

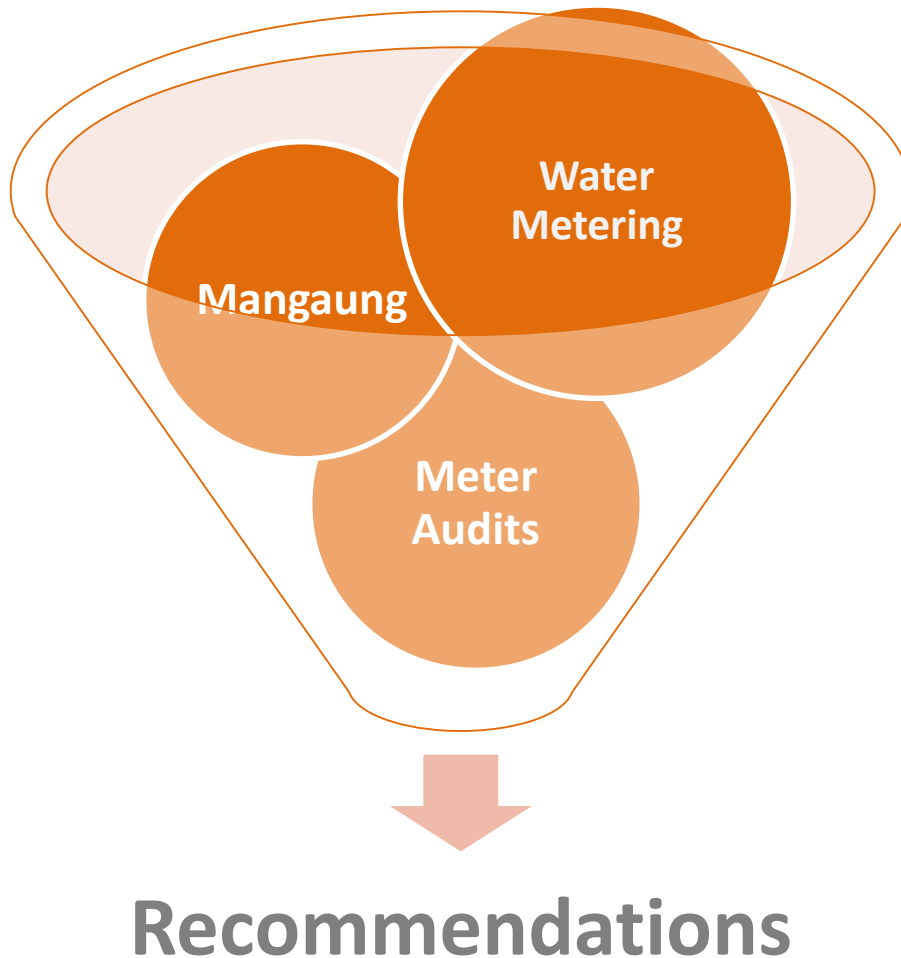
LESSONS LEARNT FROM THE AUDIT OF 15 000 WATER METERS IN LOW-INCOME AREAS OF MANGAUNG METROPOLITAN MUNICIPALITY

Case Study

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“To measure is to know... If you cannot measure it, you can not improve it.”

Lord Kelvin

Background

What is the purpose of the Water Meter?

Background: Losses

Water Demand Management

Optimisation **Distribution** **Losses** **Back to Basics**

Efficiency **Water** **Sustainable Development**

Loss Reduction **Water Security** **Non-Revenue Water**

No Drop

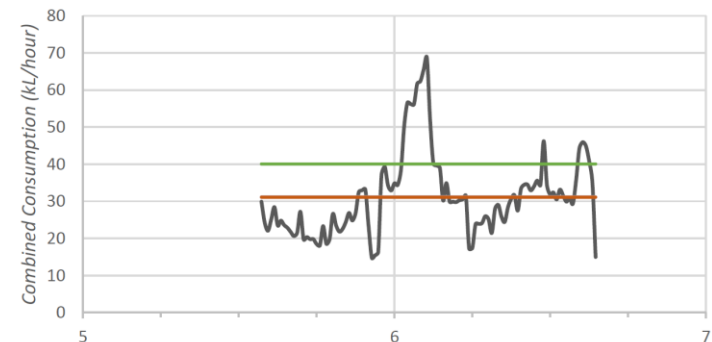
Metering: Background

- Water Provision
- Customer Types
- Water Accountability
- Meter Types
- Reading Types



Metering: Benefits

- Equitable payment for services
- Customers accountable for on-property consumption
- Actual consumption
- IWA Water Balance (Distribution Losses)
- Metering requires continuous
 - Operation & Maintenance
 - Monitoring & Evaluation



System Input Volume 124.9 ML/day	100%	Authorized Consumption 80.9 ML/day	65%	Billed Authorized Consumption 63.5 ML/day	51%	Billed Metered Consumption 55.7 ML/day	45%	Free Basic Water 8.1 ML/day	Revenue Water 55.5 ML/day	51%
					Billed Unmetered Consumption 7.8 ML/day	6%				
				Unbilled Authorized Consumption 17.3 ML/day	14%	Unbilled Metered Consumption 9.8 ML/day	8%			
		Water Losses 44.1 ML/day	35%	Commercial Losses 5.0 ML/day	4%	Unbilled Unmetered Consumption 7.5 ML/day	6%	Non-Revenue Water 61.4 ML/day	49%	
						Unauthorized Consumption 1.2 ML/day	1%			
						Customer Meter Inaccuracies and Data Handling Errors 3.8 ML/day	3%			
Physical Losses 39.0 ML/day					31%					

Non-Revenue Water

National
Average
35%



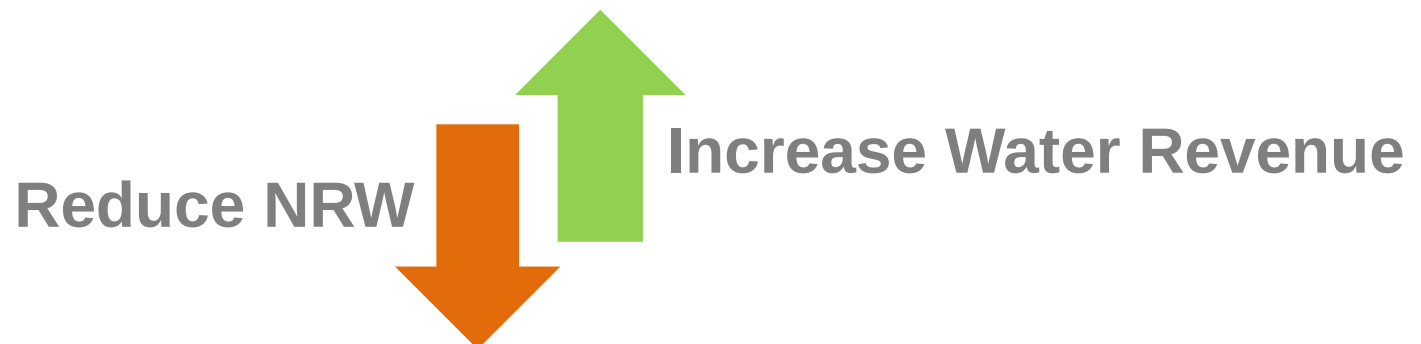
Methodology

What is the meter audit?

- Performed High-Level Spatial Assessment

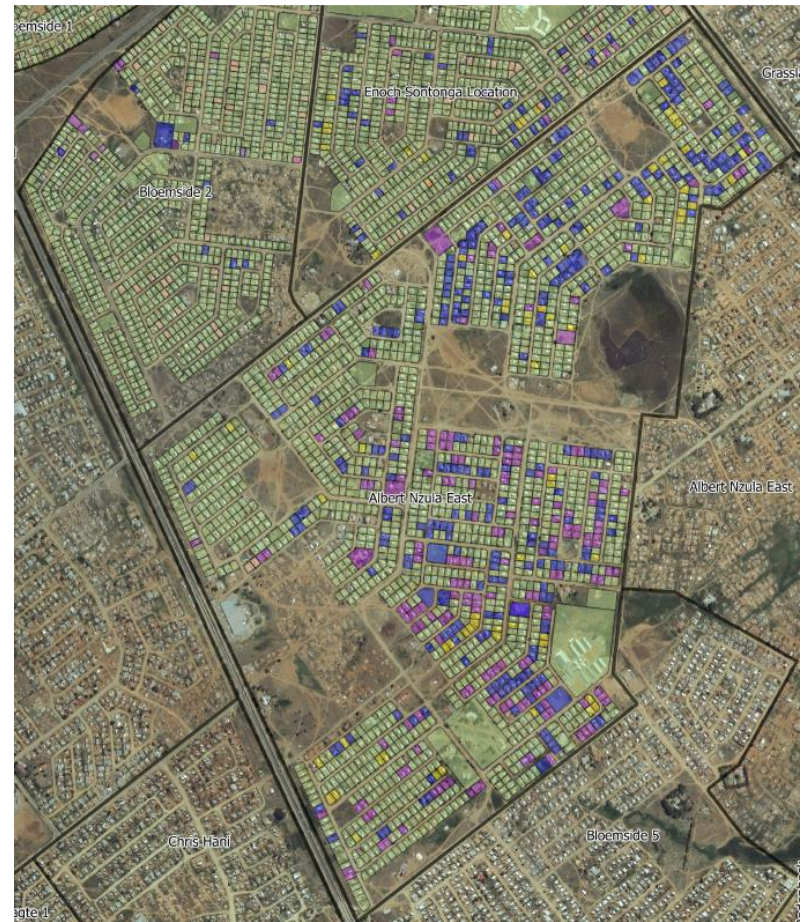


- **Objectives of the Meter Audit**
 - Enhance the accuracy of the information on the Municipal Financial System
 - Reduce the number of unread meters
 - Increase the metered water
 - Identify faulty or broken meters
 - Map the physical location of the meters
 - Reduce Non-Revenue Water component of the water balance



- 12 suburbs were investigated
- 15 637 meters audited
- Data Gathered included
 - Serial Number
 - Current reading
 - GPS coordinates
 - Meter Location
 - Meter Installation
 - Meter Condition

- Example of the spatial outputs



Challenges

- The following challenges were faced in the audits
 - Meter accessibility
 - Meter installation
 - Meter details
 - Assigning consumer meters
 - Meter condition
 - Meter removed
 - Consumer types
 - Safety



Recommendations

- **Recommendations relate to**
 - Meter Installations
 - Meter Reading Practices
 - Meter Faults and Defects
 - Suspected Illegal Connections
 - Uploading meter information onto the Municipal Financial System
 - Meter Audits
 - Meter Audit Data Management

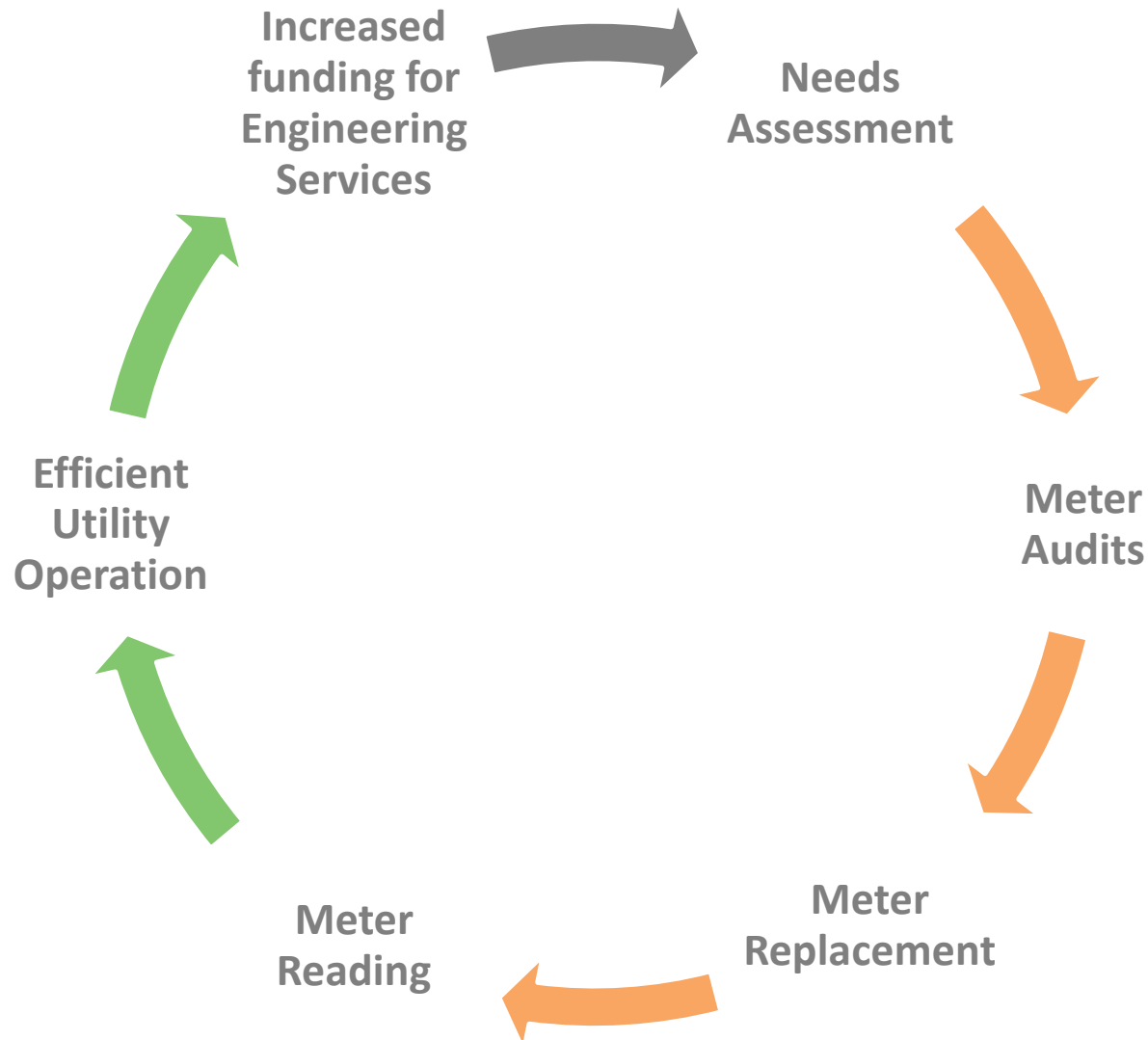
Meter Audits

- **Recommendations include:**
 - Meter audit frequency
 - Extent of the meter audit projects
 - Community awareness
 - Municipal Financial System capabilities
 - Meter replacements
 - Policies and processes to ensure data integrity



Concluding Remarks

Virtuous Metering Cycle



Concluding Remarks

- Case study overview
- Meter audits are continuous functions
- Integrity, accessibility and accuracy of the physical meters and the meter data can be achieved
- Recommendations enable increased metering accuracy

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Thank you