

Use of a Non-Revenue Water Pre-Feasibility Assessment Tool to Mobilise Support and Guide Decision-Making

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IWA Water Loss 2018, Cape Town

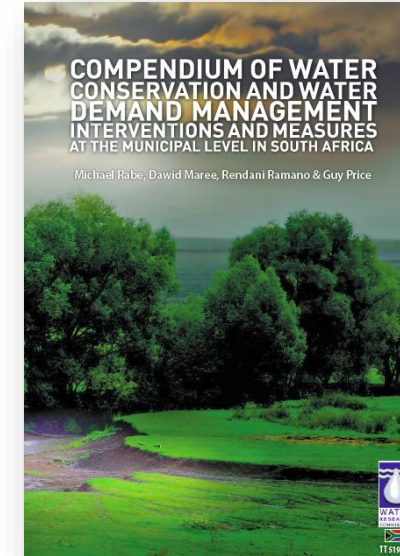
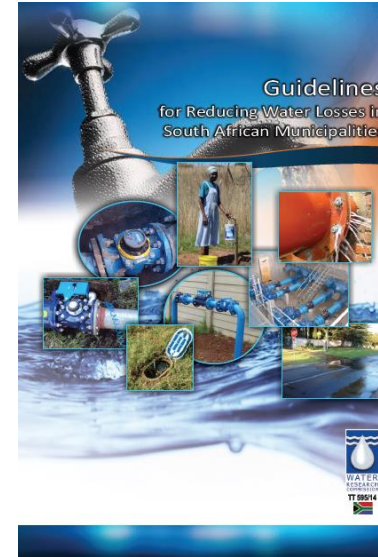
8 May 2018





Background

- SA 30th driest country in the world
- SA usage: ~223 L/capita/day
- Global usage: ~173 L/capita/day
- Non-Revenue Water (NRW) in SA: 41%
- NRW = physical losses (i.e. leaks) + apparent losses (i.e. incorrect billing) + authorised unbilled water (i.e. free basic allowance)
- Although NRW projects could have short-payback periods (3 – 4 years) → often significant barriers



NRW Project Barriers

1. Municipal capacity to develop bankable project proposals to access off-budget funding for NRW projects, and a lack of on-budget funds
2. Awareness of the potential for NRW projects and their impact on municipal revenue
3. Lack of political will to prioritise NRW projects or their feasibility studies
4. Compliance and enforcement capabilities of authorities tasked to reduce water losses

→ NRW Pre-Feasibility Tool



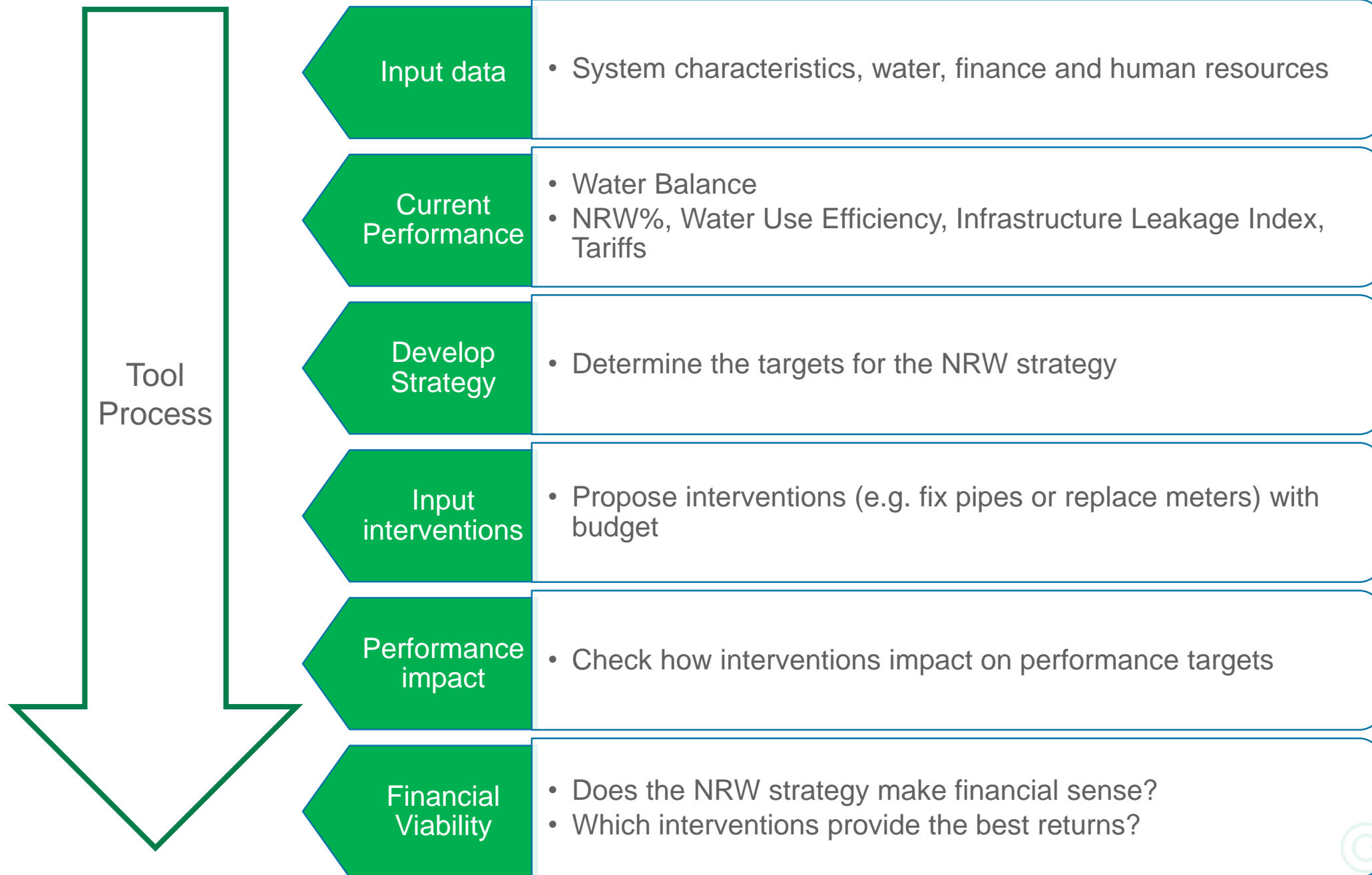
NRW Pre-feasibility Tool Concept

- With limited budget – how do you prioritise your NRW investments?
- What investments will make the biggest impact on water saving and municipal revenue?
- Could NRW bankable projects be developed?
- What is the business case for reducing NRW?



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Menu

GreenCape - Non-Revenue Water Pre-Feasibility Tool						
					Show detail	Collapse
1. Basic Inputs						
System characteristics	Water Balance	Finances	Human Resources	View All Basic Inputs		
Complete 100%	Complete 100%	Complete 100%	Complete 100%	Complete 100%		
2. Current Status						
Water Balance (IWA)	Current Performance	View all Current PIs	Initial leakage investigation			
			Unexplained Leakage	Outputs	View all	
			Complete 100%	READY		
READY						
3. What is my WC/WDM strategy?						
Prioritisation Strategy	View all Outputs					
Complete 100%	READY					
4. What WC/WDM interventions could I consider?						
Apparent Losses	Real Losses	Authorised Consumption	System Input Volume	Infrastructure	Outputs	View all

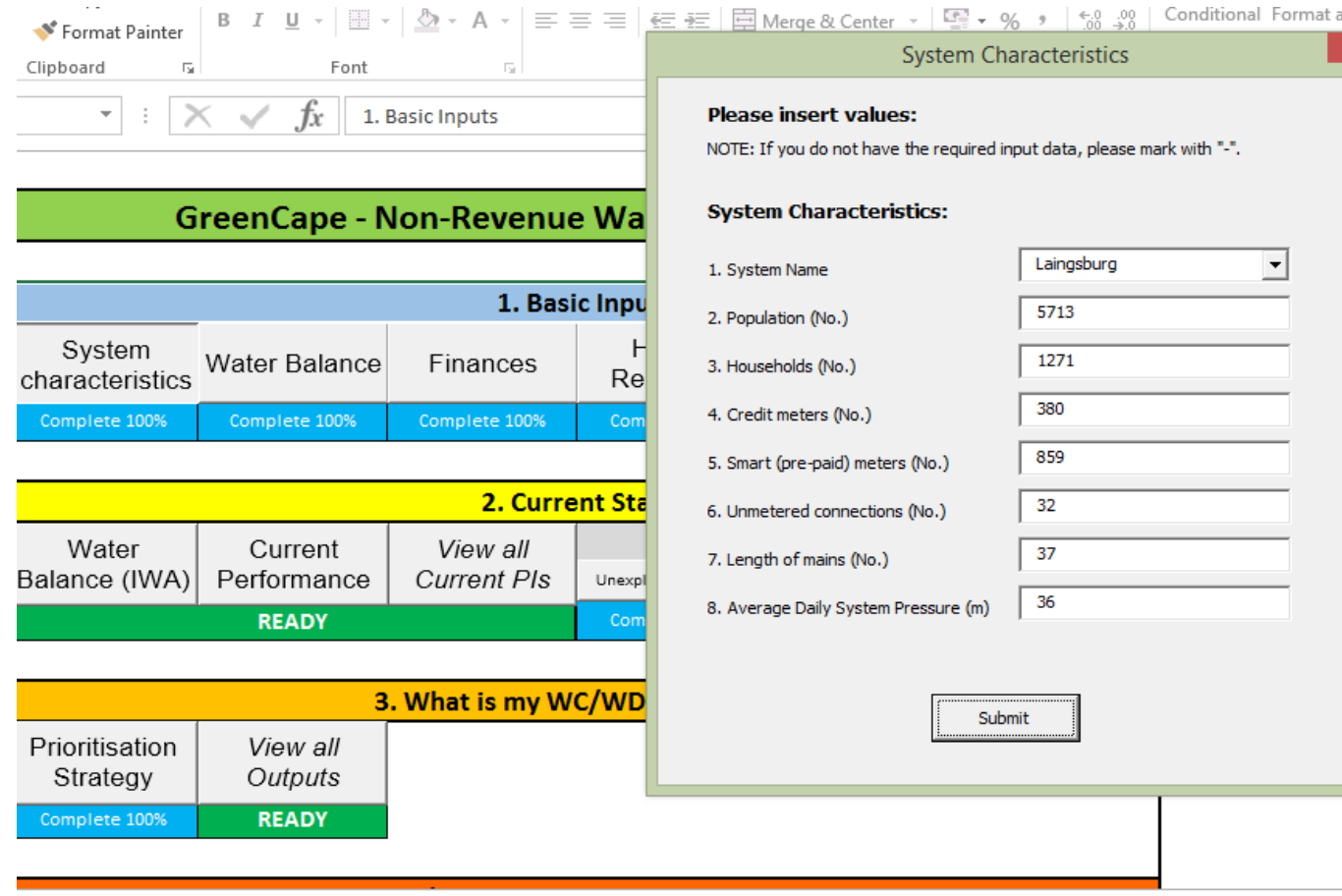
Data Input

➤ Basic inputs:

- System Characteristics
- Water Balance
- Finances
- Human Resources

➤ Accurate data = useful tool outputs

➤ Garbage in = Garbage out



The screenshot displays the 'GreenCape - Non-Revenue Water' tool interface. The main window shows a progress bar with four sections: '1. Basic Inputs' (100% complete), '2. Current Status' (READY), '3. What is my WC/WD' (READY), and '4. Human Resources' (READY). The '1. Basic Inputs' section is currently active, showing a table with columns for 'System characteristics', 'Water Balance', 'Finances', and 'Human Resources'. The 'System characteristics' column is highlighted in blue and shows 'Complete 100%'. A dialog box titled 'System Characteristics' is open, prompting the user to insert values for various system parameters. The dialog box includes a 'Please insert values:' section with a note: 'NOTE: If you do not have the required input data, please mark with "-".'. The 'System Characteristics' section lists eight items with corresponding input fields:

System Characteristics	Value
1. System Name	Laingsburg
2. Population (No.)	5713
3. Households (No.)	1271
4. Credit meters (No.)	380
5. Smart (pre-paid) meters (No.)	859
6. Unmetered connections (No.)	32
7. Length of mains (No.)	37
8. Average Daily System Pressure (m)	36

A 'Submit' button is located at the bottom right of the dialog box.

Current Performance: Water Balance

IWA Standard Water Balance

	Current
Water Balance Data	kl/annum
SIV: Own Sources	641 530
SIV: Water Imported	0
System Input Volume (Total)	641 530
Water Exported	0
Water Supplied	641 530
Authorised Consumption	381 160
Water Losses	260 370
Apparent losses	52 074
Real losses	208 296
Revenue Water	379 877
Non-Revenue Water	261 653

Own Sources 641 530 kl/annum	System Input Volume 641 530 kl/annum	Water Exported 0 kl/annum			Billed Water Exported to other Systems 0 kl/annum	Revenue Water 379 877 kl/annum
		Water Supplied 641 530 kl/annum	Authorised Consumption 381 160 kl/annum	Billed Authorised Consumption 379 877 kl/annum	Billed Metered Consumption 379 877 kl/annum	
				Billed Unmetered Consumption 0 kl/annum		
Water Imported 0 kl/annum			Water Losses 260 370 kl/annum	Unbilled Authorised Consumption 1 283 kl/annum	Unbilled Metered Consumption 0 kl/annum	Non-Revenue Water 261 653 kl/annum
				Water Losses 260 370 kl/annum	Unbilled Unmetered Consumption 1 283 kl/annum	
	Real Losses 208 296 kl/annum	Unauthorised Consumption				
		Customer Meter Inaccuracies				
		Leakage on Transmission and Distribution Mains				
	Leakage and Overflows at Storage Tanks					
		Leakage on Service Connections up to point of Customer Meter				

Current Performance: Summary

What is my current performance?

Current Status	Performance	DWS No Drop Categorisation	Comment (see Figure alongside)
Non-Revenue Water (NRW) (%)	40.8%	Extremely poor non-revenue water management	If unacceptable, aim to reduce your real/physical losses, apparent losses and unbilled authorised consumption.
Non-Revenue Water (NRW) (L/conn/day)	564	N/a	
Water Use Efficiency (WUE) (l/capita/day)	308	Extremely high per capita water use	If unacceptable, aim to reduce your authorised consumption
Infrastructure Leakage Index (ILI)	9	Extremely inefficient water use	If unacceptable, aim to reduce your real/physical losses
Are our tariffs appropriate?	Performance	Comment	
1. Water Revenue / Water Operating Expenditure	0.7	Will always make a loss - difficult to run this water business	
2. Average Selling Price / Average Marginal Production Cost Price	1.1	Might be difficult to balance the books	NOTE: If the above ratio is significantly greater than 2, may need to investigate increasing your billing base within the municipality.
3. Highest Tariff / Lowest Tariff (ignore FBW (e.g. 0 - 6 kL))	4.0	A value of >2 is recommended	As a general rule, the highest tariff rate should at least be double the lowest tariff rate.
Are our tariff blocks appropriate?	kl/HH/month	L/capita/day	Block Volume / Current WUE
Low	7	52	0.17
High	351	2600	8.45

Menu	Home
DWS No Drop Categorisation	
DWS No Drop Non-Revenue Water (NRW) (%) Performance Categories	
>40%	Extremely poor non-revenue water management
30-40%	Poor non-revenue water performance
20-30%	Average performance with potential for marked improvement
10-20%	Good performance but some improvement may be possible subject to economic benefit
<10%	Excellent non-revenue water management
Average per capita water use with potential for marked improvement	

Tariff step question

Tariff comparison

- Tariff blocks/steps are intended to drive down demand as well as generate revenue for the municipality from high users

TARIEWEBOEK VIR 2017/2018

BESONDERHEDE	METING	TARIEWE 2016/2017 (BTW UIT)	TARIEWE 2017/2018 (BTW UIT)
<u>WATERGELDE</u>			
<u>Huishoudelik</u>			
Minimum gelde	R/ maand	100.10	107.02
- eerste 6kl ingesluit per maand	gratis		
Oorwater:			
7 - 100 kl	R/ kiloliter	3.37	3.59
101 - 150 kl	R/ kiloliter	3.37	3.59
151 - 250 kl	R/ kiloliter	6.81	7.26
251 - 350kl	R/ kiloliter	10.21	10.88
351kl +	R/ kiloliter	13.62	14.52
Oorwater: Drogte tye (Raad kondig af)			
7 - 100 kl	R/ kiloliter	5.18	5.52
101 - 150 kl	R/ kiloliter	10.43	11.12
151 - 250 kl	R/ kiloliter	13.81	14.72
251 - 350kl	R/ kiloliter	20.70	22.07
351kl +	R/ kiloliter	27.60	29.42

Residential Water Tariffs (Domestic Full and Domestic Cluster)		
Water Steps (1kl = 1 000 litres)	Level 4 (2017/18) Until 31/1/2018 Rands (incl VAT)	Level 6 (2017/18) From 1/2/2018 Rands (incl VAT)
Step 1 (>0 ≤ 6kl)	R4, 56 (free for indigent households)	R29, 93 (free for indigent households)
Step 2 (>6 ≤ 10.5kl)	R17, 75	R52, 44 (R 17, 75 for indigent households)
Step 3 (>10.5 ≤ 20kl)	R25, 97	R114
Step 4 (>20 ≤ 35kl)	R43, 69	R342
Step 5 (>35 ≤ 50kl)	R113, 99	R912
Step 6 (>50kl)	R302, 24	R912

Initial Leakage Investigation

Unexplained Leakage

OUTPUTS		
3	Unexplained or Unaccounted for leakage	
	Expected background leakage	4.01 m3/hr
	Expected normal night use	5.1 m3/hr
	Total expected night use	9.14 m3/hr
	Measured minimum night flow	25.9 m3/hr
	Unexplained or Unaccounted for Leakage	16.76 m3/hr
NOTE: The above provides an estimate of the potential unexplained/unaccounted for leakage (i.e. water loss). Interventions to address this current situation should be investigated.		
	Unexplained or Unaccounted for Leakage	146 835 kl/annum
	Calculated Water Losses (from current Water Balance)	260 370 kl/annum
	Unexplained or Unaccounted for Leakage as a percentage of current water losses	56%
	Targeted Water Loss Reduction (from Prioritisation Strategy)	104 148 kl/annum
	Targeted water loss reduction as a percentage of Unexplained or Unaccounted for Leakage	71%
NOTE: Your targeted water loss reduction is within your unexplained/unaccounted for leakage. Please proceed to investigate your NRW intervention options.		

Develop Strategy: Determine Priorities

Prioritisation Strategy

Please insert values:

NOTE: If you do not have the required input data, please mark with "-".

Prioritisation Strategy:

1. Reduce apparent / commercial losses (%)

2. Reduce real / physical losses (%)

3. Reduce unbilled authorised consumption losses (%)

4. Increase water use efficiency (reduce authorised consumption) (%)

5-Year Projections	Year 0 (Current Status)	Year 1	Year 2	Year 3	Year 4	Year 5	
Non-Revenue Water (NRW) (%)	40.8%	37.5%	34.3%	31.0%	27.7%	24.5%	
	Extremely poor non-revenue water management	Poor non-revenue water performance	Poor non-revenue water performance	Poor non-revenue water performance	Average performance with potential for marked improvement	Average performance with potential for marked improvement	
Non-Revenue Water (NRW) (L/conn/day)	564	519	474	429	384	338	
Water Use Efficiency (WUE) (l/capita/day)	308	296	284	272	260	249	
	Extremely high per capita water use	Poor per capita water use	Poor per capita water use	Poor per capita water use	Poor per capita water use	Average per capita water use with potential for marked improvement	
Infrastructure Leakage Index (ILI)	9.4	8.7	7.9	7.2	6.4	5.7	
	Extremely inefficient water use	Extremely inefficient water use	Poor leakage record	Poor leakage record	Poor leakage record	Average with potential for marked improvement	
Savings	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	After 5 years
Water Volume Savings (kl/annum)	N/A	24 744	49 488	74 232	98 975	123 719	371 158
Water Financial Savings (R/annum)	N/A	R 101 994	R 203 989	R 305 983	R 407 977	R 509 972	R 1 529 915

What is needed to achieve this?

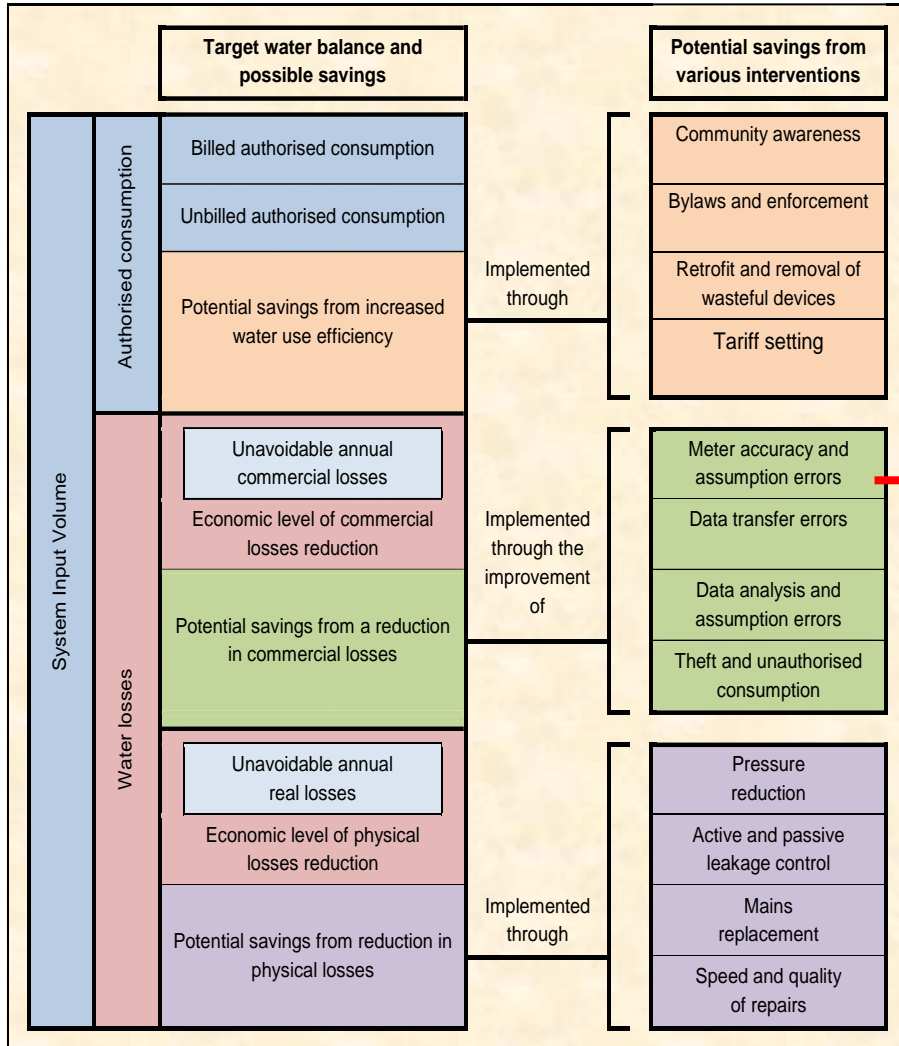
Intervention Examples

Intervention	No / limited WC/WDM Programme	Basic WC/WDM Programme	Advanced WC/WDM Programme
Institutional			
Fill vacancies	X	X	X
Establish water loss task team	X	X	X
Review policies / bylaws		X	X
Training and capacity building			X
Financial			
Effective metering and billing : Non-domestic	X	X	X
Effective metering and billing : Domestic		X	X
Review water tariffs		X	X
Social			
Awareness : Internal	X	X	X
Awareness : Schools and institutions	X	X	X
Awareness : Stakeholders and community		X	X
Effective customer care centre		X	X
Informative billing			X

Courtesy: Willem Wegelin (WRP)

Intervention	No / limited WC/WDM Programme	Basic WC/WDM Programme	Advanced WC/WDM Programme
Technical			
Develop WDM strategy and business plan	X	X	X
Bulk metering total supply	X	X	X
Bulk metering and sectorisation : Zones		X	X
Bulk metering and sectorisation : Districts			X
Leak repairs : Reticulation network	X	X	X
Leak repairs : Private properties	X	X	X
Consumer metering : Non-domestic	X	X	X
Consumer metering : Domestic		X	X
Analysis : Water balance	X	X	X
Analysis : Night flow analysis			X
Pressure management		X	X
Asset management : Control valves	X	X	X
Asset management : Valve audits & reticulation		X	X
Asset management : Selective mains replacement			X

Tool Scenarios – Interventions



Scenarios Analysed	
A	Apparent (Commercial) Losses
A1	Theft and Unauthorised Consumption (Illegal Connections)
A2	Meter Accuracy and Assumption Errors
A3	Data Transfer Errors/Data Analysis and Assumption Errors (Management Information Systems)
B	Real (Physical) Losses
B1	Leakage and Overflows at Storage Tanks
B2	Mains Replacement (Leakage on Transmission and Distribution Mains)
B3	Pressure Reduction (Pressure Management) and Rezoning
B4	Speed and Quality of Repairs
B4.1	Repairing Mains Bursts and Leaks
B4.2	Repairing Service Connections/Fittings (Water Meters, Valves) Leaks
C	Authorised Consumption
C1	Metering of All Customers
C2	Revenue Collection Efficiency
C2.1	Collect all revenue that is currently billed
C2.2	Ensure all registered customers are billed
C3	Smart Metering
C4	Retrofit and Removal of Wasteful Devices (War on Leaks/Forced Household Leak Repair Programme)
C5	Community Awareness (educate consumers to reduce water wastage and inefficient use)
D	System Input Volume
D1	Installation of New Bulk Water Meters
E	Infrastructure
E1	Deferred Capital Costs

Courtesy: Willem Wegelin (WRP)

Complete Scenarios – Interventions

	A	D	G	H	I	J	K	L	M	N	O	P	Q	R
9														
10		Water Bala												
11		(IWA)												
12														
13														
14														
15		Prioritisation												
16		Strategy												
17		Complete 100												
18														
19														
20		Apparent												
21		Losses												
22		Complete 100												
23														
24														
25		Water Bala												
26		(IWA)												
27														
28														
29														
30		NPV Discount F												
31		Net Present V												
32		(NPV)												

Apparent Losses

Please insert values:

NOTE: If you do not have the required input data, please mark with "-".

A1 - Theft and Unauthorised Consumption (Illegal Connections)

1. Estimated illegal connections as a proportion of total service connections (%)

2. Targeted illegal connections as a proportion of total service connections (%)

3. Illegal Connection Reduction Programme (Additional, not currently budgeted) (Year 0) (R)

4. Annual on-going Illegal Connection Reduction Programme costs (Additional, not currently budgeted) (Year 1 onwards) (R)

A2 - Customer Meter Inaccuracies

Meter Age

5. Meters < 5 years old (%)

6. Meters 5 - 10 years old (%)

7. Meters >10 years old (%)

Drinking-Water Quality - Compliance to drinking-water quality standards (SANS 241)

8. Turbidity (%)

9. pH (%)

Consumer Meter Replacement Programme

10. Number of meters to be purchased and installed (No.)

11. Average cost to purchase and install consumer meter (R/meter)

A3 - Data Transfer Errors/Data Analysis and Assumption Errors (Management Information Systems)

12. Current data transfer

13. New Management Information System (MIS) (Additional, not currently budgeted) (project cost) (Year 0) (R)

14. Annual license fees/maintenance costs for MIS (Year 1 onwards) (R)

15. New data transfer

Scenarios considered for Laingsburg



➤ Considered existing Laingsburg desirable project list

1. Apparent/commercial losses

- ✓ Reduce illegal connections
- ✓ Replace old meters
- ✓ Improve Management Information System

2. Real/physical losses

- ✗ Reducing leakage/overflow at reservoirs
- ✓ Mains replacement
- ✓ Pressure management
- ✓ Repairing bursts and leaks

3. System Input Volume

- ✓ Installation of new bulk meters

4. Authorised consumption

- ✓ Metering all customers
- ✓ Collecting all revenue
- ✓ Billing all customers
- ✓ *Smart metering?*
- ✓ Retrofitting and removing wasteful devices
- ✓ Community awareness

5. Infrastructure

- ✓ Deferred capital costs








Water Balance (Before and After Interventions)

Own Sources 600 000 kl/annum	System Input Volume 600 000 kl/annum	Water Exported 0 kl/annum			Billed Water Exported to other Systems 0 kl/annum	Revenue Water 350 000 kl/annum			
					Billed Metered Consumption 350 000 kl/annum				
					Billed Unmetered Consumption				
Water Imported 0 kl/annum	System Input Volume 600 000 kl/annum	Own Sources 600 000 kl/annum 454 664 145 336	System Input Volume 600 000 kl/annum 454 664 -145 336	Water Exported 0 kl/annum			Billed Water Exported to other Systems 0 kl/annum	Revenue Water 350 000 kl/annum 329 520 -20 480	
				Water Supplied 600 000 kl/annum 454 664 -145 336	Authorised Consumption 355 000 kl/annum 338 440 -16 560	Billed Authorised Consumption 350 000 kl/annum 329 520 -20 480	Billed Unmetered Consumption 0 kl/annum		
						Unbilled Authorised Consumption 5 000 kl/annum 8 920 3 920	Unbilled Metered Consumption	Free Basic Water	
		Water Imported 0 kl/annum 0 0			Water Losses 245 000 kl/annum 116 224 -128 776	Apparent Losses 49 000 kl/annum 19 600 -29 400	Unauthorised Consumption	Non-Revenue Water 250 000 kl/annum 125 144 -124 856	
						Real Losses 196 000 kl/annum 96 624 -99 376	Customer Meter Inaccuracies		
							Leakage on Transmission and Distribution Mains		
									Leakage and Overflows at Storage Tanks

Updated Performance (if we implemented all interventions)

Updated Performance				Menu	Home
	Original Performance	Updated Performance	DWS No Drop Categorisation		
Non-Revenue Water (NRW) (%)	40.8%	21.3%	Average performance with potential for marked improvement		
Non-Revenue Water (NRW) (L/conn/day)	564	294	N/a		
Water Use Efficiency (WUE) (l/capita/day)	308	238	Average per capita water use with potential for marked improvement		
Infrastructure Leakage Index (ILI)	9	5	Average with potential for marked improvement		

DWS No Drop Categorisation			
DWS No Drop Non-Revenue Water (NRW) (%) Performance Categories			
	>40%	Extremely poor non-revenue water management	
	30-40%	Poor non-revenue water performance	
	20-30%	Average performance with potential for marked improvement	
	10-20%	Good performance but some improvement may be possible subject to economic benefit	
	<10%	Excellent non-revenue water management	

Does this make financial sense?



Are we talking
the CFO's
language?



5. Updated Status					
Water Balance (IWA)	Updated Performance	View all Updated PIs			
READY					
6. Do these interventions make financial sense?					
NPV Discount Rate	Select projects for NPV calculations		Influence of...		
Net Present Value (NPV)	Deferred Capital Costs	Increased Manpower Cost	Value of Water Savings	NRW Interventions CAPEX and OPEX Costs	NRW Interventions Running Costs
Information on NPV	on NPV				
7. Useful Resources					
Infographic of Results	WRC Resources	How to use the Tool	Help		

Value Impact Assessment

	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1														
2		The Value Impact Assessment model												
3														
4		The Value Impact Assessment model considers operational costs (labour, maintenance, etc.), capital cost recovery, inflation, required return on investment and risk. The model also calculates:												
5														
6														
7														
8		<ul style="list-style-type: none">• Net Present Value (NPV)												
9		<ul style="list-style-type: none">• Sensitivity Analysis												
10		<ul style="list-style-type: none">• Cost to Benefit Ratio (CBR)												
11														
12		<u>Net Present Value (NPV)</u>												
13		The NPV cost analysis method is mathematically expressed as:												
14														
15		$NPV = \sum_{t=0}^{\infty} \frac{C_t}{(1+r)^t}$												
16														
17		Where:												
18		C_t = Cash flow expected at time t												
19		r = Discount rate												
20														

Discount Rate on NPV

Please insert values:

NOTE: If you do not have the required input data, please mark with "-".

Discount Rate used to find NPV values in all years:

1. Inflation (%) (Default)	<input type="text" value="6"/>
2. Hurdle rate for investment (%) (Municipality does not require return on investment)	<input type="text" value="0"/>
3. Technological Risk (%) (Risk associated with technology - most proposed NRW interventions previously proven in SA)	<input type="text" value="0"/>
4. Social Risk (%) (Risk associated with public perception of NRW technology)	<input type="text" value="0"/>

Submit

Project Selection to Calculate Value Impact Assessment

- Selected all interventions that had been analysed
- Can change project list to suit needs (untick) or change additional manpower requirements

Select Projects

Please insert values:

Please select the projects that will form part of the NPV calculations.

A - Apparent (Commercial) Losses

☒ A1 - Theft and Unauthorised Consumption (Illegal Connections)

☒ A2 - Customer Meter Inaccuracies

☒ A3 - Data Transfer Errors/Data Analysis and Assumption Errors (Management Information Systems)

B - Real (Physical) Losses

☒ B1 - Leakage and Overflows at Storage Tanks

☒ B2 - Mains Replacement (Leakage on Transmission and Distribution Mains)

☒ B3 - Pressure Reduction (Pressure Management) and Rezoning

B4 - Speed and Quality of Repairs

☒ B4.1 - Repairing Mains Bursts and Leaks

☒ B4.2 - Repairing Service Connections / Fittings (Water Meters, Valves) Leaks

C - Authorised Consumption

☒ C1 - Metering of All Customers

C2 - Revenue Collection Efficiency

☒ C2.1 - Collect all revenue that is currently billed

☒ C2.2 - Ensure all registered customers are billed

☒ C3 - Smart Metering

☒ C4 - Retrofit and Removal of Wasteful Devices (War on Leaks / Forced Household Leak Repair Programme)

☒ C5 - Community Awareness (educate consumers to reduce water wastage and inefficient use)

D - System Input Volume

☒ D1 - Installation of New Bulk Water Meters

Additional Manpower

NOTE: If you do not have the required input data, please mark with "-".

To implement, operate and maintain these projects / interventions, you will require the following additional manpower:

New technicians required:

1

New supervisors required:

1

Personnel training required:

5

Submit



Value Impact Assessment

- ✓ Positive NPV
- ✓ CBR > 1
- Remove projects from list to see influence on NPV and CBR
- Use sensitivity analysis to check influence of key parameters on NPV

	A	E	F	G
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				

Net Present Value (NPV)	Total NPV	Cost Benefit Ratio (NPV of Benefits / NPV of Costs)
5 year assessment	R 907 685	1.08
Comment	If NPV > 0, then favourable.	If CBR > 1, then favourable.

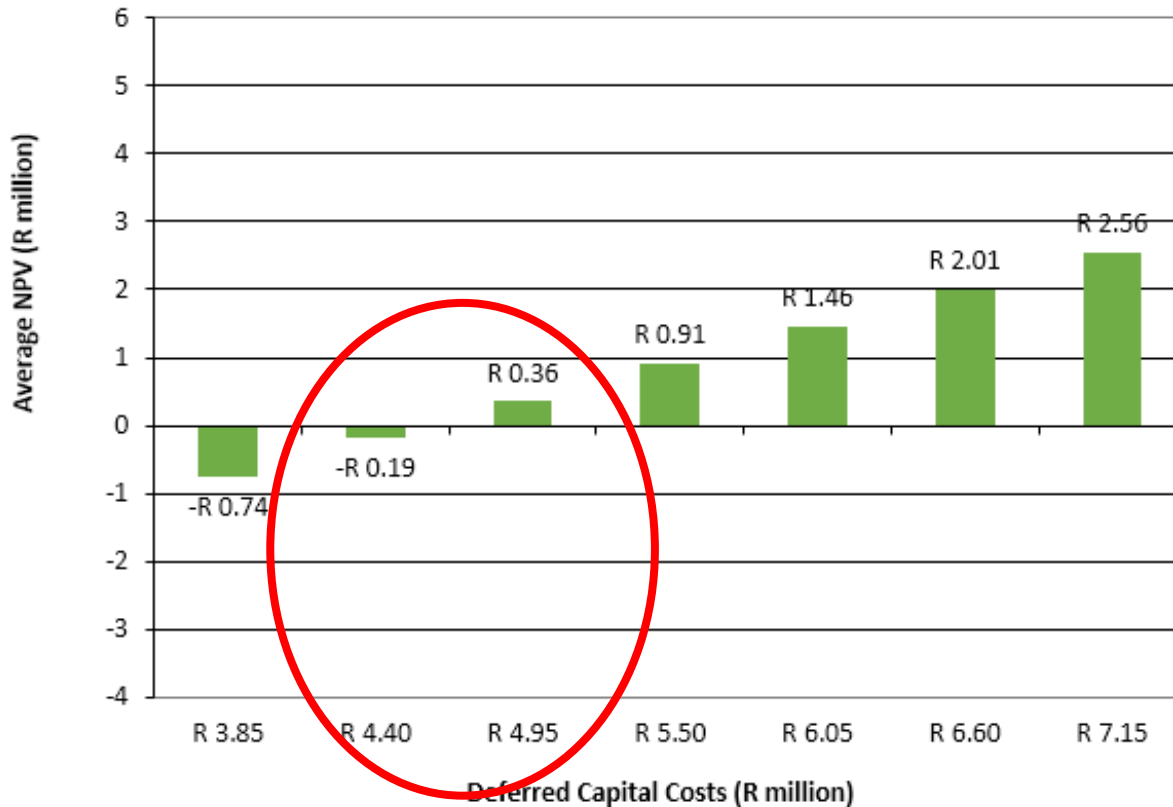
Click on the **BUTTONS** below to view different influences on NPV.

Deferred Capital Costs	Increased Manpower Cost	Value of Water Savings	NRW Interventions CAPEX and OPEX Costs	NRW Interventions Running Costs
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Value Impact Assessment: Sensitivity Analysis

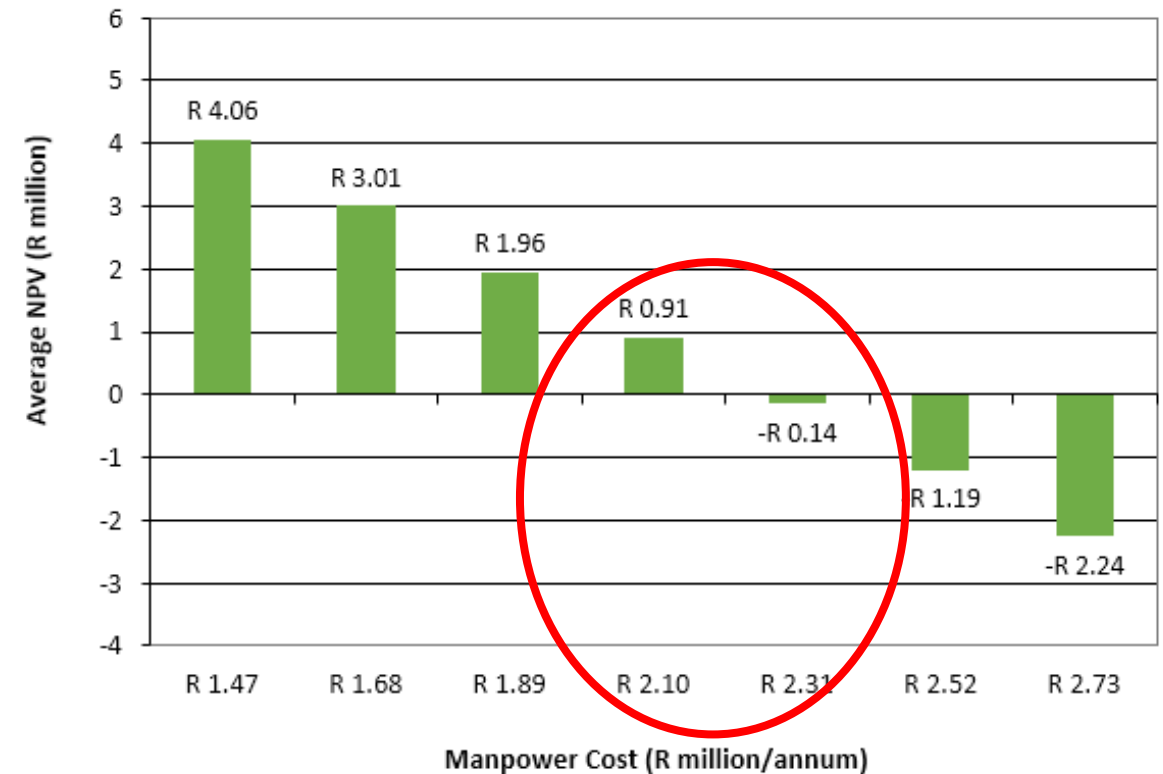
-30% to +30%

Influence of Deferred Capital Costs on NPV



-30% to +30%

Influence of increased Manpower Costs (due to NRW interventions) on NPV



Top Priority Interventions

- Bulk meter installation (accurate water balance)
- Implement “no cost” projects:
 - Remove illegal connections
 - Improve speed and quality of repairs
 - Improve revenue collection efficiency
 - Validate/calibrate smart meters
- Implement short payback interventions:
 - Meter all customers (cost = R25,600, payback = 0.4 years)
 - Pressure reduction (cost = R1,8 million, payback = 3.3 years)
 - Improve data transfer errors (cost = R200,000, payback 4.3 years)



Net Present Value (NPV)	Total NPV	Cost Benefit Ratio (NPV of Benefits / NPV of Costs)
5 year assessment	R 2,154,885	1.21
Comment	If NPV > 0, then favourable.	If CBR > 1, then favourable.



Findings and Conclusions

- Pilot study
 - Pre-feasibility assessment – interventions make sense (theoretically)
 - Mayor and Councilors of Laingsburg have adopted tool to help address their NRW issues
 - Other key concerns remain: tariffs steps and smart metering
- Further tool refinement
 - IMESA funding
 - Test at additional municipalities
- Interested in learning more?
 - Contact Claire or Philip for more info









Non-Revenue Water Pre-Feasibility Tool

Version 1.0 - November 2017


Developed by:



Partner Organisations:

Assisted by:



About

Non-Revenue Water (NRW) is a significant problem for many municipalities in South Africa, with average national NRW of approximately 39% and average per capita consumption approximately 223 litres (DWS, 2017). Halving current water losses equates to approximately R6 billion (considering a production cost of R7.60/kl, and excluding additional income from improved metering and billing, deferred capital costs and electricity savings) (DWS, 2017). This indicates that there is definitely scope for improvement. Although NRW reduction projects can have short pay-back periods (typically 3 or 4 years), significant barriers to developing these projects often exist at municipalities, including:


- 1) Municipal capacity to develop bankable project proposals to access off-budget funding for NRW projects, and a lack of on-budget funds,
- 2) Awareness of the potential for NRW projects and their impact on municipal revenue,
- 3) Lack of political will to prioritise NRW projects or their feasibility studies, and
- 4) Compliance and enforcement capabilities of authorities tasked to reduce water losses

In order to address some of these barriers, a project was initiated by GreenCape to assist municipalities with developing a pre-feasibility assessment of a municipality's water business to highlight the potential opportunities that a NRW programme may have for the financial outcomes of the municipality. Such an assessment could be used to mobilise support for a NRW programme from possible funders, and also from the political and financial leadership in the

Your Water Conservation and Water Demand Management (WCWDM) Strategy should consider the following aspects:

1. Where are you now?
2. Where do you want to go?
3. What interventions are you proposing to get there?
4. How far have you proceeded with implementation of your interventions?

This tool helps you with considering steps 1 - 3 of your WCWDM strategy.



Thank you!

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