

STATE OF MUNICIPAL INFRASTRUCTURE

Progress in Building viable Municipal Infrastructure for Effective
Delivery of Services to Communities

NCOP Engagements

11 to 15 September 2023



GAUTENG
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

GGT2030
GROWING GAUTENG TOGETHER

Presentation Outline

1. Need for Greater Infrastructure Focus

2. State of Infrastructure

2.1 Water Security & Sanitation

2.2 Energy Security

2.3 Solid Waste Management & Facilities

3. GPG Integrated Infrastructure Delivery

7. Conclusion

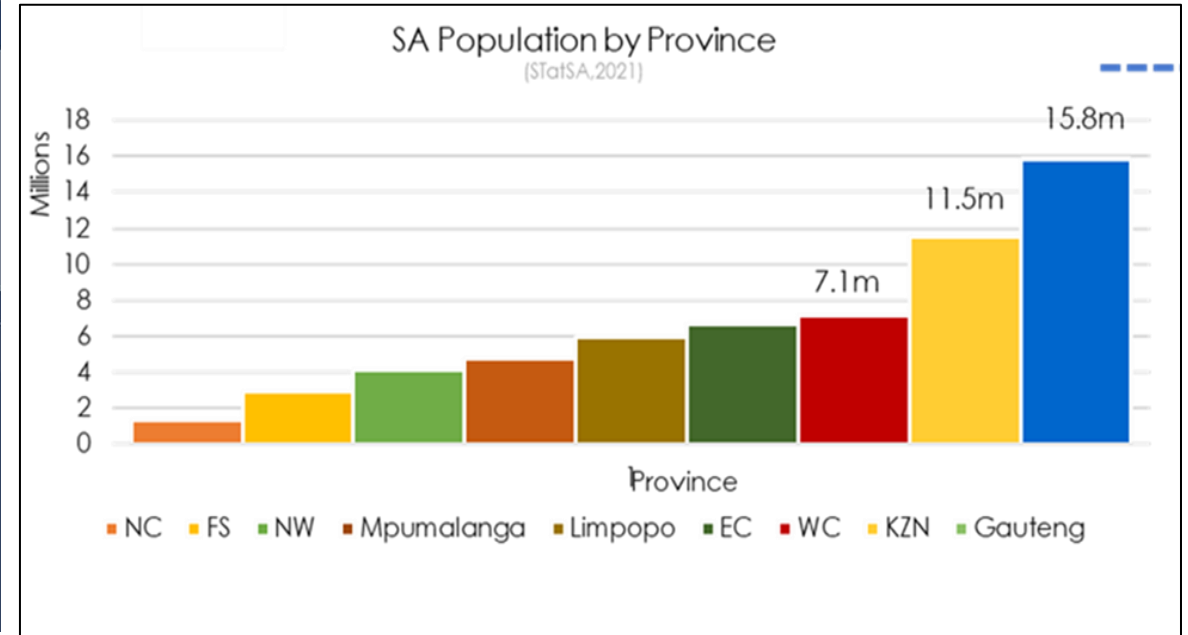
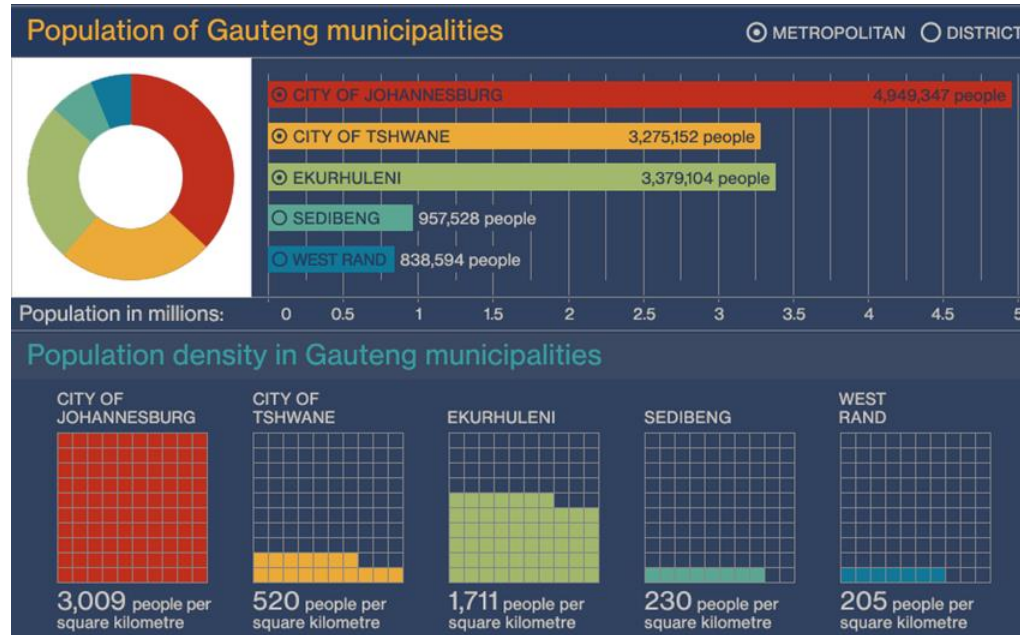
Context

- Governments around the world are placing more emphasis on infrastructure policy and development in order to meet growing demands in the context of strained natural and economic resources
- Improved infrastructure is viewed as an enabler of sustainable development and social advancement - particularly in developing countries where its development can be used as a driver to reduce unemployment, poverty and inequality
- The availability and reliability of infrastructure services are critical to economic growth and a country's competitiveness in global markets
- Governments also use large scale infrastructure programmes as an effective counter-cyclical instrument to withstand recessions
- International experience shows that a 10% increase in infrastructure development contributes to a 1% increase in GDP growth
- In developed countries ageing infrastructure has necessitated a shift towards maintenance and refurbishment
- As a result, there are continuous infrastructure **performance failures**, leading to **service disruptions**, followed by **community protest** and exacerbated by **theft and vandalism**.

Problem Statement

- The high levels of unemployment affect the capability of municipalities to generate own revenue. Municipal debt levels are growing exponentially on daily basis rendering municipalities unable to access loan funding in the open market.
- The bulk of the infrastructure delivery programmes are funded via conditional grants, which have decreased over the past few years and are likely to reduce further. Exploring alternative funding models is vital if the province is to realise its strategic approach to investing in infrastructure implementation and delivery towards unlocking crucial developments and efficiencies.
- Many of the services networks have reached or passed the end of their useful life and need replacement. There is a dearth of adequate budget allocated towards operation and maintenance of municipal infrastructure assets, coupled with lack or inadequate of requisite skills and capacity to undertake the legislative mandate as required.
- Water and electricity distribution losses due to different causes have led to revenue losses for municipalities. Municipalities in the province have had total water and electricity losses that are each above 20%.
- Rapid urbanisation and immigration poses complex institutional and fiscal challenges for developed regions, like Gauteng City Region (GCR). The immediate challenge facing Gauteng Province is provision of Bulk Services Infrastructure at sustainable levels.
- The Gauteng COGTA 15-review identifies capacity and skills constraints as one of the main factors hampering infrastructure development in Gauteng. Improvement in the competence of municipality employees should result in enhanced service delivery.

Spatial Analysis: Socio-economic (Population)



- The Gauteng Province has the smallest land area in South Africa, but accounts for 26% of the total South African population estimated at 15,8 million (2021) with a 2,5% annual population growth rate (Stats SA, MYPE, 2019).
- Gauteng's population increased by 2.6 million since 2016 (source StatsSA, MYPE, 2019).
- The City of Johannesburg has the largest population at just over 6 million people, followed by Ekurhuleni (3,8 million) and the City of Tshwane (3,8 million).

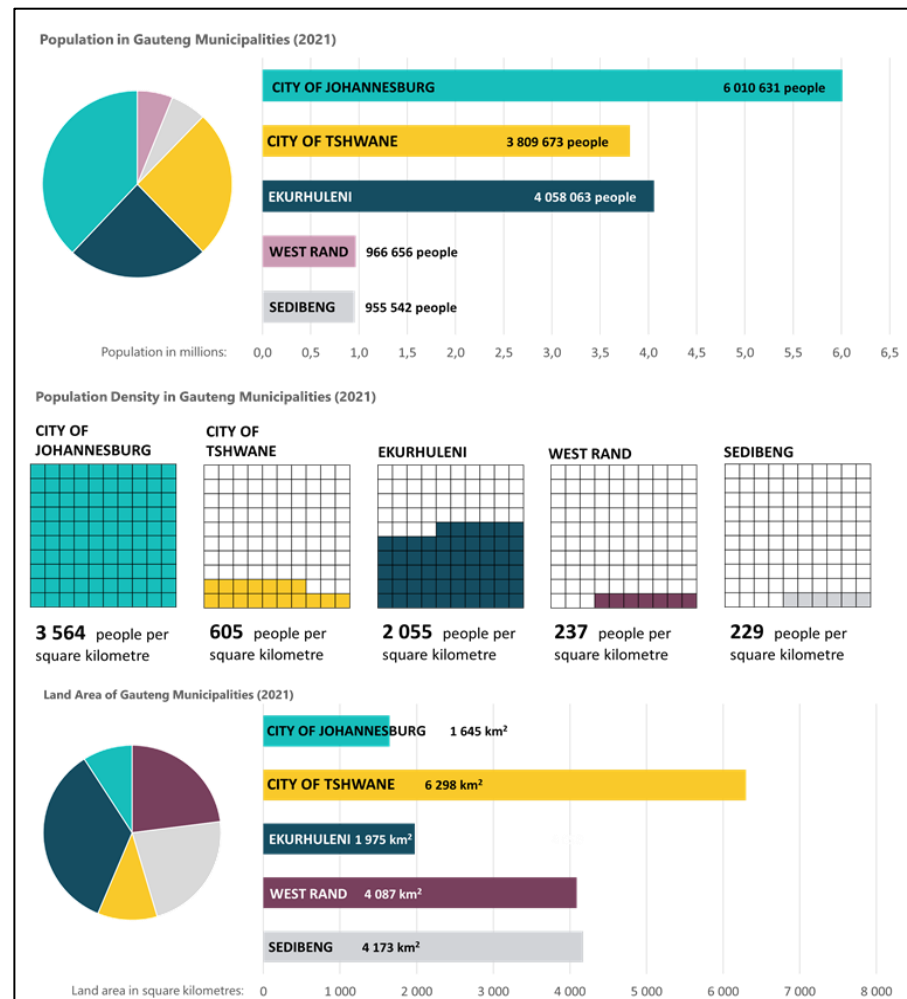
Spatial Analysis: Socio-economic (Population)

Current Population Size

Of Gauteng's 15,8 million people³, the provinces three metros account for 87% of the population. The City of Johannesburg has the largest population at just over 6 million people, followed by Ekurhuleni (3,8 million) and the City of Tshwane (3,8 million). The Sedibeng and West Rand District Municipalities have the smallest populations.

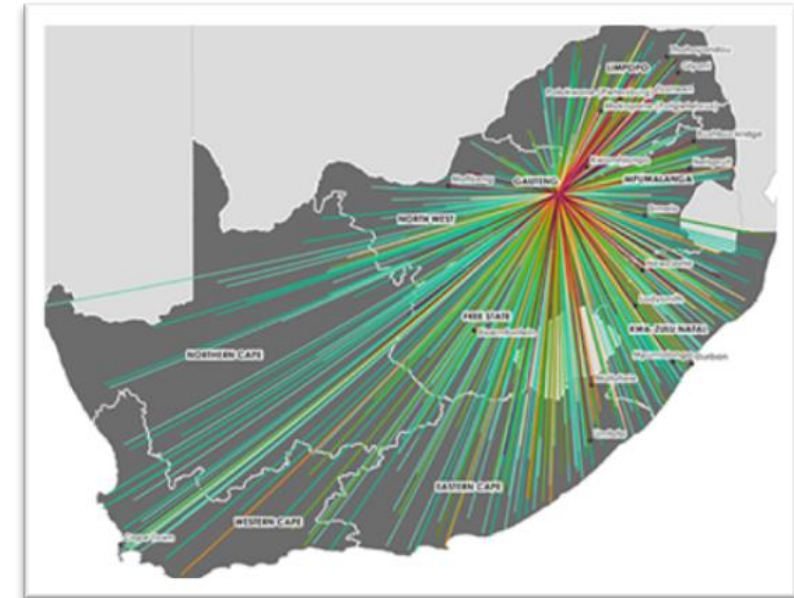
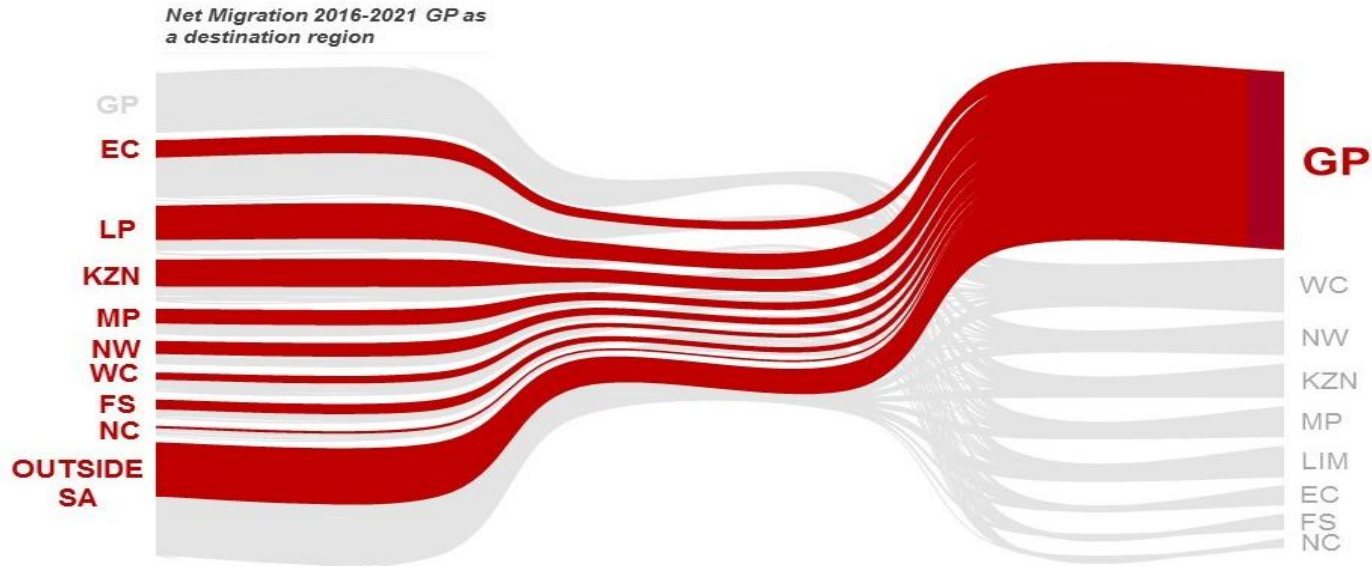
Population Growth

In 2021, the population growth rate in Gauteng is estimated to be 2,5% per annum, the highest of any province in SA. This equates to a population increase of just over 300,000 people per year. The population increased by 2.6 million over the last five years, placing greater emphasis on the importance of infrastructure investment, service delivery and job creation. The most recent forecasts project that Gauteng's population will continue to grow over the coming decades, but at a slower rate (Figure 32). It is expected that growth will decline to an average of 2,15% per annum from 2021 to 2030, thereafter falling to 1,89% per annum from 2031 to 2040, and 1,48% from 2031 to 2050. Despite this decline, the Gauteng population will continue to grow faster than any other province in the country. The provincial population is expected to increase to 18 million by 2030 and 22 to 25 million by 2050.



Spatial Analysis: Socio-economic (Population)

Migration




- Gauteng receives most international migrants (47.5%), receiving 485 000 migrants between 2016 and 2021
- Gauteng is still considered the economic centre of South Africa, attracting migrants

Infrastructure as an enabler

Realising the new spatial model will require deliberate infrastructure interventions to:

- develop **economic potential** in individual corridors
- ensure growth and **opportunities are equitably distributed across the GCR**
- deliver housing and economic opportunities where most needed to realise **radical spatial and economic transformation**
- ensure **infrastructure efficiency** through coordinated planning, prioritisation and correct timing of delivery
- **unlock human capital** in a dynamic, innovative, competitive and connected city region

An aerial photograph of a city, likely Johannesburg, showing a complex multi-level highway interchange with several overpasses and ramps. The surrounding area is densely built up with residential and commercial buildings.

The choices we make today about infrastructure enable us to shape the type of economy and society we want for the future



GCR Infrastructure Vision

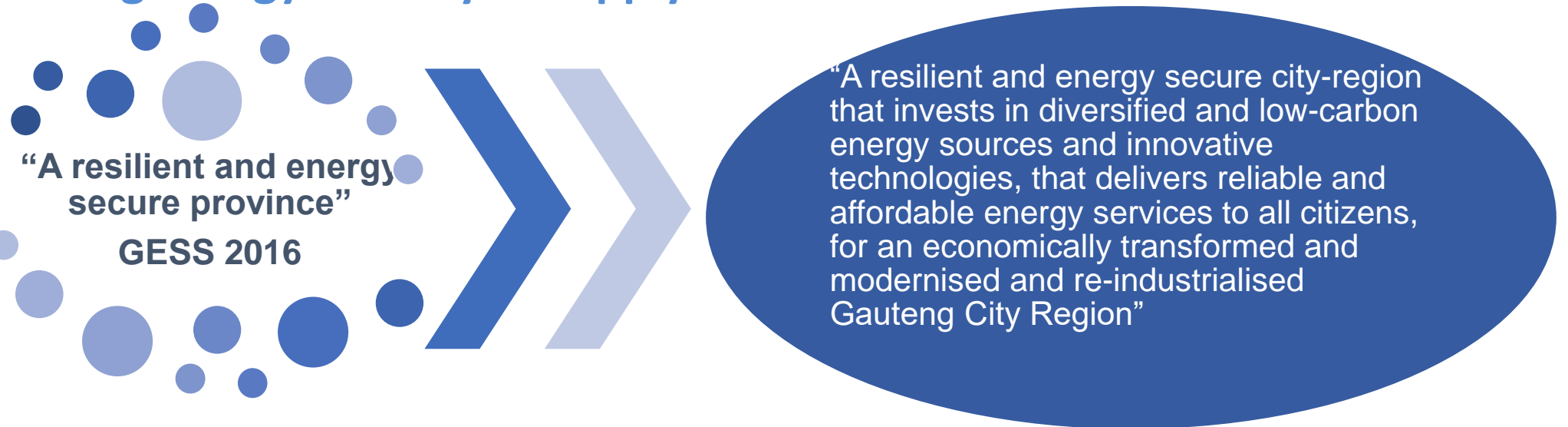




The State Of Infrastructure –Energy

GPG'S STRATEGIC INTENT – *GOALS OF THE STRATEGY*

Gauteng energy security of supply and emissions reduction



- To ensure energy security for a desirable economic growth;
- To ensure universal, affordable and modern energy to all citizens of the GCR;
- To diversify energy sources within the province to include renewables and other forms of energy;
- To promote energy efficiency measures across all sectors of the economy;
- To improve provincial energy governance and administration

GPG's Strategic Intent – *GESS Pillars*

GESS Strategic Pillars

Pillar 1

Enhance security of supply

Pillar 2

Promotion of energy efficiency

Pillar 3

Modernisation of energy infrastructure

Pillar 4

Contribution to economic development through re-industrialisation and creation of jobs

Pillar 5

Ensure universal access to the poor

Pillar 6

Reduction of impacts on the environment

Enablers: Resource mobilisation, Market stimulation, Advocacy, Communication, Industry support, Building capabilities

Gauteng Wide Elevated Programmes and Projects

Short Term Projects

- Solar PV and Battery Storage at GPG & Other Facilities
- Rooftop PV on GPG Health Facilities
- e-Pack solution for households
- Solar High Mast Lights
- Load Limiting (Smart Meters)
- Solar Water Heaters
- Rooftop Solar and Battery Storage at GPG Hospitals and Schools
- Solar High Mast Lights
- Solar Water Heaters

Long Term Projects

- Aggregation of gas to energy
- Merafong Solar Farm
- Rooftop Solar Power Plants (Council buildings)
- Retrofit High mast lights
- Solar home lighting system
- Rooival Power Station
- City of Tshwane - Small Scale Embedded Generators (SSEG)
- City of Tshwane - Partnership with Independent Power Producers
- City Power - Rooival Power Station:
- De-mothballing of Rooival Power Station project
- City Power - Kelvin Power Station: Gas to Power generation

Energy Indaba Linked Programmes

Removal of Illegal Connections

Roll out of Smart Meters

Cleaning of the Billing System to Improve revenue collection

Cleaning of Indigent Register

Protection of Critical Infrastructure

Mixed energy generation



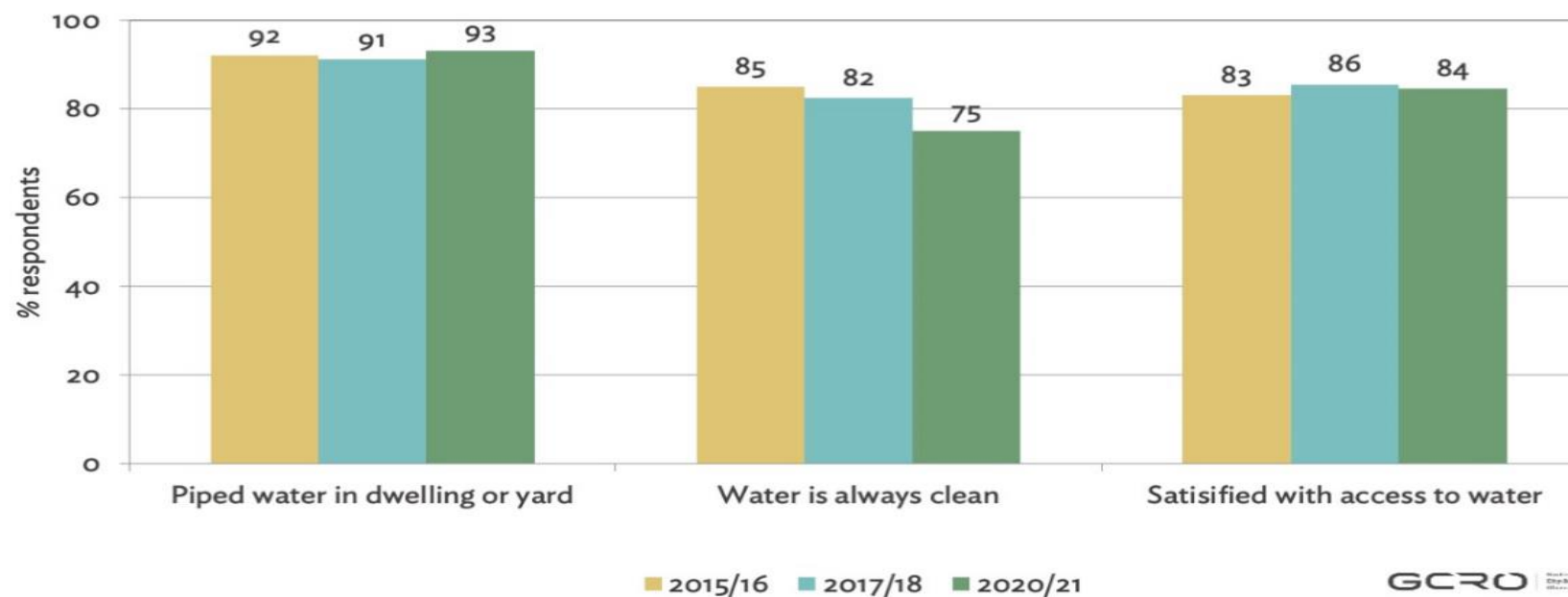
The State Of Infrastructure – Water and Sanitation

Access, Quality & Satisfaction With Water Sources- GCRO QoF Survey 2021

- Access to Infrastructure that provides the Water Services has increased over the years. However, the GCRO Quality of Life Survey prints declining levels of satisfaction over the years 2015/16 – 2020/21 by GPG Citizens.:

Access and satisfaction with water

Figure 10.2



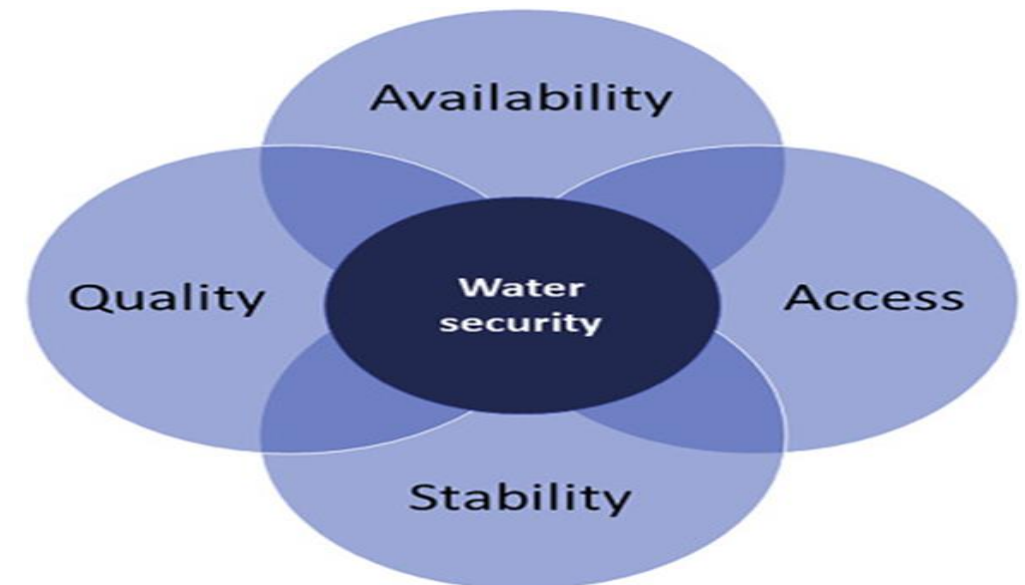
Context- The GCR Water Security Plan

Strides Have been made to improve Water Security and ensure sustainable supply in response to the picture in the slide above. However,

- The Province has developed the “Gauteng Water Security Plan” and defines water security being attained when there is:

“...the reliable availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems and production, coupled with an acceptable level of water-related risks to people, environments and economies.”

Towards a Water Secure GCR - Key Factors





The Water Security Plan – Cardinal Programmes

GCR WATER SECURITY PLAN – CARDINAL PROGRAMMES

<p><u>Programme 1</u> Reduce Water Demand</p>	<p><u>Programme 2</u> Invest in alternative water sources</p>	<p><u>Programme 3</u> Improve environmental protection and water quality</p>	<p><u>Programme 4</u> Strengthen institutions and institutional co-operation</p>	<p><u>Programme 5</u> Prepare for a drought</p>	
---	---	--	--	---	--



Sustainability & Reliability- Gauteng Initiatives (Project in Implementation)

Cardinal Programme	Cardinal Programme Description	Implementing Entity	Number of Projects Implemented	Total Project Cost
<i>Reduce Water Supply and Demand</i>	<p>Reduce non-revenue water</p> <ul style="list-style-type: none"> - non-payment for services - physical losses in the distribution system to meet the targets as set out by Rand Water, GCR and the DWS. <p>The mode of operation of this initiative will include, inter alia,</p> <ul style="list-style-type: none"> - encouraging and incentivizing users to monitor and control their water consumption - introducing efficiency measures - incentivized tariff. 	<ul style="list-style-type: none"> - Dept. Water & Sanitation - Rand Water - Municipalities/WSAs <p>COJ Lesedi Midvaal Mogale City</p>	<p>17 1 2 3 (23)</p>	R180 849 590.00
<i>Improving environmental protection and water quality</i>	<p>Improving water quality.</p> <p>Water quality problems in Gauteng are mostly as a result of:</p> <ul style="list-style-type: none"> - human activity - poor management of sanitation systems - dumping and littering. - chemical pollution from mining and industry (though declining) 	<ul style="list-style-type: none"> - Dept. Water & Sanitation <p>COJ COT COE Lesedi Midvaal Mogale City Merafong Randwest City Emfuleni</p>	<p>8 24 20 2 2 3 2 6 (65)</p>	R11bn



Sustainability & Reliability- Gauteng Initiatives (Projects at Planing Phase)

Cardinal Programme	Cardinal Programme Description	Implementing Entity
<i>Invest in alternative water sources</i>	<p>Increase water availability in the short term and diversify sources of supply to reduce risks.</p> <p>Immediate opportunities include:</p> <ul style="list-style-type: none"> - Groundwater - Reuse of wastewater - Treated AMD and Rainwater harvesting. - Consider limited storm water harvesting and treatment in situ. 	<ul style="list-style-type: none"> - Dept. Water & Sanitation - Rand Water
<i>Strengthen institutions and institutional co-operation</i>	<p>Water security is threatened by institutional weakness and possible failure at all levels.</p> <ul style="list-style-type: none"> - Most institutions in the water sector face serious financial challenges in the bulk water resource component and in the provision of municipal water services. - Shortcomings in the management of the IVRS needs to be managed closely through DWS, Rand Water and Municipalities; - giving an acceptable level of confidence in contingency planning both at water resource and distribution level. - there should be no 'slow-onset' institutional failures that would put the province at risk; - Reduce fragmentation in planning & implementation, coordination needed at provincial level. 	<ul style="list-style-type: none"> - COGTA - DWS
<i>Prepare for a drought</i>	<p>Frequency and severity of both droughts and floods increasing</p> <ul style="list-style-type: none"> - DWS needs to improve management of the Integrated Vaal River System operating model, give early warning of potential shortages. - Operating rules and plans for periods of water scarcity need to be put in place and agreed to by all water institutions, before they are needed. 	<ul style="list-style-type: none"> - DWS

Water Quality & Performance Of Treatment works

- Department Water & Sanitation concluded and published results of the Green Drop analysis for 2009-2021 for all GP facilities:
 - Gauteng represents the highest volume of wastewater treated in South Africa with 2,460.2 Ml/d with nine (**9**) ***Water Service Authority*** , comprising a sewer network of **sixty (60) wastewater treatment systems**;

- Performance trends over the years 2013 and 2021 indicate the following:
 - Systems in a 'poor state' increased from 5 systems in 2013 to 6 systems in 2021
 - Systems in a 'critical state' increased from zero (0) in 2013 to 9 systems in 2021
 - Systems in the 'excellent and good state' decreased from 22 systems (38%) in 2013 to 20 systems (35%) in 2021

Water Quality & Performance Of Treatment works

- The assessment singled out four (4) municipalities, to be placed under regulatory surveillance due to their treatment plants that have achieved a Green Drop score of less than 31%

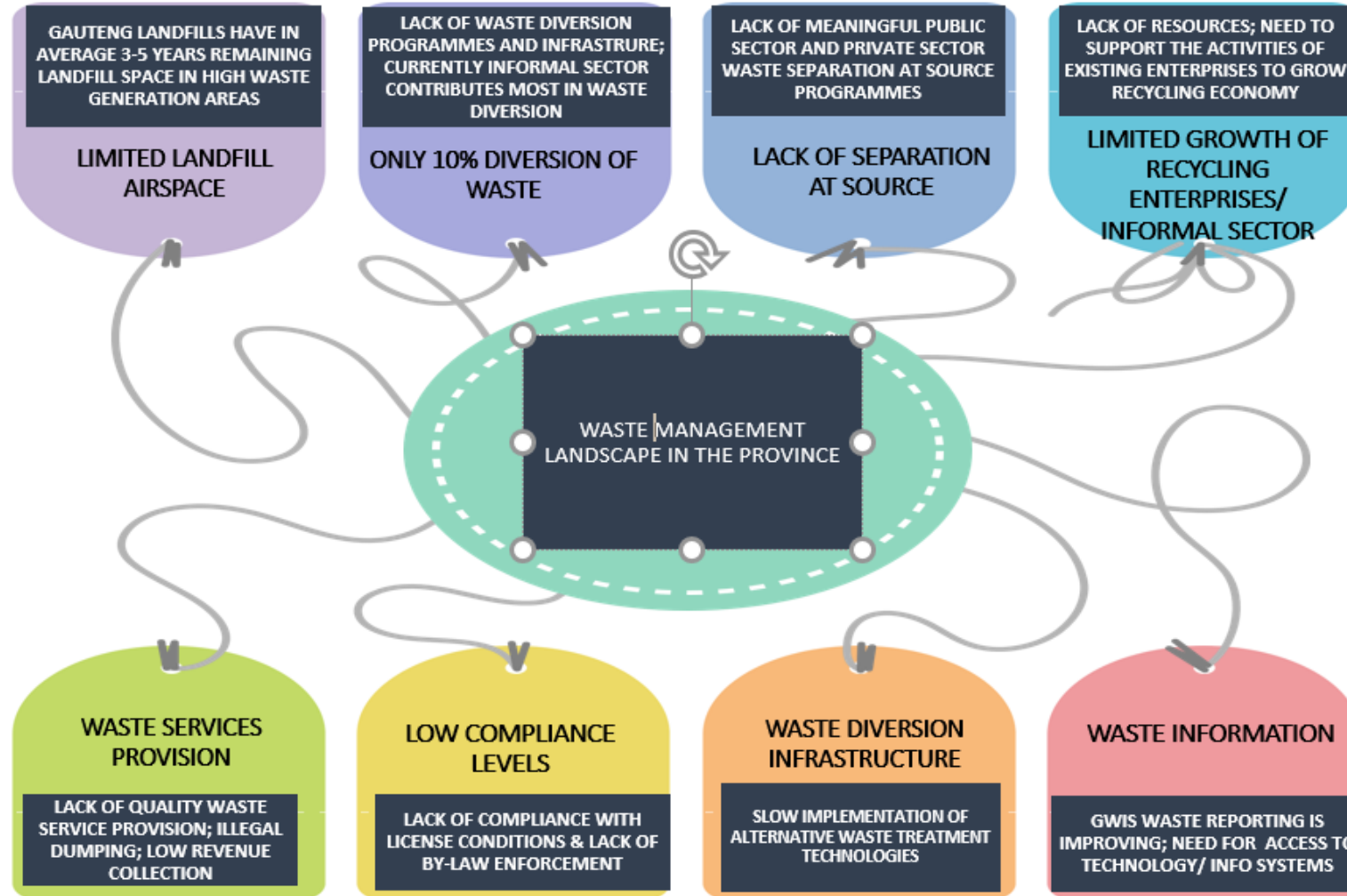
WSA Name	2021 GD Score	WWTWs with <31% score
Lesedi LM	79%	Devon
City of Tshwane	60%	Klipgat
Rand West LM	24%	Randfontein, Hannes van Niekerk
Merafong LM	21%	Khutsong, Kokosi-Fochville, Murray & Roberts, Wedela, Wilverdiend

- Recovery plans have been developed for implementation of remedial measures, and these are monitored jointly with DWS, CoGTA and Municipalities



The State Of Infrastructure – Solid Waste Management

Current Waste Landscape in Gauteng



Remaining Landfill Airspace in Gauteng Metros

City of Joburg Landfills	Location	Permitted/ Licensed	No. of remaining years of operation
Robinson Deep	Turffontein Road, Stafford, Region F	Yes	3 years, 2 months
Marie Louise	Dobsonville, Region D	Yes	4 months
Goudkoppies`	Devland opposite Eldorado park Region D	Yes	10 years, 7 months
Ennerdale	Walter road, Lawley Region G	Yes	6 years, 7 months
City of Tshwane Landfills	Location	Permitted/ Licensed	No. of remaining years of operation
Bronkhorspruit Landfill Site (GMB-)	Kungwini Road, Bronkhorstspuit	Yes	6 Yrs
Garankuwa Landfill Site (GMB-)	Molefe Makinta Drive, Ga Rankuwa	Yes	5 Yrs
Soshanguve Landfill Site (GMB-)	Cnr Soutpan Rd & Molefe Makinta	Yes	3 Yrs
Hatherley Landfill Site (GLB-)	Solomon Mahlangu Drive, M10 Nellmapius	Yes	12 Yrs
City of Ekurhuleni Landfills	Location	Permitted/ Licensed	No. of remaining years of operation
Rooikraal	Next to Barry Marais road R43 and adjacent to Dawn Park	Yes	35 years
Weltevreden	Brakpan CCC on the remainder of the farm Weltevreden 77IR	Yes	20 years
Rietfontein	Portions 202 and 204 (Ptn of Ptn 81) of the Farm Rietfontein 128 IR, Springs	Yes	5 years
Simmer and Jack	Portion 2 of the Farm Elandsfontein 90IR, Germiston	Yes	4 years and 8 months

Key Interventions

Provincial

Support and hand-holding struggling municipalities through planning, monitoring and technical expertise

Utilisation of legal instrument to enforce compliance- prosecutions, license reviews, landfill ban programme (for identified waste), regulation of waste separation at source

GDARD Strategic interventions (GDARD APEX programmes)- *See below slide*

Municipal

Adequate planning/ prioritisation and budgeting for waste management services and landfill compliance

Urgent development of alternatives for waste diversion including -waste separation at source; alternative waste treatment technologies; EPR collaborations with private sector

Development of cost reflective tariff as well as improvement of waste revenue collection

Development and enforcement of By-laws to alleviate cost for e.g illegal dumping

Gauteng Province Strategic APEX Programmes 22-24

Diversion of waste from landfills

- Development of a Masterplan a zero waste to landfill sites trajectory; attain delivery priority of a 25% diversion by 2024 as a start
- Review of the Provincial Integrated Waste Management Plan
- A regionalisation approach for addressing waste management challenges- development of a regional waste management eco park/s
- Develop strong partnerships with private sector and collaborations with producers through EPR
- Improvement of waste information management in the Province

Waste Economy

- Formalisation and support of existing waste enterprises in the Province
- Commercialisation and scaling up of identified buy-back centres towards recycling and processing of waste
- Develop/ and or upscale existing waste diversion infrastructure- MRFs, composting facilities, C&D crusher plants etc
- Green jobs creation through the waste economy

Regulatory instruments

- Develop Waste Minimisation Regulations mandating waste separation at source in the Province
- Developing effective systems for pro-active compliance monitoring, auditing protocols to limit future prosecutions
- Waste permits/ license reviews
- Develop a standardized tariff model to ensure cost effectiveness in operation of waste facilities as well application of incentives/disincentives

CAPEX War Rooms- COGTA

CoGTA Capex War Room and DDM

- CoGTA established a CAPEX War Room focusing on Municipal Infrastructure planning and delivery with an interface with Sector Departments and rectify the Provincial War Room on Fast tracking infrastructure delivery was introduced in support of initiatives;
- Revive of the DDM One Plan (Long Term planning; i.e. spatial restructuring and environmental sustainability, people development, economic reposition, infrastructure engineering;
- Medium Term Planning and Implementation: Project Readiness Exercise with OoP, CoGTA and GPT
- Socio-Economic impact analysis of key projects (esp.DDM`s One Plan)
- Exercise on the cost of Infrastructure projects e.g. education infrastructure
- A coordinated approach to infrastructure (esp. bulk) funding: specific joint programme on Bulk Infrastructure matters
- Shared data and analysis
- Deal decisively with elements of maladministration & corruption
- Deliberate participation in IDP/DDN/Regional Support process.

Specialist Technical Support Interventions

Infrastructure Development support in all targeted municipalities and three metros

- Support municipalities in the preparation of Project Business Plans for securing necessary infrastructure funds and the development of Capital Expenditure Frameworks;
- Support municipalities in managing Infrastructure Life Cycle (covering Pre-feasibility and Feasibility Studies, Design and Development, Implementation, Operations and Maintenance);
- Support the review development and implementation of Infrastructure Asset Management and sector master plans;
- Multidisciplinary Team of Experts- Technical Support (Deployed Human Resources to Municipalities)
 - Compilation of Bulk Services Infrastructure needs in alignment to Human Settlements Developments for all Local Municipality;
 - Review and compilation of Municipal Operations and Maintenance plans and systems;
 - Water Distribution Losses (Water Conservation & Demand Management, Strategies and Technical Business plans for access to funding);
- Assess the technical skills capacity requirements and develop mentoring and training programmes

Conclusion

Despite the slow progress in achieving Water Security and Energy Security, the Gauteng Province continues to rally behind the implementation of the GCR Water Security plan and Gauteng Energy Security in collaboration with the key stakeholders and champions the following:

- The strengthening of coordination on planning and implementation of initiatives at provincial level to reduce fragmentation of efforts,
- Facilitate the initiatives to address the key areas of **Climate change, distribution losses, diversification of the water mix** and capacity for **population growth** to ensure long term water security in the province.
- The efforts to strongly consider the treatment of wastewater and Acid Mine Drainage to portable water level as an alternative resource for portable water use (AMD requires a lot of investment by sector stakeholders)
- Through the Premier's Energy Emergency Council have developed Gauteng Energy Crisis Response Plan to reduce the impact of load shedding on implementation of GGT2030 vision and GPG's ability to deliver services.



GAUTENG
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

GGT2030
GROWING GAUTENG TOGETHER

