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**IDEAS THAT WORK**

8-9 October 2015 | CSIR ICC

**Municipal service delivery  
SET for success**

Samantha Naidoo

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# Introduction



- Local government has a clear electoral mandate to deliver on key priorities, including the 5 Key National Priority Areas.

# Problem contextualisation

- Local government faces a number of implementation challenges<sup>1,2</sup>:
  - Aged and insufficient infrastructure;
  - Poor financial management and insufficient funding allocation;
  - Inefficient natural resource management; and
  - Lack of capacity building and skills transfer.

<sup>1</sup> Medium-Term Strategic Framework (MTSF) (2014-2019)

<sup>2</sup> The State of Local Government Finances and Financial Management (2013)

# Implementation of innovative solutions

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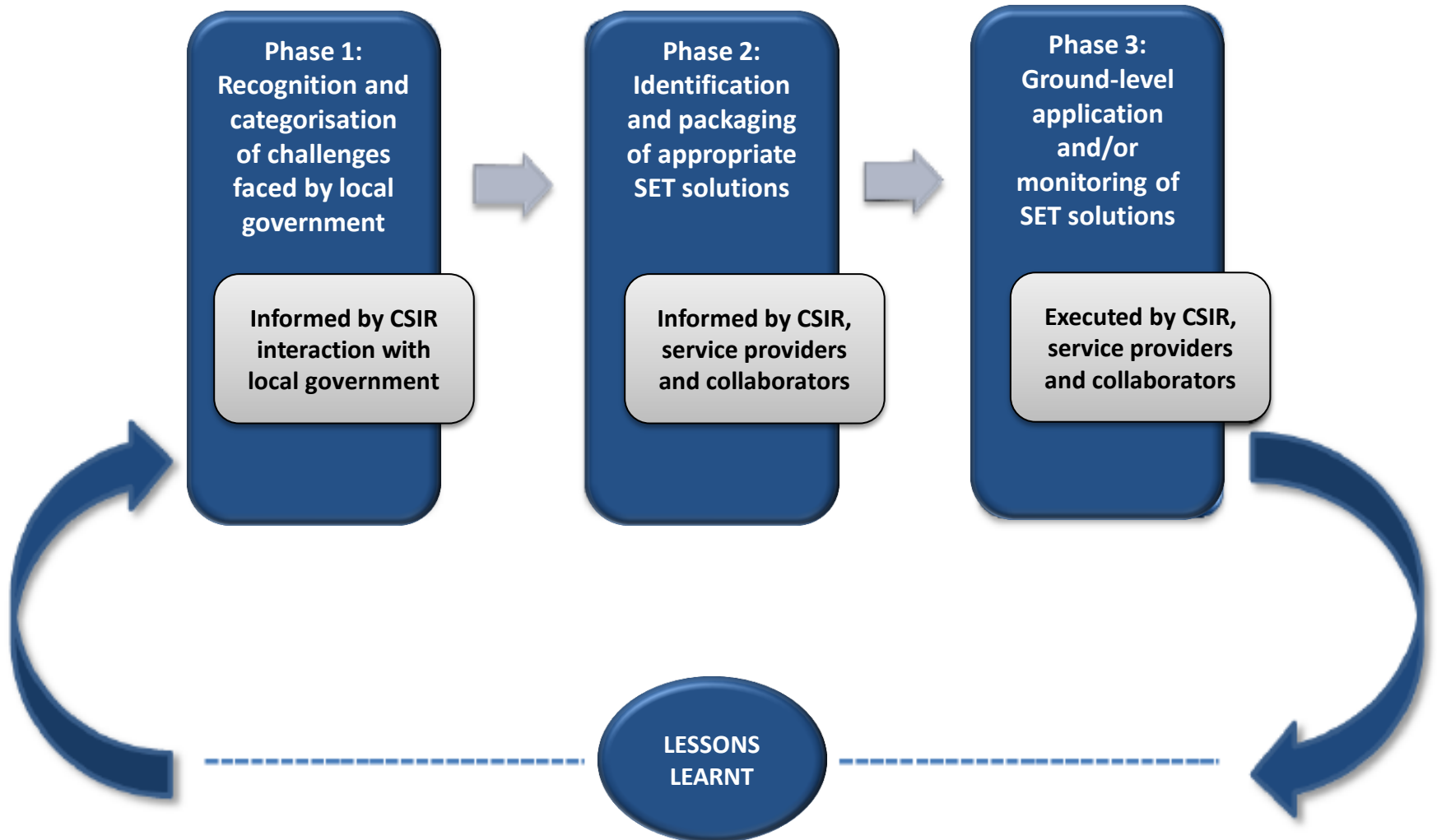
The CSIR is able to assist, mainly because of the organisation's ability to:

- Understand municipal problems at systems level through close interaction with local government; and
- Develop and execute integrated solutions by identifying and eliciting the required technical competence from within the CSIR as well as from collaborators and service providers, where necessary.

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# Implementation of innovative solutions



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# Case Studies: Municipalities within KwaZulu-Natal & Limpopo

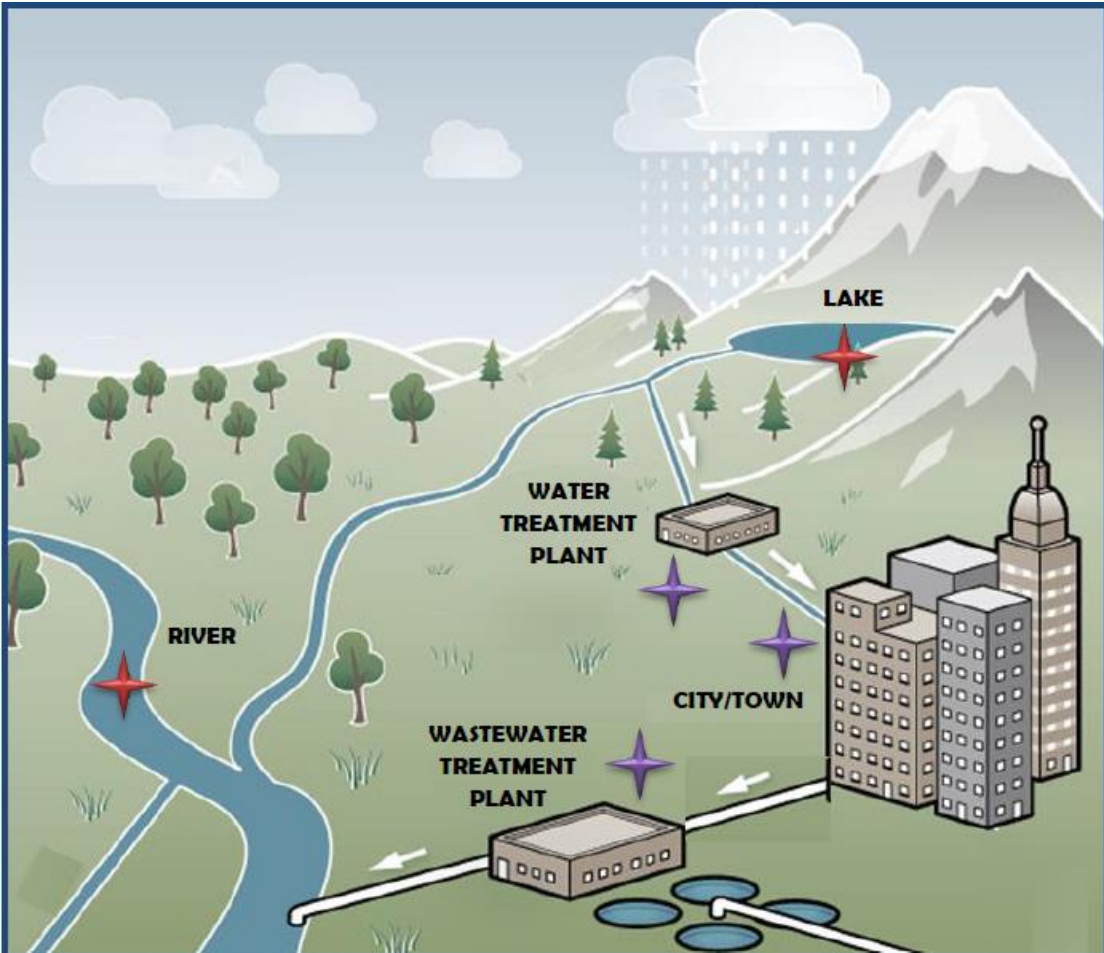
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- The CSIR has applied the methodology to water-related projects within the:
  - City of uMhlathuze (CoU);
  - Capricorn District Municipality (CDM); and
  - eThekweni Metropolitan Municipality.


- The aim is to assist these municipalities to:
  - Effectively plan and manage water resources and wastewater within their jurisdiction; and
  - Where possible, build the required in-house skills and capacity.





*These projects relate to particular points of the water value chain, i.e. the source, and pathway points.*

*\* A Wastewater Re-Use Project is a potential future project that relates to the receptor point of the water value chain.*

Points in the Water Value Chain	KEY: CSIR Project List	
Source	<ul style="list-style-type: none"> <li>• Lake Zonation &amp; Management Plan</li> <li>• Water Quality Monitoring Systems (WQMS) - uMhlangane River</li> </ul>	
Pathway	<ul style="list-style-type: none"> <li>• Water Quality Monitoring Systems (WQMS) – Water &amp; Wastewater Treatment Works</li> <li>• Green Drop Solutions</li> <li>• Blue Drop Solutions</li> <li>• Laboratory Accreditation Services</li> </ul>	

# Lake Zonation & Management Plan (LZ&MP)

- Objectives:
  - To compile a LZ&MP for Lake Mzingazi in CoU based on relevant scientific studies; and
  - To establish an administrating forum to lead the implementation and periodic revision of the plan.



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# Lake Zonation & Management Plan (LZ&MP)

- Drew on the expertise of internal and external specialists.
- A robust stakeholder engagement process was run in parallel to the LZ&MP process.
- The CSIR will incorporate a capacity-building component into similar plans going forward.

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# Green Drop (GD) & Blue Drop (BD) Solutions

- BD project: implemented in CDM; and GD project: CoU and CDM.
- Scientific analysis is conducted with the aim of improving BD and GD scores and overall water and wastewater management within these municipalities.

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# Green Drop (GD) & Blue Drop (BD) Solutions

- CSIR water quality and sustainability specialists undertake the technical components of the project.
- Lessons learnt and data gathered will be used to design and apply predictive modelling which may influence the operation and engineering design of treatment works in future.

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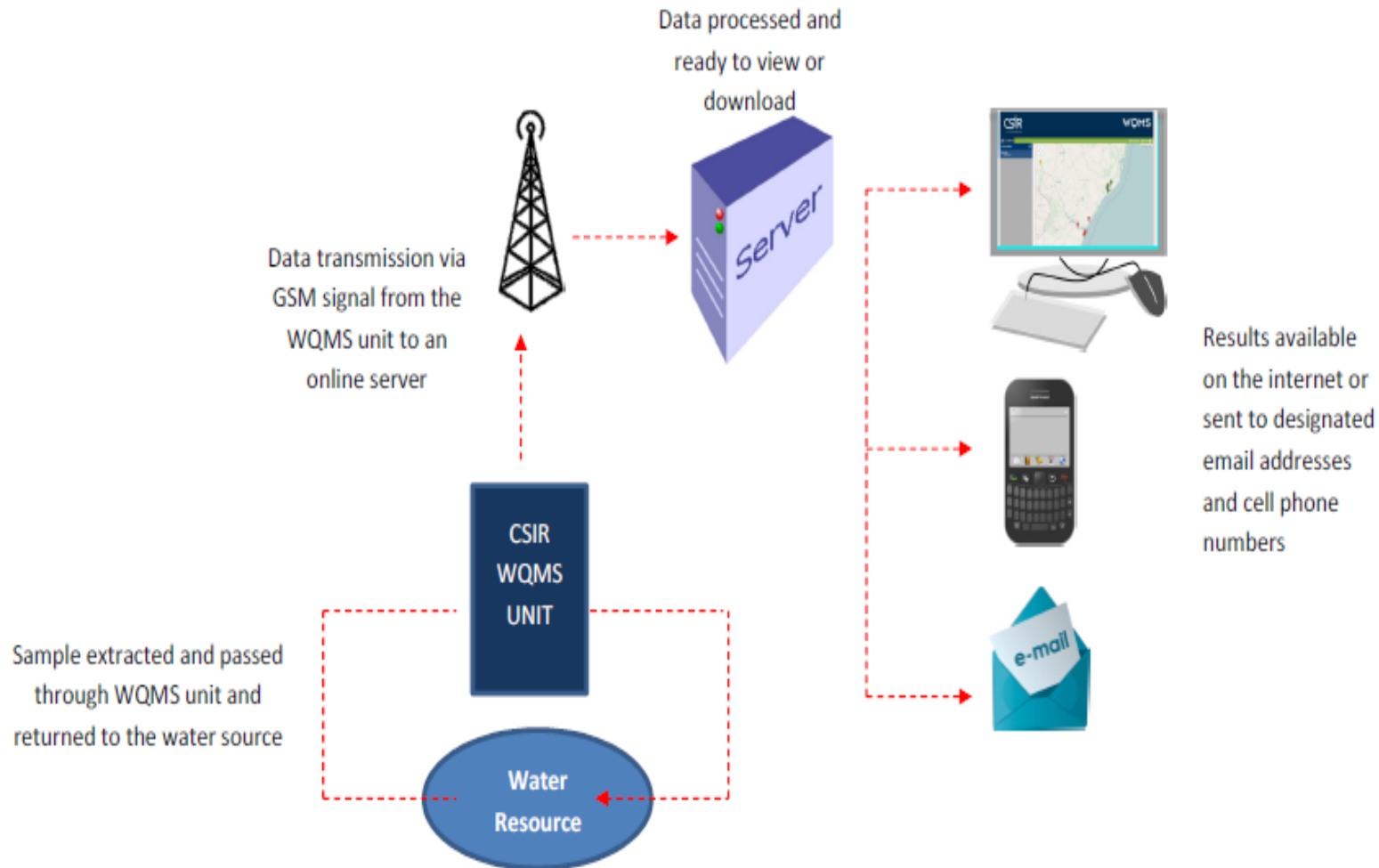
# Water Quality Monitoring Systems (WQMS)

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- Manufactured by the CSIR and installed at:
  - Water treatment works: CoU;
  - Wastewater treatment works: CoU, CDM; and
  - A strategic location along the uMhlangane River: eThekweni Metropolitan Municipality.



# Water Quality Monitoring Systems (WQMS)



# Water Quality Monitoring Systems (WQMS)

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- Actual value of this system lies in its ability to enable:
  - The remote management of water quality,
  - The implementation of real-time responses,
  - The ease of uploading and interpretation of water quality data, and
  - The implementation of a holistic management approach.



# Water Quality Monitoring Systems (WQMS)

- The feasibility and value of developing algorithms are currently being investigated as a research and development component of the CoU project.
- The use of algorithms will enable determination of concentrations of other water quality parameters based on the levels of parameters measured by the WQMS.

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- Going forward the CSIR proposes that WQMS units be installed at strategic points along the entire water value chain of municipalities.
- The CSIR will then be able to identify potential pollution sources; recommend appropriate, location-specific management measures; and confirm predicted impacts and the effectiveness of applied measures.

# Laboratory Accreditation

- A CSIR Laboratory Accreditation System Specialist is assisting CoU and CDM with preparations for SANAS accreditation by applying knowledge on ISO 17025.
- Involves facilitating the implementation of methods to ensure accuracy and reliability of laboratory analysis and compliance with standard requirements and procedures.

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# Laboratory Accreditation

- Objectives:
  - Reduce local government's reliance on external SANAS accredited laboratories;
  - Build in-house capacity;
  - Increase the accuracy of laboratory results;
  - Improve laboratory management; and
  - Strengthen water resource and wastewater management within municipalities.



# Input into the water and sanitation curriculum: University of Limpopo

- This was accomplished by conducting a gap analysis on existing courses and recommending possible additions.
- Results – skills development and transfer not only at municipal level but also at provincial level by capacitating students within the water and sanitation field.



# Input into the water and sanitation curriculum: University of Limpopo

- The projected positive spin-off of growing the expertise within this field is:
  - The provision of improved water and sanitation-related services by the public and private sectors within the province.



# Conclusions

- Obtaining input from local government and prowess across the CSIR allow for the development of integrated SET solutions that are both practical and effective.
- “Lessons learnt” have prompted the identification of valuable add-ons to existing projects and the creation of new and novel solutions that can be applied to similar projects or treated as a separate service area, in future.

# Conclusions

- This process promotes continuous improvement and innovation and has a widespread ripple effect as positive impacts are translated into better health, well-being and a higher standard of living for South Africans.
- The CSIR thereby fulfils its mandate by:
  - Supporting local government's endeavours to provide effective and efficient service delivery; and
  - Contributing to sustainable use of the environment and the welfare of society.



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Thank you

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