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# Industrial Water Efficiency in Gauteng

## High Level Findings for Comment

**Alex McNamara, NBI**

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The National Business Initiative (NBI) is a not for profit development organisation that works to address South Africa’s most pressing social and environmental challenges.

We are an independent coalition of South African and multinational businesses, with over 100 member companies that work towards sustainable growth in South Africa.

www.nbi.org.za

CDP DRIVING SUSTAINABLE ECONOMIES | UN Global Compact | The CEO Water Mandate | wbcsd | NatuReS NATURAL RESOURCES STEWARDSHIP PROGRAMME Joint solutions for resilient economic growth | german cooperation DEUTSCHE ZUSAMMENARBEIT | giz | WE MEAN BUSINESS

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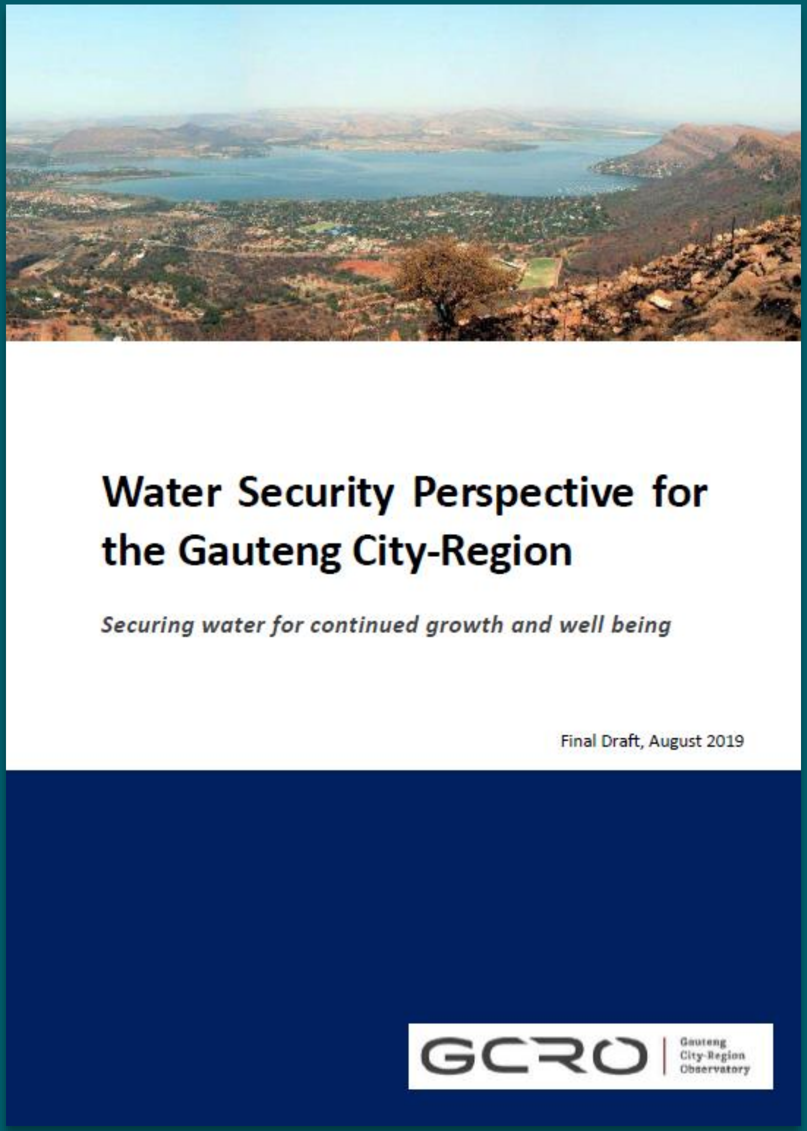
# Context

# The Integrated Vaal River System, which supplies Gauteng and 45% of South Africa’s population, is at significant risk for at least the next decade

'Gauteng must never take its water security for granted'

(GCRO, 2019)


Water Security Perspective for the Gauteng City-Region

*Securing water for continued growth and well being*

Final Draft, August 2019

GCRO Gauteng City-Region Observatory

https://gcro.ac.za/m/documents/GCR_Water_Security_Perspective_for_web_2019.pdf

# Key challenges facing the Integrated Vaal River System include:

- Infrastructure investment and maintenance concerns across the entire system
- Difficulties in ensuring effective implementation of the system's operating rules
- Recurrent droughts driven by climatic variation and climate change
- Growing water demand as a result of rapid urbanisation
- Municipal water businesses that are run at a high financial loss

## In late 2019 the NBI formed the Gauteng Water Alliance, **to support the Vaal System and make an impact in four main areas:**

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**01**

**Helping companies to implement water efficiency, pollution control and business continuity measures, through case studies and peer learning**

**02**

**Supporting municipalities in improving their water infrastructure**

**03**

**Facilitating business engagement and assistance to key Vaal System initiatives**

**04**

**Evaluating the efficacy of a Gauteng Water Fund**

**For this discussion, we are here**

# Our study approach

## This work has focused on understanding:

1. What types of industries are large water users in the Vaal System?
2. How do these large users think about and approach their water risk?
3. What operational measures have they already taken?
4. What prevents them from taking further action?
5. What would enable further action?
6. How open are they to external assistance and collaboration with others?

# Work was undertaken over a period of 3 months and comprised:

- **Developing a database of approximately 100 large water users**
- **Undertaking desktop study (CDP water responses, company annual reports)**
- **Interviewing 8 companies, based on a semi-structure questionnaire**

***Please note: the findings presented reflect a large industrial water user perspective***

# Our findings

# Water is regarded as a key operational risk for many industries in Gauteng

**This includes companies in the following industries:**

- Chemicals
- Food and beverages
- Laundries
- Manufacturing
- Pharmaceuticals
- Pulp and paper
- Recycling
- Textiles
- Toiletries and consumer goods

**Other large *non-industrial* users in Gauteng:**

- Hospitals, schools and large property owners

## Many of these companies have been **affected by drought, water restrictions and supply disruptions in the last 5 years**

- **Resulted in a corporate response focused on efficiency and business continuity**
- **Various measures thus put in place, including:**
  - Metering, process optimisation and internal awareness raising
  - Water efficient equipment
  - On-site storage tanks
  - Rainwater harvesting
  - Groundwater abstraction
  - Some level of water recycling, with large-scale reverse osmosis plants in place in some instances
- **Ensuring compliance with discharge standards is also recognised as a priority across the board**

# Almost all companies interviewed are **not able to be completely self-sufficient with respect to their water needs**

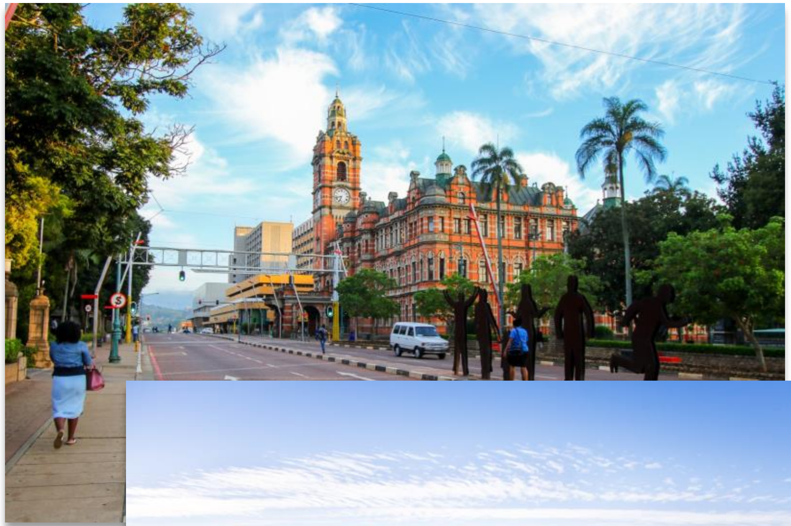
- There will be long-term reliance on municipal water and the supply system as a whole
- Groundwater quantity and quality varies significantly, and is not always an option
- Food and beverage companies specifically do not want reuse water to have contact with their product. So they will continue to draw on municipal supply for their finished product

## Many companies would like to do more on water reuse in particular, but find the capital cost prohibitive

- A 3-year payback or less is needed for most companies
- Generally low, non-cost reflective water tariffs hinder investment
- Even companies integrating the true value of water into their decision making find large water projects difficult to motivate
- Companies need to ‘balance risk with the capital available to address this risk’

## **Additional factors are limiting investment** in water efficiency and reuse projects in Gauteng, namely:

- **A lack of company expertise and know-how, particularly in water reuse**
- **Many businesses are in survival mode post COVID-19**
- **Space constraints can be an issue for certain premises**
- **Focus is currently on other priority sustainability issues (energy and carbon)**
- **Focus is currently on water risk in other parts of the country (Cape Town and Port Elizabeth)**



# The main solution adopted to address a lack of capital is **entering into a supply contract with an external service provider**

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- **Many interviewees have implemented or are rolling out supply contracts with external parties for treated effluent/wastewater**
- **Reuse water is typically generated on site and sold back to the company via a supply agreement**
- **The 3rd party owns the asset, is responsible for maintenance and delivers based on agreed performance standards**
- **This approach allows the host company to focus on core business, will reducing their water risk and avoiding a large capex expense**
- **These agreements are typically long term (10-20 years) to make financial sense for both parties**
- **Any premium paid is offset by reduced sludge, reduced discharge costs and the lack of a capex outlay**
- **In some cases companies are looking at buying reuse water generated outside their operations, but proximity and access to infrastructure can be an issue**

## Companies are happy to partner with technology experts and providers, having learnt from the solar rooftops approach

- External provider expertise is effectively guaranteed through performance standards
- The host company avoids a potential hiring error: ‘how do you know if someone is an expert, if you are not an expert?’
- The external service providers are also turnkey: they bring the financing, technological solution and operate the plants. Relevant solution providers are currently active in South Africa
- The supply agreement effectively functions as an innovative financing mechanism

## Most companies are open to collaboration, either with other businesses or with local government

- Some companies are very keen, others are open to the idea in principle
- At least one company is currently sharing effluent treatment with another business, to draw on economies of scale
- Some interviewees have commenced civil society partnerships
- Time pressure on projects does reduce the desire to collaborate, however

## **Technical assistance, government policy certainty and incentives** could help encourage further action. Key enablers highlighted include:

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- **Subsidised water audits, to demonstrate the savings opportunities and build momentum**
- **Industry guidance/guidelines on water efficiency and reuse**
- **A policy or tax incentive, either for water efficiency or water stewardship**
- **Regulatory certainty on the discharge of concentrated brine, or identification of appropriate remediation measures/disposal sites**
- **Emphasis on water use license conditions and remediation requirements**
- **Benchmarking to derive specific water efficiency targets per industry. These to be applied when restrictions are implemented, rather than adopting a blanket approach**
- **Higher effluent charges or water tariffs. Noting that pricing is a careful balancing act for both municipalities and industry**

# Conclusion

## Our concluding thoughts:

1. Water remains a key risk for many industries in Gauteng
2. Operating in a difficult context, companies have begun to embrace external support, particularly where the financing is taken care of
3. Technical assistance, incentives and peer learning could support further company uptake
4. Drought, the growth of urban water demand and supply disruptions are likely to ramp up industry efforts in future years

# Thank you

# For more information


## Alex McNamara

Programme Manager: Climate & Water, NBI

E: AlexM@nbi.org.za

T: +27 11 544 6013

M: +27 79 699 3284

## Mmaphefo Thwala

Project Manager: Water, NBI

E: MmaphefoT@nbi.org.za

T: +27 11 544 6012

M: +27 61 242 1385

5th Floor, 61 Katherine Street, Dennehof, Sandton, 2196

PO Box 294, Auckland Park, Johannesburg 2006, South Africa

Tel: +27 11 544 6000

NBI National Business Initiative

The National Business Initiative is a voluntary coalition of South African and multinational companies, working towards sustainable development in South Africa and the shaping of a sustainable future through responsible business action. Since our inception in 1995, we have made a distinct impact in the spheres of housing delivery, crime prevention, local economic development, public sector capacity building, further education and training, schooling, public private partnerships, energy efficiency and climate change.

The NBI's identity is embedded in our membership. Our work is made possible through our membership community whose contributions and active involvement in our work allow substance to be given to the role of business in shaping a sustainable future.

The NBI is a global network partner of the World Business Council for Sustainable Development (WBCSD) and an implementation partner of the CEO Water Mandate, We Mean Business and CDP.

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