

2017 7TH REGIONAL african water LEAKAGE SUMMIT

DBSA Vulindlela Auditorium, Midrand, Gauteng, South Africa  
22 - 23 August 2017

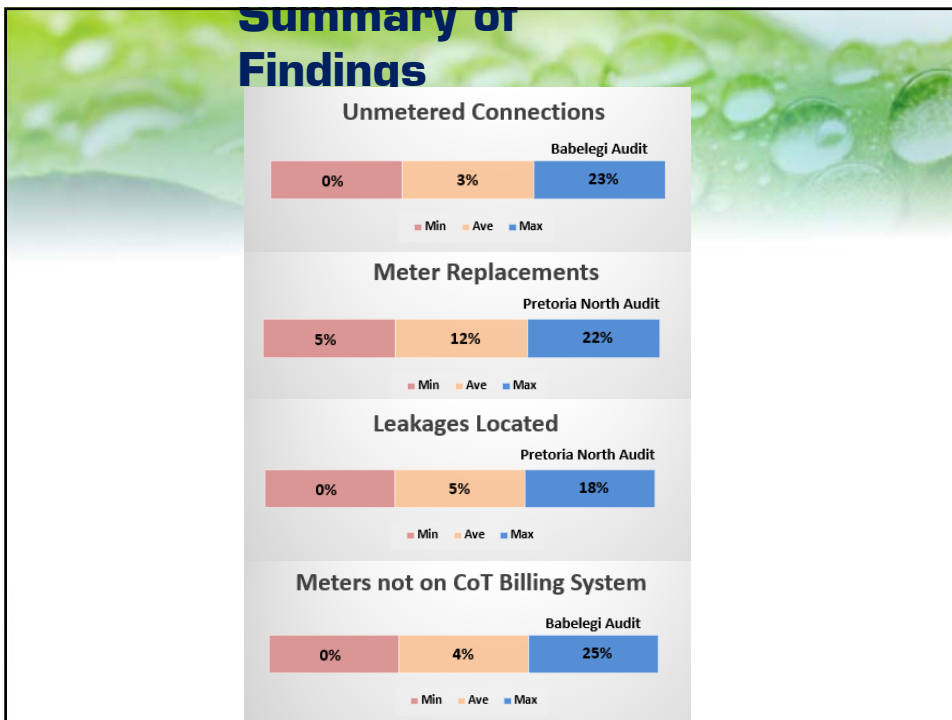
City of Tshwane - Water Loss Project  
Presented by: Wenzile Shandu

Participating and supporting organisations :

RAND WATER, EOH, sasol, WISA, OVERSTRAND, Zednet, SSIS, Honeywell, sebaKMT, aquatrip, see, EYEM Control Valve (Pty) Ltd, SIBENI TRAIL

## Consumer Meter Audit

	Stands Audited	Meters Audited	Unmetered Connections	Meters to be Replaced	Leakages Located	Meters not on Billing System
Arcadia Audit	287	694	1	129	6	2
Babelegi Audit	101	117	35	125	7	29
Bronkhorstspuit Audit	211	256	22	15	26	26
Cullinan & Rayton Audit	56	75	1	11	3	4
Ga-Rankuwa Audit	112	218	2	11	3	4
Gezina Audit	197	258	2	22	12	5
Hennopspark Audit (Re-visit)	173	296	0	20	16	5
Koedoespoort Audit (Re-visit)	83	111	0	111	3	3
Lytelton Manor Audit (Re-visit)	52	111	0	9	2	4
Pretoria CBD	1615	1895	9	310	19	40
Pretoria North (Re-visit)	239	287	7	64	49	3
Pretoria West Heavy Industrial (Re-visit)	79	126	2	19	6	1
Pretoria West Light Industrial (Re-visit)	441	797	14	73	39	14
Road Islands Audit	342	342	13	27	31	24
Rooihuiskraal Audits (Re-visit)	90	169	0	20	0	0
Rosslyn North Audit	106	237	8	16	8	25
Rosslyn South Audit (Re-visit)	167	254	0	13	2	3
Silverton Pretoria Street (Re-visit)	271	318	1	54	18	5
Sunderland Ridge (Re-visit)	176	295	1	21	3	6
Sunnyside Audit	532	988	0	199	3	10
Top 300 Consumer Meter Audit	270	946	11	125	24	25
Top 600 Consumer Meter Audit	394	880	11	103	9	5
Waltloo & Silvertondale (Re-visit)	474	716	0	73	10	16
<b>Total</b>	<b>6 468</b>	<b>10 386</b>	<b>140</b>	<b>1 496</b>	<b>297</b>	<b>291</b>



### Unmetered Connections



### Leaks Detected




## Meter Replacements

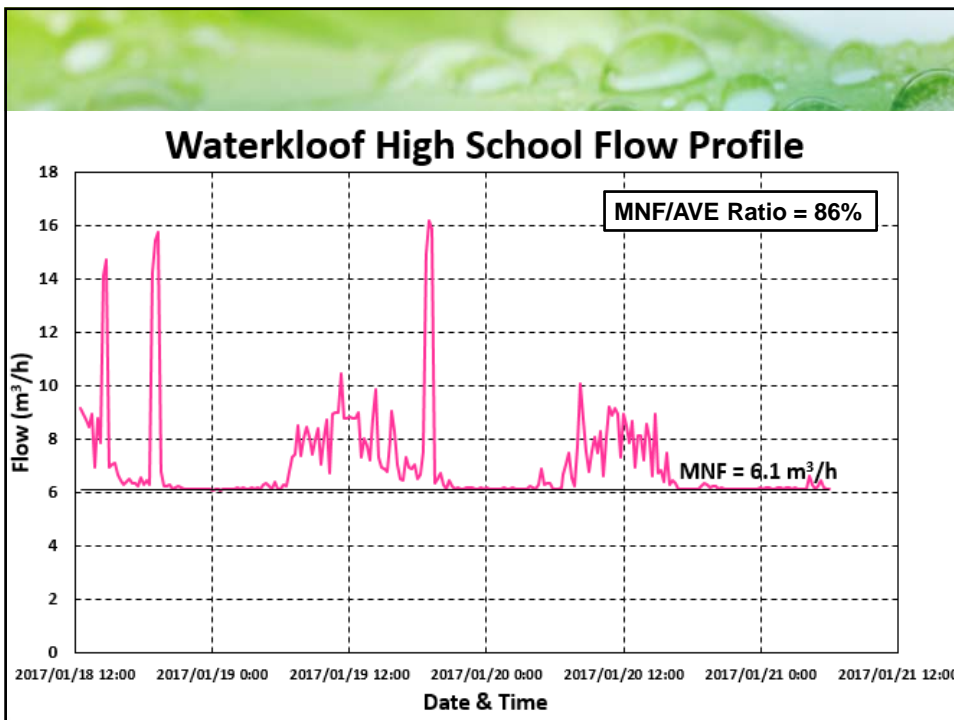


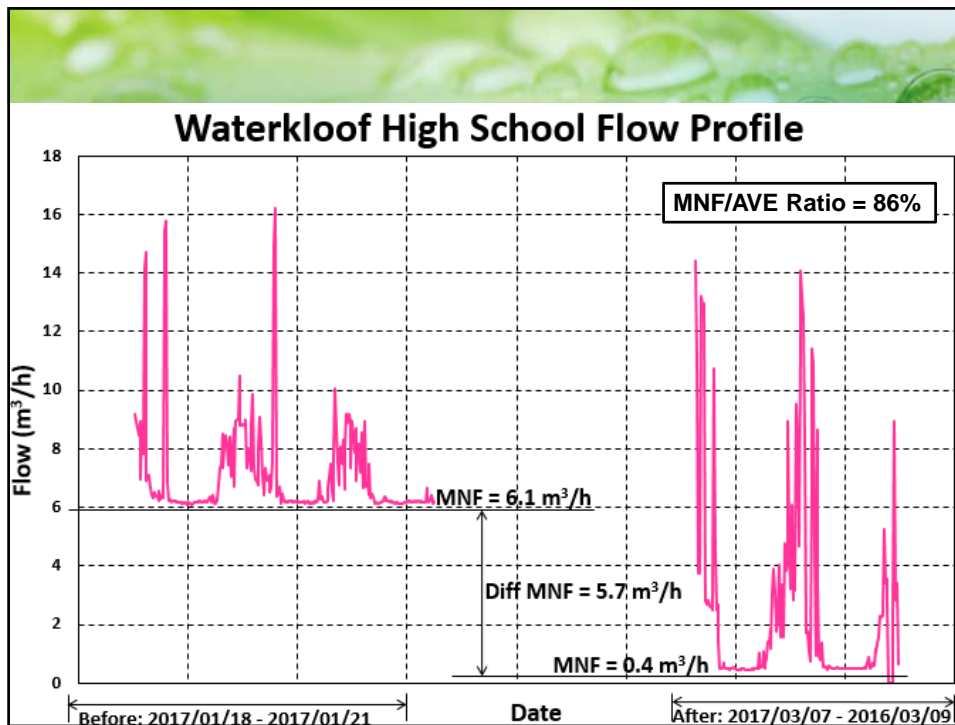
## Benefit of the Consumer Meter Audit

- Ensures that all consumers are correctly metered and billed.
- Influences the reduction in **Non-Revenue Water**.
- Results in revenue enhancement for the municipality.



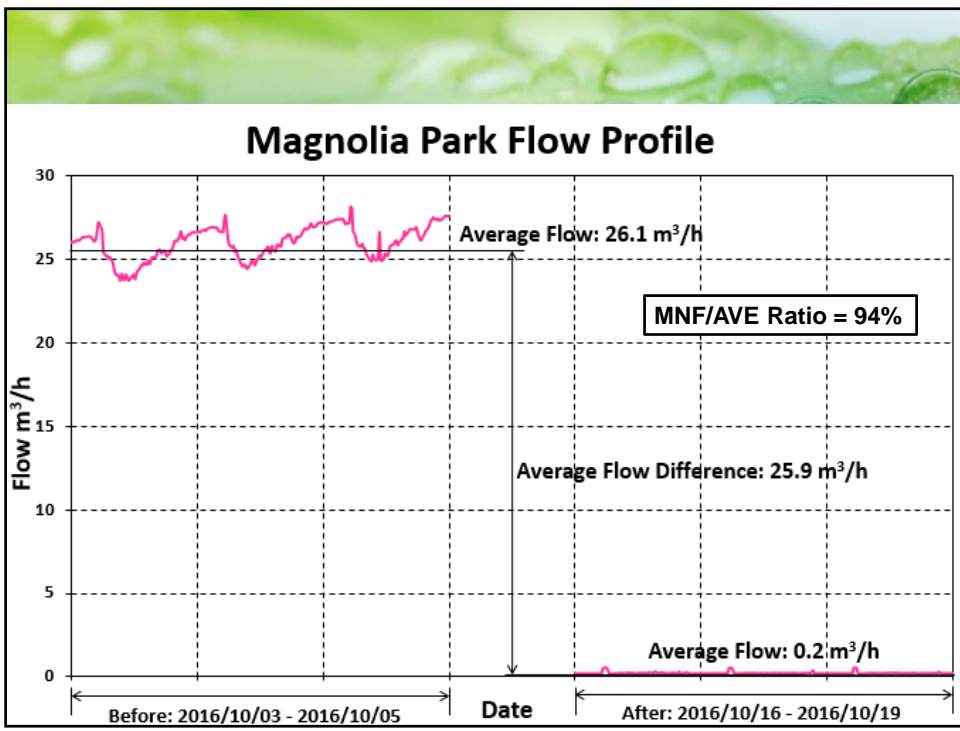
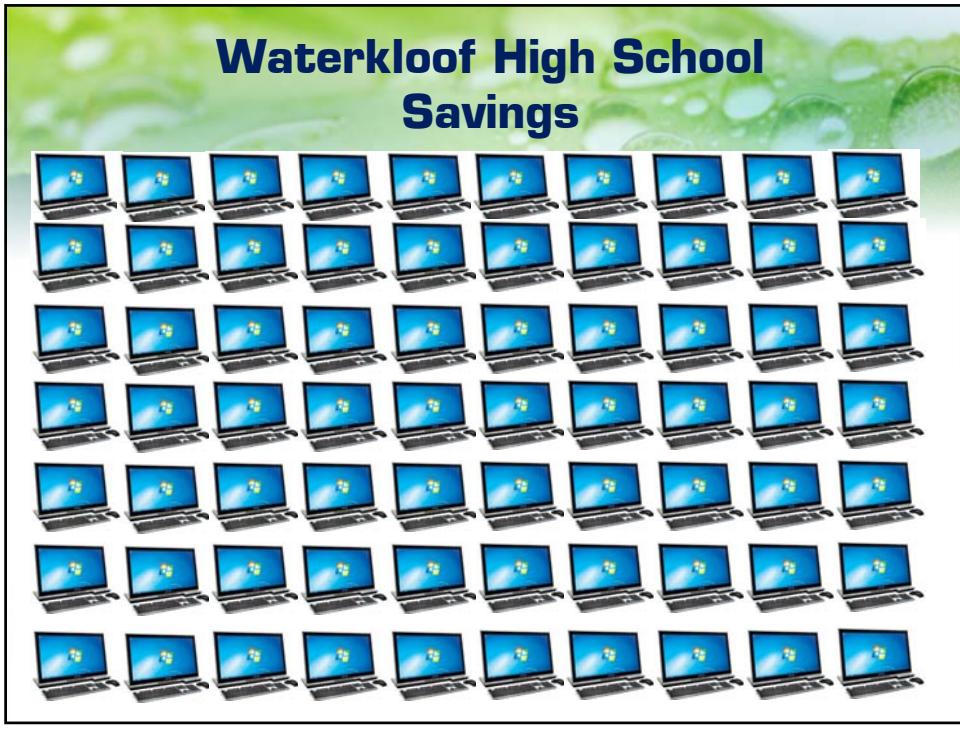
# Consumer Logging





## Waterkloof High School Leak Repair Impact Equivalent to Savings

- The consumer initially had a MNF of  $6.1 \text{ m}^3/\text{h}$ . Leak was fixed. Resultant MNF of  $0.4 \text{ m}^3/\text{h}$ .
- The consumer was only using 14% of the input volume and 86% of it going to waste.
- Therefore, drinking water going to waste is 4 392 kl/month costing the consumer R83 448/month and approximately R 1 Million in a year .



Consumer	Supply Zone	Average Flow (m <sup>3</sup> /h)	MNF (m <sup>3</sup> /h)	MNF/Ave Ratio
Dept Openbare Werke & Grondsake (Abandoned)	Akasia Bulk Direct 2	11.30	11.10	98%
TUT North College (Abandoned)	Soshanguve L Reservoir	63.10	56.40	89%
Menlyn Shopping Centre	Parkmore LL Reservoir	28.45	11.60	41%
Unisa Groenkloof Campus	Muckleneuck Reservoir	23.70	15.90	67%
SAPS Vehicle Identification/Safeguarding Unit	Iscor Reservoir	23.61	23.56	100%
Large Office Park	Doringkloof Reservoir	29.96	25.56	85%
Fountain Circle	Klapperkop Direct 1	10.46	10.24	98%
SABS	Muckleneuck Reservoir	18.9	13.6	72%
Industry 1	Moreleta Reservoir	76	64.4	85%
TUT Main Campus	Pretoria West LL	83.1	36.8	44%
<b>TOTAL</b>			<b>269.2</b>	

## Summary of Consumer Flow Logging

- **The total leakage of the 10 large consumers added up to 269.2m<sup>3</sup>/h.**
- **Leakage = 6 460m<sup>3</sup>/day**
- **Leakage = 193 824m<sup>3</sup>/month**
- **The leakage in a year represents approximately 1% of the total system input volume of the City of Tshwane.**



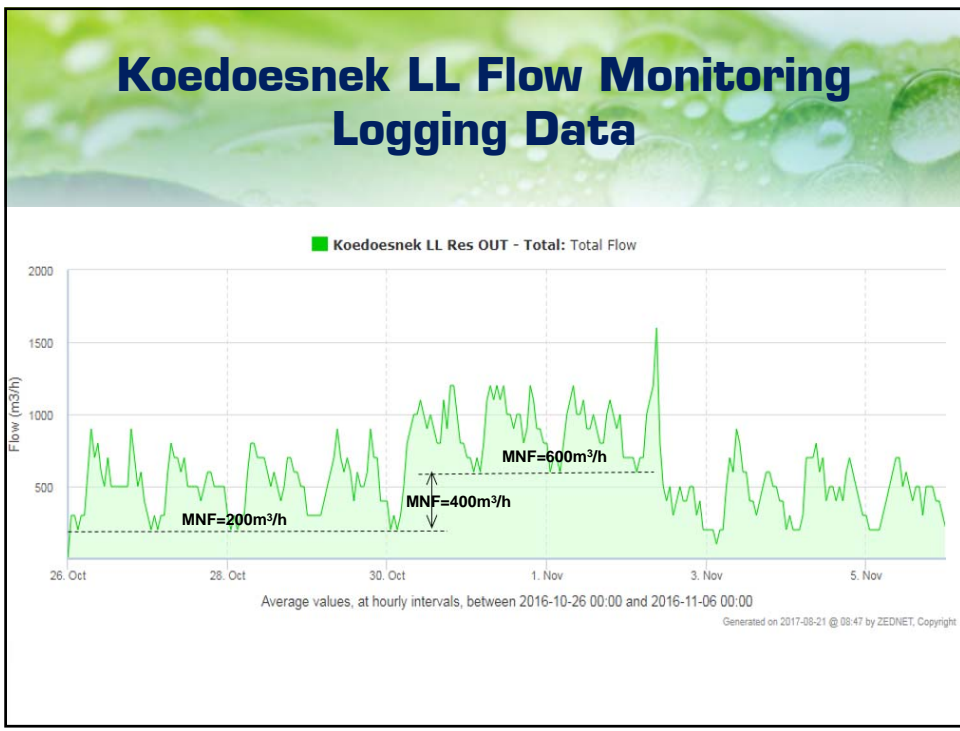
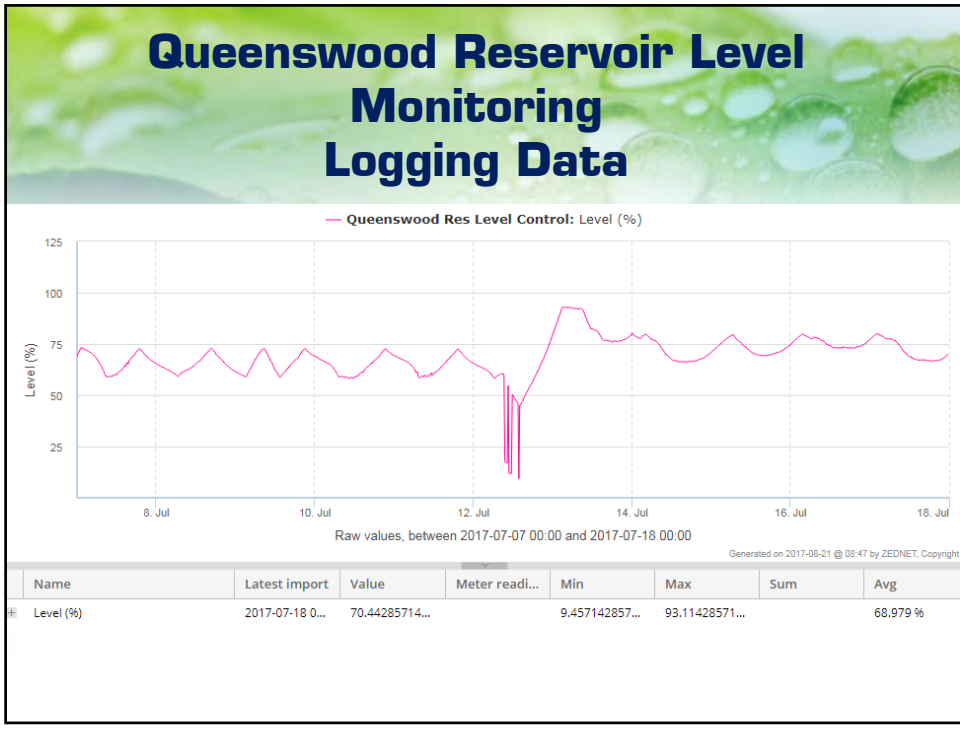


## **Monitoring of Water Systems using GSM Loggers**



## **Reservoir Installations**





## **Benefits of Monitoring Water Systems using GSM Loggers**

- **Alarms can be set to pick up problems regarding the logging.**
- **Cost is generally cheaper compared to traditional monitoring solutions .**
- **The data obtained can be utilised for the improvement of reservoir operating rules.**
- **Data can be used to calibrate hydraulic models.**
- **Assists municipality engineering and operations personnel with better monitoring**

## **Conclusion**

- **Municipalities should carry out a Consumer Meter Audit.**
- **Flow at large consumers should be logged and monitored.**
- **GSM loggers should be used to provide municipalities with a better monitoring and management solution.**

# Thank You

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