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Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

IMPLEMENTATION AND MAINTENANCE OF THE WATER RECONCILIATION STRATEGY FOR RICHARDS BAY AND SURROUNDING TOWNS

Strategy Steering Committee Meeting (StraSC) 2

Tuesday, 4 December 2018

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Water and Sanitation
REPUBLIC OF SOUTH AFRICA

IMPLEMENTATION AND MAINTENANCE OF THE WATER RECONCILIATION STRATEGY FOR RICHARDS BAY AND SURROUNDING TOWNS

Strategy Steering Committee Meeting (StraSC) 2

Item 3: Acceptance of Agenda

AGENDA

9:30	**1. WELCOME AND INTRODUCTIONS**	DWS Chair
9:35	**2. ATTENDANCE AND APOLOGIES**	Chair
9:40	**3. ACCEPTANCE OF AGENDA**	Chair
9:45	**4. PURPOSE OF THE MEETING**	K Mandaza
9:55	**5. APPROVAL OF THE MINUTES** (StraSC 1 – 1 August 2018)	Chair
10:00	**6. MATTERS ARISING FROM StraSC 1: See Action List**	Chair
10:15	**7. STATUS OF THE STRATEGY INTERVENTIONS**	Chair
10:20	**7.1 Infrastructure (Thukela, Goedertrouw, Umfolozi)**	K Bester
10:25	**7.2 Land Care (Aliens, Illegal Forests removal)**	DWS Regional
10:30	**7.3 Seawater Desalination**	Mhlathuze Water
10:35	**7.4 Use of Treated Effluent**	CoMLM
10:40	**7.5 Billing of Irrigators**	DWS Regional
10:45	**7.6 Operational**	DWS Regional
10:50	**Tea 7 Break (15 minutes)**	
11:05	**8. OVERVIEW OF STUDY ACTIVITIES & COMPLETED TASKS**	PSP
11:10	**9. CURRENT PROGRESS**	PSP
	9.1 Task 2: Demographics and Socio Economics	
	9.2 Task 3: Water Requirements and Return Flows	
	9.3 Task 4: Water Conservation and Water Demand Management	
12:00	**10. DISCUSSION AND COMMENTS**	Chair
12:15	**11. COMMUNICATION**	PSP
12:20	**12. DATE OF NEXT MEETING**	Chair
12:25	**13. CLOSURE**	Chair
12:30	**LUNCH**	

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Strategy Steering Committee Meeting (StraSC) 2

Item 4: Purpose of the Meeting

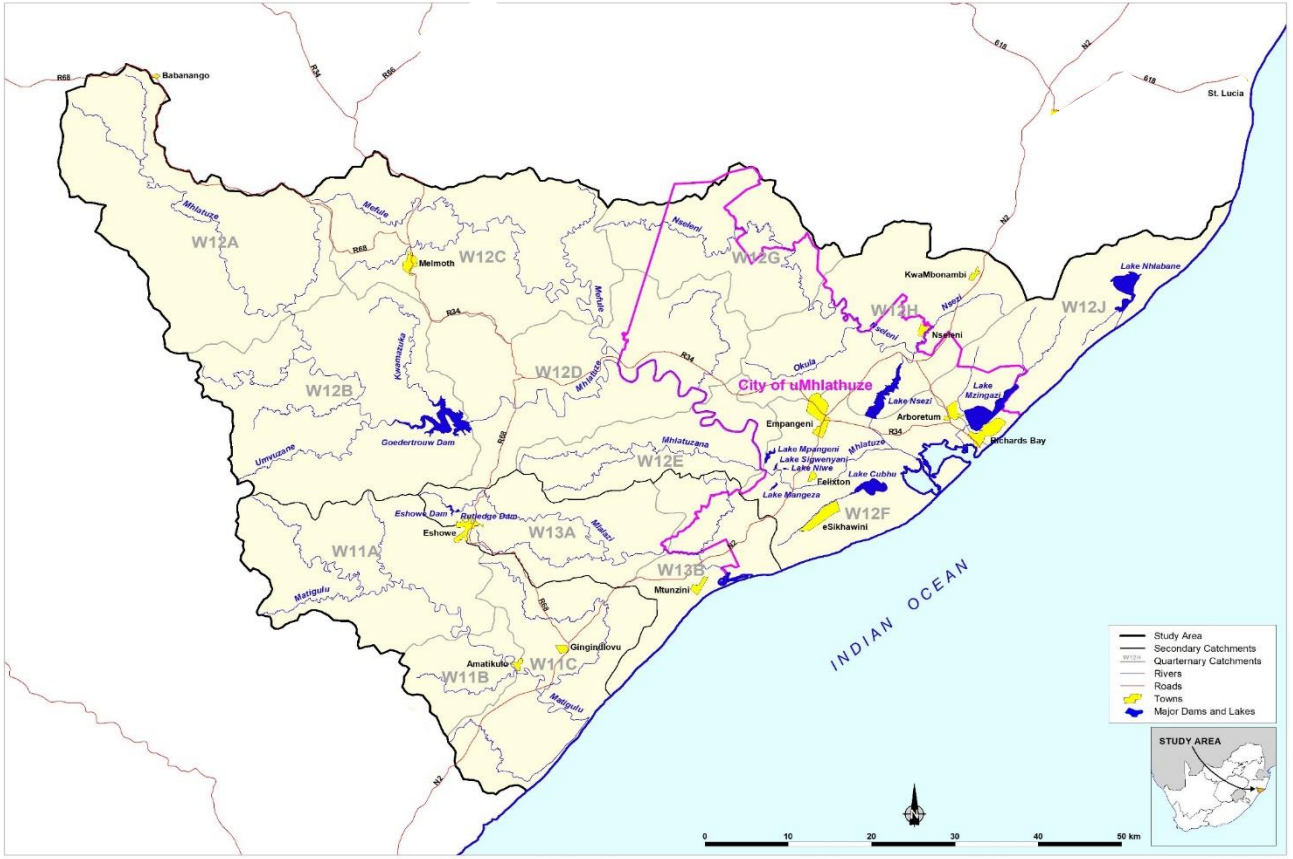
ROLE OF THE STRATEGY STEERING COMMITTEE

As members of the StraSC your responsibility is to:

- Drive processes assigned to your organization relating to Strategy Interventions
- Provide feedback to Committee on progress of Actions
- Disseminate information into the relevant departments / organisations
- Incorporate strategies' recommendations into development plans

BACKGROUND TO THIS ASSIGNMENT

- Reconciliation Strategy for the Richards Bay area was developed (2015)
- Recommends sequence of management and infrastructural interventions required to maintain acceptable assurances of supply to the users.



OUTCOMES OF PREVIOUS ASSIGNMENT

Options for reconciling increasing water requirements with the current supply in the Mhlathuze Catchment included:

- Water Conservation and Demand Management (WC/WDM)
- Removal of Invasive Alien Plants (IAPs) and unlawful afforestation
- Infrastructure: Raising Goedertrouw, Transfers: Thukela & Umfolozi, Nseleni Dam
- Improvement of System Operation

OUTCOMES OF PREVIOUS ASSIGNMENT

Options for reconciling increasing water requirements with the current supply in the Mhlathuze Catchment included:

- Seawater Desalination
- Reuse of treated effluent
- Improved billing of irrigators

Please visit: http://www6.dwa.gov.za/iwrp/projects.aspx for all project related information

Why Continuation of a Strategy? (This Study)

- Water balances need to be continuously monitored / investigated and the strategy regularly updated to remain technically relevant.
- Ensures that intervention planning can be implemented taking into account any changes that may impact on the projected water balance.
- **Study Objective:** In-depth review, systematically update and improve the water resource reconciliation strategy so that it remains **relevant, technically sound, economically viable, socially acceptable and sustainable** and thus **enabling the implementation of the strategy by the relevant authorities**.

Purpose of the Meeting

- Overview of study activities since StraSC Meeting 1
- Feedback on Strategy interventions

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Strategy Steering Committee Meeting (StraSC) 2

Item 5: Approval of Minutes &
Item 6: Matters Arising

Matters Arising: Action list

Item	Description	Organ-isation	Respons-ibility
1	Municipal representatives to prepare to provide feedback at the next StraSC meeting relating to the WC/WDM initiatives undertaken to date in the Municipalities.	KCDM uMLM	TBD
2	Attach presentation on Thukela transfer progress to date and distribute with minutes.	DWS: KZN	A. Masefield
3	DWS KZN to engage with the relevant groups through the Catchment Management Forum to assist with improving the alignment on the clearing of invasive alien vegetation.	DWS: KZN	N. Mkhize
4	Provide documentation on the success of removing invasive alien plants in the Eastern Cape.	DWS: HO	K. Bester
5	Initiate task to address illegal forestry removal through the Catchment Management Forum.	DWS: KZN	N. Mkhize
6	Provide documentation to Mhlathuze Water relating to investigations on the feasibility of desalination in the Mgeni catchment	UW	TBD
7	Obtain the design and planned URVs used for the small desalination plant from NWRIB and compare with the actual information now that the plant is operational.	PSP	L. Louw
8	Engage with Eskom regarding the possible installation of an Open Cycle Gas Turbine and their water requirements	PSP	C. Seago

Matters Arising: Action list

9	Have further engagements/discussions relating to the billing of irrigators on actual use rather than registered use.	DWS: KZN	N. Mkhize
10	Provide figures on the savings made as a result of improved operations over recent years.	DWS: KZN	A. Masefield
11	Obtain information from RBM relating to the progress of the artificial recharge.	PSP	C. Seago
12	Correct the labelling on the locality map.	PSP	C. Seago
13	Circulate the demographics report to Stakeholders via email.	PSP	C. Seago
14	Provide Mhlathuze Water updated documentation relating to their adjusted allocation after Compulsory Licensing.	DWS: KZN	TBD
15	Provide the contact details to Mhlathuze Water and Mpact to further engage DWS regarding new allocations.	DWS: HO	P Mlilo / C Seago
16	Determine the volumes relating to the General Authorisations in the catchment and propose a way forward on how this will be dealt with in the water balance.	PSP	C. Seago
17	Provide information on the historical water use for the Towns: Melmoth, Gingindlovu, Mtunzini, Amatikulu and Eshowe.	KCDM	TBD
18	Obtain further information on the potable water component of Foskor's allocation.	PSP	C. Seago
19	Consider various scenarios including actual use and allocations in the water balances.	PSP	C. Seago

Matters Arising: Action list

20	Request actual use figures for the irrigators from Celiwe Ntuli.	PSP	C. Seago
21	Include updated information on the status of interventions from the Action Plan in the Annual Status Report to be circulated to the Stakeholders.	PSP	C. Seago
22	Outside meeting request: Draft a Directive encouraging Mhlathuze Water to investigate the Feasibility of desalination for the RBWSS	DWS	A. Masefield & K. Mandaza

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Strategy Steering Committee Meeting (StraSC) 2

Item 7: Status of Strategy (2015) Interventions

7.1 INFRASTRUCTURE: THUKELA

Action	Responsibility	Timing
Initiate a comparison pre-feasibility study Increased capacity of Thuk-Mhlath Transfer scheme (Middledrift) Coastal transfer pipe at Mandini	DWS: D: OA	ASAP Very High

7.1 INFRASTRUCTURE: MFOLOZI

Action	Responsibility	Timing
Initiate a study including hydrology update, assessment of water requirements, system modelling etc.	DWS: D: OA	ASAP Very High
Initiate a comparison pre-feasibility study to compare Mfolozi transfer scheme with others	DWS: D: OA	ASAP Very High

7.1 INFRASTRUCTURE: RAISING GOEDERTROUW

Action	Responsibility	Timing
Initiate a full feasibility study to evaluate Goedertrouw raising	DWS: D: OA	ASAP Very High
Implement this scheme as soon as possible should it seem favourable	DWS	Following completion of implementation ready report

7.2 LAND CARE

Action	Responsibility	Timing
Actively support clearing programmes for alien invasive plants	All Stakeholders	Ongoing High
Investigate the reduction of illegal / commercial afforestation in immediate vicinity of coastal lakes	DWS	High

7.3 OTHER: DESALINATION

Action	Responsibility	Timing
Initiate a pre-feasibility Study to evaluate the desalination of seawater	TBD	High
Implement seawater quality monitoring for 2 years to provide baseline data for plant process design	TBD	High

7.4 OTHER: USE OF TREATED EFFLUENT

Action	Responsibility	Timing
Initiate a feasibility Study to evaluate aspects Indirect effluent reuse from Lake Mzingazi Potential uptake of treated effluent by bulk industrial users clos to Arboretum macerator	CoU LM	High

7.5 OTHER: BILLING OF IRRIGATORS

Action	Responsibility	Timing
Reinstate the billing of irrigators for actual water use	DWS: NWRI	High

7.6 OTHER: OPERATIONAL

Action	Responsibility	Timing
Determine sustainable yields of coastal lakes	DWS: NWRP	Very High
RBM: artificial recharge of Lake Nhlabane from Mfolozi River	RBM	Sokhulu by 2019
Establish additional reliable flow monitoring between Goedertrouw and Mhlathuze weir	DWS: Hydrology	High

Tea Break
(15 Minutes)

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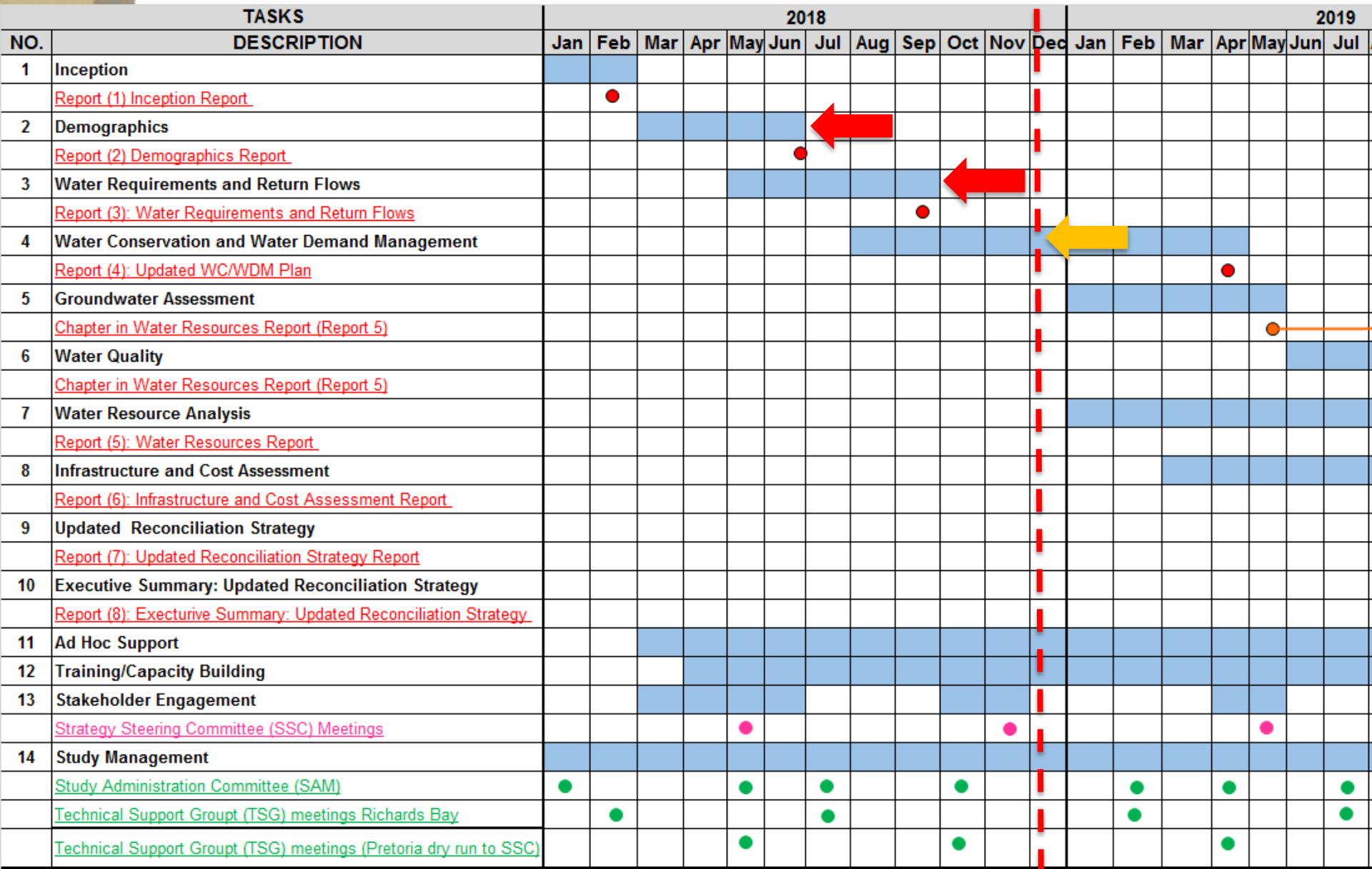
IMPLEMENTATION AND MAINTENANCE OF THE WATER RECONCILIATION STRATEGY FOR RICHARDS BAY AND SURROUNDING TOWNS

Strategy Steering Committee Meeting (StraSC) 2

Item 8: Overview of Study Activities

STUDY PROGRAMME



NO.	TASKS DESCRIPTION	2018 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2019 Jan	Feb	Mar	Apr	May	Jun	Jul
1	Inception																			
	Report (1) Inception Report																			
2	Demographics																			
	Report (2) Demographics Report																			
3	Water Requirements and Return Flows																			
	Report (3): Water Requirements and Return Flows																			
4	Water Conservation and Water Demand Management																			
	Report (4): Updated WC/WDM Plan																			
5	Groundwater Assessment																			
	Chapter in Water Resources Report (Report 5)																			
6	Water Quality																			
	Chapter in Water Resources Report (Report 5)																			
7	Water Resource Analysis																			
	Report (5): Water Resources Report																			
8	Infrastructure and Cost Assessment																			
	Report (6): Infrastructure and Cost Assessment Report																			
9	Updated Reconciliation Strategy																			
	Report (7): Updated Reconciliation Strategy Report																			
10	Executive Summary: Updated Reconciliation Strategy																			
	Report (8): Executive Summary: Updated Reconciliation Strategy																			
11	Ad Hoc Support																			
12	Training/Capacity Building																			
13	Stakeholder Engagement																			
	Strategy Steering Committee (SSC) Meetings																			
14	Study Management																			
	Study Administration Committee (SAM)																			
	Technical Support Groupt (TSG) meetings Richards Bay																			
	Technical Support Groupt (TSG) meetings (Pretoria dry run to SSC)																			

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IMPLEMENTATION AND MAINTENANCE OF THE WATER RECONCILIATION STRATEGY FOR RICHARDS BAY AND SURROUNDING TOWNS

Strategy Steering Committee Meeting (StraSC) 2

Item 9: Current Progress

9.1: TASK 2: Demographics & Socio-Economics

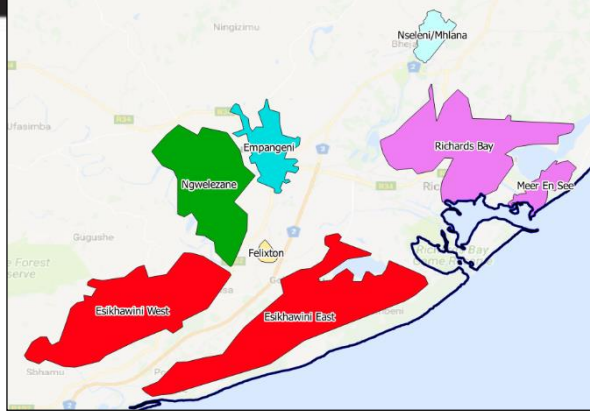


Table 3.1: High population projections

Urban Centre	2016	2020	2025	2030	2035	2040	2045
Richards Bay	57 672	63 259	71 067	79 737	89 430	100 417	112 715
Esikhaweni	164 563	178 670	197 902	218 995	242 052	267 165	295 544
Felixton	1 099	1 164	1 247	1 335	1 430	1 532	1 642
Empangeni	24 181	26 945	30 829	35 249	40 276	45 990	52 581
Ngwelezane	61 245	67 586	75 981	84 924	94 608	105 058	117 558
Nseleni	42 500	47 267	53 386	59 683	66 099	72 579	81 139
Total	**351 260**	**384 891**	**430 412**	**479 923**	**533 895**	**592 741**	**661 179**

Table 4-7: Projected Population Figures for the Realistic Population Growth Scenario within the Broader Study Area

Area/Town	Population Figures						
	2016	2018	2020	2025	2030	2035	2040
Other Towns in the Broader Study Area							
Eshowe Town	9 386	9 593	9 804	10 353	10 933	11 546	12 192
Gingindlovu Town	1 153	1 171	1 189	1 236	1 284	1 335	1 387
Mtunzini Town	2 266	2 307	2 349	2 456	2 568	2 686	2 808
Melmoth Town	8 252	8 434	8 620	9 102	9 612	10 151	10 719
Amatikulu Town	536	545	553	576	600	624	650
Totals Towns	**21 593**	**22 050**	**22 515**	**23 723**	**24 997**	**26 342**	**27 756**

Title: Economic Growth and Demographic Analysis Report
Authors: Russell Aird and Nepia Zivanai
Project Name: Implementation and Maintenance of the Water Reconciliation Strategy for Richards Bay and Surrounding Towns
DWS No: P WMA 04/W100/00/9218
Status of Report: Final
First Issue: August 2018

Consultants: BJE/iX/WRP Joint Venture
Approved for the Consultants by:

L Louw
Study Leader

DEPARTMENT OF WATER AND SANITATION
Directorate National Water Resource Planning
Approved for the Department of Water and Sanitation by:

K Mandaza
Project Manager: National Water Resource Planning (East)

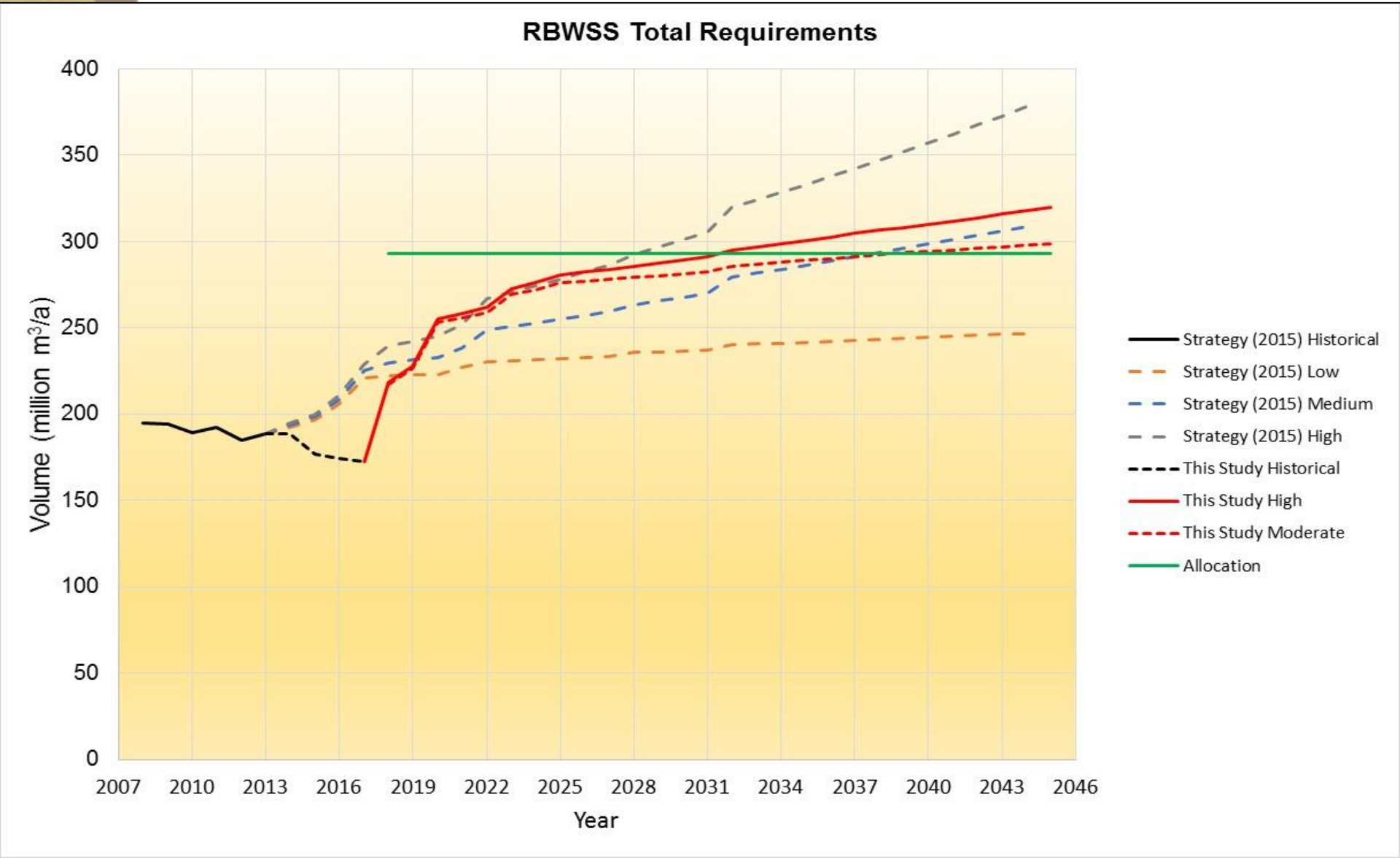
P Mlilo
Director: National Water Resource Planning

9.1: TASK 3: Water Requirements and Return Flows Summary: Final Report Summary

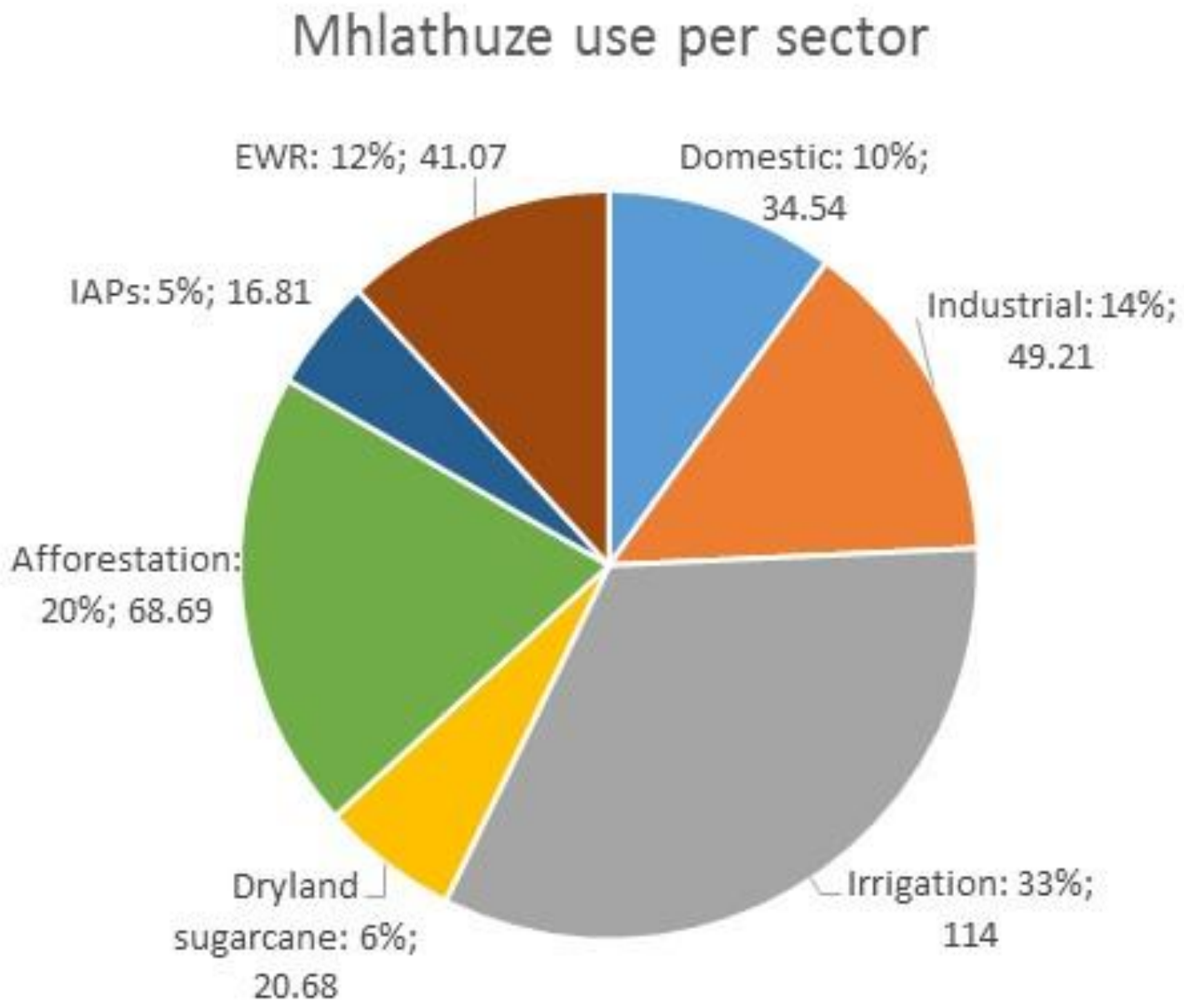
Methodology

- Demand centres delineated as per Strategy (2015)
- Obtained updated actual use volumes per demand centre (2014-2017)
- Urban growth projections based on population, level of service increase
- Industrial growth projections based on one on one discussions and input from industries
- Irrigation projections set at Licensed volumes (no growth)

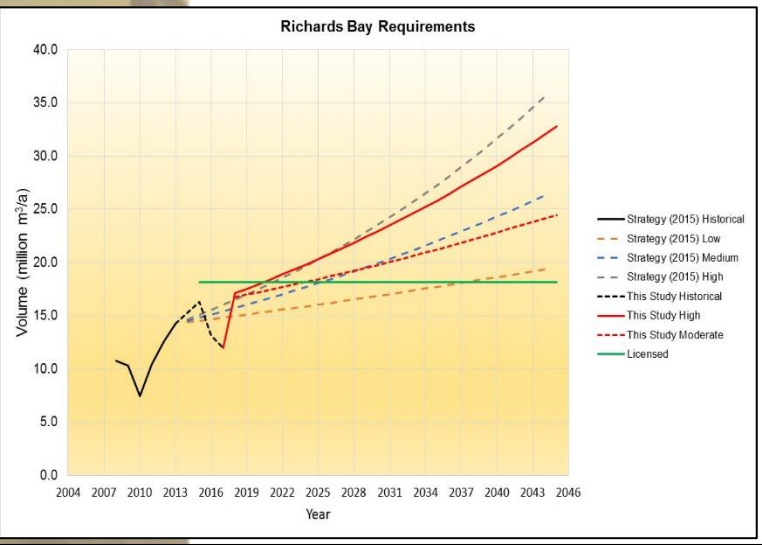
Total Water Requirement Projection Summary

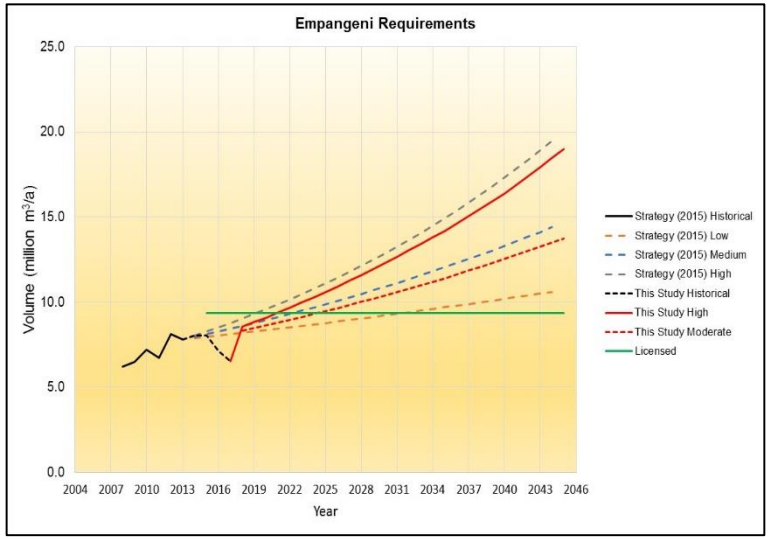


Summary of Water Requirements

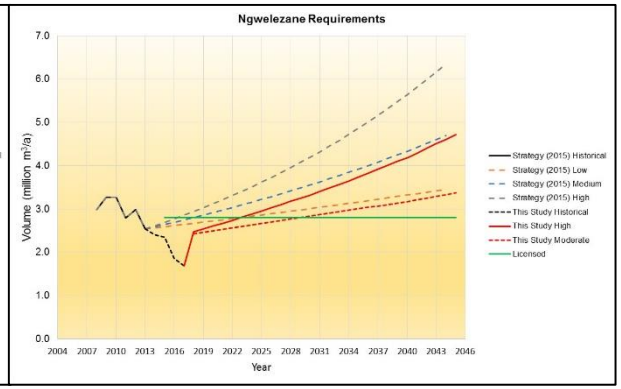


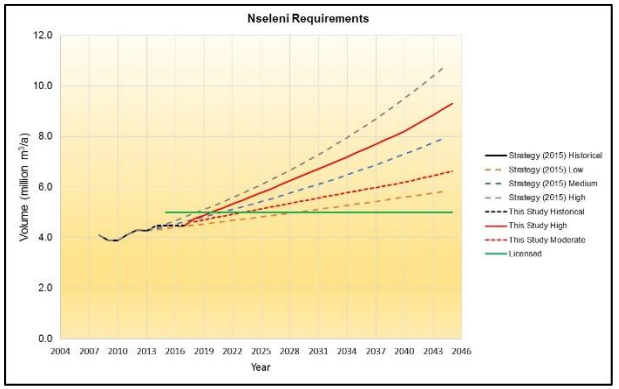
Individual Urban Requirement Projections



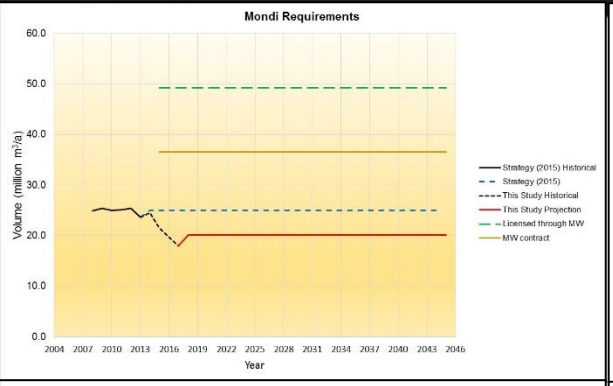


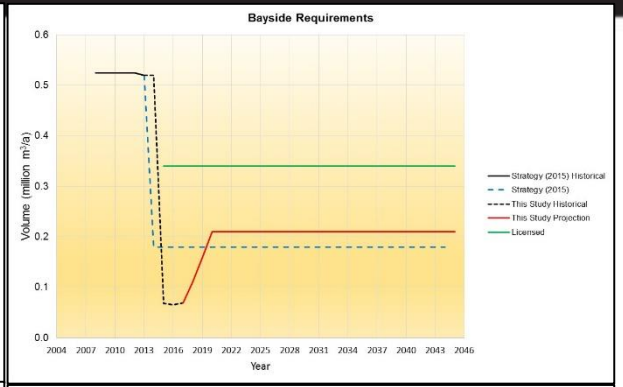
Richards Bay
Empangeni
Esikhaweni
Ngwelezane
Nseleni

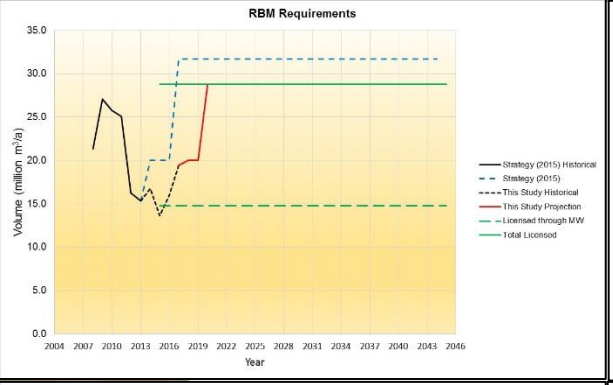


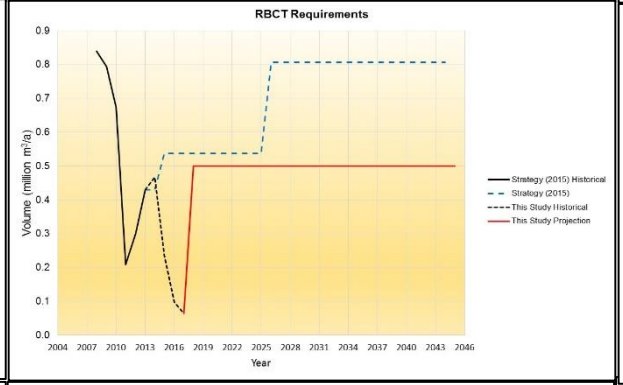


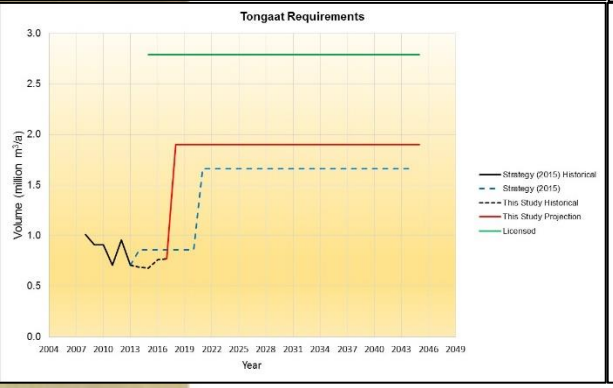
Town	Growth Scenario	2016	2020	2025	2030	2035	2040	2045	Compounded Growth (%)
		million m³/a							
Eshowe	Moderate	2.08	2.15	2.24	2.33	2.43	2.53	2.64	0.82
	High	2.08	2.23	2.43	2.64	2.85	3.07	3.33	1.64
Gingindlovu (incl. Amatikulu)	Moderate	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.57
	High	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.93
Melmoth	Moderate	0.86	0.89	0.92	0.96	1.00	1.05	1.09	0.82
	High	0.86	0.92	1.00	1.09	1.17	1.26	1.36	1.59
Mtunzini	Moderate	0.46	0.47	0.49	0.50	0.52	0.54	0.56	0.67
	High	0.46	0.49	0.52	0.56	0.60	0.65	0.70	1.43

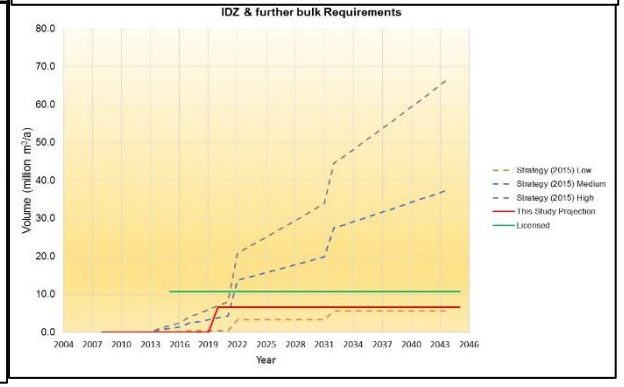












Mondi, RBM, Tronox, Foscor, Hillside, Bayside, IDZ, RBCT, Tongaat, Mpact

Other Requirements

Table 5.1: Summary of Final Allocation Schedule for irrigation (DWS, 2015c)

Location	Allocation (million m^3/a)
1) Heatonville	43.62
2) Lower Mhlathuze	7.73
3) Mfuli	5.55
4) Nkwaleni	57.00
5) Other-irrigation	8.93
c) Existing licenses under NWA	4.18
b) Applications for new water uses	1.54
Total	**128.54***

Table 5.3: Summary of afforestation in the Mhlathuze Catchment

Quaternary	Existing area (ha)	Existing use average (million m^3/a)	Allocated area (ha)	Allocated use average (million m^3/a)	Unlawful use (million m^3/a)
W12A	17 308	12.87	15884	11.96	0.91
W12B	5 077	3.61	4306	3.09	0.52
W12C	13 314	9.55	7780	5.66	3.89
W12D	919	0.81	720	0.65	0.16
W12E	53	0	0	0.00	0.00
W12F	3 457	3.04	2803	2.50	0.54
W12G	5	0	0	0.00	0.00
W12H	12 935	14.17	12348	13.69	0.48
W12J	14 642	24.64	12131	20.57	4.07
Total	**67 711**	**68.69**	**55 971**	**58.12**	**10.57**

Other Requirements

Table 6.1: EWR summary according to Gazette No. 38599

EWR Site	Position	Volume (million m^3/a)
1	W12A Outlet	16.97
2	Downstream Goedertrouw Outlet of W12B	41.07
3	W12C Outlet	7.06
4	W12D downstream of Mhlathuze-Mfuli Confluence	32.61
5	W12D Outlet	31.81
6	W12E Outlet, not including Mhlathuzana river contribution	32.19
7	Upstream of Mhlathuze-Nsezi Confluence	37.19
8	W12G Outlet	3.40
9	W12H Outlet	10.22
10	Mhlathuze Mouth	10.85
11	W12J2 Mouth	0.76

Table 6.2: Summary of IAPs in the Mhlathuze Catchment

Quaternary	Condensed IAP area (km^2) MWAAS (2006)	MWAAS water use average (million m^3/a)	Condensed IAP survey area (km^2) (2010)
W12A	18	2.01	33.3
W12B	21	2.5	31.8
W12C	10	0.65	30.0
W12D	12	0.97	23.7
W12E	10	1.43	4.1
W12F	41	5.99	0
W12G	4	0	0
W12H	11	1.42	13.3
W12J	13	1.84	8.9
Total	**140**	**16.81**	**145.1**

Table 5.2: Summary of dryland sugarcane in the Mhlathuze Catchment

Quaternary	Existing area (km^2)	Existing use average (million m^3/a)
W12A	1	0
W12B	36	2.28
W12C	32	2.61
W12D	16	1.53
W12E	18	1.96
W12F	85	6.65
W12G	3	0.25
W12H	73	5.4
W12J	0	0
Total	**264**	**20.68**

9.2 TASK 4: Water Conservation and Demand Management

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Water and Sanitation
REPUBLIC OF SOUTH AFRICA

Implementation and Maintenance of the Water Reconciliation Strategy for Richards Bay and Surrounding Towns - Strategy Steering Committee Meeting

Review of Water Conservation and Demand Management in the Urban Sector

Presented by: Mr N. Zondo
04 December 2018

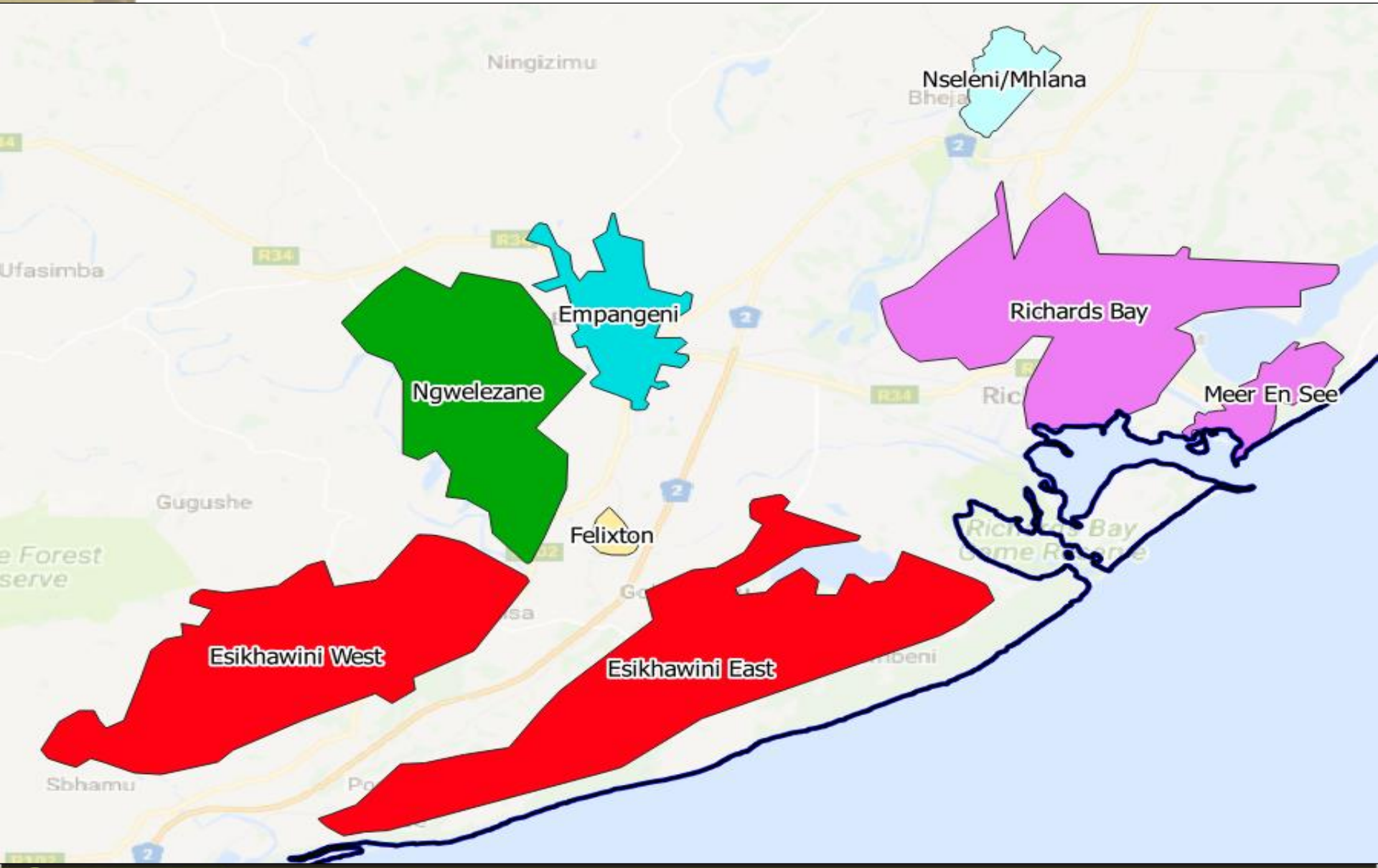
Objectives

- Determine current water balance
- Assess previous interventions undertaken in the study area and success rate
- Update and improve the strategy to remain technically sound, economically feasible, as well as socially acceptable and sustainable
- Review potential savings which can be achieved through WCWDM with budgets and timelines
- Enhance of long-term water security

Water Use and Allocations – 2015 Recon

Demand Centre	Usage		Allocation	
	Annual (M m3/a)	Daily (Ml/d)	Annual (M m3/a)	Daily (Ml/d)
Empangeni	9.34	25.58	13.51	37.00
Richards Bay	14.24	39.02	9.13	25.00
eSikhawini	11.16	30.58	11.32	31.00
Nseleni	4.28	11.71	0.00	0.00
Ngwelezane	2.54	6.95	2.92	8.00
Total	**40**	**109.58**	**36.87**	**101.00**

Urban Water Demand Centres - (Focus Area)



Progress and Status Quo

Progress to Date

Code	Municipality (WSA and WSP)	Main Town	Workshop	Status quo	Feedback
KZN282	City of uMhlatuze	Richards Bay	Yes	Yes	No

Status Quo Assessment

✓: System is in place
×: System is partially in place
××: System is not in place at all

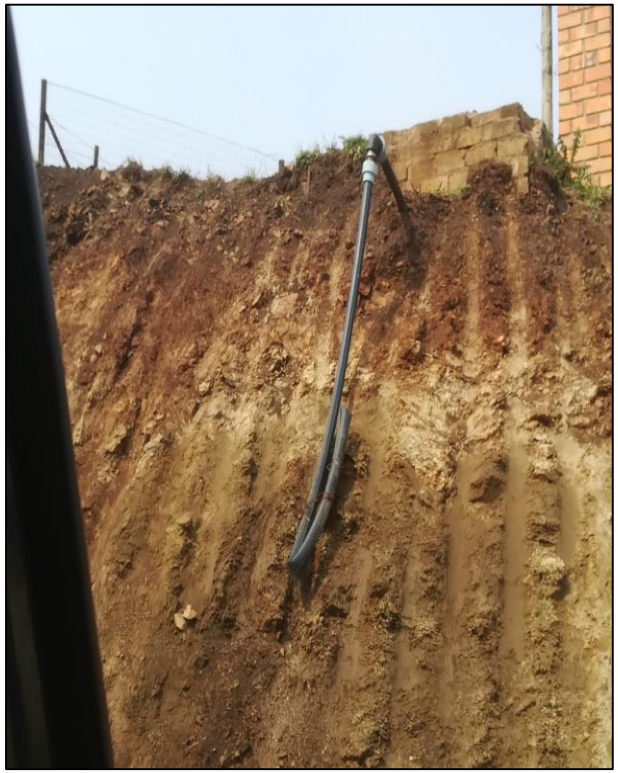
WSA Functions and Outputs	In Place (Yes/No/ N/A)	Resources to Perform Municipal Function (Yes / No / N/A)				Promote WCWDM?	Support Required (Yes/No)
		Budget	Policies	Infrastructure	Capacity		
Capex Programme Implemented							
Efficient infrastructure planning	✓	×	×	×	×	Limited funding	✓
Efficient implementation	✓	×	✓	×	×	Limited funding	✓
Capex budget – New infrastructure	✓	×	×	N/A	N/A	Limited funding	✓
Capex budget – Upgrade	×	×	×	×	×	Limited funding	✓
Capex budget – Refurbishment plan	×	×	×	×	×	Limited funding	✓
Maintain existing infrastructure							
Job card system	×	×	✓	✓	×	×	✓
Internal capacity and skills	×	××	×	×	×	×	✓

Status Quo Assessment

✓: System is in place
×: System is partially in place
××: System is not in place at all

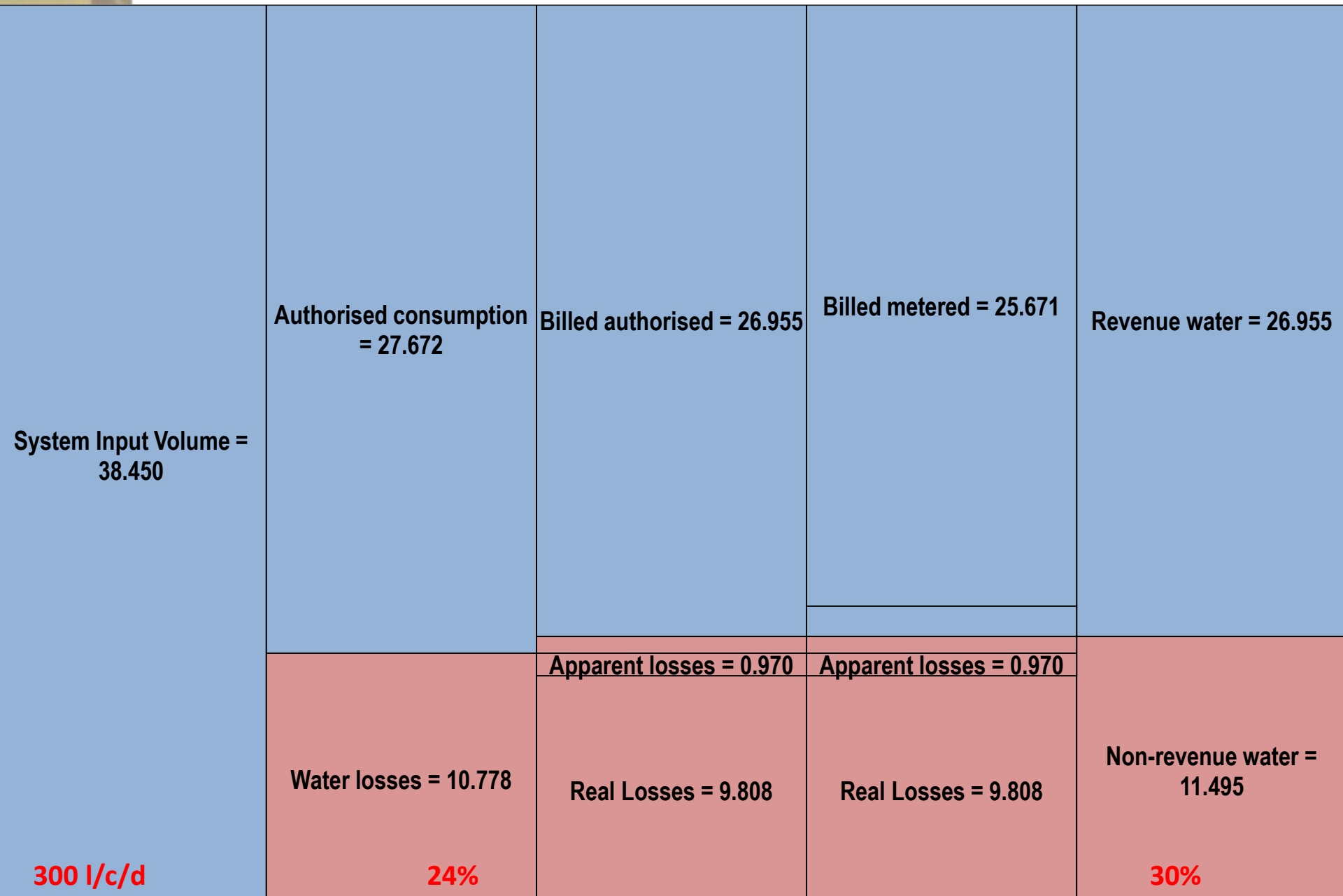
WSA Functions and Outputs	In Place (Yes/No/ N/A)	Resources to Perform Municipal Function (Yes / No / N/A)				Promote WCWDM?	Support Required (Yes/No)
		Budget	Policies	Infrastructure	Capacity		
WSA Approved Organogram							
Comprehensive organogram including reporting lines	✓	✓	✓	✓	×	×	✓
Training and capacity building	×	×	✓	✓	×	✓	✓
Water Conservation and Used Efficiently							
Water loss control	×	×	×	×	×	✓	✓
Asset maintenance	✓	×	✓	✓	×	×	✓
Consumer education and awareness	×	×	×	×	×	×	✓
Metering billing and cost recovery	✓	✓	✓	✓	×	×	✓
Water tariffs	✓	✓	✓	×	×	×	✓

Status Quo Assessment - Field Investigations



Incorrect Installations

Current IWA Water Balance



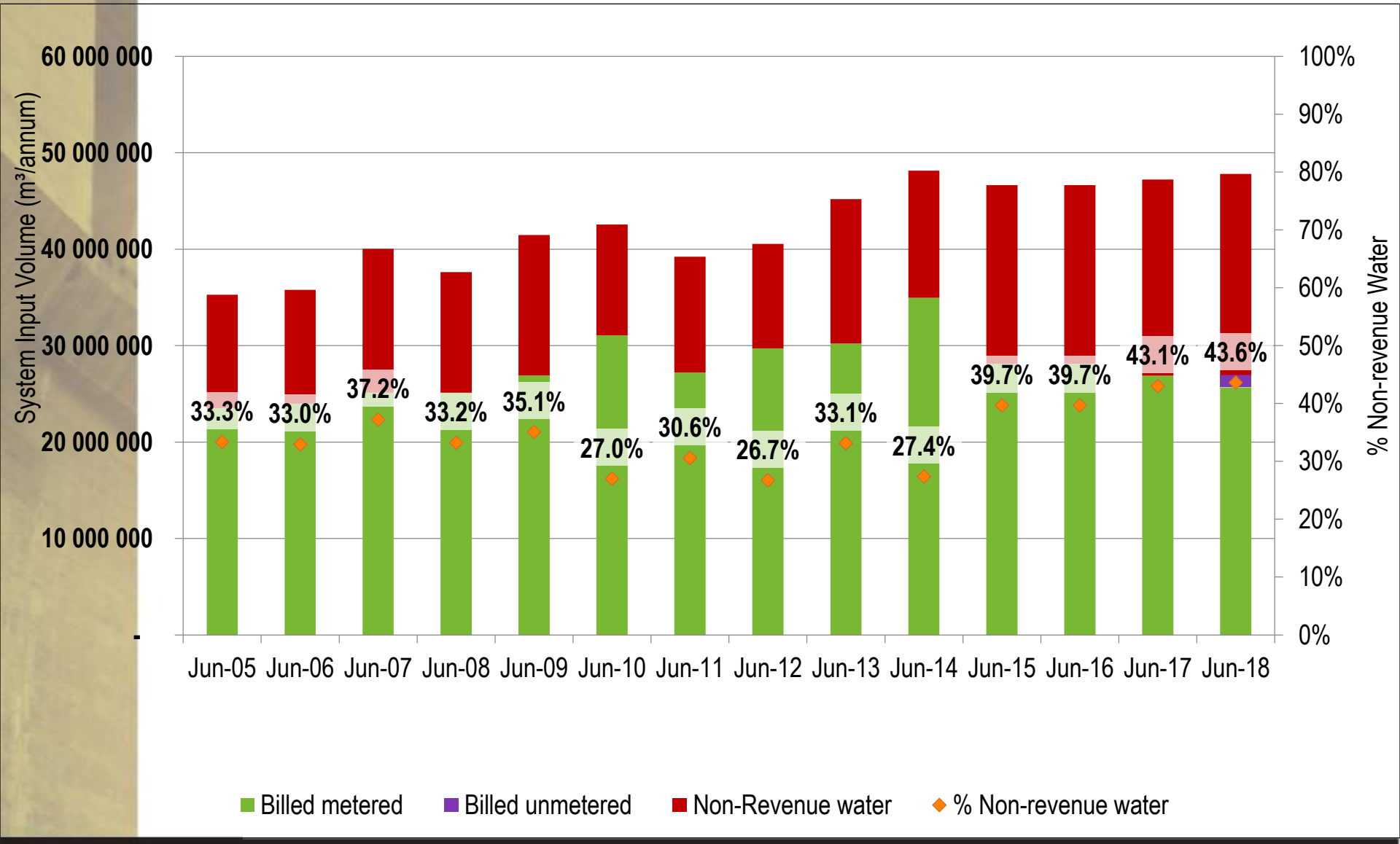
Water Loss Indicators Per Demand Centre - 2016

Demand Centre	Population	SIV (million m^3/a)	% Water Losses	% NRW	litres / capita / day
Empangeni	24 181	7.43	20.3%	20.3%	842
Richards Bay	57 672	14.16	15%	30%	673
Esikhaweni	164 563	10.31	20%	20%	172
Ngwelezane	61 245	2.08	43.2%	58.2%	93
Nseleni	42 500	4.47	47%	53%	288
Total	**351 260**	**38.45**	**24%**	**30%**	**300**

Water Loss Indicators Per Demand Centre – Surrounding Towns 2016

Demand Centre	Population	SIV (million m^3/a)	% Water Losses	% NRW	litres / capita / day
Mthunzini	4 532	0.92	40%	55%	556
Eshowe	82 836	4.25	40%	50%	140
Gingindlovu & Amatikulu	2 342	0.44	20%	55%	514
Melmoth	24 660	1.17	37%	53%	130
Total	**114 370**	**6.78**	**38%**	**52%**	**162**

Historical Water Balance



Common Challenges Summary

- Limited water resources
- Water restrictions
- Skilled resources and capacity
- Limited community support
- High indigent consumer base
- Institutional arrangements
- Relatively large rural areas and difficult to reach
- Rural areas are characterized by intermittent water supply

Water Storage Tanks

Rain water harvesting – on site

Level of service (Communal Tank)

Bulk Metering

City of uMhlathuze Financial Analysis (MTREF)

Description	2016/17	2017/18	2018/19 Medium Term Revenue & Expenditure Framework		
	Audited Outcome	Full Year Forecast	Budget Year 2018/19	Budget Year 2019/20	Budget Year 2020/21
Water Revenue ('000)	501 980	498 028	518 720	575 818	622 630
Water Expenditure ('000)	483 166	496 521	477 952	507 278	540 069
Surplus / Deficit ('000)	**18 814**	**1 507**	**40 768**	**68 540**	**82 561**
System input volume (m^3/annum)	46 642 034	46 642 034	46 642 034	46 642 034	46 642 034
Billed authorised (m^3/annum)	28 121 345	28 121 345	28 121 345	28 121 345	28 121 345
Average production cost (R/kl)	**R 10.36**	**R 10.65**	**R 10.25**	**R 10.88**	**R 11.58**
Average selling cost (R/kl)	**R 17.85**	**R 17.71**	**R 18.45**	**R 20.48**	**R 22.14**
Selling / production cost ratio	**1.7**	**1.7**	**1.8**	**1.9**	**1.9**
Piped Water inside Dwelling	44 308	47 511	47 511	47 511	47 511
Piped Water inside Yard	41 846	54 778	55 778	56 778	57 778
Other water supply (> RDP)	–	–	–	–	–
Other water supply (< RDP)	–	–	–	–	–
Sub-total - Households	**86 154**	**102 289**	**103 289**	**104 289**	**105 289**
Avg cost/household/month	**R 486**	**R 406**	**R 419**	**R 460**	**R 493**

City of uMhlathuze Water Tariff Comparison with City of eThekwini

Municipality	Description	2017/2018 Cost (Rand)	
		Residential	Business
City of eThekwini	up to 6kl	0	
	9kl to 25kl	21.82	
	25kl to 30kl	29.04	
	30kl up to 45kl	44.82	
	>45kl	49.29	
	Consumption – Per kilolitre		28.75
City of uMhlathuze	up to 6kl	0	10.78
	6kl up to 15kl	5.39	10.78
	15kl up to 30kl	12.62	15.72
	30kl up to 60kl	16.73	18.56
	>60kl	21.82	18.34

Domestic and Non Domestic Metering

Typical Water Meter Installations

Top Water Consumers

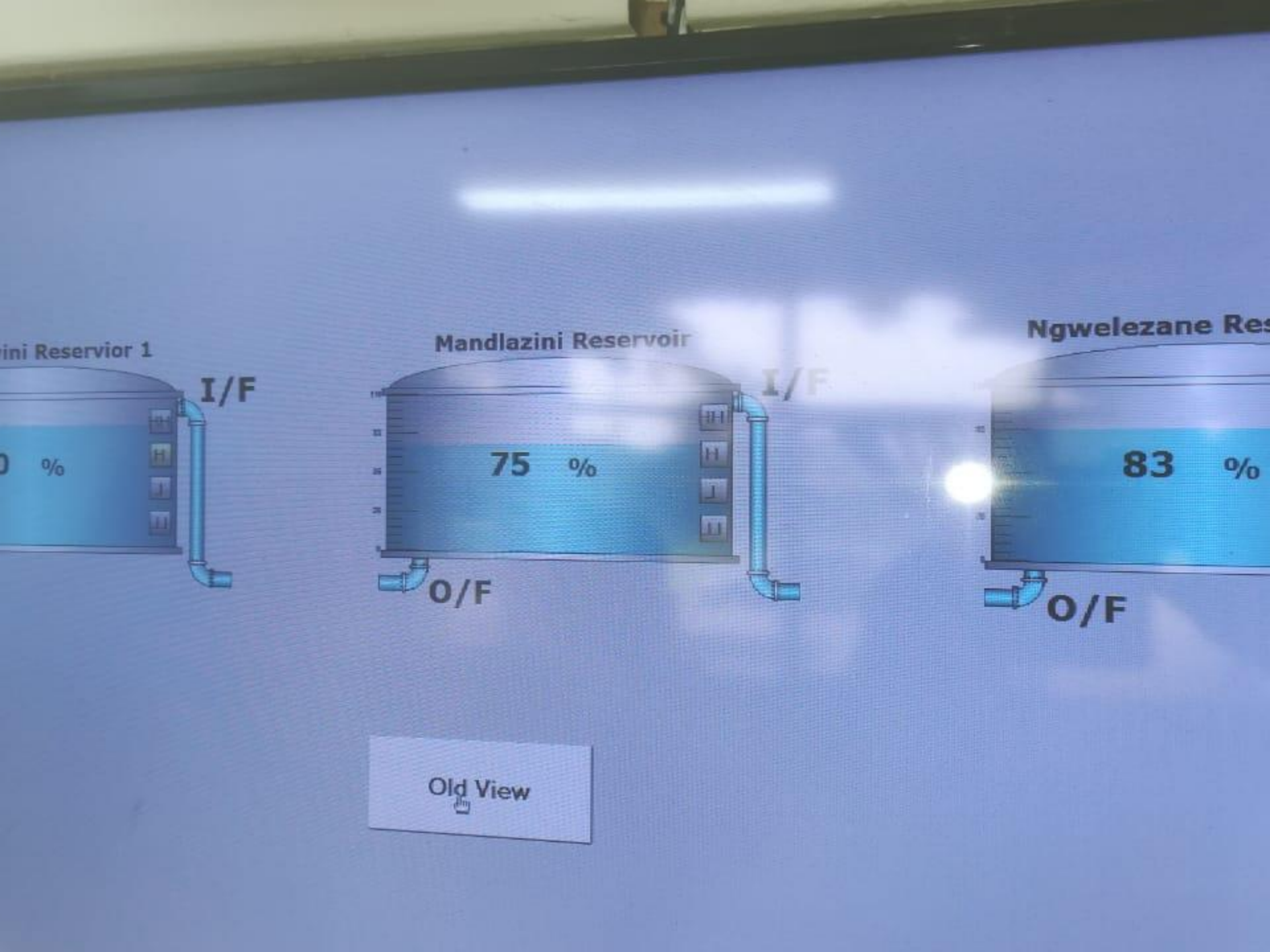
Consumer Name	Water Use (2016/17)	
	Ml/d	million m^3/a
Mondi	100	36.5
Foskor	17.01	6.21
Bayside Aluminium (Isizinda)	0.9	0.34
Tongaat Hulett Sugar Mill	15.73	5.74
Mpact	6.79	2.48
Total	**140.43**	**51.27**

WDM Current Initiatives

- Partially lifting water restrictions
- Installation of bulk water meters
- Installation of water network, zone metering and domestic metering including informal areas
- Effective metering and billing (Including rural areas)
- Improved service delivery

Network Monitoring

- WTW Inflow and Outflow
- Consumption/ Volume
- Water Quality
- Water Level (Reservoirs)


ini Reservior 1
I/F
%
Mandlazini Reservoir
I/F
75 %
O/F
Ngwelezane Res
83 %
O/F
Old View

Strategy

Strategy Targets

- Efficiency
  - Target 180 to 200 litres per capita per day
  - Impacts on water security and augmentation
- Non-revenue water
  - >50% target 40%
  - 30% to 50% target 25%
  - <30% target 15%
  - Impacts on revenue and water use efficiency
- Water losses
  - Same as NRW with unbilled consumption not more than 5% of system input volume
  - Financially and environmentally not acceptable

City of uMhlathuze Targets

Indicator	Current Value	Realistic Target	Optimistic Target
System Input volume (million m^3/a)	38,45	35,12	32,39
System Input volume (Mℓ / day)	105,27	96,15	88,67
Billed Authorised Consumption (million m^3/a)	27,07	27,65	27,68
Unbilled Authorised Consumption (million m^3/a)	2,73	1,96	1,49
Water Losses (million m^3/a)	8,65	5,52	3,22
Non-revenue Water (million m^3/a)	11,38	7,47	4,71
% Non-revenue water	30%	21%	15%
% Water Losses	24%	16%	10%
Input Volume (litres / capita / day)	300	274	252
Input Volume (m^3 / household / month)	36	33	30
Potential saving (million m^3/a)		**3.33**	**6.06**
% Reduction		**8.6%**	**15.76%**

Surrounding Towns - Targets

Indicator	Current Value	Realistic Target	Optimistic Target
System Input volume (million m^3/a)	6.78	5.83	4.88
System Input volume (Mℓ / day)	18.56	15.96	13.37
Billed Authorised Consumption (million m^3/a)	3.29	3.62	3.72
Unbilled Authorised Consumption (million m^3/a)	0.90	0.64	0.32
Water Losses (million m^3/a)	2.59	1.57	0.84
Non-revenue Water (million m^3/a)	3.49	2.21	1.16
% Non-revenue water	52%	38%	24%
% Water Losses	38%	27%	17%
Input Volume (litres / capita / day)	162	140	117
Input Volume (m^3 / household / month)	18	16	13
Potential saving (million m^3/a)		**0.95**	**1.9**
% Reduction		**14%**	**28%**

Impact of WCWDM

- Scope for reducing total demand and reducing NRW in urban areas
  - Formal supply areas
  - Metering and billing systems are possible
  - Political support
- Limited scope for reducing total demand and NRW in rural areas
  - Informal supply areas
  - Currently operate on intermittent supply and any saving will be redistributed
  - Difficult to implement metering and billing but can reduce inefficiencies and wastage

Summary

- The cost recovery is relatively good but can improve
- The average consumption in most demand centers is relatively high
- The rural areas are characterized by scheduled intermittent water supply
- Municipality to facilitate the formation of a ring-fenced WCWDM unit

WCWDM Tasks To Date

- Strategy development meeting with City of Umhlathuze LM
- Status Quo Assessment module submitted
- Interaction with stakeholders (KCDM, uMhlathuze Water) ongoing
- Meeting with KCDM and site visit
- Assessment module to be submitted in February 2019
- Final report in April 2019


Thank you
KSB

WCWDM Irrigation Sector

TYPES OF CROPS GROWN

TYPES OF IRRIGATION METHODS

ALLOCATIONS VS ACTUAL USE

Task 12: Training

- FOCUS ON TRAINING OF VARIOUS ASPECTS RELATING TO THE RECON STRATEGY
- DEMOG/WATER REQ: 3-4 OCTOBER 2018
- NEXT ITEM: WC/WDM SCHEDULED FOR EARLY 2019, IN PRETORIA

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

IMPLEMENTATION AND MAINTENANCE OF THE WATER RECONCILIATION STRATEGY FOR RICHARDS BAY AND SURROUNDING TOWNS

Strategy Steering Committee Meeting (StraSC) 2

Item 10: Discussion and Comments

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

IMPLEMENTATION AND MAINTENANCE OF THE WATER RECONCILIATION STRATEGY FOR RICHARDS BAY AND SURROUNDING TOWNS

Strategy Steering Committee Meeting (StraSC) 2

Item 11: Communication

Communication

A StraSC meeting will be held ± 6 months

After each meeting StraSC members will be provided with:

- Minutes of the StraSC meeting
- Newsletter scheduled to be distributed in January 2019

As members of the StraSC your responsibility is to:

- Disseminate information into the relevant departments / organisations
- Incorporate strategies' recommendations into development plans

Web site: Please visit:
http://www6.dwa.gov.za/iwrp/projects.aspx for all project related information

StraSC membership

- **± 130 stakeholders on the database**

- **Representative of all relevant sectors in the study area – refer to Terms of Reference**

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Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

IMPLEMENTATION AND MAINTENANCE OF THE WATER RECONCILIATION STRATEGY FOR RICHARDS BAY AND SURROUNDING TOWNS

Strategy Steering Committee Meeting (StraSC) 2

Item 12: Date of Next Meeting

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

IMPLEMENTATION AND MAINTENANCE OF THE WATER RECONCILIATION STRATEGY FOR RICHARDS BAY AND SURROUNDING TOWNS

Strategy Steering Committee Meeting (StraSC) 2

Item 13: Closure