



water & sanitation
Department
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

CONTINUATION OF THE ALL TOWN RECONCILIATION STRATEGIES IN THE LIMPOPO PROVINCE

Strategies Steering Committee Workshop No. 2

DWS: National Water Resource Planning
Tuesday, 21 July 2015
Pietersburg Club, Polokwane

1 WATER IS LIFE - SANITATION IS DIGNITY

Agenda

1	WELCOME AND INTRODUCTION OF MEMBERS	T. Nditwani
2	ATTENDANCE AND APOLOGIES	T. Nditwani
3	ACCEPTANCE OF AGENDA	T. Nditwani
4	PURPOSE OF WORKSHOP	T. Nditwani
5	ROLE OF THE STRATEGIES STEERING COMMITTEE	T. Nditwani
6	BACKGROUND OF THE STUDY	T. Nditwani
7	UPDATING OF PRIORITY STRATEGIES: METHODOLOGY	C Talanda
8	UPDATED PRIORITY STRATEGIES (Parallel Sessions) - Vhembe DM - Mopani DM - Capricorn DM - Waterberg DM	C Talanda / L de Jager
9	REMAINDER OF THE STUDY PROGRAMME – PHASE 1	M. Esterhuizen
10	WAY FORWARD	T. Nditwani
11	GENERAL	T. Nditwani
12	DATE OF THE NEXT MEETING AND CLOSURE	T. Nditwani
13	LUNCH	ALL

2 WATER IS LIFE - SANITATION IS DIGNITY Toll Free: 0800 200 200 www.dwa.gov.za

Item 4: Purpose of the Workshop

3 WATER IS LIFE - SANITATION IS DIGNITY Toll Free: 0800 200 200 www.dwa.gov.za

Item 4: Purpose of the Workshop

- SSC Workshop No. 1 held in April 2013:
 - To introduce the study to all Stakeholders (SH)
 - To establish and define the role of the Strategies Steering Committee (SSC)
 - Facilitate cooperation and interaction with the SH's
 - To outline findings during the Inception Phase
 - To outline the scope of work, methodology, way forward and preliminary study programme
 - To obtain comments and input from SH's
 - To prioritise the strategies to be updated

4 WATER IS LIFE - SANITATION IS DIGNITY Toll Free: 0800 200 200 www.dwa.gov.za

Item 4: Purpose of the Workshop

- Purpose of this SSC Workshop No. 2:
 - Present methodology for updating strategies
 - Present the updated reconciliation strategies that were prioritised in the SSC Workshop 1
 - Agree on the preferred development scenarios
 - Obtain comments and inputs from the SSC
 - Way forward

5

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Item 5: Role of Strategies Steering Committee (SSC)

5

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Role of Strategies Steering Committee (SSC)

- SSC Terms of Reference (Information Pack)
- Provide executive guidance to the direction and outcomes of the study
- Provide supplementary information and input from a local and regional perspective
- Facilitate strategic linkages with other initiatives
- Disseminate information from the study to the relevant organizations
- Incorporate strategies' recommendations into development plans such as WSDP's, IDP's, Implementation Readiness Studies (RBIG), License Applications etc.
- To facilitate the acceptance and sign-off of the updated Reconciliation Strategies

7

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Item 6: Background of the Study

8

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Background to This Assignment

- 2007: Development of Reconciliation Strategies for All Towns
- Key general messages from All Town Studies (2007-2011)
 - Improved management will solve largest portion of immediate problems
 - Minimal metering (limited water use records)
 - High per capita use in many towns pointing to WC/WDM potential
 - Groundwater remains a feasible source of water for many towns
 - Municipal infrastructure constraints rather than water resource availability limitations
 - Rudimentary strategies – improvement required

9

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

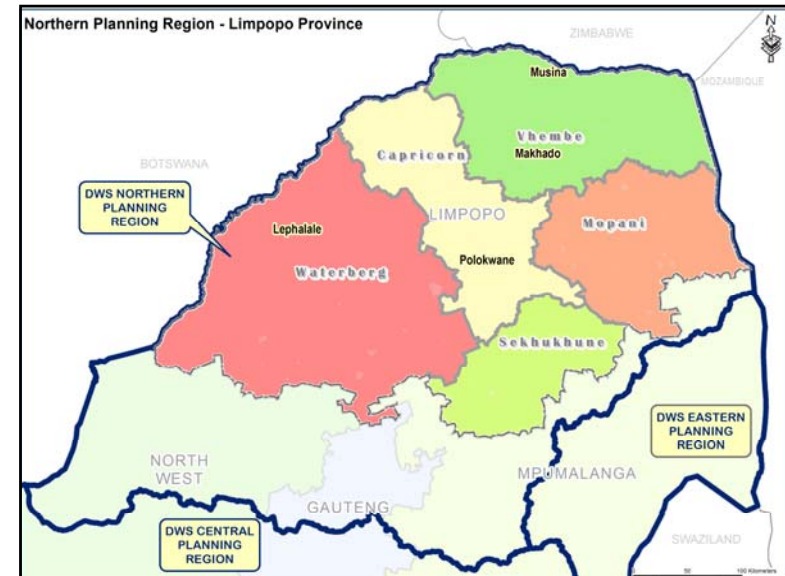
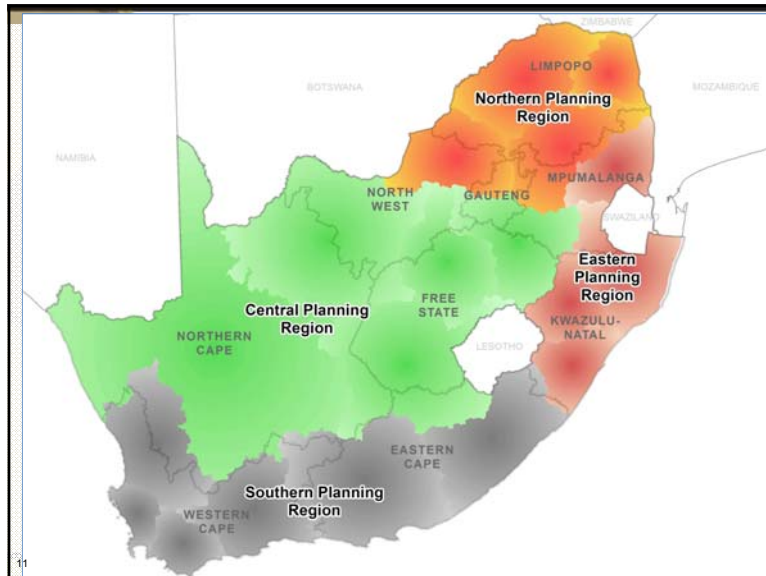
Background to this Assignment

- 2012: Continuation of the DWS Planning Regions' All Town Reconciliation Strategies: Phase 1
 - Update and review priority strategies - three year appointment (until 2015)

10

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za



Purpose of Study

- This assignment is the first review and updating of priority strategies
 - Budget constraints dictated that not all strategies can be reviewed and updated during this assignment
- **On-going** process even after these studies end
- Assist DWS and Water Services Authorities (WSAs) to:
 - Update and revise priority strategies
 - To remain technically relevant and sustainable
 - Reconcile water requirements and water resources (up to 2035)
 - Identify areas requiring comprehensive Reconciliation Strategies

13

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Purpose of Study cont.

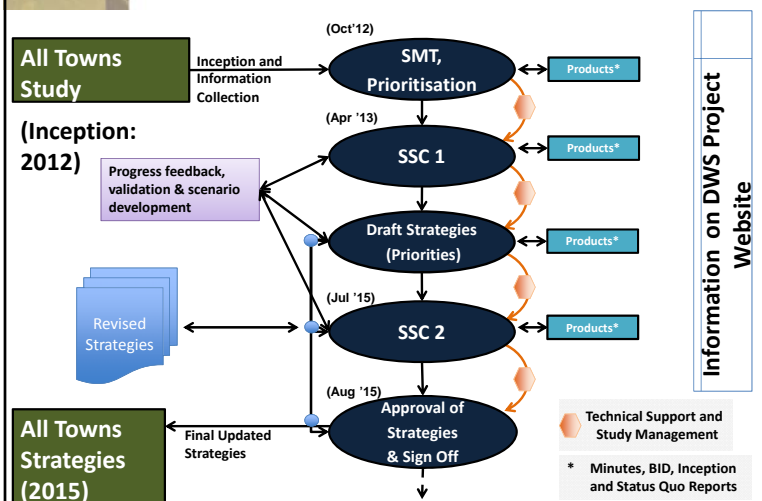
- Assist DWS and WSAs (cont.):
 - Evaluation of interventions where shortfalls occur
 - Management and/or infrastructure
 - Align strategies with known development planning processes
 - Provide recommendations for the sustainable management of water resources
- Promote the use of strategies' information in local, provincial and national planning environments

14

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Study Communication & Process



Item 7: Updating Priority Strategies Methodology

15

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Prioritisation of Reconciliation Strategies

- **Step 1:** Identification of Category 4 strategies (towns currently in water balance deficit)
- **Step 2:** Eliminate towns where solutions are in an advance stage of planning or implementation (RBIG projects)
- **Step 3:** Add towns where RBIG or other processes are in an early stage of planning and can still be influenced by strategy recommendations
- **Step 4:** Add any other hot spot areas identified on a national, provincial or local strategic level
- **Step 5:** Final selection was confirmed at Strategy Steering Committee Workshop 1

17

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Updating Priority Reconciliation Strategies

- Detailed assessment of strategies according to the following themes:
 - Demographics (Census 2011) & Economic Drivers, migration etc.
 - Water requirements (**importance of metering**)
 - WC/WDM
 - Infrastructure (RBIG Projects)
 - Water resources
 - Surface water (DWS Studies)
 - Groundwater (desktop investigations)
 - Water quality
- Linkages with Recon Strategies for Large Systems



18

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Theoretical Water Requirements

- Population allocated to each Level of Service (LOS) category (Census 2011)

Category	Dwelling Type		Average Water Consumption (l/capita/day)
1	Flats		226
2	Clusters		255
3	Single Residential	Low Income	101
4		Medium Income	189
5		High Income	304
6		Very High Income	442
7	Informal	Below RDP Level	12
8		RDP Level	40
9		Above RDP Level	80

- Assumed Losses: Water Treatment = 10%, Distribution = 10% (DWS Guidelines)
- Indirect usage for established towns

19

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Water Requirement Projections

- Water Requirement projections derived
 - Unit consumptions calibrated according to actual use (theoretical values used where no info available)
 - Projected population per town (High Scenario)
 - Estimated timing and extent of upgrading of water services (selected scenario)

20

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Water Requirement Projections

• Scenario 1 (Established Town - mostly formal):

- LOS assumed to be at a minimum of Residential Low Income by 2025
- 5% increase in Residential Medium Income 2011 to 2025 and a further 6% increase by 2035 (total of 11%)
- 2.5% increase in Residential High Income from 2011 to 2025 and a further 3.3% increase by 2035 (total of 5.8%)

Category	Dwelling Type	
1	Flats	
2	Clusters	
3	Single Residential	Low Income
4		Medium Income
5		High Income
6		Very High Income
7	Informal	Below RDP Level
8		RDP Level
9		Above RDP Level

21

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Water Requirement Projections

• Scenario 2 (Town/Village - formal and informal LOS):

- LOS assumed to be at a minimum of Above RDP Level by 2025
- 5% increase in Residential Low Income 2011 to 2025 and a further 6% increase by 2035 (total of 11%)
- 2.5% increase in Residential Medium Income from 2011 to 2025 and a further 2.3% increase by 2035 (total of 4.8%)

Category	Dwelling Type	
1	Flats	
2	Clusters	
3	Single Residential	Low Income
4		Medium Income
5		High Income
6		Very High Income
7	Informal	Below RDP Level
8		RDP Level
9		Above RDP Level

22

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Water Requirement Projections

• Scenario 3 (Village - mostly informal):

- LOS assumed to be at a minimum of RDP Level by 2025.
- 5% increase in Above RDP Level by 2011 to 2025 and a further 6.7% increase by 2035 (total of 11.7%)
- 2.5% increase in Residential Low Income from 2011 to 2025 and a further 3% increase by 2035 (total of 5.5%)

Category	Dwelling Type	
1	Flats	
2	Clusters	
3	Single Residential	Low Income
4		Medium Income
5		High Income
6		Very High Income
7	Informal	Below RDP Level
8		RDP Level
9		Above RDP Level

23

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Updating Priority Reconciliation Strategies cont.

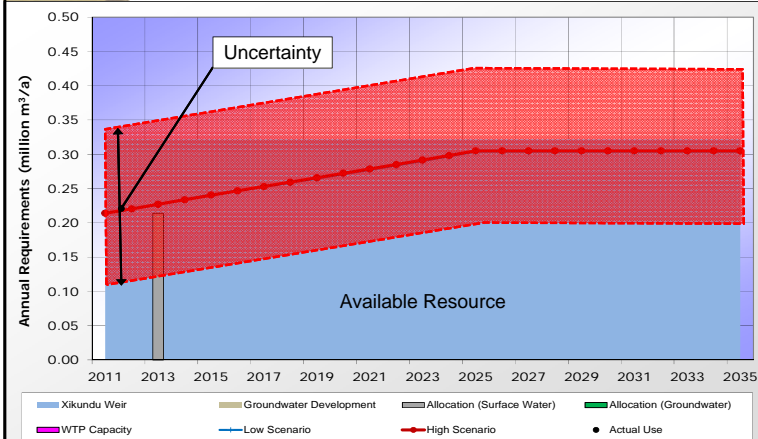
- Compile water balance diagrams (up to 2035)
- Identify potential development scenarios (management and infrastructure) for reconciliation of water requirements and water resources

24

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Importance of Metering



25

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Item 8: Updated Strategies

26

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Prioritised Strategies Updated

District Municipality	Local Municipality	Strategy	
Mopani	Greater Giyani	Giyani System A and B WSS	Combined Strategy: Giyani Cluster
		Giyani System C WSS	
		Giyani System D WSS	
		Giyani System F1 WSS	
		Giyani System F2 WSS	
	Greater Letaba	Sekgosese GWS	
Vhembe	Greater Tzaneen	Modjadjiskloof Scheme	Combined Strategy: Malamulele West/Mapuve System N Cluster
		Thapane RWS	
	Ba-Phalaborwa	Tours RWS Scheme	
		Namakgale - Lulekani RWS Cluster	
	Greater Giyani	Mapuve System N WSS	
		Malamulele West WSS	
	Thulamela	Malamulele West WSS	
		Makhado Mapuve System RWS	
		Lambani Thulamela	
		Tshifudi RWS	
Makhado	Makhado	Nzhelele Thulamela RWS	Combined Strategy: Nzhelele Cluster
		Nzhelele Makhado RWS	
	Musina	Makhado	
		Middle Letaba RWS	
	Musina	Musina	

27

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Prioritised Strategies Updated

District Municipality	Local Municipality	Strategy	
Capricorn	Blouberg	Senwabarwana GWS	Combined Strategy: Polokwane Cluster
	Molemole	Molemole West	
		Hout River RWS	
		Moletje East RWS	
		Moletje North GWS	
		Moletje South GWS	
		Olifants-Sand RWS	
		Badimong RWS	
		Laaste Hoop RWS	
		Mankweng RWS	
		Mothapo RWS	
	Polokwane	Segwasi RWS	
		Sebayeng-Dikgale RWS	
		Boyne RWS	
		Chuene Maja RWS	
		Molepo RWS	
Waterberg	Lephalale	Lephalale Urban	

28

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Strategies Addressed in ORWRDP Ph2

District Municipality	Local Municipality	Strategy
Capricorn	Aganang	Aganang North RWS
		Bakone RWS
	Lepele-Nkumpi	Ga-Mokobodi RWS
Waterberg	Mogalakwena	Groothoek RWS, Specon RWS, Mphahlele RWS Cluster
		Flag Boshilo RWS West
		Greater Rebone RWS
		Bakenberg RWS
Sekhukhune	Greater Tubatse	Mapela RWS
		Mokopane RWS
		De Hoop - Malekana
		De Hoop - Mampuru
		Lower Steelpoort - Mooihoek
		Lower Steelpoort – North, East, Praktiseer
		Lebalelo
		Burgersfort
		Steelpoort town

WATER IS LIFE - SANITATION IS DIGNITY

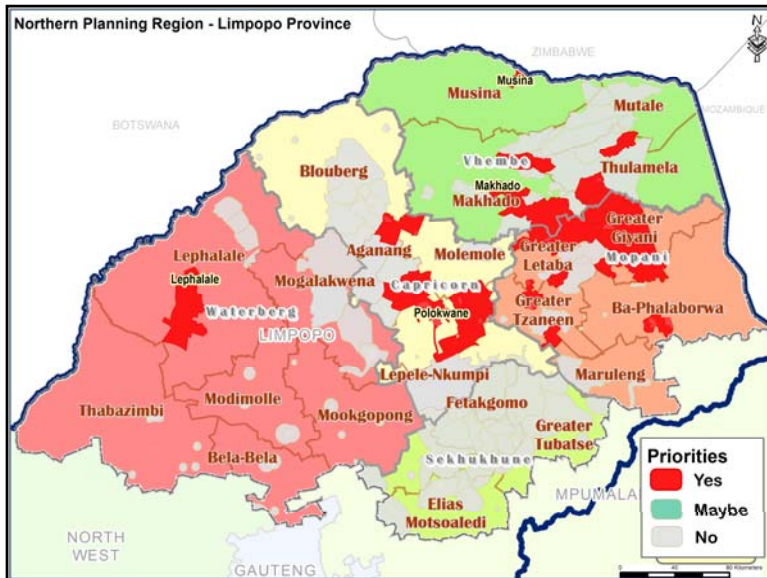
Toll Free: 0800 200 200 www.dwa.gov.za

Strategies Addressed in ORWRDP Ph2

District Municipality	Local Municipality	Strategy
Sekhukhune	Makhuduthamaga	Flag Boshielo - Makhuduthamaga
		De Hoop - Middle Ngwaritsi
		De Hoop - Vergelegen
		De Hoop - Ngwaritsi
		De Hoop - Lepellane
		De Hoop - Nkadameng
		De Hoop - Schoonoord
		De Hoop - Nebo Plateau Mampur
		De Hoop - Spitskop
		Leolo Local Sources
	Fethakgomo	De Hoop - Lepellane
		Lebalelo North - Fethakgomo
		Olifantspoort South

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

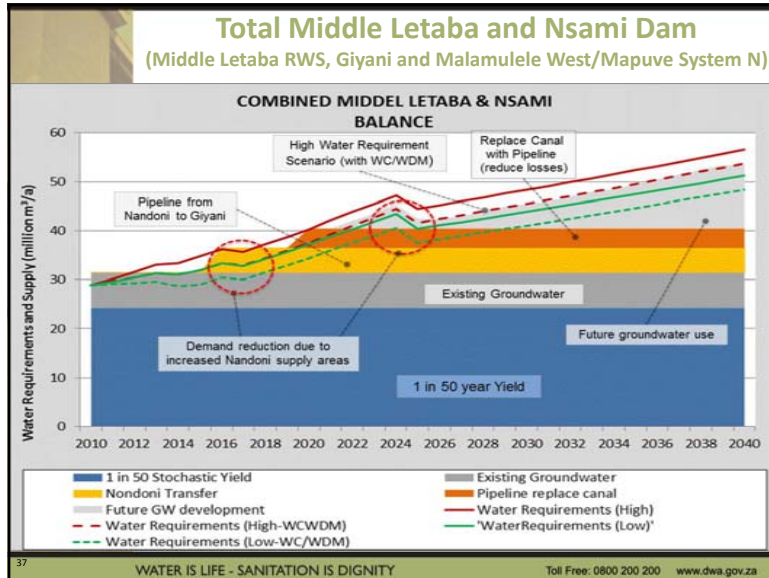


MOPANI DM
Greater Giyani LM

32

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za



Giyani Conclusions & Recommendations

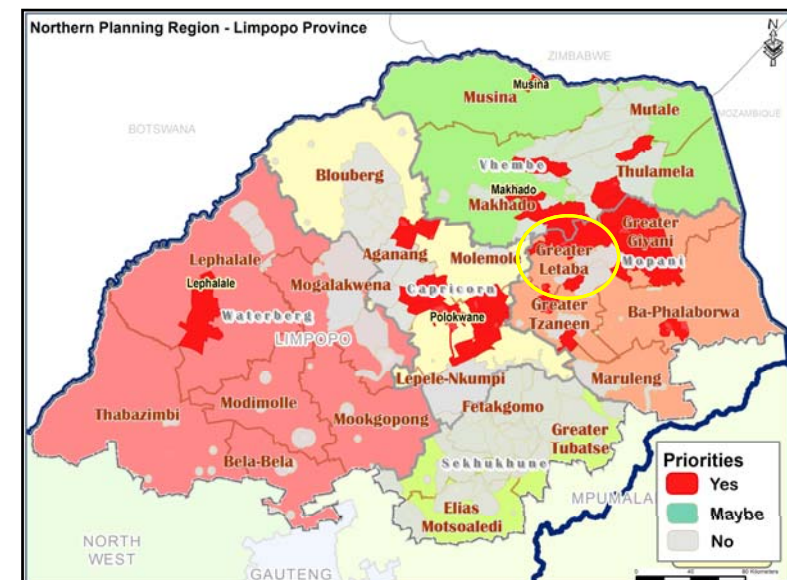
- Water requirements already exceed the WTW capacity and groundwater allocation (projected shortfall of 6.0 million m³/a (16.5 MI/d by 2035))
- Projected water requirements for the total Middle Letaba and Nsami Dam supply area exceed the available resources from 2012 onwards. The following reconciliation measures are required:
 - WC/WDM analysis confirmed savings of 2.8 million m³/a (7.8 MI/d). WSA to implement measures specified in WC/WDM Strategy and BP
 - Implementation of pipeline from Nandoni Dam to Giyani (5 million m³/a, 13.7 MI/d))
 - Pipeline to replace canal (4 million m³/a, 11.0 MI/d))
 - Supply from Nandoni Dam to committed areas (7.7 million m³/a)
 - Groundwater Developments in supply areas (12.9 million m³/a, 35.3 MI/d) - Commission Feasibility Study
- Metering and monitoring of water use
- Continuous optimal utilisation of all resources

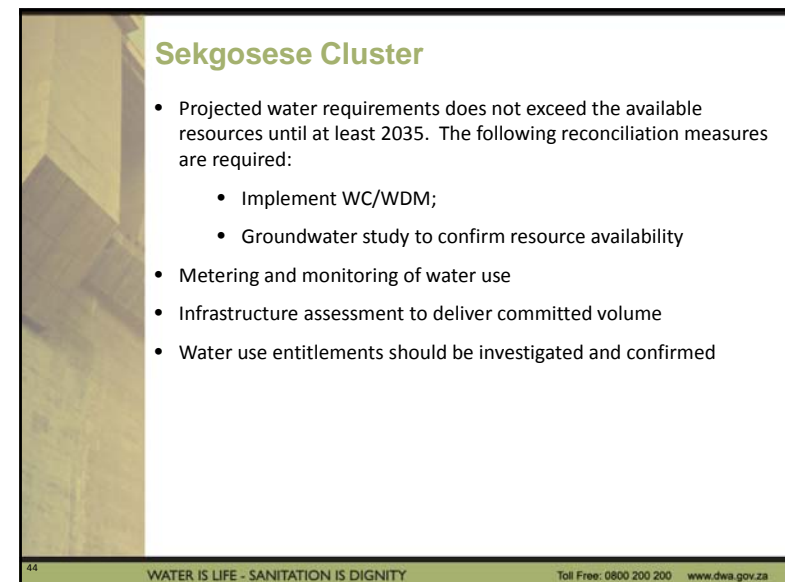
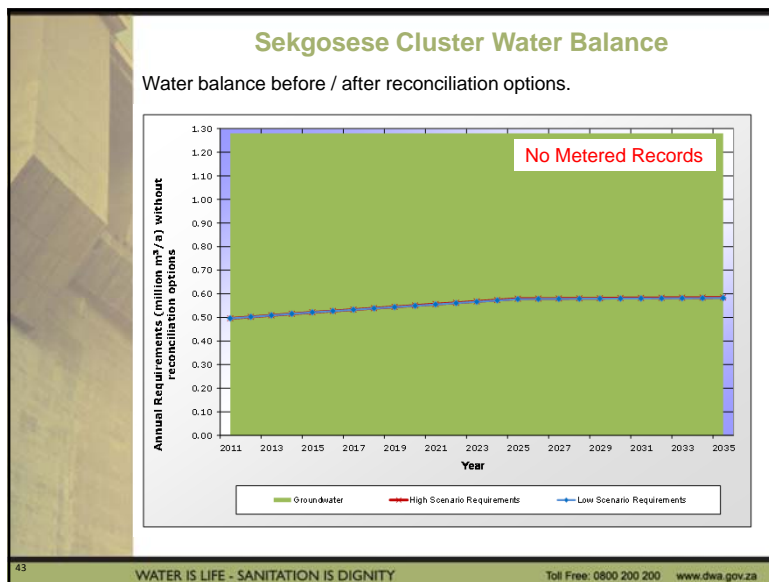
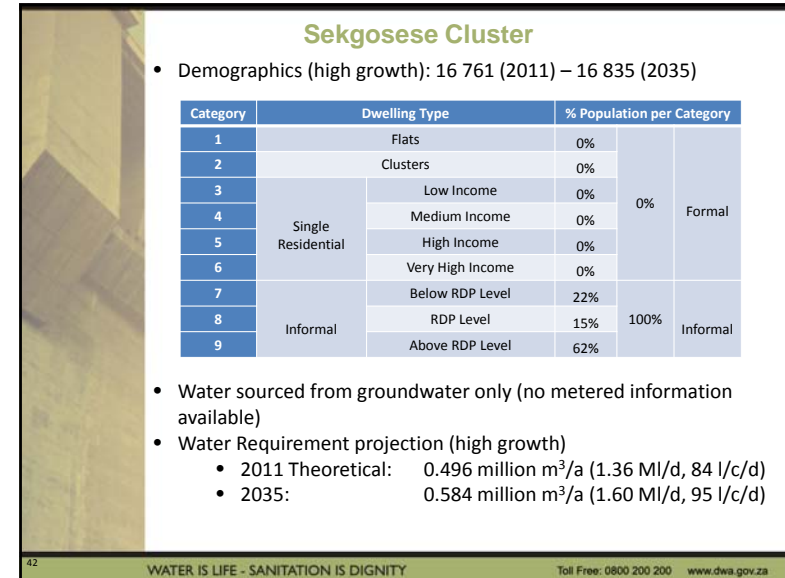
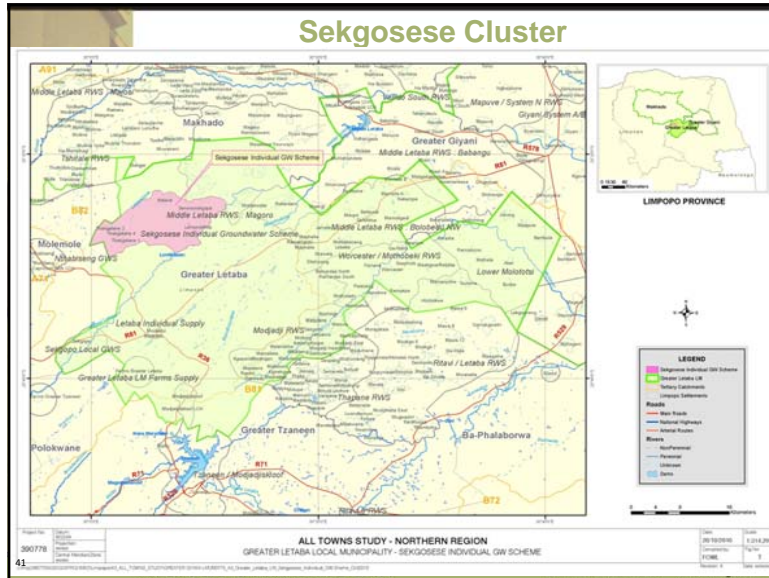
38 WATER IS LIFE - SANITATION IS DIGNITY Toll Free: 0800 200 200 www.dwa.gov.za

MOPANI DM

Greater Letaba LM

39 WATER IS LIFE - SANITATION IS DIGNITY Toll Free: 0800 200 200 www.dwa.gov.za



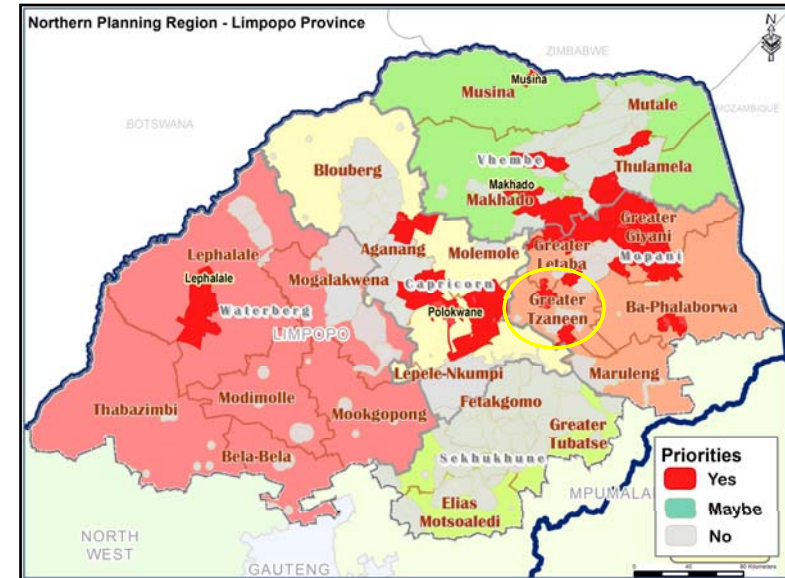


MOPANI DM Greater Tzaneen LM

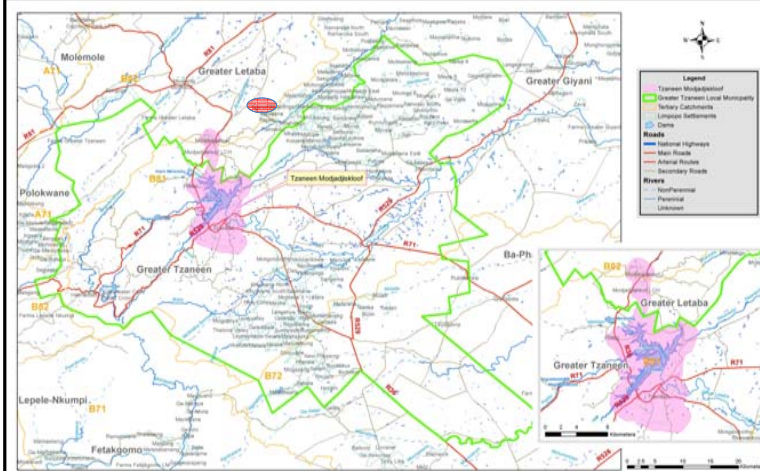
45

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za



Tzaneen/Modjadjiskloof RWS Strategy



47

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Tzaneen/Modjadjiskloof RWS Strategy

- Demographics (high growth): 32 911(2011) – 44 048(2035)

Category	Dwelling Type		% Population per Category		
1	Flats		4	49%	Formal
2	Clusters		5		
3	Single Residential	Low Income	20		
4		Medium Income	6		
5		High Income	9		
6		Very High Income	8		
7	Informal	Below RDP Level	5	51%	Informal
8		RDP Level	3		
9		Above RDP Level	43		

- Vergelegen/Magoebaskloof Dams (Politsi, Modjadjieskloof and Gkgapane), Ebenezer/Tzaneen Dam (Tzaneen) and groundwater

- Water requirement projection (high growth):

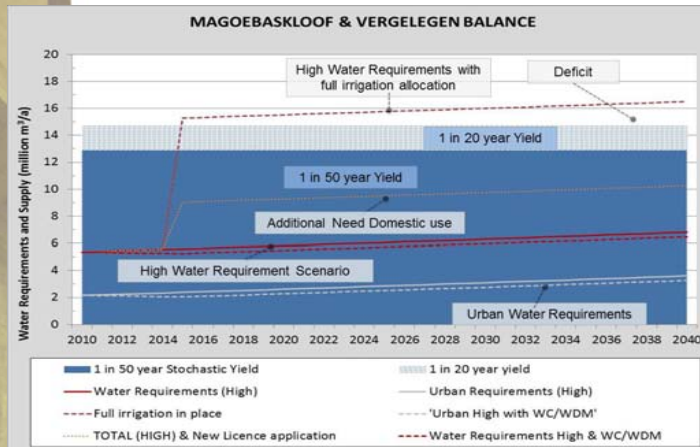
- 2011 Theoretical: 3.144 million m³/a (8.607 Ml/d, 261 l/c/d)
 2011: 4.857 million m³/a (13.297 Ml/d, 403 l/c/d)
 (GW: 0.140, SW Blue Drop: 4.717 million m³/a)
- 2035: 6.868 million m³/a (18.803 Ml/d, 427 l/c/d)

48

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Magoebaskloof & Vergelegen Balance



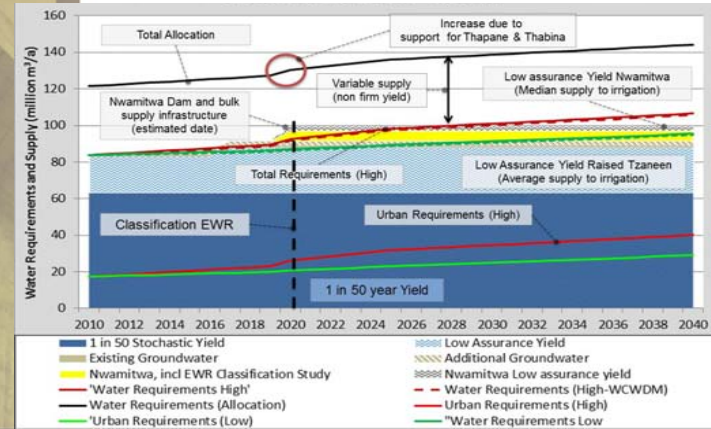
49

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Great Letaba System Balance

(Irrigation, Industrial and Domestic (Siluwane-Nondweni Extended RWS, Ritavi/Letaba RWS, Tzaneen/ Modjadjiskloof and Ritavi II RWS))



50

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Tzaneen/Modjadjiskloof Conclusions and Recommendations

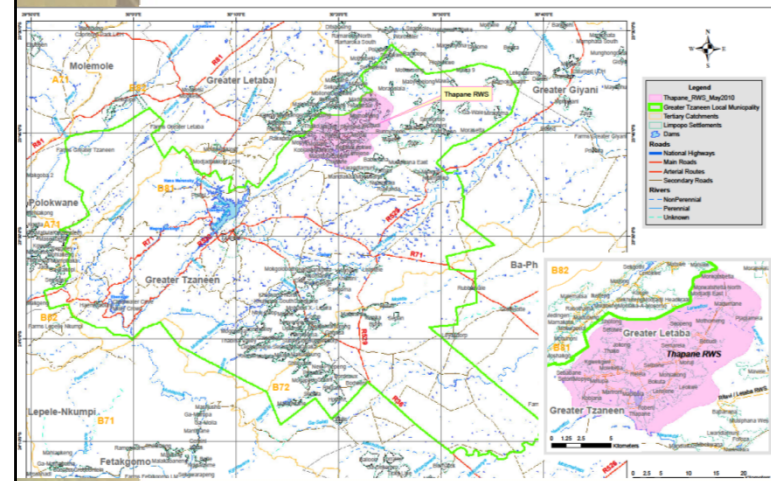
- Projected water requirements exceed available water resources from 2014 onwards (1.964 million m³/a (5.4 MI/d) shortfall 2035. The following reconciliation measures are required:
 - WC/WDM savings in urban sector are 0.8 million m³/a (2.19 MI/d). WSA to improve management information and implement measures specified in the WC/WDM Strategy and Business Plan
 - Irrigation restriction policy/operating rule results in a 38% reduction below allocation
 - Raising of Tzaneen Dam
 - Implementation of Nwamitwa Dam
 - Additional groundwater development (Commission Feasibility Study) >2.5 million m³/a (6.85 MI/d)
- Metering and monitoring of water use

51

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Thapane RWS Strategy



52

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Thapane RWS Strategy

- Demographics (high growth): 50 380 (2011) – 61 931 (2035)

Category	Dwelling Type	% Population per Category		
1	Flats	0%		
2	Clusters	0%		
3		0%		
4	Single Residential	Low Income	0%	
5		Medium Income	0%	
		High Income	0%	
6		Very High Income	0%	
7		Below RDP Level	55%	
8	Informal	RDP Level	19%	100%
9		Above RDP Level	26%	

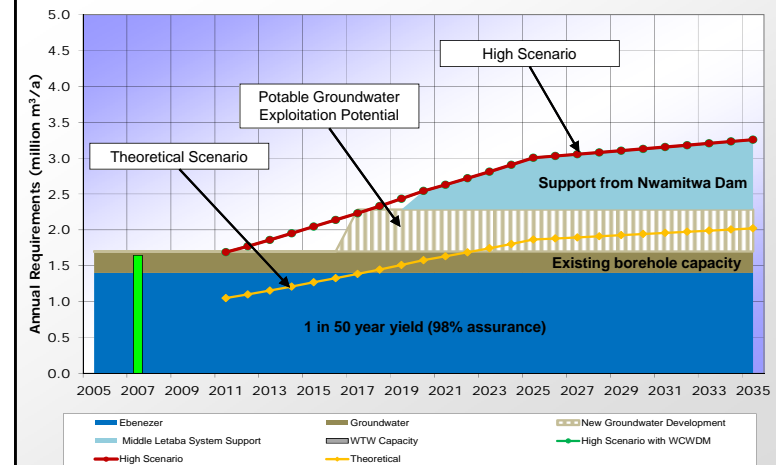
- Water sourced from Thapane Dam & Groundwater.
- Water requirement projection (high growth):
 - 2011 Theoretical: 1.048 million m³/a (2.868 Ml/d, 56 l/c/d)
 - 2011: 1.688 million m³/a (4.621 Ml/d, 92 l/c/d)
 - (GW :0.300 million m³/a, SW: 1.388 million m³/a)
 - 2035: 3.257 million m³/a (8.917 Ml/d, 144 l/c/d)

53

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Thapane RWS Water Balance



54

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Thapane Conclusions and Recommendations

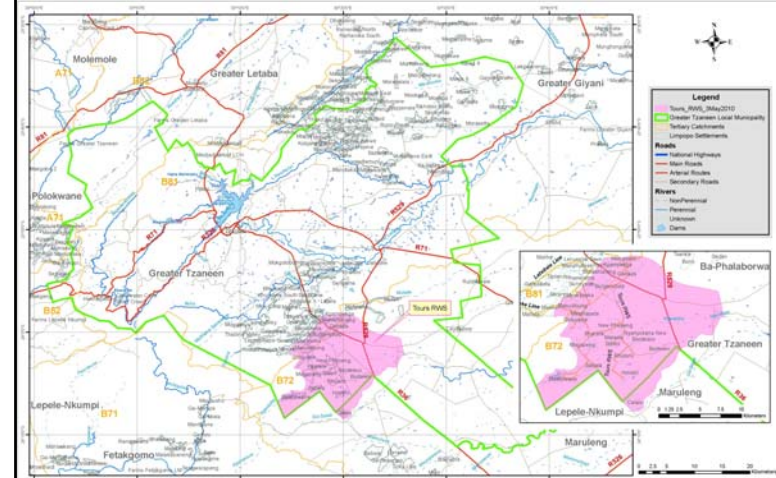
- Projected water requirements exceed available resources from 2012 (shortfall of 1.557 million m³/a (4.3 Ml/d) by 2035). The following reconciliation measures are required:
 - WSA to improve management information and implement measures specified in the WC/WDM Strategy and Business Plan
 - Development of additional groundwater resources (0.584 million m³/a, 1.6 Ml/d). Feasibility study required
 - Support from the Groot Letaba System 0.254 million m³/a (0.7 Ml/d) in 2020 and 0.970 million m³/a (2.7 Ml/d) in 2035, once Nwamitwa Dam is commissioned (2020)
- Continuous optimal utilisation of all the existing water resources
- Metering, monitoring, billing and revenue collection
- No licenced water use registered in the WARMS database. Water use entitlement should be investigated and confirmed

55

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Tours RWS Strategy



56

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Tours RWS Strategy

- Demographics (high growth): 47 731(2011) – 61 128 (2035)

Category	Dwelling Type	% Population per Category		
1	Flats	0%	0%	Formal
2	Clusters	0%		
3	Low Income	0%		
4	Medium Income	0%		
5	High Income	0%	0%	Formal
6	Very High Income	0%		
7	Below RDP Level	47%		
8	RDP Level	18%	100%	Informal
9	Above RDP Level	35%		

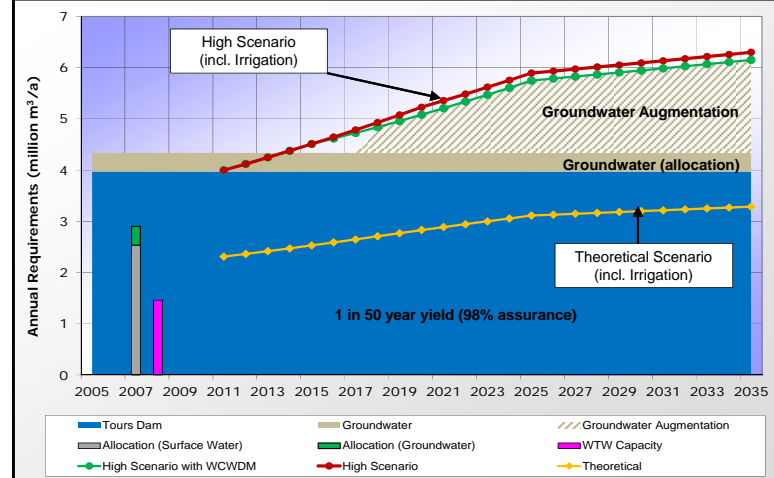
- Water sourced from Tours Dam & Groundwater
- Water requirement projection (high growth):
 - 2011 Theoretical: 1.236 million m³/a (3.385 MI/d, 68 l/c/d)
 - 2011: 2.922 million m³/a (8.000 MI/d, 161 l/c/d)
(GW: Negligible, SW Blue Drop: 2.922 million m³/a)
 - 2035: 5.223 million m³/a (14.300 MI/d, 234 l/c/d)

57

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Tours RWS Water Balance



58

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Tours Conclusions and Recommendations

- Projected water requirements exceed available water resources from 2014 onwards (1.964 million m³/a (5.4 MI/d) shortfall 2035. The following reconciliation measures are required:
 - Preliminary WC/WDM analysis indicates 5% or 0.147 million m³/a (0.4 MI/d) savings. WSA to Implement measures specified in the WC/WDM Strategy and Business Plan
 - Development of additional groundwater resources (1.817 million m³/a, 5.0 MI/d). Feasibility study required
 - Other options only to be investigated once confirmed groundwater resources are fully developed
- Metering, monitoring, billing and revenue collection
- 2012 DWS Blue Drop Assessments (WTW operating at 200% capacity) - needs to be confirmed together with Tours WTW upgrading requirements
- No licenced water use registered in the WARMS database. Water use entitlement should be investigated and confirmed

59

WATER IS LIFE - SANITATION IS DIGNITY

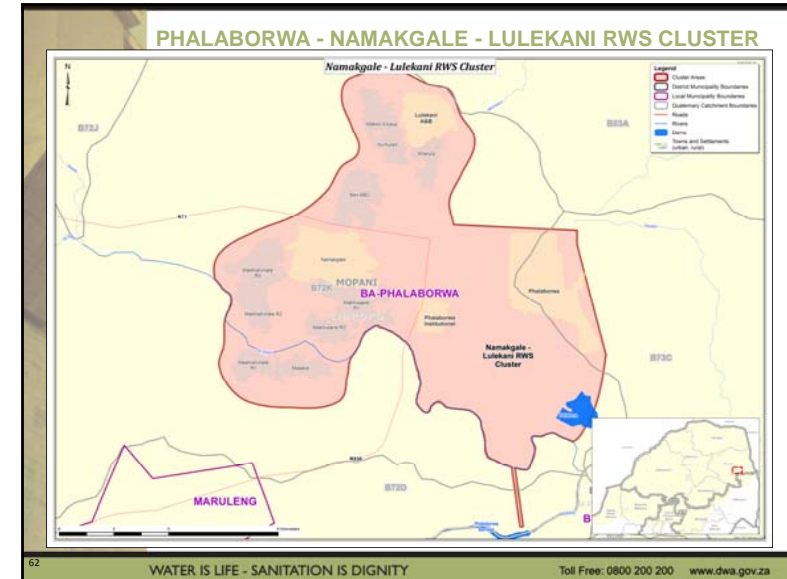
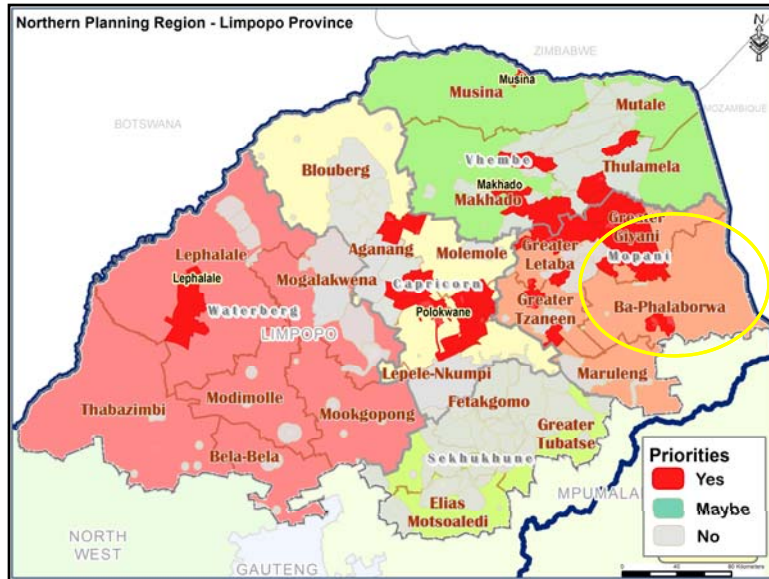
Toll Free: 0800 200 200 www.dwa.gov.za

MOPANI DM Ba-Phalaborwa LM

60

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za



PHALABORWA - NAMA KGALE - LULEKANI RWS CLUSTER

- Demographics (high growth): 131 839 (2011) – 156 204 (2035)

Category	Dwelling Type	% Population per Category		
1	Flats	1%		
2	Clusters	0%		
3	Single Residential	Low Income	4%	9%
4		Medium Income	1%	
5		High Income	1%	
6		Very High Income	2%	
7	Informal	Below RDP Level	8%	91%
8		RDP Level	6%	
9		Above RDP Level	77%	

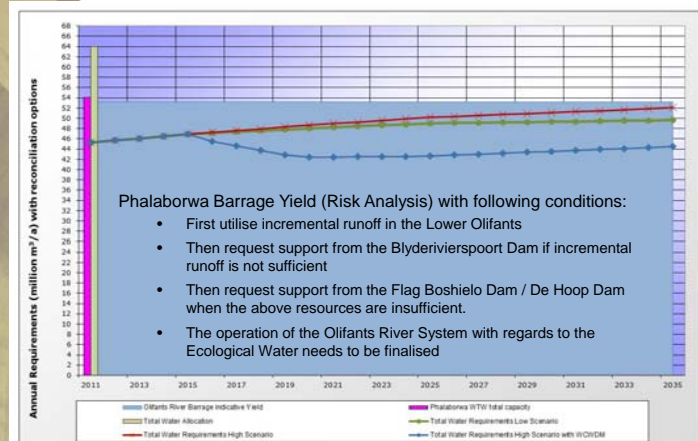
- Water sourced from Phalaborwa Barrage
- Water Requirement projection (high growth)
 - 2011 Theoretical: 7.237 million m³/a (19.82 Ml/d, 150 l/c/d)
 - 2011: 23.811 million m³/a (65.19 Ml/d, 494 l/c/d)
 - 2035: 25.697 million m³/a (70.35 Ml/d, 450 l/c/d)

63

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

PHALABORWA NAMA KGALE - LULEKANI RWS CLUSTER



64

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

PHALABORWA - NAMAKGALE - LULEKANI RWS CLUSTER

- Projected water requirements do not exceed available resources until at least 2035. The following measures are required:
 - WSA to implement WC/WDM
- Detailed operational analysis of Olifants River System to maximize yield. This should take into account Barrage Sedimentation
- Investigate extent of further re-use by industrial consumers and feasibility into re-use of treated effluent from WWTWs
- Groundwater Feasibility Study for the Olifants Catchment (DWS) to confirm groundwater development potential
- Water allocations to be aligned with projected water requirements
- Findings from this Strategy should be incorporated into the Continuation of the Olifants River Water Supply System Reconciliation Strategy

65

WATER IS LIFE - SANITATION IS DIGNITY

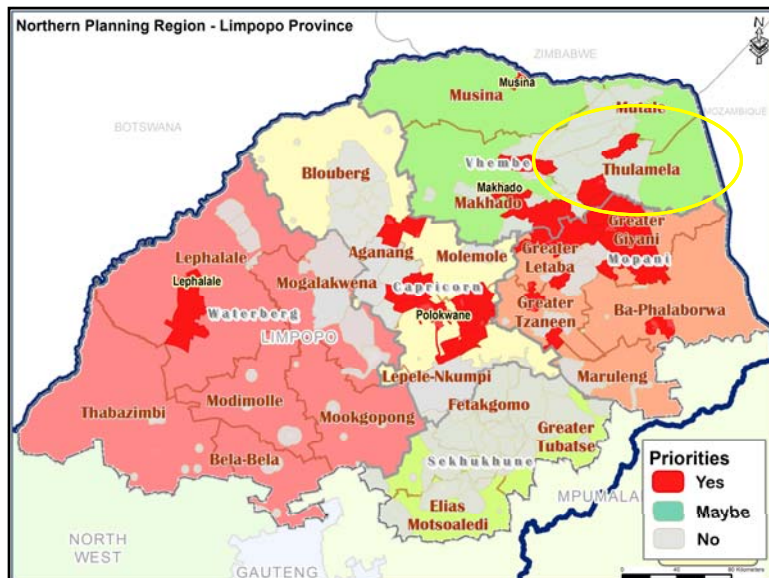
Toll Free: 0800 200 200 www.dwa.gov.za

VHEMBE DM Thulamela LM

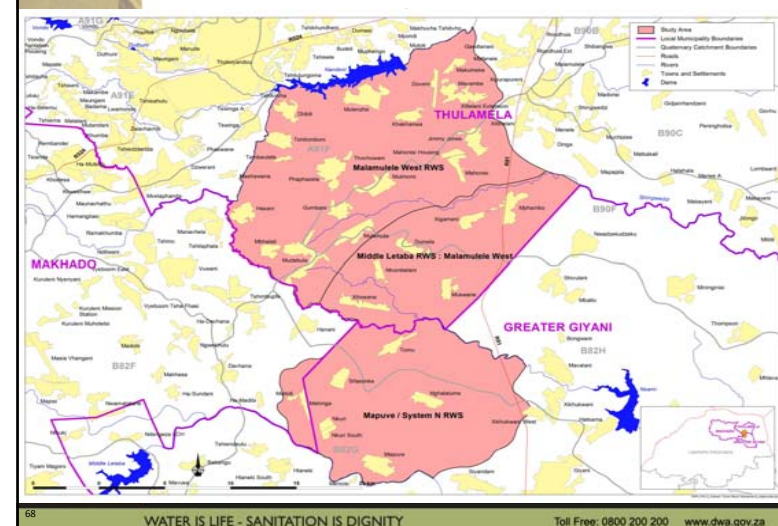
66

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za



Malamulele West and Mapuve/System N RWS



68

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

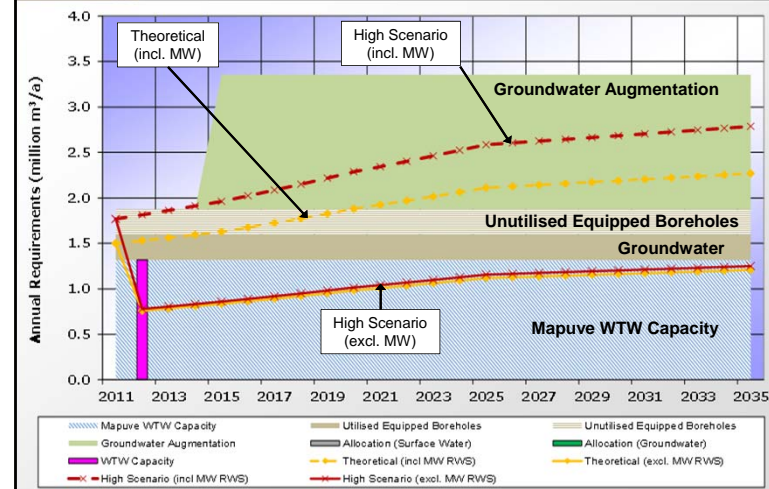
Malamulele West and Mapuve/System N RWS

- Demographics (high growth): 76 092(2011) – 99 222(2035)

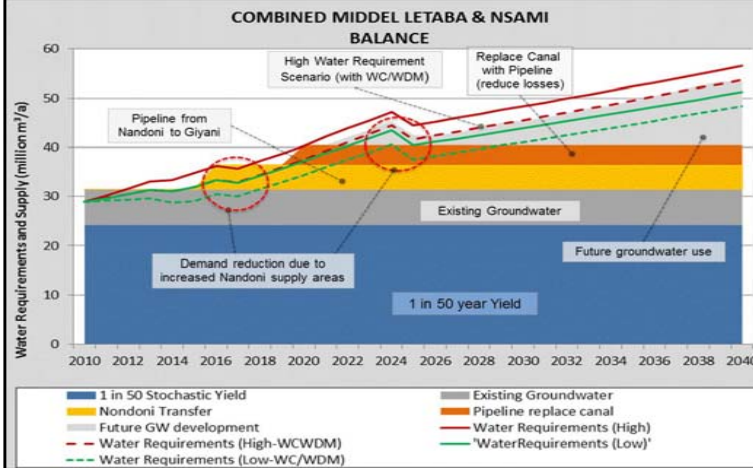
Category	Dwelling Type	% Population per Category		
1	Flats	0%		
2	Clusters	0%		
3	Single Residential	Low Income	0%	0%
4		Medium Income	0%	
5		High Income	0%	
6	Single Residential	Very High Income	0%	0%
7		Below RDP Level	32%	
8		RDP Level	38%	
9	Informal	Above RDP Level	30%	100%

- Water sourced from Middle Letaba Dam & Groundwater; Nandoni Dam used from 2012
- Water requirement projection (high growth):
 - 2011 Theoretical: 1.500 million m³/a (4.107 Ml/day, 54 l/c/d)
 - 2011: 1.768 million m³/a (4.841 Ml/d, 64 l/c/d) to (GW :0.490 million m³/a, SW: 1.278 million m³/a)
 - 2035: 2.787 million m³/a (7.625 Ml/d, 84 l/c/d)

Malamulele West and Mapuve/System N RWS



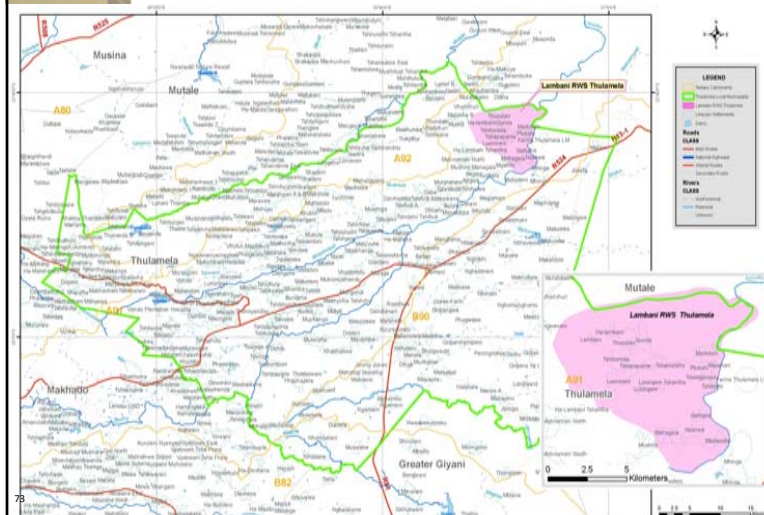
Total Middle Letaba and Nsami Dam (Middle Letaba RWS, Giyani and Malamulele West/Mapuve System N)



Malamulele West and Mapuve/System N RWS

- Malamulele West/Mapuve System N Cluster (excl. Malamulele West) water requirements do not exceed the available resources.
- The projected requirements for total Middle Letaba and Nsami Dam supply areas exceed the available resources from 2012 onwards. The following reconciliation measures are required:
 - WC/WDM analysis confirmed savings of 2.8 million m³/a (7.8 Ml/d). Implement measures specified in the WC/WDM Strategy and BP
 - Implementation of pipeline from Nandoni Dam to Giyani (5 million m³/a, 13.7 Ml/d)
 - Pipeline to replace canal (4 million m³/a, 11.0 Ml/d)
 - Supply from Nandoni Dam to committed areas (7.7 million m³/a)
 - Groundwater Developments in supply areas (12.9 million m³/a, 35.3 Ml/d) - Commission Feasibility Study
 - Metering, monitoring, billing and revenue collection
 - Continuous optimal utilisation of all resources after support from Nandoni Dam

Lambani Regional Water Supply



Lambani RWS Strategy

- Demographics (high growth): 6 333 (2011) – 6 287 (2035)

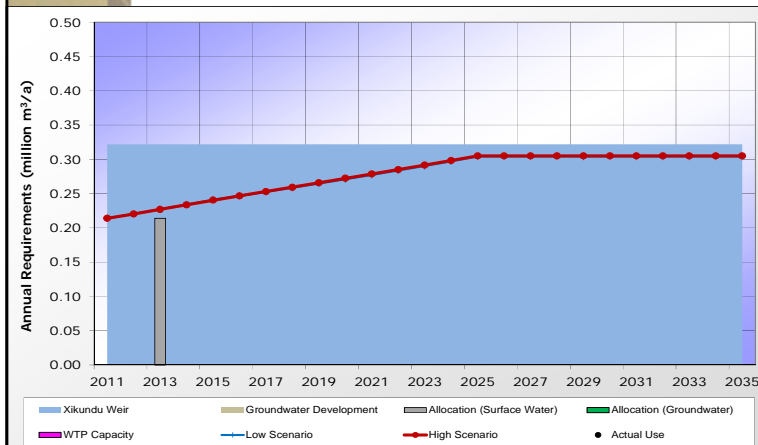
Category	Dwelling Type	% Population per Category			
1	Flats	0%	0%	Formal	
2	Clusters	0%			
3	Low Income	0%			
4	Medium Income	0%			
5	High Income	0%			
6	Very High Income	0%	100%	Informal	
7	Below RDP Level	44%			
8	RDP Level	54%			
9	Above RDP Level	2%			

- Allocation from Xikundu Weir in the Luvuvhu River (0.214 million m³/a) increased to 0.322 million m³/a (since Nandoni Dam)
- Water requirement projection (high growth):
 - 2011 Theoretical: 0.100 million m³/a (0.274 MI/d, 43 l/c/d)
 - 2011: 0.214 million m³/a (0.589 MI/day, 93 l/c/d) (SW: 0.214 million m³/a (historic record))
 - 2035: 0.305 million m³/a (0.835 MI/day, 133 l/c/d)

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

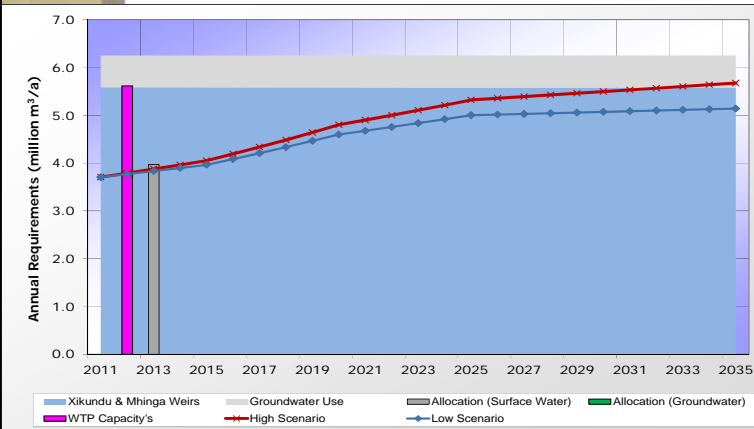
Lambani RWS Water Balance



WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Total Xikundu and Mingha Weir (Lambani Tshifudi and North Malamulele East clusters)

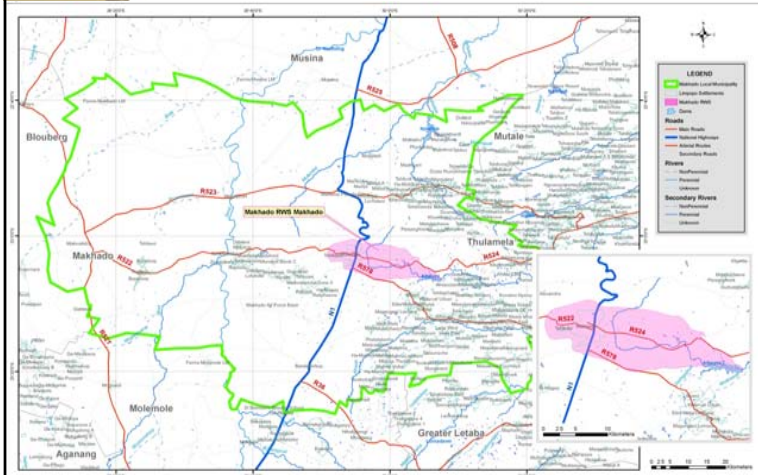


WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za



Makhado RWS Strategy



99 WATER IS LIFE - SANITATION IS DIGNITY Toll Free: 0800 200 200 www.dwa.gov.za

Makhado RWS Strategy

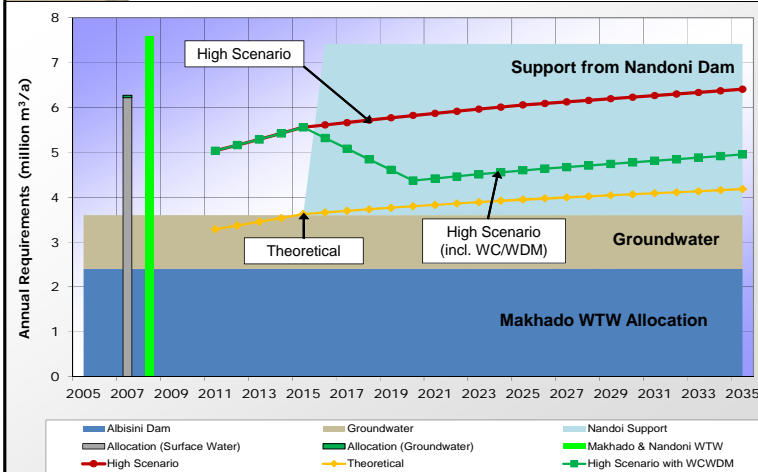
- Demographics (high growth): 27 417 (2011) – 33 566(2035)

Category	Dwelling Type	% Population per Category			
1	Flats	6%	72%	Formal	
2	Clusters	2%			
3	Low Income	35%			
4	Medium Income	10%			
5	High Income	11%	8%		
6	Very High Income	8%			
7	Below RDP Level	3%			
8	RDP Level	1%	28%	Informal	
9	Above RDP Level	24%			

- Water sourced from Albasini Dam and groundwater
- Water requirement projection (high growth):
 - 2011 Theoretical: 3.284 million m³/a (8.992 Ml/d, 328 l/c/d)
 - 2011: 5.035 million m³/a (13.786 Ml/d, 503 l/c/d)
(GW :1.200 million m³/a, SW: 3.835 million m³/a)
 - 2035: 6.049 million m³/a (17.548 Ml/d, 523 l/c/d)

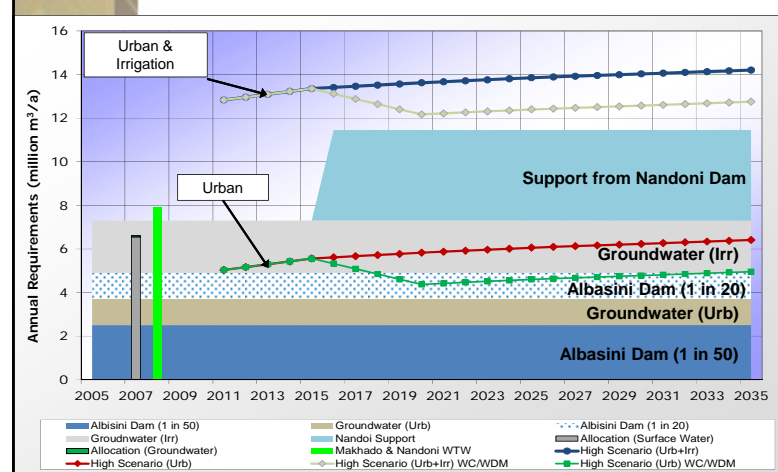
90 WATER IS LIFE - SANITATION IS DIGNITY Toll Free: 0800 200 200 www.dwa.gov.za

Makhado RWS Water Balance



91 WATER IS LIFE - SANITATION IS DIGNITY Toll Free: 0800 200 200 www.dwa.gov.za

Total Albasini Dam Balance



92 WATER IS LIFE - SANITATION IS DIGNITY Toll Free: 0800 200 200 www.dwa.gov.za

Makhado Conclusions & Recommendations

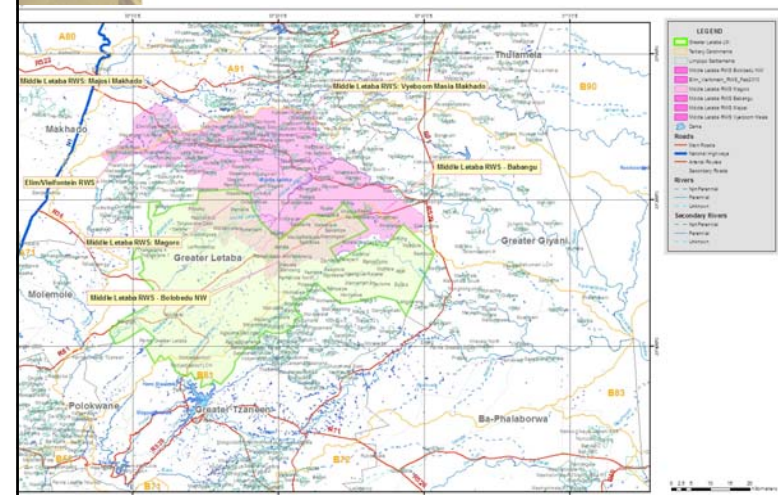
- Makhado RWS requirements exceed allocated resources. Shortfall of 2.809 million m³/a (7.7 MI/d) by 2035.
- For the total Albasini Dam supply area (incl. Albasini GWWS) the projected shortfall is 6.909 million m³/a (18.9 MI/d) by 2035. The following reconciliation measures are required:
 - Preliminary WC/WDM analysis confirmed potential savings of 1.454 million m³/a (3.981 MI/d). The WSA must fully implement the recommended measures specified in the Strategy and Business Plan
 - Implementation of the infrastructure to provide support from Nandoni Dam (3.819 million m³/a, 10.456 MI/d)
 - Reduction in upstream irrigation (GW and SW) to improve Albasini Dam yield
- Continuous optimal utilisation of all resources after support from Nandoni Dam
- Investigate feasibility of re-use for irrigation parks/sport or industrial use
- Reregistered licenced water use needs to be investigated and confirmed. The water committed from Nandoni Dam also needs to be registered

93

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Middle Letaba RWS Strategy



94

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Middle Letaba RWS Strategy

- Demographics (high growth): 296 036 (2011) - 333 219 (2035)

Category	Dwelling Type	% Population per Category		
1	Flats	0%		
2	Clusters	0%		
3	Single Residential	Low Income	2%	
4		Medium Income	0%	
5		High Income	0%	
6	Informal	Very High Income	0%	
7		Below RDP Level	29%	
8		RDP Level	29%	
9		Above RDP Level	39%	
			2%	Formal
			98%	Informal

- Water sourced from Middle Letaba Dam and groundwater
- Water requirement projection (high growth):
 - 2011 Theoretical: 8.640 million m³/a (23.655 MI/day, 80 l/c/d)
 - 2011: 9.740 million m³/a (26.667 MI/d, 90 l/c/d)
(GW :3.770 million m³/a, SW: 5.970 million m³/a)
 - 2035: 13.171 million m³/a (36.060 MI/d, 108 l/c/d)

95

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

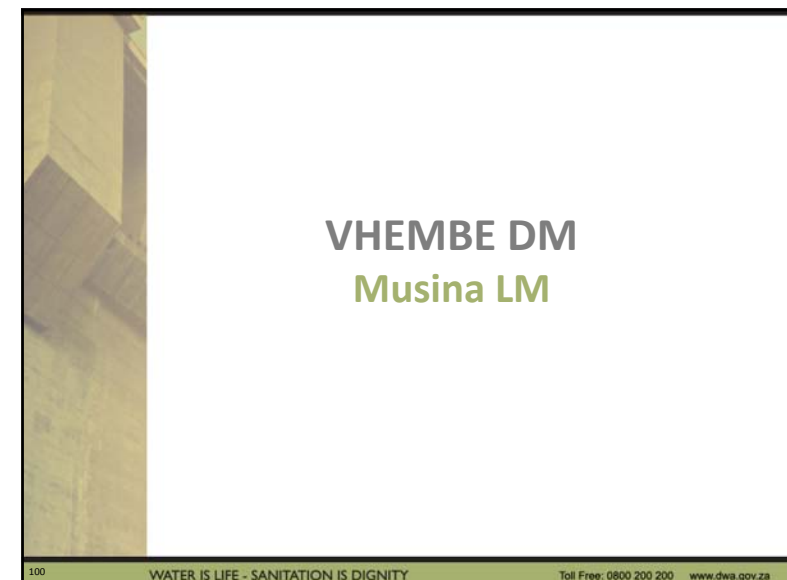
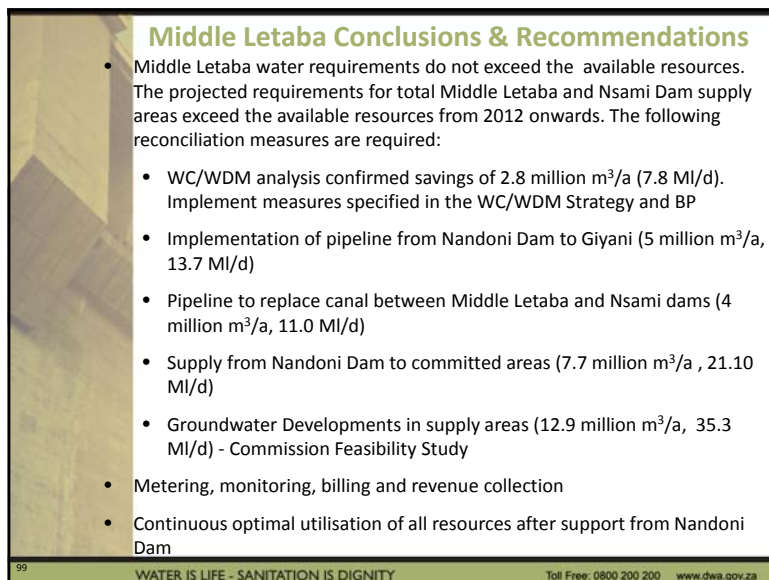
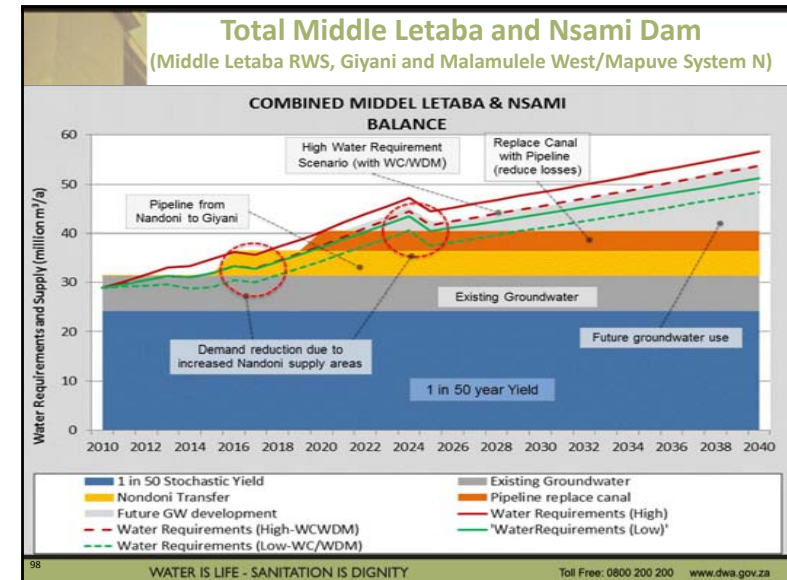
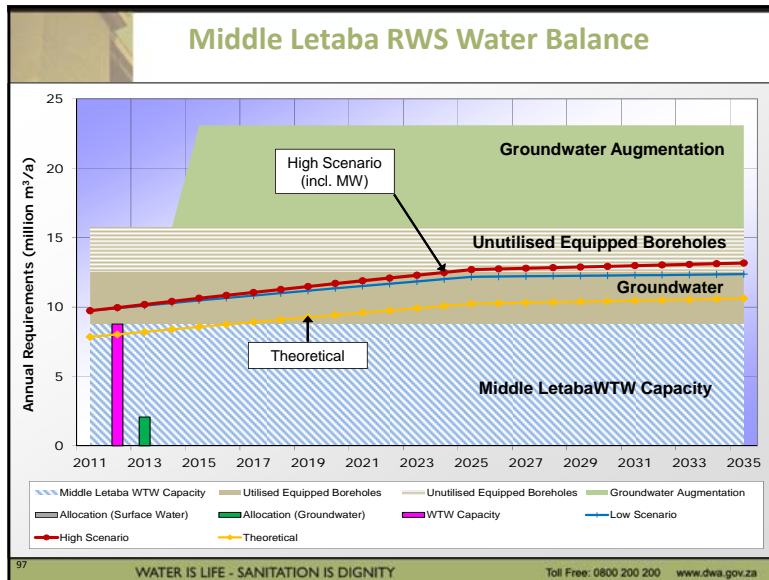
Middle Letaba RWS Strategy

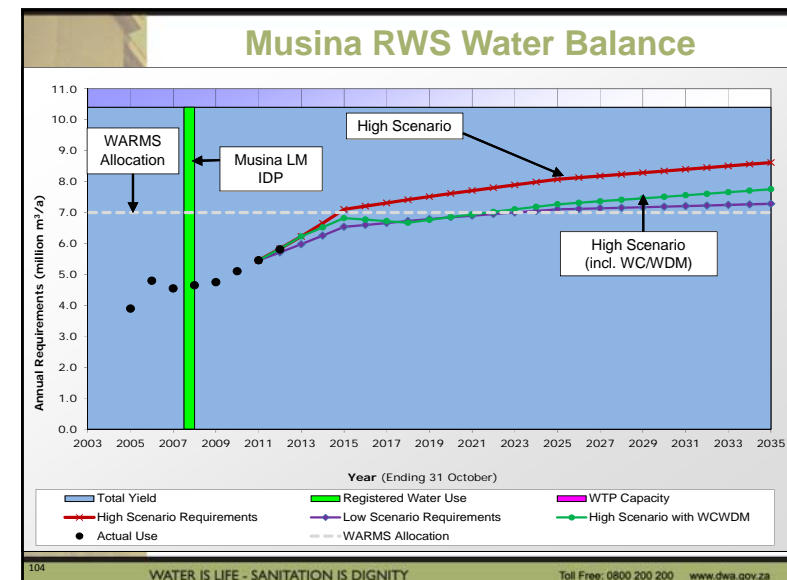
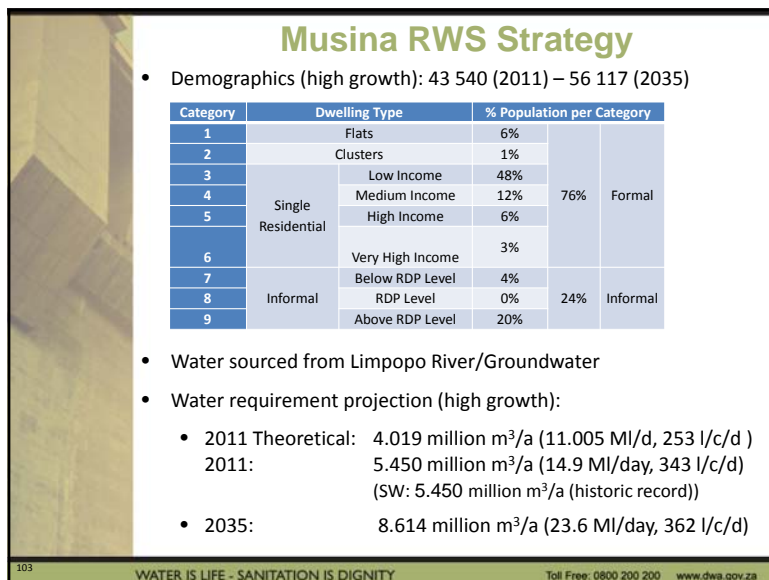
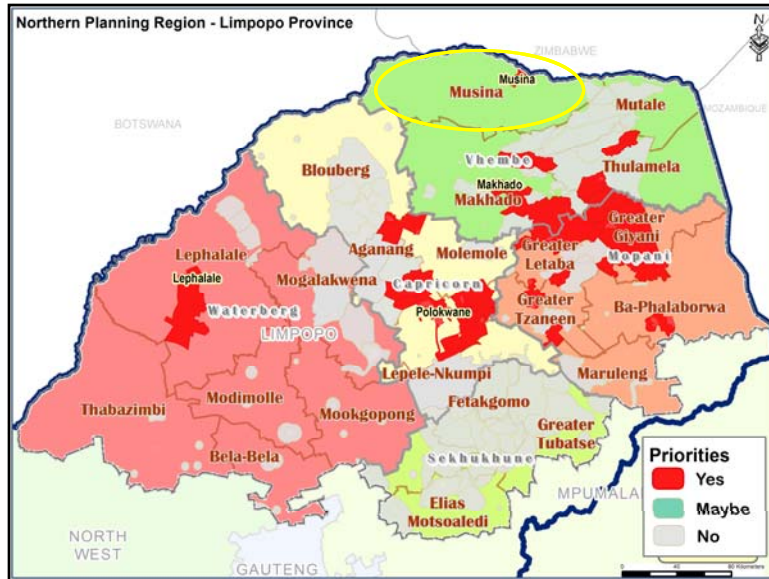
- Plans underway to support Elim/Vleifontein, Majosi Cluster and Vyeboom Masia Clusters from the Nandoni Dam. However water requirements of all clusters need to be included in the water balance to confirm augmentation volumes

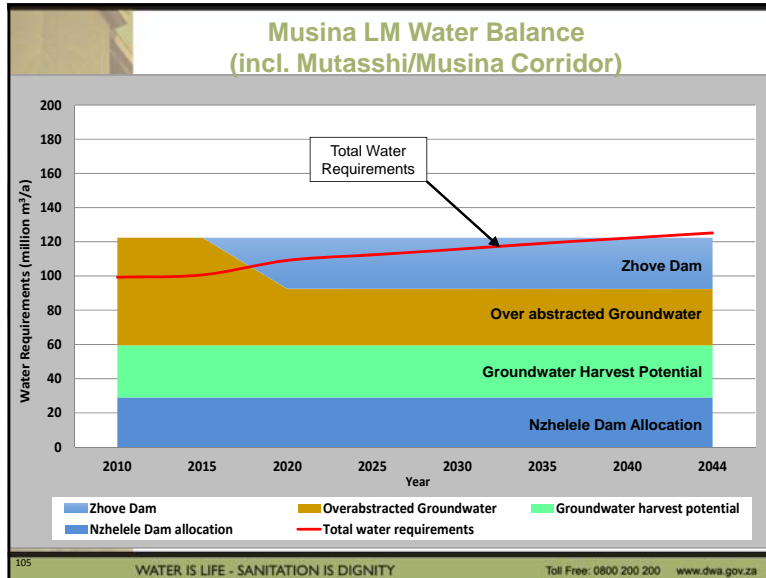
96

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za







Musina Conclusions and Recommendations

- Musina is not experiencing a water resource shortfall assuming the allocated supply volume from the Limpopo River/Aquifer is sustainable within the broader context of the Limpopo River Basin (LIMCOM Limpopo River Basin Monograph study)
- Preliminary WC/WDM analysis indicates 10% or 0.632 million m³/a (1.73 MI/d) savings. WSA to implement recommended measures stated in the WC/WDM Strategy and Business Plan
- DWS Limpopo WMA Reconciliation Strategy incorporated RBIG Feasibility Study for the Mutasshi/Musina Corridor BWS information and developed a water balance for the Musina LM. The following interventions are required :
 - Groundwater abstraction exceeds the harvest potential. Groundwater feasibility study be conducted to confirm the total groundwater exploitation potential for the Musina LM.
 - Augmentation from Zhove Dam on Umzingwane River (Zimbabwe). At least 30 million m³/a could be purchased from the ZINWA and it is recommended that negotiations should commence in this regard.

106 WATER IS LIFE - SANITATION IS DIGNITY Toll Free: 0800 200 200 www.dwa.gov.za

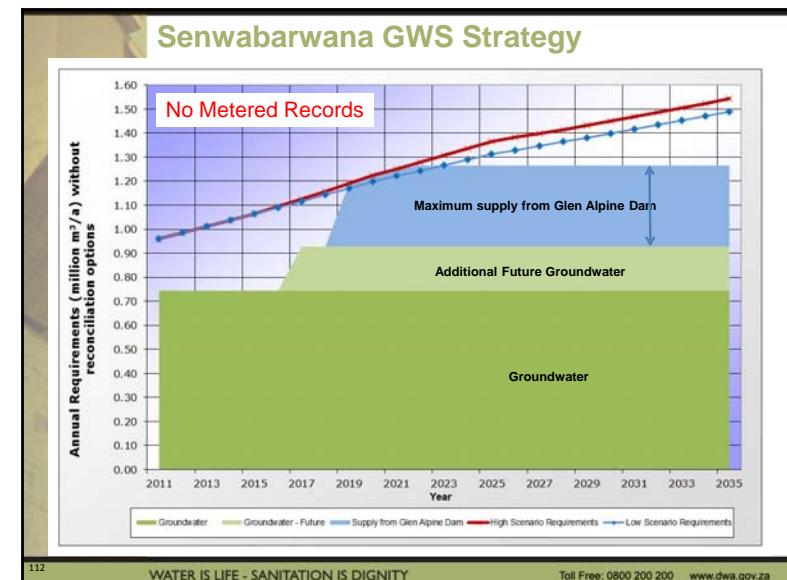
Musina Conclusions and Recommendations

- Actual water abstraction volumes to be recorded and registered
- Metering, monitoring, billing and revenue collection
- The licenced water use registration should be investigated and confirmed

107 WATER IS LIFE - SANITATION IS DIGNITY Toll Free: 0800 200 200 www.dwa.gov.za

CAPRICORN DM Blouberg LM

108 WATER IS LIFE - SANITATION IS DIGNITY Toll Free: 0800 200 200 www.dwa.gov.za



Senwabarwana GWS Strategy

- Projected water requirements exceed available resources from 2012. Shortfall of 0.799 million m³/a (2.19 ML/d) by 2035. The following reconciliation measures are required:
 - WSA to implement WC/WDM
 - Groundwater feasibility study to confirm exploitation potential
 - Augmentation from Glen Alpine Dam:
 - DWS IRS 2014: Max allocation of 0.337 Mm³/a (0.92 ML/d) to Cluster
 - DWS Stand Alone Dams 2011: No surplus available. Study is required to confirm the available resources
 - Additional water sources to be identified, once groundwater feasibility study and Glen Alpine study is concluded. This includes possible extension the ORWRDP Phase 2B (Flag Boshielo Dam) link to the Aganang LM, potential transfer of water use entitlements (pending agreement on policy and procedures) etc.
- Metering, monitoring, billing and revenue collection
- Infrastructure assessment to deliver total required volume
- Water use allocations need to be confirmed and brought in line with projected water requirements if required.

113

WATER IS LIFE - SANITATION IS DIGNITY

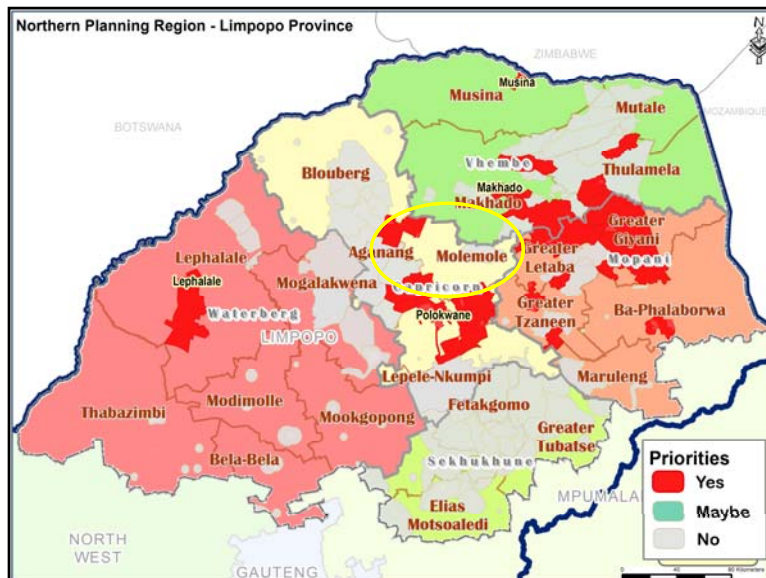
Toll Free: 0800 200 200 www.dwa.gov.za

CAPRICORN DM Molemole LM

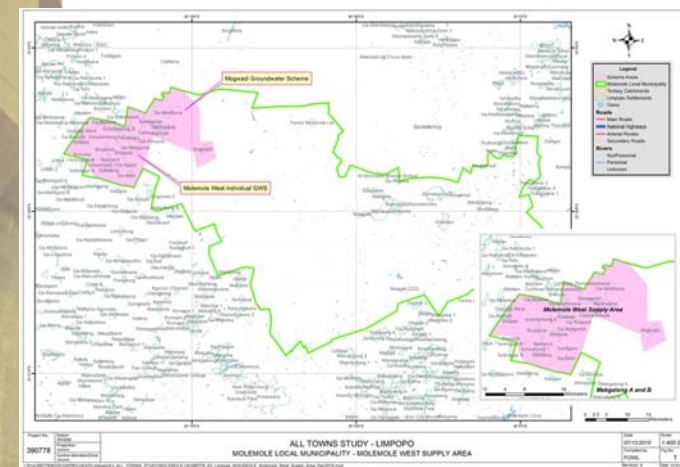
114

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za



Molemole West RWS Strategy



115

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Molemole West RWS Strategy

- Demographics (high growth): 32 887 (2011) – 33 126 (2035)

Category	Dwelling Type	% Population per Category		
1	Flats	0%	8%	Formal
2	Clusters	0%		
3	Low Income	5%		
4	Medium Income	1%		
5	High Income	1%	92%	Informal
6	Very High Income	1%		
7	Below RDP Level	20%		
8	RDP Level	12%		
9	Above RDP Level	61%		

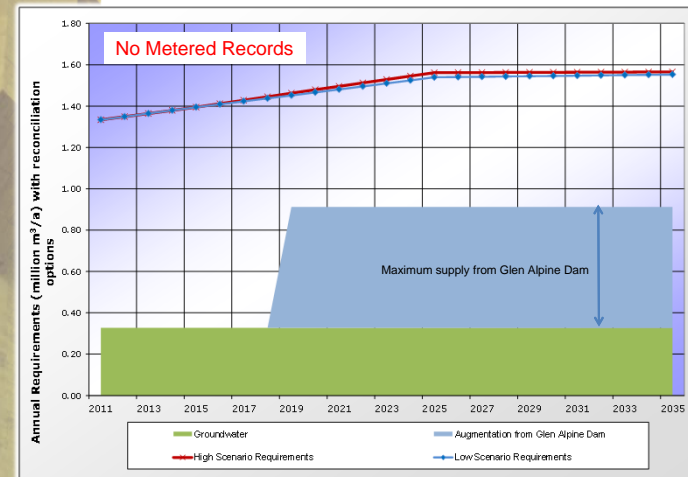
- Water sourced from groundwater.
- Water Requirement projection (high growth)
 - 2011 Theoretical: 1.334 million m³/a (3.65 Ml/d, 111 l/c/d)
 - 2035: 1.566 million m³/a (4.29 Ml/d, 129 l/c/d)

117

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Molemole West RWS Strategy



118

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Molemole West RWS Strategy

- Projected water requirements exceed available resources from 2012. Shortfall of 1.238 million m³/a (3.39 Ml/d) by 2035. The following reconciliation measures are required:
 - WSA to implement WC/WDM
 - Groundwater feasibility study to confirm groundwater yield
 - Augmentation from Glen Alpine Dam:
 - DWS IRS 2014: Max allocation of 0.337 Mm³/a (0.92 Ml/d) to Cluster
 - DWS Stand Alone Dams 2011: No surplus available. Study is required to confirm the available resources
 - Additional water sources to be identified, once groundwater feasibility study and Glen Alpine study is concluded. This includes possible extension the ORWRDP Phase 2B (Flag Boshielo Dam) link to the Aganang LM, potential transfer of water use entitlements (pending agreement on policy and procedures) etc.
- Meter installation programme
- Infrastructure assessment to deliver total required volume
- This Cluster's water use allocations need to be confirmed and brought in line with projected water requirements if required

119

WATER IS LIFE - SANITATION IS DIGNITY

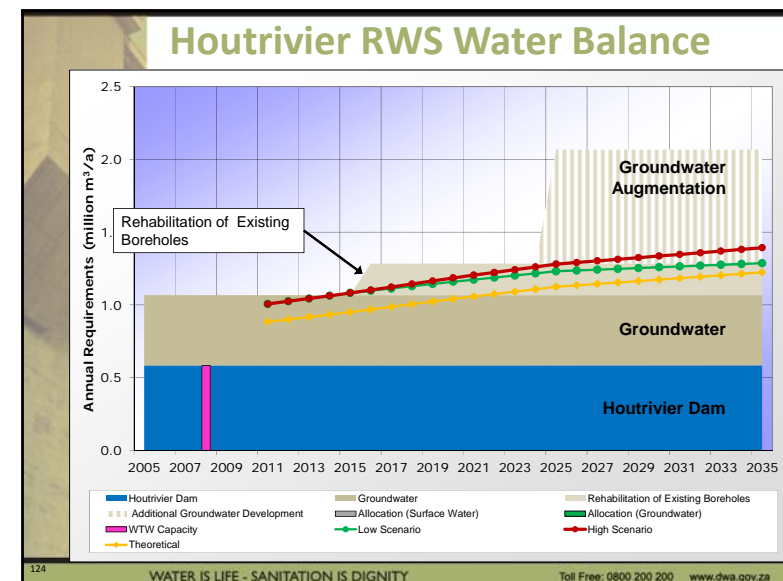
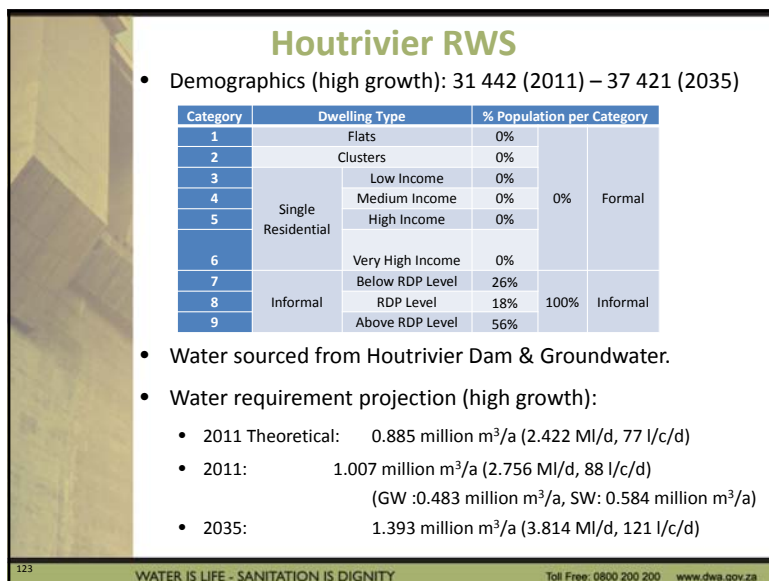
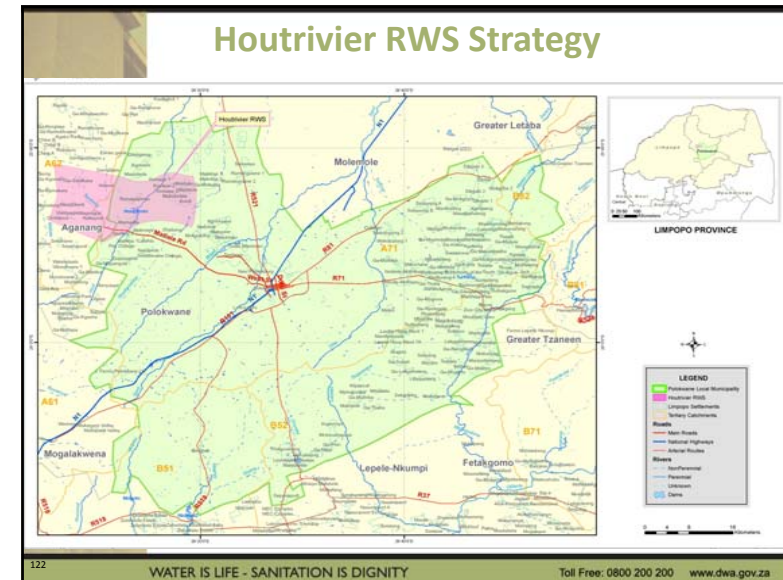
Toll Free: 0800 200 200 www.dwa.gov.za

CAPRICORN DM Polokwane LM

120

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za



Houtrivier Conclusions & Recommendations

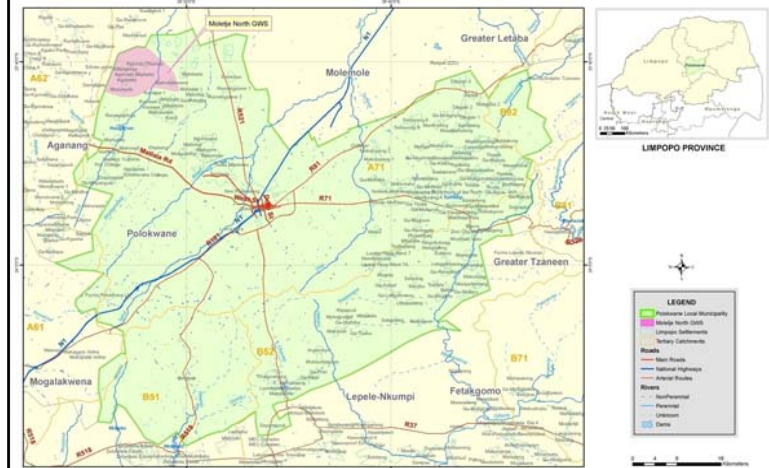
- Projected water requirements exceed available water resources from 2015 onwards. Shortfall of 0.326 million m³/a (0.892 MI/d) by 2035. The following reconciliation measures are required:
 - Conduct detailed WC/WDM analysis to confirm potential savings and identify WC/WDM measures
 - Rehabilitation of existing boreholes (0.217 million m³/a, 0.6 MI/d)
 - Additional groundwater development (0.109 million m³/a, 0.3 MI/d) . Conduct a feasibility study to confirm and develop additional groundwater resources augmentation and water quality
- Registration, metering and monitoring of boreholes required
- The yield of Houtrivier Dam needs to be confirmed
- Water allocations are unknown and need to be confirmed

125

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Moletjie North RWS Strategy



126

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Moletjie North RWS Water Balance

- Demographics (high growth): 7 164(2011) – 8 366 (2035)

Category	Dwelling Type	% Population per Category		
1	Flats	0%	0%	Formal
2	Clusters	0%		
3	Low Income	0%		
4	Medium Income	0%		
5	High Income	0%	100%	Informal
6	Very High Income	0%		
7	Below RDP Level	10%		
8	RDP Level	11%	79%	
9	Above RDP Level	79%		

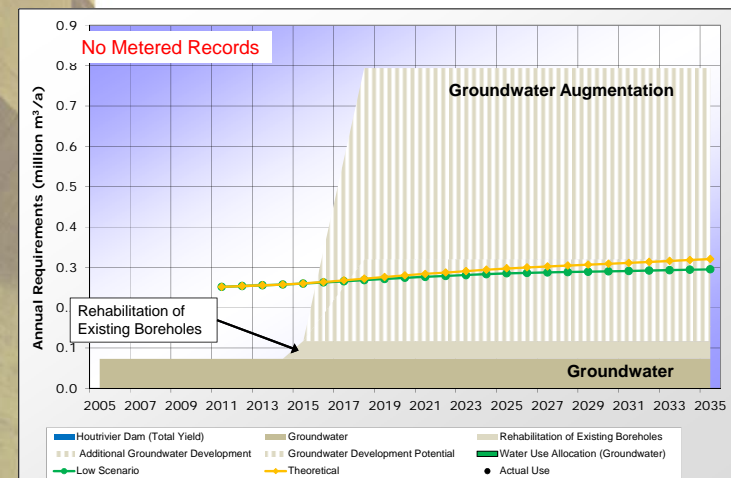
- Water sourced from Groundwater
- Water requirement projection (high growth):
 - 2011: 0.249 million m³/a (0.682 MI/d, 95 l/c/d)
 - 2035: 0.317 million m³/a (0.868 MI/d, 104 l/c/d)

127

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Moletjie North RWS Water Balance



128

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Chuene Maja RWS

- Demographics (high growth): 22 344 (2011) – 21 890 (2035)

Category	Dwelling Type	% Population per Category		
1	Flats	0%		
2	Clusters	0%		
3		0%		
4	Single Residential	Low Income	0%	
5		Medium Income	0%	
		High Income	0%	
6		Very High Income	0%	
7		Below RDP Level	21%	
8	Informal	RDP Level	59%	100%
9		Above RDP Level	20%	

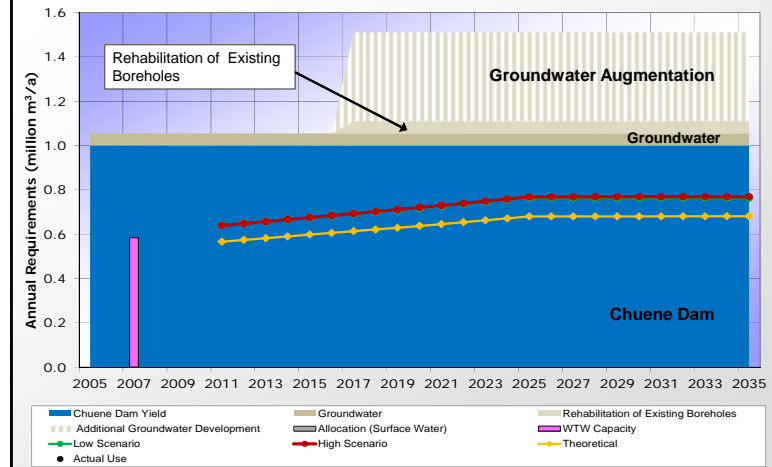
- Water sourced from Chuene Dam & Groundwater.
- Water requirement projection (high growth):
 - 2011 Theoretical: 0.569 million m³/a (1.549 MI/day, 69 l/c/d)
 - 2011: 0.639 million m³/a (1.751 MI/d, 78 l/c/d)
(GW :0.055 million m³/a, SW: 0.584 million m³/a)
 - 2035: 0.769 million m³/a (2.107 MI/d, 96 l/c/d)

137

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Chuene Maja RWS Water Balance



138

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Chuene Maja Conclusions & Recommendations

- Projected water requirements are within available resources
- Conduct detailed WC/WDM analysis to confirm potential savings and identify WC/WDM measures. Prioritise installation of bulk water meters
- Yield of Chuene Dam (1.0 million m³/a, 2.7 MI/d) to be confirmed
- Undertake feasibility study to confirm the additional groundwater resources augmentation and water quality (treatment requirements)
- Chuene Dam originally constructed to support Lebogwomo. LNW requested if surplus yield is available, the possibility of supporting Lebogwomo needs to be confirmed
- Registration, metering and monitoring of boreholes required
- Maratapelo WTW to be upgraded from 1.6 MI/d (0.584 million m³/a) to 2.7 MI/d (0.986 million m³/a) by 2nd half of 2015
- Water allocations are unknown and need to be confirmed

139

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Molepo RWS Strategy



WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Molepo RWS

- Demographics (high growth): 21 466 (2011) – 20 919 (2035)

Category	Dwelling Type	% Population per Category		
1	Flats	0%		
2	Clusters	0%		
3	Low Income	0%		
4	Medium Income	0%		
5	High Income	0%		
6	Very High Income	0%		
7	Below RDP Level	22%		
8	RDP Level	49%		
9	Above RDP Level	29%		

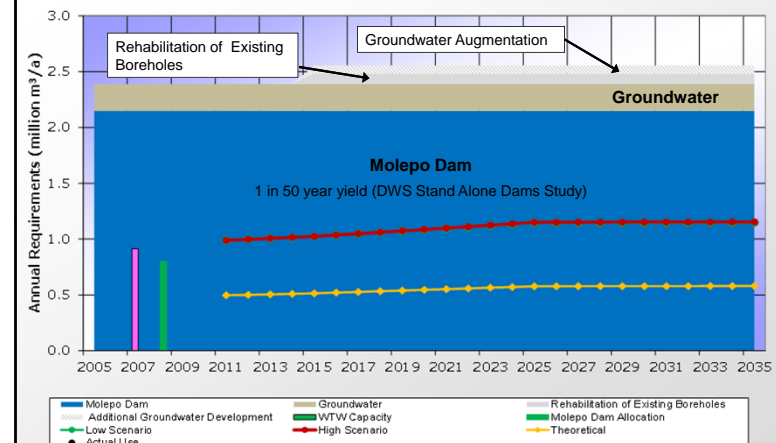
- Water sourced from Molepo Dam & Groundwater
- Water requirement projection (high growth):
 - 2011 Theoretical: 0.497 million m³/a (1.361 Ml/d, 63 l/c/d)
 - 2011: 0.989 million m³/a (2.709 Ml/d, 126 l/c/d)
(GW :0.237 million m³/a, SW: 0.752 million m³/a)
 - 2035: 1.154 million m³/a (3.159 Ml/d, 147 l/c/d)

141

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Molepo RWS Water Balance



142

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Molepo Conclusions & Recommendations

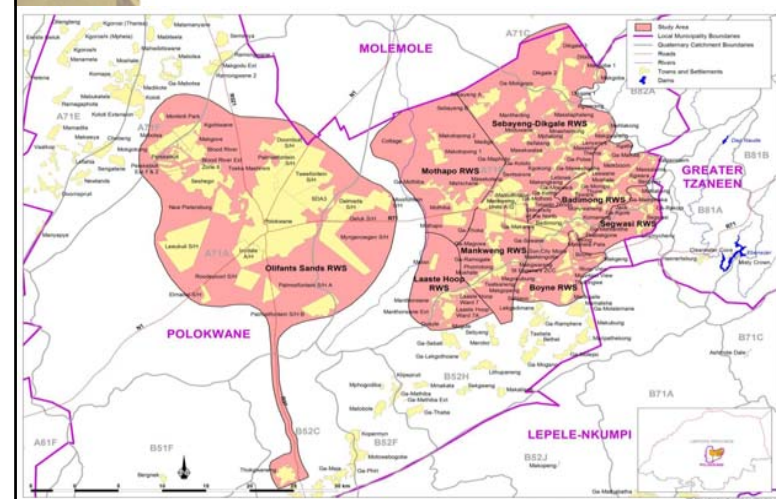
- Projected water requirements do not exceed the available resources
- Conduct detailed WC/WDM analysis to confirm potential savings and identify WC/WDM measures. Prioritise installation of bulk water meters
- Registration, metering and monitoring of boreholes required
- Undertake feasibility study to confirm the additional groundwater resources augmentation and water quality (treatment requirements)
- Surplus yield from Molepo Mam to support to neighbouring areas (i.e. Boyne RWS, Mankweng RWS and/or Laaste Hoop RWS) to be considered to reduce the load from the Olifants transfer scheme
- Molopo WTW currently operating at 82% capacity
- Water allocations are unknown and need to be confirmed

143

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Polokwane Cluster



144

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Polokwane Cluster

- Demographics (High): 489 160 (2011)–626 034 (2035)

Category	Dwelling Type	% Population per Category		
1	Flats	3.3%		
2	Clusters	2.1%		
3	Low Income	24.7%		
4	Medium Income	5.8%		
5	High Income	5.0%	45%	Formal
6	Very High Income	3.9%		
7	Below RDP Level	10.0%		
8	RDP Level	13.0%	55%	Informal
9	Above RDP Level	32.3%		

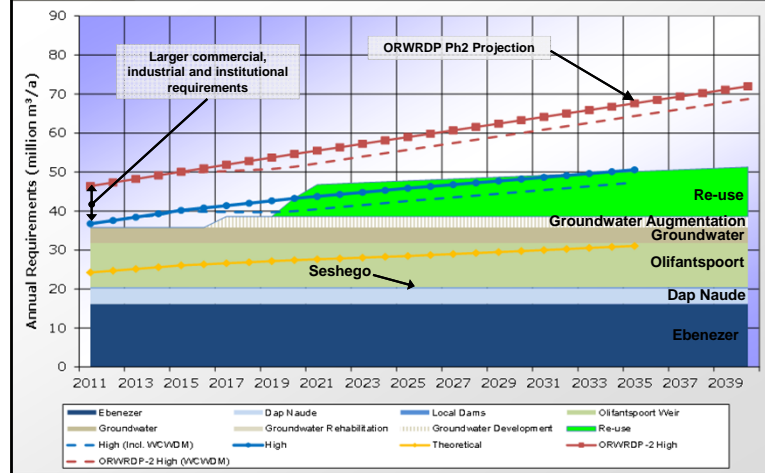
- Water sourced from Ebenezer Dam, Dap Naude Dam, Olifantspoort Weir, Seshego Dam and groundwater
- Water requirement projection (high growth):
 - 2011 Theoretical: 24.274 million m³/a (66.459 Ml/d, 136 l/c/d)
 - 2011: 46.405 million m³/a (127 Ml/d, 260 l/c/d)
 - 2035: 67.630 million m³/a (185 Ml/d, 296 l/c/d)

145

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Polokwane Cluster Water Balance



146

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Polokwane Conclusions & Recommendations

- Current water use exceeds the currently allocated water resources
- Preliminary WC/WDM analysis indicates savings of 3.266 million m³/a (8.9 Ml/d)
- Conduct detailed WC/WDM analysis to confirm potential savings and identify WC/WDM measures to be implemented. Installation of bulk water meters to be prioritised
- Current groundwater water use volume to be confirmed
- Registration, metering and monitoring of boreholes required
- Undertake feasibility study to confirm the additional groundwater resources augmentation (incl. quality, potential impacts on surface flows and groundwater levels, artificial recharge)
- Polokwane forms part of the larger integrated Olifants River System and the Letaba River System

147

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Polokwane Conclusions & Recommendations

Letaba River System

- Current Dap Naudé licenced allocation (6.52 million m³/a) is not recommended due lower yield (HFY = 2.1 million m³/a) Historic average supply approx. 4 million m³/a
- Ebenezer Dam licenced allocation of 12 million m³/a not be increased above 16.2 million m³/a
- Factors that could further influence the allocation from the Letaba:
 - Validation and Verification of Registered Water Users: In process but anticipated unlawful use to be minimal
 - Groundwater Development: LNW indicated substantial volumes of GW could be developed for users downstream of the Ebenezer Dam in exchange for an allocation from Ebenezer Dam. It is recommended that a feasibility study is conducted (incl. potential impact on base flows)
 - Compulsory Licencing: For the re-allocation of water could be considered (can only be considered once the verification of existing water users is complete)

148

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Polokwane Conclusions & Recommendations

Olifants River System

- Total Olifantspoort Weir licenced allocation is 14.6 million m³/a. Additional support supplied by augmentation options i.e. GW. Feasibility study conducted to confirm the development potential
- Factors that could further influence the allocation :
 - Validation and Verification (V&V) of Registered Water Users:
 - Irrigation (De Hoop): Existing lawful water use more or less fully utilised
 - Irrigation (Flag Boshielo): Informal irrigation (15.8 million m³/a) seldom requests releases and water use not measured. Commission V&V study to confirm potential utilisation of unused allocations
 - Ecological Water Requirements: The possibility for the temporary utilisation of a portion of the EWR releases. The ecological consequences of this option to be investigated and quantified
 - Compulsory Licencing: For the re-allocation of water could be considered (can only be considered once the verification of existing water users is complete)

149

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

WATERBERG DM Lephalale LM

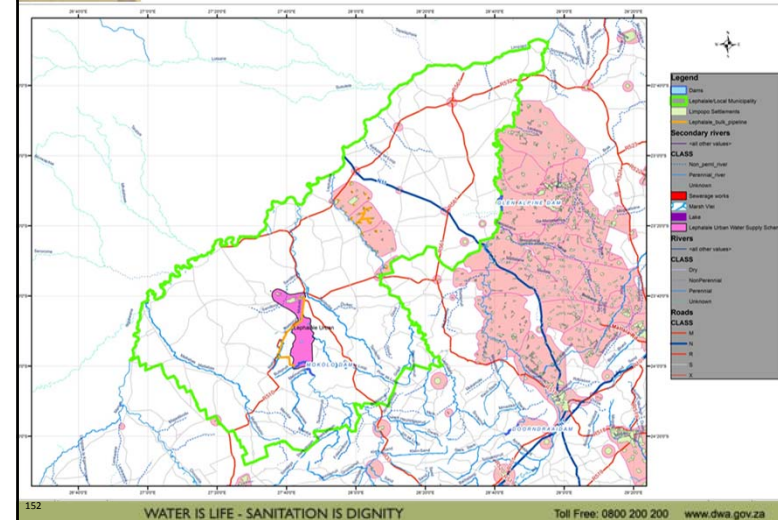
150

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za



Lephalale Urban Strategy



152

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Lephalale Urban

- Mokolo and Crocodile (West) Water Augmentation Project: Phase 2: Post Feasibility Bridging Study (July 2013)
- Demographics: 32 600 (2011) – 133 457 (2035)

Category	Dwelling Type	% Population per Category	
1	Flats	58%	Formal
2	Clusters		
3	Low Income		
4	Medium Income		
5	High Income	42%	Informal
6	Very High Income		
7	Below RDP Level		
8	RDP Level		
9	Above RDP Level		

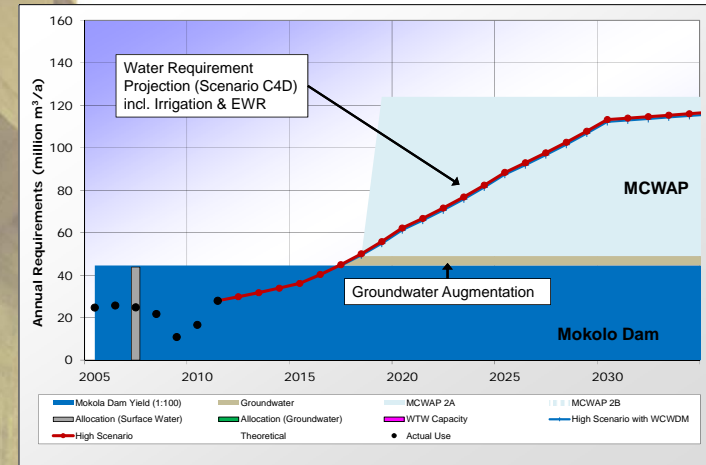
- Water requirement projection (high growth):
 - 2011: 6.490 million m³/a (17.769 Ml/d, 555 l/c/d)
 - 2035: 13.970 million m³/a (32.248 Ml/d, 287 l/c/d)

153

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Lephalale Water Balance



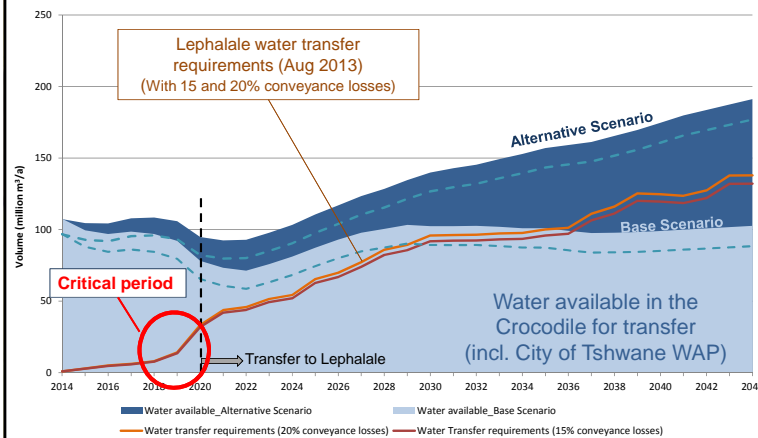
154

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

MCWAP Water Availability

Mokolo Crocodile Water Augmentation Project (Phase 2) Water Requirements and Water Availability



155

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Lephalale Conclusions & Recommendations

- Projected requirements exceed available resources by 2017
- WC/WDM plan to be developed with clear performance targets and implemented
- Prioritise MCWAP implementation (75 million m³/a). Long term augmentation 110 million m³/a
- Groundwater – surface water interactions to be investigated and confirmed before development
- Zeeland WWTW return flows currently re-used (irrigation). New WWTW to be built in Marapong (mine to use treated effluent from new WWTW)
- Mokolo Annual Operating Analysis:
 - Tracking of actual water use per water use sector
 - WRPM analysis with the most recent information
- Allocations to be aligned with projected requirements

156

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Item 9: Remainder of the Study Programme – Phase 1

157

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Remainder of the Study Programme – Phase 1

- SSC to submit comments by **14 August 2015** to:
 - Northern Planning Region Deputy Study Leader:
Ms Monja Esterhuizen (monjae@uwp.co.za)

158

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Remainder of the Study Programme – Phase 1

- Distribution of the updated priority strategies for comment: on CD & upon request
- Review and incorporate comments
 - Prepare final priority strategies
 - Prepare final District Municipality Summary Reports
- Distribution of the final priority strategies & DM Summary Reports to
 - The DWS Head Office
 - DWS Regional Offices
- DWS website
- Final SMT meeting in September 2015

159

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Item 10: Way Forward

160

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Way Forward

- Incorporation of the strategies into annual planning cycle by the WSAs (WSDPs, IDPs, License Applications etc.):
 - Infrastructure planning, project development
 - Water source planning and development
- DWS confirm and ensure planning, development and alignment with strategies (WSDPs, IDPs, License Applications etc.), monitor and enforce
- DWS identified priority areas for the development of in-depth reconciliation strategies:
 - Olifants-Sand Cluster
 - Mahikeng Cluster
- Continuous engagement with DWS – prioritise areas for the continuation of the All Towns Reconciliation Strategies
 - Phase 2

161

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Item 10: General

162

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Item 11: Date of Next Meeting and Closure

163

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za

Thank You

Drive Safely

164

WATER IS LIFE - SANITATION IS DIGNITY

Toll Free: 0800 200 200 www.dwa.gov.za