership and the whole of society working better together.

*Premier Helen Zille,*
*Western Cape Government*

**The global market value of the low carbon and environmental goods and services sector in 2009/10 was estimated at US$5 trillion. It is forecast to grow 17% by 2013/14. (London LCEGS Sector Study December 2011)**

# 2. Introduction

# Introduction

The Western Cape is South Africa's major agricultural export area and most important international tourism draw-card, as well as being home to many prestigious tertiary education institutions, a key logistics node with two major ports, a major source of professional services for the national economy and a growing creative centre, recognised globally with Cape Town being awarded World Design Capital 2014.

**The Cape Floral Kingdom is a UNESCO World Heritage Site, and Table Mountain is one of the Seven Wonders of the World. In addition, 23 of the 26 Blue Flag beaches in South Africa are located in the Western Cape.**

There are many initiatives across society and specific strengths within our economy that support our ambition to be a green economy leader – our built environment and design expertise, ICT smart systems and mobile applications, leading research and development at our universities, green product development and world-first biodiversity initiatives.

Our environmental brand and positioning gives us a head start and our good governance enables appropriate responses to a regulatory environment that is expected to become increasingly complex as the challenges of climate change and resource depletion intensify.

Our Green Economy Strategy Framework, Green is Smart, is about achieving the double dividend of optimising green economic opportunities and enhancing our environmental performance. The Western Cape is expected to be among the provinces worst hit by climate change, with increasing drought conditions in a region that is already water-stressed. Our largest employer – agriculture – faces a particularly challenging future as the viability of crops is threatened by climate change.

Our extraordinary biodiversity is also under threat from climate change, as well as growing human demands. Added to that, our natural assets are not properly priced as part of our economic infrastructure, putting them at risk of under-investment. This places tourism, an economic mainstay of the region, at risk, as it does agriculture.

**Southern Africa's temperature increase will be higher than the global average. By 2010, the region had already banked a 0.8 °C increase over the 1961-1991 average, while the comparable global average increase was 0.53 °C. (CSIR)**

The Western Cape, like the rest of South Africa, is extremely resource intensive. This exposes us to spiralling energy costs, carbon trade barriers and water shortages and places our export competitiveness under pressure.

Growth in green investment and market opportunities sit at the centre of the strategy framework, supported by five drivers covering, for example, our living and working environments, eco-systems, and agriculture - and five enablers – such as energy infrastructure, finance and regulation. Successful sustainability requires significant job creation, and the framework has a specific focus on low-skilled employment opportunities.

Green is Smart sets priorities. It identifies where the Western Cape has the potential to be a pioneer and early adopter of technologies and economic activity that support our strategic goal.

**South Africa's carbon emissions per capita are 50% higher than China's. South Africa accounts for 1.5% of global carbon emissions, placing it at 14th position in terms of global emitters, while it is the 27th biggest economy in the world. (International Energy Agency, 2010)**

**It currently takes 1.5 years for the earth to fully regenerate the renewable resources that people use in a single year. By 2050 this will increase to 2.3 years if current consumption patterns are sustained.**

Even then, we still need to be selective and clear about where we should start. Therefore, an action plan is being developed, with some programmes and projects already underway.

In support of this framework, the Western Cape Government (WCG) is developing important building blocks:

- **Institutional capacity is being enhanced.** In particular, GreenCape - a WCG government-funded, industry-led initiative – established in 2010 to support investors, is being significantly expanded. It proved an invaluable support to developers in the preparations for the national government's renewable energy roll-out.
- **Re-enforcing policies and strategies have been or are being developed.** Of particular relevance are Vision 2040 – the province's long term socio-economic vision - the Western Cape Infrastructure Framework, and the Draft Western Cape Climate Change Response Strategy.
- **110% Green**, the Western Cape Premier's green economy programme, is growing as the platform to mobilise the whole of society around the green economy, through practical action, partnerships and networks.

**Carbon pricing will impact the Western Cape dramatically. For example a ZAR100 per ton carbon tax introduced in Europe will add R0.22 to the cost of a kg of fruit from Overberg. The same tax would add ZAR0.09 to a kg of fruit from Chile.**

# 3. The Strategy Framework

# The Strategy Framework

## The Strategy Framework starts with this core ambition:

**To position the Western Cape as the lowest carbon province in South Africa and the leading green economic hub of the African continent.**

The framework is premised on 5 key principles that drive our areas of focus and choices of action:

- **Market focus:** Green economic action needs to be based on market dynamics and strong potential market demand from the local to the global sphere.
- **Private sector-driven:** Investment to support green growth needs to be driven primarily by private enterprise and in particular by entrepreneurial businesses with the foresight and risk appetite for new economic endeavours.
- **Public Sector-enabled:** The principal value of public entities is to enable the green economy. Through procurement, they can create an important market and in doing so, provide both political and economic leadership through example.
- **Collaboration:** Innovation and market expansion require new forms of collaboration and partnering as greater uncertainty and complexity emerge in the economic, social and environmental nexus.
- **Inclusion:** Resource and climate change challenges threaten economic exclusion. Inclusion needs to be integral to growth.

The strategy framework is made up of 5 drivers of the green economy that are market focused and principally private sector driven, and supported by 5 enablers that are either the domain of the public sector or the product of a collaborative effort.

Under each driver and enabler, we have identified a number of priorities, selected for their ability to:

- Deliver the double dividend of expanded economic activity and improved environmental performance
- Leverage the region's existing economic strengths
- Impact on the lives of the poor
- Deliver results

The priorities are categorised in terms of the Western Cape being firstly, a front-runner or pioneer and secondly, an early adopter of innovations and technologies that already exist but are not widely adopted in South Africa.

They will be pursued in phases, with a few being priorities that will be game-changers for resource efficiency and inclusive green growth in the Western Cape (see right).

## High Level priorities for Green Growth

### Natural Gas & Renewables

Off-shore natural gas, potential gas base-load power plants and renewable energy IPP programme, together with a Greenfield gas infrastructure, will be the game-changer for the Western Cape to be the lowest carbon province in South Africa, and achieve significant manufacturing investment.

### Financial Infrastructure

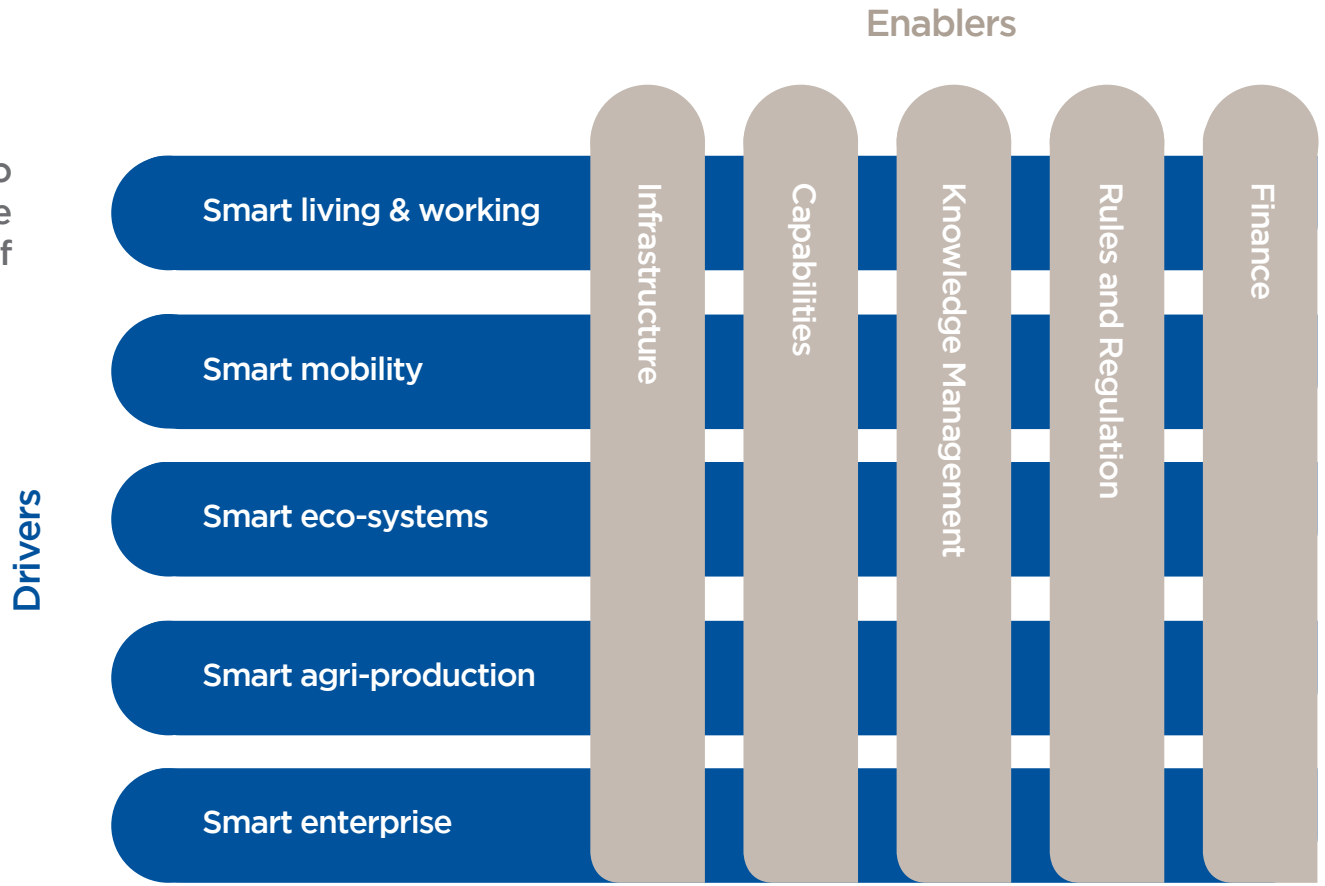
To be a leading economic hub, the Western Cape needs a financial infrastructure that ensures capital availability for investors and financial innovation to address the complexity and risk profile of green investment.

### Green Jobs

A green growth path without job growth is unsustainable. There must be early pursuit of priorities with a high rate of job growth potential – notably rehabilitation of natural assets, responsible tourism and the waste sector.

## Green is Smart

A framework for the Western Cape to become the lowest carbon province and leading green economic hub of the African continent



# Drivers

# Smart Living and Working

**Creating opportunities through less resource intensive living and working environments and consumption patterns.**

## The Challenge

The evidence clearly shows that our current consumption patterns exceed natural resource limits. Our waste profile is an important indicator of how much we need to do. About 80% of municipal waste in the Western Cape goes to landfills compared with less than 20% in best practice regions. While the Western Cape is making important advances in securing our natural assets and designing eco-friendly consumables, we require constant effort and consistent programmes to meet the challenges.

The most pressing challenge is to provide adequate services and living conditions for the urban poor.

Another challenge lies at local government level. Local governments, as electricity distributors, are ideally placed to influence the energy use of others, as well as reduce their own energy consumption (2% of the provincial total) through energy efficiency measures. However, the revenue model of municipalities is dependent on resource use and hence, the immediate impact of energy efficiency is revenue loss.

As such, there is an inbuilt disincentive to municipalities to encourage their consumers to save energy.

## The Opportunity

**Green Buildings**

The baseline for smart living and working is resource efficiency, especially of energy and water usage. This requires a combination of behavioural changes, new products and services, regulatory changes, incentives and financial support. National government already provides some incentives to reduce power usage, while the escalating price of electricity is pushing consumers towards energy saving devices and behavioural change.

**Local governments, accounting for some 2% of energy consumption in the province, can have a significant impact through their own energy efficiency measures and by influencing the energy use of others.**

## Energy efficiency in City of Cape Town buildings

Leading by example and helping to promote energy efficiency in Cape Town, the City Council has committed to reducing its energy consumption by 10% year on year. Its own operations (street and traffic lights, buildings, pumping, vehicle fleet) are responsible for 1.4% of all Cape Town's energy consumption and 2.2% of all electricity usage.

After a successful retrofit of four administrative buildings and saving of 17% of their electricity usage, the City has expanded this programme to another 14 buildings by drawing on the incentives on offer.

Street lights and traffic lights make up approximately 37% of all electricity consumed by the City. By the end of 2012, all of the City's traffic lights had been retrofitted with Light Emitting Diode (LED) technologies. This offers a saving of 11 818 MWh per year.

Recent National Building Regulations have introduced new requirements for improved efficiencies in the design of our buildings and choice of materials. Also, in the last three years there has been a significant increase in building construction in accordance with green building principles to achieve star-ratings.

All this offers opportunities in local manufacture for solar water heaters, heat pumps, solar PV, water saving devices, insulation materials, glazing and much more. Importantly, the prices of many green devices and materials are consistently coming down as technologies improve and demand grows.

## The Western Cape Government aims for the green star

The Department of Transport and Public Works is aiming for a minimum four-star green building rating for all new buildings, both in their design and final construction, rated by the Green Building Council of SA. However, with the planned Khayelitsha Shared Service Centre, a five-star rating will be sought. There is a small premium to the estimated cost of this building in order to achieve five-green stars, but the energy savings alone are expected to pay back this premium within five years.

## South African Breweries

SAB Ltd is prioritising the saving of water by making beer using less water. A water foot-printing exercise revealed that more than 90% of the footprint of a bottle of beer is found in the agricultural supply chain. SAB has introduced an initiative, together with farmers (who supply the company with barley and hops) and public and private sector role-players, to tackle water governance.

SAB has improved its water efficiency by 8% over the past two years to an average of 4.1 litres of water per litre of beer produced and aims further to reduce this to 3.6 litres by 2015 in line with global best practice. Anheuser Busch-Inbev, the global giant that owns Budweiser, Beck's and Stella Artois, has a goal of 3.5 litres for this year's production.

**Sustainable Settlement Design**

We need to look beyond only greening buildings. Our neighbourhoods need to be reconfigured in ways which enable our citizens and the economy to prosper and flourish, for example by reducing the distances between living and working, creating infrastructure for non-motorised mobility, while increasing social interaction, maximising the use of bulk infrastructure, such as water re-use systems and importantly, achieving zero waste. There are a host of potential opportunities for professionals in planning and design, construction and infrastructure as well as education, with expanded course offerings and new curricula.

Informal settlements provide a particular opportunity for planning, design capabilities and for new product development in the Western Cape. Finding appropriate solutions in the Western Cape will enable local enterprises to respond to service demands in other African countries that are experiencing explosive urban growth.

**The Western Cape is home to the Green Building Council of South Africa, as well as 33% of the professionals registered with it. It also has SA's only dedicated sustainability institute.**

## iShack

iShack (improved shack) is a locally designed prototype eco-friendly dwelling, developed by Stellenbosch University and the Sustainability Institute, for the incremental upgrading of informal settlements. The goal is to build a viable business model that enables households to improve their living conditions and meet basic energy needs at an affordable price. The focus is on insulation materials, fire-retardant paint and solar power systems.

## City of Cape Town Reconstruction and Development Plan (RDP) retro-fit

RDP houses built prior to 2005 were not fitted with ceilings, so an estimated 40 000 RDP houses in Cape Town do not have ceilings (which given that Cape Town is located within a condensation belt, is detrimental to people's health as well as being energy inefficient). A pilot programme in Mamre retrofitted 250 houses with ceiling installations and is the basis for plans to roll out a large scale programme to retrofit these 40 000 RDP houses with ceilings. It is expected that the total cost will be approximately R400 million (R10 000 per ceiling) and this will create over 250 contracting opportunities and more in the production, supply and maintenance of these ceilings.

If the Western Cape can successfully reshape a sustainable urban landscape, based on regional expertise and experience, it will be well placed to 'export' this knowledge to other African cities that face high rates of population growth. The Province is already a centre of water expertise that is exported worldwide.

## Vodacom

Vodacom has installed the largest solar photovoltaic array in Africa on their Century City building in Cape Town. This has close to 2 000 mono-crystalline solar panels covering 3 600 $m^2$ of roof space. It will supply 500 kilowatts at its peak and will provide up to 75% of all the power required by the building during peak production. This equates to charging more than 70 million cell phones a year. The project is part of Vodacom's on-going drive to reduce energy consumption. To date the group has managed to reduce energy inputs by 12% for each base station across the Vodacom group.

### Smart Systems for Smart Living

Information and Communications Technology (ICT) software and systems underpin smart living. The ICT reach and application is expanding exponentially, from smart meters and sensors to save water and electricity, to mobile apps that allow you to manage your home electricity usage from afar, to integrating transport systems and enabling commuters to make real time choices, to the organising of work. The globally recognised ICT design capabilities in the Western Cape offer the potential to position the Province as an emerging market leader.

## Home for Smart Efficiency

Homebug, a product of Cape Town's ICT sector innovations, is a smart system to enable homeowners to monitor their electricity consumption by feeding them easy to understand information. Homebug also offers services in irrigation, hot water monitoring, swimming pool control and lighting control.

Homebug monitor energy consumption through a hardware device that takes that information to a website which gives it to the homeowner in an understandable format. This means that Homebug converts technical terms such as kilowatt-hours into Rands and cents which is more meaningful to users.

Homebug even tells you how much your watering schedule will cost each week. Its irrigation control looks up weather forecasts online so that it can cancel your irrigation on rainy days, saving you electricity, water and money.

## NewLife Plastics

NewLife Plastics recycles polyolefin products, which account for about 57% of the plastics market in South Africa, into eco-friendly outdoor furniture, decking, pallets and other products that look good and are environmentally friendly. In simple terms, they use your bottle caps, milk bottles, cosmetic tubes, jars, etc. Every product of NewLife Plastics comes with a Mitigation Certificate that states how many months of personal or household, plastic waste you have re-used.

**Waste as the Foundation**

We have a high quality craft and design sector with strong elements of recycling and up-cycling, but we are far from tapping the potential opportunities. One such example is the beneficiation of agricultural waste (such as grape skins) into higher value products before use as waste-to-energy.

Recycling in all its forms already employs 12 million people in three countries alone (Brazil, China and the United States). Sorting and processing recyclables sustains 10 times more jobs than land filling or incineration on a per metric tonne basis. (UNEP)

## Integrated Waste Exchange (IWEX), City of Cape Town

The Integrated Waste Exchange (IWEX) is a free online system that enables waste generators and users to exchange waste materials within the boundaries of the City of Cape Town. Operating on the principle that 'one person's garbage is another person's gold,' IWEX facilitates the re-use of waste, thereby conserving energy, minimising resource use and reducing the pressure on Cape Town's landfill space. The service is freely available to anyone who generates or uses waste, including companies, individuals, institutions, schools, NGOs and community groups. By helping businesses to avoid disposal, IWEX can help businesses to turn the fixed costs for waste storage, transport and disposal into savings and moreover provide businesses with the opportunity of gaining a competitive edge due to cost savings and environmental benefits.

**Buy Local**

A key area of action is to change our consumption patterns in favour of locally produced products. This offers the potential of a lower carbon footprint by removing long distance, carbon intensive transportation while supporting local employment. Local production does not mean less competitive production, as found in the clothing industry (see case study below).

## Clothing manufacture: Local makes Sense

Foschini participated in an industry-wide study to develop innovative solutions to rapidly changing fashion trends which create local jobs. The result has been a complete change in the company's buying patterns. The pilot revealed that higher profits could be made by replacing bulk buying of cheaper garments from Asia with local production of smaller quantities of fashion items sold at a premium. Although the individual cost per item is higher, the local production has reduced the turnaround time for fashion items to reach the market, reduced waste (unsold items are burnt) and created local jobs. "The new buying policy is in line with the group's strategy of investing for the long term and its commitment to develop local talent in the fast turnaround manufacturing environment," explains Doug Murray, Foschini's chief executive. Apparel Manufacturers of SA executive director Johann Baard said Foschini's move supported the view that a domestic sourcing footprint for clothing retail had become imperative for modern business models which embraced value chain alignment.

## *Priorities*

The priorities for Smart Living and Working are made up of two broad areas of focus where the Western Cape has the potential to be a pioneer in emerging markets and to be an early adopter of new innovations, systems or technologies in the South African context. The following table details these with areas of action identified.

| Pioneer | Broad actions to enable Western Cape to be a pioneer |
|---|---|
| **Smart settlements:** Improved living of people in high-density, under-serviced settlements through design and development of affordable, eco-efficient solutions (integrating infrastructure, services, housing). The Western Cape to develop and test such solutions as a living laboratory. | **Innovation**<br>• Create incentives to encourage local planners, engineers and designers to use their knowledge to develop new innovative affordable eco-efficient solutions to our settlement challenges.<br>• Design a knowledge-sharing system for documenting the innovations and lessons from pilots as a basis for informing future work.<br><br>**Enabling environment**<br>• Establish an integrated regulatory system that will enable investors to meet their compliance obligations, using an efficient, single window that will reduce time and costs of regulatory compliance.<br>• Identify and release land owned by provincial and local government for smart settlement solutions.<br>• Review procurement system to prioritise use of Western Cape design capability and innovative products for smart settlements.<br><br>**Market development**<br>• Develop the Western Cape settlement design brand and export platform offering smart settlement designs, prototypes, capabilities and products for resource strained cities, especially cities in Africa. |
| **Smart resource management systems:** Resource management, ICT systems and devices that are well suited to the emerging market conditions, which will help to reduce resource use. | **Innovation**<br>• Design ways of problem-solving by making systems and software designers part of the process from the start.<br><br>**Enabling environment**<br>• Review procurement system to ensure local technology is used if available and cost effective.<br>• Provide financial and other support (expertise and equipment) to develop prototypes and scale up businesses.<br><br>**Market development**<br>• Provide subsidies and other support for entrepreneurs to showcase their products at existing trade shows targeting emerging markets. |

| Early adopter | Broad actions to enable Western Cape to be an early adopter |
|---|---|
| **Major-user resource efficiency:**<br>WCG and City of Cape Town, as major property owners and users of electricity and water, to take the lead in promoting resource efficiency. | **Innovation**<br>• Create financial innovations to enable provincial and municipal governments to better access capital to scale up resource efficiency within the public sector financial management system.<br><br>**Enabling environment**<br>• Use this programme as a test case for regulations that block or are required to enable resource efficiency projects by major users.<br><br>**Market development**<br>• Develop local markets through procurement from local service providers and suppliers of products and systems, within the context of availability and cost effectiveness. |
| **Towards zero waste:**<br>Grow the commercial waste economy in partnership between public and private sectors as a major source of green jobs. | **Innovation**<br>• Identify waste materials that can be beneficiated into higher value products<br><br>**Enabling Environment**<br>• Review the regulatory environment to support waste economy, particularly among small enterprises.<br>• Create a knowledge bank of waste opportunities.<br><br>**Market Development**<br>• Develop a province-wide waste exchange to support the expansion and creation of new waste enterprises by improving the knowledge of waste sources – already underway with GreenCape's recent Western Cape Industrial Symbiosis Programme (WISP). |

# Smart Mobility

**Investment, job and enterprise opportunities created through reduced resource intensity of mobility and smarter mobility systems.**

## The Challenge

Transportation is a key economic sector in the Western Cape economy that also enables all other economic sectors – it constitutes around 10% of provincial GGP. However, the current transportation configuration is extremely inefficient from cost, energy, emission and lifestyle perspectives. For example, the competitiveness of the Western Cape's fastest growing sector, the 24/7 business processing and call centre services, would be enhanced with a public transport system that would enable employees to travel efficiently and safely 24/7.

## The Opportunity

Transport globally is entering a phase of considerable change to reduce carbon emissions and improve economic efficiency. Smart mobility innovations are being used to change current inefficient patterns and to create a much wider range of mobility options. Smart mobility is integral to urban renewal and integrated spatial design.

There are a number of areas of opportunity that are not unique to the Western Cape, but which require innovative solutions to make them relevant to the region with its particular dynamics.

But there are also areas where Western Cape innovators are global leaders such as the cutting edge hydrogen fuel cell research at the University of Cape Town and University of the Western Cape.

**Transport planning:**

The built environment opportunities offered by Smart Living also open up possibilities to reduce dependency on private transport and expand the public transport network, as well as leverage transport corridors and inter-changes to support intensified economic activity.

**Improved public transport as the crux:**

There are major changes in public transport that are underway or planned, particularly in Cape Town. Examples include the multi-billion Rand investment in the MyCiti bus rapid transit system, a major upgrade planned for the commuter rail system by Metrorail and the creation of a metropolitan transport authority for Cape Town. In addition to the hard systems, soft systems aimed at improving the public transport experience through mobile and other applications are being developed.

**Home-grown mini-bus taxi service innovation:**

A second element of public transport lies in the potential for improving the safety, reliability and efficiency of mini-bus taxi services by introducing smart technology such as smart cards for payment, travel smart driver efficiency monitors, GPS and fleet management practices and improved monitoring and video camera systems. These technologies can also enable better integration between mini-bus taxis and other public transport modes.

## Go Metro

Towards the end of 2012, Metrorail Western Cape partnered with South African technology start-up company Mobi.Lity to launch Go Metro – a digital resource for commuters travelling by train. The project forms part of Metrorail's current 'programme of action' initiative.

Go Metro provides the commuter with a mobile travel companion. The website delivers train schedules, updates, announcements and other important information – all via the traveller's mobile phone. Delays or changes to the published schedules are updated immediately.

**50% of daily commuting trips in Cape Town are in private cars.**

## University of Cape Town (UCT) RideLink

In an attempt to decrease single-person car usage at UCT, UCT traffic and the Green Campus Initiative created the Ridelink Carpooling System. The system is designed to make it easier for students to find lifts with people travelling to university at similar times/areas to them. Students and staff can enter their details and search the database to find people with matching schedules at the click of a button. Special parking is allocated to people participating in the system.

**Efficiency in private transport:**

In the transition to improved public transport, private car utilisation will persist and so cars must be part of any smart mobility solution. There is an uptake of a range of smart mobility options such as efficient driver training to reduce fuel consumption, car-pooling and 'car2go' type schemes, which can be multiplied through public and private initiatives that utilise smartphone platforms to facilitate the connectivity and financial viability of such schemes. To realise the full benefits of private transport requires public commitment to actively enable and invest.

**Clean energy:**

The local development and adoption of cleaner energy for motor vehicles is another area of opportunity that can be incentivised by provincial and local government. This includes facilitating the increased use of biofuels, hydrogen cells and liquefied natural gas in public transport vehicles as a starting point. It also includes supporting the use of hybrid and electric vehicles. This can be stimulated by requiring the next generation of public transport vehicles, mini-bus taxis and the 5 000 strong WCG fleet to use cleaner fuels and by creating incentives for private car users to switch to cleaner fuel. In addition, outlets for new energy sources need to be integrated into our transport infrastructure. This vision of an energy-cleaner future needs to be reflected in transport plans.

## Green Cab

Green Cab provides a green transport solution through the utilisation of Liquefied Petroleum Gas (LPG) and BioDiesel. LPG burns more cleanly than petrol and reduces carbon emissions by up to 34%, and harmful emissions by up to 87%.

The Green Cab taxi company was set up in 2008 by four women because they "realised we cannot continue to do business as usual in the tourism sector". Green Cab claims to be Cape Town's only carbon-neutral transport service.

**Non-motorised transport:**

Cycling is a smart, non-motorised private option, but one that requires significant infrastructure investment to improve the efficiency and safety of cycling as a means of transport. Many opportunities lie in the expansion of cycling lanes in urban areas and their integration with other transport infrastructure, as well as bicycle and electric bicycle hire-type schemes in business districts. Outside of city centres there are opportunities to increase local tourism using non-motorised transport.

## Victoria and Albert Baths

In an attempt to reduce employee absenteeism due to unreliable public transport, Worcester-based Victoria and Albert Baths bought each staff member a bicycle. The impact has been dramatic. Absenteeism has decreased drastically and productivity has improved along with the health and well-being of staff.

*The Priorities*

| Pioneer | Broad actions to enable Western Cape to be a Pioneer |
|---|---|
| **New generation hydrogen and fuel cell technologies** and systems that add value to our platinum group metals. This will include the development of hydrogen powered vehicles and energy storage devices. | **Innovation**<br>• Identify opportunities for innovation through collaboration between WCG and the HySA centres.<br><br>**Market development**<br>• Assist with showcasing the innovations to countries and corporations, nationally and globally.<br>• Investigate manufacturing and service opportunities related to hydrogen fuel cell market. |
| **Smart mobility systems** that improve public transport and minibus taxi responsiveness to users' needs and public and private transport efficiencies. | **Innovation**<br>• Identify opportunities for systems applications and create platforms for ICT sector to engage with the transport industry to take up these opportunities.<br><br>**Enabling environment**<br>• Unlock seed funding to develop and pilot smart systems.<br>• Review measures to influence shift from road to freight, such as overload control, weighbridges and law enforcement, together with on-going engagement with Transnet and national government on rail policy.<br><br>**Market development**<br>• Investigate new market potential for mini-bus taxis as part of extending the integrated transport system, with use of smart mobility systems. |

| Early adopter | Broad actions to enable Western Cape to be an early adopter |
|---|---|
| **Alternative fuel and hybrid technologies** for public transport and other heavy duty fleet vehicles. | **Enabling environment**<br>• Investigate regulations and phasing in of infrastructure required for alternative fuels usage.<br>• Engage with national government on policy requirements.<br><br>**Market development**<br>• Identify opportunities for clean energy (electric vehicles powered by renewable energy, and hydrogen fuel cells) and alternative fuels (biofuels and liquefied natural gas) production.<br>• Spearhead the use of alternative fuels/hybrids by WCG fleet and public transport vehicles. |
| **Bicycles and electric bicycles** as core to transport plans of small towns. | **Innovation**<br>• Engage with universities and enterprises on appropriate R&D support.<br><br>**Enabling environment**<br>• Develop financial guidelines to support roll-out of infrastructure.<br><br>**Market development**<br>• Facilitate access to opportunities in the manufacture of bicycles and components, sales and repairs, which offer strong potential for lower skilled jobs growth. |

# Smart Ecosystems

**Enhanced water and biodiversity preservation, and expanded infrastructure, tourism, livelihood and job opportunities created through better managed ecosystems.**

## The Challenge

Almost everything we do is dependent on the maintenance of our ecosystems and biological diversity. These are being degraded at a rapid rate. For example, the environmental performance index, undertaken by Yale University, ranks South Africa 128 out of 132 countries because of its air and water quality, biodiversity loss as well as eco-system, agricultural and fishery system deterioration. This is largely because the services provided by the environment are seen as free and the externalised costs of disease, storm water damage, water scarcity, fires and related impacts of damaged ecosystems are seldom factored into planning and decisions around spending.

The Cape Floral Kingdom consists of over 9 000 plant species, 69% of which are endemic to the region.

## The Opportunity

South Africa and the Western Cape in particular, is one of the most bio-diverse regions in the world. Many people rely on this asset for food, water, medicine, employment and well-being. Better managing our ecosystems will unlock new economic opportunities, improve the environment in which we live, work and invest, and provide more cost effective and sustainable natural infrastructure solutions.

Since 2003 insurance claims generated by natural disasters have exceeded claims generated by human error. This is largely due to the impacts of climate change.

**Ecosystem management and restoration:**

Ecosystem management includes alien-clearing, wetland rehabilitation, coastal beach cleaning, dune rehabilitation and fire management. Implemented correctly, ecosystem management will create thousands of job opportunities. It will also expand the base of green infrastructure that offers more sustainable and cost effective solutions to, for example, mitigation of flooding and coastal storm surges.

Ecosystem management creates new income streams from carbon offsets and water levies and lowers costs through insurance and rates rebates. It also creates the platform for increased economic activity.

## Greater Cederberg Biodiversity Corridor

The Greater Cederberg Biodiversity Corridor (GCBC) is a partnership project under the auspices of the Cape Action for People and the Environment (C.A.P.E.) programme, implemented by CapeNature. The GCBC aims to establish biodiversity corridors across its landscape to ensure the establishment of healthy connected corridors of natural vegetation. These corridors include formally protected areas and the natural vegetation on privately-owned land. Corridors act as passages for plants, animals, insects and birds to move from one region to the next and to provide food and shelter for these species.

**Biodiversity management:**

The Western Cape's rich biodiversity is a natural, economic and social asset. Our gene pool offers huge research and development potential and is the basis for attracting scientists, medical researchers and other natural resource professionals to the region. Urban growth and agriculture pose a threat to our biodiversity and we need to develop creative ways to balance what are often seen as competing needs. There is pioneering work taking place in the Western Cape, notably the Biodiversity and Wine Initiative, as well as the Sandveld Potato Biodiversity initiative and the Rooibos Biodiversity Initiative.

**Mariculture:**

As a coastal province with 12 proclaimed harbours, the Western Cape is ideally placed to explore and expand mariculture – critically important given depleting marine resources and the growing social and employment dislocation among coastal communities that have traditionally relied on fishing for their livelihood. The WCG is developing an investment programme for the harbours and there are other marine-based opportunities, such as high value processing of dry kelp that remains untapped.

**Tourism:**

Our environment is one of our biggest assets and tourism generates about 8% of the region's economic activity and attracts almost 2 million foreign visitors a year. By better managing the environment, significant growth opportunities lie in responsible tourism.

**Sustainable harvest:**

Harvesting local biota for traditional medicines, wildflower and thatch are established practises in the Western Cape that support livelihoods. However much of the existing activity is located in the informal economy. There is an opportunity to strengthen and expand the economic base of our natural resource harvesting and to ensure the activity is done on scale while being sustainable.

## Biodiversity and Wine in concert with each other

Nearly 95% of the country's wine-growing takes place in the Cape Floral Kingdom (CFK), the richest and also the smallest plant kingdom by area on the planet. Recognised both as a global biodiversity hotspot and a World Heritage Site, it has come under increasing threat from agriculture, urban development and invasive alien species.

In 2004, faced with just 4% of the CFK's unique renosterveld remaining and much of its lowland fynbos ecosystems under threat, the wine industry developed a partnership with the conservation sector. Its mandate is to protect the natural habitat and also encourage wine producers to farm sustainably and express the advantages of the Cape's abundant diversity in their wines.

**Conservation education:**

The Western Cape offers an ideal environment to develop and test conservation education programmes. This has spurned a series of eco-adventure businesses targeting schools, business executives and tourists. Exposing learners to high quality, well managed green spaces that demonstrate the dual purpose of conservation and ecosystem service delivery provides an important platform for the development of the next generation of scientists.

## Youth Environmental Schools Programme (YES)

The City of Cape Town's Youth Environmental School Programme is a year-round programme of activities for learners and educators. It has been instrumental in mainstreaming biodiversity conservation issues in our schools. Given the environmental challenges facing the region, YES is the perfect vehicle to share knowledge, hands-on skills and respect for the environment with our youth.

**Research and development:**

There is still much to be learnt around the role of ecosystems in driving economies, human health and in mitigating change and system flux. The Western Cape offers an ideal research environment to unpack what the most appropriate 'bundles' of ecosystem goods and services are, to service the current and future population needs. This creates opportunities within our higher education and research institutes.

*The Priorities*

| Pioneer | Broad actions to enable Western Cape to be a pioneer |
|---|---|
| **Ecosystems research and education:**<br><br>Western Cape is well placed to develop our expertise and activities in smart ecosystems to support livelihoods and biomedical industry. | **Innovation**<br>• Invest in scoping new beneficiation opportunities for fynbos and other natural flora, especially biomedical opportunities.<br><br>**Enabling environment**<br>• Partner with tertiary institutions, research institutes, government and communities.<br>• Extend the marine protected areas network.<br><br>**Market development**<br>• Support new product market development. |
| **Infrastructure and jobs:**<br><br>Investment in ecosystem services as a key component of infrastructure investment in Western Cape and significant source of low-skilled employment opportunities. | **Innovation**<br>• Partner with the financial sector on innovations that better leverage finance that is currently available and attracts new sources of finance for ecosystem infrastructure investment - and to insure against increasing risks.<br><br>**Enabling environment**<br>• Design new policy and investment criteria which prioritise green infrastructure investment.<br>• Unlock funding for ecosystem public works programmes.<br><br>**Market development**<br>• Develop public-private partnerships around labour-based projects, developing the many market opportunities that result from public works programmes (e.g. beneficiation of wood from alien plant clearing) and infrastructure investment. |

| Early adopter | Broad actions to enable Western Cape to be an early adopter |
|---|---|
| **Responsible tourism:**<br><br>A growth and job creation opportunity | **Enabling Environment**<br>• Partner with Wesgro and the tourism industry to develop knowledge platform and awareness programmes.<br>• Develop industry standards and industry-led body to safeguard standards.<br><br>**Market Development**<br>• Create responsible tourism marketing platform that profiles offerings and markets them in specific markets. |
| **Sustainable mariculture:**<br><br>Harvesting new opportunities | **Enabling environment**<br>• Expand WCG work on developing a framework to identify and deal with barriers to expanding mariculture opportunities.<br><br>**Market development**<br>• Continue WCG efforts to drive 12 harbours programme to create investment opportunities.<br>• Prioritise mariculture through WCG enterprise support, and work with business to develop market opportunities. |

# Smart Agri-production

**Livelihood and market opportunities created through enhancing the competitiveness and resilience of our agricultural and food economies.**

## The Challenge

Agriculture and fishing are key economic sectors in the Western Cape, accounting for 75% of the nation's fishing and about 45% of South Africa's agricultural exports. The value added in the sector amounts to more than R14 billion per annum. Furthermore, the sector is one of the largest employers. A critical challenge is the resource intensity of farming practices.

The combination of changing climate and global carbon pricing could potentially render large parts of this economy and its downstream activities unviable if we do not act to reduce risk. Farming of the future will belong to those areas that adopt water efficiency, energy efficiency, low-carbon and low resource intensity input technologies and practices.

**Agricultural activities account for nearly 55% of all water consumption in the Western Cape and 70% of the fresh produce carbon footprint in South Africa is generated by on-farm activities.**

## The Opportunity

**Sustainable farming practices:**

As consumers become more discerning, markets for produce that is farmed sustainably are expanding. Sustainable farming requires a focus on soil quality, carbon sequestration, a keen focus on input efficiencies – energy, water and nutrients – as well as waste and production processes. The link of farming practices to ecosystems is also crucial. In the Western Cape, more and more farmers are taking up sustainable practices, with the Department of Agriculture rolling out a conservation agriculture programme.

## Woolworths' "Farming for the Future"

"Farming for the Future" is Woolworths' response to ensuring a sustainable supply of fresh produce into the future. The goal is to produce more using less and to grow quality produce while minimising negative effects on the environment and reducing farmer's dependence on chemical fertilisers, herbicides and pesticides. The project aims to radically improve soil and plant health, preserve resources like water and protect biodiversity. Woolworths works with fresh produce farmers to develop customised solutions. The programme includes: soil mineral management; soil microbe management; pest management; plant management; water management; biodiversity management and waste water management.

Based on an audit conducted in 2011 of the 15 largest growers (accounting for over a third of all fresh produce in Woolworths), "Farming for the Future" has:

- Increased soil carbon levels by 3%
- Reduced water use by 16%
- Cut fertiliser use by 20%
- Increased recycling by 32%
- Decreased solid waste material going to landfills by 13%
- Reduced the use of fossil fuels by 18%

Accelerating the uptake of sustainable farming practices will create a host of economic opportunities in the energy, water, land, soil management and logistics sectors. In the broader value chain, opportunities exist in the bio-fuel, packaging, food production and service sectors. There are also opportunities for creative partnerships between producers and retailers.

**Energy efficiency cooling and storage options:**

Cold storage and wine cellars account for a sizeable share of the on-farm energy costs and carbon footprint. More efficient systems using solar, wind and bio-energy create new opportunities for technology development, energy installations, maintenance and engineering services.

**Water efficiency technologies:**

Water is the biggest constraint facing the agricultural sector in the Western Cape. This constraint presents huge economic opportunities for more efficient water use technologies and real time monitoring devices, which the Western Cape's Department of Agriculture (DOA) has been pioneering.

## Western Cape Department of Agriculture pioneers water saving technology

The goal is to produce more product per drop. To achieve this, information on evapotranspiration is crucial to monitoring water consumption and optimising the allocation of resources. The Western Cape Department of Agriculture (DOA) has partnered with the industry to introduce cutting edge technology called FruitLook, a service which elaborates satellite images to provide field level data on actual evapotranspiration and water productivity. Using a combination of visible, near infrared remote sensing sources, the service provides weekly data on the amount of evapotranspiration, biomass growth and nitrogen content, all information that helps understand where irrigation, water and nutrients are required and to what extent. The DOA currently provides the information for free to the farmers on a weekly basis as it develops the system. The direct benefit to farmers is reduced operational costs.

**Beneficiation of waste:**

Minimising waste is part of smart agricultural and manufacturing processes. Opportunities exist on farms to convert vegetation mass into compost, biochar and biofuel. This creates a range of new economic opportunities in the development of machinery, new technologies that increase the efficiencies of the beneficiation processes and new product markets.

**Aquaculture:**

The Western Cape is the country's leading aquaculture region with a projected triple digit growth rate. Opportunities for economic and enterprise development, job creation, food security and environmentally sustainable production are immense.

**Climate-related agricultural research and development (R&D):**

Climate change demands examining the breeds and cultivars farmed and identifying more climate resistant stock. This creates opportunities for breeding the new cultivars and stock as well as climate-related agricultural R&D. South Africa has been lagging in this market due to a lack of funding for such research, but the Western Cape still has a solid research foundation. Therefore, opportunity exists for the region to shift from being an early adopter to a pioneer in this arena with financial support from the state.

**Food security:**

Despite our globally recognised agricultural expertise, we still have people who go hungry. This presents an opportunity for households to increase food security and improve local economies through urban and peri-urban agriculture at scale. This fits with our positioning as a centre of smart settlement expertise and will increase our competitive positioning in this regard.

## Spur corporation biofuel pilot

Over a million litres of vegetable oil used by Spur Corporation across three of its restaurant chains has been converted to biodiesel to power a range of fishing vessels, trucks and mining equipment. Some 870 000 litres of biodiesel have been produced, translating into a savings of 3.1 million kg of $CO_2$ equivalent emissions. As CEO Pierre van Tonder says: "We are converting waste into a viable source of energy. The initiative is part of the group's waste management programme which has seen an 80% reduction in waste generated in Cape Town over 2 years." The firm, Envirodiesel, is responsible for the conversion.

**Globalised value chains:**

The rise of global value chains and production networks lies at the heart of contemporary transformation in global trade, production and employment. Leading companies increasingly coordinate their sourcing through interlinked global networks of cross-border suppliers, rather than operating through fragmented agents within market-led trade channels. This creates opportunities for consolidating more activities in the value chain on farms and for diversification linked to supporting this expanded value chain – for example the production of packaging materials.

**Market expansion:**

The horticultural sector is currently witnessing important changes with the expansion of new value chain channels for the sale of fruit and vegetables that are co-ordinated by supermarkets within emerging markets. There has been a rise in domestic supermarkets within South Africa, in part as a result of increasing incomes and of increased consumer awareness of the importance of eating healthier foods. The largest South African supermarkets are also leading the expansion of modern retail across Sub-Saharan Africa.

*The Priorities*

| Pioneer | Broad actions to enable Western Cape to be a pioneer |
|---|---|
| **Sustainable farming practices:**<br><br>As a source of market protection and growth, reduce resource intensity, and bring down the agricultural carbon footprint. | **Innovation**<br>• Work with private retail and farming sectors to develop full sustainable farming value chains.<br>• Shorten the food supply chain.<br><br>**Enabling environment**<br>• Conduct research into new, sustainable farming techniques, building on current conservation farming programmes.<br>• Develop knowledge-sharing partnerships.<br><br>**Market development**<br>• Increase consumer awareness and through this, demand for sustainable produce. |
| **Farming in harmony with nature:**<br><br>Build off the unique biodiversity and farming initiatives to create new opportunity. | **Innovation**<br>• Develop mixed-use agriculture biodiversity programmes as part of the region's agricultural offerings.<br><br>**Enabling environment**<br>• Build partnerships between water boards, government, conservation, tourism, farmers and agricultural sector.<br><br>**Marketing opportunity**<br>• Identify a pilot to develop the full spectrum of opportunity that may be achieved through this approach to biodiversity and farming. |

| Early adopter | Broad actions to enable Western Cape to be an early adopter |
|---|---|
| **Smart technologies:**<br><br>Expand use to achieve more product per drop of water and to reduce carbon footprint. | **Innovation**<br>• Escalate local innovation in ICT sector and smart sensors in particular through specific interventions – for example, using procurement pilots.<br><br>**Enabling environment**<br>• Develop a Western Cape platform that will enhance the take-up of financial mechanisms that will introduce technologies into agriculture. |
| **Waste as a commercial resource:**<br><br>Identify high value opportunities in agricultural waste, in addition to waste to energy opportunities. | • Link pricing of waste removal to volumes of non-recycled waste generated.<br>• Review regulatory environment to increase ease of establishing waste to energy initiatives.<br>• Create markets for new energy generated including public sector markets. |

# Smart Enterprise

**Investment, business and job opportunities created by establishing the Western Cape as a globally recognised centre of green living, working, creativity, business and investment.**

## The Challenge

Enterprises – big and small – will drive green growth. Investment in the region will be determined by the levels of innovation and the ease of doing business. Many of our existing entrepreneurs face enormous challenges on a variety of fronts that make it difficult to expand their operations. Escalating electricity and water costs add to the pressures, as do regulation and compliance demands. Smart enterprises need to be attuned to rapidly changing technology and new business models to make them responsive to an environment of growing complexity.

## The Opportunity

Being responsive to these challenges presents a broad range of economic opportunities. The Western Cape is the headquarters for some of South Africa's largest corporations with the best reputations in sustainability, such as Woolworths and Pick 'n Pay in the retail sector. But, on the whole, the business landscape is largely made up of small and medium sized enterprises. The opportunities in the green economy offer the potential for many new enterprises to emerge, but importantly for existing businesses to scale up and make that difficult transition from small to medium – for herein lies the greatest job creation potential.

All the drivers of the green economy in this strategy framework offer opportunities for enterprises that cut across the value chains in design, production, packaging and delivery as well as professional services such as legal and environmental.

**Africa's new energy servicing hub:**

The Western Cape is well placed to be the most important research and servicing hub for the renewable and natural gas energy sectors in South Africa and the African continent. Darling is home to South Africa's first operational wind turbine and a further eight wind and solar farms in the Western Cape were approved in the national government's first two rounds of the Renewable Energy Independent Power Producers (REIPP) bidding process. Western Cape professional service firms played a leading advisory role in REIPP projects across the country.

The city is home to the country's first photovoltaic manufacturers, Tenesol/ SunPower and SolaireDirect. On the back of REIPP, AEG and jointly, Enertronica and Gefran have established manufacturing facilities in the Cape and there is growing interest from other companies.

There are important initial opportunities in construction of new energy infrastructure. The real long-term benefit lies in servicing the infrastructure once it is installed. It is estimated, for example, that the annual servicing and maintenance costs of wind energy plants is approximately 10% of the initial capital investment. Estimated investment of REIPP projects in the Western Cape in the first two rounds is just under R8 billion (wind and solar).

## Atlantis Green Manufacturing Hub

Atlantis, located 40 km outside of Cape Town on the northern corridor towards Saldanha, has been proposed as a Special Economic Zone (SEZ) with a focus on renewable energy and advanced manufacturing – which would make it eligible for special government incentives.

In the meantime, the City of Cape Town and the WCG have made significant progress in making available land at competitive rates and with a relatively easy land occupation process. Importantly, environmental clearance has been obtained for industrial activities on the land, which also speeds up the process of establishing a manufacturing facility.

The significant investments in renewable plants over the next 20 years - coupled with the drivers that this Strategic Framework focuses on - offer clear opportunities for advanced manufacturing. Co-locating or clustering value chains in these sectors in a dedicated industrial location allows firms to benefit from direct co-operation and sharing of resources. In addition, the advantage of incentives will assist in enabling what is in many respects a nascent industry in South Africa to develop to its full potential.

Due to its location, access and available skill sets, coupled with a concentration of academic institutions that are all involved in research and development in, for example, energy systems, engineering, the built environment and sustainable development, it is an ideal location for the establishment of a manufacturing hub with a green economy focus.

**Green economy financing and investment centre:**

There is an opportunity to position the Western Cape as a pioneer in green financial innovation, investment finance and risk management for emerging markets, leveraging off the Western Cape's existing strength as a financial centre in asset management. One important area lies in expanding the emergent green private equity presence in the Western Cape, servicing both our market and other African countries. There are also opportunities in creating green economy trading platforms. For example, Credible Carbon is South Africa's first voluntary market carbon registry.

## Hydrogen fuel cell pioneer

HySA has two of its three competence centres for hydrogen and fuel cell technologies based in the Western Cape – and funded by the Department of Science and Technology. HySA Catalysis, hosted by the University of Cape Town, and HySA Systems, hosted at the University of the Western Cape's Institute for Advanced Materials Chemicals, is the bases for distinctly South African contributions to the global hydrogen and fuel cell technology know-how. HySA's mandate includes:

- To develop, test and validate safe, efficient technologies for hydrogen storage, compression and separation.
- To model, develop, validate and manufacture fuel cell stacks and Membrane Electrode Assemblies for combined heat and power and fuel cell vehicle applications.
- To develop and manufacture high quality, affordable lithium-ion batteries based on SA raw materials to meet energy storage demands for renewable energy, smart grid and cleaner transportation markets.

This capability has resulted in South Africa's first locally produced (80% local content) 200W battery unit which can be used for mobile operations, a hydrogen powered golf cart and a hydrogen powered fork-lift.

The green economy also requires new forms of insurance and risk sharing to incentivise more sustainable practices.

The Western Cape has an existing strength in the insurance industry and will play a leading role in providing new models for managing risks in ways that incentivise the right behaviour in customers.

**Green economy corporate governance and legal centre:**

The Western Cape is a recognised centre of environmental legal expertise, which together with our environmental professional expertise, means we have the potential to become a leading 'green governance' centre of expertise.

**The World Competiveness Report of the World Economic Forum (WEF) rates South Africa as the global leader in auditing and corporate governance.**

## Taking the lead in climate change risk management

Santam is a leading South African short term insurance company, headquartered in the Western Cape. Through the Insurance Collaboration, Santam has partnered with academic, scientific and ecological agencies to better understand the role of insurance in managing risk and enhancing resilience. Research has illustrated how human-induced impacts on the ecological buffering capacity of the system have an equal or greater impact on risk, as compared to future climate change predictions.

Santam has undertaken various initiatives relating to climate change. In 2008, Santam made a "ground-breaking move" in lowering insurance premiums for farmers who manage their fire risk by belonging to Fire Protection Associations (FPAs). FPA members pay lower premiums and excess contributions, and enjoy more lenient terms of accountability, while policyholders who do not belong to FPAs might be denied insurance against veld fires in future. FPAs involve members in co-operating with government agencies in clearing aliens and burning firebreaks, reducing the risk of big wildfires that get out of control and destroy lives and property.

## Carbon Credits

Credible Carbon was set up by PACE (Promoting Access to Carbon Equity). Since being founded in 2004, PACE has explored various ways of making the global carbon market work in Africa - particularly for poor people. The Credible Carbon™ registry, the first of its kind on the continent, was created in response to the difficulties encountered in securing carbon revenue for poverty alleviation projects. The registry draws on local carbon auditors to verify projects' greenhouse gas savings and contribution to poverty alleviation. This approach has allowed Credible Carbon to radically reduce transaction costs in selling carbon credits. In 2012 Credible Carbon traded over 42 000 tonnes of $CO_2$ and returned over 75% of carbon revenue to projects, after audit fees, legal costs and registry fees.

**Social enterprise:**

The challenge for South Africa and many emerging markets is how to leverage expertise and innovation generated through the new green growth path to meet the needs of less-resourced communities and individuals. The Western Cape is becoming a hub for social

entrepreneurs with a growing institutional support base. The region aims to attract more social entrepreneurs and establish itself as a global social enterprise hub for emerging markets. The corollary to this is the need to develop a financial platform of investors that seek not just financial returns, but also social and environmental returns – often referred to as impact investment, an area of high growth internationally, but still limited in South Africa.

**Smart systems development and servicing:**

An agglomeration of systems developers differentiates the Western Cape from the rest of South Africa. It is these capabilities, some of which are of global repute, that enable the Western Cape to position itself as a leader in smart systems for the green economy. Hence, ICT is a priority sector in this strategy framework to position the Western Cape as an African green economic hub. The challenge for the Western Cape is to ensure a national market first to enable the many enterprises in this sector to expand.

**Smart manufacturing processes:**

Globally competitive firms are all moving to lean manufacturing processes which minimise waste and increase efficiency. This adds value to existing operations, reduces costs and limits the impact on the environment, while opening up opportunities to businesses to support the achievement of these greater efficiencies and to find additional areas of value, particularly through the processing of waste.

## *The Priorities*

The pioneering and early adopter opportunities that are open to enterprises are detailed in the other drivers and enablers. They are numerous, but tapping into them will require a Smart Enterprise offering that ensures that the Western Cape has the right enabling environments to be a preferred green investment destination.

| Early adopter | Broad actions to enable Western Cape to be an early adopter |
|---|---|
| **An integrated framework of measures** create an enabling environment for enterprises and investors involved in green investment. | **Enabling environment**<br>• Create a streamlined regulatory system - that builds on the existing Red Tape Unit – to remove red tape barriers and streamline compliance requirements.<br>• Focus on physical spaces that enhance the investment offering for example, the Atlantis Green Manufacturing Hub.<br>• Provide special support measures: access to financial mechanisms, as dealt with under Finance in the Enabler Section of this report. |
| **Public and private procurement:**<br>A key driver of green investment and jobs. | **Enabler**<br>• Develop guidelines and pilot projects that support the use of green procurement as a strategy for enterprise and job growth. |

# Enablers

# Enablers

Green is Smart identifies five key enablers required to unlock economic opportunities. In addition, the enablers will themselves create new opportunities. It is in the area of the enablers that the national, provincial and local governments play a crucial role, collaborating with each other and establishing effective partnerships with the private sector.

# Infrastructure

Both the WCG and the City of Cape have prioritised 'infrastructure-led growth' as a driver of growth and employment in the region. For this reason, an extensive Western Cape Infrastructure Framework (WCIF) has been developed to align the planning, delivery and management of infrastructure, provided by all stakeholders (national, provincial and local governments, parastatals and the private sector) for the period to 2040. Infrastructure greening and resilience to climate change and resource constraints are an important element of this framework. This document therefore will focus on just a few key priorities.

**In 2009, the national government set an ambitious target for emissions reduction – around 34% below the current emissions baseline by 2020 and around 42% by 2025.**

## The Constraint

In general, the Western Cape is well served with infrastructure, having the highest national percentage of households with access to services on their property. However, large numbers of people still live in poorly-serviced areas where low or very low levels of infrastructure are available. In addition, much of the bulk infrastructure has suffered from historic underinvestment in maintenance and rehabilitation and is reaching (or has reached) its capacity. Further, existing infrastructure systems, particularly those of energy and transport, are carbon intensive, with high costs to the environment. And some systems, particularly those that are the responsibility of municipalities, suffer from inefficient management and use of resources. (WCIF 2013)

In addition, our ecosystem or natural assets are under enormous pressure and need to be addressed as part of our infrastructure network that is so crucial to supporting our economy.

The WCIF model finds lower investment costs of infrastructure over the long term for the scenario of improved resource efficiency and less carbon intensive energy than for the business-as-usual scenario.

## Opportunities and Solutions

The South African Government will over the next three years from 2013/14 invest R827 billion in building new and upgrading existing infrastructure, with the biggest chunk of the investment continuing to come from Eskom (R205 billion over the three years up to 2015).

For Africa, the African Development Bank estimates the infrastructure investment need of the Continent at $100 billion every year for the current decade.

Much of this investment will need to take cognisance of the importance of developing infrastructure that is resilient. As such, there will be many opportunities across Africa for Western Cape-based companies with green capabilities and expertise.

**Energy**

The roll-out of renewable energy, with technology gains consistently bringing down costs, and the natural gas discoveries in Mozambique and Tanzania, together with other but smaller discoveries up the Western Coast of Africa suggest quite a different electricity generation mix for the future of South Africa and the Western Cape than that articulated in the Integrated Resource Plan 2010.

## Renewable Energy and Green Investment

The South African Government's biggest expression of commitment to a low carbon economy is the roll-out of 17 800 MW renewable energy which will make up about 42% of all new power generated by 2030. 3 725 MW will be procured under the Renewable Energy Independent Power Producers (REIPP) programme by 2016, at an estimated investment of more than R120 billion – most of which will be based in the Northern, Western or Eastern Cape. With the closure of the second bid window in May 2013, there are 47 renewable energy projects being implemented in South Africa. These projects will attract collective direct investments of around R47 billion. Over the next 20 years, capital expenditures on the construction and erection of renewable energy power plants will be in the order of R20 billion per annum. On the back of the national localisation policy, this could create almost 10 000 blue collar jobs before the impact of any multiplier effect. Further, significant infrastructure investment plans will also increasingly include a 'greening' component, again offering major market opportunities.

To add further impetus to investment in the green economy, the national government established the Green Fund in 2012, with an initial allocation of R800 million, while the Industrial Development Corporation has committed R25 billion to be invested in the green economy.

The WCIF proposes that the Western Cape introduce natural gas processing and transport infrastructure to make gas available as a transition fuel, while promoting the development of renewable energy plants in the province and associated manufacturing capability. Fundamentally, natural gas needs to be seen as a transition to a truly renewable energy future.

**Natural Gas**

The introduction of natural gas into the energy mix in the Western Cape is the game-changer needed for the Western Cape to significantly lower its carbon footprint by shifting away from our dominant coal-based power generation. Gas-fired power plants provide effective base-load, as well as load-following capacity and thus support an expanded roll-out of renewable energy power options. This could be achieved within a relatively short period of time. In addition, natural gas as an alternative energy source would stimulate significant industrial growth and thus employment opportunities in the province as this would require greenfield gas infrastructure development. As a result, the WCG has prioritised the introduction of natural gas to the Saldanha Bay – Cape Town corridor (Cape West Coast region), after an extensive study into the potential value and opportunities that natural gas offers the province.

Much of the anticipated industry development in the Saldanha Bay region is based on minerals beneficiation, and this will require significant new energy investment. Here too, natural gas offers exciting potential.

**Concentrated Solar Power (CSP)**

The Western Cape has strong research capabilities in CSP at the University of Stellenbosch. The opportunities of commercialisation could be significant. While the best location of CSP plants is in the Northern Cape, there is good manufacturing potential for the Western Cape, particularly given that many CSP components may be developed within existing production capabilities. This presents an important area of collaboration between the two provinces to realise the potential benefits.

### Water

The WCIF has identified a few key areas of focus for relieving water stress in the province:

- More stringent water conservation and demand-management initiatives, particularly at municipal level;
- Groundwater resources;
- Reuse of waste water effluent as standard practice;
- Large-scale desalination once it becomes the "next best" option to resolve inevitable water shortages in Saldanha, Cape Town and the southern Cape; and
- Expanded and diversified agriculture to increase availability of surface water, with reduced water intensity in the sector, given limited availability of irrigation water.

All these areas will create opportunities for new and adapted technologies, smart IT systems, water leakage solutions, as well as ecosystem restoration with its attendant low skilled employment potential and ecosystem management models. The need to reuse waste water will create opportunities in design and management of new closed water systems.

### ICT

The provision of access to faster and more reliable forms of internet access is essential to drive innovation and support new, resilient infrastructure investment. The ICT sector offers a host of economic opportunities for reliable, fast and cheap internet access, smart grids, smart resource management systems, programming and mobile applications.

## Connectivity for All

The roll-out of broadband infrastructure to support universal connectivity throughout the Western Cape is underway. The WCG is committed to a Broadband Strategy and Implementation Plan to radically improve the provision of telecommunication infrastructure, skills and usage within the province, as well as to achieve economic and social development, cost efficiency and service delivery improvement. The focus is on:

- **Connecting WCG Buildings** with high-speed broadband capability which will make provision for data, voice and video.
- **Value Add Services**, ensuring that broadband is optimally utilised by communities and targeted businesses.
- **Application Development**, concentrating on transversal government application development to improve the efficiency and effectiveness of the WCG.

### Transport and Logistics Infrastructure

A specific strategic infrastructural need in the Western Cape, as a coastal province, is the development of our ports to equip them to service the new smart economy, particularly given the lower carbon footprint of sea transport over air freight.

## *The Priorities*

Most of the priorities related to energy, water and ICT are identified in the drivers of this strategy framework. Therefore, the priorities listed below are for infrastructure investment not cited elsewhere in this document.

| Early adopter | Broad actions to enable Western Cape to be an early adopter |
|---|---|
| **Greenfield natural gas infrastructure:** an energy game-changer for the development of both Western Cape and South Africa. | **Innovation**<br>• Invest in natural gas infrastructure. This would offer R&D and design opportunities to universities and firms, both in Western Cape and the rest of South Africa.<br><br>**Enabling Environment**<br>• Support extensive lobbying and collaboration between national government departments, agencies, state enterprises and municipalities.<br>• Lobby for increase in natural gas from the current 3% of the energy mix in the IRP 2010.<br><br>**Market development**<br>• Market development is dependent on achieving the necessary national and regulatory approvals |
| **Concentrated Solar Power:** a renewable energy with a Western Cape based manufacturing and services centre – as part of an expanded renewable energy sector. | **Innovation**<br>• Lobby for support for a pilot of South African designed CSP technologies, adapted to SA conditions.<br><br>**Market development**<br>• Study the manufacturing potential of CSP in the renewables roll-out, as part of the overall programme to secure manufacturing investment in the Western Cape. |
| **New integrated model for water management:** to safeguard water for economic and social development. | **Enabling environment**<br>• Implement the Berg River Improvement Plan as the major pilot to identify and test new technologies, integrated planning, institutional arrangements, as well as complex partnerships with joint projects and actions. |

# Rules and Regulations

The green economy requires an enabling policy and regulatory environment that makes doing business in the region easier.

## The Constraint

A key challenge is to ensure that existing rules and regulations do not stifle the transition to a green growth path, and that effective processes are found to review the regulatory environment and facilitate change. But the management of climate change, resource constraints and the green economy will themselves require a range of new rules and regulations. This will present a significant challenge in terms of ensuring that these are appropriately framed and do not clog up the investment environment with more red tape. This creates a strong demand for continual strategic review of the regulatory framework.

## Opportunities and Solutions

There is an opportunity to improve the ease of doing business in the Western Cape through more co-ordinated government action as a basis for stimulating investment in the region.

### Incentives and disincentives

Targeted incentives and disincentives play an important role in facilitating the transition towards a green economy. It is proposed that the Western Cape public sector review the pricing of all resources, including water, energy and land to help identify where it may be able to introduce incentives and disincentives to promote behaviour change to a low-carbon economy. Currently, the WCG is piloting a number of behaviour economics pilots to facilitate change through new forms of incentives.

### Carbon pricing

Pricing carbon is another important tool to facilitate the transition to the green economy. This mandate lies at national government. It is proposed that the WCG promote the knowledge and the use of the voluntary carbon market as a means of off-setting increasing costs or additional taxes and to expand low-carbon activities, such as recycling.

### Green procurement

Green procurement is an invaluable tool for changing suppliers' behaviour and creating a market for green products and services. It focuses on the supply chain or the system of processes, technologies and other organisations that are involved in the creation and distribution of products and services to the customer. It typically consists of the most significant financial, environmental and social impacts (and opportunities) for a business. Public procurement is a particularly powerful tool that can support green investment.

It is proposed that the public and private sectors collaborate to develop provincial-wide green procurement standards drawing on existing preferential points that national government is introducing for locally supplied products and the still limited, but increasing swing towards low carbon products and resource efficiency services, particularly in the private sector.

Procurement by governments equate to substantial investment that can rise to as much as 45% of government budgets, which is around 13% to 20% of gross domestic product (GDP) in industrialised countries, and more elsewhere — 35% in South Africa.(IISD 2012)

| Pioneer | Broad actions to enable Western Cape to be a pioneer |
|---|---|
| **Voluntary carbon offset drive:**<br>WCG to lead a voluntary carbon offset drive through paying for its carbon emissions in compliance with financial management obligations. | **Innovation**<br>• Develop a mechanism for carbon trading that enables the WCG to balance its carbon credits and debits, designed to incentivise energy efficiency measures as an off-set to its carbon emissions. This is being already pioneered as a small pilot under the 110% Green programme.<br><br>**Market Development**<br>• Promote the expansion of the localised voluntary carbon trading platforms, with a focus on carbon credits being of benefit to Western Cape community based organisations. |
| **Green Procurement:**<br>A joint public-private green procurement initiative to guide and support investment in green products and services. | **Innovation**<br>• Develop a multi-sectoral green procurement guide which draws on the best practices of every sector to create a cutting edge policy for the region.<br><br>**Enabling environment**<br>• Implement pilots in key sectors to review and identify the challenges to setting green procurement standards and to facilitate mechanisms to deal with them.<br><br>**Market Development**<br>• Develop the above pilots further to use procurement as a strategy to support enterprise and jobs growth. |

| Early adopter | Broad actions to enable Western Cape to be an early adopter |
|---|---|
| **Seamless government interface:**<br>Create an effective mechanism for integrated processing of all compliance regulations that impact green investment. | **Innovation**<br>• Create a single 'window' through which the private sector can engage all three spheres of government and reduce the high transaction costs associated with new, green investment.<br><br>**Enabling Environment**<br>• Implement systems for good inter-governmental co-operation. |

# Knowledge and Innovation

Innovation lies at the heart of any green economy strategy. This requires systems and institutions that support, promote and stimulate innovation and knowledge.

## The Constraint

Part of creating a system that supports innovation is to create a co-ordinated knowledge hub. The inability to turn information into knowledge is a barrier to the green transition. Consumers who do not have information on their consumption patterns are unlikely to change behaviour.Governments that do not have information on the latest market trends are unlikely to invest the money to change their products and green their operations and decision-makers who do not have information will struggle to lead boldly. Currently, information is not consolidated in a central hub or networked in a structured, useable manner.

In addition, the Western Cape – like the rest of South Africa and emerging markets – lacks the financial resources that industrialised societies have to reposition themselves for the transition to a different climate resilient, green future by making significant investments in technology and systems design. Nevertheless, the Western Cape has an extensive knowledge, design and innovation foundation on which to develop appropriate solutions for emerging markets.

**The South Korean government committed to spending US$10 billion to develop environmental technology in the five years to 2014.**

## Opportunities and Solutions

Many of the building blocks are being put in place to position the Western Cape as a leading knowledge, design and innovation centre for emerging markets that need to transition to the green economy. For example, the design strategy for the Western Cape was finalised in 2013 and innovation districts are being established in Cape Town (The Fringe) and in Stellenbosch, while Cape Town has been awarded World Design Capital 2014.

In addition, leading international institutions, strong on innovation and design, are showing increasing interest to establish a presence in the Western Cape (e.g. Germany's Fraunhofer Institute) or to develop partnerships (e.g. MIT in partnership with the University of the Cape Town).

**Knowledge hub**

Co-ordinating the existing data from universities, government, agencies and the private sector to create a centralised, networked shared knowledge management system is another gap and opportunity. This should provide information on market and environmental trends, databases of stakeholders, baseline data, as well as monitoring and evaluation data.

**Regional innovation system**

Collaboration between business, tertiary institutions, government, NGOs and community groups alongside an ability to adapt knowledge to meet the region's needs lie at the heart of a regional innovation system. Opportunities exist to strengthen the Western Cape's innovation systems and to provide incentives to attract and retain innovators in the local economy.

**Indicators and measures**

Finally, there is a need for new indicators that better measure activities and desired impacts as a basis for guiding the green economy and for benchmarking the Western Cape internationally.

*The Priorities*

| Pioneer | Broad actions to enable Western Cape to be a pioneer |
|---|---|
| **Innovator network:**<br>Drawing on our smart system capabilities to create an innovator network that is appropriate to Western Cape and emerging market contexts. | **Innovation**<br>• Build an innovation network that links researchers, entrepreneurs and investors and that targets emerging markets and Africa, with the WCG playing a key facilitative role.<br><br>**Enabling**<br>• Develop a smart system to connect innovators and investors, both virtual and actual, linked to a virtual green knowledge hub. |
| **Early Adopter** | **Broad actions to enable Western Cape to be an early adopter** |
| **Economy Indicators:**<br>Create green indicators as part of Western Cape Competitiveness Index. | **Innovation**<br>• Adapt global indicators for the Western Cape and develop systems for data collection. This is already underway in the WCG and EDP.<br><br>**Enabling environment**<br>• Use common data sets across projects. |

# Capabilities

The smart economy requires bold leadership, appropriately skilled human resources and collaborative and innovative institutions.

## The Constraint

South Africa and the Western Cape face a range of human resource and institutional challenges. We have more than 20% unemployment and a mismatch between the skills base of many of the unemployed and the skills needs of the new economy. The burden of unemployment also sits disproportionately with the youth. In addition, despite our institutional strength, barriers still exist between sectors, spheres and institutions. These all undermine the opportunities.

## Opportunities and Solutions

**Collaborative institutions**

The range of issues to be faced during the transition will cross borders, sectors and institutions. A key function of a capable region will be our capability to collaborate. This will require not only better co-ordination between spheres of government, line departments, stakeholder groupings, private sector associations and educational institutions – but also different forms of collaboration to deal with the growing and fast changing complexities of our environment. Systems and organisational structures will need to change accordingly. The region is well placed to respond to these challenges with its strong institutional base.

**A skilled and capable workforce**

Highly qualified, knowledgeable and talented workers also facilitate innovation and technological progress. At the same time as educating and training the future workforce, it is vital to empower those made vulnerable by the forces of economic change, to up-skill existing workers, and to retrain redundant workers. South Africa has one of the poorest performing education systems in the world. However, compared with many other parts of the country, the Western Cape has strengths in the quality of its schools, colleges and universities. This needs to be leveraged as we develop a co-ordinated and facilitated green skills development strategy. It entails more than ensuring that we have the sufficient and appropriate skills. We need to develop high levels of expertise that are critical to positioning the Western Cape as a green knowledge hub.

### South African Renewable Energy Technology Centre

South Africa's first dedicated renewable training centre is being established in the Western Cape at the Cape Peninsula University of Technology (CPUT). The aim of the centre is to prepare a skilled labour pool for the new emerging renewable energies: wind, solar and bio. The first phase will combine theoretical and practical training for wind turbine service technicians and for solar farms. In the long run, the centre will also become a development and research facility for renewable energy.

*The Priorities*

| Pioneer | Broad actions to enable Western Cape to be a pioneer |
|---|---|
| **Skills programmes:**<br>Develop appropriate emerging market skills programmes for key green skills in renewable energy, water and waste. | **Enabling**<br>• Establish a collaborative platform to share information on skills gaps and needs that draws together public, private and educational sectors.<br>• Unlock funding for targeted training initiatives.<br>• Create partnerships with global skills centres to develop new skills sets.<br>• Develop e-learning systems as a core component of learning.<br>• Facilitate shared research agendas between the public, tertiary and private sectors to meet the needs of the green economy. |
| **Early Adopter** | **Broad actions to enable Western Cape to be an early adopter** |
| **Leadership platform:**<br>Collaborative multi-sector leadership platform to drive green growth | **Enabling**<br>• Foster collaboration to develop leadership capacity.<br>• Expand green leadership skills programmes in public, private, tertiary and community sectors. |

# Finance

The green economy requires financial resources and instruments that enable green investment and better managed environmental and resource-related financial risks.

## The Constraint

The green economy requires two broad areas of investment:

- Infrastructure investment to reduce carbon emissions and pollution; enhance energy and resource efficiency; and prevent the loss of biodiversity and ecosystem services.
- Information and industry-related investment to fund new and existing businesses to support growing activity in the green economy, with a goal towards creating jobs and kindling innovation.

Infrastructure investment is increasingly drawing on private capital, but invariably requires public finance to fill gaps and manage the risks associated with new and alternative technologies as well as cost uncertainties. In South Africa, there is particular concern about the future capacity of municipalities being able to finance their infrastructure needs. Both globally and in SA, the particular risks associated with green investment have meant that government and development finance institutions have needed to play a catalytic role, usually through special finance facilities.

In South Africa, there is the R800 million Green Fund (managed by the Development Bank of Southern Africa) and the Industrial Development Corporation's growing green industries division, with a R500 million energy efficiency fund, offering facilitative rates of finance with the support of the German government. The Western Cape is also the headquarters of major financial institutions and green private equity funds that service South Africa and other African countries, for example the R700 million Evolution One Fund of Inspired Evolution.

But, if the Western Cape wants to accelerate the transition to a green growth path faster than other regions in South Africa and join the global race, the provincial government, itself constrained in offering financial incentives, needs to find new ways to leverage financial resources for investment.

## Opportunities and Solutions

Given the agglomeration of green professionals in the Western Cape and the region's existing strength as a financial asset management centre, there is opportunity to develop the Western Cape as a green finance centre, as a pioneer in green financial innovation and risk management, and to expand the emergent green private equity presence.

Additionally, new forms of risk sharing are needed. The Western Cape has an existing strength in the insurance industry and will play a leading role in providing new models for managing risks. There would be value in investigating the potential of the WCG to develop a province-based financial facility and the benefits that could be derived from leveraging private sector finance in support of green growth.

### *Priorities*

| Early adopter | Broad actions to enable Western Cape to be an early adopter |
|---|---|
| **Financial framework:**<br><br>Mechanisms to support different stages of Smart Enterprise investment and other private and public sector investment that supports green growth. | **Enabling environment**<br><br>• Investigate potential financial mechanisms that ensure Smart Enterprises have access to capital to start up and scale up green production activities with particular focus on gaps and how to fill these and the financial innovation required to deal with new risks and investment opportunities associated with the new requirements of the green economy.<br>• Utilise the finance platform of the WCG's green economy working group to strengthen co-ordination, knowledge sharing and joint activity. |

# 4. Roles and Responsibilities

## Public Sector

The public sector is called on to play a leadership role in driving the green growth and inclusion agenda. As a large consumer of goods and services it has the ability to stimulate markets for green goods and services through changes to its procurement policies and purchases. The public sector also has a role to play in facilitating multi-stakeholder networks to catalyse partnerships and facilitate opportunities for synergies between stakeholders, sectors and industries. Finally, it has a role to play as a funder and facilitator of initiatives to support skills development, infrastructure and the development of new financial mechanisms to catalyse innovation and business development in the green economy.

### In particular the WCG will:

- Use its government building asset base to lead the transition to more efficient energy and water technologies;
- Work with national government, Eskom and the City of Cape Town to develop LNG infrastructure in the Western Cape;
- Develop an innovative finance facility to support green investment through finance, expertise and access to finance, particularly for small and medium enterprises and municipalities.
- Roll-out current public works programmes to improve our ecosystems, with a view to achieving increased financial leverage from such programmes and hence improved job creation.
- Support the agricultural sector to develop sustainable farming practices through targeted technology development;
- Provide market development support and platforms for local entrepreneurs including developing the Western Cape's green brand and product offering across South Africa and the continent; and
- Facilitate a green procurement drive in partnership with the private sector.

Local governments also have an important role to play by placing municipal services at the centre of their green economy strategies. Thus, they have key responsibilities in the areas of:

- Ensuring energy and water efficiency through incentives and pricing;
- Minimising waste to landfill by facilitating recycling;
- Identifying land for smart settlement solutions and working with the private sector to develop these solutions; and
- Expanding the public transport network and smart mobility options either directly or indirectly using regulations and incentives.

Both provincial and local governments need to build awareness among all citizens and organisations about the resource challenges facing the Western Cape and South Africa, as well as the opportunities inherent in living and working in a new and different way.

## Private Sector

The private sector must drive the green economy. Like the public sector, it also has a leadership role. As the producer of goods and services it has a responsibility to develop goods and services which are less resource intensive. This requires significant investment in research and development, innovation and then investment to develop the new products and business opportunities. The private sector is also a major consumer, providing huge opportunities via procurement of greener goods and services. There are opportunities to reduce the carbon and water footprints in the way work is carried out. There is a need to review how goods are packaged, transported and marketed. Minimising waste is another responsibility which requires changing work processes or finding new uses for waste materials that create new economic opportunities for others. As an employer, the private sector also has a responsibility to re-skill workers to meet the changing needs of the economy.

## CONCLUSION

Green is Smart represents the first step in a journey to make the Western Cape the lowest carbon province in South Africa and the green economic hub of Africa. The green growth path is no longer merely a 'good' environmental option. It is the only economic option to ensure future generations can live well. We need to rethink business models and find new models that are based on sustainable use of renewable resources and recycling those that aren't renewable. We also need to rethink wealth and focus not just on accumulation, but on living well today and in the future within the limits of the planet.

The transition ahead represents vast opportunities in developing and maintaining low-carbon, zero-waste homes, settlements and businesses. There are opportunities in mobility and infrastructure in managing bio-capacity, ecosystems, livelihoods and lifestyles. Enabling the change will create opportunities in finance, insurance, education, training and ICT. There will be new realities, rules and regulations and partners to engage. Smarter systems, people, designs, businesses and regions will prevail.

The WCG has decided to take the lead with the development of this strategy framework. It is a call for the whole of society to become engaged. We invite business, labour and civic leaders to join us in making a smart economy work in the Western Cape.

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