

Water Security at Local Government Level in eThekweni and Sekhukhune A Perspectives Analysis and Capability

By

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Outline

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 - Policy relevance of the water security typology analysis
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Water Security Project Team and Aims

- **Inter-disciplinary team of social and natural scientists conducted the study over 4 years from 2014-2018**
 - **Richard Meissner, Karen Nortje, Nikki Funke, Maronel Steyn, Inga Jacobs-Mata, Elliot Moyo, Winile Masangane, Justinus Shadung, and Nina Nohayi**
- **Aims**
 - 1. Identify stakeholders' roles and functions** related to water resources management (and particularly water security).
 - 2. Formulate an understanding of different interpretations of water security** in the greater South African context and in the context of two case study areas: Sekhukhune District Municipality and eThekweni Metropolitan Municipality;
 - 3. Identify and study existing policies, programmes and plans to achieve water security** at national, provincial and local level, and analyse their implementation successes and shortcomings;
 - 4. Identify different knowledge systems related to water security** and determine how these can support existing efforts to achieve water security in the case study areas; and ultimately,
 - 5. Develop impactful ways to support government institutions and other stakeholders** to better achieve water security and manage the water security-related challenges they face.

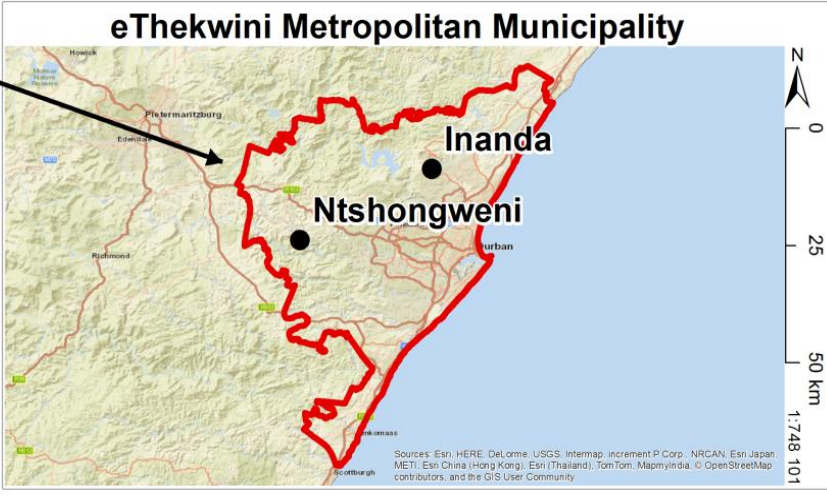
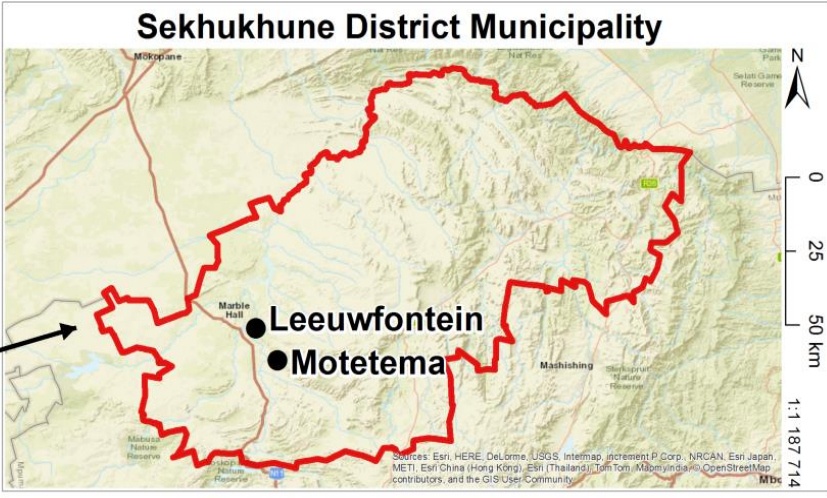
Water Security Project

- UN Water agency's definition of water security.
- How people perceive and/or understand water security in the two municipalities.
- Most view it as the availability and quality of water.
- A more nuanced picture is in the offing.
 - Mine using bottled water.
 - Maintenance of water infrastructure.
- People base their understanding of water security on their lived-experience when they interact with water and other people and the environment when performing water-related activities.



Project Areas

Criteria	Sekhukhune District Municipality
Municipal Category	C
Province	Limpopo
Main economic sectors	Mining (15-20%), trade (17%), financial and business services (10-12%), and agriculture (9.7%)
Socio-economic challenges	Poverty, meagre infrastructure, and a lack of safe water supplies (33% of population dependent on rivers and streams, and 7% without formal sanitation).
Unemployment rate	61.60%
Population size	1.07 million (2011)



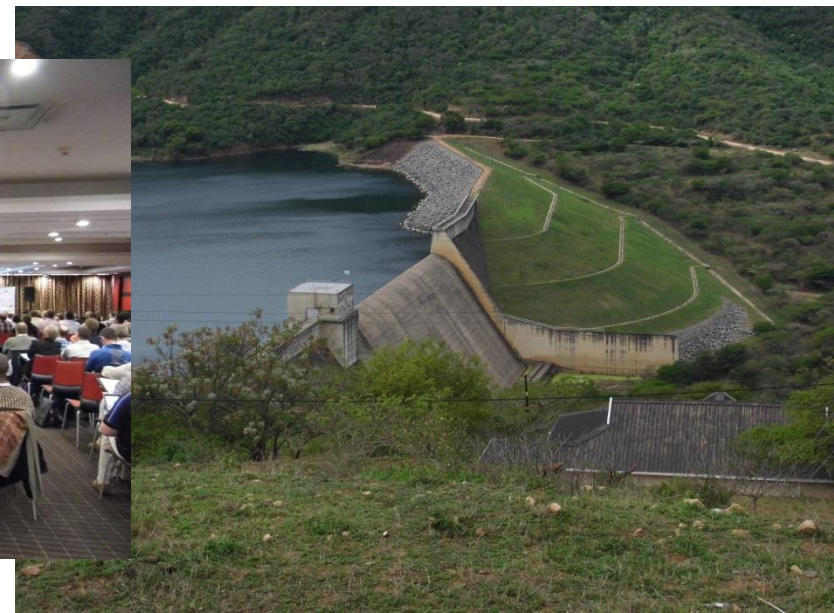
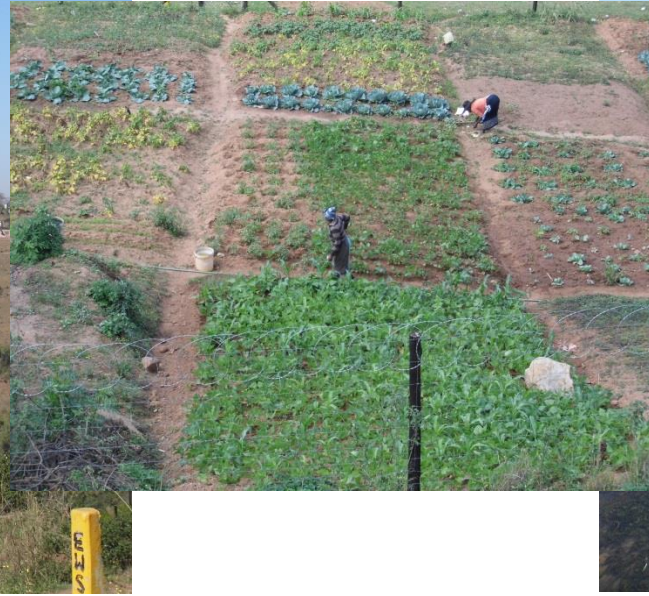
Criteria	eThekweni Metropolitan Municipality
Municipal Category	A
Province	KwaZulu-Natal
Main economic sectors	Finance (22%), manufacturing (22%), community services (18%), trade (16%), transport (16%), construction (3%), and electricity (2%)
Socio-economic challenges	Densely populated, 16.5% of households without improved access to sanitation.
Unemployment rate	30.20%
Population size	3.5 million (2011)

Municipal info sourced from: Local Government Handbook; ISDS; Stats SA.

- Two Rivers
 - Olifants River and tributaries like the Steelpoort River provides water to Sekhukhune.
 - uMngeni River provides water to eThekweni.



Setting the Scene: eThekweni



Setting the Scene: Sekhukhune



Water Security: What do People Think?

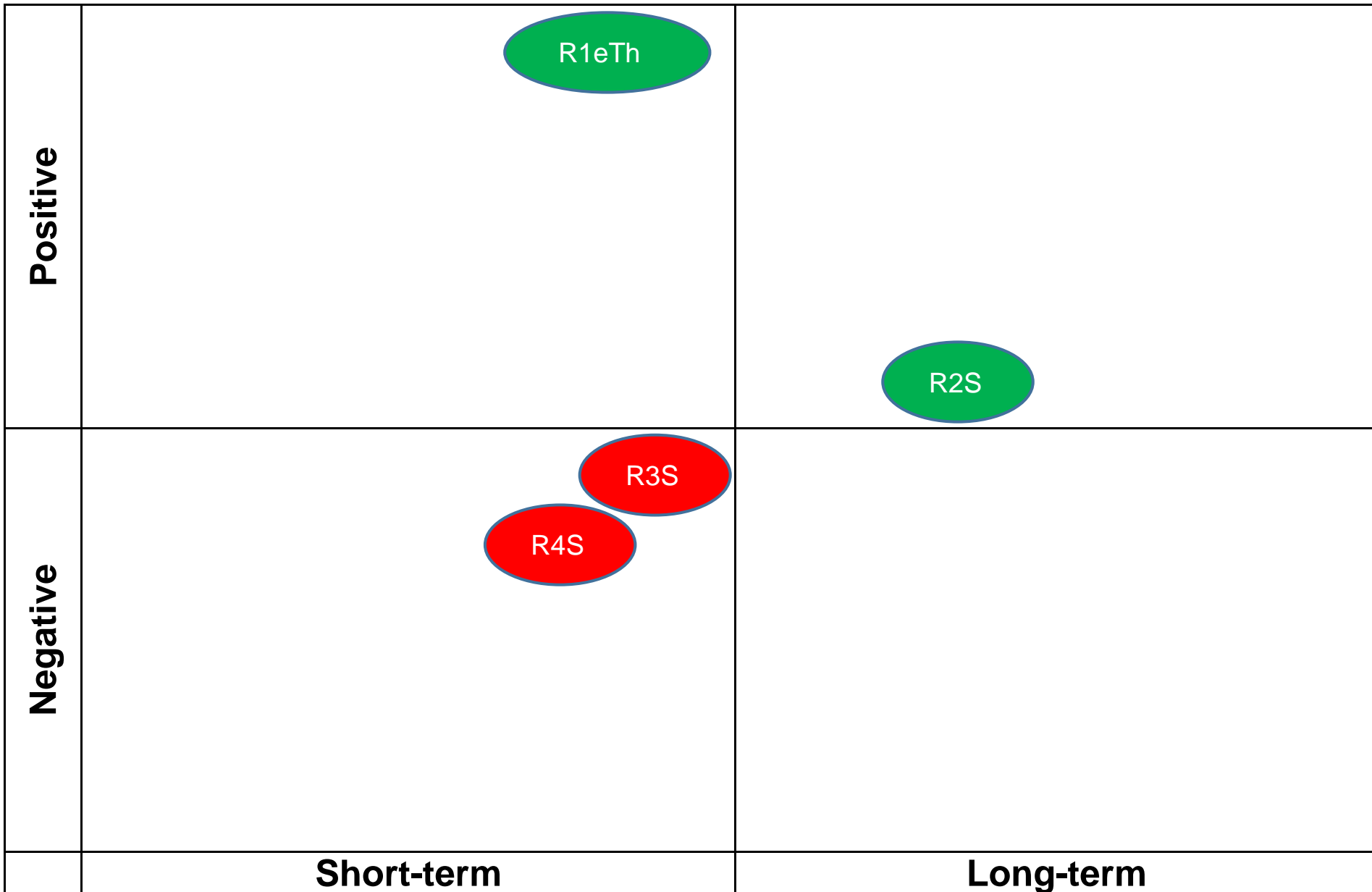
- Water security costs money.
- Water security impacts human health.
- The link between fresh water and the marine environment.
- Why are mines supplied and communities neglected?
- Theft and vandalism of water infrastructure in both Municipalities



State of Water Security Analysis

Respondent's Number	Stakeholder Type and Municipality	Respondent's Motivation	Of what is it a case or an occurrence?	Nature of causal mechanism	Long- or Short-term	Positive (+) or Negative (-)
Respondent 1	Tourism sector (eThekweni)	The municipality has 'adequate infrastructure in place' to supply their hotel with water.	The municipality is playing its part to deliver water to businesses.	Explanatory account	Long-term	+
		They are 'happy' with the current water supply arrangements because the municipality timely informs them of water supply interruptions.	Good past experience when the municipality announced water supply interruptions.	Condition	Short-term	+
		'The municipality is on the ball; there is a tanker service in case of water shortages.'	The municipality is playing its part to deliver water to businesses.	Condition Explanatory account	Short-term	+
Respondent 2	Community (Sekhukhune)	'I will say in a way yes but, a very strong BUT, because some areas are still struggling here...'	Water supply delivery does not happen uniformly across the municipality.	Explanatory account	Long-term	+
Respondent 3	Community (Sekhukhune) (same as respondent 3)	The communities experience 'water cuts'.	Inadequate water supply.	Condition	Short-term	-
		When communicating with the municipality, 'they [municipality] said they bought a new pump and a compressor. They are still struggling. Sometimes we have asked the authorities about the problem of water supply cuts, they told us about a stolen water pump and gave us inconsistent answers. Secondly they said pressure was not enough.'	Inadequate water infrastructure and water supply. Theft of water infrastructure. A measure of distrust between these community members and the municipality.	Relation Process	Short-term	-
Respondent 4	Community (Sekhukhune) (same as respondents 3 and 4)	'There is payment involved. You see government inspectors going into the farms to record water meter readings many times there is payment involved.'	Trust erosion through perceived corruption. Preferential treatment from municipal officials to irrigation farmers. Apartheid legacy of racially-based unequal treatment.	Relation Process	Short-term	-

Policy Relevance of State of Water Security



State of Water Security Analysis Policy Relevance

- From the table and plot we can say the following:
 - The respondents indicate that there is agency or a lack thereof on the part of the Municipalities.
 - Resources or a lack thereof play their part in water security enhancement or deterioration.
 - Resources, apart from water, enable action on the part of the Municipalities.
 - For instance, to minimise the impact of water disruptions municipalities might need a dedicated water tanker service and a good communication strategy to inform schools and businesses about water disruptions.
 - How can municipal water managers change short-term positive and negative actions into more longer-term and sustainable practices?
 - Allocate and use resources optimally by maintaining, for instance, tanker trucks.
 - Communicate regularly and consistently with water end users even in rural areas.
 - Communication strategies require dedicated resources like municipal spokespersons, social and popular media outlets, and off course a dedicated budget.
 - Negative perceptions could be dealt with by action and communication including feedback to citizens.
 - Commitment to the improvement of residents' living conditions, as an attitude, is also key.

Water Security Typology Analysis

Agency in terms of actions and decisions

Helping municipalities to help themselves

Our water our responsibility

The future is now

Ignorance and criminality

Water management as usual must fall

Balance between numbers

Supply and demand

Water security begins and ends with water quality

More for some forever

Performance as catalyst

No water security, no food, no jobs

Operation infrastructure

Water is life

Policy Relevance of Water Security Typology

Ignorance and criminality:

- This kind of water security type is from a number of perceptions about who is **responsible**.
- For example, people do not communicate, and the municipality does not listen in any case (associated with ignorance)
- People in less affluent areas are more likely to vandalise infrastructure (associated with criminality).
- Holding these perceptions can have **negative** and **positive** implications.
 - It might be very difficult to work with people who are quite negative in their view of the current situation, and they might blame a host of 'others' for the situation.
 - At the same time they often advocate for people doing things for themselves, which is a positive foundation to build on.

Policy views and expressions based on this typology

- Expect water infrastructure theft and vandalism in *less affluent areas*.
- People, and *not* the poor, commit water infrastructure theft and vandalism.
- People (citizens) can also help maintain water infrastructure.
- Communicate constantly and take *normative structures* into account.
 - *Everybody* is capable of water infrastructure theft and vandalism—not only the poor (dominant normative structure).
 - *Stereotyping* by practitioners should, therefore, be avoided.

Individual Water Security Perspective

- Emphasises the individual and not infrastructural water projects.
- Water security defined as a state of mind regarding context-specific perceptions and practices individuals have of water-related threats and/or opportunities, and how these influence them, their surrounding environments, and interaction with others when exploiting and utilising water.
- We perceive drought as a water security threat when it influence our daily lives.
- Individual water security perspective is bottom-up.
- Individual water utilisation practices are based on individual experiences when coming into contact with water.
 - Water security could be access to river water when thieves had stolen water infrastructure.
 - Access to 'irrigation water' for dust suppression in mining operations to safeguard against occupational health hazards.
- Water security is aligned to the daily water-related practices individuals perform when using water.
- The infrastructure is not as important as the way in which, and the purposes of why a person utilises water.
- The purpose of using water is also of central importance.

Conclusion

- What people think about water security *matters*.
- Water security is not an abstract concept defined by international organisations or scientists, like UN Water.
- Water security is NOT about quantity, quality, availability, reliable supply, water borne diseases...
- Water security is about individuals, and their environment—lived experience.
 - Water security begins and ends with the individual.
- Water security should be defined by individuals and not by scientists only—ownership.
- Scientists can miss the point—research in collaboration with communities can be a rich and rewarding experience.
- Local governments face many challenges regarding water security.
- The challenges can extend beyond fresh water security to include the marine environment.
- Our water security analysis capability captures these complex nuances with practical relevance to policy practitioners.
- Capability can enhance practitioners' understanding of the state of water security at local government level.

What's Next?

- Green infrastructure for water security policy landscape analysis
 - eThekweni Metropolitan Municipality
 - Funded by the National Research Foundation (NRF)
 - Utilising the PULSE³ Analytical Framework and Tool
 - In collaboration with MONASH South Africa
 - Three Monash South Africa students
 - Jerit Dube investigating green infrastructure and floods in an informal settlement.
 - Two other students to be announced.
 - Possible international collaboration with University of Osnabrück
 - Prof Claudia Pahl-Wostl
 - Evelyn Lukat
- Water Security in South Africa
 - Francois de Villiers, Masters in Business Administration (MBA) student at the Gordon Institute of Business Science (GIBS).
 - Replicating the study in a portion of the South African mining sector.
- Collaboration with the KlipSA improved water security water stewardship initiative called KlipWaS
- Paper presentation at the 1st International Water Security Conference in Toronto, Canada in June 2018.
- Establishment of a Water Security Programme at the CSIR

Forthcoming Publications and Further Reading

- Meissner, R., Steyn, M., Moyo, E., Shadung, J., Masangane, W., Nohayi, N. and Jacobs-Mata, I. Forthcoming. The State of Water Security in South Africa: A Local Government Perceptions Analysis. *GeoForum*.
- Funke, N., Nortje, K., Meissner, R., Steyn, M., Ntombela, C., Masangane, W. Forthcoming. Perspectives on Water Security in the South African Context. *Water Resources Management*.
- Nortje, K., Meissner, R., Funke, N., Steyn, M. Forthcoming. Towards a Water Security Typology: What Stakeholders in the Greater Sekhukhune District and eThekweni Metropolitan Municipalities Understand about Water Security.
- Nortje, K., Funke, N., Meissner, R., Steyn, M., Moyo, E. Forthcoming. *A Typology Guide to Understanding Water Security in the South African Context*. Pretoria: CSIR.
- Meissner, R., Nortje, K., Funke, N., and Steyn, M. Forthcoming. *Understanding Water Security at Local Government Level in South Africa*. Book to be published by Palgrave Macmillan.
- Meissner, R. 2017. *Paradigms and Theories Influencing Policies in the South African and International Water Sectors, PULSE³, A Framework for Policy Analysis*. Cham, Switzerland: Springer Nature.

Thank you for listening

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