



# Mpumalanga Green Economy Roundtable

Roundtable proceedings report

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Mpumalanga Green Economy Roundtable  
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## GLOSSARY LIST

Co-generation	Simultaneous production of electricity with the recovery and utilisation heat, typically waste heat
Climate change	A sustained change in the earth's climate, especially a change due to an increase in the atmospheric temperature
DEA	Department of Environmental Affairs
DEDT	Department of Economic Development and Tourism
Green Economy	A system of economic activities related to the production, distribution and consumption of goods and services that result in improved human well-being over the long term, while not exposing future generations to significant environmental risks or ecological scarcities.
Green economy initiatives	Projects aimed at achieving previously defined green economy objectives, or any activities that support the implementation of such projects or the achievement of said objectives.
ILO	International Labour Organisation
MW	A megawatt is a unit of power equal to one million watts, and is especially used as an output measure of power stations
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
UNEP	United Nations Environment Programme





MPUMALANGA  
PROVINCIAL  
GOVERNMENT





## 1 BACKGROUND AND INTRODUCTION

South Africa embraced the green economy as part of a broader sustainable development agenda in the 2008 National Framework for Sustainable Development (NFSD). The NFSD vision aspires to “meeting the fundamental human needs of [South Africa’s] people, by managing its limited ecological resources responsibly for current and future generations, and by advancing efficient and effective integrated planning and governance through national, regional and global collaboration” (DEA, 2008, p. 8).

South Africa’s definition of a green economy originated during the 2010 Green Economy Summit (The Summit). The Summit Report defines the green economy as a system of economic activities that result in improved human well-being over the long term and do not expose future generations to significant environmental risks or ecological scarcities (DEA, 2010). The green economy is thus interpreted as sustainable development in action.

In practice, the green economy is characterised by substantial increased investments in green sectors and activities in order to enhance the efficiency and reduce the environmental impact of more traditional sectors. Combining policy reforms and investments provide a mechanism to align business activity, infrastructure, and institutions for the adoption of sustainable economic activities. The central idea is to increase the relative share of green sectors in South Africa’s economy (both in terms of new resource-light ‘green industries’ with environmental benefits and traditional sectors that have become greener) over the long-term - thereby creating more green and decent jobs, reduced energy and materials usage in production, reduced greenhouse gas emissions, and reduced pollution and waste (DEA, 2010) .

The concept of a green economy presents opportunities for sustainable economic development within the province of Mpumalanga. The 2011 Mpumalanga Economic Growth and Development Path (MEGDP) identifies the green economy as a strategic sector with the potential to create jobs (Mpumalanga Provincial Government, 2011). The Mpumalanga Vision 2030 (Vision 2030) recognises the contribution that green industries can have towards employment and economic growth (Mpumalanga Provincial Government, 2013) . Furthermore, the Mpumalanga Government is a signatory to the Mpumalanga’s Climate Change Declaration of 2011, which indicates a commitment to promote low carbon economic growth as part of the green economy.

In response to the national context of the green economy and the guiding principles outlined in the Vision 2030, in recent years Mpumalanga has explored various green economy initiatives with the dual purpose of mitigating climate change whilst creating jobs. Notable initiatives include the private and public sector collaborations in the Bio-Energy Cluster that promotes the development of alternative energy from bio-mass and bio-fuels (DEDT, 2010), and sustainable agriculture initiatives





like the development of agro-processing facilities for small holder and previously disadvantaged farmers.

Although the green economy has been part of Mpumalanga's political discourse, broader expert and stakeholder engagement on the issue has been limited. A clear local government champion for Green Economy initiatives in Mpumalanga has not yet emerged, and green economy initiatives often developed within departmental silos with no province-wide guiding strategic plan to realise green economy potential.

It is against this background that the Department of Economic Development and Tourism (DEDT), as the coordinating department for the development of provincial economic strategy, decided to develop a Green Economy Sector Development Plan, and this roundtable provided an opportunity to provide inputs towards this Plan. The roundtable aimed to gather valuable insights on potential provincial priority actions for the green economy, and to start building provincial consensus on the key elements of a Green Economy path over the next 15 years.

The roundtable was held over two days and included 24 speakers representing the Mpumalanga provincial government, the United Nations Environment Programme (UNEP), institutions of higher learning and research organisations such as Stellenbosch University and the Council for Scientific and Industrial Research, national government departments such as the Department of Environmental Affairs (DEA) and the Department of Science and Technology (DST), and the private sector.

## 2 ROUNDTABLE STRUCTURE

The Green Economy Roundtable was convened from 25 to 26 August 2016 under the overarching theme: *"The green economy as a drive of sustainable development and job creation in Mpumalanga."* The roundtable was made up of a wide cross-section of stakeholders invested in ensuring that Mpumalanga's future growth path is resource efficient, less carbon intensive and more labour absorbing.

The first day of the roundtable (Plenaries 1-4) aimed to introduce the green economy as a concept and facilitate discussions on what the concept entails within the Mpumalanga provincial context. The second day (Plenaries 5 and 6) focused on the draft Green Economy Development Plan and its proposed pillars of implementation. The second day's sessions facilitated targeted discussions and solicited inputs into the various elements of the plan.

The summit ended with the DEDT providing a suggested way forward and thanking participants, reminding them that this is the first of a number of engagements relating to economic development.







A summary of the plenaries and key takeaways from the presentations is presented in the sections that follow. Copies of presentations can be obtained directly from the author or online at: [link from Bio-Energy web interface].

### 3 PLENARY 1: HIGH-LEVEL OPENING AND INTRODUCTION

The summit commenced with series of high-level official opening addresses to provide an official welcome and outline the purpose of the roundtable. The main opening address was delivered by the honourable Member of the Executive Council (MEC) S.E. Kholwane; MEC of Finance, Economic Development and Tourism. The MEC outlined the threats and challenges arising from the current economic activities in the province and also raised a number of opportunities for action presented by the green economy. An official welcome was delivered by the Executive Mayor of the Steve Tshwete Local Municipality, Councillor M. Masina. The plenary included an official address that set the scene on the provincial regulatory environment, and a green economy expert address that introduced the concept and its evolution over the last decade.

The session was chaired by the head of DEDT M.W. Mkhize.

#### Addresses:

1. Clr M. Masina; Executive Mayor of Steve Tshwete Local Municipality
2. Hon S.E. Kholwane; MEC Finance, Economic Development and Tourism
3. Mr N. Nkonyane; , DEDT: Senior Official: Economic Policy and Planning
4. Ms C. Njenga: Head, UNEP Sub-Regional Office, Southern Africa

#### 3.1 Contextualising challenges driving the green economy

There is **global recognition** of the impact of increasing rates of resource exploitation on nature and the societies that depend on it. Environmental degradation has led to adverse effects on human health, persistent poverty, ecological scarcity, climate change and increased vulnerability to destructive weather events. This has exacerbated global challenges like inequality and high unemployment as a result of misdirected finance. The key question is how to support economic develop within a healthy environment and just society.

Locally, **Mpumalanga** remains a marginal role-player in the green economy, and particularly within green energy provision. This is largely due to a challenging regulatory environment, and engagement with all levels of government will be required to create conditions within which a green economy can thrive.





### 3.2 Summary of key information

UNEP defines the green economy as one that results in increased human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. According to a 2010 UNEP report titled *Pathways to Sustainable Development and Poverty Eradication*, there are 13 critical areas within the green economy which include: modelling, enabling conditions, agriculture, building, cities, energy, finance, forests, manufacturing, tourism, transport, waste and water. These areas can be informative in developing a green economy strategy for the province.

The Green Economy Inventory for South Africa is work being undertaken by the DEA and the Partnership for Action on Green Economy (PAGE) with the aim of taking stock of green economy activities within the country. This report is due for publishing in the last quarter of the current calendar year. This document indicates that the sectors showing the greatest green economy activity within Mpumalanga include agriculture, energy, and waste. Agriculture, transportation, and energy generate the largest number of green jobs nationally.

### 3.3 Opportunities for action

- The global discourse is now focused on an **inclusive** green economy. This entails a focus on the centrality of jobs; human resource development; investments into ecological infrastructure; natural resource conservation; and the building of institutions. The green economy must take into consideration and address issues of social justice at all levels of government and deliver practical solutions for the young, women, and the disadvantaged.
- The green economy offers huge opportunities for youth, particularly in the manufacturing sector (especially within information and communications technologies - ICTs). Engaging and upskilling the youth requires support and funding.
- Many initiatives within the green economy do not address the issue of innovation. Not enough is being done around innovation in South Africa; this could be an opportunity for Mpumalanga to develop an innovation hub.
- Research contributions are needed towards making fossil fuels cleaner. Coal remains a comparative advantage in the province, it is therefore important to determine ways of harnessing the resource in a cleaner manner.

## 4 PLENARY 2: GREEN ECONOMY TRANSITION AND COLLABORATION

The plenary delved into the current green economic activity within the province of Mpumalanga; provided an overview of what issues need to be considered in transitioning towards a green economy; and also highlighted the importance of stakeholder collaboration within sustainability





transitions. The session was chaired by the programme director for the roundtable Dr V Msimang who is the faculty head at the Mapungubwe Institute for Strategic Reflection.

#### **4.1 Key messages**

In setting the scene for the discussion on Mpumalanga's sustainability transition, the project team presented the research undertaken in developing the Green Economy Sector Development Plan. A number of green economy opportunities were identified for the province. Areas with high indicative potential based on current activities include: biomass energy, hydro-electricity, distributed solar generation, agro-processing, sustainable tourism, and waste management.

Within the developing country context, the green economy is seen as part of the just sustainability transition that is not only focused on decarbonisation and resource efficiency but also redistributive measures. There has been a shift globally from viewing the green economy as a sub-sector to instead considering it as a model for the wider economy. This change is not yet evident in Mpumalanga's framing of the green economy.

The guiding principles for green economy transitions, in section 4.2. Enabling factors for Green Economy transition are the mechanisms and tools to drive the transition. The enabling factors outlined in section 4.2 below are dependent on partnerships and collaborations for effective implementation.

#### **4.2 Summary of presentations**

##### *Current green economy activity in Mpumalanga (Ms N. Sokhulu; Researcher DNA Economics)*

The Green Economy as a concept has been part of the South African national discourse since the 2010 Green Economy Summit. Prior to determining strategies for transitioning Mpumalanga's economy it is important to develop a status quo of current green economy activities in the province. This presentation was done by the project team tasked with developing a green economy strategy for the province.

In order to develop a view on the state of current green economy activities, stakeholder engagements were conducted. The process began with national, provincial and local government, industry associations, research institutions and development finance institutions and culminated in interviews with the private sector.

The research was guided by the green economy focus area outcomes from the national Green Economy Summit of 2010. However, the outcomes from the stakeholder engagement were organised into high-level thematic areas that are essentially sectoral groupings. These include low





carbon economy (e.g. renewable and alternative energy), Natural Resource & Environmental Management, and Green Towns and Cities. A list of activities identified that fell under each of these thematic areas was provided in the presentation.

Cross-cutting insights:

- Stakeholders consistently highlighted the high regulatory burden as an inhibitor to the development of green initiatives. The regulatory requirements to develop activities like renewable power are numerous and complicated, and it is often difficult to know where to find assistance to overcome these barriers.
- There is a limited number of visible green economy champions in the province, specifically within the leadership of the provincial government. Stakeholders speaking on behalf of small and medium enterprises (SMEs) indicated that they do not know whom to approach regarding green matters.
- Related to the green champions, stakeholders indicated they were not aware of a central contact point that deals with green economy issues within the Mpumalanga government. There is often frustration when requesting assistance or information on the green economy at provincial, district or local government level.
- There are also challenges in accessing credible information relating to green economy procurement opportunities and service providers within Mpumalanga. This results in businesses being vulnerable to fly-by-night operators that deliver inferior products and services.

The emerging areas for green economy development based on current activities are highlighted in Table 1 below.





**Table 1: Summary of green sector development potential**

Thematic Area	Programme ideas	Activity Status	Green Economy Potential	Application
Low Carbon Economy	Bio-mass electricity generation industry	High	High	Ehlanzeni & Gert Sibande
	Scalable Bio-fuels	Low	Low	Province wide (feedstock dependent)
	(Mini) Hydro- electricity development	High	High	Ehlanzeni
	Promotion of energy efficiency	Medium	Medium	All sectors of the economy
	Distributed generation: solar energy	Medium	High	Province wide
	Scalable wind energy	None	Low	Gert Sibande?
Natural resource management & environmental management	Development of Agri-industry outside of established farming based on Agri-hubs	High	High	Province wide
	Support of small-scale and community farming	High	High	Province wide
	Sustainable agricultural practices-irrigation etc.	Unknown	Unknown	Province wide
	Water management: Re-use, recovery and loss minimisation	Medium	High	Mining, agriculture, municipalities
	Bio-diversity protection and monetisation	Medium	Medium	Province wide
	Expansion of eco-tourism	Medium	High	Province wide
	Clean cooking stoves	Unknown	High	Province wide
	Air pollution management	Medium	High	Nkangala





Thematic Area	Programme ideas	Activity Status	Green Economy Potential	Application
Greener towns and cities	Waste management: recycling	Medium	High	Municipalities (feedstock dependent)
	Waste-to-energy: landfill gas	Low	High	Feedstock dependent
	Switch from road-to-rail	Medium	Medium	Market dependent
	Sustainable transportation in towns	Unknown	Low	Province wide

Source: DEDT; Current green economy activity in Mpumalanga.



*Transitioning towards a green economy (Dr JK Musango; Senior Lecturer, Stellenbosch University)*

The concept of green economy transitions has evolved and intensified over the last two decades. This presentation assesses the key considerations that are part and parcel of a green economy transition. It also builds a case for green economy modelling and its usefulness within the perspective of green transitions. Examples of green economy models and outcomes for countries such as South Africa, Rwanda and the Western Cape Province were provided.

The key considerations in green economy transitions include:

- Green economy strategies at various levels of government should be customised and developed locally.
- An identification of priority areas for policy-making which will ultimately direct investment and spending towards activities that stimulate a green economy.
- A framework for green economy analysis that identifies the relationship and interactions between economic, environmental and societal issues.
- An understanding of investment implications of green economy transitions, e.g. the cost implication of green economy transitions.
- The measurement of how the green economy performs over time. It is hard to manage something that is not measured. Modelling presents an opportunity to explore how green growth interventions can affect the economy in the long-run.

Green economy models provide a tool to examine how the green economy might perform over time. Models are developed through dynamic analysis that deals with the complexity of economic, social and environmental interactions and the interconnections of various systems. Modelling tools can provide short, medium and long-term simulation which can extend over a 30-year period. The simulations develop pathways that show how the green economy offers an alternative to the business-as-usual scenario. The simulations can address investment scenarios and optimisation. This exercise outlines the level of investment required to develop the green economy as a whole and also various green sub-sectors. This can be expressed as a percentage of a region's (country or province) GDP value.

*Inclusive Green Economy transitions: models for collaboration (Dr N. Mohamed; PAGE National Co-ordinator)*

Green economy activities and initiatives are drivers of the transition. Often activities cut across multiple sectors and require extensive collaboration in delivery. This presentation offers insights into effective collaboration; gives examples of various activities and initiatives at various levels of government and those driven by the private sector that rely on collaboration; and provides case studies on what drives these collaborations.

Collaborative partnerships are required across all the enabling factors for Green Economy transitions. The enabling factors include: sound policy and regulation; the focus on job creation through greener economic sectors; climate change and environmental commitments; research and



innovation; education, skills development, and training; and finance. An example illustrating green economy collaboration is outlined below.

*Partnerships in skills development: Green jobs training program for South Africa (2014-15)*

**Driving Institutions:** Green Fund, Development Bank of Southern Africa, Department of Environmental Affairs, and International Training Centre of the ILO (ITC-ILO).

**Concept:** To promote green jobs and decent work in the transition to a greener economy in South Africa by strengthening the institutional capacity of national and provincial governments, civil society organisations and the private sector in South Africa to make national-level and sector specific green jobs promotion policies actionable.

**New Perspectives and Impact:** Application of green jobs approaches and inclusion in institutional plans and practices at national, provincial and local level – reached over 160 trainees.

**Diffusion:** Interest expressed from provincial and local government to access training and integrate job-creation in green economy plans and strategies

Source: PAGE Presentation: Inclusive Green Economy transitions; models for collaboration

### 4.3 Opportunities for action

- Mpumalanga could gain valuable insights from a provincial green economy model.
- In the development of green economy strategies, the concept should not be approached as a new sector but rather as a new direction for existing sectors.
- In order to develop a green economy a pro-poor and inclusive approach to green economy policies, strategies and initiatives must be premised on collaborative principles. Acting in silos is both ineffective and counterproductive.
- The province's endowment of coal resources presents an economic opportunity that can benefit the province for decades. There needs to be innovative thinking around how to 'green' the use of coal in the province.
- The Mpumalanga government has been encouraged to tap into national programmes, and share best practices and lessons with other provinces.

## 5 PLENARY 3: ENABLING THE GREEN ECONOMY

The transition towards a green economy requires key enabling factors, some of which have been outlined in the previous section. Enabling factors include government funding, a clear policy and regulatory framework, and government support for innovation which can ignite green economy transitions. This plenary unpacked how these enabling factors are operationalised at national







government level. The session was chaired by Ms C. Njenga; Head of the UNEP Sub-Regional Office.

## 5.1 Key messages

From a policy perspective, the green economy is viewed within the context of sustainable development. International commitments such as the 17 sustainable development goals (SDGs) become important in the discussion of the green economy. There is an overlap with the SDGs and UNEPs 13 critical areas within the green economy as highlighted in plenary 1. Adopting a green economy approach contributes towards addressing a country's development challenges.

The cross-sectoral policy and strategic framework to enable the green economy is in place at the national level (see Figure 1). Responsibilities in implementation are well dispersed amongst the relevant departments. What becomes important is translating the green economy into a concept that is meaningful to people in rural areas. The issue of inclusiveness of the green economy is imperative.

Green economy transitions require funding. The Development Bank of Southern Africa's Green Fund (the Green Fund) has been created with the sole purpose of funding green economy activity. The main focus of the Green Fund is on project development finance, with relatively little research and development funding available. Investments made through the Green Fund are undertaken through rounds of funding windows. The next funding window will focus on under-resourced provinces. The disbursement of funds amongst these provinces is yet to be determined. Mpumalanga may have an opportunity to participate in the next round.

Part of the transition towards a green economy incorporates moving from a resource-based economy to a knowledge-based economy where the co-existence of intangible assets and physical assets becomes important. Within the knowledge economy intellectual assets create wealth. It is therefore important to understand how to protect intellectual assets through the tool of intellectual property rights.

## 5.2 Summary of presentations

*Green economy policy and strategy perspective in context of sustainable development (Mr G. Munery; Sustainable Development, DEA)*

Policy plays a very important role in enabling the Green Economy. Policy-making can address key issues such as: environmental externalities and market failure; the channelling of government spending towards depleted natural capital; and promoting investment and spending in areas that stimulate green growth. The DEA is tasked with the stewardship of the Green Economy nationally.





The representative from the DEA outlined the international, national, provincial and local frameworks that inform and regulate green economy activity.

Some of South Africa's key international commitments with respect to the green economy include following the 2012 Rio + 20 - agenda 21 which adopted a 10-year framework on green economy actions; meeting the 17 Sustainable Development Goals defined at the United Nations Sustainable Development Summit of 2015 and implementing its Intended Nationally Determined Contribution under the United Nations Framework Convention on Climate Change (UNFCCC). In meeting the SDGs and creating a greener economy, South Africa needs to address key developmental challenges, namely: the state of a declining environment, greenhouse gas emissions, and increasing trends of poverty, inequality and unemployment.

The Green Economy forms part of the sustainable development vision for the country, which is supported by a number of policies and plans. Key policies include: the 2030 National Development Plan; Medium Strategic Framework and Outcomes; the 2020 New Growth Path; IPAP and Accords; as well as the 2014 National strategy for sustainable development. Other policies and plans are outlined below:





Figure 1: National policy and regulatory framework for the green economy



Source: DEDT; Green economy policy and strategy perspective in context of sustainable development

Green economy planning has extended to both the provincial and local levels of government. Six provinces have developed strategies including: Free State, North West, Limpopo, Western Cape, KwaZulu-Natal and Gauteng. The City of Tshwane is one of the few local municipalities that have developed a framework for the green economy transition.

The DEA has run a number of initiatives to display practical evidence and leadership on the green economy transition. DEA driven projects and initiatives include: the national Green Fund, the DEA 6 star rated green building in Pretoria, and a fleet of electric and hybrid vehicles that are at the department’s disposal. The DEA has also been spearheading sustainability transition dialogues, the aim of which is to identify challenges, opportunities and threats that affect the implementation of sustainability transitions including the green economy.





As the custodian of the national green economy transition, the DEA offered advice to the province on facilitating green economy transitions by highlighting the importance of strategic partnerships across multiple stakeholders; the importance of prioritisation based on the strengths of the province; and the significance of due focus on innovation, research and development.

*Development finance in the green sector (Dr M. Sayed; Principal Investment Officer, DBSA Green Fund)*

The Green Fund was established in 2012 as a partnership between the DEA and the Development Bank of Southern Africa (DBSA). Funds are provided by the DEA and managed by the DBSA. One of the key objectives of the fund is to support innovation and high impact green economy initiatives and programmes. The fund's role is to be a catalyst for green economy transitions.

Funding is in the form of non-recoverable grants (projects with strong social, environmental impacts with low prospects for commercialisation); recoverable grants; loans; and equity. The fund's participation is aimed at unlocking barriers and investment stretching across the entire innovation value chain.

Investments made through the Green Fund are undertaken through rounds of funding windows that are not necessarily mutually exclusive. These have focused on specific thematic areas: low carbon economy; environmental and natural resource management; and green cities and towns. Across the thematic windows, support is targeted at project development, capacity building in green initiatives and research and development initiatives that feed into the policy and regulatory environment for the green economy. As mentioned, the next funding window will focus on under-resourced provinces.

The Green Fund has a partnership with Small Enterprise Finance Agency (SEFA) and SCF Capital Solutions. The main aim of this partnership is supply chain financing targeting SMEs. This form of funding assists SMEs with their cash flow management. The Green Fund also has accreditation to provide climate finance through the Global Climate Fund.

*Intellectual property is a green economy enabler (Dr M Nyatlo; Director, Intellectual Property Management Office, DST)*

Intellectual property (IP) refers to "creation of the mind". Intellectual property rights are "the rights given to persons over their creations of the mind" and these can be in the form of a patent, plant breeder's rights, or a trademark.

IP has played a role in the deployment of renewable energy technologies within South Africa, especially through the importing of equipment such as wind turbines and solar panels through licensing. This behaviour makes the country become dependent on foreign technologies. It is





imperative that an inclusive green economy focuses on developing local technologies; developing capacity and capability locally.

IP plays a role in improving investor confidence in products. There are a number of examples of local innovative solutions that lend themselves to IP protection. These include JoJo tanks, biomass sources of harnessing energy, and coal cleaning technologies.

### 5.3 Opportunities for action

- The province has potential related to biomass energy generation. The challenge, however, is that young entrepreneurs are finding it hard to participate. Access to finance is a challenge and government tends to emphasise engagements as opposed to taking steps towards implementation.

## 6 PLENARY 4: GREEN ECONOMY KNOWLEDGE, SKILLS AND INNOVATION

Knowledge, skills and innovation are key enablers for the green economy. Plenary presentations highlighted the role that research plays in the green economy; illustrated best practices in implementing projects in the green economy; and also provided practical examples of skills gaps in the local economic development criteria within Independent Power Producers Procurement Programme (IPPPP). The session was chaired by Dr N Mahomed from the Stellenbosch Centre for Renewable and Sustainable Energy Studies (not to be confused with DR N Mohamed from PAGE).

### 6.1 Key Messages

From the industrialization perspective, the cost of production is increasing due to increasingly scarce resources and environmental costs. This is unsustainable. Innovation becomes key in driving down emissions, environmental impact, and costs of production. But innovation in itself requires skills, research and development (R&D), and knowledge transfer.

The green economy requires the development of networks that facilitate innovation. In the context of South Africa, no stakeholder is likely to be successful while attempting this in isolation. This calls for the facilitation of new business partnerships, and bringing together different role-players in a formalised structure is key for sharing information and facilitating private public partnerships. GreenCape is offered as a case study for collaboration around innovation, research, and development.

R&D activity within the green economy is nascent in South Africa. It is important to support the advancement of industrial applications of new local technologies. When considering the technology





development life cycle for green technologies in South Africa (proof of concept → demonstration → first commercial plant → proven commercial solution), it is clear that there is not sufficient demonstration activity nationally.

Knowledge transfer and skills development at the local community level is lagging. Drawing from the IPPPP experience in local economic development shows that communities lack the basic awareness and understanding of the green economy. This can be attributed to low literacy levels; low economic base; and low levels of entrepreneurship - especially in the remote areas where renewable IPP projects are being developed. These issues are resulting in limited meaningful participation from local communities.

## 6.2 Summary of presentations

*Innovation, Research and Development for the Green Economy (Dr J Gorgens; Stellenbosch University)*

At its core the green economy forces stakeholders to reassess current economic activity and innovate to ensure sustainability. This presentation assessed the role of provincial government in the innovation and research and development space. An example of innovation emanating from business partnerships (GreenCape), as well as context on innovation that addresses the development of new technologies is provided.

### **The GreenCape case study**

GreenCape is a not-for-profit organisation (NPO) that was created in 2012 to facilitate renewable sector development within the Western Cape. The main objective was to have an independent sector development agency that bridges public and private sector activities for economic growth and job creation.

*What makes GreenCape noteworthy?*

- The organisation has facilitated local industrial capacity, skills development and assisted project developers in the navigation of procurement and regulatory processes. The NPO has also driven local manufacturing and skills development within special economic zones.
- It has allowed for multi-stakeholder access; facilitating networking and points of leverage.
- The NPO has positioned itself as a credible, expert organisation that addresses barriers in green economy transitions.
- It has managed to attract regional investments as well as international development





agency financing. A total of R17 billion has been attracted to the province from 2010 till 2015.

- The organisation is also an example of effective multi-stakeholder collaboration. It draws on expertise from academics, the private sector, and the public sector to direct strategy and identify interventions. This has resulted in the provision of reputable information within the Green Economy.

Mpumalanga has a strong sugar industry which presents opportunities for the development of a bio-refinery in the province. The bio-refinery process will bring new products into the sugar industry (e.g. bioplastics; biofuels). The key consideration is which products are most needed and most beneficial. Currently work is underway to determine which bio-products will be best.

In terms of research and development, specifically technology demonstration, South Africa can be characterised as being technology conservative. Mpumalanga's Sappi Ngodwana plant has waste sludge production of up to 50 thousand tons per day. A mobile bioprocessing plant is currently under demonstration to take advantage of this waste. The conversion of waste to bio-energy can provide good economic returns. Triple environmental benefits can be achieved through waste reduction, water recovery and fossil fuel replacement.

*Skills and education for the Green Economy (Ms N. Kahlana; Founder & Managing Director, Energy House ZA)*

As one of the success stories of the Green Economy, the IPPP programme provides key lessons as to the nature of skills development within local communities. This presentation highlighted some of the challenges and opportunities relating to skills development and education.

Outline of Challenges:

- **Basic Awareness & understanding of the green economy:** local communities are not aware of climate change and its impact on their daily lives. The benefits of energy efficiency are also not taught and promoted. Communities are not aware of the tools that could contribute towards building local resilience to with stand the adverse effects of climate change.
- **The IPP Framework itself does not make a meaningful contribution towards skills development:** actors within the renewable power project development teams are often under time pressure to meet needs for financial security and guarantees. The result of such constraints is low levels of skills transfer as most people are employed temporarily during construction. There is also little emphasis on local business development. There is not





enough capacity in local SMEs, so the majority of businesses miss out to out-of-town operators. This needs to be addressed.

- **The location of projects** presents a challenge in ensuring local economic participation. Factors such as: low literacy levels; low economic base; limited infrastructure; lack of education institutions or skilled educators in close proximity and low levels of entrepreneurship act as a barrier.

There are a number of opportunities that are under-utilised within the broader green economy sector. Meaningful black ownership and participation is still limited, and opportunities in the waste economy, alternative and sustainable building material, and energy storage technologies are not adequately exploited.

### 6.3 Opportunities for action

- A sector development agency similar to the GreenCape could support the development of the green economy in the province.
- There are opportunities to localise the biomass power generation value chain, more so than solar and wind technologies.
- It is important to start exposing students to the green economy concept either at high school level or at undergraduate level.
- FET colleges can play a role in the development of artisanal skills that can be deployed in the green economy.

## 7 DRAFT GREEN ECONOMY SECTOR DEVELOPMENT PLAN FOR MPUMALANGA

The second day of the roundtable focused on the draft Green Economy Sector Plan as developed by the project team. The day started with a presentation of the draft Plan. Due to it being a detailed implementation plan, the presentation cannot be succinctly summarised for the purposes of this report – and it is suggested that readers consult the presentation for details of the Plan. The four implantation pillars which are essentially the priority areas for implementation in the province are: biomass energy generation; sustainable agriculture; greener town and urban centres; and sustainable tourism. The strategic thrusts of each implantation pillar are depicted in Appendix 1.

### 7.1 Calls for action on the draft Plan

This section outlines the high-level feedback received on the Plan. Discussions on the specific pillars by local experts follow in section 9.







- A question was raised on whether the draft Plan has targets and timelines. The project team highlighted the timelines on the presentation. The Plan is structured in a manner that guides implementation instead of focusing on targets. Many outcomes are tangible (i.e. projects). The more abstract actions (i.e. diagnostic evaluations) are expected to lead to targets once more detailed information is available. The proposed Plan is the start of the green economy development, and will be reviewed and updated along with other provincial policy documents as the green economy evidence base is expanded.
- It is important to position the green economy not as a sector, but pervasive across all sectors.
- Some commentators felt that the draft Plan includes a bias towards energy, but it was acknowledged that this was largely as a result of information availability and is expected to change over time as more information about other focus areas becomes available.
- The question was raised whether there is sufficient description of how each recommendation affects social and environmental issues.
- Given Mpumalanga's reliance on fossil fuel industries, an emphasis on innovation that can leverage these industries to develop the green economy is important (e.g. utilising Mpumalanga's large mining waste and fly ash deposits).
- There is currently a lack of implementation capability in the province. There is therefore a need to consider or map the institutional capability required to implement the green economy plan.
- The Bio-energy cluster offers more opportunities than what is outlined in the Plan. The Cluster could be a good platform to launch the Mpumalanga equivalent of GreenCape. The key question is how this platform can transition into an entity that can support and eventually originate and manage projects like GreenCape.

## **8 PLENARY 5: GREEN SECTOR PILLAR, ALTERNATIVE AND CLEAN ENERGY**

Renewable energy development has gained prominence nationally due to the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP). The province lags behind others in terms of REIPPPP projects. This session aimed to highlight clean energy information sharing platforms in the province, such as the Bio-Energy Cluster, that can support the development of REIPPPP and smaller scale renewable energy projects. The session outlined the requirements of participating in the national REIPPPP programme as well as alternative forms of producing energy outside of the electricity grid. The challenge of ensuring the inclusion of local communities in the deployment of clean and alternative energy was also discussed. The session was chaired by Mr N Stolz a Specialist Engineer at RCL Foods and Chairperson of the Bio-Energy Cluster.





## 8.1 Key messages:

The Bioenergy Cluster Committee brings together a broad group of stakeholders involved in bio-energy – including government, financiers, and project implementers. The committee focuses on bio-energy but also accommodated other renewable energy technologies. The Cluster is led by industry with support from a secretariat housed within the DEDT. Meetings are held quarterly and interested stakeholders can reach the DEDT for further information.

The bio-energy potential of woody biomass was discussed during the session. Wood is a sustainable energy resource. South Africa has an underutilised biomass energy potential. Mpumalanga is believed to be able to develop at least 100 megawatts (MW) of woody/co-generation power plants from sawn timber

There are other options for providing energy without using the electricity grid. Solutions such as biogas digestion offers communities, municipalities, and businesses the option to generate energy at their door step through using commonly available feedstock. As an example, the deployment of biogas systems in water waste treatment facilities within municipalities can reduce human and biological waste, create employment opportunities, and generate energy within the municipality. There is also a potential to generate revenues for municipalities through selling gas or organic fertilizer.

The REIPPPP has a local economic development mandate that goes hand in hand with the deployment of power generation plants. Social transformation can be created through this programme and the broader sector, but radical change is required from the private sector's approach in viewing community development as another form of charity or welfare. Communities should see themselves as participants in their own development rather than beneficiaries. Investments into economic development must attract new industries into communities.

## 8.2 Summary of presentations

*Unlocking the Potential for Biomass Power Generation (Mr S Grobbelar; Group Engineer, York Timbers)*

Mpumalanga's participation in the Renewable Energy Independent Power Producer Procurement (REIPPPP) programme has been predominantly in the area of biomass power generation. The presentation explained what biomass power generation is, provided an indication of the provincial biomass potential, outlined what the REIPPPP is and provided details on the requirements of participating in the programme.

As of the 23 of August 2016, the REIPPPP has procured 6 376 MW of renewable energy from 102 projects. The biomass electricity generation procurement amounted to 52 MW from four projects,





none of the projects are operational. What makes this programme attractive is the 20-year power purchase agreements with locked-in electricity tariff increases. There are roughly 14 requirements for bidding in the IPPPP. Important requirements include the Environmental Impact Assessment; the water-use licence; the waste licence; zoning rights; project financial model and projections of energy production; spend on socio-economic development; the engineering, procurement and construction (EPC) of the project; and evidence of funding. Mpumalanga has an advantage in that grid connection is less of a challenge when compare to provinces like the Northern Cape.

Wood biomass comes from the damaged parts of forestry trees: top of the tree; branches of the tree etc. The resource is renewable because wood sequesters carbon. Mpumalanga can develop approximately 100MW of woody/co-gen power plants from sawn timber. This capacity is comparable to the capacity of one large scale solar PV plant deployed in the Northern Cape.

*Developing projects outside of the grid (Mr G Ayres; Managing Director, Biogas Pro Agama)*

It is important to decouple the word energy from electricity. Access to modern energy is a challenge even amongst those who can flick on the light switch. Energy poverty describes people who are unable to stay warm and unable to cook.

The need for biogas solutions is driven by challenges arising from: the impact of energy cost and supply; scarcity over water resources; management of human and urban biological waste; cost-effective servicing of disadvantaged communities, and the boosting of local communities.

Any biological waste can be used as a feedstock. Bacteria is another feedstock that facilitates the production of gas in the reactor. The biogas generated is methane; the bio-slurry can be used as an organic feedstock.

*Bioenergy has a number of benefits.* Biogas systems can be deployed at the local level either at municipal level or within households. Plans are generated for each site, allowing for community meetings during the site assessment phase. Local and unskilled labour is also recruited from the community as a result of the meetings. Biogas can assist municipalities in meeting commitments around service delivery. The solution removes the need for costly waste management services as it essentially creates bio-degradable municipal waste that does not need to be processed before disposal.

Importantly, unlike many other renewable energy applications, jobs are created during the construction phase as well as the running of micro and plant systems. The management of the sale of gas and gas metres also facilitates SMME development. This means that wealth stays within the community and does not get channelled into centralised areas as in the utility model (Eskom).





### *The REIPPPP and Local Economic Development (Ms F Mthembu; Managing Director, Knowledge Pele)*

The REIPPPP has been successful in terms of its contribution to energy supply in the country. Socio-economic development is an obligation within REIPPPP, with close to R20 billion allocated to development efforts. The challenges emanating from socio-economic development within the program include a failure in measuring the impact of the money spent on development. Private sector involvement in community development is often perceived as charity instead of development, and may ignore the true needs of communities. Community members then view themselves as beneficiaries rather than participants in their own development which leads to the community voice not being heard.

Practical steps are required to ensure that local economic development activities result in meaningful participation by the affected communities. It is important that production in the green economy focuses on job creation, specifically that of black people and local communities. The participation of previously disadvantaged individuals is limited to ownership through shareholding. The owners of the means of production need to increasingly include black people and local communities; there is a need to create black industrialist not only black shareholders.

### **8.3 Opportunities for action:**

- Renewable energy projects provide an opportunity for social upliftment, provided that the needs of local communities are taken into consideration and interventions are targeted to these needs.
- Specific renewable energy interventions, like bioenergy, can address service delivery and socio-economic development goals simultaneously – thereby benefitting both communities and municipalities.

## **9 PLENARY 6: REMAINING GREEN ECONOMY PILLARS**

This session addressed the remaining pillars as proposed in the plan. What was highlighted within each pillar are the challenges emanating from the status quo and opportunities presented by green initiatives. The session was chaired by the programme director for the round table Dr V Msimang.

### **9.1 Key messages**

The waste economy has the potential to create numerous environmental social and economic opportunities for South Africa. A national challenge exists relating to the availability and use of





landfill sites. A number of opportunities exist to address this and divert waste away from landfill site through the reuse, recycling and recovery from waste streams. Recycling opportunities extend beyond paper and plastics, and there are sizable opportunities in particularly organic waste (13% of waste composition) and builders' rubble (20% of construction and demolition waste). South Africa lags other parts of the world where waste economy activities focus on the creation of value added products from waste. Mpumalanga has extensive mining and power generation waste streams and deposits due to its dominance in electricity generation nationally. There is potential to reuse this material, but further analysis through technical feasibility studies are required in order to quantify this opportunity.

Sustainable tourism is becoming a strong demand driver within the tourism industry. National efforts in promoting sustainable tourism are at an early stage of development, and there is significant scope to expand sustainable tourism amongst small tourism business in particular. The Sustainable Tourism Partnership Programme is trying to drive the uptake of sustainable tourism practices amongst tourism SMEs.

The combination of various elements of the green economy is delivering sustainable solutions to some communities. The SERE Wind Farm project, where Eskom partnered with the Endangered Wildlife Trust (EWT), highlights some of the less obvious local development possibilities arising from green energy deployment. These include the use of biodiversity assets to drive local employment opportunities, and the use environmental compliance monitoring requirement to empower local communities with the skills and knowledge to maximise these value of these assets. The SERE property has also become a tourism attraction due to curiosity over the wind turbines and the natural beauty of the location.

## 9.2 Summary of presentations

*Opportunities in the Waste Sector (Prof L Godfrey; Principal Researcher, Waste Research Development and Innovation Implementation Unit, CSIR)*

The national statistics relating to the waste economy highlight a dire situation with respect to waste management across most municipalities in South Africa. According to the DEA, an estimated 90% of the waste households generate is disposed of to landfills – often to very poorly designed and operated dumpsites. GreenCape indicated that about 85% of builders' rubble (mineral component) is landfilled in the Western Cape.

Waste economy opportunities impact the environment, the economy and society at large. Environmental opportunities lie in diverting waste from landfills in order to reduce the impact of waste on the air, water, soil. Social opportunities arise through low-skilled job creation in open-spaces cleaning waste collection, and the collection and sorting of recyclables. GreenCape has





recently shown that diverting  $\pm$  2.3 million tonnes of construction and demolition waste (builders' rubble) away from landfills within the City of Cape Town can create 500 new jobs over a four year period. Economic opportunities can arise from recycling waste as inputs back into the economy, new business opportunities stemming from the refurbishment and repair of goods, e-waste, and power generation from waste.

*Water Use Authorisation (Mr T. Khosa: Department of Water and Sanitation (Water Use License Authority))*

The Department of Water and Sanitation has a mandate to authorise water use in order to ensure water resource management from both a quality and quantity perspective. Water is a key enabler to all economic activity. There needs to be equitable water allocation to facilitate economic growth. Economic sectors with significant water use include agriculture and irrigation (62%) and domestic water use (27%). It is important to note that not all water uses require a licence: licencing becomes a requirement when water use represents a risk to a water resource.

It takes 300 days to process a water utilisation licence. REIPPIPP projects initially receive non-binding letters to allow the bidding process to proceed. The decision to grant a licence takes into account economic, environmental, and social considerations. Applications are submitted through Water Management Areas. In Mpumalanga these are the Olifants & Inkomati-Usuthu Catchment Management Agencies.

*Sustainable Tourism (Ms C Ungersbock: Chair and co-founder of the Sustainable Tourism Partnership Programme)*

UNEP defines Sustainable Tourism as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities." Sustainable tourism is not a new form of tourism, but brings a focus on social, environmental and economic issues to all tourism activities. It is important to ensure that tourism is responsible in protecting and conserving the environment whilst delivering quality service to tourists.

SMEs make up 90% of the tourism business, and should therefore be a focus for sustainable tourism. The Sustainable Tourism Partnership Programme has run programmes around resource efficiency, waste management and the encouragement of cultural and socially sensitive tourism throughout South Africa. A project in Magaliesburg encouraged local procurement amongst guesthouses in the region through the development of a soap factory and vegetable gardens.

It is key that small businesses are trained on how to increase the sustainability of their operations. Encouraging tourist establishments to use local procurement could contribute towards their own sustainability and local social development.





*The importance of resource conservation, challenges and opportunities: case study of the EWT work in the SERE Wind farm (Mr C Hoogstad: Programme Manager on Energy, EWT)*

Environmental management at green energy sites is very important for the preservation of biodiversity. Solar and wind projects can have a negative impact on biodiversity. Concentrated Solar Plants can incinerate birds and insects, and birds and bats regularly collide wind turbines. It is therefore crucial to monitor and limit the environmental impact of green energy.

The SERE Wind Farm, for example, demonstrates the positive impacts of green energy on biodiversity. Eco-tourism in the area has been stimulated by tourists wanting to view the large-scale wind.

In addition, the environmental monitoring of local plant and animal species at the site has led to further tourism activity and job creation for the local community. The Endangered Wildlife Trust has trained local women to monitoring the impact of the wind farm on local fauna and flora, and this information was used by the women to develop bio-diversity-centred tourist programmes. The women have also started providing environmental monitoring services to other renewable energy projects in the area. The SERE wind farm has thus resulted in both renewable and sustainable development.

### **9.3 Opportunities for action**

- Municipalities need to get the basics of waste management right in order to take advantage of opportunities for green economy development. The implementation of measures such as separation of waste at source can go a long way to enable the cost-effective recovery of greater volumes of re-usable and recyclable material from the waste streams to facilitate further beneficiation
- The economics of waste management need to be addressed, as it is still too cheap to dispose of waste at landfill site throughout the country – thereby inhibiting the development of waste minimisation options
- The development of local sustainable tourism businesses is often negatively impacted by the existence of archaic by-laws. Removing or updating these by-laws can stimulate sustainable tourism development
- Innovative ways exist to drive local economic development through the creation of long-term partnerships with local communities and skills transfer. Combining the environmental compliance and local socio-economic imperatives of renewable energy projects can help to stimulate local employment and development.





## 10 WAY FORWARD

The key driving forces behind the green economy include the growing concerns about the environmental unsustainability of past and current economic growth patterns and the risk of the irreversibility of their impact on natural resources and the environment. The environment and the economy can no longer be viewed in isolation. What is also clear is the need to address the socio-economic imbalances of inequality and unemployment that characterise the current economic growth patterns.

Transitioning towards a green economy involves a number of interacting moving parts and therefore requires effective collaboration and a continuous planning, monitoring and evaluation process. It is also important to organise collaborative efforts around key priority activities in order to build momentum for the green economy. This roundtable has started this process, and it is envisaged as only the first of a series of engagements on the development of the green economy in the province.

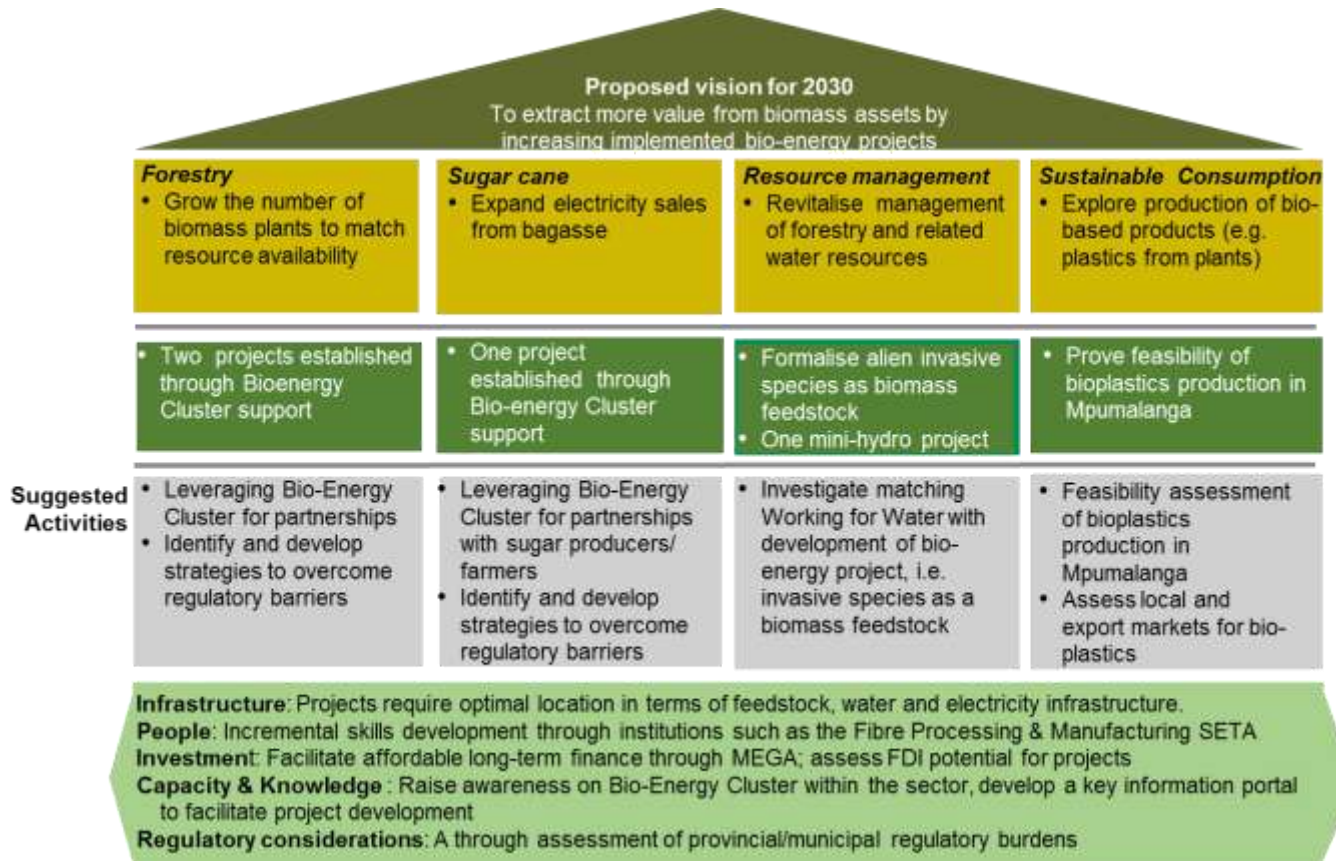






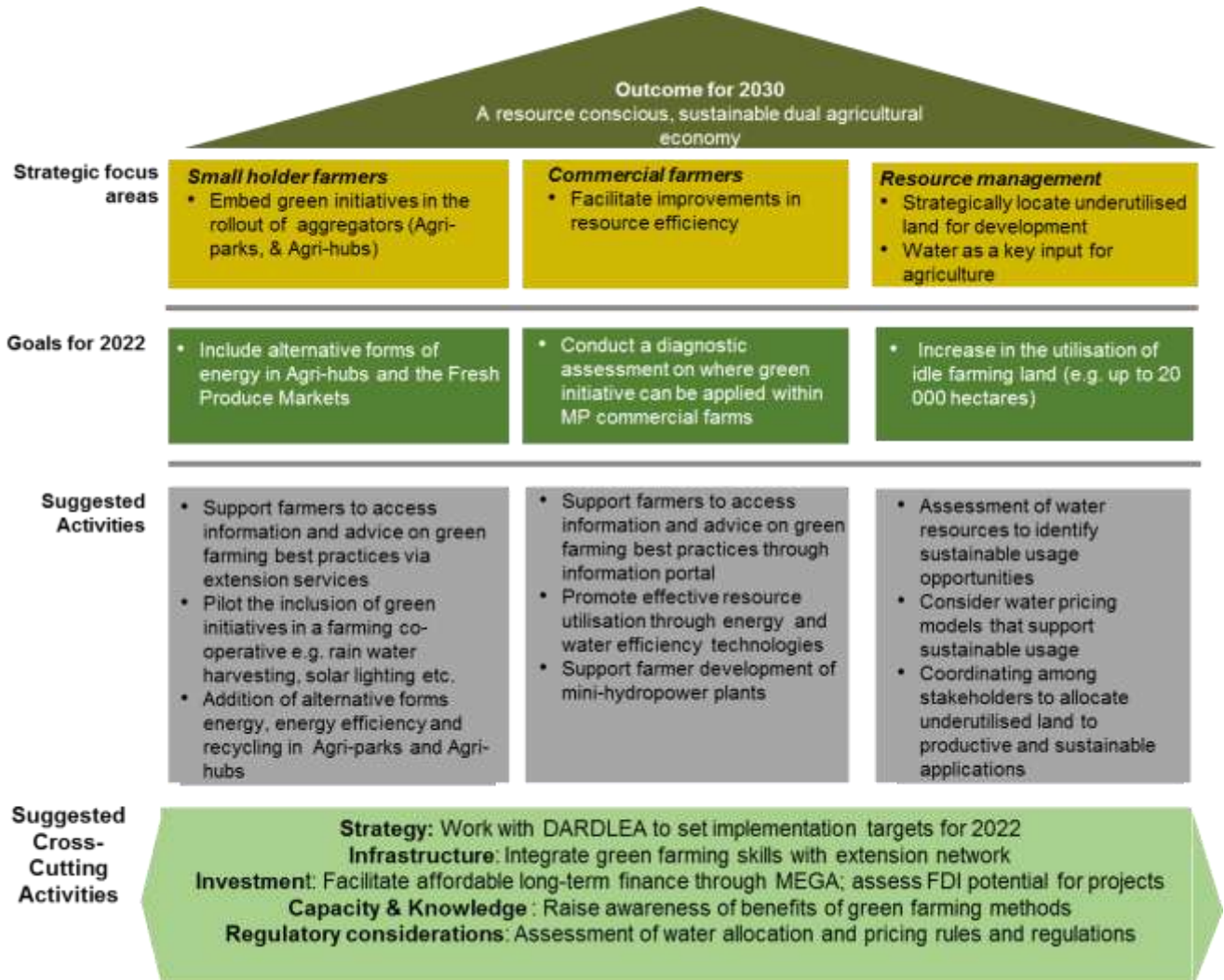
## APPENDIX 1 GREEN ECONOMY IMPLEMENTATION PILLARS

### A 1.1 Bio-mass sector



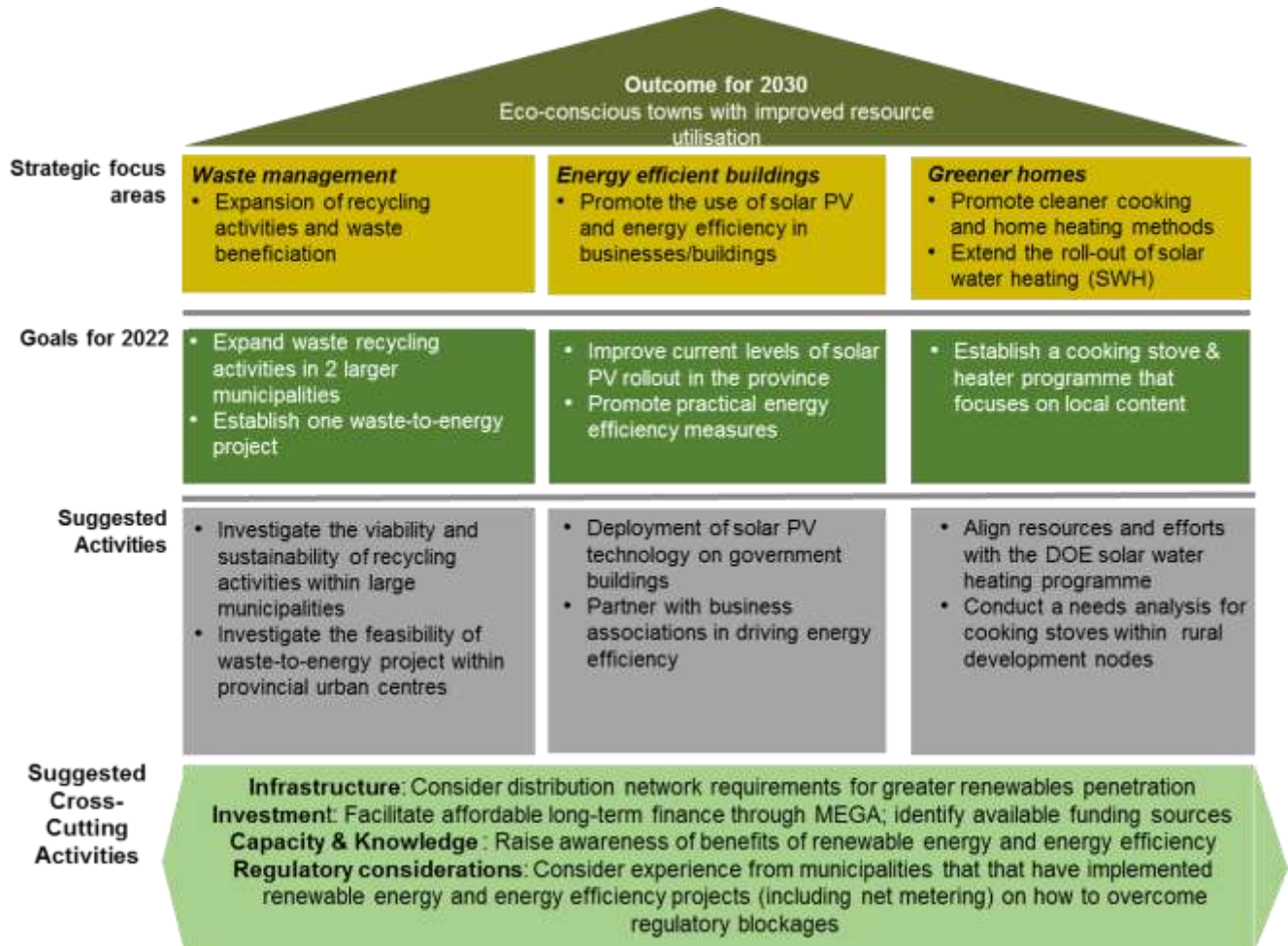


## A 1.2 Sustainable agriculture





### A 1.3 Green Towns and Urban Centres



### A 1.4 Sustainable Tourism

Key outcome is to leverage Mpumalanga’s natural environment to deliver economic vitality that has low impact on the environment and enables healthy communities

Suggested activities for 2022:

- Updating the Mpumalanga Tourism Growth Strategy (2007) to incorporate sustainability into the provincial strategy
- Promote the incorporation of responsible tourism in the grading and marketing of tourism destinations
- Expansion of cultural parks and related activities in proximity to major tourist destinations





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Prepared By: Economic Policy and Planning Unit

Address:

Nokuthula Simelane Building

Building 4

No.7 Government Boulevard

Riverside Park Extension 2

Private Bag x11215

Mbombela

1201

Contact 013 766 4532

[www.mpumalanga.gov.za/dedt](http://www.mpumalanga.gov.za/dedt)

