

Green Strategic Programme for Gauteng

**Researched and written by the Gauteng City
Region Observatory**

**For Gauteng Department of Economic
Development**

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I. Executive summary

I.1. Background and high level problem statement

This document is the **Green Strategic Programme for Gauteng**, the output of a phased process run as a partnership between the Gauteng City Region Observatory (GCRO) and the Gauteng Department of Economic Development, with structured inputs from a wide range of Gauteng Provincial Government departments and Gauteng municipalities. This Green Strategic Programme is meant to inform objectives and activities of departments and municipalities in the province, so that all parts of government working on green issues within Gauteng are focused on the same targets. Ultimately, each provincial department and municipality, and ideally also national government departments and agencies working in Gauteng, should align to and work co-operatively towards the vision and programme commitments in this Green Strategy Programme.

The Green Strategic Programme attempts to meet the expectation of the Gauteng Provincial Government to prioritise the shift towards green growth and the creation of green jobs, as articulated in the Medium Term Strategic Framework and the Gauteng Employment Growth and Development Strategy, respectively. This Green Strategic Programme takes a particular approach to these requirements. It begins from the premise that it is not sufficient to simply select a limited number of economic firms or clusters for targeted green support, but that rather, that the sustainability of our economy depends on a fundamental transformation in number of sectoral areas. These cross-cutting sectors include air quality, climate change, economic development, energy, food security, land use, transport, water and sanitation, and waste, which together form the foundation for a true green economy. Our view is that investing in these sectors will promote economic growth so that green jobs become the norm, rather than add-ons to inherently unsustainable development. This broader shift in its development path will see Gauteng at the forefront of sustainable economic development.

The Green Strategic Programme builds on the strategic commitments in a wide range of policies and strategies developed by GPG over the last few years. These include the Medium Term Strategic Framework, GPG's economic recovery plan in response to the financial crisis, the Gauteng Employment Growth and Development Strategy, the Gauteng Integrated Energy Strategy and the draft Gauteng Climate Change Response Strategy. It also echoes strategy work at national and local government levels in, for example, the New Growth Path, the draft national Strategy and Action Plan on Sustainable Development, Outcome 10, and municipal IDPs for the 2009-2014 term of office. While this document reinforces this wave of commitment towards a more sustainable South Africa, it also tries to reconcile the many competing objectives and actions emerging from different parts of government in order that all actors are aligned behind the same targets and actions.

With this aim in mind this Programme has been produced through two phases of research and consultation, over five months from January to May 2011.

The first phase involved input from a wide range of provincial departments and municipalities at a workshop on 17 February 2011, followed by research to acquire and synthesize relevant strategies that have made current commitments towards a green Gauteng. The results of this work have been captured in 9 Sector Reports (annexure A in this document), covering the following areas:

- Air Quality
- Climate Change
- Economic Development
- Energy
- Food Security
- Land use
- Transport
- Water and Sanitation
- Waste

Each Sector Report is divided into four parts:

- The *status quo of the relevant sector* outlines the key issues, trends and dynamics that affect the sector;
- A *strategy review* provides a consolidation of all the officially-approved sustainable development policies, strategies, framework and programmes of action, together with their attendant outcome and delivery targets, produced either by national government as it relates to this province, by the Gauteng Provincial Government, or by municipalities;
- This is followed by a *critical analysis* that assesses whether existing policy processes sufficiently address the issues critical to individual sector's sustainability;
- Finally, *recommendations* are given on *key objectives and targets* to address the issues emerging in the critical analyses.

In the second phase of this process, the analysis in the Sector Reports was checked with provincial and local government in a workshop on 20 May 2011, and a new set of targets and activities were distilled into 9 Programme Statements.

In general terms this Green Strategic Programme starts from the premise that achieving a green Gauteng is a major challenge, as well as a key opportunity. It is a challenge because it requires a fundamental shift away from historical ways of organising and managing our society and economy. Accelerating climate change; resource constraints and rapidly rising prices; the sudden re-appearance of environmental risks that were previously wished away – all testify to the fact that we cannot continue as before. However, while it will be very difficult to make the changes required a green future for Gauteng is also a key opportunity. There are major market opportunities, and many decent work jobs, to be gained from building a green economy. And fundamental changes in the way we live will bring healthier, happier and more resilient communities and households, something to be valued on its own terms.

1.2. Synthesis: a perspective on a green Gauteng

Gauteng is situated in the central north-east of South Africa, covering an area of 18 179 km² and providing a home to over 11 million people, organized in a sprawling region of geographically distinct cities and towns. In this polycentric region the most recognizable cities are Johannesburg and Pretoria, but there are also a number of other significant urban centres. The broader Gauteng city-region (GCR) is a functional economy that stretches from Witbank and Secunda, incorporate Sasolburg, incorporates Rustenburg and a number of outlying centres and concentrations of population.¹

Gauteng contributes some 33% of national GVA, making it the economic hub of the country, and giving it a primary role in the economic future of South Africa. As the country's economic hub, it has grown faster than many other provinces, and continues to attract more and more economic opportunity seekers. As a fast growing region, Gauteng's requirements for housing, food, energy, water and sanitation are rapidly increasing, and government in the province is increasingly under pressure to meet these demands. At the same time its expanding economy is also putting increased pressure on available land, road transport systems and water and energy resources. In addition, numerous polluting industries, and old and deteriorating bulk infrastructure, add to the strain on the envelope of natural resource on which the province relies. In a nutshell, while it is large, dynamic and economically wealthy, Gauteng is increasingly poor in terms of critical resources required for its continued stability and growth.

The synthesis prioritises four strategic focus areas integral to Gauteng's development trajectory, including *Embed in Gauteng's development path the underlying principles of a green economy, New types of infrastructure configurations, Strategic investments in knowledge and innovation systems and Address underlying resource constraints and grow by reducing rather than increasing resource consumption*. Each sector is profiled according to these strategic priorities to outline the key initiatives necessary to distil this report's recommendations into programme statements.

1.3. Programme statements

In light of this perspective on future prospects for sustainability in Gauteng, nine Programme Statements have been developed to anchor government actions for a green province. These Programme Statements provide proposed outcomes, objectives / targets, key actions, responsible actors and target dates in the sector areas listed above. The following issues are dealt with in the respective Programme Statements:

Air Quality

Envisaged outcome: A cleaner, less polluted Gauteng that continuously strives to meet and exceed global air quality standards, and exceed global air quality standards and address the health, economic and environmental challenges arising from air pollution, by investing in previously lacking monitoring systems and proactively targeting air pollution sources.

¹ (GCRO, GCRO Occasional Paper, 2009: 13)

Economic implications: The public health benefits of improved air quality have direct feedbacks into Gauteng's economy, alleviating economic burdens through improving labour productivity, reducing employee turnover and public health care costs. Addressing air pollution will also create offshoot industries and technological innovations from the demand for pollution control equipment, manufacturing and monitoring. Improved atmospheric, emissions and air quality statuses will enhance Gauteng's economic attractiveness and appeal as an attractive commercial, tourism and investment location.

Key issues dealt with:

- Cooperative governance
- Industrial air pollution sources
- Mining air pollution sources
- Domestic fuel burning sources
- Transport air pollution sources

Climate Change (*recognising that this is a cross-cutting area where many sectors contribute targets and actions to mitigating the effects of and adapting to climate change*)

Envisaged outcome: A Province that has the institutional and infrastructural capacity to mitigate and adapt to micro-scale climate changes, to reduce greenhouse gas emission intensities, and to protect those communities likely to be worst affected by the climate change phenomenon, thereby enabling the transformation towards a more resilient, less-vulnerable region.

Economic implications: Climate change mitigation and adaptation measures will strengthen the resilience of key economic sectors affected by both slow-onset and extreme, unpredictable climatic events. Furthermore, investing in climate strategies now is far cheaper than continuing to avoid doing so, as climate change actions will become more costly over time for the economy. Focusing on a robust climate change vision will protect Gauteng from the poverty implications of climate change, strengthening vulnerable groups' access to economic and livelihood opportunities. Market-based instruments around climate change will position Gauteng amongst the leading low-carbon markets, benefitting from investment in the Province's cleaner industries, and create more resilient, less wasteful municipal revenue streams.

Key issues dealt with:

- Mainstreaming climate change in institutional arrangements
- Institutional and financial support for climate change interventions
- Monitoring of and detailed research around the climate change phenomenon
- Support for carbon trading through the establishment of CDM desks

Economic Development

Envisaged outcome: A more sustainable regional economy that anticipates and adapts to underlying resource constraints, proactively invests in natural capital, and takes advantage of new opportunities in the emerging green economy, in order to become more efficient in the use of resources, to increase its resilience in face of price and trade challenges, and to address deep structural employment problems.

Economic implications: The new industries that will be forged and the wide pool of jobs that exist in the green economy are opportunities to be seized by Gauteng so to avoid being left behind in this economy of the future. If Gauteng reinvents itself as a green economy to stay competitive, it can lead as a regional hub of green entrepreneurial activity, innovation, manufacturing and R&D. The burst of investment and financial services in a green Gauteng will be equally felt in green grass-roots and public employment activities that develop around investing in natural capital and ecosystem services.

Key issues dealt with:

- Strategic clarity across national, provincial and local government
- Creation of green jobs
- Support for green industries, including CDM desk
- Greening government and business operations
- Public awareness around the green economy
- Connecting green and knowledge economies
- Monitoring and evaluating progress towards a green economy

Energy

Envisaged outcome: A Province that is a renewable and energy hub, that makes ambitious investments in renewable energy sources and technologies, and that works to extend an integrated package of reliable and innovative energy services to all citizens, thereby realizing economic and employment spinoffs which dramatically improve Gauteng's position in the new green economy.

Economic implications: Stimulating energy efficiency and an integrated energy mix based on renewable resources, presents significant opportunities to stimulate growth and job creation in an economy suffering from power outages and distribution failures. Benefits will be felt through reduced dependence on volatile and unpredictable energy supplies that hurt industry and business as well as low-income energy users. By refocusing energy strategies towards a renewable and low-carbon future, Gauteng will gain cost advantages in the face of rising electricity prices, and significant industrial and manufacturing opportunities around renewable energy and energy efficiency technologies. These are compelling economic opportunities, provincially and nationally.

Key issues dealt with:

- Strategic leadership: Demonstrate leadership that promotes sound energy decisions and action
- Financial mechanisms: to have the financial support to implement the energy strategy

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- Local govt support, regulation and market support: Ensure that regulation and market support enable the sustained implementation of the GIES
 - Promote innovation and clean energy technologies, i.e. the development of technologies that facilitates the move to a new energy future
 - Using energy efficiently, i.e. have an energy-efficient province
 - Sustainable energy supply: Ensure that the energy supply mix in Gauteng is optimised in terms of economic, social and environmental sustainability, and to foster an enabling environment for this to happen
 - Institutional support through creation of a centre or Energy Office from where all energy matters and actions will be managed within Gauteng Province

Food Security

Envisaged outcome: A Gauteng that is a regional food economy hub, where key food security challenges of food supply and households' economic access to food are addressed, where there is proactive investment in local organic food production, small-scale urban agriculture and local food chains as key components of a greener economy, and where all citizens have access to a safe, nutritious and diverse diet.

Economic implications: Investing in local organic food production and markets has the potential to transform Gauteng into a food economy, creating new food value chains that bring employment and investment advantages, and a major opportunity for Province to benefit from the burgeoning global organic industry. Gauteng as a regional food economy will also be less vulnerable to hikes in food commodity prices, and through increasing the availability of food to all citizens, will offset one of its major development impediments, namely the economic costs of hunger and lost productivity resulting from malnutrition.

Key issues dealt with:

- Lack of transparency, awareness and participation
- Scattered responsibility and disconnect between local and provincial spheres
- Overemphasis on production (vs. access, utilisation and resilience)
- Lack of knowledge and information
- Lack of capacity
- Weak and uncompetitive small-scale and organic (conservation agriculture) sector

Land Use

Envisaged outcome: A region with a more sustainable approach to land use based on more productive landscapes and more efficient, resilient and equitable settlement forms, where previously degraded land has been regenerated, and where biodiversity and the ecosystem services provided by our green infrastructure are protected and enhanced.

Economic implications: Investing in sustainable land use will contribute to Gauteng's economic vitality, while failure to mainstream sustainable land use planning will result in significant economic costs.

Addressing urban sprawl will regenerate previously defunct economic areas, whereas the long term economic effects of unchecked urban sprawl is the isolation of low-income groups. Investing in Gauteng's green spaces, which create opportunities to socialise and rest, will fundamentally boost quality of life and socio-economic integration ratings and the associated economic feedbacks. By investing in its green infrastructure, Gauteng will free up revenue that is spent on the disaster recovery and infrastructure costs. There are exciting employment benefits in maintenance, entrepreneurial and public sector industries for Gauteng's sustainable land use sector.

Key issues dealt with:

- Built form and urban design
- Agricultural land
- Protection of land
- Biodiversity and ecosystem services
- Degraded land
- Critical infrastructure

Transport

Envisaged outcome: A province that provides accessible mobility for all, thereby ensuring proximity to social and economic opportunities, by embracing the principles of transport safety, efficiency and sustainability, and by developing a well-designed, integrated and well-maintained public transport system that is less dependent on fossil fuels.

Economic implications: Sustainable infrastructure investments will substantially reduce infrastructure costs and productivity losses associated with inefficient, malfunctioning, unreliable and unsafe transport modes as well as the long distances to job opportunities. The improved access to employment and livelihood opportunities will stimulate trade and attract new business around transport nodes and significantly reduce travelling times. The industrial spin-offs arising from the demand for the manufacturing and production of sustainable transport technologies are notable economic opportunities to be seized by Gauteng.

Key issues dealt with:

- Strategic clarity across spheres of government in transport and related sectors
- Financial incentives and disincentives impacting on transport modalities
- Spatial planning towards compact cities
- Transforming transport modalities in the province
- Alternative and Efficient Fuel Technologies
- Education and awareness raising

Water and sanitation

Envisaged outcome: A province that embraces more innovative infrastructure choices, demand-side management and the principles of recycling and reuse, to its increase water capacity during times of plenty so that water is available in times of need, thereby ensuring residents and businesses can count on secure water resources into the future, and have access to safe, reliable and sustainable water and sanitation services.

Economic implications: Not addressing water stress, pollution and scarcity in sustainable infrastructure choices is a major economic risk, affecting our long term industrial and productive potential. There are also considerable economic spinoffs in investing in sustainable water infrastructure based on closed-loop systems, including the manufacturing, maintenance and installation of new technologies and systems. Furthermore, Gauteng has learnt through its experience of acid mine drainage, that investing in sustainable water and sanitation strategies is far cheaper, politically, economically and environmentally, than externalizing the costs of unsustainable systems to future generations.

Key issues dealt with:

- Long term water supply
- Water demand management and groundwater resource management
- Regulate and improve water quality
- Ensure basic access to water
- Funding mechanisms
- Basic sanitation services/supply
- Mining water licenses & Acid Mine Drainage

Waste

Envisaged outcome: A province that invests in different societal choices, and in infrastructure systems and operations that encourage waste reduction and recycling, as well as the reuse of waste outputs as productive inputs into other processes, thereby promoting new local economies and industries, minimising the total waste stream, and ensuring that all settlements have adequate waste services.

Economic implications: As a major generator of waste, Gauteng finds itself in a unique position to benefit its local economy through reusing and, adding value to, waste outputs. The economic spinoffs of reducing, reusing and recycling waste include the creation of high-value manufacturing industries, collection and sorting industries and a new stream of recycling brokers and wholesalers. A formalized waste sector, based on these new recycling supply chains, will also lead to the economic integration of waste pickers, strengthening municipal ties and reducing the financial burden on currently ageing waste infrastructure.

Key issues dealt with:

- Promoting waste avoidance, minimisation, re-use, recycling and recovery
- Ensure the effective and efficient delivery of waste services

- Grow the contribution of the waste sector to the green economy
- Ensure people are aware of the impact of waste on their health, well-being and the environment
- Ensure sound budgeting and financial management for waste services
- Provide measures to remediate contaminated land
- Establish effective compliance with and enforcement of the National Waste Act

1.4. Categorisation of programme statements

The set of nine programme statements cover the envisaged outcomes of each sector, providing proposed objectives / targets, key actions, responsible actors and target dates in the nine sector areas. The activities identified to achieve each objective and broader issue area have been categorised according to the following 9 categories:

Name	Abbreviation	Category	Number of actions per category
Strategy and Regulatory Reforms	S+RR	S+RR ▲	116
Resource Mobilisation	RM	RM ★	25
Research and Development	R+D	R+D □	27
Capacity Building	CB	CB ◆	27
Public Awareness and Education	PA+Ed	PA+Ed ▲	30
Partnership Building and Collaboration	PB+C	PB+C ○	34
Data collection, Research and Monitoring & Evaluation	D+R+M&E	D+R+M&E ×	91
Infrastructure Development, Roll-out and Upgrade	InF D	InF D ■	38
Socio-economic and Market Interventions	SE+M Int	SE+M Int ●	36

1.5. Next steps

This draft Green Strategic Programme for Gauteng is being submitted to the Gauteng Executive Council, to be approved subject to any amendments proposed in a Green Summit to be held during the 2011/12 financial year. Following approval an implementation plan will be developed responding to short, medium and long term goals.

Abbreviations

3 R's	Reduce, reuse and recycle
AEL	Atmospheric Emission License
APPA	Atmospheric Pollution Prevention Act of 1965
AQMP	Air Quality Management Plan
AQO	Air Quality Officer
AQOF	Air Quality Officers Forum
BEE	Black Economic Empowerment
BMS	Building Management System
BNM	Basa Njengo Magogo
BRT	Bus Rapid Transport
BTX	Benzene, toluene and xylene
CASP	Comprehensive Agricultural Support Programme
CBO	Community-Based Organisations
CDM	Clean Development Mechanism
CER	Certified Emissions Reduction
CFL	Compact Fluorescent Light
CMU	Contract Management Unit
CO	Carbon monoxide
CO ₂	Carbon dioxide
CoGTA	Department of Cooperative Governance and Traditional Affairs – now called Department of Cooperative Governance
COJ	City of Johannesburg
CoT	City of Tshwane
CSIR	Council for Scientific and Industrial Research
CSP	Concentrated Solar Power
CWP	Community Work Programme
DAFF	Department of Agriculture Forestry and Fisheries
DBSA	Development Bank of Southern Africa
DCoG	Department of Cooperative Governance
DEA	Department of Environmental Affairs
DFSC	District Food Security Committee
DID	Department of Infrastructure Development (Gauteng)
DLGH	Department of Local Government and Housing (Gauteng)
DME	Department of Minerals and Energy (now Department of Energy)
DMR	Department of Mineral Resources
DOH	Department of Housing (now Department of Human Settlements)
DOT	Department of Transport (National)
DPW	Department of Public Works
DRT	Department of Roads and Transport (Gauteng)
DSM	Demand-Side Management
DTI	Department of Trade and Industry
DWA	Department of Water Affairs

ECD	Early Childhood Development
EE	Energy Efficiency
EIA	Environmental Impact Assessment
EMI	Environmental Management Inspectors / Inspectorate
EMM	Ekurhuleni Metropolitan Municipality
EMPR	Environmental Management Programme Report
EMTT	Energy Management Task Team
EPWP	Expanded Public Works Programme
ESCO	Energy Service Company
FAO	The Food and Agriculture Organisation of the United Nations
FBAE	Free Basic Alternative Energy
GADS	Gauteng Agricultural Development Strategy
GARDP	Gauteng Agriculture Research and Development Policy
GBS	Gauteng Biotechnology Strategy
GDARD	Gauteng Department of Agriculture and Rural Development
GDE	Gauteng Department of Education
GDED	Gauteng Department of Economic Development
GDHSD	Gauteng Department of Health and Social Development
GDP	Gross Domestic Product
GDS	Green Drop System
GDS	Growth and Development Strategy
GEDA	Gauteng Economic Development Agency
GEGDS	Gauteng Employment Growth and Development Strategy
GFIP	Gauteng Freeway Improvement Project
GHG	Greenhouse gas
GIES	Gauteng Integrated Energy Strategy
GIFSSF	Gauteng Integrated Food Security Strategy Forum
GJ	Gigajoule
GPG	Gauteng Provincial Government
GPT	Gauteng Provincial Treasury
GRDS	Gauteng Comprehensive Rural Development Strategy
GSDS	Gauteng Social Development Strategy
GWh	Gigawatt-hour
HCRW	Health Care Risk Waste
HOV	High Occupancy Vehicles
HPA	Highveld Priority Area
IDC	Industrial Development Corporation
IDP	Integrated Development Plan
IDTLG	Inter-departmental Transport Liaison Group
IFPRI	International Food Policy Research Institute
IFSSSA	Integrated Food Security Strategy of South Africa
ISWM	Integrated Solid Waste Management or ISWM
ITP	Integrated Transport Plan
ITS	Intelligent Transport System
JAM	Joint Aid Management

KPI	Key Performance Indicator
kW	Kilowatt
kWh	Kilowatt-hour
LED	Light-emitting diode
LEDS	Local Economic Development Strategies
LFG	Landfill gas
LFSAG	Local Food Security Action Group
LGTAS	Local Government Turnaround Strategy
LSF	Low Smoke Fuels
LTMS	Long Term Mitigation Scenarios
MDM	Metsweding District Municipality
MIG	Municipal Infrastructure Grant
MSRG	Multi Stakeholder Reference Group
MTEF	Medium Term Expenditure Framework
NAAQS	National Ambient Air Quality Standards
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NEMAQA	National Environmental Management: Air Quality Act of 2004
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NERSA	National Energy Regulator of South Africa
NGO	Non-government Organisation
NIRP	National Integrated Resource Plan
NLTSP	National Land Transport Strategic Framework
NO ₂	Nitrogen dioxide
NO _x	Oxides of Nitrogen
O ₃	Ozone
PIFSF	Provincial Integrated Food Security Forum
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10 µm
PRASA	Passenger Rail Agency of South Africa
PV	Photovoltaic
RC	Registration Certificate
RDP	Reconstruction and Development Plan
RE	Renewable Energy
RECs	Renewable Energy Certificates
REFiT	Renewable Energy Feed-In Tariff
REFSO	Renewable Energy Subsidy Office
SAAQIS	South African Air Quality Information System
SAICE	South African Institute for Civil Engineers
SALGA	South African Local Government Association
SANERI	South African National Energy Research Institute
SANRAL	South African Roads Agency Limited
SANS	South African National Standards
SAPIA	South African Petroleum Industry Association
SARS	South African Receiver of Revenue
SAWS	South African Weather Services

SDBIP	Service Delivery Budget and Implementation Plan
SDM	Sedibeng District Municipality
SMME	Small, Medium and Micro Enterprises
SO ₂	Sulphur dioxide
SOA	State of Air
SPV	Special Purpose Vehicle
SWHs	Solar Water Heaters
TIEP	Tshwane Integrated Environmental Policy
TSF	Tailings Storage facility
UNEP	United Nations Environmental Programme
UNFCCC	United National Framework on Climate Change Convention
VTAPA	Vaal Triangle Air-shed Priority Area
WRDM	West Rand District Municipality
WWTW	Waste Water Treatment Works

2. Background

This document is the **Green Strategic Programme for Gauteng**, the output of a phased process run as a partnership between the Gauteng City Region Observatory (GCRO) and the Gauteng Department of Economic Development, with structured inputs from a wide range of Gauteng Provincial Government departments and Gauteng municipalities.

This Green Strategic Programme is designed to inform objectives and activities across the spectrum of departments and municipalities in the province, so that all parts of government working on green issues within Gauteng are focused on the same goals and targets. Ultimately, each provincial department and municipality, and ideally also national government departments and agencies working in Gauteng, should align to and work co-operatively towards the vision and programme commitments in this Green Strategy Programme.

2.1. Foundations in Gauteng policy and strategy

Since April 2009, the start of the current provincial term of office, the Gauteng Provincial Government (GPG) has made a series of policy and strategy commitments towards a greener Gauteng.

In the 2009-2014 Medium Term Strategic Framework / Programme of Action, a clear commitment was made to promote:

“ ... sustainable energy for the economy and development, by encouraging the sustainable use of energy in the economy and socio economic development; this will include the utilization of clean and renewable resources; and support sectors that create green jobs as a means to mitigate the impact of climate change”

The MTSF also committed GPG to “stimulate redistributive economic development to create decent work, sustainable livelihoods and reduce income inequality”, amongst other things by working to “create green jobs” and promote “green industries”.

The commitments in the Programme of Action were subsequently taken up in the Gauteng Employment Growth and Development Strategy (GEGDS). The GEGDS states that the Gauteng economy must shift to an “endogenous economic growth trajectory that is based primarily on “innovation”, “green growth” and “inclusivity”. Amongst other things the GEGDS says:

“Gauteng will not have an economy that provides decent work and economic opportunities for all, unless it can become ... a green, environmentally friendly economy, which capitalises on the enormous economic value to be gained by investing in green processes and products, and which uses existing resources in a more efficient and sustainable manner, thus reducing the carbon footprint of Gauteng. Gauteng needs an economy based on green technologies, green jobs, green energy and green production processes that reduce the ever higher input costs stemming from unsustainable resource use”

Various other GPG strategies have sharpened this understanding of a green future for Gauteng. For example Gauteng's economic recovery plan in response to the global financial and economic crisis recognises that "Increasing awareness of environmental degradation amongst consumers and governments has placed the 'green' agenda squarely on the global economic agenda", and promises that Gauteng will leverage this green agenda "in collaboration with business and civil society to stimulate new industries and new forms of economic activity. This is to ensure that environmentally-sustainable options can be linked to job creation, poverty alleviation, and the development of a diverse and resilient economy". Important complementary work has been done in the Department of Local Government and Housing to develop a Gauteng Integrated Energy Strategy, and in the Department of Agriculture and Rural Development, inter alia in the development of a Gauteng Climate Change Response Strategy. Many other important strategies and interventions could be mentioned.

Provincial strategies that envisage a more sustainable Gauteng in turn echo national strategies that increasingly see the importance of a green agenda for South Africa. These include the national MTSF for 2009-2014, Outcome 10 (Environmental assets and natural resources that are well protected and continually enhanced), and a Draft National Strategy and Action Plan on Sustainable Development, as well the New Growth Path and the Industrial Policy Action Plan (IPAP2), both of which make clear commitments to building a green economy. At local level too, municipal 5 year IDPs for the 2011-16 term of office call for enhanced commitments towards sustainability in areas such as transport planning, green space protection and enhancement, promotion of alternative energy sources, water and power demand management, and development of the green economy.

2.2. Progress in implementation

This body of policy and strategy has already begun to be translated into concrete actions. Across Gauteng departments there are already a number of projects underway that demonstrate a commitment to implement a green agenda. Some of these projects include:

- The implementation of a Renewable Energy Investment Strategy, aimed at promoting private sector investment in renewable energy sector opportunities in Gauteng;
- In collaboration with municipalities, the establishment of buy-back centres in Tembisa (Ekurhuleni) and Winterveld (in Tshwane), with the aim of establishing recycling clusters in these areas;
- Through the Automotive Industry Development Centre (AIDC), a cleaner production programme targeting manufacturing firms, to identify opportunities to reduce energy and resource usage. The programme involves initial energy assessments, followed by implementation of solutions;
- Also through the AIDC, an LPG Taxi Conversion Programme, that has already piloted the conversion of 70 taxis to operate dually on LPG and petrol, and aims to scale up to 150 taxis in 2011;
- A Landfill Gas Project, piloted by the AIDC with the City of Tshwane and a Rosslyn automotive assembler, which involves the extraction of landfill gas from the Onderstepoort landfill, for either electricity generation or supply as a natural gas substitute for local industry. An initial landfill assessment has been done to determine the content and quality of gas available, and the project is

now undertaking pumping trials, as well as financial evaluations to demonstrate the commercial viability

- A Foundry Sand Recycling project, which entails evaluating opportunities to recycle foundry sand, currently declared as toxic waste and costly to dispose of. An opportunity has been identified to declassify the waste, using various processes to render it non-toxic and acceptable for re-use in either foundries, or the construction sector.
- The Moringa Oliviera Food Security Project, which involves the development of a regional economic value chain by connecting opportunities from farming Moringa Oliviera trees with the development of products in the health, food, pharmaceutical sectors. Environmental studies, site selection, community identification, financial modelling, feasibility analysis, as well as assessments of nutritional value and oil yield have been completed, and negotiations have begun for uptake of leaf, oil and seedcake products by the private sector.
- The establishment of a Photovoltaic Plant to generate 150MW of electricity in Kungwini. Environmental Impact Assessments for the project were completed in 2010/11.

2.3. Process

While there are already clear policy foundations in place, which have already begun to find expression in project implementation, there is still a need to have a clear, coherent, and comprehensive programme of strategic commitments towards a more sustainable Gauteng, behind which all provincial departments, all municipalities, other parts of government, and social partners, can align. Towards this end, this **Green Strategic Programme for Gauteng** was developed over the period January to June 2011. The process of development involved research, consultation and design over two phases.

Phase I of the process involved the consolidation of all the officially-approved sustainable development policies, strategies, framework and programmes of action, together with their attendant outcome and delivery targets, produced either by national government as it relates to this province, by the Gauteng Provincial Government, or by municipalities. A workshop was held on 17 February 2011, with representatives from across provincial and local government, to obtain preliminary inputs on existing strategies and interventions. The workshop was followed by research to source relevant documents, and to distil current objectives and activities. Detailed **Sector Reports** synthesized this consultation and research. These Sector Reports were organised into the following sectors:

- Air Quality
- Climate Change
- Economic Development
- Energy
- Food Security
- Land use
- Transport
- Waste

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- Water and Sanitation

The Sector Reports are attached to this report as Annexure A.

Phase 2 of the process built on this foundation. Through a consultative workshop on 20 May 2011, analysis in the sector reports was checked with representatives from provincial and local government, and input was received on proposed objectives / targets and activities in each sector area. This input is synthesized below into a set of **Programme Statements**, covering each sector in turn. Each Statement details a set of proposed:

1. Targets / objectives
2. Activities
3. Responsibilities
4. Date for inception or conclusion of work in each activity

In addition, each of the activities is categorised as one or other of a set of 'activity types'. Nine possible categories have been identified, namely: Strategy and regulatory reform; Resource mobilisation; Research and development (R&D); Capacity building; Public awareness and education; Partnership building and collaboration; Data collection, research and monitoring & evaluation; Infrastructure development, roll-out and upgrade; and Socio-economic and market interventions.

2.4. High level problem statement

Many of the policies and strategies produced to date on how to achieve a more sustainable South Africa and province recognise, even if only implicitly, that sustainability is both a major challenge, and a key opportunity. This Green Strategic Programme for Gauteng starts from the same premise.

On the one hand, sustainability means becoming much more conscious of the fact that the future growth of our economy and well being of our society will depend on us being able to manage pressing environmental costs and risks, and immediate and growing resource constraints, that we can simply no longer ignore. By way of illustration:

- There is overwhelming scientific evidence that climate change is accelerating, and will lead increasingly to unpredictable weather patterns, disrupted ecosystems and natural disasters of all kinds. This will disproportionately affect developing countries, and in particular poor communities within these, impacting seriously on the stability of economies and the resilience of vulnerable communities and households;
- The world is beginning to reach the limits of development paths reliant on the expectation of cheap and always available resource inputs, including food, electrical power, water and fossil fuels. A resource constrained future, in which the prices of inputs into economic production and household reproduction processes will rise steeply, must be assumed. In South Africa recent increases in the price of electricity and motor fuels provide evidence of what will be an inexorable trend.
- For too long economic growth relied on business activities and household level processes that externalised to other places and future generations true environmental costs and risks. The current concern with Acid Mine Drainage is only one example of this challenge. It has been said that if the

full costs of mining had historically been incorporated onto the balance sheet of mining companies, including the long term marginal costs of properly mitigating the effects of land and water pollution, no mine would have been profitable. Instead commodity prices were kept low, and profits high, by externalising those costs to the future. The un-sustainability of this practice, particularly in a resource based economy such as South Africa, has now become glaringly obvious.

The challenge before us is to more systematically appraise and manage the costs, risks and constraints. Doing so will not be easy when for so long they have been safely ignored and there is limited insight, capacity and skills to do what must be done.

However, on the other hand, a more sustainable South Africa and Gauteng presents a major opportunity. This is what was being recognised in the Province's economic crisis recovery strategy when it spoke about 'leveraging the green agenda', by 'linking environmentally-sustainable options' to 'job creation, poverty alleviation, and the development of a diverse and resilient economy'. All across the world, the explosion of concern over environmental challenges is giving birth to new kinds of industry and new, healthier and happier ways of living.

In the economy, green growth refers to a huge upsurge in research and innovation in new energy sources, or new products to bring down the household and business costs of energy. It refers to the actual manufacture, with accompanying manufacturing jobs, of concentrated solar power plants, solar water heaters, new kinds of insulation materials, and new water and energy meters, to name but a few. On the services side it means the development of new processes that will change everything from the way manufacturing lines are run to the way offices and homes get configured. This green revolution is the equivalent of the ICT revolution that we have just gone through, with massive opportunities for growth and the creation of decent jobs.

At the level of communities and households, a green future means valuing different things. A society less concerned with conspicuous consumption of more and more household goods, and more concerned with health, well-being, community and resilience is something to be valued. Already there are moves internationally to support this shift with indexes and data that illustrate that human progress can be measured in different ways than crude gross geographic product indexes.

This Green Strategic Programme for Gauteng consequently sees sustainability as both a major challenge, that must be addressed, and a key opportunity, that we cannot afford to miss. The next section provides a perspective on a green future for the province, taking account of both the challenges and the opportunities. The Programme Statements, broken down into relevant sectors, then clarify how the Gauteng Provincial Government, together with national and local government, as well as many other stakeholders, will navigate these challenges and take advantage of opportunities through a series of green objectives/targets and activities.

3. Synthesis

3.1. Status quo of Gauteng

Gauteng is situated in the central north-east of South Africa. The province covers an area of 18 179 km² and is home to over 11 million people. This population is spatially organised in a sprawling region of geographically distinct cities and towns. In this polycentric region the most recognisable cities are Johannesburg and Pretoria, but there are also a number of other significant urban centres. Many of the centres are inside the provincial boundary. Others are outside the administrative space of the Gauteng province but nevertheless closely connected to it in a way that makes up a functionally integrated city-region². The Gauteng City-Region comprises three metros and six district municipalities, each with a number of local municipalities. The broader Gauteng city-region (GCR), which is based on the functional economy that stretches from Witbank and Secunda through Sasolburg, incorporates Rustenburg and the whole province of Gauteng.³

Gauteng houses the 22.4% of the total population in the country, making it the smallest Province in South Africa, yet with the largest population and largest contribution.⁴ This population is also rapidly expanding not only due to natural births but by in-migration to Gauteng and its surrounding areas, resulting in a 13.61% population change between 2001 and 2007. As a fast-growing polycentric city-region, Gauteng's requirements for basic services such as food, water and sanitation, are rapidly increasing, and the province is required to roll out services, infrastructure and housing to meet growing demand. The nature of this service delivery has largely omitted more sustainable service delivery options and mechanisms, and the ways these infrastructure investments can create jobs. As a result, service delivery in Gauteng is dependent on the revenues from linear, closed-loop systems based on increasing rates of material and resource growth.

Furthermore, contributing some 33% of national GVA, Gauteng plays an important economic role in South Africa's future. As the economic engine of South Africa, and sub-Saharan Africa, the province may be economically wealthy but in terms of water, air and land it is poor. The numerous polluting industries, large population and lack of land adds to the stress already being felt in these areas. Gauteng is also beginning to feel the rebound effects of previously externalising the costs of unsustainable development, such as polluting mining activities, which will in-turn impact on the Province's economic competitiveness and job creation potential.

Gauteng is also experiencing the effects of climate change, increased disaster vulnerability and growing resource scarcity, which are undermining the sustainability of our current development path. Locating

² (GCRO, Gauteng City Region Observatory - The city-region review 2011, 2011)

³ (GCRO, GCRO Occasional Paper, 2009: 13)

⁴ (GCRO, Gauteng City Region Observatory - The city-region review 2011, 2011)

Gauteng within the context of these cross-cutting policy concern becomes fundamental to transition the towards a more sustainable growth path.

3.2. The transition towards a more sustainable growth path

“People believe environmental ‘bads’ are the price we must pay for economic ‘goods.’ However, we cannot, and need not, continue to act as if this trade-off is inevitable” *UN Under-Secretary General*

Achim Steiner, UNEP’s Executive Director

If we imagine Gauteng’s future to be one in which economic growth is competitive, attractive, inclusive and labour-absorbing, the Province will have to transition out of an economy based excessive, inefficient and wasteful resource use and that currently externalises the costs of resource-intensive development. If Gauteng was to put itself on a path fundamentally different from its current one, a new type of development trajectory needs to emerge where financial resources are invested in infrastructure systems, industries and business processes that are reconfigured to deliver better returns on natural, human and economic capital investments, while at the same time reducing greenhouse gas emissions, extracting and using fewer natural resources, creating less waste and reducing social disparities.”⁵

Central to this transition is the idea of a green economy, as the type of economic trajectory that gives traction to sustainable development. A green economy “grows by reducing rather than increasing resource consumption” and uses the returns from sustainable urban configurations to address development challenges such as poverty and inequality.^{6,7} Given the cross-cutting issues trends at play in the Gauteng City-Region, the transition towards a green economy involves recognising that Gauteng can no longer grow and develop by assuming the availability of unlimited resources and that the costs of wasteful resource use will not affect development. As Swilling (2006: 35) explains, “If future planning ignores the fact that the costs of these inputs are going to rise, as the consequences of ecosystem thresholds ripple through the urban economy, agreed outcomes will never be achieved”.

Furthermore, the green economy presents significant opportunities for Gauteng to address its macro-economic challenges. Echoing the thoughts of Achim Steiner, the green economy can “provide a new engine of growth, putting the world on the road to prosperity again. This is about growing the world economy in a more intelligent, sustainable way” (October 2008 in Sustainable Development Commission, 2009).

Informed by the sustainability challenges facing Gauteng, the following four priorities need to become strategic focus areas of Gauteng’s development trajectory:

⁵ UNEP, *Global Green New Deal: An Update for the G20 Pittsburgh Summit*, ii.

⁶ Swilling, *Growth, Resource Use and Decoupling: Towards a ‘Green New Deal’ for South Africa*, 5.

⁷ This process is also known as “dematerialisation”.

Embed in Gauteng's development path the underlying principle of a green economy

To realize a new type of sustainable development for the future, Gauteng cannot adopt some green options here and leave dirty options elsewhere.⁸ It is therefore critical that a broad range of policy interventions are adopted in non-traditional economic sectors, such as food security and waste, so that the green economy does not become an add-on to unsustainable development paths.

New types of infrastructure configurations

Investments in new types of infrastructure configurations for basic service such as water, transportation, waste and energy, as well as industrial production and consumption processes, need to be prioritised. To this end, it is essential that the systems in Gauteng's infrastructural and industrial matrix no longer function as 'linear' processes, but according to holistic life cycle designs and circular metabolisms.

Massive public investment in new types of sustainable infrastructure and create the demand for green services and green jobs.

Strategic investments in knowledge and innovation systems

Moving beyond the historical tendency of large scale investment in capital projects, Gauteng needs to promote growth through innovation and skills in green technologies. It is critical that the Province uses the uptick in green economy concerns to develop new skills around green industries, manufacturing and production.

Address underlying resource constraints and grow by reducing rather than increasing resource consumption

Green Economy priorities are embedded in the strategic vision that development and economic growth, including employment creation, needs to happen by *addressing underlying resource constraints and reducing rather than increasing resource consumption*. The success of this transition can be assessed through measuring the rate at which economic activity is decoupled from resource consumption (resource decoupling) and from the environmental impacts (impact decoupling)⁹.

3.3. Sector-specific application of strategic focus areas

Gauteng needs to grasp the opportunities provided by the idea of an emerging green economy, both to maximise employment prospects and to achieve global competitive advantage in a fast evolving global industry. The first step is to achieve strategic clarity on what is meant by a green economy, and how South Africa and the province needs to transition to it over time: it is simply not sustainable to be seeking to grow a new green economy while still trying to support resource intensive industries wrapped up in the minerals-energy complex – the former precludes the latter. Building a green economy will take a multi-dimensional approach, involving inter alia building the requisite skills, providing targeted support to fledgling industries, and providing a frame of research and development (R&D) assistance within which home-grown green technology innovations can flourish.

⁸ (GCRO, 2010)

⁹ (Swiling 2010)

Decent air quality in Gauteng, that consistently meets and exceeds accepted international standards, is not a nice to have – poor air quality has profound negative health effects, which in turn rebounds on economic productivity and perceived quality of life. Addressing air quality in Gauteng will need to start with putting in place the requisite monitoring systems, which have historically been inadequate, followed by targeted measures to tackle problems at the point of source, whether it be industry emissions, household cooking facilities or vehicles.

In terms of energy we need to switch our sources of energy away from fossil fuels and immediately concentrate on ways to reduce our CO₂ and greenhouse gas emissions. Gauteng has the potential to become the renewable energy and energy efficient hub in South Africa and in Africa. Province needs to drastically increase its use of renewable energy sources and scale-up energy efficiency interventions. Such investments, and the associate cluster industries, have the potential to create thousands of jobs.

The economic importance of Gauteng's transport sector cannot be overstated. However, this sector is largely reliant on, and structured towards, continued dependence on fossil-fuels. A committed response is required to reduce dependence on oil and switch to low-carbon alternatives. In particular, the focus must be on improved public transport to limit private vehicles. Some projects have already begun in this regard and will require further commitment to expand these efforts across the province.

Sustainable land use references a wide range of challenges facing Gauteng, from unsustainable urban sprawl, to destruction of bio-diversity, to loss of agricultural land, to land pollution from activities like mining, to enhanced vulnerability to disaster risk as a result of climate change and poor settlement design. There is no single intervention that will address all of these concerns at once. But underpinning all is the need for provincial and local government to cohere spatial visions for a sustainable region, and improve co-operative governance in land use management systems and procedures.

Gauteng urgently needs to address the imminent food security challenge by investing in small-scale urban agriculture, organic food production and local food markets. As a net importer of food, enhancing local food production is a key component of a greener economy that invests in non-traditional economic industries.

Reconfiguring water supply systems is critical to reduce water consumption and increase efficiency. Water and sanitation infrastructure need to be designed so recycling and reuse become core components of Gauteng's water supply matrix. It will also be necessary to reassess the Province's water pricing structures to incentivise the key water and sanitation initiatives.

The Province's waste sector needs significant reform to reduce and reuse waste outputs for use into other production processes. If Gauteng commits to using waste outputs as productive inputs, through investing in the necessary infrastructure systems and collaborating with existing waste association, the Province may see a reduction in other environmental challenges and an increase in new local economies based on recycling.

Climate change is an international concern, of growing relevance to the province. It is hard to ignore the impeccable scientific analysis on the trajectory of climate change and its likely global impacts, and harder still to dismiss the tangible local evidence in shifting rainfall patterns across the country, and increasingly severe flooding affecting parts of Gauteng. Addressing climate change requires thinking over the long term in a number of areas, including taking bold responsibility for localised causes such as the heavy emissions from Gauteng factories; and mitigating and adapting to its likely impacts, including regearing urban infrastructures to take the strain of heavier run-offs, and helping communities to become more resilient in the fact of unpredictable weather events. A silo approach to the issue will not be enough: only a series of interventions across a range of sectors (from transport systems, to water management to industrial processes) will prepare Gauteng to face an inevitably more unpredictable and challenging future.

3.4. Strategic recommendations and programme statements

As strategic recommendations for transitions towards a sustainable economy, the Green Strategic Programme has identified a number of sector-specific programme statements, as set out below. Gauteng will be bold and creative in taking up these programmatic areas, which place the province in a unique position to enhance its sustainability, and in turn its economic competitiveness and its ability to move onto a long-term labour-absorbing growth path.

4. Programme statements

4.1. Air Quality

Envisaged outcome: A cleaner, less polluted Gauteng that continuously strives to meet and exceed global air quality standards, and exceed global air quality standards and address the health, economic and environmental challenges arising from air pollution, by investing in previously lacking monitoring systems and proactively targeting air pollution sources.

Economic implications: The public health benefits of improved air quality have direct feedbacks into Gauteng's economy, alleviating economic burdens through improving labour productivity, reducing employee turnover and public health care costs. Addressing air pollution will also create offshoot industries and technological innovations from the demand for pollution control equipment, manufacturing and monitoring. Improved atmospheric, emissions and air quality statuses will enhance Gauteng's economic attractiveness and appeal as an attractive commercial, tourism and investment location.

Issue I: Cooperative governance				
Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 1.1 Reinstatement of the Gauteng Provincial Air Quality Officers Forum (AQOF) to be the main driving force for air quality management within Gauteng	Reinstate the Gauteng AQOF through pre-committed quarterly meetings, where all AQOs from the province and municipalities should be present	S+RR ▲	GDARD and municipalities	2011/2012
	Use the AQOF to develop agreed procedures for selecting, implementing and evaluating air quality strategies and interventions in Gauteng	S+RR ▲	GDARD and municipalities	End 2011
Objective 1.2 Clear local government strategy statements embedded in Air Quality management Plans	Combine all intervention strategies for each of issue areas 2-5 and rank according to feasibility and desirability. Select the top three interventions for short- to medium term implementation within each of the four problem areas	S+RR ▲	GDARD, DED and municipalities	June 2012
	Identify skills, capacity and financial provision within province and each municipality to ensure the selected interventions are implemented	RM ★		

	Municipalities to ensure that their individual air quality strategy commitments are inserted into their revised IDP for 2012/13, their SDBIPs and performance agreements for senior managers	S+RR ▲		
<i>Objective 1.3</i> Air quality strategies developed, and monitored, through a process of co-operative governance	Develop action plans for each of the three intervention strategies for each of the four problem areas (total of 12 action plans) with clear tasks to be conducted on provincial and municipal level. Identify responsible persons for each task. The AQOF needs to develop a clear programme of action with clear timeframes facilitated by GDARD for this purpose	S+RR ▲	Municipalities, GDLGH, GPC, DED and Salga	June 2012
	Through the AQOF, provincial and local government will establish a standing line of engagement with various related provincial and municipal department to establish how provincial targets on air quality management can be met. Engagement with other departments is critical for the successful implementation of the intervention strategies	PB+C ○	Municipalities, GDLGH, GPC, DED and Salga	June 2012
	Progress on developing and implementing the 12 intervention strategies will be reported quarterly to the Gauteng AQOF, and in turn municipal Mayoral Committees and Councils, and at an annual inter-governmental Air Quality Lekgotla	D+R+M&E ✘	GDARD and municipalities	Ongoing
	Through the Gauteng AQOF finalise Standard Operating Procedures to detail how municipalities and GDARD will work together to implement air quality targets, with the Metros and Districts being licensing authorities	S+RR ▲	GDARD and municipalities	June 2012

Issue 2: Industrial air pollution sources

Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 2.1</i> Industrial emissions inventories included in municipal and provincial databases	Use the Atmospheric Emissions License (AEL) function and Environmental Impact Assessment processes to obtain all relevant industry information pertaining to air quality. With the conversion to AEL, all industries with 'listed activities' are required to have comprehensive emissions inventories, which then should be included into the emissions databases of each municipality and Province.	D+R+M&E ✘	GDARD and municipalities	Sept 2011
	From the AEL information develop a provincial emissions database to link with SAAQIS	D+R+M&E ✘	GDARD and municipalities	June 2012

Objective 2.2 Identification of small pollution sources not part of the AEL (e.g. boiler operations)	Municipalities to compile a source inventory on smaller sources not part of the AEL process	D+R+M&E ✘	GDARD and municipalities	June 2012
	Municipalities to develop by-laws using the DEA published template for retrieving emissions information from smaller combustion sources	S+RR ▲	Municipalities	End 2013
Objective 2.3 Limiting emissions from key sources outside the Gauteng province	Engage with various stakeholders (e.g. Sasol, Eskom, Department of Energy) to explore options for introducing emissions control technology into existing and future plants and power stations that supply fuel and electricity to Gauteng, and are responsible for most of the Province's attributable emissions	PB+C ○	GDARD, municipalities, SASOL, ESKOM, DoE	June 2012

Issue 3: Mining air pollution sources

Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 3.1 Air quality strategies developed around tailings storage facilities and active mines	GDARD to expand its mine tailings buffer zone project to develop strategies on zone restrictions around mine tailings in combination with national and local government	S+RR ▲	DEA, DMR, GDARD and municipalities	2012/2013
	Municipalities to develop by-laws on fugitive dust generating sources pertaining specifically to mining operations in collaboration with national and provincial government	S+RR ▲		

Issue 4: Domestic fuel burning sources

Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 4.1 Roll-out of improved domestic stove technology	Through the Gauteng AQOF finalise Standard Operating Procedures on how municipalities and GDARD will work together on BNM roll out programmes, acceleration of implementation of improved stoves and new housing developments	S+RR ▲	GDARD and municipalities	2011/2012
	Engage with national departments of Trade & Industry and Energy on the 'Clean and Multi-Energy Stoves' initiative identified in IPAP2, to ensure that Gauteng's interests in appropriate standards and roll-out support are taken into account	PB+C ○	GDARD and municipalities	Sept 2011
Objective 4.2 Development of energy efficient subsidized housing	Identify all relevant municipal departments that influence the location and design of state subsidised housing and the issuing of contracts to low cost housing developers	D+R+M&E ✘	GDARD, DED, Municipal Land-use / Planning	2011/2012

			Departments and Housing Departments	
	Set energy efficiency targets to be incorporated into subsidized houses, and establish a provincial / municipal task team to audit houses in state supported housing developments to ensure these are built according to building regulations and energy efficiency targets	S+RR ▲	GDARD, DED, Municipal Land-use / Planning Departments and Housing Departments	2011/2012

Issue 5: Transport air pollution sources				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 5.1</i> Clear provincial government strategy statements embedded in municipal plans for transport	Identify the main transport related issues within the province impacting on air quality (e.g. congested roads, increasing vehicles, limited public transport etc). Also identify other departments that will have to collaborate on strategy development such as municipal land-use planning and housing departments	D+R+M&E ✘	GDARD, DED, GDRT and municipalities	June 2012
	Develop clear strategies and action plans on improving public transport, development of new housing close to public transport, incentives for decreased use of private vehicles, etc	S+RR ▲	GDARD, GDLG&H and municipalities	2011/2012
	Investigate strengths and weaknesses in existing vehicles emissions testing systems and procedures, and address blockages and capacity deficits to scale up testing and regulation	R+D □	GDARD and municipalities	December 2012

4.2. Climate change

Envisaged outcome: A Province that has the institutional and infrastructural capacity to mitigate and adapt to micro-scale climate changes, to reduce greenhouse gas emission intensities, and to protect those communities likely to be worst affected by the climate change phenomenon, thereby enabling the transformation towards a more resilient, less-vulnerable region.

Economic implications: Climate change mitigation and adaptation measures will strengthen the resilience of key economic sectors affected by both slow-onset and extreme, unpredictable climatic events. Furthermore, investing in climate strategies now is far cheaper than continuing to avoid doing so, as climate change actions will become more costly over time for the economy. Focusing on a robust climate change vision will protect Gauteng from the poverty implications of climate change, strengthening vulnerable groups' access to economic and livelihood opportunities. Market-based instruments around climate change will position Gauteng amongst the leading low-carbon markets, benefitting from investment in the Province's cleaner industries, and create more resilient, less wasteful municipal revenue streams.

Note: Due to the multidimensional nature of its causes and consequences, climate change as a sector requires cross-cutting targets and actions from multiple stakeholders. In particular, many of the sectors mentioned in the Gauteng Green Strategic Programme include programme statements that respond to climate change mitigation and adaption. These include commitments in the areas of energy, land use, agriculture and air quality in particular. To avoid duplication these are not repeated here. However, a number of specific programme statements and their associated objectives and targets may enhance the Province's ability to combat climate change. The following (x) issues, and associated objectives/activities are identified as specific to climate change.

Issue 1: Mainstream climate change in institutional arrangements				
Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 1.1 Clarify status of Gauteng Climate Change Response Strategy and Action Plan (GCCRS)	Clear public statements of the state of the GCCRS thus far, and the process towards its completion and implementation	S+RR ▲	GDARD	June 2011
	Develop a time-bound implementation plan to accompany the interventions in the GCCRS whilst avoiding duplication of the programme statements in the Green Strategic Programme for Gauteng	S+RR ▲		
Objective 1.2 Clear strategy statements that embed climate change response interventions in municipal Integrated Development Plans (IDPs), five year strategic plans and	Each municipality in Gauteng to ensure climate change commitments inserted into revised IDPs 2012/2013, SDBIPs and performance agreements for seniors managers through consultative and cooperative processes led	S+RR ▲	Municipalities, GDLGH, GPC, DED and Salga	June 2012

long-term sectoral plans				
	The current MTSF makes a clear commitment to mitigating the impact of climate change: in terms of this commitment, GPG departments need to adopt various measures as part of their annual performance plans, and make the necessary budgetary changes	S+RR ▲	Municipalities, GDLGH, GPC, DED and Salga	June 2012
	Building on whatever successes are achieved in the current term of office, strengthen the 2014-2017 Medium Term Strategic Framework (MTSF) by reinforcing and clarifying Gauteng's commitment to mitigating against and adapting to climate change	S+RR ▲	GPG	2014
<i>Objective 1.3</i> Coordinating all aspects of climate change response interventions in Gauteng	Gauteng Planning Commission to assume the role of promoting, coordinating and monitoring the implementation of all existing and future Provincial climate change initiatives through the Gauteng Green Inter-Ministerial Committee	CB ◆	GPC; GDARD; Provincial EXCO; DEA	2011 and ongoing
	Clarify status of National Climate Change Response Green Paper 2010, and determine Gauteng relevant components of this policy for adoption or implementation	S+RR ▲		
	Ensure regular report back on progress with developing and implementing climate change interventions in GPG extended EXCO, and in municipal Mayoral Committees and Councils	D+R+M&E ✕		

Issue 2: Provide institutional and financial support for climate change interventions

Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 2.1</i> Identify and clarify financing and funding mechanisms for mitigation and adaptation initiatives	Clarify progress on The Carbon Tax Option, released by National Treasury as a discussion document in 2010	S+RR ▲	National and Provincial Treasury, DED, Dept of Finance, GDARD, GPC	2012
	Provincial Treasury Department to collaborate with the National Treasury on how to implement the proposed carbon tax as suggested in the GCCRS	PB+C ○		
	Undertake Gauteng-specific studies to investigate the potential of market-based instruments to curb the Province's GHG emissions, including Provincial carbon tax and emissions trading schemes, and feasibility of a carbon desk.	R+D □		
	Conduct socio-economic assessments of the effects on	D+R+M&E		

	income distribution of various market-based instruments chosen to curb GHG emissions	×		
	Coordinate and identify projects that can be financed under the Clean Development Mechanism (CDM) and assist with drafting of the project documents	R+D □		
<i>Objective 2.2</i> Low-carbon / emissions reduction targets and implementation measures introduced for government services and assets	Define low carbon RDP housing standards, and implement key measures through Department of Housing and Local Government / municipal housing programmes	S+RR ▲	DLG&H, municipalities	March 2012, ongoing
	All municipalities and provincial departments to commit to carbon-neutral buildings, infrastructures, assets and internal operations	InF D ■	Gauteng Department of Infrastructure Development Gauteng municipalities	March 2012, ongoing
	Implement relevant targets in GSP's programme sectors for public services (list the applicable ones e.g. government fleet service energy efficiency targets)	InF D ■		
<i>Objective 2.3</i> Greening municipal revenue streams	Investigate, through a multistakeholder process, how municipalities can decouple revenue generation from unsustainable resource use, inter alia with respect to: excessive consumption of coal-powered electricity; fuel levies on fossil-fuels sold in the municipal area; per service based pricing of waste removal (with linear waste streams from households to landfill); excessive consumption of potable water; production of more built environment on which property taxes can be levied, etc	R+D □	DLG&H, municipalities, SALGA, National Treasury	

Issue34: Monitoring of and detailed research around the climate change phenomenon

Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 3.1</i> Detailed studies of Gauteng's contribution to climate change, globally and locally, and the localized climatic changes within Gauteng	Set up a research and monitoring task team to co-ordinate detailed research, modeling and primary data collection on localized causes and effects of climate change. Task team to engage with existing programmes of research (e.g. Global Change research challenge funded as part of DST 10 year science plan) to ensure that Gauteng specific interests are covered.	D+R+M&E ×	GDARD, DED, GCRO, DST, CSIR, The Innovation Hub, SA Weather Bureau, universities	2011 (ongoing)

	Under the co-ordination of the research and monitoring task team, conduct detailed programmes of research on various aspects of climate change cause and effect, and ensure that results are interpreted back into the policy domain, and also communicated widely	D+R+M&E ✘	GDARD, DED, GCRO, DST, CSIR, The Innovation Hub, SA Weather Bureau, universities	2011 (ongoing)
<i>Objective 3.2</i> Detailed understanding of the interventions necessary for mitigation and adapting to climate change in Gauteng	Undertake detailed studies into the alternative options for mitigation and adaptation, including the viability of high-tech technological interventions, of investing in green infrastructure. This research needs to be jointly conducted by research organizations and government implementing agencies to ensure mitigation and adaptation interventions are real-world applicable	R+D ☐	GDARD, DED, GCRO, CSIR, Government agencies such as The Innovation HUB, SA Weather Bureau, universities	2011 (ongoing)
	Conduct technology needs assessment	R+D ☐		
	Conduct market study of local industrial ability to develop, manufacture and produce relevant technologies for emissions reduction, adaptation, etc	R+D ☐		

4.3. Energy

Envisaged outcome: A Province that is a renewable and energy hub, that makes ambitious investments in renewable energy sources and technologies, and that works to extend an integrated package of reliable and innovative energy services to all citizens, thereby realizing economic and employment spinoffs which dramatically improve Gauteng’s position in the new green economy.

Economic implications: Stimulating energy efficiency and an integrated energy mix based on renewable resources, presents significant opportunities to stimulate growth and job creation in an economy suffering from power outages and distribution failures. Benefits will be felt through reduced dependence on volatile and unpredictable energy supplies that hurt industry and business as well as low-income energy users. By refocusing energy strategies towards a renewable and low-carbon future, Gauteng will gain cost advantages in the face of rising electricity prices, and significant industrial and manufacturing opportunities around renewable energy and energy efficiency technologies. These are compelling economic opportunities, provincially and nationally.

Issue 1: Strategic leadership: Demonstrate leadership that promotes sound energy decisions and action				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 1.1</i> Adoption of the GIES by government and all stakeholders.	Consult key stakeholders for implementing strategy.	PB+C ○	DLG&H, Provincial and local government, Sector associations, Business and industry	2009
	Obtain agreement on relevant stakeholder roles in strategy implementation.	S+RR ▲	As above	2009
	Signing of MoUs with relevant municipalities regarding strategy support and implementation.	S+RR ▲	As above	2009
	Host an annual Energy summit to review and plan for the year ahead	CB ◆	As above	2009
<i>Objective 1.2</i> Establishment of a Provincial Energy Forum or Advisory Board	Identify key role-players for the Energy Forum including all spheres of government, civil society, industry and commerce sectors.	PB+C ○	DLG&H, Provincial and local government, Sector associations, business and industry	2010

	Set up, and develop a terms of reference for, the Energy Forum, including legislative, advisory, regulatory and monitoring functions as well as advising and guiding the Energy Office (see section 4.10 for actions).	S+RR ▲	DLG&H, Provincial and local government, sector associations.	2010
Objective 1.3 Government leadership on energy in the province	Establish an Energy office.	S+RR ▲	DLG&H, Provincial and local government, sector associations, business and industry	2010
	Ensure coordination, alignment, support and participation of all key departments and spheres of government regarding implementing the energy strategy, and ensure that all role players are adequately informed of activities. This is to be done primarily through the Energy Forum (see above).	CB ◆	As above	2010
	Energy to be included in the KPAs for lead department HoD and Municipal Managers.	S+RR ▲	As above	2010
	Ensure engagement in building capacity within government departments (see section 4.9 empowering citizens to reach their vision) and link with Gauteng City-Region Observatory and the Gauteng City-Region Academy.	CB ◆	As above	2010
	Energy champions to be appointed in each department and facility. Appointees to develop and coordinate an energy plan for their department and facility.	CB ◆	As above	2010
	Energy to become a standing agenda item on the premier's coordinating council and of all relevant municipal council meetings.	S+RR ▲	As above	2010
	Development of an annual State of Energy Report for the Province. This report will provide an overview of energy within Gauteng including basic data, an update status on demonstration projects and information on achievements, targets met and challenges.	S+RR ▲	As above	2010

Issue 2: Financial mechanisms: to have the financial support to implement the energy strategy

Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 2.1 Develop a short- to medium-term energy funding plan to support the roll-out of the strategy	Develop a business plan for the Energy Office, which includes an enabling legal framework.	S+RR ▲	DLG&H, GDARD, DED, Provincial treasury	May 2010
	Establish a funding unit in the Energy Office.	RM ★	As above	As above
	Develop a business plan for the initial implementation of the strategy and develop a medium-term budget and investment framework for the strategy.	S+RR ▲	As above	As above
	The initial budget should include funds for demonstration projects to rolled out with immediate effect.	SE+M Int ●	As above	As above
	Develop a database of potential donors, funders and partners and their interest areas.	D+R+M&E ✕	As above	As above
	Identify sources of funding to support the business plan and secure funding.	RM ★	As above	As above
	Establishment of a Gauteng Energy Fund to fund projects at provincial and local government that, through low interest rates and efficient processing of applications, will incentivise sustainable energy projects.	RM ★	As above	As above
Objective 2.2 Comprehensive and detailed energy funding plan	Develop a business plan to support the longer-term implementation of the strategy, with particular focus on achieving the stated targets (including renewable energy purchase, mass rollout of efficient water heating, and energy efficiency targets).	S+RR ▲	DLG&H, National treasury, provincial treasury, Local governments, Private sector stakeholders, Donor community, NBI, DWEA	2010
	Linked to the business plan, develop a detailed 10-15 year finance plan and statement of investment opportunities to guide and support targeted purchase of renewable energy and energy efficiency.	RM ★	As above	As above
	Engage with banks to provide suitable loan products to support business plan.	PB+C ○	As above	As above

	Engage with Central Energy Fund around mutual support and coordination regarding funding and implementing the strategy.	CB ◆	DED leading, in collaboration with DLG&H, National treasury, provincial treasury, Local governments, Private sector stakeholders, Donor community, NBI, DWEA	As above
	Investigate the feasibility of a provincial tax option to fund renewable and alternative energy in Gauteng and ring-fencing this tax. As a part of this undertake a study regarding the legal position and financial potential of carbon tax on fossil fuels or transport fuels in the province.	D+R+M&E ✕	As above	As above
	Use carbon finance (e.g. CDM) as a revenue stream both for the Energy Office itself and for projects being pursued.	RM ★	As above	As above
	Coordinate funding plans with the Sustainable Development Strategy.	CB ◆	As above	As above
Objective 2.3 Provincial and municipal energy financing objectives and programme	As part of developing a strategy business plan (above) conduct an assessment of key departmental and municipal projects and determine funding needs.	RM ★	DLG and DPWRT, DED, municipalities, Provincial & national treasury, state agencies like GEDA	2014
	Develop and disseminate guidelines for funding support applications by departments and municipalities from Gauteng Energy Fund.	RM ★	As above	2014
	Provide or facilitate strategic funding to departments and municipalities for implementation.	RM ★	As above	2014

Issue 3: Local govt support, regulation and market support: Ensure that regulation and market support enable the sustained implementation of the GIES

Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 3.1 Support local governments to develop and enforce policies and regulations that promote	Develop standard by-laws and regulations for RE and EE in the province. This will be done through: Assessing all municipal by-laws relevant to sustainable energy and resource use for how they can	S+RR ▲	DLG&H, GDARD	2010

renewable energy and energy efficiency	support or currently constrain implementation. Identify relevant by-laws and regulations required for, or in support of strategy implementation, e.g. building codes, and develop standard by-laws and draft regulations for consideration by municipalities where appropriate.			
	Green municipal building programme (in line with targets and activities stated in the sustainable land use sector). This entails working with municipalities to achieve 'green building' status for all municipal head offices in accordance with the Green Building Council of SA rating system.	S+RR ▲	DLG&H, Municipalities and DPW	2011
	Promote the sustainable growth of cities, in line with details presented in the sustainable land use sector. This includes promoting a sustainable 'ecosystem' approach to city development, including macro-planning considerations such as densification and transport corridors, as well as smaller scale development planning. Support cities with necessary research and development of policies to affect this.	InF D ■	DLG&H, municipalities	Start immediately when new plans are designed, to be fully in place by end 2014
<i>Objective 3.2</i> Support provincial departments to develop regulations, guidelines and policies that promote good sustainable energy practices	Develop standard guidelines and policies throughout the province.	S+RR ▲	Municipalities, GDARD	2011
	Integrate EE, RE and Climate Change policy and legislation considerations into EIAs.	S+RR ▲	DED, DLG&H, municipalities, GDARD	2011
	Ensure that the spatial development framework of the province restrains urban sprawl, as specified in the sustainable land use sector.	S+RR ▲	As above, and include GPC	August 2011 and ongoing
	Explore potential to make approval of development plans subject to mandatory energy interventions (e.g. energy efficiency stipulations for shopping complexes, commercial buildings designed to less than 150 kWh / m ² , or efficient water heating systems on housing developments).	R+D □	DED, DLG&H, municipalities	2011
	Require provincial departments to assess and report on their energy and GHG profile and intensity (e.g. kWh/m ² for offices).	S+RR ▲	DED, DLG&H, all provincial departments	Annually, as part of annual reports, starting 2011/12
	Develop guidelines for the proper disposal of CFLs in the province, and phasing out of GHG's as per the National Governments Outcome Area 10 targets (details provided in the sustainable land use sector report).	R+D □	GDARD, DLG&H	Start immediately, ongoing until it is either phased out or proper disposal is ensured

	Investigate the feasibility of an energy efficiency clearance certificate or penalty on home and building sales.	R+D □	DED, DLG&H	2011
	Lobby banks and home loan institutions to support an energy efficiency clearance certificate.	PB+C ○	DED, DLG&H	2011

Issue 4: Promote innovation and clean energy technologies, i.e. the development of technologies that facilitates the move to a new energy future

Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 4.1</i> Build strong relationships and networks with research institutes, academia and potential funders	Establish partnerships between the private sector, universities and technical colleges, government research institutions (such as SANEDI) and international agencies and organisations.	PB+C ○	Private sector, tertiary institutions, CSIR, HSRC, SANEDI, DLG&H, GEDA, tertiary institutions	2010
	Liaise with tertiary and research institutions on provincial sustainable energy research requirements.	PB+C ○	As above	2010
	Establish cooperation frameworks with existing research institution grant programmes and internships at universities and technical colleges.	PB+C ○	As above	2010
	Coordinate with DST regarding a clean energy technology incubator which focuses on provincial issues.	R+D □	As above & Innovation Hub	2010
	Identify and establish partnerships with appropriate international bodies and agencies for skills and knowledge transfer.	PB+C ○	Private sector, tertiary institutions, CSIR, HSRC, SANEDI, DLG&H, GEDA, tertiary institutions	2010
<i>Objective 4.2</i> Conduct energy resource assessments	Clarify the feasibility of renewable energy options in Gauteng through a detailed energy resource assessment conducted in conjunction with industry and other sectors as appropriate. The project should potentially start with government (provincial and local) buildings with the aim of being an example to the private sector and industries in the province.	D+R+M&E ×	Premier's office (as leadership), DLG&H	2011

	Drawing on the resource assessment, identify the key clean energies to be developed in the province – such as solar energy, heat pumps, co-generation, landfill-to-gas and energy-efficient technologies.	R+D □	Premier's office (as leadership), DLG&H	2011

Issue 5: Using energy efficiently, i.e. have an energy-efficient province

Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 5.1 Reduce government building energy consumption: Audits of all government buildings completed by end 2011. 13% reduction in energy demand from BAU in government buildings by 2014. All incandescent lighting in government buildings to be replaced with energy-efficient lighting by 2012 (note that system for safe disposal of fluorescents needs to be in place).	As per the related activities listed in the sustainable land use sector, audit all government buildings, including offices, schools, hospitals etc. and retrofit for energy efficiency.	D+R+M&E ✘	DLG & H, EMTT, DPWRT, Energy Office, municipalities	2010, 2012, 2014
	Appoint ESCOs accredited by ESKOM to help with the audits and undertake retrofitting.	CB ◆	As above, including ESKOM	2012
Objective 5.2 Capacitate government officials	Key staff in government departments to have undergone capacity building around EE, RE and/or DSM by ends 2011.	CB ◆	DLG&H, all departments	2010 ongoing
	Identify further and ongoing training needs.	CB ◆	DLG&H, all departments	2010 ongoing
Objective 5.3 Support municipalities with energy efficiency programmes	Engage with municipalities to determine areas where support would further their municipal operation energy efficiency programmes and needs, including: All electricity master plans to be guided by an energy efficiency framework; installing energy efficient streetlights; installing LED traffic lights; improving building efficiency, including installation of insulation in ceilings (especially for RDP housing); improve municipal plant efficiency (e.g. water pumping etc.); Promoting adoption of appliance labelling of DoE; and design and undertake activities to provide such support.	CB ◆	DLG&H, ESKOM, municipalities	2009 ongoing
Objective 5.4 Commerce and industry to develop energy plans	In collaboration with the private sector, work towards ensuring that all businesses achieve green building status by 2014 using the Green Building Council of SA standards.	PB+C ○	DWEA, DED, state agencies like GEDA, NBI, private sector stakeholders, tourism sector, EIUG	2014
	Obtain private sector endorsement of GIES efficiency targets.	PB+C ○	As above	2014
	Large energy consumers to produce annual energy plans (initially	S+RR	As above	2014

	members of the Energy Intensive Users Group). These plans must be factored into the State of Energy report.	▲		
	Monitoring and compliance of industry and commerce to be reflected in the State of Energy report.	D+R+M&E ✕	As above, and GDARD	2014
	Lobby national government to develop energy intensity standards for large energy consumers and these consumers to report on compliance in their annual energy plans.	S+RR ▲	DWEA, GEDA, NBI, private sector stakeholders, tourism sector, EIUG	2014
<i>Objective 5.5</i> Establish commercial and industrial energy efficiency programmes	Engage with municipalities to determine areas where support would further their energy efficiency programmes and needs, including: Industry and commerce completing energy audits by 2012; Promoting green building guidelines; Adopting appliance labelling standards; Intelligent metering and central monitoring of industrial and commercial customers against set targets by municipalities and ESKOM; Engage with municipalities to look at and implement stepped pricing as a means of achieving efficiency targets; The Provincial Energy Office to design and undertake activities to provide such support.	S+RR ▲	DLG&H and provincial sector departments, municipalities, NBI, Private sector	Started in 2009, ongoing
<i>Objective 5.6</i> Implement public awareness programmes focussed on saving energy	Design and implement public awareness programmes on saving energy aimed at commerce and industry.	PA+Ed ▲	DLG & H	Ongoing

Issue 6: Sustainable energy supply: Ensure that the energy supply mix in Gauteng is optimised in terms of economic, social and environmental sustainability, and to foster an enabling environment for this to happen

Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 6.1</i> Determine and promote the most economically, socially and environmentally sustainable supply mix. 7% RE consumption (electricity only) by 2014, 16% by 2025, 47% by 2055	Undertake an assessment of a suitable supply mix to balance the following: keep costs down to promote economic growth, but look to longer-term cost optimisation and environmental sustainability (including low carbon considerations) by introducing renewable and alternative energy options in the short term. Draw on work being done by NERT and NERSA.	D+R+M&E ✕	DLG&H	Supposed to have started in 2010
<i>Objective 6.2</i> Encourage decentralised power generation	Explore and encourage decentralised energy production in Gauteng where appropriate.	R+D □	DED, DLG&H, municipalities	Immediate
<i>Objective 6.3</i> Maximise the use of appropriate RE technologies	Undertake a resource assessment for RE and other appropriate clean energy sources in Gauteng, and investigate regulatory barriers to utilisation of RE, including the MFMA, net metering and other	D+R+M&E ✕	DED, DLG&H, GDARD	2011

	feed-in constraints etc.			
<i>Objective 6.4</i> Support mass roll out of efficient water heating systems	Approval of an efficient water heating strategy and implementation plan. Support mass roll-out of domestic Heat Pumps and SWHs & other efficient systems in cities by appropriate involvement in these areas: Training support for installers; Adequate standards in existence to be applied more diligently; Providing consumer support and increase consumer confidence in suppliers and after-sales support, and efficient water heating by-law development support.	SE+M Int ●	DLG&H, municipalities, ESKOM, DID, DEDESWH industry, DBSA	2010
<i>Objective 6.5</i> Promote efficient water heating industry development	Promote the development of an efficient water heating industry to support mass roll-out and make Gauteng the regional centre for this technology, via training, and industry incentives to promote local production.	SE+M Int ●	DLG&H, DED, Energy SETA (the latter dependent on SETA futures)	2010
<i>Objective 6.6</i> New clean energy options are introduced wherever feasible	Keep track of other renewable energy sources and promote where promising, including: sewage gas, solar PV, heat pumps, localised biogas generation and fuel cells.	R+D □	DLG&H, CSIR, Innovation Hub	2010
<i>Objective 6.7</i> Small-scale off-grid and grid-feed-in renewable systems are promoted in private sector	Work with cities to facilitate the private sector use of small-scale off-grid and grid-feed-in systems such as solar PV and biogas generation, including: technical assessment support, standards development support and awareness raising.	PB+C ○	DLG&H, ESKOM, municipal electricity departments/MoEs	2010

Issue 7: Institutional support through creation of a centre or Energy Office from where all energy matters and actions will be managed within Gauteng Province

Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 7.1</i> Drive the strategy through firmly institutionalising energy within provincial government and building effective partnerships with all spheres of government and other key stakeholders: Establish energy office for initial implementation of the GIES. The office will have five work streams as noted here	Work stream 1: Supporting implementation of EE and RE	CB ◆	DLG&H	2009 onwards
	Work stream 2: Sourcing and informing on adequate funding and financing and legislative support	RM ★	As above	As above
	Work stream 3: Building awareness and education	PA+Ed ▲	As above	As above
	Work stream 4: Monitoring the effectiveness of the strategy and ensuring compliance and enforcement	D+R+M&E ✕	As above	As above
	Work stream 5: Data collection to enable planning, monitoring and enforcement	D+R+M&E	As above	As above

		×		
	Other activities: Energy Office to liaise with other provincial departments to ensure coordinated provincial leadership on energy decisions.	CB ◆	As above	As above
	Ensure alignment with provincial strategies and frameworks in particular the forthcoming Climate Change Strategy.	S+RR ▲	As above	As above
	Energy Office to ensure adoption of GIES by all relevant stakeholders in government and private sector.	S+RR ▲	As above	As above
	Energy Office to host an annual Energy Summit.	SE+M Int ●	As above	As above
	Energy Office to maintain a strong link and lobbying of National Government, including DoE, DoHS, SANEDI and DST, to facilitate the implementation of the strategy.	CB ◆	As above	As above
	Energy Office to ensure demonstration projects are identified and implemented as soon as possible.	R+D □	As above	As above
	Energy Office to produce an annual State of Energy Report and provide leadership in this arena.	D+R+M&E ×	As above	As above
Objective 7.2 Drive the strategy through firmly institutionalising energy within provincial government and building effective partnerships with all spheres of government and other key stakeholders: Establish a provincial energy forum	The Energy Office, under the advisement of senior government officials, will coordinate the establishment of the Energy Forum. The forum will advise the energy office.	S+RR ▲	Energy Office in DLG&H, all government departments, business and civil society partners	2010

4.4. Economic development

Envisaged outcome: A more sustainable regional economy that anticipates and adapts to underlying resource constraints, proactively invests in natural capital, and takes advantage of new opportunities in the emerging green economy, in order to become more efficient in the use of resources, to increase its resilience in face of price and trade challenges, and to address deep structural employment problems.

Economic implications: The new industries that will be forged and the wide pool of jobs that exist in the green economy are opportunities to be seized by Gauteng so to avoid being left behind in this economy of the future. If Gauteng reinvents itself as a green economy to stay competitive, it can lead as a regional hub of green entrepreneurial activity, innovation, manufacturing and R&D. The burst of investment and financial services in a green Gauteng will be equally felt in green grass-roots and public employment activities that develop around investing in natural capital and ecosystem services.

Issue 1: Strategic clarity across national, provincial and local government				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 1.1</i> Clear national and provincial government strategy statements on how a transition to a 'green economy' will be realised over the medium to long term	Engage with the National Planning Commission as part of its consultation processes around the draft national plan, to ensure that the document provides clear strategic direction on how the country will move to a green economy, and over what time period	S+RR ▲	Gauteng Planning Commission (GPC), DED and municipalities	2011/2012
	While taking direction from NPC work, provincial government to clarify for itself how Gauteng will transition to a green economy over the medium to long term, either as part of the process to complete Vision 2055, or through the Gauteng Growth Path work initiated by DED in 2010	S+RR ▲	GPC, DED	Mid 2012
<i>Objective 1.2</i> Clear local government strategy statements embedded in Integrated Development Plans	Each municipality in Gauteng to develop their own 'green economy strategy', that respond to this Provincial Green Strategic Programme	S+RR ▲	Municipalities, GDLGH, GPC, DED and Salga	June 2012
	Municipalities to ensure that their individual green economy strategy commitments are inserted into their revised IDP for 2012/13, their SDBIPs and performance agreements for senior managers	S+RR ▲	Municipalities, GDLGH, GPC, DED and Salga	June 2012
<i>Objective 1.3</i> Green economy strategies developed, and monitored, through a process of co-operative governance	Municipalities will develop their green economy strategies through a consultative and cooperative process, where, as far as possible they share ideas and experiences with each other and with provincial government. A Green Economy Forum, with a clear programme of action facilitated by the Gauteng Planning Commission and DED, will be established for this purpose	S+RR ▲	Municipalities, GDLGH, GPC, DED and Salga	June 2012

	Via MINMEC, or through the Green Economy Forum, provincial and local government to establish a standing line of engagement with national Departments of Economic Development and Trade and Industry to determine how national targets for a green economy (from, inter alia, the NGP, IPAP2, Outcome 10, the IDC etc) can (a) be translated into Gauteng specific targets, and/or (b) aligned with Gauteng specific targets and activities	S+RR ▲	Municipalities, GDLGH, GPC, DED and Salga	June 2012
	Progress on developing and implementing green economy strategies reported regularly to the Gauteng PCF, and in turn municipal Mayoral Committees and Councils	D+R+M&E ✘	Provincial PCF	Ongoing

Issue 2: Creation of green jobs				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 2.1</i> Grow a technical skills base for the green economy	Undertake a detailed skills assessment, entailing both an evaluation of what skills are needed by emerging green industries, and an audit of the current skills availability and gaps in the market	D+R+M&E ✘	DED, GCRA	March 2012
	Design targeted measures (training courses, apprenticeships, learnerships) to develop critical skills required by green industries	SE+M Int ●	DED, GCRA	June 2012
	Implement identified measures through various agencies, but with central co-ordination (e.g. via the Gauteng City Region Academy)	SE+M Int ●	DED, GCRA	June 2012 – ongoing
	In partnership with the national Training Layoff Scheme, if still operational, introduce a targeted green industries re-skilling programme to re-skill recently unemployed workers from relevant industries	SE+M Int ●	DED	June 2012 – ongoing
<i>Objective 2.2</i> To ensure a managerial and scientific skills base for the green economy, enlarge the share of PhDs and Masters' degrees in sustainability and related fields	Work with national government and universities to increase available scholarships and bursaries for areas such as environmental science, ecology, sustainable development, climate change, etc. Attach conditions to retain students in bodies such as Blue IQ, GEDA	SE+M Int ●	DED and GCRA working with national DoE and DST/NRF, as well as Gauteng universities	June 2013
	In partnership with universities, develop a database of degree candidates and their research in fields relevant to the green economy	SE+M Int ●	DED and GCRA working with national DoE and DST/NRF, as well as Gauteng universities	June 2013
<i>Objective 2.3</i> At least 100 000 of the 300 000 jobs in the green	Interact with national departments to determine jobs potential in Gauteng, and develop a clear protocol to align national, provincial and local measures designed	PB+C ○	DED, municipalities, national DED, DTI	December 2011

economy envisaged by the New Growth Path, to be in Gauteng (outcome date in the NGP is 2020) Note: activities across different issues and objectives in this programme statement will contribute to achieving this target. Activities here relate only to intergovernmental alignment, and determining jobs potential in Gauteng	to create decent-work green jobs in the province			
	Investigate the jobs potential in different Gauteng sectors and sub-sectors, using and building on modelling already conducted by the IDC and DBSA	D+R+M&E ✘	DED, municipalities, IDC, DBSA	March 2012
Objective 2.4 At least 30% of the envisaged 1 million plus EPWP work opportunities in the green economy to be in Gauteng	Ensure that between 20-30% of work opportunities created in provincial government EPWP programme are in green jobs programmes (note: percentage will be re-determined when clarity is reached on how many EPWP job-opportunities will be forthcoming vs how many are required to make up more than 300 000 – it may be necessary to expand the current EPWP programme to make up the difference)	SE+M Int ●	DED, GDID, GDRT, GDARD	Ongoing to 2014
	Ensure that at least 30% of work opportunities created in municipal EPWP programmes are in green jobs programmes (e.g. in retrofitting, tree planting, waste removal, land-care, etc) (note: percentage will be re-determined when clarity is reached on how many EPWP job-opportunities will be forthcoming vs. how many are required to make up more than 300 000 – it may be necessary to expand the current EPWP programme to make up the difference)	SE+M Int ●	DED, GDID, GDRT, GDARD, Gauteng municipalities	Ongoing to 2014
	Provincial and local government to work together to ensure that the skills components of their respective EPWP programmes equip beneficiaries with relevant green economy skills that are transportable to the private sector (e.g. solar water heater installation, retrofitting of buildings, etc)	SE+M Int ●	DED, GDID, GDRT, GDARD, Gauteng municipalities	By March 2012, ongoing
Objective 2.5 Labour market intermediation programmes to channel beneficiaries to green jobs	Build on and scale up existing labour market intermediation programmes (e.g. City of Johannesburg's Jobs Pathways) to (a) up-skill beneficiaries in preparation for work in green industry and (b) channel beneficiaries to available private sector green economy employment opportunities	SE+M Int ●	DED, GCRA, municipalities	March 2012
	Provincial and local government to work together to track take-up in private sector jobs of beneficiaries from EPWP, CWP, jobs-pathways programmes, training courses, etc	D+R+M&E ✘	DED, GCRA, municipalities	March 2012
Objective 2.6 Align with and build on nationally initiated programmes to ensure that communities benefit from green economy related opportunities	Engage with relevant national departments (included EDD, dti, DoL, etc) to ensure that various nationally defined programmes – specifically the IPAP2 ideas to establish green youth brigades and pay communities for ecosystems services rendered, as well as the Community Works Programme – are geared towards desired green economy outcomes and benefit communities in Gauteng	SE+M Int ●	DED, municipalities, national DED, dti, DoL	December 2011

Issue 3: Support for green industries

Objective / target	Key activities to realise target	Category	Responsibility	Date
<p><i>Objective 3.1</i> Small enterprises and co-operatives in the green economy provided with a package of support</p>	Expand existing programmes of support flowing from current provincial and local government LED and co-operatives policies to ensure targeted support for small enterprises and co-operatives in the green economy	SE+M Int ●	DED, municipalities	March 2012
	Ensure that existing government institutions that provide financial assistance (for example the Johannesburg equity fund) target green economy small enterprises	SE+M Int ●	DED, municipalities	December 2012
	Assist fledgling firms to approach other possible sources of finance for support (notably IDC but also commercial lenders)	SE+M Int ●	DED, municipalities, IDC, Banking Association of South Africa	March 2012
	Investigate the desirability and feasibility of establishing a Gauteng specific green fund to support emerging green entrepreneurs	RM ★	DED, municipalities	March 2013
	Where appropriate and possible provide small enterprises and co-operatives in the green economy with 'business angel support' or assistance in connecting into the supply chains of larger businesses	SE+M Int ●	DED, municipalities	December 2012
<p><i>Objective 3.2</i> Hubs of green manufacturing created in areas with vacant and obsolete factory space</p>	Identify a limited number of industrial areas (2-3) where there is significant vacant or obsolete factory space (e.g. Babalegi or Vereeniging/Vanderbijlpark) which may become future green economy manufacturing hubs	D+R+M&E ✘	DED, municipalities	December 2012
	Provincial and local government to work with national departments and industry representatives to reconfigure this space to be more suitable to requirements of green manufacturing. This will include targeted incentives for green industry players wishing to establish manufacturing space in these hubs (e.g. demolition incentives)	SE+M Int ●	DED, municipalities	March 2014
	Building on the experience with the automotive industry supplier park and AIDC, provincial and local government to work in these hubs to provide platforms for cross-industry learning, training, support in accessing incentives, etc	SE+M Int ●	DED, municipalities, AISP/AIDC	Progressively, but with capacity fully established by March 2014
<p><i>Objective 3.3</i> Creation of closed loop manufacturing circuits where the waste outputs of some industries are used as the inputs for others</p>	Ideally inside green manufacturing hubs in old locations, or in new supplier parks dedicated to the purpose of facilitating take-back systems between companies, define a series of closed loop manufacturing processes where the inputs of one firm can come from the waste outputs of another. Structure the loops by attracting identified industries to the site through targeted incentives (e.g. property tax rebates)	D+R+M&E ✘	DED, municipalities, CSIR	March 2013

	More generally, promote closed loop manufacturing linkages through a package of support to be defined, but which may include: a public database of firms with useful waste outputs, subsidised R&D support for firms that need to re-configure industrial processes to utilise by-products from other firms, regulation and pricing policies such as Extended Producer Responsibility (EPR) enforced on waste and by-products	SE+M Int ●	DED, municipalities, CSIR	March 2013
<i>Objective 3.4</i> Intergovernmental agreement on specifications and standards of new technologies to receive targeted support	Work with national departments of Economic Development, Trade and Industry, etc, as well as IDC and other agencies such as NRCS, to clarify where specifications/standards on new technologies are required before targeted support is provided or mass procurement is implemented (e.g. CFLs vs. LED lighting)	S+RR ▲	DED, municipalities, national DED, dti, NRCS, etc	December 2011
	Work with national partners to agree specifications and standards for key technologies to be supported / procured	S+RR ▲	DED, municipalities, national DED, dti, NRCS, etc	December 2012
	Clearly communicate the agreed specifications / standards inside government and to industry	PA+Ed ▲	DED, municipalities	December 2012
<i>Objective 3.5</i> Intergovernmental alignment on industrial strategy support for selected industries	Work with national departments and agencies to investigate where government requirements for new products and services can create market demand for new industries that are receiving corresponding support from national agencies (especially via IDC)	D+R+M&E ✘	DED, municipalities, national DED, dti, IDC	March 2012
	Work with national departments and agencies to align targeted industrial strategy support measures (e.g. between IDC and the AIDC & Innovation Hub)	PB+C ○	DED and related agencies, municipalities, national DED, dti, IDC	March 2012
<i>Objective 3.6</i> Localisation of production of green products	Engage with national government on possible provincial and municipal support to help meet national targets for local manufacturing of green products (e.g. 60% of solar water heaters to be rolled out by 2014 produced locally)	PB+C ○	DED, municipalities	June 2012
	Design a package of support for inward investment of green industries wanting to set up production facilities in South Africa, and wherever possible profile the province as a green investment destination (through marketing materials, at trade fairs, etc)	SE+M Int ●	DED, GEDA	June 2012, ongoing

Issue 4: Greening government and business operations

Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 4.1 Roll-out of Part 1 of a major Go Green Gauteng campaign, ensuring that all GPG departments and all municipalities are aware of opportunities to stimulate the green economy through their operations	Undertake a systematic communication strategy within government highlighting opportunities to transform internal operations to 'greener ways of doing government business'	CB ◆	DED, provincial GCIS	December 2011, rolling to March 2014
	Develop and roll-out targeted executive training courses which clarify the need to go green in each provincial and municipal department, and ways of working across government to have positive effects on the emerging green economy	CB ◆	GCRA	March 2012
Objective 4.2 Sustainable public procurement, ensuring that by 2015 government only procures products and services satisfactorily rated as green according to clear standards	GPG, working with municipalities in the province, will adapt procurement requirements and regulations to encourage business own-investment in green practices, systems, products. Whether a business runs operations on the basis of green systems will be a criterion that receive at least a 10% weighting in all tenders by 2015	S+RR ▲	DED, municipalities	2015
	Introduce a province wide sustainability star-rating system rating all businesses by agreed criteria by 2013 (<i>note: this links to requirements, under the energy programme statement, for businesses to achieve green building standards, but this rating system will include issues beyond green buildings and energy</i>)	S+RR ▲	DED, municipalities	December 2013
	GPG to work with local government in the province to establish a joint "green products and services advisory bureau" by 2013. This will act as the rating agency, inter alia undertaking life cycle analysis of all procured products. Governments in the province will not procure stock, equipment or fleet for public use unless rated green by the advisory bureau after 2015. The bureau to also work to advise business on greening production processes	S+RR ▲	DED, municipalities	December 2013

Issue 5: Public awareness around the green economy

Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 5.1 Roll-out of Part 2 of a major Go Green Gauteng campaign, ensuring mass public awareness of the need for greening in every aspect of household and community life, in order to create market stimulus for green goods and services	Devise and roll-out a mass publicity campaign targeting different communities with different media, but with the consistent theme of building understanding and pride in the idea of a sustainable Gauteng and a vibrant green economy	PA+Ed ▲	DED, Provincial GCIS	December 2011, scaling up and rolling to March 2014
	Evaluate the impact of the campaign by benchmarking understanding and emotive connection to ideals of a green province	D+R+M&E ✘	DED, Provincial GCIS, GCRO	August 2011 for first benchmark (perhaps

				through GCRO 2011 QoL Survey), then successively to March 2014
	Based on the rigorous monitoring and evaluation work elaborated in Issue 7, communicate back to citizens, business and other spheres of government what Gauteng has achieved in trying to build a green economy after three years	PA+Ed ▲	DED, GCIS	June 2014
<i>Objective 5.2</i> Through targeted marketing and communication initiatives, international awareness of Gauteng's progress towards a green economy	Devise and roll out a targeted international communication campaign highlighting Gauteng's efforts, and initial achievements, in building a green economy	PA+Ed ▲	DED, GEDA, Provincial GCIS	June 2013

Issue 6: Connecting green and knowledge economies				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 6.1</i> A regional system of innovation geared to support R&D and innovation around green products and services	Evaluate the degree of support being provided to R&D and innovation in green products and services within the existing regional system of innovation (e.g. through CSIR, DST's bio-economy strategy, university research programmes, etc)	R+D □	DED	March 2012
	Within the broader framework of the Gauteng Innovation Strategy, strengthen and target support measures that bolster R&D in green products and services in the province	R+D □	DED	June 2012
<i>Objective 6.2</i> Alignment between national funding for private sector green economy innovations and provincial and local government take-up of new products and services	Systematically identify across provincial and local government where R&D and innovation is required for improved products and services from the emerging green economy (e.g. smart water and electricity meters, intelligent transportation systems, alternative fuel for large government fleet, etc)	R+D □	DED, municipalities	March 2012
	Engage with national government (inter alia dti, DST, IDC, etc) to ensure that funding and support for new green economy projects in the private sector addresses provincial and local government needs for innovative products and services, thereby ensuring market take-up	R+D □	DED, municipalities	June 2012

Issue 7: Monitoring and evaluating progress towards a green economy				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 7.1</i> Robust monitoring mechanisms to trace progress towards a green economy in the broad sense	Ensure that Gauteng is the first province to develop 'aggregate measures of economic progress' (a 'beyond GDP index'), which will include: a system of provincial environmental and economic accounting; an ecological footprint for the province, and systems to measure urban metabolic flows	D+R+M&E X	DED, municipalities, GCRO	June 2012
	Link these developments to national work called for in Outcome 10, namely to 'develop tools for the economic valuing of biodiversity and ecosystem services' by 2012	D+R+M&E X	DED, municipalities, GCRO	June 2012
<i>Objective 7.2</i> Robust monitoring mechanisms to track creation of green jobs and green firms	Within the Department of Economic Development scale up mechanisms to track creation of green decent work jobs, EPWP work opportunities in the green economy, inward investment in green industries, and the creation of firms providing green jobs and services	D+R+M&E X	DED	December 2011
	After two years subject this tracking to an independent data quality audit	D+R+M&E X	DED	December 2013
<i>Objective 7.3</i> Thorough evaluation of the impact of provincial and local government efforts to stimulate the green economy	Through the Green Economy Forum, rigorously track the implementation of provincial and local government projects aimed at stimulating and supporting green jobs and green industries	D+R+M&E X	DED, municipalities	2011, ongoing
	After three years undertake a thorough evaluation of the costs to benefits impact of provincial and local efforts to stimulate and support the green economy	D+R+M&E X	DED, municipalities	March 2014

4.5. Food security

Envisaged outcome: A Gauteng that is a regional food economy hub, where key food security challenges of food supply and households' economic access to food are addressed, where there is proactive investment in local organic food production, small-scale urban agriculture and local food chains as key components of a greener economy, and where all citizens have access to a safe, nutritious and diverse diet.













Economic implications: Investing in local organic food production and markets has the potential to transform Gauteng into a food economy, creating new food value chains that bring employment and investment advantages, and a major opportunity for Province to benefit from the burgeoning global organic industry. Gauteng as a regional food economy will also be less vulnerable to hikes in food commodity prices, and through increasing the availability of food to all citizens, will offset one of its major development impediments, namely the economic costs of hunger and lost productivity resulting from malnutrition.

Issue 1: Lack of transparency, awareness and participation				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 1.1</i> Establishment of a centralised repository of relevant food security policies, strategies, programmes, targets, budgets and progress reports, that is easily accessible to all	Gather all of the necessary documents	D+R+M&E ✘	Food Strategy (FS) Task Team in GDE (see Objective 2.1)	Dec 2011
	Contact SALGA's LED network to investigate possibility of up-scaling their database to provincial level	PB+C ○		
	Investigate repository options and different communication media for introducing existence of repository	D+R+M&E ✘		
	Implement repository & update/maintain it	D+R+M&E ✘		Dec 2011 & ongoing
<i>Objective 1.2</i> Establishment of District FS Working Groups, answerable to FS Forum and FS Task Team, to implement Objectives 1.3 – 1.5	See SALGA's LED Working Groups as example	PB+C ○	FS Task Team in GDED (see Objective 2.1)	July 2011
	Identify key individuals on district level	CB ◇		Sept 2011
	Create formal structures, and facilitate network connections	PB+C ○	District FS Working Groups	Oct 2011
<i>Objective 1.3</i> Collaborate with Corporate Sector	Investigate reasons for lack of collaboration	D+R+M&E ✘	FS Task Team (Objective 2.1) in GDED	Jan 2012
	Establishing database of projects business can invest in, with some form of grading system	D+R+M&E ✘		April 2010

	Compiling database of viable businesses to approach (e.g. Unilever, Pioneer Foods, Nestle)	D+R+M&E ✘		June 2010
	Approaching business sector and linking them with Objective 1.1 and the database mentioned in 1.3.2.	PB+C ○		Oct 2012
Objective 1.4 Increase Public awareness	Media campaign about FS and link to Objective 1.1	PA+Ed ▲	FS Task Team (Objective 2.1) in GDE and District FS Working Groups	June 2012
	Train journalists on FS topics – FS module included in tertiary writing courses	CB ◆		Dec 2012
Objective 1.5 Increase participation of Civil Society	On central repository (Objective 1.1) also have a space for public commentary and feedback	D+R+M&E ✘	FS Task Team (Objective 2.1) in GDE and District FS Working Groups	Dec 2011 & ongoing
	Creating platforms for civil engagement during policy development	PB+C ○		Dec 2011 & ongoing

Issue 2: Scattered responsibility and disconnect between local and provincial spheres				
Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 2.1 Establish a dedicated interdepartmental FS Task Team	Identify/appoint key individuals across GDARD, GDE, GDHSD and GDED whose sole responsibility is FS	CB ◆	Relevant mentioned departments and the Office of Premier which will also hold the mandate	Dec 2011
	Send the FS Task Team on an extensive FS training workshop, and regular follow-up workshops where targets and timeframes can be drawn up	CB ◆		Jan 2012
Objective 2.2 Establish local forums and communication channels feeding into Province	Dedicated feedback structures must be established for local initiatives to be fed back into provincial planning. (These could include e.g. mobile applications that assist with food access, or bi-annual status quo assessments of initiatives on district level)	S+RR ▲	FS Task Team in GDE and District FS Working Groups	Dec 2011
	Establish a database with new FS initiatives or initiatives not yet supported by government	D+R+M&E ✘		Dec 2011

Issue 3: Over-emphasis on production (vs. access, utilisation and resilience)

Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 3.1 Improved access to food for local communities	Develop collaborative organisations within communities – cooperatives	PB+C 	FS Task Team in GDED	June 2012
	Establish Local Food Markets (to promote informal sector and LED) - see land use regarding spatial planning	SE+M Int 		June 2013
	Establish Green Packing Houses & Processing Facilities (see zero-waste principles from SAPPI) and increase utilisation of existing facilities	InF D 		Dec 2013
	Upscale Feeding Schemes: additional focus on tertiary institutions & Food Banks to increase to 2/year	SE+M Int 	FS Task Team in GDHSD	Dec 2012
	Establish Community Restaurants / Nutrition Centres: 30 pilots in 50 priority wards	SE+M Int 		
	Commitment of food security initiatives (such as 4 and 8) to local procurement of natural and bio-available food sources	S+RR 	FS Task Team in GDARD	Dec 2011
	Establish community supermarkets with affordable, subsidised foods or introduce food stamps	SE+M Int 	FS Task Team GDED & GDHSD	Dec 2012
	Waiver of toll fees for food transports and biofuel conversion subsidies for food transport (thereby “mobilising” funds to ensure affordable food), and monitoring food prices to reflect the waiver/subsidies	RM 	FS Task Team in collaboration with GDRTRW	June 2012
Objective 3.2 Promote healthy diets - utilisation	Establish Community Nutrition Centres or Restaurants as educational platforms that provide information and workshops on good nutrition (e.g. introduction to alternative or traditional nutritious food, guides to affordable and healthy foods): 30 in 50 priority wards.	PA+Ed 	FS Task Team in GDHSD and GDE	Dec 2012
	Run media campaign to promote healthy diets and promote not only FS, but also nutrition security	PA+Ed 		Dec 2011
	Train social, health, and education workers, food vendors, CSO/CBO members and traditional healers in alternative sources of nutrition through workshops, talk shows etc. Provide them with accreditation	PA+Ed 		June 2012
	Establish gardens at clinics, hospitals and schools	InF D 		June 2012 & ongoing

	Schools: - nutrition curriculum must include benefits of organic produce and taste education - regulate school tuck-shops to include nutritional options	PA+Ed ▲		Dec 2012
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Issue 4: Lack of knowledge and information

Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 4.1</i> Increase knowledge base on FS	Identify gaps in FS research and emphasise priority topics (e.g. impact of rising fuel costs on FS)	D+R+M&E ✘	FS Task Team in GDE	Dec 2011 & ongoing
	Establish & capacitate network of FS research organisations	PB+C ○		
	Establish and manage “living labs”	R+D □		
	Include FS assessments in social and health screenings at e.g. clinics and schools	SE+M Int ●	Task Team in GDHSD	
	Include information and literature on FS in central repository (Objective 1.1)	D+R+M&E ✘	FS Task Team in GDE	
	Centralised database of indigent households	D+R+M&E ✘	FS Task Team in GDHSD	
<i>Objective 4.2</i> Improve knowledge and skills among FS officials	Develop and run training courses for provincial and local government officials	CB ◆	FS Task Team in GDE	2011 & ongoing

Issue 5: Lack of capacity

Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 5.1</i> Allocate dedicated budget of R100m	Establish baseline information to put together funding proposal	RM ★	FS Task Team in GDED	Dec 2011
	Leverage parastatal funding	RM ★		March 2012
<i>Objective 5.2</i> Triple HR allocations related to FS in provincial & local government (dedicated FS Task Team and District FS Working Groups) (also see objective	Training and knowledge transfer from experienced members	CB ◆	FS Task Team in GDE	Ongoing

1.2 and 2.1)				
Objective 5.3 Strengthen collaboration with CSOs and CBOs	Establish and maintain central repository of information and communication channels	D+R+M&E ✘	FS Task Team in GDE	Dec 2011 & ongoing
	Run awareness campaign aimed at CSO/CBOs	PA+Ed ▲		June 2012
Objective 5.4 Leverage Corporate involvement & CSI budgets (also see objective 1.3)	Establish central FS fund linked to database of projects that could be funded. Database also provides grading of projects and progress	RM ★	FS Task Team in GDED	Dec 2011

Issue 6: Weak and uncompetitive small-scale and organic/conservation agriculture sector				
Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 6.1 Promote conservation agriculture	Establish stages of converting to conservation agriculture and the necessary steps	S+RR ▲	FS Task Team in GDARD	Oct 2012
	Incentivise conversion through conditional subsidies and rebates	RM ★		Jan 2012
	Establish provincial conservation & organic farming certification authority - include buyers	S+RR ▲		June 2012
	Establish capitalisation - a microfinance scheme – for small-scale farmers who want to turn to conservation agriculture; EPWP/CWP partnerships	RM ★		Jan 2012
	Adjust tendering scorecard criteria to reward preferential local and conservation agriculture procurement	S+RR ▲		June 2012
Objective 6.2 Provide training in conservation agriculture	Establish local resource & training centres; 30 in 50 priority wards	PA+Ed ▲	FS Task Team in GDARD	Dec 2012
Objective 6.3 Make land available for small-scale and conservation agriculture	Land allocation for allotments and peri-urban agriculture in IDPs and SDFs (connect land use)	SE+M Int ●	District FS Working Groups	Aug 2011 & ongoing
	Protect & develop productivity of agriculture potential land (connect to land use) through promotion and incentives for conservation agriculture	S+RR ▲	FS Task Team in GDARD	

4.6. Land use

Envisaged outcome: A region with a more sustainable approach to land use based on more productive landscapes and more efficient, resilient and equitable settlement forms, where previously degraded land has been regenerated, and where biodiversity and the ecosystem services provided by our green infrastructure are protected and enhanced.

Economic implications: Investing in sustainable land use will contribute to Gauteng’s economic vitality, while failure to mainstream sustainable land use planning will result in significant economic costs. Addressing urban sprawl will regenerate previously defunct economic areas, whereas the long term economic effects of unchecked urban sprawl is the isolation of low-income groups. Investing in Gauteng’s green spaces, which create opportunities to socialise and rest, will fundamentally boost quality of life and socio-economic integration ratings and the associated economic feedbacks. By investing in its green infrastructure, Gauteng will free up revenue that is spent on the disaster recovery and infrastructure costs. There are exciting employment benefits in maintenance, entrepreneurial and public sector industries for Gauteng’s sustainable land use sector.

Issue 1: Built form and urban design				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 1.1</i> Clarity regarding the urban edge and development of other urban growth management tools	Provincial EXCO to provide clarity on why the Gauteng urban edge was taken out of operation and what should the interpretation be. Also, whether it is still relevant or not and whether local urban edges still apply	S+RR ▲	Gauteng Planning Commission (GPC), Provincial EXCO	August 2011
	EIA regulations may be affected by the urban edge not being applicable any longer: GDARD need to comment on this and investigate how EIA regulations may need to be adjusted to ensure adequate environmental protection measures	S+RR ▲	GDARD	November 2011
	If the municipal urban edges still stand, it needs to be aligned across borders on at least an annual basis. Municipalities should handle this carefully for service delivery purposes and to ensure cross-border alignment. Workshops in this regard are proposed to be used to discuss and finalise cross-border alignments	S+RR ▲	Municipalities, GPC	Immediate, thereafter, annually
	Develop other suitable tools to manage the provincial “urban edge” (or equivalent thereof)	S+RR ▲	GPC, DED, GDARD, municipalities	June 2012
<i>Objective 1.2</i> Complete the regional spatial web-viewer	Complete the project that have started, and increase its momentum. This must include stakeholder participation through the means of questionnaires and potentially workshops	InF D ■	GPC GIS office	July 2012
<i>Objective 1.3</i> Implement strategies that support and promote green layout, design and buildings	Establish a baseline measure of the number and type of green buildings in Gauteng (including alternative energy installations, grey/rain water usage, waste separation on site etc – cross-reference to other sectors). To this end, coordinate with the National Compulsory Regulatory Authority (NCRA) to establish which initiatives, data and projects they already have in place or	D+R+M&E ✘	GDARD, potentially delegate some elements to consultants to e.g. collect data	November 2012

	planned. Then, in line with this, develop a project for Gauteng to establish baseline information against which future achievements can be measured			
	Coordinate with NCRA and Green Building Council of SA re: building standards through meetings, seminars, and most importantly, documentation distribution to all role players	PB+C ○	Provincial department of housing	Immediate
	Evaluate all provincial and local government buildings for retrofit status, potential and requirements. Then set priorities to implement such retrofitting where applicable, as an example for industry and the private sector	D+R+M&E ✘	Provincial and municipal: all departments. To be supported as key strategy by the Premiers' office	Start immediately, establish priority buildings and time frames after evaluation
	Address provincial and local government procurement policies to add "green" scoring into point systems for awarding tenders (both in goods supply and consulting tenders), for retrofitting and new buildings, including RDP housing	S+RR ▲	Provincial and municipal procurement departments.	January 2012
	Create a standard list of alternative methods/technologies available for building "green" and Implement such alternative building technologies (that already exist and have been proven to work), when constructing new buildings (i.e. R & D is not critically required to do such implementation)	InF D ■		Immediate
	Launch an innovation competition/platform that focuses on the built environment for cost effective, easy to implement retrofitting and new buildings. This will also create awareness and raise interest in the potential for greener design	PA+Ed ▲	The Innovation Hub	Nov 2012
	Ensure more community involvement during RDP housing development to enable implementation of green layout/design principles without resistance. (I.e. awareness/education included in the stakeholder process)	PA+Ed ▲	Provincial and municipal housing departments	Immediate
	RDP requirements for physical building structures to be adjusted (to allow other typologies e.g. double storeys, shared walls, etc)	S+RR ▲	National and provincial housing depts.	Jul 2012
	RDP housing stand and unit funding to be separated, to allow for land acquisition closer to nodal developments	S+RR ▲	National and provincial housing departments	Feb 2012
Objective 1.4 Investing in human resources to improve planning capacity	Investigate staff secondment options between municipalities and establish staff assistance programme guidelines. To this end, link a specific smaller municipality with a larger metro and establish a working relationship between them	CB ◆	Municipalities	January 2012
	Municipal staff to give guest lectures at universities & universities to hold forums	CB	Municipalities, universities	Prepare for

	at municipalities. To this end, MoAs/MoUs are required to formalise the process	◆	and technical colleges in Gauteng	implementation in 2012 curriculum
	Investigate salaries across borders and attempt to align or improve the salary ranges	RM ★	Municipalities, with province	Prepare for 2012/13 budget cycle
	Actively engage young planners from universities through practical time to be spent in municipal offices as part of formalised internships (similar to e.g. doctors assisting in hospitals during their training years) – e.g. over holidays or other specified times. MoAs/MoUs need to be set up with tertiary institutions in this regard	CB ◆	Municipalities, universities and technical colleges in Gauteng	Prepare for implementation in 2012 curriculum
<i>Objective 1.5</i> Maximum 20% of existing informal residents still to be in such areas in 2015	Determine a baseline of how many people live where, in Gauteng, in informal settlements. The data may already exist in pockets, but this activity will require a complete, updated, detailed spatial and demographics data set. This data should be available to planners and infrastructure/service delivery units at municipalities	D+R+M&E ✕	GPC, Provincial department of housing	Start immediately, Oct 2011. Thereafter ongoing; updates at least quarterly
	Enhance and fast-track current plans to address in-situ or new development, in consultation with residents. This include additional budget and staff allocation, and implementation of green building principles as mentioned earlier	InF D ■		Immediate
	Align and coordinate implementations between province and municipalities, and across municipal borders, especially to ensure bulk services delivery master planning to improve	InF D ■	Provincial department of housing	Immediate
<i>Objective 1.6</i> Promote transit-oriented development for improved access to jobs and positioning of markets, especially for the informal and small scale agricultural sector	Promote informal sector economic engagements by making available delineated areas around stations and bus stops that can be utilized by informal traders to sell small scale agricultural produce (this cross-links to food security)	SE+M Int ●	Municipal planning departments	Start immediately
	Promote development of high density and mixed development zones, with delineated areas to encourage the use of public transport; and develop incentives for building densification and mixed zoning around train stations and bus stops in particular	SE+M Int ●		Start immediately
<i>Objective 1.7</i> Promote multifunctional urban landscape approaches: continuous systems (networks/corridors) incorporating different functions e.g. transport, floodplains, agriculture and social areas in one space	Implement regulations that require mixed use land development in specified areas	S+RR ▲		Start immediately
	Aesthetic committees should be established to address urban design, in order to address the improvement of the social fabric of the city, e.g. common spaces required for education, informal markets etc	S+RR ▲	August 2011	

<i>Objective 1.8</i> Increase densities in planned areas, supported by bulk infrastructure and services (from current 19 people/ha to increase by 2055 to 47/ha (as in UK London))	Plan new bulk infrastructure (cross-reference to critical infrastructure issue) according to this long term view (oversize capacity required) – otherwise these densities cannot be accommodated in the long run	InF D ■		Start immediately
<i>Objective 1.9</i> Align provincial and municipal planning	Social housing built by province needs to take into account municipal bulk infrastructure or plans in place. This include ensuring that the same master plan information are used both at provincial and municipal sphere to eliminate the infrastructure disparities and keep development from encroaching into e.g. flood lines, especially where provincial development takes place	InF D ■	Provincial dept of housing and municipal planning departments	Start immediately, latest updates to be done June 2012
<i>Objective 1.10</i> Utilise inner cities buildings for alternative uses, instead of remaining as high-risk structures	Potentially demolish where necessary and establish urban markets/parks	InF D ■	Municipalities	2015

Issue 2: Agricultural land				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 2.1</i> Establish a baseline of agricultural land	Map agricultural areas as well as details and type of agriculture taking place in the province, both as a status quo analysis and as a baseline to measure future targets to. This mapping should include conservation agriculture as a specific category to be measured	D+R+M&E ✕	GDARD	September 2012
<i>Objective 2.2</i> Align provincial conservation strategy with national and increase the uptake of conservation farming – 20% of current commercial farmers to apply conservation farming by 2015.	Design measures e.g. awareness, incentives etc. to actively promote conservation farming	PA+Ed ▲	GDARD	November 2012
<i>Objective 2.3</i> Increase cultivation on high potential land by 20%: underpinned by investing in the soil (e.g. organic/conservation agriculture) as infrastructure, and not taken up by e.g. biotechnology increase	Develop agricultural subsidy system for small scale organic and other “alternative” farmers	RM ★	GDARD	November 2012
	Sustainably utilise this agricultural land, esp. medium and high potential land	SE+M Int ●	Small scale farmers, GDARD to monitor	Start monitoring regularly after first subsidy implementatio

				ns, e.g. quarterly
Objective 2.4 Increase small-scale organic urban agriculture	Identify areas/allotments within the urban fabric to be used (even temporarily) for urban agriculture	D+R+M&E ✘	Municipal planning departments	November 2012
	Determine a legal framework within which this can operate	S+RR ▲	GDARD, Land use management bill to potentially address through stakeholder engagements	November 2013
	Negotiate with land owners MoAs/MoUs for temporary use as per abovementioned details	PB+C ○	Special projects: responsibility to be assigned during project ToRs	November 2014
	Municipal “commonage” land to be identified and made available to communities/small scale farmers. MoAs/MoUs to be defined as part of this process	SE+M Int ●	Municipalities, DWA (e.g. to establish legal premise to utilise selected 100 and 200 year indicative flood plains)	Start immediately with identification and negotiations
	Investigate and implement the utilisation of Infrastructure grant funds for commonage usage: e.g. to build infrastructure on such land, while the land remains municipal-owned land which may be used for other purposes in future	RM ★		
Objective 2.5 Define agricultural land in every provincial and municipal IDP and SDF	All future IDPs and SDFs to consider high and medium potential agricultural land	S+RR ▲	Province and Municipalities	Upon IDP and SDF updates
	Financial year-end report on what the municipality has done with the land	S+RR ▲	Municipalities	Annual
	Performance management targets to be decided and scored against	S+RR ▲		Starting immediately, ongoing <i>ad infinitum</i>
	Municipal SDFs should reflect the agricultural hubs of GDARD	S+RR ▲		Immediate opportunity for next 5 years, thereafter to be reviewed regularly

Objective 2.6 Actively support special projects & ongoing implementation	Focus on <i>Moringa Oleifera</i> and GDARD special projects; focus on small-scale farmers and education projects in particular	R+D □	Innovation Hub, GDARD; private sector, SMME's	Ongoing
Objective 2.7 Get youth agricultural ambassadors to assist with soil testing, infrastructure assistance, slope of land, etc. (due to contamination issues) & how to deal with contaminants	Improved skills transfer and education through improved uptake of green learnerships: Investigate the reasons why the uptake is currently low and address these to increase it	PA+Ed ▲	SETAs: No new registrations are taking place since the SETA process stalled. Uncertain who will take this forward	Asap

Issue 3: Protection of land				
Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 3.1 20% Increase in overlap between C-plan and SDF's/EMF's by 2015	Existing SANBI Grasslands target. To this end, establish municipal targets and requirements, and measure it annually. Feed this into National Outcome Area 10 reviews	S+RR ▲	SANBI and Municipalities	2015
Objective 3.2 30 000 ha grassland to be protected (of which at least 15 000 should be formally protected) by 2015	Existing SANBI grasslands target. To this end, establish municipal targets and measure it annually. Feed this into National Outcome Area 10 reviews	S+RR ▲	SANBI and Municipalities	2015
Objective 3.3 Utilise conservation agriculture to protect the land, through responsible management and use (cross-cutting with agricultural land use issues and food security sector)	Raise awareness to small and especially large scale farmers regarding what conservation farming entail: e.g. organic, perma-, and bio-dynamic farming. This includes improvement of soils to produce food without using pesticides and fertilisers (thereby also addressing water quality issues). Steer away from monocultures and promote this actively to farmers in Gauteng	PA+Ed ▲	GDARD	Start immediately

Issue 4: Biodiversity and ecosystem services				
Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 4.1 Calculate the value of ecosystem services throughout Gauteng	Collect base data, measure and monitor ecosystem services and metabolic flows	D+R+M&E ×	GCRO	Start 2011, until 2013
	Improve networking of systems in the urban environment: Even though valuing ecosystems services financially, do not lose the intrinsic value of these services: i.e. the social and psychological value of e.g. cemeteries. Determine measures of how to value it in this manner	D+R+M&E ×	Uncertain	2015
	Improve awareness, establish initiatives and manage interventions to bring people in Gauteng psychologically "closer" to these services and make them value it more.	PA+Ed ▲	GDARD	Start immediately

	Make the spaces available for people: this value can not necessarily be communicated via text/voice, and include elements such as space utilisation and safety in such spaces			
<i>Objective 4.2</i> River health monitoring and improvement (cross-reference to the water sector)	Community involvement is actively required to minimise river pollution	PA+Ed ▲	DWA, & CSIR (to monitor), GDARD to do awareness	Ongoing, but increase community awareness element
<i>Objective 4.3</i> Complete C-plan 3 and publish it widely	Finalise it and make it digitally available (this is part of the digital spatial “infrastructure” that informs decision making re: land use planning	InF D ■	GDARD	June 2011
<i>Objective 4.4</i> Improve functioning of natural controls as opposed to artificial controls (artificial being e.g. legislation, activities etc)	As a cross-link to the waste sector: Improved waste management processes, following the waste hierarchy: for example: if plant material and related food is composted, instead of included in general waste, it will remove food sources for vectors such as rats, thereby also eliminating health problems associated with them. This requires major awareness campaigns in residential, commercial, industrial and shopping complex areas	InF D ■ & PA+Ed ▲	GDARD, Municipal waste management departments	Immediate
<i>Objective 4.5</i> All municipalities to promulgate by-laws related to green servitudes such as storm water management and open space guidelines	Distribute the Tshwane green servitudes by-laws to all municipalities and set municipal green servitude by-laws for all of Gauteng, based on Tshwane’s (and where available others’) experience	S+RR ▲	GPC and municipalities	Draft by-laws due in 2012 and promulgated in June 2013

Issue 5: Degraded land				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 5.1</i> Focus on rehabilitation of degraded land (Landfill sites, riverine areas and flood plains, Mine Residue Areas, etc)	Review existing successful projects nationally and follow a similar process and plan (so as to not duplicate or make unnecessary mistakes)	InF D ■	GDARD	Ongoing
	Allocate staff and budget	RM ★	GDARD, and private developers	Ongoing
	Continue existing programmes and increase its budget allocation, e.g. WfW, WoF, and GDARD SRM branch projects	RM ★	GDARD, EPWP	Ongoing
	Coordinate rehabilitation concerns with the Competition Commission, regarding dissemination of information about what land can be	S+RR ▲	GDARD	Jun 2012

	rehabilitated, involving industry and developers in the process			
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Issue 6: Critical infrastructure				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 6.1</i> Establish water infrastructure and quality baseline establishment and monitoring	Establish a baseline/status quo by doing a water balance for the province, also addressing water quality in the process	D+R+M&E ✘	GCRO, DWA	Start mid 2011
	Determine a risk plan based on the above, considering alternative water availability	D+R+M&E ✘	To be determined after the above activity	After above is complete: potentially 2014
<i>Objective 6.2</i> Investigate oil price policy development, cross-cutting with public transport, spatial planning and small scale urban agriculture food security initiatives	Determine costs of oil price hike on food security, transport and regional economic stability	D+R+M&E ✘	GDED	July 2013
<i>Objective 6.3</i> Improve public transport and promote increased use of public transport services	Make information related to public transport modes, areas of operation and pricing widely available, on both printed media, advertisements, in-transit screen views (e.g. at stations and bus stops), cell phone-based web information services, etc.	PA+Ed ▲	Smart Cities CityLab initiatives, e.g. CoJ/WITS/UJ and others	Recently established, ongoing
<i>Objective 6.4</i> Integrate trans-disciplinary perspectives	Increase cross-department alignment and communication during planning through widespread sharing of documents, and open invitations to planning meetings	PB+C ○	Province and municipalities – all departments	Start immediately
	Create a repository (provincially and at municipal sphere) where reports are listed, uploaded and available for easy access by other departments and even private developers	D+R+M&E ✘	GDED and municipalities: highest level	November 2012
<i>Objective 6.5</i> Support the view of a longer term horizon for infrastructure development and maintenance	Determine changes that are required in supply-chain management and budget processes to support longer term views	S+RR ▲	Provincial and municipal procurement offices	Start investigations immediately
	Adjust scoring point system to allow for more expensive longer-term options, as opposed to short-term cheap implementation and maintenance options. This will support the general transition towards more sustainable infrastructure	S+RR ▲		Start immediately
	Identify and support opportunities for gradual change of materials status quo (e.g. technically, how to link PVC and copper piping)	R+D □		Start immediately

	Support technological innovation of alternative “green” materials for manufacture and use in infrastructure, e.g. specialised additives for PVC plastics. This is not only a green industry that will support future green infrastructure, but can potentially make this one of South Africa’s specialist export products internationally	R+D □	Blue IQ, The Innovation Hub	Start immediately
Objective 6.6 Design infrastructure now to cope with increased density in future (cross-reference to urban design issue)	Civil infrastructure to be designed for densification in future, although it may increase the initial backlog to service delivery. It will also cause over-design to existing bulk infrastructure, but is necessary to cope with future demand	InF D ■	Municipal planning departments	Start immediately
	Decentralise systems, e.g. sanitation (for human waste management: cross-reference to the water and sanitation sector): decentralised systems at city block level should be established, many of these systems do not even use water (e.g. composting toilets), therefore the water supply and demand requirements is reduced. This must be addressed as a critical issue: the technology exists and it is easily scalable – it should just be implemented	InF D ■	Municipal planning departments, Provincial department of housing	Start immediately

4.7. Transport

Envisaged outcome: A province that provides accessible mobility for all, thereby ensuring proximity to social and economic opportunities, by embracing the principles of transport safety, efficiency and sustainability, and by developing a well-designed, integrated and well-maintained public transport system that is less dependent on fossil fuels.

Economic implications: Sustainable infrastructure investments will substantially reduce infrastructure costs and productivity losses associated with inefficient, malfunctioning, unreliable and unsafe transport modes as well as the long distances to job opportunities. The improved access to employment and livelihood opportunities will stimulate trade and attract new business around transport nodes and significantly reduce travelling times. The industrial spin-offs arising from the demand for the manufacturing and production of sustainable transport technologies are notable economic opportunities to be seized by Gauteng.

Issue 1: Strategic clarity across spheres of government in transport and related sectors				
Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 1.1 Roles and responsibilities of departments and municipalities in terms of sustainable transport activities clearly defined	Establish a Sustainable Transport Forum / Working Group, made up of representatives from all government departments, to discuss policies and strategies impacting on more sustainable transport in the province to ensure integration and co-ordination in processes	PB+C ○	GDARD, GDED, GDRT, GDLGH, Office of the Premier, Treasury, Education and all other departments	Initiation: 2011 Ongoing process
	Use the Sustainable Transport Forum / Working Group as a platform for developing structure to ensure all work within GDRT is consistent with more sustainable transport principles that then form the basis of the Transport Framework and Transport Master Plan for the Province	PB+C ○	GDRT	Initiation: 2011 Ongoing Process
	Clearly define the roles and responsibilities of GDRT through the Sustainable Transport Forum/Working Group to support municipalities through defined policy processes and channels	PB+C ○	GDRT, municipalities	Initiation (through IGR Forum): 2011 Ongoing process
	Provide a platform through a Forum for government agencies and the private sector to share experiences around transport projects and capitalise on partnership opportunities	PB+C ○	GDRT, municipalities, private sector	
	Embed the Sustainable Transport Forum in the Inter Government Relations (IGR) Forum (between GDRT and Municipalities) to support the Integrated	PB+C ○	GDRT, municipalities	Initiation: 2011

	Transport Planning process and the implementation of a sustainable plan for the Province as a region rather than individual cities			Ongoing Process
Objective 1.2 Incorporate sustainable transport ideas into revised ITP's (Integrated Transport Plans)	Provincial and local government to work together to define minimum requirements for sustainable/green transport to be incorporated into each ITP	S+RR ▲	National Department of Transport, GDRT and municipalities	Target Date: 2015
	Relevant municipalities to ensure sustainable transport incorporated into ITPs	S+RR ▲		
	Provincial government to track progress and facilitate shared learning through the Transport Forum / Working Group	D+R+M&E ✘		

Issue 2: Financial incentives and disincentives impacting on transport modalities				
Objective / target	Key activities to realise target	Category	Responsibility	Date
Objective 2.1 Impact of E-Tolling for Gauteng Province	Conduct socio-economic impact assessment to investigate the impact of e-tolling on various socio-economic groups (incl. Impact on income earnings and percentage of income spent on transport) and on municipalities	D+R+M&E ✘	GDRT, municipalities, SANRAL	2011 (once the first phase of the e-tolling system has been implemented)
	Conduct physical impact assessment of e-tolling on municipal roads as a result of increased use of non-freeway roads as people attempt to avoid e-tolling. (incl. Assessment of stress on municipal roads, resulting maintenance costs, and forecasting exercise on the congestion in these areas and associated economic impacts)	D+R+M&E ✘		
Objective 2.2 Carbon tax for older vehicles	Implement an annual road-worthy test for vehicles older than 10 years, including emissions testing and investigate the economic impact of an annual roadworthy test for older vehicles to determine if this affordable and equitable in a developing country	S+RR ▲	SA Bureau of Standards, National Dept of Transport, GDRT, Roadworthy Centers, municipality, car manufacturers, Department of Energy	2020
Objective 2.3 Carbon tax for new vehicles	Implement a carbon tax for all new vehicles expanded from the current carbon tax for new SUVs and small commercial vehicles	S+RR ▲	SA Bureau of Standards, NDoT, DoE, GDRT, car manufacturers	2015
Objective 2.4 Improved and increased rail freight utilisation	Advocate for an increased tax of road freight, and tax incentives for using rail freight	S+RR ▲	NDoT, Transnet, GDRT (to support the process)	2020
	Agree reliability standards with provincial stakeholders, especially industry, and then engage with Transnet to implement them	S+RR ▲		

Issue 3: Spatial planning towards compact cities				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 3.1</i> Improved spatial planning whereby housing developments are close to transport routes, shops, amenities, schools and work-places	Develop and enforce guidelines for compact cities that support sustainability principles and are linked to public transport corridors	S+RR ▲	GD&H, GDRT, GDED, Municipality Planning Departments, Department of Education	2020
	Develop efficient transport routes, with a strong focus on public transport and non-motorised transport, linked to compact cities	S+RR ▲		
	Implement a densification policy for the Province that promote new compact developments and that highlight key areas within the Province that should be used for compact, mixed-use areas	S+RR ▲		
	Promote mixed land-use	S+RR ▲		
	Implementing maximum parking standards as opposed to minimum parking requirements for new developments	S+RR ▲		

Issue 4: Transforming transport modalities in the province				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 4.1</i> The Expansion of Bus Rapid Transit systems in the Gauteng Province	Implement BRT and associated support systems throughout the province in accordance with the Gauteng BRT Strategy and Public Transport Plans. Support the implementation of integrated public transport systems, which allow for ease of movement between public transport modes (through Smart Ticketing) as well as between municipalities	InF D ■	GDRT, NDoT, municipalities, Metrorail, Gautrain, commuter stakeholders, Freight stakeholders, Transnet	2020 (ongoing process)
<i>Objective 4.2</i> Optimisation of rail system within the Province for both passenger and freight travel	Investigate the passenger rail requirements for the Province to determine where upgrades are required	D+R+M&E ✘	GDRT, NDoT, municipalities, Metrorail, Gautrain, commuter stakeholders, Freight stakeholders, Transnet	2020
	Upgrade Metro Rail system to allow for more trains that are safer and more efficient in areas that require an improved rail service	InF D ■		
	Reduce reliance on transporting freight by road, by promoting the use of rail for heavy freight in conjunction with processes being undertaken by the National	InF D ■		

	Department of Transport			
	Evaluate, and depending on evaluation outcomes, expand Gautrain to other areas that require such a service	D+R+M&E ✘		
<i>Objective 4.3</i> Develop and implement a Travel Demand Management Strategy for the Province	Review best practice Travel Demand Management options for the Gauteng Province context and recommend the implementation of key strategies to municipalities where relevant. Travel Demand Management options are any activities that support efficiency in the transport sector, through reducing reliance on private vehicles	S+RR ▲	GDRT, municipalities, university research institutions	2014
<i>Objective 4.4</i> Develop and Implement a NMT Strategy for the Province	Implement the Strategy at a municipal level and integrate with spatial and transport plans and frameworks for the Province, including an action plan for implementation of non-motorised transport infrastructure	S+RR ▲	GDRT, municipalities (transport and planning), GDLGH, NGOs and other stakeholders	2014 (development) and implementation will be ongoing
<i>Objective 4.5</i> Develop safe cycle lanes separated from motorised traffic lanes	Investigate feasibility of implementing cycle lanes – in city centres, near university areas and in less congested municipalities Explore and promote bicycle rental schemes Make it possible to carry bicycles on public transport	S+RR ▲	GDRT, municipalities, NMT NGOs, cycle companies, bicycle rental systems, Metrorail, Gautrain and Bus Operators	2015
<i>Objective 4.6</i> Continue and increase investment in Park and Ride Centres operating throughout the Province	Identify and develop suitable park and ride facilities at key public transport interchanges and link with Large Employer Programmes	InF D ■	GDRT, municipalities, Metrorail and bus companies	2015
<i>Objective 4.7</i> Integrated public transport plans at municipal and provincial level	Integrate public transport plans at all levels by viewing metros as part of a larger region instead of individual entities to support ease of movement within the region	S+RR ▲	GDRT, municipalities (through the IGR Forum)	2014 (initiation of process)
<i>Objective 4.8</i> Large Employer Travel Programmes	Encourage car pooling with priority / preferential parking at places of work	SE+M Int ●	GDRT, municipalities, public transport companies, NBI, private sector	2012
	Promote the use of company vehicles for use during the work day for meetings, which can reduce the number of people who are dependent on private vehicles	SE+M Int ●		
	Set by-law/tax incentives (?) for employers to allocate a x percentage of more sustainable transport shares to and from work: the options include public transportation; cycling to work, and then shower and locker facilities for cyclists and runners and company whilst meeting energy and water efficiency standards	SE+M Int ●		
	Introduce parking disincentives, including not subsidizing parking at or near the office and limiting the amount of parking available at buildings	S+RR ▲		

Issue 5: Alternative and Efficient Fuel Technologies				
Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 5.1</i> 15% reduction in energy demand in the transport sector by 2025 through a series of transport-efficiency investments	Detailed study on the short, medium and long term technical and interventions and incentives implement modal shift towards public transport, TDM, freight to rail etc to reduce demand for energy by the transport sector	D+R+M&E ✘	GDRT, GDARD, GDLGH, Department of Energy	2025
<i>Objective 5.2</i> Reduce Provincial dependence on fossil fuels in existing and future transport systems	Explore and encourage the uptake of efficient and alternatively-powered vehicles such as hybrid, electric and gas powered vehicles, considered infrastructure needs to enable these alternative fuels to be used	S+RR ▲	GDRT, municipalities, vehicle manufacturers, SABS, fuel companies	Initiation : 2015, ongoing process based on technology developments
<i>Objective 5.3</i> An Energy Efficiency Government Vehicle Fleet	Alter the provincial and municipal procurement policy to emphasise energy efficiency as a criterion for vehicle procurement	S+RR ▲	GDRT, municipalities, vehicle manufacturers, SABS, fuel companies	Initiation : 2015, ongoing process based on technology developments
<i>Objective 5.4</i> Purchasing and implementation of alternative fuel use for government vehicle fleet	30% of government vehicles to be converted to alternative fuels by 2020, 50% by 2030	S+RR ▲	GDRT, municipalities, vehicle manufacturers, SABS, fuel companies	2020, 2030
<i>Objective 5.5</i> Provide financial and regulatory support for the taxi industry to reduce their energy demand and increase energy efficiency	Maintain and expand on partnerships with government agencies such as the AIDC to explore alternative fuel and energy options for taxi fleets in the Province	R+D □		

Issue 6: Education and awareness raising

Objective / target	Key activities to realise target	Category	Responsibility	Date
<i>Objective 6.1</i> Education Programme for population of the Province to highlight benefits of public and non-motorised transport use in the Province	Develop education programmes as part of the basic education syllabus in order to raise awareness of sustainability and its relationship with transport	PA+Ed ▲	Department of Education, GDRT,	2014
	Use Transport Month to highlight alternatives to private vehicles and initiatives underway by the Province and use the media to highlight success stories	PA+Ed ▲	NDoT, municipalities	
	Implement an awareness campaign that will operate throughout the year to raise awareness of “green” transport	PA+Ed ▲		
<i>Objective 6.2</i> Internal government awareness campaign on sustainable transport (possible to tie in with Go Green Gauteng?)	A capacity building and awareness raising process for all government departments to increase an understanding of sustainability and green issues through the work of the Department	CB ◆	GDRT, Department of Education, municipalities, CSIR, university transport research bodies	2012 initiation, ongoing process

4.8. Water and sanitation

Envisaged outcome: A province that embraces more innovative infrastructure choices, demand-side management and the principles of recycling and reuse, to its increase water capacity during times of plenty so that water is available in times of need, thereby ensuring residents and businesses can count on secure water resources into the future, and have access to safe, reliable and sustainable water and sanitation services.

Economic implications: Not addressing water stress, pollution and scarcity in sustainable infrastructure choices is a major economic risk, affecting our long term industrial and productive potential. There are also considerable economic spinoffs in investing in sustainable water infrastructure based on closed-loop systems, including the manufacturing, maintenance and installation of new technologies and systems. Furthermore, Gauteng has learnt through its experience of acid mine drainage, that investing in sustainable water and sanitation strategies is far cheaper, politically, economically and environmentally, than externalizing the costs of unsustainable systems to future generations.

Issue 1: Long term water supply				
Objective/target	Key Activities to realise target	Category	Responsibility	Date
Objective 1.1 Maintenance and supply of bulk water infrastructure / schemes	New national augmentation schemes should be implemented and new regional bulk water infrastructure systems developed	InF D ■	DWA, Rand Water, ERWAT, other water supply authorities	Immediate, to be implemented by 2015. Thereafter, ongoing up to at least 2020
	Existing water and sanitation infrastructure should be maintained, in line with principles noted in the sustainable land use sector outcome statement	InF D ■	Municipal and regional water authorities	Ongoing
	Regulation of the water sector improved, to improve understanding and taxing of water usage in the province (cross-reference to water balance required for the province)	S+RR ▲	Water supply authorities, Municipalities	Immediate
	Backlog in the issuing of water licenses removed	S+RR ▲	DWA	June 2012
	Raw water pricing strategy and funding model reviewed	S+RR ▲	Water supply authorities	June 2012
	Establish a Gauteng Water Resources Group (GWARG) to review the adequacy of the existing long-term water supply plan. This group will also determine actions that are required, in line with targets set in regards to water and sanitation, in the	S+RR ▲	DED, DBSA, Rand Water, ERWAT, local government, DWA,	Start immediately, ongoing until

	sustainable land use sector. This will include the identification of projects and associated funding sources for the next 5 to ten years, focusing on a long-term sustainable horizon		potential private sector involvement, Universities in Gauteng, CSIR, WRC	at least 2020
<i>Objective 1.2</i> Participate in processes to develop a new National Water Resource Strategy	Actively provide inputs to the strategy	S+RR ▲	DED, DWA, other interested and affected parties	Ongoing
<i>Objective 1.3</i> Increase utilisation of alternative water sources	Investigate new technologies to utilize grey water and rain water, and implement as part of building strategy requirements as noted in sustainable land use sector outcomes	R+D □	Department of housing, Municipalities	Start immediately
	Design town plans to improve filtration and capture water for use in irrigation and sanitation systems	InF D ■	Municipal planning departments	Start immediately
<i>Objective 1.4</i> Consider utilizing acid mine water treatment options to provide water of at least industry standard, in Gauteng	Finalise the acid mine water debate and if feasible, implement a treatment option where acid mine water can be extracted, treated to acceptable quality, and supplied to local industries as grey water	InF D ■	DMR, DWA	Urgent

Issue 2: Water demand management and groundwater resource management				
Objective/target	Key Activities to realise target	Category	Responsibility	Date
<i>Objective 2.1</i> The national target is to curtail water losses from water distribution systems. The baseline is 30% - this should be increased to 15% or less. The same target is adopted for Gauteng	Set targets for average percent reduction for large water supply systems (big irrigation schemes/water user associations) in Gauteng	S+RR ▲	DWA, Regional water supply authorities	2014
	Assess systems with the DWA water loss control policy	D+R+M&E ×	DWA, Regional water supply authorities	
	Address water reticulation systems locally to minimize loss of clean water	InF D ■	Municipal storm water departments	Immediate and <i>ad infinitum</i>
<i>Objective 2.2</i> Establish water consumption targets for all sectors (agriculture, mining, industry, energy, domestic) – the national target is to reduce the volume of consumption by 15%. The same target is adopted for Gauteng.	Establish a baseline and thereafter monitor water use through assessments by DWA and water conservation and demand management strategy sectors. Adjust the target according to the baseline, once it is established	D+R+M&E ×	DWA	2014
	Verify and record unlawful water use	D+R+M&E ×	DWA, Municipalities	Start immediately, ongoing

	Improve residential, industrial, commercial and shopping centre water usage by regulation of installation of low-usage taps. This can be done though, among others, incentives, water-wise campaigns etc.	S+RR ▲	Municipalities	Start immediately
<i>Objective 2.3</i> Investigate increased ground water use (where the national baseline is 25%, with an increase to 30%)	Explore the potential in Gauteng to utilize groundwater resources and do inter-basin transfers, based on water quality and hydrogeological considerations. It should be kept in mind that the existence of dolomite aquifers and the occurrence of acid mine drainage are limitations to this use. However, given adequate knowledge, there may be benefits to be gained from the relatively high water table that exist in parts of Gauteng	D+R+M&E ✘	DWA, Council for Geosciences	2014
<i>Objective 2.4</i> Increase water security by decreasing the total consumption of water by 15% per water user	Implement leak control programmes (in addition to those mentioned earlier in objective 2.2)	InF D ■	Municipalities	Start immediately
	Household plumbing maintenance and improvement in all, but especially low income communities, potentially through a subsidy programme (to replace old taps with new low-use taps; install dual-flush toilets; promote reduced sanitation water use through mottos such as “when it’s brown, flush it down, but when it’s yellow let it mellow”, and by promoting placement of water containers in cisterns, thereby reducing the flushing volume from approximately 5 litres to 3 or 4 litres)	PA+Ed ▲	DWA, Municipalities	July 2012
	Implement water awareness programmes to educate all residents of Gauteng re: water quality and quantity and the need to conserve potable water	PA+Ed ▲		
	GWARG to review the water demand targets set and assess the level of non-compliance.	D+R+M&E ✘	DED, DBSA, Rand Water, ERWAT, municipalities, DWA, potential private sector involvement, Universities, CSIR, WRC	2014
	Locate and reduce water losses, improve water demand management and increase financial savings	SE+M Int ●	DLGH, municipalities	Immediate and ongoing
	Establish baseline information about amounts of water used. Then, monitor how this change (or do not change) over time. This target will empower the DED to actively prevent water services and supply from undermining future economic growth in the province. It also reduces the water intensity of Gauteng’s economy, improve efficiencies, reverse high levels of pollution of water resources and enhance associated ecosystem services. The target can be reached through other measures noted in this document, but in particular with awareness and education campaigns	D+R+M&E ✘	DED, DWA, Department of Education, GDARD	Start immediately, ongoing
	Implement Water Demand Management and Water Loss Strategies in all municipalities	S+RR ▲	DLGH, municipalities	November 2012

	Tariff restructuring, which compels users to re-think the ways in which they use water	S+RR ▲	DED, DWA, municipalities, Rand Water and other interested and affected parties	November 2012
Objective 2.5 Reduce unaccounted-for water	Review the existing status quo of unaccounted-for water in the province and provide strategic interventions on what can be done to reduce it. Focus on mining and major industries and investigate how they can become more self-sufficient via water recycling and use of rain water	D+R+M&E ✘	DED, DWA	2013

Issue 3: Regulate and improve water quality				
Objective/target	Key Activities to realise target	Category	Responsibility	Date
Objective 3.1 Enhance water resource quality through infrastructure and industry interventions	Rehabilitate and refurbish water resources infrastructure (including sewer works) to minimize unnecessary contamination and constantly improve water quality	InF D ■	DWA, Municipal sewer works	2014
	Reduce storm water infiltration into sewer reticulation to reduce the volume of wastewater that needs to be treated by sewer works	InF D ■	Municipal storm water departments	Ongoing
	Implementation of technology transfer and provision of technical support to municipalities	CB ◆	DWA	Start immediately
	National, drinking water quality standards should increase from 97% to 99%. The baseline for Gauteng should therefore be established and measured against this target. Thereafter, strategies should be developed for water quality improvement in the province in consultation and negotiation with key sectors. The result could include e.g.: to have water treatment works comply with enforcement measures; to monitor through an Online Blue Drop System (BDS) which allows water service institutions to access their regulatory performance reviews and provides credible drinking water quality info to public	S+RR ▲	DWA	2012
	An audit is required of the state of rivers and dams in the province, as part of a baseline to measure future targets against	D+R+M&E ✘	DWA	2014
Monitoring and enforcement of standards in Waste Water Treatment Works/Water Treatment Works: Nationally, the number of water treatment works to be assessed by DWA should increase from 787 to 810. However, Gauteng province requires an assessment of all major water treatment works within its border, by the deadline specified. This is due to the critical status that most of these works have in maintaining water quality and health in the province	D+R+M&E ✘	DWA	Completion of assessment by 2014, thereafter at least every three years; and then also including smaller works	

	Monitoring and enforcement of standards on waste water discharge	D+R+M&E ✘	DWA, municipalities	Ongoing
	Improve waste water treatment capacity. An essential part of this is the critical activity to ensure significant upgrading of existing treatment plants. This should be done with new, sustainable technology, as opposed to maintenance of older, non-sustainable and inefficient technology. It will require a re-think of the procurement strategies and requirements since some of these upgrades may cost more in the short term, but have longer-term benefits	InF D ■	Municipal waste water works	Start immediately
Objective 3.2 Enhance water resource quality through ecological services interventions	Prevent degradation of wetlands as ecological infrastructure, develop and implement plans for managing prioritised wetlands, remove alien vegetation in wetlands and riverine areas, and prevent the pollution of surface and ground water resources. This includes objectives mentioned under the agriculture issue of sustainable land use. The following individual targets are relevant to GDARD programmes: 400 jobs to be generated, 1000 training days to accumulate, 8,100 ha of alien vegetation to be removed in Gauteng, 1 major wetland rehabilitated, 80km of firebreaks burned, and 30 tons of waste removed from rivers. In regards to the last target, it is critical to note the need for education and awareness programmes to at the same time reduce the amount of waste that accumulates or is discarded in rivers and wetlands	InF D ■	GDARD, DWA, Working for Water/ Wetlands, EPWP	Ongoing and increase over time These targets to be met by 2014
	Develop and implement an integrated water conservation strategy that addresses wetlands and river ecosystem health	S+RR ▲	DWA, GDARD	Ongoing
	Water resources (“infrastrprotection and conservation through inter alia clearing of alien invasive vegetation, waste discharge charges, water authorisation licenses)	InF D ■	DWA, GDARD	Ongoing and increase over time
Objective 3.3 Reduce water pollution	Improvement of storm water infrastructure and management at regional and municipal level, among others, through measures noted above	InF D ■	Rand Water, ERWAT, Municipal water services departments	2014
	Improvement of sanitation in low income communities, focusing on the installation of sustainable and green infrastructure as detailed in the sustainable land use sector outcome. This also includes the maintenance and improvement of plumbing in low income communities, potentially through community service delivery as part of a subsidy programme	InF D ■	DLGH	Start immediately
	A joint regional strategy for water pollution reduction to be developed by DWA, GDARD and Rand Water, involving all water source polluters, including agriculture and industries	S+RR ▲	DWA, GDARD, Rand Water, ERWAT	2013
Objective 3.4 Reverse water pollution	Rapid collation of existing pollution level studies and degradation of eco-system services. This information is collated at the CSIR, but needs to be enhanced and made available to all role players in Gauteng	D+R+M&E ✘	DED, CSIR	Ongoing – July 2012

	GWARG to identify key hotspots and urgent remedial actions (mainly mining activities, major steel production and either non-existent or badly maintained sanitation services)	D+R+M&E ✘	GWARG (once established)	2013
	Identification of regulatory interventions and responsibilities for policing thereof, including what role the Green Scorpions should play	S+RR ▲	GDARD	Immediate
	Identification of key interventions (which could be capital in nature, operational, or both) as well as the most viable short-term options for water pollution reversing. This could well include public works type (EPWP-) labour intensive clean-up operations where local government budgets are supplemented by DED contributions, to decrease the pollution load in infrastructure and river systems	D+R+M&E ✘	DED, GDARD	Immediate

Issue 4: Ensure basic access to water				
Objective/target	Key Activities to realise target	Category	Responsibility	Date
<i>Objective 4.1</i> Increased access to basic water supply / services	Plan water and sanitation service provision processes in parallel. (I.e. reticulation with bulk infrastructure). This includes, as mentioned in the sustainable land use sector, planning for densification in population in certain nodes in Gauteng	S+RR ▲	DWA, Regional water supply authorities	Start immediately
	Evaluate the existing regulatory framework, the existing institutional arrangements, management systems, processes and skills, as well as the funding framework for infrastructure and make recommendations (as per the sustainable land use sector) for a focus on a longer-term implementation and maintenance horizon	S+RR ▲	DED	2013
	Work with appropriate local, provincial and national housing authorities to identify new housing schemes in which innovative water conservation, water efficiency and sanitation measures can be introduced	PB+C ○	DED	2014
	Increased access to basic water and sanitation, as well as the associated supporting infrastructure. The targets include: supplying addition to the existing, 1 10 000 households with access to basic water; additional 15 000 households with basic sanitation or alternative “green strategy” sanitation options as mentioned in the sustainable land use sector; providing free basic services to indigent households (which implies a database to be established that lists indigent households); upgrade or refurbish in line with sustainable principles, at least 5 of the waste water treatment works in Gauteng; and all municipalities in the province to implementing waste water management systems and projects	InF D ■	DLGH, Rand Water, DWA, municipalities	2011-14. All of these to report on activities annually as part of their annual reports
	All municipalities implementing best technological and cost effective options.	S+RR ▲		

Issue 5: Funding mechanisms				
Objective/target	Key Activities to realise target	Category	Responsibility	Date
<i>Objective 5.1</i> Improve access to funding for supply of basic water and sanitation services	Consider establishment of an Integrated Bulk and Link Services Infrastructure Fund to align PIG and MIG.	RM ★	DCOG, DHS, DWA	2011-15
	Establish Bulk Infrastructure Fund and Special Purpose Vehicle (SPV) (outside of current MIG arrangements) to assist municipalities in meeting backlogs and upgrading existing and additional networks to connect to reticulation services, taking into account the implementation of sustainable and “green” solutions as a first option, before considering traditional service delivery options (as noted in the sustainable land use sector). The SPV will support municipalities to structure capital funding and mobilise operational funding to strengthen service provision and delivery of new infrastructure to eradicate backlogs, rehab existing infrastructure and effective operation and maintenance of infrastructure	RM ★	DCOG, DHS	2014

Issue 6: Basic sanitation services/supply				
Objective/target	Key Activities to realise target	Category	Responsibility	Date
<i>Objective 6.1</i> Nationally, the sanitation service provision baseline of 69% should be increased to 100% by 2014. Gauteng adopts this, providing that the baseline for the province be established and the target potentially adjusted once the baseline is known	Establish the baseline of sanitation service provision in the province, to measure targets against. The target will then be reached through implementing all other related strategies and activities re: waste water treatment works and sanitation supply listed earlier	D+R+M&E ✘	DWA, Municipalities	2011-14
<i>Objective 6.2</i> Nationally, 40% of WWTW are due to comply with enforcement measures to ensure that effluent standards to increase to 80%. In Gauteng, however, this target is set at 80% in order to increase the effluent standards even more	As noted earlier, the Green Drop System should be used to monitor the situation in the province. Key activities are subject to Water Services Authorities in terms of consultative Green Drop Audits	D+R+M&E ✘	DWA	2014
<i>Objective 6.3</i> Improve basic sanitation	Rapid collation of existing information on sanitation backlogs in each municipality, including funding strategies and time frames for eliminating these backlogs	D+R+M&E ✘	DHS, Rand Water, ERWAT, Municipalities, DWA, Universities, CSIR, DBSA, WRC	2014

	A detailed study should be initiated of sustainable technologies that can be deployed to re-use all sanitation and waste water and capture it for re-use, in particular the methane, water and nutrient content. This has major job creation potential	R+D □	The Innovation Hub	2013
	With DHS and private sector developers, introduce a neighbourhoods treatment system pilot (dual supply systems (so that toilet flushing is with low cost grey water), as mentioned in the sustainable land use sector	InF D ■	DHS, private sector	2012

Issue 7: Mining water licenses & Acid Mine Drainage

Objective/target	Key Activities to realise target	Category	Responsibility	Date
<i>Objective 7.1</i> Nationally, 52 mines should be monitored for non-compliance in accordance to water license, and this should increase to 125 by 2014. Gauteng subscribe to this target by considering that 100% of the mines in its area should be monitored on an ongoing basis for compliance by 2014	This monitoring mechanism is established to set resource quality objectives as part of water use authorization processes. It requires compliance monitoring as per water use license conditions	D+R+M&E ×	DWA, DMR, Mining companies	2014
<i>Objective 7.2</i> Nationally, the number of mines complying with enforcement measures should increase from 14% to 80% in 2014. Gauteng subscribe to this by setting the target that 100% of the mines in the province should comply by 2014	This target requires compulsory compliance audits to be done for monitoring purposes. As part of this, compliance auditing will be conducted for all mines in accordance with water license conditions. It also requires ownerless mines to be managed as part of the provincial Mine Residue Area rehabilitation strategy which is being developed by GDARD	D+R+M&E ×	DWA, DMR, Mining companies, GDARD	2014

4.9. Waste

Envisaged outcome: A province that invests in different societal choices, and in infrastructure systems and operations that encourage waste reduction and recycling, as well as the reuse of waste outputs as productive inputs into other processes, thereby promoting new local economies and industries, minimising the total waste stream, and ensuring that all settlements have adequate waste services.

Economic implications: As a major generator of waste, Gauteng finds itself in a unique position to benefit its local economy through reusing and adding value to, waste outputs. The economic spinoffs of reducing, reusing and recycling waste include the creation of high-value manufacturing industries, collection and sorting industries and a new stream of recycling brokers and wholesalers. A formalized waste sector, based on these new recycling supply chains, will also lead to the economic integration of waste pickers, strengthening municipal ties and reducing the financial burden on currently ageing waste infrastructure.

Issue 1: Promoting waste avoidance, minimisation, re-use, recycling and recovery				
Objective/target	Key Activities to realise target	Category	Responsibility	Date
Objective 1.1 60% of Gauteng's municipal waste diverted from landfill sites for re-use, recycling, or recovery (National Target (NT) = 25% by 2015)	Monitor waste entering landfills through use of weigh bridges; This will provide a baseline to which to measure the target to	D+R+M&E ✘	Municipalities All government departments (municipal and provincial) – to start at their own offices	Immediate - until 2020, when the 60% target should be reached
	Implement avoidance, reduction, re-use, recycling and recovery initiatives through policy incentives and public & industry awareness programmes	PA+Ed ▲	Municipalities, GDARD	Start immediately, <i>ad infinitum</i>
	Construction and maintenance of infrastructure for waste collection, recovery of materials from waste streams (collection and segregation) and application of the 3-R technologies and associated activities	InF D ■	Municipalities	Mid 2012
Objective 1.2 All municipalities to initiate separation at source programmes	Identify priority areas and suburbs; Plan separation at source roll out; conduct stakeholder engagements/awareness programmes; and estimate budget requirements for capital investment and staff contingent required for the programme.	S+RR ▲	Municipalities	Immediate - until 2015, when all urban areas should be included in the programme

<i>Objective 1.3</i> Establish waste to energy projects from landfills, incinerators, and Waste water treatment works	Establish the existing available technological and establish best cost-benefit options available. Then set municipal targets according to the existing baseline. Make an inventory of potential sites including cost benefit analysis, and finally, implement waste to energy projects for selected sites	D+R+M&E X	GDARD, municipalities/metros	2016
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Issue 2: Ensure the effective and efficient delivery of waste services

Objective/target	Key Activities to realise target	Category	Responsibility	Date
<i>Objective 2.1</i> Gauteng adopts the national target of 95% of urban households and 75% of rural households to have access to adequate levels of waste collection services	All municipalities in Gauteng will implement the National Waste Collection Standards. This will be done through the following process: Identify areas that do not have adequate services; Develop a plan as part of the IWMP to service un-served areas and define the level of service that will be provided. The budget and staff required for this may not necessarily have to be increased – if waste reduction programmes as specified earlier is effective, less waste will be generated in most suburbs, which may result in waste removal services only be needed once every two weeks, as opposed to the current once-a-week removal services	D+R+M&E X	GDARD, Municipalities	Immediate, to be completed by 2015
<i>Objective 2.2</i> Nationally, the target for the number of waste disposal sites that have permits is 80%. Gauteng, however, requires 100% of its waste disposal sites to be licensed by 2014	GDARD should establish a landfill inventory to identify sites with and without permits. Those sites that do not have, should apply for waste disposal permits – this process will be monitored and promoted both at provincial and municipal level. Where operators do not comply, and if they have not started the licensing process by at least June 2013, in order for the province to reach the target by end 2014, penalties should be put into place to further compel operators to comply	D+R+M&E X	Municipalities, GDARD, site operators	Immediate, to be completed by end 2014

Issue 3: Grow the contribution of the waste sector to the green economy

Objective/target	Key Activities to realise target	Category	Responsibility	Date
<i>Objective 3.1</i> Expand the number of existing jobs in the waste sector to an additional 19,400 jobs.	Determine number of existing waste sector jobs, and then quantify the proposed target to expand job creation in the waste sector. This may include the activities mentioned above	D+R+M&E X	Municipalities GDARD	2016
	Determine the number of SMMEs and collectives participating in waste service delivery and recycling currently, and quantify the target to increase the number of SMMEs actively involved in Gauteng. Also identify job and SMME growth priorities in the waste sector value chain and implement programmes to grow the sector. The abovementioned two activities would include any or all of the following: product reuse, recycling-based manufacturers, processing facilities, composting, landfill and incineration	D+R+M&E X	GDARD	2014

Issue 4: Ensure people are aware of the impact of waste on their health, well-being and the environment

Objective/target	Key Activities to realise target	Category	Responsibility	Date
<p><i>Objective 4.1</i> Nationally, the target is set to have 80% of municipalities run local awareness campaigns. Gauteng sets a target that 100% of its municipalities will achieve this by 2015</p>	Design and implement awareness campaign based on new regulations (National waste collection standards, etc.). Implement them at each municipality, with associated budget	PA+Ed ▲	Municipalities, GDARD	2015
<p><i>Objective 4.2</i> Nationally, a target is set of 80% of schools to implementing waste awareness programmes. Gauteng will adopt this, and increase it to include tertiary institutions</p>	Establish baseline information regarding waste management for schools and tertiary institutions in the province. Prioritise schools where the plan would be implemented. Then design and implement awareness campaigns based on the waste hierarchy. Roll out the programme and monitor it over time to ensure that 80% is involved in the programme by end 2015. Thereafter, continue to address the additional 20%, until all institutions in the province comply	PA+Ed ▲	Department of Education, with assistance from GDARD	2015

Issue 5: Ensure sound budgeting and financial management for waste services

Objective/target	Key Activities to realise target	Category	Responsibility	Date
<p><i>Objective 5.1</i> Nationally, all municipalities are required to conduct full-cost accounting of waste services that they are providing. Gauteng will comply with this target</p>	Review the existing expenditure for waste services from a full-cost accounting perspective, per municipality. Prepare realistic budgets for providing waste services as per the other targets specified in this outcome	RM ★	Municipalities	2015
<p><i>Objective 5.2</i> Implement cost reflective tariffs and sliding scale tariffs, based on amount of recyclable and re-usable waste committed to the general waste stream (i.e. paying more for "bad" waste)</p>	Review existing tariffs charged per household and industry. Review the existing rate payers and non-payers contribution to the waste streams. Establish baseline targets for households and industries related to recyclable and re-usable waste that is committed to landfill sites, per suburb/area, and adjust rates accordingly. This process is aimed at promoting community involvement and social awareness in society as a whole, regarding waste minimization, recycling and re-use requirements. Fines for transgressions should be reviewed and tariffs adjusted as appropriate	S+RR ▲	Municipalities, GDARD	2015
	The process also requires updating of the indigent register and providing free basic refuse removal services to these customers	D+R+M&E ✘		

Issue 6: Provide measures to remediate contaminated land

Objective/target	Key Activities to realise target	Category	Responsibility	Date
<i>Objective 6.1</i> Nationally, it is required that 80% of sites reporting to the Contaminated Land Register should be assessed. However, Gauteng requires 100% if such sites in the province to be assessed	Review listed sites for Gauteng on the Contaminated Land Register. Identify potential unlisted sites and list them on the register. Assess all the sites by 2015.	D+R+M&E ✘	GDARD, potentially DWA involvement	2015
<i>Objective 6.2</i> Nationally, remediation plans should be approved for 50% of confirmed contaminated sites. Gauteng sets its own target at 80%, for contaminated landfill sites (i.e. this does not pertain to MRA's as listed in the sustainable land use sector)	Facilitate the development of, and implement, remediation plans for confirmed contaminated sites, and monitor existing remediation plans.	InF D ■	GDARD	2015

Issue 7: Establish effective compliance with and enforcement of the National Waste Act

Objective/target	Key Activities to realise target	Category	Responsibility	Date
<i>Objective 7.1</i> Gauteng adopts the national target of a 50% increase in the number of successful enforcement actions against non-compliant facilities	Establish baseline of successful enforcement actions against non-compliant facilities and deploy EMIs to enforce compliance. This may require additional staff contingent within GDARD and municipalities (see target below for staff numbers), and appropriate activities and programmes should be put into place to support this effort.	D+R+M&E ✘	GDARD	2015
<i>Objective 7.2</i> Nationally, 800 Environmental Management Inspectors (EMIs) should be appointed in the two spheres of government (national and provincial) by 2015. Gauteng to propose a target of 100 EMI's to be appointed at provincial and municipal level	Establish the baseline of existing number of EMIs in province and municipalities in Gauteng. Identify and prioritize focus areas needed EMIs at provincial and municipal level, and implement programmes to address these focus areas. Cooperate with tertiary institutions to ensure that there is adequate experienced young staff available to enter the EMI job stream. This includes setting up MoAs and MoUs with tertiary institutions and providing geography/environmental sciences students an opportunity to be seconded to GDARD or municipalities during training.	D+R+M&E ✘	GDARD, municipalities, tertiary institutions	2015

5. Conclusion

This draft Green Strategic Programme for Gauteng, developed jointly by the Gauteng City-Region Observatory and the Gauteng Department of Economic Development, is submitted to the Gauteng Executive Council, *to be approved subject to any final amendments that may be proposed in a major Green Summit to be held in 2011*. The process of bringing stakeholders together, to consider the outcomes, objectives and activities in this Green Strategic Programme, will be driven by the Gauteng Department of Economic Development. GDED will also design programme implementation plans and overall institutional arrangements to co-ordinate execution across departments and spheres of government.