



**water & sanitation**

Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA

**Project (WP10587): Continuation of the Northern Planning Region All Towns Reconciliation Strategies**

**Limpopo Province:  
STRATEGIES STEERING COMMITTEE (SSC) MEETING No. 02 MINUTES**

**Held at the Pietersburg Club, Polokwane, on 21 July 2015 at 10h00.**

**1. WELCOME AND INTRODUCTION OF MEMBERS**

- 1.1** Mr Tendani Nditwani, Department of Water and Sanitation (DWS), National Water Resource Planning (NWRP), welcomed all to the meeting and provided a brief overview of the water resources management areas in South Africa.
- 1.2** A hand-out pack was provided to each attendee that included the following:
- Hard copy of the agenda for the workshop;
  - Hard copy of the Background Information Document (BID – for this study);
  - Hard copy of the Strategies Steering Committee (SSC) Terms of Reference;
  - Hard copy print-out of the presentation; and
  - Compact Disc (CD) containing the prioritised, reviewed and updated strategies – for comment; District Municipality Summaries; presentation of the workshop; BID and SSC Terms of Reference.
- 1.3** Mr Nditwani requested members to introduce themselves, indicating the organisation they represent and their interest in this workshop.

**ATTENDANCE AND APOLOGIES**

- 1.4** The attendance and apologies were noted. The attendance register is attached as **Appendix A**. It was noted that stakeholders attending this Limpopo Province SSC workshop reasonably represented relevant interest groups and their geographical distribution.

**2. ACCEPTANCE OF AGENDA**

- 2.1** The agenda was approved by all present.
- 2.2** The proceedings for the Limpopo Province SSC 2, workshop were captured in the presentation, attached as **Appendix B**.

### 3. PURPOSE OF THE WORKSHOP

- 3.1 The purpose of the workshop was to provide the background of the study; present the study methodology; outline the findings of reviewed and updated priority strategies; obtain comments and input from SSC members; outline the remainder of the study programme and lastly to discuss the way forward.

### 4. ROLE OF THE STRATEGIES STEERING COMMITTEE (SSC)

- 4.1 Mr Nditwani discussed the role of the SSC. The SSC should provide executive guidance on the direction and outcomes of the study; furnish supplementary information during the review and update of the rudimentary strategies; establish lines of communication for information sharing; promote linkages to existing regional planning activities and ensure the incorporation of strategies' recommendations in formal planning processes (IDPs, WSDPs, Water Use License Applications, etc.). The SSC should furthermore promote the acceptance and sign-off of the updated Reconciliation Strategies by the DWS and local government. The Terms of Reference of the SSC is attached in **Appendix D**.

### 5. BACKGROUND OF THE STUDY

- 5.1 Mr Tendani presented the background of developing the first rudimentary All Towns strategies during 2008 – 2011 as well as the key findings of the study.
- 5.2 The current appointment (2012 till 2015) is the continuation of the All Towns studies and addresses the priorities that were identified during a screening workshop by the DWS (refer also in the presentation the criteria applied as part of the study methodology) and the first SSC held in 2013. . The strategies' planning horizon has been extended from 2030 for the first strategies (2011) to 2035 for the revised/updated strategies (2014/15). The Background Information Document as distributed during the workshop is attached as **Appendix C**.

### 6. UPDATING PRIORITY STRATEGIES: METHODOLOGY

- 6.1 Mr Colin Talanda presented the methodology applied for the review and update of the priority strategies during this assignment. He noted that one of the main differences between this phase and the first round of strategies that were developed (2011), was the availability of the 2011 Census information (only became available during 2013). This enabled refining of population counts and population growth projections for the cluster areas.
- 6.2 One of the key requirements for development of the reconciliation strategies is the availability of metered water use data. It was emphasised that **very few municipalities have metered water abstraction and water use information**, especially for groundwater use. Availability of metered water use data is also a critical element in the development of appropriate Water Conservation and Water Demand Management (WC/WDM) programmes.
- 6.3 The assumptions applied to determine water requirement scenarios (based on engineering principles and guidelines) for water service levels and growth scenarios were presented. The model made provision for various water use categories and anticipated development for different urban and rural areas in order to calculate the theoretical water requirements. Water requirements were calibrated where possible (where metered data exists) with actual water

use to present the likely current situation.

**6.4** Water source quality was also considered during the review and update of the strategies.

## 7. UPDATED PRIORITY STRATEGIES

**7.1** The prioritised strategies reviewed and updated and presented at this workshop for the Limpopo Province are as follows:

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	
	Greater Tzaneen	Modjadjiskloof Scheme	
		Thapane RWS	
Tours RWS Scheme			
Ba-Phalaborwa	Namakgale - Lulekani RWS Cluster		
Greater Giyani	Mapuve System N WSS	Combined Strategy: Malamulele West/Mapuve System N Cluster	
Vhembe	Thulamela		Malamulele West WSS
			Malamulele West WSS
			Makhado Mapuve System RWS
		Lambani Thulamela	
		Tshifudi RWS	
	Makhado	Nzhelele Thulamela RWS	Combined Strategy: Nzhelele Cluster
Nzhelele Makhado RWS			
Makhado			
Middle Letaba RWS			
Musina	Musina		
Capricorn	Blouberg	Senwabarwana GWS	
	Molemole	Molemole West	
	Polokwane	Hout River RWS	
		Moletje East RWS	
		Moletje North GWS	
		Moletje South GWS	
		Olifants-Sand RWS	Combined Strategy: Polokwane Cluster
		Badimong RWS	
		Laaste Hoop RWS	
		Mankweng RWS	
		Mothapo RWS	
		Segwasi RWS	
		Sebayeng-Dikgale RWS	
		Boyne RWS	
		Chuene Maja RWS	
	Molepo RWS		
Waterberg	Lephalale	Lephalale Urban	

Some of the first round strategies were combined in order to reflect a more representative view of the water source, water reconciliation with water requirements and therefore the water balance.

## 7.2 DISCUSSIONS FOR CONSIDERATION

**7.2.1** Sekhukhune District Municipality (DM): Mr Talanda mentioned that the water balances of the communities within the Sekhukhune DM were recently investigated as part of the Olifants

7.2.2

River Water Resources Development Project (ORWRDP) Phase 2 in order to determine the surface water augmentation requirements (De Hoop Dam). The information was incorporated into the DWS Continuation of the Olifants River Water Supply System Reconciliation Strategy. As a result there were no strategies prioritised and updated as part of the current All Towns Reconciliation Strategies' Study continuation phase.

#### **BREAK-AWAY GROUP 1: CAPRICORN AND WATERBERG DM**

- 7.2.3 Moletjie East RWS: Polokwane Local Municipality (LM) disputed that there is sufficient groundwater available and they are planning on augmenting supply to the area from the Olifants-Sands scheme. They have reports to confirm this and will supply them to the PSP for consideration. PLM, PSP (31/07/2015)
- 7.2.4 It was requested add a recommendation in the strategy to consider investigating the option to extend the ORWRDP to the Mole-Mole West and Senwabarwana cluster areas. PSP (14/08/2015)
- 7.2.5 Senwabarwana Cluster: Mr Mtileni mentioned that there is a bridging study for an Implementation Readiness Study (IRS) of an RBIG project that investigated options for supply from the Glen Alpine Dam. It was further mentioned that options to raise the dam and replace an irrigation canal with a pipeline to reduce losses were considered. Details to be provided to the PSP for consideration. DWS, PSP (31/07/2015)
- 7.2.6 Molepo RWS: The Molepo Dam WTW is currently being upgraded from the existing 2.5MI/d to 6 MI/d. PSP (14/08/2015)
- 7.2.7 Olifants-Sand – Polokwane Cluster: The water balance graph should be revised to reflect the future supply from the Olifants River in accordance with the scheduled dates when the relevant phases of the Olifants River Water Resource Development Project will be operational. Reference should be made (highlighted) that the Luvuvhu-Letaba and Olifants Reconciliation strategies are the primary source of information for this strategy. PSP (14/08/2015)
- 7.2.8 Lephalale Urban: SSC members preferred that the water balance for this area focus on the Mokolo and Crocodile Water Augmentation Project (MCWAP) Phase 1 and not showing the balance with Phase 2 of the MCWAP. PSP (14/08/2015)

#### **BREAK-AWAY GROUP 2: MOPANI AND VHEMBE DM**

- 7.2.9 It was reported that raw effluent from Thohoyandou WWTW is entering Nandoni Dam, and this issue needs to be addressed.
- 7.2.10 Mr Danie Viljoen commented on the current drought conditions experienced in the province, such as affecting the Nsami Dam in the Middle Letaba catchment. Mr Nditwani emphasised the importance of responsible officials exercising the correct dam operating rules which will ensure sustained water supply to all types of users.
- 7.2.11 Malamulele West and Mapuve System N RWS: The water source on the presentation to be corrected (changed from Chuene Dam to Middle Letaba Dam). There is an existing feasibility study for the Malamulele area which may assist in the review and update of the All Towns Strategies which Vhembe DM will provide. VDM, PSP (14/08/2015)

7.2.12Lambani and Tshifudi Clusters: Clarity is required on the design capacity and water supplied (quantity and consumer areas) from the Xikundu Water Treatment Works (WTW).	PSP (14/08/2015)
7.2.13Nzhelele Cluster: SSC members made reference to the Coal of Africa Limited (CoAL) development in this area, impacting on water requirements and attracting people looking for employment opportunities. Mr Mtileni mentioned that an existing feasibility study for the area is being reviewed for an IRS of an RBIG project (a recommendation is the raising of Mutshedzi Dam). Mr Mtileni will make the existing feasibility study report available to the PSP for consideration.	DWS LP, PSP (14/08/2015)
<p>7.2.14Musina Cluster</p> <ul style="list-style-type: none"> <li>• A question was raised on the population figures presented for this cluster. Mr Talanda clarified that the population applies to the cluster (water supply area) footprint only and not to the whole of the Musina Local Municipality.</li> <li>• Ms Magwaza mentioned that the groundwater quality is Class 2 and would require treatment for human consumption. She committed herself to provide the supporting reports for the PSP to consider in the Strategy for this Cluster.</li> </ul>	VDM, PSP (14/08/2015)
7.2.15SSC members were requested to participate in the Larger Reconciliation Strategy Steering Committee meetings as many of the water source issued raised today, are addressed in these meetings.	All
<b>8. REMAINDER OF THE STUDY PROGRAMME – PHASE 1</b>	
8.1 Ms M Esterhuizen provided the key activities for the remainder of the study programme. The main item is review and comments on the strategies distributed today on CD. Comments should be submitted by 14 August 2015 to Ms Esterhuizen (contact details in the presentation and BID). The PSP team would then review and consider the comments to incorporate into the Strategies and finalise the strategies for submission to: DWS Head Office, NWRP and the DWS Regional Office, Polokwane.	All (14/08/2015)
8.2 Once the Strategies have been finalised, the District Municipality Summaries will also be finalised & submitted to the DWS for distribution to the municipalities and WSAs.	PSP, DWS (28/09/2015)
8.3 The DWS is in the process of revamping their website and it is envisaged that the reviewed and updated All Towns Strategies, once finalised, will also be available on the website for downloading.	DWS (30/10/2015)
8.4 The current study – Phase 1 – ends in September 2015 and the last Study Management Team meeting will be held on 16 September 2015.	
<b>9. WAY FORWARD</b>	
9.1 Ms M Esterhuizen presented the way forward in terms of the continuation of the All Towns Study. It was emphasised that the Strategies be used during the municipal planning activities which include the review and update of the WSDP, IDP, project / needs development (irrespective of the funding stream) and water use licensing applications amongst other. Further more, the DWS in turn should use the Strategies when appraising new projects or	)

water use licenses. It includes reviewing the implementation of WC/WDM activities.

**9.2** The DWS identified priority areas for the development of in-depth reconciliation strategies and they are:

- Olifants-Sand Cluster in Polokwane, Limpopo Province; and
- Mahikeng Cluster in Mahikeng, North West Province.

**9.3** SSC members are encouraged to continue engagement with the DWS on the content, outcomes and recommendations of the All Towns Study Strategies. The DWS would in due course start Phase 2 of the study.

## **10. GENERAL**

**10.1** Mr Johann van Aswegen requested that the new Catchment Management Agencies be informed of this study and outcomes and that the Chief Executives be included in any future meetings or correspondence.

PSP, DWS  
(on-going)

## **11. DATE OF NEXT MEETING AND CLOSURE**

### **11.1 NEXT MEETING**

*11.1.1* Mr Nditwani indicated that the next meeting date would be communicated to SSC members.

### **11.2 CLOSURE**

*11.2.1* Mr Nditwani thanked all members for their attendance and participation and adjourned the meeting at 13:45.

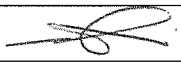
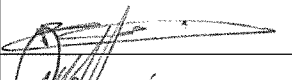
Meeting notes compiled by Ms M Esterhuizen of UWP Consulting

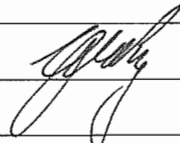
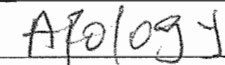
## **APPENDIX A ATTENDANCE REGISTER**

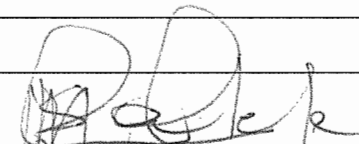
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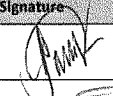


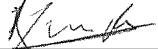

LP Stakeholder Attendance Register

SSC Workshop 2 - 21 July 2015

Organisation	Title	Surname	Name	Designation	Email	Tel	Fax	Cell	Signature
Agri Letaba	Ms	Roux	Naomi	Manager	<a href="mailto:info@agrilataba.co.za">info@agrilataba.co.za</a>	015-307-2725	015-307-3509	082-941-4136	
Agri Limpopo	Mr	Enslin	Dries	Chairman	<a href="mailto:info@agrilimpopo.co.za">info@agrilimpopo.co.za</a>	015-307-2725		079-494-6927	
COGTA: LP			Assigned Representative			015-295-3910	015 291 4784		
Department Human Settlement	Ms	Mbulaheni	Mashudu	Housing		015-284-5067	015-291-4646	015-284-5000	
Department Human Settlement	Mr	Nelwamondo	Tshilidzi	Sanitation and Infrastructure	<a href="mailto:nelwamondot@coghta.limpopo.gov.za">nelwamondot@coghta.limpopo.gov.za</a>	015-284-5347			
Department of Mineral Resources	Mr	Khariwe	A K	LP: Regional Manager	<a href="mailto:Aaron.Khariwe@dmr.gov.za">Aaron.Khariwe@dmr.gov.za</a>	015 287 4700	015 287 4706		
Department of Water & Sanitation	Mr	Baloyi	Fidells	DWA: LP - Planning Engineer	<a href="mailto:BaloyiF@dwa.gov.za">BaloyiF@dwa.gov.za</a>	015- 290 1334		071- 482 4467	
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Department of Water & Sanitation <i>AGRICULTURE</i>	Mr	Gouws	Martinus	Manager <i>CHIEF ENGINEER</i>	<a href="mailto:gouwsmj@agric.limpopo.gov.za">gouwsmj@agric.limpopo.gov.za</a>	015-291-1551 <i>294 3529</i>	015-295-5003/8754	082-900-2490 <i>082 953 9926</i>	
Department of Water & Sanitation	Mr	Herbst	Paul	DWA: WUE	<a href="mailto:HerbstP@dwa.gov.za">HerbstP@dwa.gov.za</a>	012-336-7043		082-804-3002	
Department of Water & Sanitation	Ms	Hernandes-Maldonado	Allison	DWA: LP - Assistant to the Chief Director	<a href="mailto:allison.hm16032010@gmail.com">allison.hm16032010@gmail.com</a>	015 295 2295		082-8095604	
Department of Water & Sanitation	Mr	Jezewski	Witek	Deputy Chief Engineer: Water Services Planning and Information	<a href="mailto:jezewski@dwa.gov.za">jezewski@dwa.gov.za</a>	012-336-8160	012-336-8295	082-412-4737	
Department of Water & Sanitation	Ms	Komape	Martha	Director: Water Regulation and Use	<a href="mailto:KomapeM@dwa.gov.za">KomapeM@dwa.gov.za</a>	015-295-1463	015-295-3217	082-941-7965	
Department of Water & Sanitation	Mr	Maligana	Zwodangani Maxwell Maligana	Water Sector Support & Development	<a href="mailto:MaliganaM@dwa.gov.za">MaliganaM@dwa.gov.za</a>	015-290-1236	086 656 5088	082 809 0718	
Department of Water & Sanitation	Mr	Mannya	Mortimer	General Manager	<a href="mailto:mannyakcm@agric.limpopo.gov.za">mannyakcm@agric.limpopo.gov.za</a>	015-295-7090	015-295-7046		
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Department of Water & Sanitation	Mr	Moabelo	Koena		<a href="mailto:moabelok@dwa.gov.za">moabelok@dwa.gov.za</a>	012-336-8174			
Department of Water & Sanitation	Ms	Mosoa	Lebo	NWRPS: WQ.	<a href="mailto:mosoa1@dwa.gov.za">mosoa1@dwa.gov.za</a>	012-336 7564		082-885 1968	
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Department of Water & Sanitation	Mr	Nditwani	Tendani	Chief Water Resource Planner: NWRP (North) = (Northern Province and North West)	<a href="mailto:NditwaniT@dwaf.gov.za">NditwaniT@dwaf.gov.za</a>	012 336-8189	012-336-8295	082-888-5113	
Department of Water & Sanitation	Mr	Nyatlo	Isaac	DWA: WRPS (System Operations)	<a href="mailto:nyatloi@dwa.gov.za">nyatloi@dwa.gov.za</a>	012-336-7582		082- 805 6384	
Department of Water & Sanitation		Raletjena	Moloko	WUE		012-336-6782			

Organisation	Title	Surname	Name	Designation	Email	Tel	Fax	Cell	Signature
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Department of Water & Sanitation	Mr	van den Berg	Ockie	Chief Engineer: Options Analysis (North)	VanDenBergO@dwa.gov.za	012-336-8613	012-336-7399	082-809-2011	
Department of Water & Sanitation	Mr	Vorster	Sakkie	DWA: LP - Water Sector Support	vorsters@dwa.gov.za	015 295 8009		082 805-6498	
Dept. of Agriculture, Forestry & Fisheries (DAFF)	Ms	Gabriel	Mary-Jean	Director: Water Use & Irrigation Development	dwuid@daff.gov.za; mashegom@agric.limpopo.gov.za			082-555-8064	
Dept. of Economic Development, Environment	Mr	Mongwe	Victor	Senior: Environmental Impact Management	MongweV@ledet.gov.za; ngoashengt@ledet.gov.za	015-295-4013/8648	015-295-4013	082-412-5605	
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Letaba Vallei Boerevereniging	Mr	van Collier	Chris	Secretary	chris@cvcpx.co.za	015-304-3064	015-304-3277	082-700-2307	
Letaba Water Users Association	Mr	van Rooyen	Louis	Chairman	livanrooyen@mweb.co.za; lwgv@absamail.co.za	015-345-1817	015-345-1783	083-627-6007	
Letsitele Irrigation Board	Mr	van Zyl	Frans	Secretary	fvz@worldonline.co.za	015-307-1204	015-307-1608	083-655-3423	
Levubu Vallei Boerevereniging	Mr	Hoffman	Steven		27825657716@vodamail.co.za	015-583-0079	015-583-0079	082-565-7716	
Leydsdorp Farmers' Association	Mr	Verster	Arne	Chairman	adverster@wol.co.za	015-318-6084	015-318-6084	082-964-4214	
MISA LP	Mr	Nkuna	Aleck	Provincial Programme Manager	aleck.nkuna@misa.gov.za			079-494-0265	
Mondi Forests	Mr	Weber	Louis	Area Manager	stephan.crassord@debrockms.co.za	015-307-1324	015-307-1644	082-828-9601	
Northern Timbers (Pty) Ltd	Mr	Claasen	Sakkie	Company Manager	sakkiec@westfalia.co.za	015-305-3222	015-305-3167	083-628-3173	
Olifants River Forum	Mr	Nel	Gawie	Department of Finance and Economic Development	gpnel@absamail.com	015-295-9300	015-295-5819	082-806-3104	
Olifants River Joint Water Forum	Ms	Brink	Ilma	Consultant	ilma.brink@bigenafrica.com	012-843-9031	012-843-9000		
Politsi GWS (Tzaneen Irrigation Board)	Mr	Bierman	Flip	Chairman	flipb@westfalia.co.za/charlotte@westfalia.co.za	015-309-0083	015-309-0089	083-627-6845	
RBIG PM	Mr	Tloubatla	Lesiba Richard					079-778-2251	
SALGA	Mr	Masetshe	Tshepo	Infra. Manager	tmasethe@saiga.org.za	015 291 1400	015 291 1414		
Sand River Water Users Forum / Bertie van Zyl (Pty) Ltd	Mr	van Zyl	Philé	Member	Philezyle@gmail.com	015-395-8212	015-395-2092	083-627-8528	
Sedibeng Water	Mr	De Vos	FF	Manager NWReg: O&M	fdevos@sedibengwater.co.za	056-515-0200	053 474 0334	083 289 5752	
TAU SA North	Ms	Prinsloo	Wilma	Regional Manager (Acting)	wilma@ntlu.co.za	015-297-3749	086-618-0781	082-555-4553	


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 08363366  
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Organisation	Title	Surname	Name	Designation	Email	Tel	Fax	Cell	Signature
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UWP	Mr	Makanza	Sylvester	Technician		015 291 1628			
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WRP	Mr	Mare	Manie		maniem@wrp.co.za	012-366-3496			
WRP	Mr	Talanda	Colin		colint@wrp.co.za	012-346-3496		084-555 8044	
WRP	Mr	van Rooyen	Pieter		PieterV@wrp.co.za	012-346-3496		082-321 3446	
ZZ2	Mr	van Staden	Antonie	Member	antonievanstanden@icloud.com			082-576-6355	
	Mr	Mbanyane	Simon	Bulk water	simonm@lepelle.co.za	015 - 295 1800 / 1806			
	Mr	Schmahl	Carel	Genl Mngr: Operations	carels@lepelle.co.za; info@lepelle.co.za	015 - 295 1800			
<b>Mopani DM WSA</b>	Ms	Rammalo	Albertina	Head: Water Services	rammaloa@mopani.gov.za	015-811-6300	015 812 4301	0724945758	
	Mr	Maake	Tim	Municipal Manager	tim@mopani.gov.za	015-811-6300	015-812-4301		
	Mr	Chabalala	R	Manager: Bulk Water O&M - Giyani	chabalalar@mopani.gov.za	015-812 4405	015-8115937 / 015 812 4302	083-674 6595	
	Mr	Rashitanga	E	Manager: Bulk Water O&M - Greater Tzaneen	rashitangae@mopani.gov.za				
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## **APPENDIX B    PRESENTATION: LIMPOPO PROVINCE SSC WORKSHOP 02**

## 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

## 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)	C Talanda / L de Jager
	- Vhembe DM - Capricorn DM - Mopani DM - Waterberg DM	
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

## Item 4: Purpose of the Workshop

### 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

### 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

## Item 5: Role of Strategies Steering Committee (SSC)

## 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

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## Item 6: Background of the Study

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## 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

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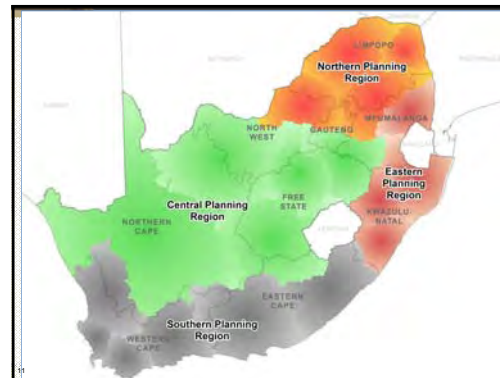
Toll Free: 0800 200 200 www.dws.gov.za

## 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)

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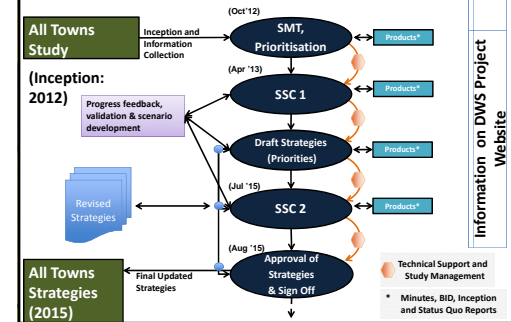
## Purpose of Study

- 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

## 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

## Study Communication & Process



## Item 7: Updating Priority Strategies Methodology

## 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

## 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

## 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	Low Income	101
4	Medium Income	189
5	High Income	304
6	Very High Income	442
7	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

## 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)

## 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	Low Income
4	Medium Income
5	High Income
6	Very High Income
7	Below RDP Level
8	RDP Level
9	Above RDP Level

## 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	Low Income
4	Medium Income
5	High Income
6	Very High Income
7	Below RDP Level
8	RDP Level
9	Above RDP Level

## Water Requirement Projections

- Scenario 3 (Village - mostly informal):**

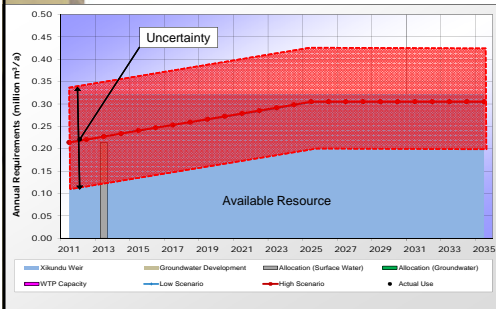
- LOS assumed to be at a minimum of RDP Level by 2025.
- 5% increase in Above RDP Level by 2011 to 2025 and a further 6.7% increase by 2035 (total of 11.7%)
- 2.5% increase in Residential Low Income from 2011 to 2025 and a further 3% increase by 2035 (total of 5.5%)

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

## 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

## Importance of Metering



## Item 8: Updated Strategies

## Prioritised Strategies Updated

District Municipality	Local Municipality	Strategy
Mopani	Greater Giyani	Giyani System A and B WSS Giyani System C WSS Giyani System D WSS Giyani System F2 WSS
	Greater Letaba	Sekgosee GWS Modjadiskloof Scheme Thapane RWS
	Greater Tzaneen	Tours RWS Scheme
	Ra-Phabonwa	Namagale - Lulekani RWS Cluster
	Greater Giyani	Mapuwe System N WSS Malamulele West WSS Makhado Mapuwe System RWS
	Thulamela	Lambani Thulamela Tshifudi RWS
Vhembe	Makhado	Nzhelele Thulamela RWS Nzhelele Makhado RWS
	Musina	Makhado Middle Letaba RWS
	Musina	Musina

## Prioritised Strategies Updated

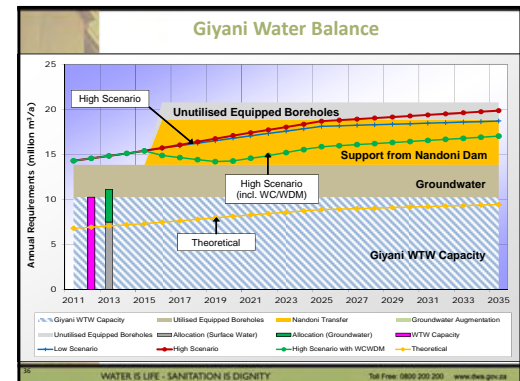
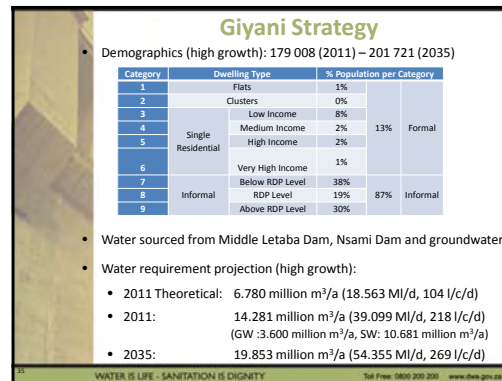
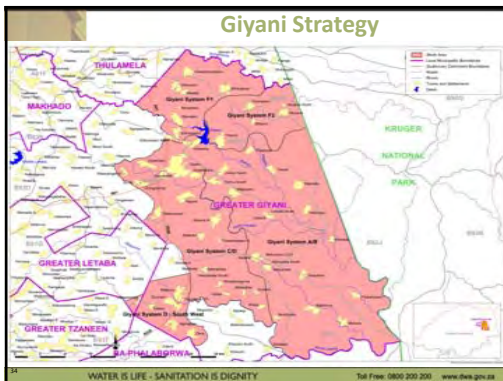
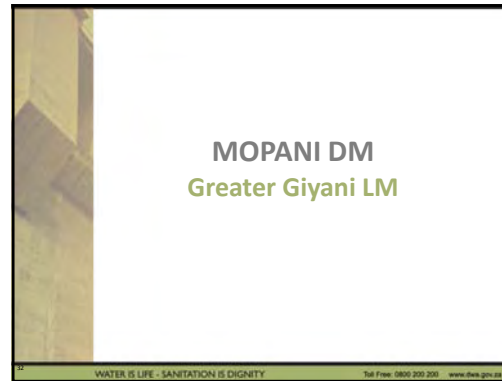
District Municipality	Local Municipality	Strategy
Capricorn	Blouberg	Senwabarwana GWS
	Molemole	Molemole West Hout River RWS Moleteje East RWS Moleteje North GWS Moleteje South GWS Olifants-Sand RWS Badimong RWS
	Polokwane	Laaste Hoop RWS Mankweng RWS Mothapo RWS Segwasi RWS Sebayeng-Dikgale RWS Boyne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

## Strategies Addressed in ORWRDP Ph2

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

## Strategies Addressed in ORWRDP Ph2

District Municipality	Local Municipality	Strategy
Sekhukhune	Makhuduthamaga	Flag Boshilo - Makhuduthamaga De Hoop - Middle Ngwaritsi De Hoop - Vergelegen De Hoop - Ngwaritsi De Hoop - Lepellane De Hoop - Nkadimeng De Hoop - Schoonoord De Hoop - Nebo Plateau Mampur De Hoop - Spitskop Leolo Local Sources De Hoop - Lepellane Lepallelo North - Fetakgomo Olifantspoort South
	Fethakgomo	



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

**COMBINED MIDDLE LETABA & NSAMI BALANCE**

High Water Requirement Scenario (with WC/WOM)

Pipeline from Nandoni to Giyani

Existing Groundwater

Demand reduction due to increased Nandoni supply areas

Future groundwater use

1 in 50 Year Yield

Water Requirement of Supply (millions m³/a)

2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040

1 in 50 Stochastic Yield

Nonflow Transfer

Future Gw development

Water Requirement (High WC/WOM)

Water Requirement (Low WC/WOM)

Existing Groundwater

Pipeline replace canal (reduce losses)

Water Requirement (High)

Water Requirement (Low)

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## Giyani Conclusions & Recommendations

- Water requirements already exceed the WTW capacity and groundwater allocation (projected shortfall of 6.0 million m<sup>3</sup>/a (16.5 Ml/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 m<sup>3</sup>/a (7.8 Ml/d). WSA to implement measures specified in WC/WDM Strategy and BP
  - Implementation of pipeline from Nandoni Dam to Giyani (5 million m<sup>3</sup>/a, 13.7 Ml/d))
  - Pipeline to replace canal (4 million m<sup>3</sup>/a, 11.0 Ml/d))
  - Supply from Nandoni Dam to committed areas (7.7 million m<sup>3</sup>/a)
  - Groundwater Developments in supply areas (12.9 million m<sup>3</sup>/a, 35.3 Ml/d) - Commission Feasibility Study
- Metering and monitoring of water use
- Continuous optimal utilisation of all resources



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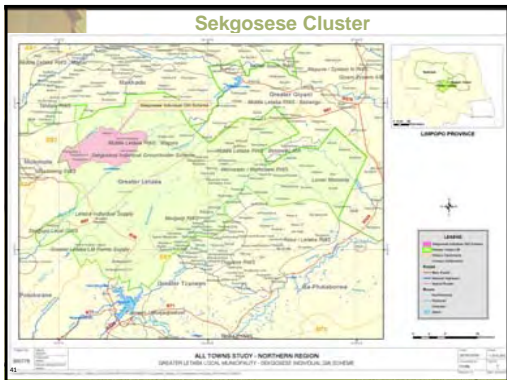
# MOPANI DM

## Greater Letaba LM

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## Sekogese Cluster

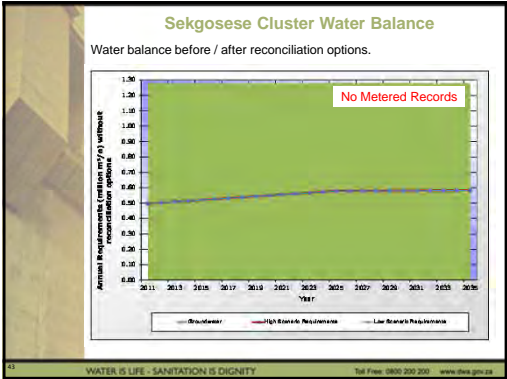
- Demographics (high growth): 16 761 (2011) – 16 835 (2035)

Category	Dwelling Type	% Population per Category	
1	Flats	0%	Formal
2	Clusters	0%	
3	Low Income	0%	
4	Medium Income	0%	
5	High Income	0%	
6	Very High Income	0%	Informal
7	Below RDP Level	22%	
8	RDP Level	15%	
9	Above RDP Level	62%	

- Water sourced from groundwater only (no metered information available)
- Water Requirement projection (high growth)
  - 2011 Theoretical: 0.496 million m<sup>3</sup>/a (1.36 ML/d, 84 l/c/d)
  - 2035: 0.584 million m<sup>3</sup>/a (1.60 ML/d, 95 l/c/d)

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## Sekogose Cluster

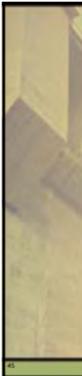
- Projected water requirements does not exceed the available resources until at least 2035. The following reconciliation measures are required:
  - Implement WC/WDM;
  - Groundwater study to confirm resource availability
- Metering and monitoring of water use
- Infrastructure assessment to deliver committed volume
- Water use entitlements should be investigated and confirmed

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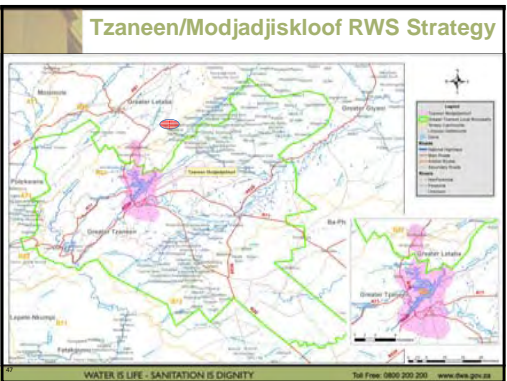
- ## Sekogose Cluster
- Projected water requirements does not exceed the available resources until at least 2035. The following reconciliation measures are required:
    - Implement WC/WDM;
    - Groundwater study to confirm resource availability
  - Metering and monitoring of water use
  - Infrastructure assessment to deliver committed volume
  - Water use entitlements should be investigated and confirmed
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# MOPANI DM Greater Tzaneen LM

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## Tzaneen/Modjadjieskloof RWS Strategy

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

Category	Dwelling Type	% Population per Category
1	Flats	4
2	Clusters	5
3	Low Income	20
4	Medium Income	6
5	High Income	9
	Very High Income	8
	Below RDP Level	5
	RDP Level	3
	Above RDP Level	43

49% Formal

51% Informal

- Verregeen/Magoebaskloof Dams (Politis, Modjadjieskloof and Ga-kgapane), Ebenezer/Tzaneen Dam (Tzaneen) and groundwater
- Water requirement projection (high growth):
  - 2011 Theoretical: 3.144 million m<sup>3</sup>/a (8.607 Ml/d, 261 l/c/d )
  - 2011: 4.857 million m<sup>3</sup>/a (13.297 Ml/d, 403 l/c/d )  
(GW: 0.140, SW Blue Drop: 4.717 million m<sup>3</sup>/a)
  - 2035: 6.868 million m<sup>3</sup>/a (18.803 Ml/d, 427 l/c/d)

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- ## Tzaneen/Modjadjieskloof RWS Strategy
- Demographics (high growth): 32 911(2011) – 44 048(2035)
- | Category | Dwelling Type    | % Population per Category |
|----------|------------------|---------------------------|
| 1        | Flats            | 4                         |
| 2        | Clusters         | 5                         |
| 3        | Low Income       | 20                        |
| 4        | Medium Income    | 6                         |
| 5        | High Income      | 9                         |
|          | Very High Income | 8                         |
|          | Below RDP Level  | 5                         |
|          | RDP Level        | 3                         |
|          | Above RDP Level  | 43                        |
- 49% Formal
- 51% Informal
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- 44

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1	Flats	4
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- ## Tzaneen/Modjadjieskloof RWS Strategy
- Demographics (high growth): 32 911(2011) – 44 048(2035)
- | Category | Dwelling Type    | % Population per Category |     |          |
|----------|------------------|---------------------------|-----|----------|
| 1        | Flats            | 4                         |     |          |
| 2        | Clusters         | 5                         |     |          |
| 3        | Low Income       | 20                        |     |          |
| 4        | Medium Income    | 6                         |     |          |
| 5        | High Income      | 9                         | 49% | Formal   |
|          | Very High Income | 8                         |     |          |
|          | Below RDP Level  | 5                         |     |          |
|          | RDP Level        | 3                         | 51% | Informal |
| 9        | Above RDP Level  | 43                        |     |          |
- Verregeen/Magoebaskloof Dams (Politis, Modjadjieskloof and Ga-kgapane), Ebenezer/Tzaneen Dam (Tzaneen) and groundwater
  - Water requirement projection (high growth):
    - 2011 Theoretical: 3.144 million m<sup>3</sup>/a (8.607 Ml/d, 261 l/c/d )
    - 2011: 4.857 million m<sup>3</sup>/a (13.297 Ml/d, 403 l/c/d )  
(GW: 0.140, SW Blue Drop: 4.717 million m<sup>3</sup>/a)
    - 2035: 6.868 million m<sup>3</sup>/a (18.803 Ml/d, 427 l/c/d )
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- | Category | Dwelling Type    | % Population per Category |
|----------|------------------|---------------------------|
| 1        | Flats            | 4                         |
| 2        | Clusters         | 5                         |
| 3        | Low Income       | 20                        |
| 4        | Medium Income    | 6                         |
| 5        | High Income      | 9                         |
|          | Very High Income | 8                         |
|          | Below RDP Level  | 5                         |
|          | RDP Level        | 3                         |
|          | Above RDP Level  | 43                        |
- 49% Formal
- 51% Informal
- Verregeen/Magoebaskloof Dams (Politis, Modjadjieskloof and Ga-kgapane), Ebenezer/Tzaneen Dam (Tzaneen) and groundwater
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    - 2011 Theoretical: 3.144 million m<sup>3</sup>/a (8.607 Ml/d, 261 l/c/d )
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(GW: 0.140, SW Blue Drop: 4.717 million m<sup>3</sup>/a)
    - 2035: 6.868 million m<sup>3</sup>/a (18.803 Ml/d, 427 l/c/d)
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- ## Tzaneen/Modjadjieskloof RWS Strategy
- Demographics (high growth): 32 911(2011) – 44 048(2035)
- | Category | Dwelling Type    | % Population per Category |
|----------|------------------|---------------------------|
| 1        | Flats            | 4                         |
| 2        | Clusters         | 5                         |
| 3        | Low Income       | 20                        |
| 4        | Medium Income    | 6                         |
| 5        | High Income      | 9                         |
|          | Very High Income | 8                         |
|          | Below RDP Level  | 5                         |
|          | RDP Level        | 3                         |
|          | Above RDP Level  | 43                        |
- 49% Formal
- 51% Informal
- Verregeen/Magoebaskloof Dams (Politis, Modjadjieskloof and Ga-kgapane), Ebenezer/Tzaneen Dam (Tzaneen) and groundwater
  - Water requirement projection (high growth):
    - 2011 Theoretical: 3.144 million m<sup>3</sup>/a (8.607 Ml/d, 261 l/c/d )
    - 2011: 4.857 million m<sup>3</sup>/a (13.297 Ml/d, 403 l/c/d )  
(GW: 0.140, SW Blue Drop: 4.717 million m<sup>3</sup>/a)
    - 2035: 6.868 million m<sup>3</sup>/a (18.803 Ml/d, 427 l/c/d)
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## Magoebaskloof & Vergelegen Balance

**MAGOEBASKLOOF & VERGELEGEN BALANCE**

Water Requirements and Supply (million m³/a)

2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040

High Water Requirements with full irrigation allocation

Deficit

1 in 20 year Yield

1 in 50 year Yield

Additional Need Domestic use

High Water Requirement Scenario

Urban Water Requirements

Legend:

- 1 in 50 year Stoichiastic Yield
- Water Requirements (High)
- Urban Requirements (High)
- Urban High with WC/WDm
- Full irrigation in place
- Additional Need Domestic use
- High Water Requirement Scenario
- High Water Requirements with full irrigation allocation
- 1 in 20 year Yield
- Urban Water Requirements

**Great Letaba System Balance**  
(Irrigation, Industrial and Domestic (Siluwane-Nondweni Extended RWS, Ritavi/Letaba RWS, Tzaneen/ Modjadikloof and Ritavi II RWS))

The chart displays water requirements and supply in million m³ per year from 2020 to 2040. The y-axis ranges from 20 to 160 million m³. The x-axis shows years from 2020 to 2040. Key features include:

- Total Allocation:** A line starting at approximately 145 million m³ in 2020 and increasing to about 155 million m³ by 2040.
- Variable supply (non farm yield):** A line starting at approximately 105 million m³ in 2020 and increasing to about 115 million m³ by 2040.
- Low assurance Yield Nwamhlahle (Median supply to irrigation):** A line starting at approximately 95 million m³ in 2020 and increasing to about 105 million m³ by 2040.
- Low Assurance Yield Raed Tzaneen (Average supply to irrigation):** A line starting at approximately 85 million m³ in 2020 and increasing to about 95 million m³ by 2040.
- Total Requirements (High):** A line starting at approximately 105 million m³ in 2020 and increasing to about 115 million m³ by 2040.
- Classification EWR:** A shaded blue area representing the Environmental Water Requirement, ranging from approximately 20 to 80 million m³.
- Urban Requirements (High):** A shaded blue area representing high urban water requirements, ranging from approximately 20 to 80 million m³.
- 1 in 50 year Yield:** A shaded blue area representing the 1 in 50 year yield, ranging from approximately 20 to 80 million m³.
- 1 in 50 Stochastic Yield:** A shaded blue area representing the 1 in 50 stochastic yield, ranging from approximately 20 to 80 million m³.
- Existing Groundwater:** A shaded blue area representing existing groundwater, ranging from approximately 20 to 80 million m³.
- Nwamhlahle, and EWR Classification Study:** A shaded blue area representing the Nwamhlahle and EWR classification study, ranging from approximately 20 to 80 million m³.
- Water Requirements High:** A shaded blue area representing high water requirements, ranging from approximately 20 to 80 million m³.
- Water Requirements (Allocation):** A shaded blue area representing water requirements for allocation, ranging from approximately 20 to 80 million m³.
- Urban Requirements (Low):** A shaded blue area representing low urban water requirements, ranging from approximately 20 to 80 million m³.
- Water Requirements (Low):** A shaded blue area representing low water requirements, ranging from approximately 20 to 80 million m³.
- Low Assurance Yield:** A shaded blue area representing low assurance yield, ranging from approximately 20 to 80 million m³.
- Additional Groundwater:** A shaded blue area representing additional groundwater, ranging from approximately 20 to 80 million m³.
- Water Requirements (high-WCWDM):** A shaded blue area representing high water requirements for WCWDM, ranging from approximately 20 to 80 million m³.
- Urban Requirements (High):** A shaded blue area representing high urban water requirements, ranging from approximately 20 to 80 million m³.
- Water Requirements (Low):** A shaded blue area representing low water requirements, ranging from approximately 20 to 80 million m³.

**Water Requirements and Supply (million m³)**

**Legend:**

- 1 in 50 Stochastic Yield
- Existing Groundwater
- Nwamhlahle, and EWR Classification Study
- Water Requirements High
- Water Requirements (Allocation)
- Urban Requirements (Low)
- Low Assurance Yield
- Additional Groundwater
- Water Requirements (high-WCWDM)
- Urban Requirements (High)
- Water Requirements (Low)

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## Zaneen/Modjadjiskloof Conclusions and Recommendations

- Projected water requirements exceed available water resources from 2014 onwards (1.964 million m<sup>3</sup>/a (5.4 Ml/d) shortfall 2035. The following reconciliation measures are required:
  - WC/WDM savings in urban sector are 0.8 million m<sup>3</sup>/a (2.19 Ml/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 Zaneen Dam
  - Implementation of Nwamitwa Dam
  - Additional groundwater development (Commission Feasibility Study) >2.5 million m<sup>3</sup>/a (6.85 Ml/d)
- **Metering and monitoring of water use**

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[illegible]

# Thapane RWS Strategy

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

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

- Water sourced from Thapane Dam & Groundwater.
- Water requirement projection (high growth):
  - 2011 Theoretical: 1.048 million m<sup>3</sup>/a (2.868 MI/d, 56 l/c/d )  
2011: 1.688 million m<sup>3</sup>/a (4.621 MI/d, 92 l/c/d )  
(GW :0.300 million m<sup>3</sup>/a, SW: 1.388 million m<sup>3</sup>/a)
  - 2035: 3.257 million m<sup>3</sup>/a (8.917 MI/d, 144 l/c/d)



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**Thapane RWS Water Balance**

Annual Requirements (million m<sup>3</sup>/a)

2005 2007 2009 2011 2013 2015 2017 2019 2021 2023 2025 2027 2029 2031 2033 2035

Theoretical Scenario

Potable Groundwater Exploitation Potential

High Scenario

Support from Nwamitwa Dam

Existing borehole capacity

1 in 50 year yield (98% assurance)

Legend:

- Blue: Dam
- Light Blue: Middle Levela System Support
- Green: Groundwater
- Grey: WTN Capacity
- Yellow: Theoretical
- Orange: New Groundwater Development
- Red: High Scenario with WYCDM

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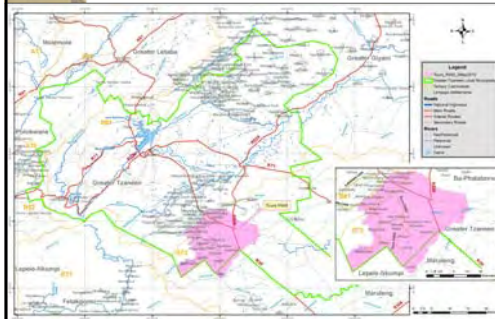
## Thapane Conclusions and Recommendations

- Projected water requirements exceed available resources from 2012 (shortfall of 1.557 million m<sup>3</sup>/a (4.3 MI/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 m<sup>3</sup>/a, 1.6 MI/d). Feasibility study required
  - Support from the Groot Letaba System 0.254 million m<sup>3</sup>/a (0.7 MI/d) in 2020 and 0.970 million m<sup>3</sup>/a (2.7 MI/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

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## Tours RWS Strategy



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## Tours RWS Strategy

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

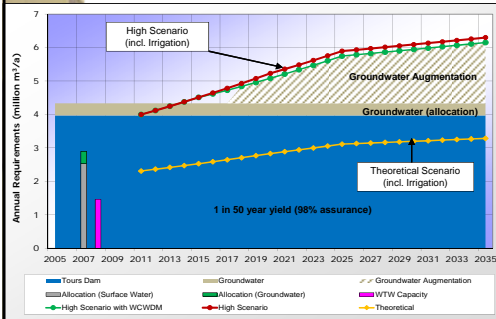
Category	Dwelling Type	% Population per Category	
1	Flats	0%	
2	Clusters	0%	
3	Single Residential	Low Income	0%
4		Medium Income	0%
5		High Income	0%
6	Informal	Very High Income	0%
7		Below RDP Level	47%
8		RDP Level	18%
9		Above RDP Level	35%

- Water sourced from Tours Dam & Groundwater
- Water requirement projection (high growth):
  - 2011 Theoretical: 1.236 million m<sup>3</sup>/a (3.385 MI/d, 68 l/c/d)
  - 2011: 2.922 million m<sup>3</sup>/a (8.000 MI/d, 161 l/c/d)  
(GW: Negligible, SW Blue Drop: 2.922 million m<sup>3</sup>/a)
  - 2035: 5.223 million m<sup>3</sup>/a (14.300 MI/d, 234 l/c/d)

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## Tours RWS Water Balance



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## Tours Conclusions and Recommendations

- Projected water requirements exceed available water resources from 2014 onwards (1.964 million m<sup>3</sup>/a (5.4 MI/d) shortfall 2035). The following reconciliation measures are required:
  - Preliminary WC/WDM analysis indicates 5% or 0.147 million m<sup>3</sup>/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 m<sup>3</sup>/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

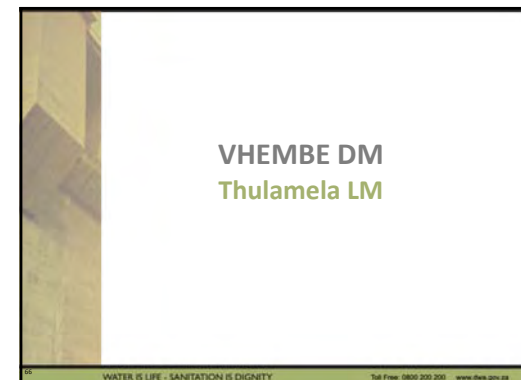
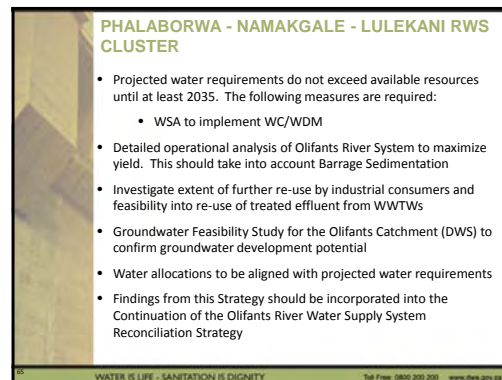
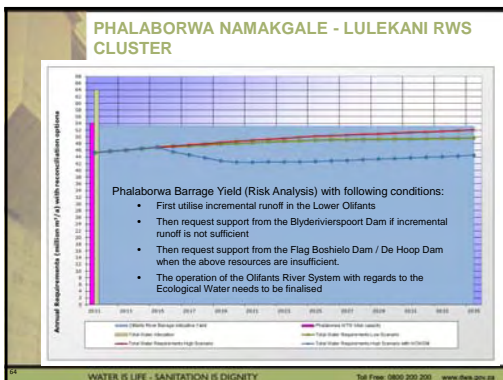
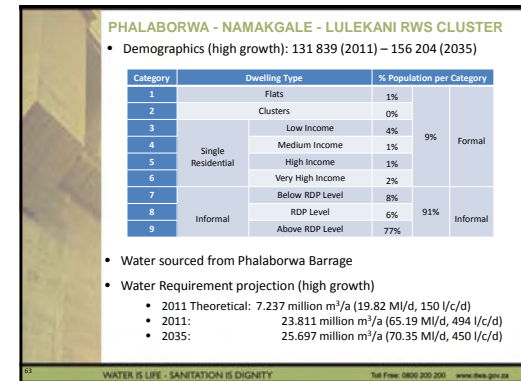
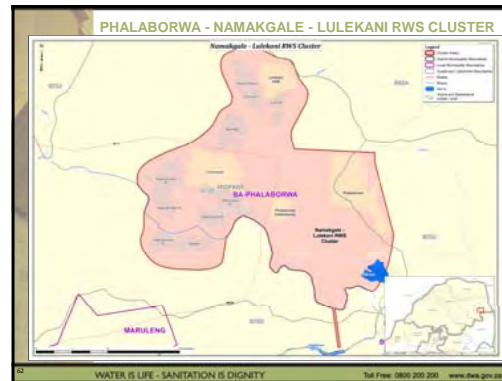
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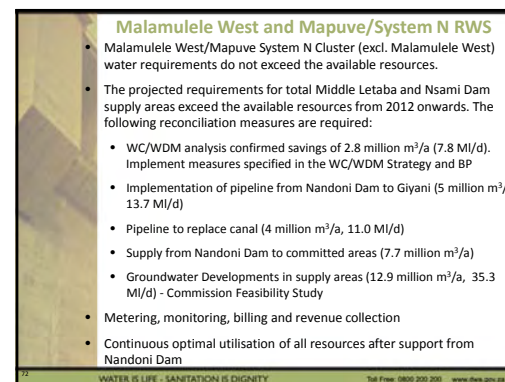
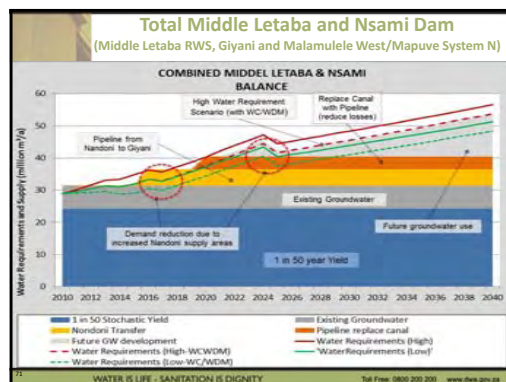
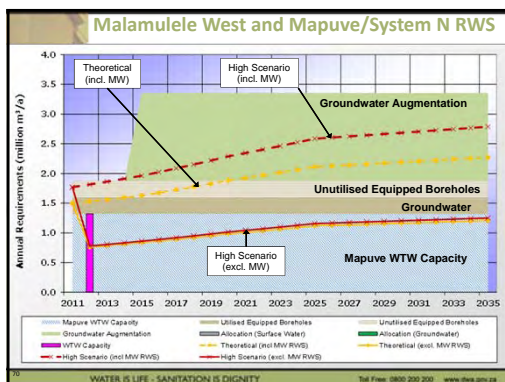
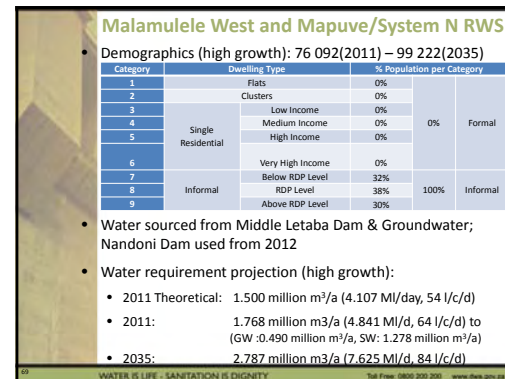
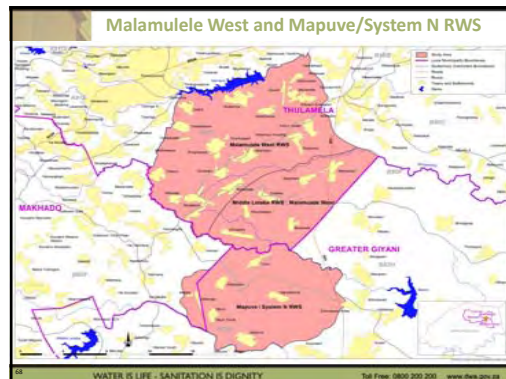
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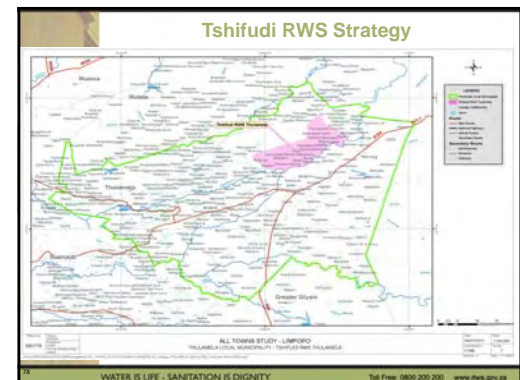
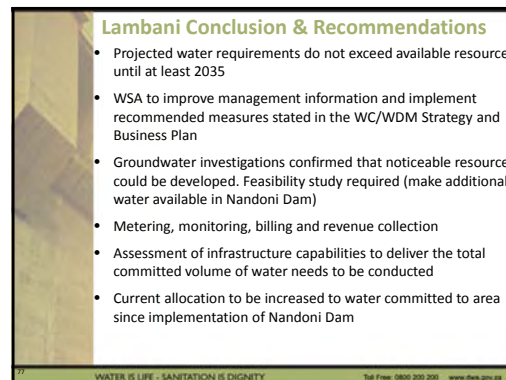
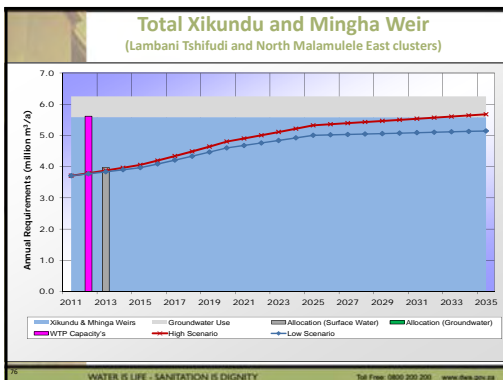
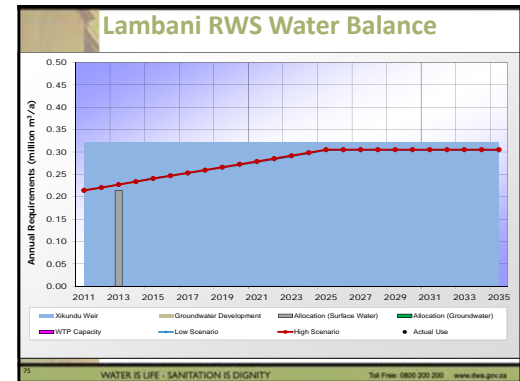
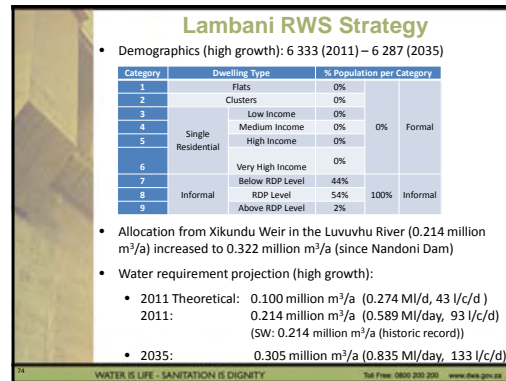
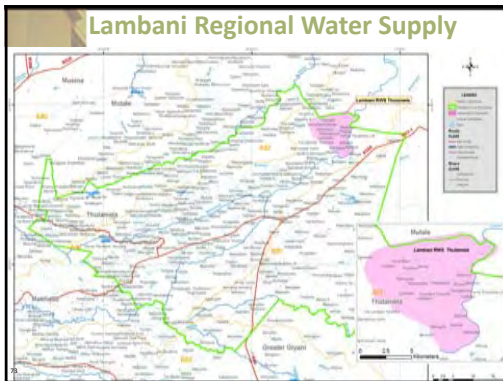
## MOPANI DM Ba-Phalaborwa LM

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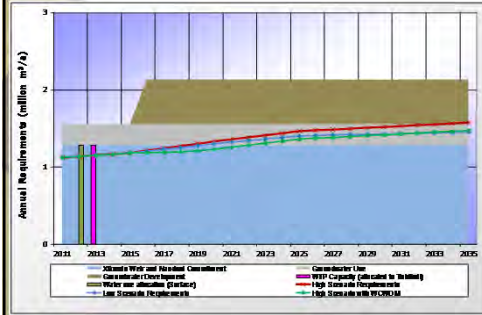
### Tshifudi RWS Strategy

- Demographics (high growth): 28 337 (2011) – 33 391 (2035)

Category	Dwelling Type	% Population per Category		
1	Flats	0%		
2	Clusters	0%		
3	Low Income	0%	0.00%	Formal
4	Medium Income	0%		
5	High Income	0%		
6	Very High Income	0%		
7	Below RDP Level	24%		
8	RDP Level	65%	100.00%	Informal
9	Above RDP Level	11%		

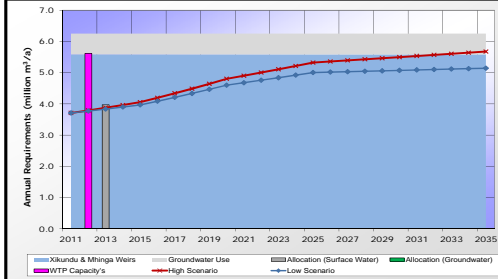
- Water sourced from Xikundu Weir (with allocations from Nandoni Dam) and Groundwater.
- Water Requirement projection (high growth)
  - 2011 Theoretical: 0.627 million m<sup>3</sup>/a (1.72 Ml/d, 61 l/c/d)
  - 2011: 1.125 million m<sup>3</sup>/a (3.08 Ml/d, 109 l/c/d)
  - 2035: 1.477 million m<sup>3</sup>/a (4.04 Ml/d, 121 l/c/d)

### Tshifudi RWS Strategy Water Balance



### Total Xikundu and Mingha Weir

(Lambani Tshifudi and North Malamulele East clusters)



### Tshifudi RWS Conclusions and Recommendations

- The projected water requirements do not exceed the available resources until at least 2035. The following reconciliation measures are required:
  - WSA to implement WC/WDM
- Metering, monitoring, billing and revenue collection
- Assess municipal infrastructure capabilities to deliver total committed volume of water to the Tshifudi Cluster
- Feasibility study to investigate developing available groundwater resources to make additional water allocations available in Nandoni Dam in future if required

### Nzhelele RWS Strategy

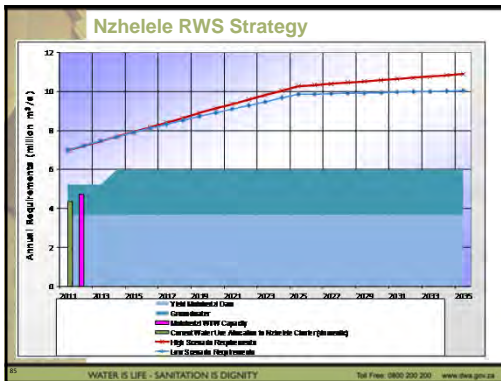


### Nzhelele RWS Strategy

- Demographics (high growth): 110 603 (2011) – 129 719 (2035)

Category	Dwelling Type	% Population per Category		
1	Flats	0.0%		
2	Clusters	0.0%		
3	Low Income	2.1%	3%	Formal
4	Medium Income	0.3%		
5	High Income	0.3%		
6	Very High Income	0.4%		
7	Below RDP Level	38.2%		
8	RDP Level	16.1%	97%	Informal
9	Above RDP Level	42.7%		

- Water sourced from Mutshedzi Dam and groundwater.
- Water Requirement projection (high growth)
  - 2011: 6.988 million m<sup>3</sup>/a (19.13 Ml/d, 173 l/c/d)
  - 2035: 10.901 million m<sup>3</sup>/a (29.84 Ml/d, 230 l/c/d)



### Nzhelele RWS Strategy

- Projected water requirements exceed available resources from 2012. Shortfall of 4.472 million m³/a (12.24 Ml/d) by 2035. The following reconciliation measures are required:
  - WSA to implement WC/WDM
  - Undertake Groundwater Feasibility Study to confirm available groundwater resources
  - Additional sources of water need to be investigated (after groundwater feasibility study has been completed). Potential to supply water from Nzhelele Dam by increasing the efficiency of irrigation from the dam, transferring water use entitlements if possible. Future water from Vondo Dam if Dam in Mutale Catchment is developed.
- Metering, monitoring, billing and revenue collection
- Assessment of municipal infrastructure capabilities

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### VHEMBE DM Makhado LM

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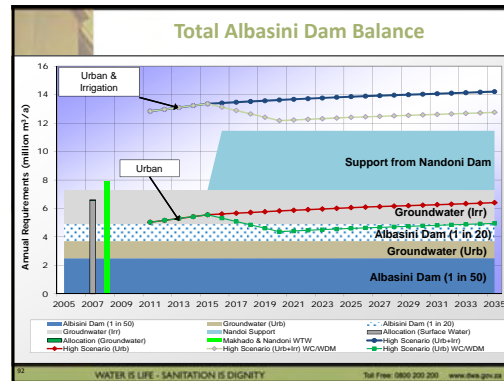
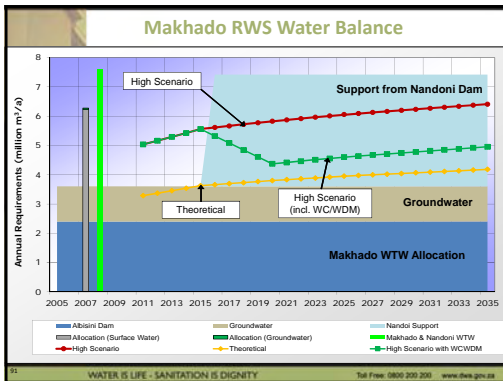
### Makhado RWS Strategy

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

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

- 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)

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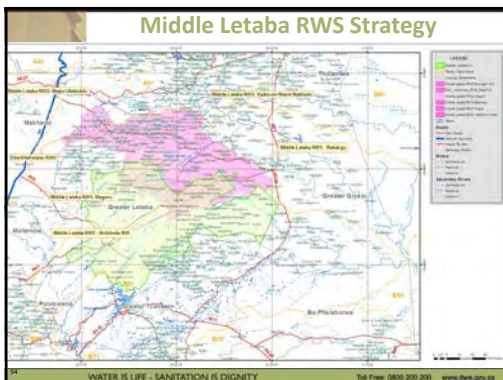


### Makhado Conclusions & Recommendations

- Makhado RWS requirements exceed allocated resources. Shortfall of 2.809 million m³/a (7.7 Ml/d) by 2035.
- For the total Albasini Dam supply area (incl. Albasini GWWS) the projected shortfall is 6.909 million m³/a (18.9 Ml/d) by 2035. The following reconciliation measures are required:
  - Preliminary WC/WDM analysis confirmed potential savings of 1.454 million m³/a (3.981 Ml/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 Ml/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 us
- Reregistered licenced water use needs to be investigated and confirmed. The water committed from Nandoni Dam also needs to be registered

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### 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	Low Income	3%	2%	Formal
4	Medium Income	0%		
5	High Income	0%		
6	Very High Income	0%		
7	Below RDP Level	29%		
8	RDP Level	29%	98%	Informal
9	Above RDP Level	39%		

- Water sourced from Middle Letaba Dam and groundwater
- Water requirement projection (high growth):
  - 2011 Theoretical: 8.640 million m³/a (23.655 Ml/day, 80 l/c/d)
  - 2011: 9.740 million m³/a (26.667 Ml/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 Ml/d, 108 l/c/d)

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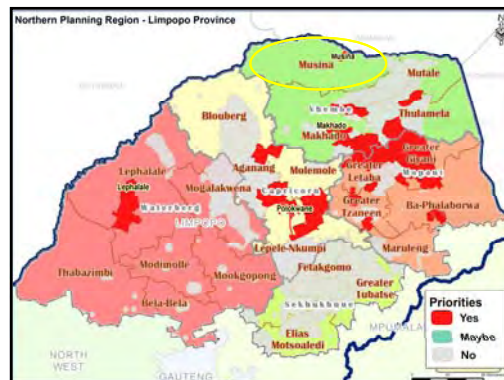
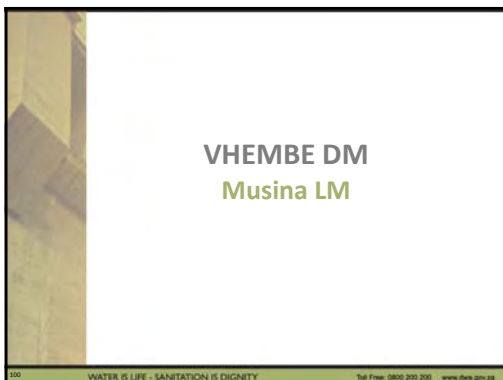
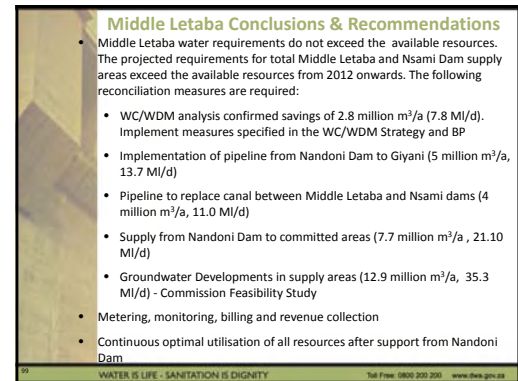
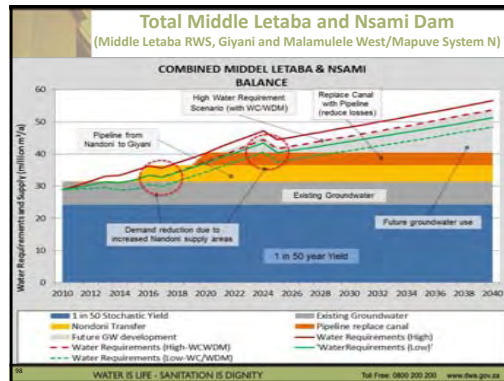
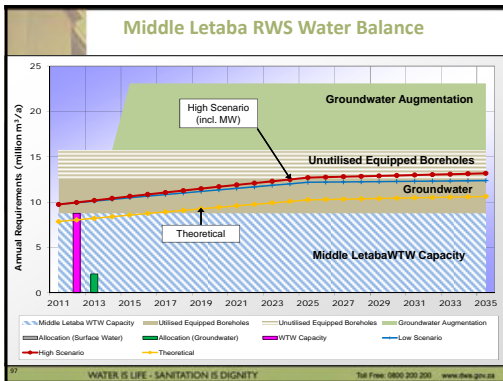
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### Middle Letaba RWS Strategy

- 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

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## Musina RWS Strategy

- Demographics (high growth): 43 540 (2011) – 56 117 (2035)

Category	Dwelling Type	% Population per Category		
1	Flats	6%		
2	Clusters	1%		
3	Low Income	48%		
4	Medium Income	12%	76%	Formal
5	High Income	6%		
6	Very High Income	3%		
7	Below RDP Level	4%		
8	RDP Level	0%	24%	Informal
9	Above RDP Level	20%		

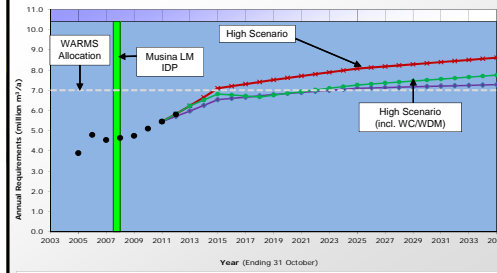
- Water sourced from Limpopo River/Groundwater
- Water requirement projection (high growth):
  - 2011 Theoretical: 4,019 million m<sup>3</sup>/a (11,005 ML/d, 253 l/c/d)
  - 2011: 5,450 million m<sup>3</sup>/a (14.9 ML/day, 343 l/c/d) (SW: 5,450 million m<sup>3</sup>/a (historic record))
  - 2035: 8,614 million m<sup>3</sup>/a (23.6 ML/day, 362 l/c/d)

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## Musina RWS Water Balance

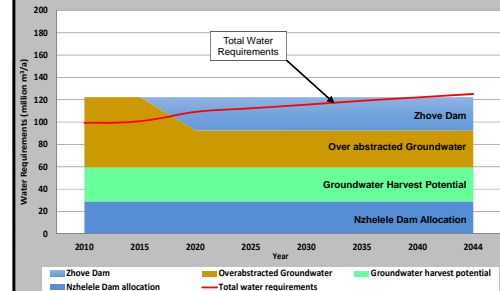


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## Musina LM Water Balance (incl. Mutasshi/Musina Corridor)



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## 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 m<sup>3</sup>/a (1.73 ML/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 m<sup>3</sup>/a could be purchased from the ZINWA and it is recommended that negotiations should commence in this regard.

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## 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

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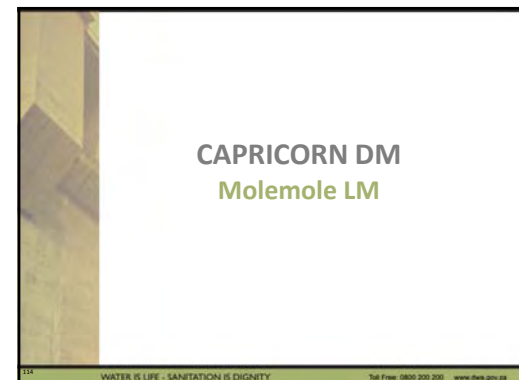
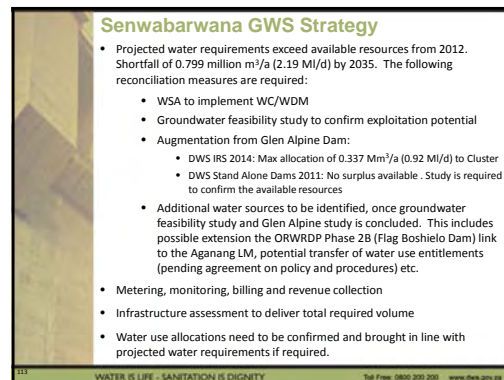
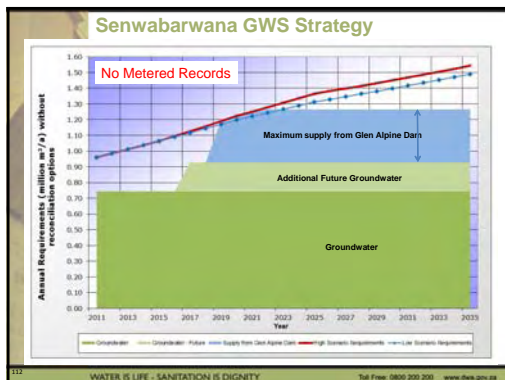
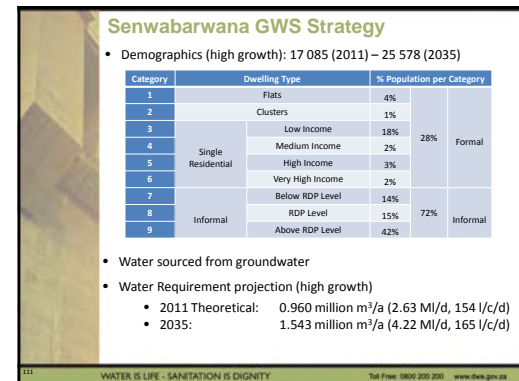
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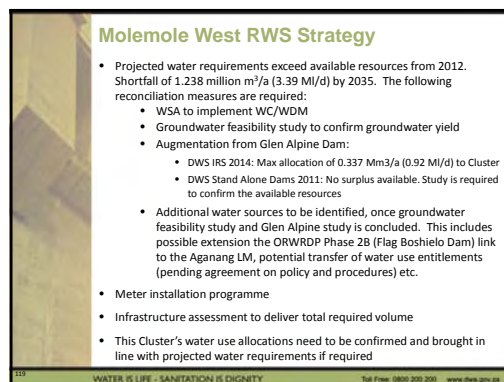
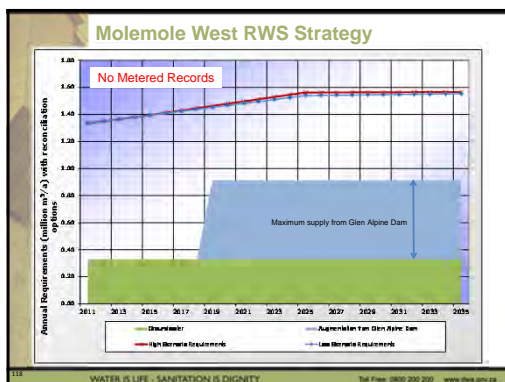
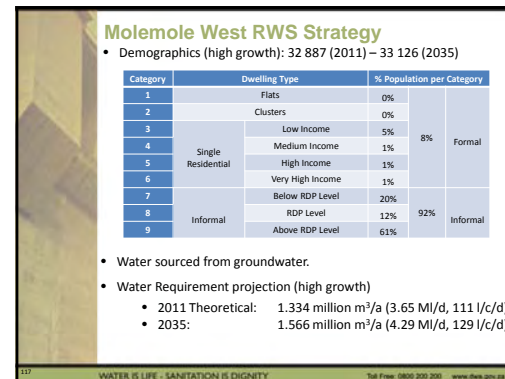
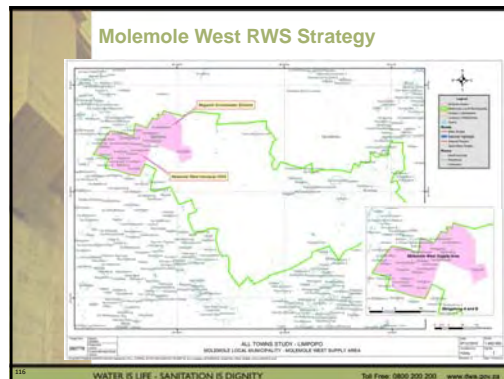
## CAPRICORN DM Blouberg LM

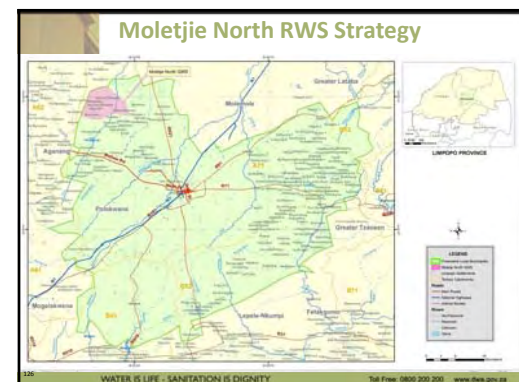
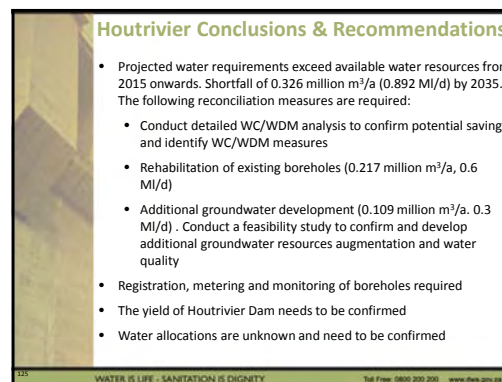
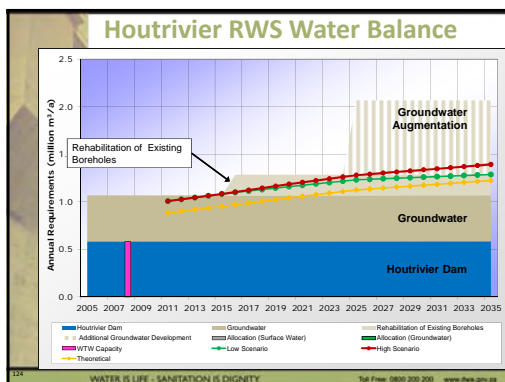
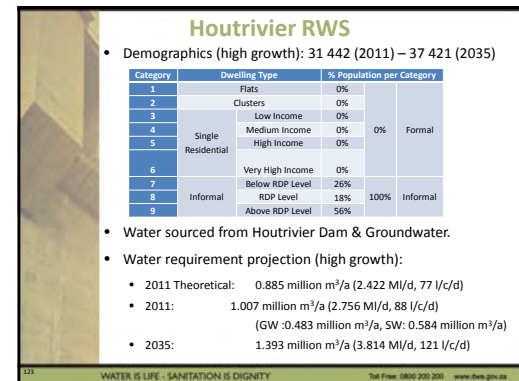
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## Mojetteje North RWS Water Balance

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

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

- Water sourced from Groundwater
- Water requirement projection (high growth):
  - 2011: 0.249 million m<sup>3</sup>/a (0.682 Ml/d, 95 l/c/d)
  - 2035: 0.317 million m<sup>3</sup>/a (0.868 Ml/d, 104 l/c/d)

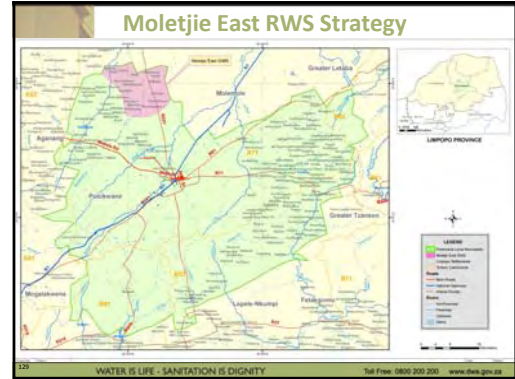
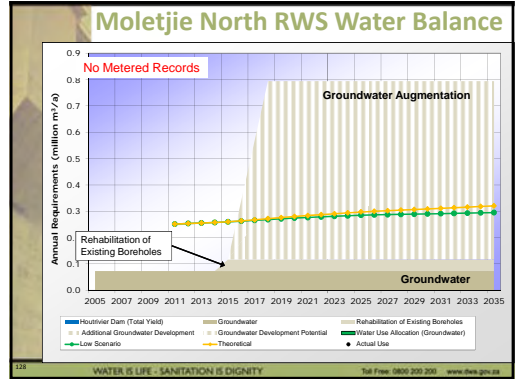
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## Moletjie East RWS

- Demographics (high growth): 37 422 (2011) – 37 577 (2035)

Category	Dwelling Type	% Population per Category		
1	Flats	0%		
2	Clusters	0%		
3	Single Residential	Low Income	0%	
4		Medium Income	0%	0%
5		High Income	0%	Formal
6	Informal	Very High Income	0%	
7		Below RDP Level	16%	
8		RDP Level	44%	100%
9		Above RDP Level	40%	Informal

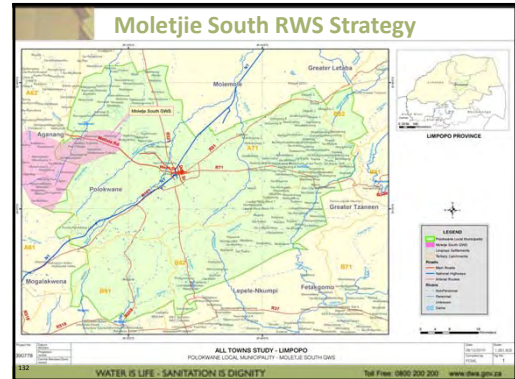
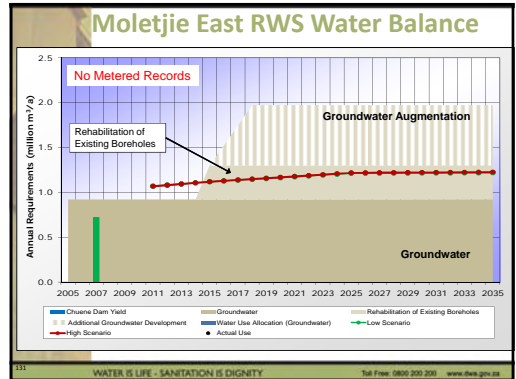
- Water sourced from Groundwater
- Water requirement projection (high growth):
  - 2011: 1.067 million m<sup>3</sup>/a (2.923 Ml/d, 78 l/c/d)
  - 2035: 1.225 million m<sup>3</sup>/a (3.353 Ml/d, 89 l/c/d)

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## Moleletje South RWS

- Demographics (high growth): 13 499 (2011) – 13 278 (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	6%			
8	RDP Level	7%			
9	Above RDP Level	87%			

- Water sourced from Groundwater
- Water requirement projection (high growth):
  - 2011: 0.546 million m<sup>3</sup>/a (1.495 Ml/d, 111 l/c/d)
  - 2035: 0.578 million m<sup>3</sup>/a (1.582 Ml/d, 120 l/c/d)

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Total Pop: 0800 250 250
[www.thekgosi.co.za](http://www.thekgosi.co.za)

Category	Dwelling Type		% Population per Category		
1	Single Residential	Flats	0%	0%	Formal
2		Clusters	0%		
3		Low Income	0%		
4		Medium Income	0%		
5		High Income	0%		
6		Very High Income	0%		
7		Below RDP Level	6%	100%	Informal
8	Informal	RDP Level	7%		
9		Above RDP Level	87%		

- Water sourced from Groundwater
- Water requirement projection (high growth):
  - 2011: 0.546 million m<sup>3</sup>/a (1.495 MI/d, 111 l/c/d)
  - 2035: 0.578 million m<sup>3</sup>/a (1.582 MI/d, 120 l/c/d)

**Mootletjie South RWS Water Balance**

Annual Requirements (million m<sup>3</sup>/a)

1.4  
1.2  
1.0  
0.8  
0.6  
0.4  
0.2  
0.0

2005 2007 2009 2011 2013 2015 2017 2019 2021 2023 2025 2027 2029 2031 2033 2035

Groundwater

Groundwater Augmentation

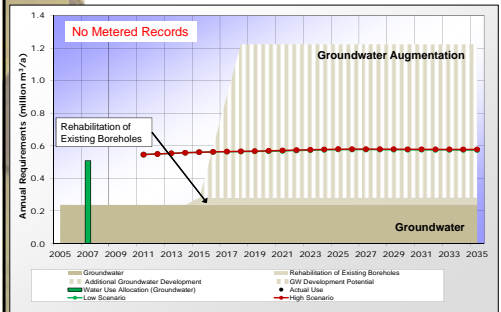
No Metered Records

Rehabilitation of Existing Boreholes

Groundwater

Legend:

- Groundwater
- Additional Groundwater Development
- Water Use Allocation (Groundwater)
- Low Scenario
- Rehabilitation of Existing Boreholes
- GW Development Potential
- Actual Use
- High Scenario



## Molteje North, East, South RWS's Conclusions & Recommendations

- The current water requirements exceed the available groundwater resources. Following reconciliation measures are required:
  - Conduct detailed WC/WDM analysis to confirm potential savings and identify WC/WDM measures
  - Rehabilitation of existing boreholes: North = 0.044 million m<sup>3</sup>/a (0.1 Ml/d), East = 0.380 million m<sup>3</sup>/a (1.0 Ml/d), South = 0.044 million m<sup>3</sup>/a (0.1 Ml/d)
  - Additional groundwater development: North = 0.200 million m<sup>3</sup>/a (0.5 Ml/d), South = 0.297 million m<sup>3</sup>/a (0.8 Ml/d). A feasibility study to confirm and develop additional groundwater resources augmentation and water quality (treatment requirements)
- Current groundwater water use volume to be confirmed
- Registration, metering and monitoring of boreholes required
- Water allocations are unknown and need to be confirmed

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Tel: 0800 250 250    [www.thekgalegroup.co.za](http://www.thekgalegroup.co.za)

- The current water requirements exceed the available groundwater resources. Following reconciliation measures are required:
  - Conduct detailed WC/WDW analysis to confirm potential savings and identify WC/WDW measures
  - Rehabilitation of existing boreholes: North = 0.044 million m<sup>3</sup>/a (0.1 Ml/d), East = 0.380 million m<sup>3</sup>/a (1.0 Ml/d), South = 0.044 million m<sup>3</sup>/a (0.1 Ml/d)
  - Additional groundwater development: North = 0.200 million m<sup>3</sup>/a (0.5 Ml/d), South = 0.297 million m<sup>3</sup>/a (0.8 Ml/d). A feasibility study to confirm and develop additional groundwater resources augmentation and water quality (treatment requirements)
- Current groundwater water use volume to be confirmed
- Registration, metering and monitoring of boreholes required
- Water allocations are unknown and need to be confirmed

[illegible]

## Chuenne Maja RWS

- Demographics (high growth): 22 344 (2011) – 21 890 (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	21%	
8	RDP Level	59%	100%
9	Above RDP Level	20%	

- Water sourced from Chuenne Dam & Groundwater.
- Water requirement projection (high growth):
  - 2011 Theoretical: 0.569 million m<sup>3</sup>/a (1.549 Ml/d, 69 l/c/d)
  - 2011: 0.639 million m<sup>3</sup>/a (1.751 Ml/d, 78 l/c/d)  
(GW: 0.055 million m<sup>3</sup>/a, SW: 0.584 million m<sup>3</sup>/a)
  - 2035: 0.769 million m<sup>3</sup>/a (2.107 Ml/d, 96 l/c/d)

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Category	Dwelling Type		% Population per Category		
1	Single Residential	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	21%		
8		RDP Level	59%		
9		Above RDP Level	20%		

- Demographics (high growth): 22 344 (2011) – 21 890 (2035)
- | Category | Dwelling Type    | % Population per Category |      |          |
|----------|------------------|---------------------------|------|----------|
| 1        | Flats            | 0%                        |      |          |
| 2        | Clusters         | 0%                        |      |          |
| 3        | Low Income       | 0%                        |      |          |
| 4        | Medium Income    | 0%                        | 0%   | Formal   |
| 5        | High Income      | 0%                        |      |          |
| 6        | Very High Income | 0%                        |      |          |
| 7        | Below RDP Level  | 21%                       |      |          |
| 8        | RDP Level        | 59%                       | 100% | Informal |
| 9        | Above RDP Level  | 20%                       |      |          |
- Water sourced from Chuene Dam & Groundwater.
  - Water requirement projection (high growth):
    - 2011 Theoretical: 0.569 million m<sup>3</sup>/a (1.549 Ml/day, 69 l/c/d)
    - 2011: 0.639 million m<sup>3</sup>/a (1.751 Ml/d, 78 l/c/d)  
(GW -0.055 million m<sup>3</sup>/a, SW: 0.584 million m<sup>3</sup>/a)
    - 2035: 0.769 million m<sup>3</sup>/a (2.107 Ml/d, 96 l/c/d)

**Chuenes Maja RWS Water Balance**

Annual Requirements (million m<sup>3</sup>/a)

Rehabilitation of Existing Boreholes

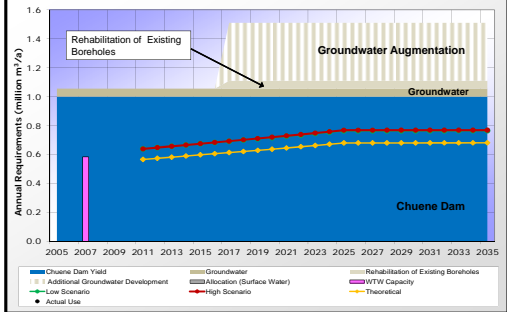
Groundwater Augmentation

Groundwater

Chuenes Dam

2005 2007 2009 2011 2013 2015 2017 2019 2021 2023 2025 2027 2029 2031 2033 2035

■ Chuenes Dam Yield  
 ■ Additional Groundwater Development  
 ■ Low Scenario  
 ● Actual Use  
 ■ Groundwater  
 ■ Allocation (Surface Water)  
 ■ High Scenario  
 ■ Rehabilitation of Existing Boreholes  
 ■ RTWT Cleanly  
 ■ Theoretical



## Chuenne Maja Conclusions & Recommendations

- Projected water requirements are within available resources
- Conduct detailed WC/WDMA analysis to confirm potential savings and identify WC/WDMA measures. Prioritise installation of bulk water meters
- Yield of Chuenne Dam (1.0 million m<sup>3</sup>/a, 2.7 Ml/d) to be confirmed
- Undertake feasibility study to confirm the additional groundwater resources augmentation and water quality (treatment requirements)
- Chuenne Dam originally constructed to support Lebowagomo. LNW requested if surplus yield is available, the possibility of supporting Lebowagomo needs to be confirmed
- Registration, metering and monitoring of boreholes required
- Maratapelot WTW to be upgraded from 1.6 Ml/d (0.584 million m<sup>3</sup>/a) to 2.7 Ml/d (0.986 million m<sup>3</sup>/a) by 2<sup>nd</sup> half of 2015
- Water allocations are unknown and need to be confirmed

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[illegible]

## 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%	0%	Formal
5	High Income	0%		
6	Very High Income	0%		
7	Below RDP Level	22%		
8	RDP Level	45%	100%	Informal
9	Above RDP Level	29%		

- Water sourced from Molepo Dam & Groundwater
- Water requirement projection (high growth):
  - 2011 Theoretical: 0.497 million m<sup>3</sup>/a (1.361 Ml/d, 63 l/c/d)
  - 2011: 0.989 million m<sup>3</sup>/a (2.709 Ml/d, 126 l/c/d)  
(GW :0.237 million m<sup>3</sup>/a, SW: 0.752 million m<sup>3</sup>/a)
  - 2035: 1.154 million m<sup>3</sup>/a (3.159 Ml/d, 147 l/c/d)

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**Molepo RWS Water Balance**

Annual Requirements (million m³/a)

2005 2007 2009 2011 2013 2015 2017 2019 2021 2023 2025 2027 2029 2031 2033 2035

Rehabilitation of Existing Boreholes

Groundwater Augmentation

Groundwater

Molepo Dam

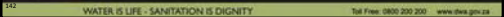
1 in 50 year yield (DWS Stand Alone Dams Study)

Legend:

- Molepo Dam
- Additional Groundwater Development
- Low Scenario
- Actual Use
- Groundwater
- vf W Capacity
- High Scenario
- Rehabilitation of Existing Boreholes
- Molepo Dam Allocation
- Theoretical

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## 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

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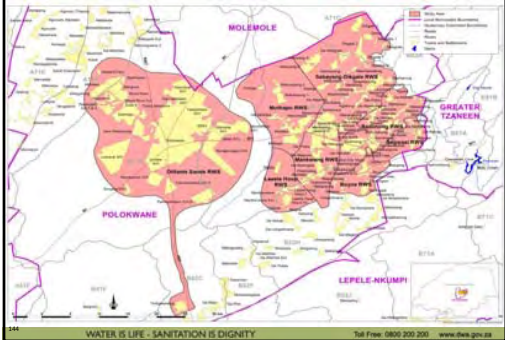
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**Polokwane Cluster**

The map displays the Polokwane Cluster, which includes the Molemole, Polokwane, and Lepele-Nkumpi areas. The map is color-coded to show different land use types: Agriculture (yellow), Urban (red), Industrial (orange), and Other (green). The map also shows the surrounding regions of Molemole, Polokwane, and Lepele-Nkumpi. A legend in the top right corner provides a key for the land use types. A scale bar and a north arrow are located in the bottom left corner. The map is titled 'Polokwane Cluster' at the top.



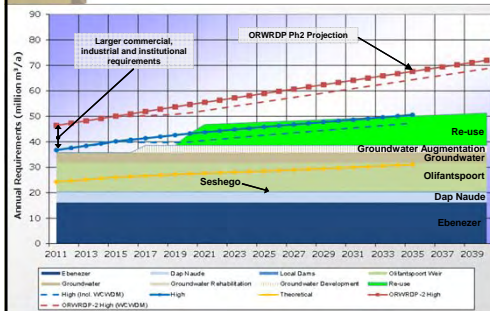
## Polokwane Cluster

- 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%
6	Very High Income	3.9%
7	Below RDP Level	10.0%
8	RDP Level	13.0%
9	Above RDP Level	32.3%

- Water sourced from Ebenezers Dam, Dap Naude Dam, Olifantspoort Weir, Seshego Dam and groundwater
- Water requirement projection (high growth):
  - 2011 Theoretical: 24.274 million m<sup>3</sup>/a (66.459 Ml/d, 136 l/c/d)
  - 2011: 46.405 million m<sup>3</sup>/a (127 Ml/d, 260 l/c/d)
  - 2035: 67.630 million m<sup>3</sup>/a (185 Ml/d, 296 l/c/d)

## Polokwane Cluster Water Balance



## Polokwane Conclusions & Recommendations

- Current water use exceeds the currently allocated water resources
- Preliminary WC/WDM analysis indicates savings of 3.266 million m<sup>3</sup>/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

## Polokwane Conclusions & Recommendations

### Letaba River System

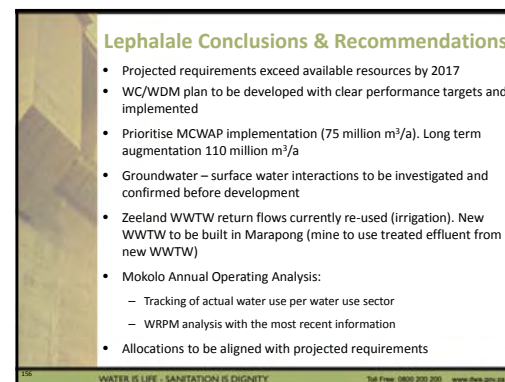
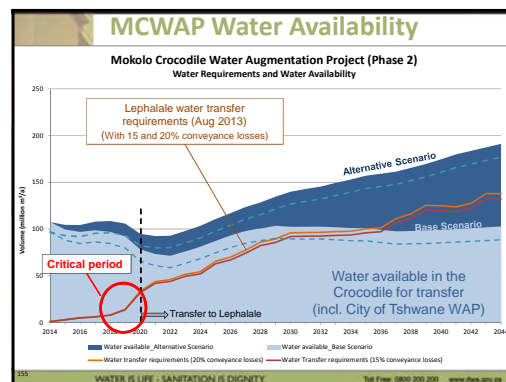
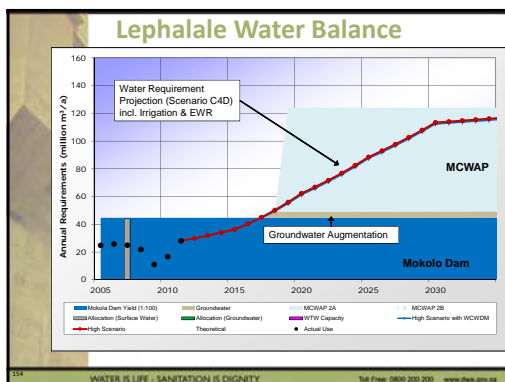
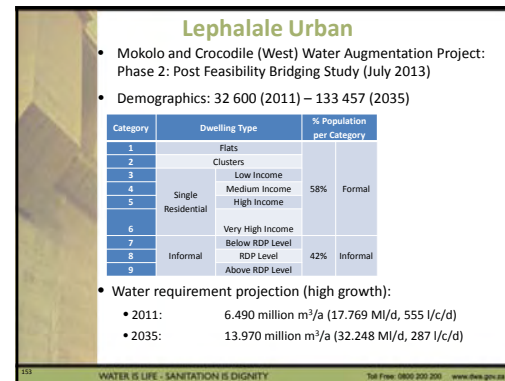
- Current Dap Naudé licenced allocation (6.52 million m<sup>3</sup>/a) is not recommended due lower yield (HFY = 2.1 million m<sup>3</sup>/a) Historic average supply approx. 4 million m<sup>3</sup>/a
- Ebenzer Dam licenced allocation of 12 million m<sup>3</sup>/a not be increased above 16.2 million m<sup>3</sup>/a
- Factors that could further influence the allocation from the Letaba:
  - Validation and Verification (V&V) 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 Ebenezers Dam in exchange for an allocation from Ebenezers 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)

## Polokwane Conclusions & Recommendations

### Olifants River System

- Total Olifantspoort Weir licenced allocation is 14.6 million m<sup>3</sup>/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 Boshelo): Informal irrigation (15.8 million m<sup>3</sup>/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)

**WATERBERG DM**  
**Lephalele LM**



## Item 9: Remainder of the Study Programme – Phase 1

### 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](mailto:monjae@uwp.co.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

## Item 10: Way Forward

### 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

## Item 10: General

**Item 11: Date of Next  
Meeting and Closure**

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## **APPENDIX C BACKGROUND INFORMATION DOCUMENT (BID)**

# Continuation and Maintenance of Reconciliation Strategies for All Towns in the Northern Planning Region

## Information Document

June 2015



water & sanitation

Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA

### Purpose of this document

The purpose of this document is to provide an update of the study on the continuation and maintenance of water reconciliation strategies for towns in the northern region by the Department of Water and Sanitation (DWS).

The document provides background information, explains the rationale for the study and requesting participation from stakeholders to assist DWS to ensure enough water can be made available for all towns for the next thirty years.

As the Department wishes to follow a transparent process and include stakeholders as prescribed by the National Water Act of 1998, an extensive public engagement process will be followed. Part of this process involves establishing a Strategies Steering Committee (SSC) that is representative of sectors important to the study.

An SSC was established in 2013 in each of the Limpopo, Mpumalanga and North West Provinces.

The SSC is a voluntary body operating at a strategic level and ensuring that the technical aspect of the study is transparent, open and consultative and that cooperative governance is embraced.

Your organization is regarded as a key stakeholder in this process. We therefore have the pleasure to invite you to serve as a member of Northern Planning Region's All Town Reconciliation Strategies' Steering Committee and continue to participate in regional activities during the implementation of this study.

## INTRODUCTION AND CONTEXT

### Study Area

The Department of Water and Sanitation (DWS) commissioned four three-year studies for the continuation and maintenance of the bulk water supply reconciliation strategies for all towns in the country.

The studies cover the four Water Resource Planning Areas - North, South, East and Central and **this study covers the Northern Planning Area.**

These strategies were developed in 2011 and need to be revised to remain relevant under prevailing conditions. The study is part of an on-going process to ensure sufficient water can be made available for pertinent developmental imperatives in and around all towns.

Although each town's strategy is different, key common themes were highlighted as listed below:

- Improved management will solve a significant portion of immediate problems.
- In the Northern Planning Region, the water requirements in 2010 exceeded water resources availability in 64 towns.
- Lack of water metering impedes the confidence in planning and the strategies.
- High per capita use in many towns points to the potential of saving through Water Conservation and Water Demand Management (WC/WDM).
- Groundwater remains a viable source of water for many towns.
- Supply problems relate to infrastructure constraints rather than water resource availability limitations in many towns.

The Northern Region study area is made up of the entire Limpopo Province, the north-west part of the North West Province and the northern parts of the Gauteng and Mpumalanga Provinces respectively. Please see the map for more detailed information.

The area covers eight Districts and one Metropolitan Municipality and 229 separate town strategies were developed.

A number of towns in this region are supplied from Water Boards, which to a large extent, are already incorporated in the larger Reconciliation Strategies for the Vaal River (2009), Olifants River (2011), Crocodile (West) River (2012) and Luvuvhu and Letaba Rivers' (2014) Water Supply Systems respectively.

Documentation on these strategies is available on the DWA web page: <http://www.dwa.gov.za/projects.aspx>

In brief, this study is a further endeavour to aspire to make the slogan, "some for all", to become a reality.

The intention is to continue the maintenance, review and implementation of the reconciliation strategies even after completion of this study and phase.

## OBJECTIVES OF THE STUDY

The primary objectives of the study are to review and refine all strategies, identify priority or “hot spot” towns requiring full revisions and document the progress on how the recommended interventions (strategy actions) were implemented.

This is carried out in collaboration with the respective Regional Offices (ROs) in the Northern Planning Region. The ROs serve as the conduit through which the study team engage with the designated Water Service Authorities - either Local or District Municipalities.

A further key objective is to promote the reconciliation strategies as a core planning product giving the actions needed to secure the required water resources.

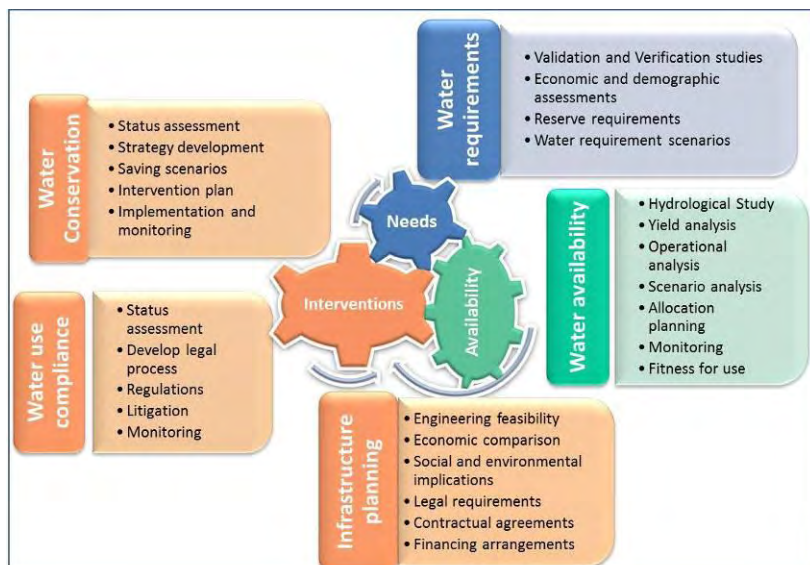
The vision is for the strategies to be considered and incorporated when other plans such as the Water Services Development Plans and Integrated Development Plans are developed.

## RECONCILIATION STRATEGIES: COMPONENTS

Lessons learned from strategies being reviewed and implemented in other parts of the country identified the components shown in **Figure 1**, as the main elements to consider in a reconciliation strategy. At the centre of the diagram the questions regarding how much water is **needed**, what water resources are **available** or could be made available, and which **interventions** can be considered to achieve a balance between demand and supply should be answered.

The coloured boxes indicate how each question is answered by undertaking various investigations and synthesising the results of several processes to formulate the most suitable strategy for an area and plan to reconcile the water resources with the requirements.

The particular tasks and activities relevant to the Northern Region were identified from the generic complements provided in **Figure 1** and are presented in the following section.



**Figure 1: Reconciliation Strategies: Components**

## STUDY ACTIVITIES SINCE STRATEGY STEERING COMMITTEE WORKSHOP 1

### Preliminary Strategies Steering Committee Workshops

The purpose of this workshop was to confirm the strategies that were identified as priority strategies as part of the Inception Phase. The strategies were reviewed and evaluated on their completeness and preliminary priority towns were identified. The priority list was presented at the workshop and the final selection was confirmed.

### Updating priority reconciliation strategies

This phase of the study encompassed the bulk of work required for the execution of this study, including the engagement of stakeholders, information sourcing, verification of data, modelling, evaluation of scenarios and determining of reconciliation measures. Typical activities involved in the updating of the prioritised reconciliation strategies included:

- Detailed assessment of the water requirements, demographics, service levels to derive future water requirement projections a planning horizon of at least 25 years (up to 2035).
- The status and impact of WC/WDM interventions within the relevant WSAs were evaluated and an assessment

of potential target savings that can possibly be achieved through WC/WDM were estimated.

- Opportunities for water re-use were identified.
- New schemes such as RBIG or other grant schemes were incorporated in the intervention timeline.
- Potential gaps or inaccuracies in the surface and groundwater availability estimates will be identified and addressed.
- Water quality related planning activities that are necessary to improve and sustain the quality of the water resource in the prioritised areas where this is an issue, were identified.
- Compared water requirements with the water resources availability to confirm the water balances status over the planning period i.e. whether and when deficits/shortfalls occur.
- Identified development scenarios/options that can meet the long term water requirement projections for areas where shortfalls/deficits occur over the planning period with preference to utilising local resources first (groundwater, re-use etc.).
- The reconciliation strategies for supply areas that depend on the same water resource were combined

(where appropriate) in order to confirm the combined strategy and water balance situation.

The deliverable of this task is the updated reconciliation strategies for the prioritised towns.

## **Second Strategies Steering Committee Workshops**

The strategies were distributed to stakeholders and the Second Strategies Steering Committee workshops have been arranged for each of the provinces with the following objectives:

- To present the updated/revised strategies, to obtain comments, further guidance and agreement on the acceptability of the results.
- Agree on the preferred development scenarios and on the way forward for the compilation of the reconciliation strategies.

## **Complete updating of reconciliation strategies**

The reconciliation strategies will be completed and finalised through the following processes:

- Consider the comments received from the Second Strategies Steering Committee workshops and

undertake further studies where possible, that are required to finalise reconciliation strategies.

- Update prioritised strategies with any additional/revised information received.
- Add any significant developments, augmentation options, etc., to any of the strategies. This is to provide descriptive text to indicate where the strategies are superseded.

Based on the above, compile the final reconciliation strategies and submit to DWS for approval.

## **Study termination**

Once approved by DWS, the final priority strategies will be distributed to the stakeholders for signing off by the identified stakeholders.

All study reports and study deliverables will be finalised and submitted during this phase. The final strategies will be incorporated into DWS's database which will then be uploaded onto the DWS's website.

### **Communication Enquiries**

General: contact Ms Leoni Le Roux, Tel: +27 (0) 12 424 9722, Fax: +27 (0) 12 460 4071 or e-mail: [leonilr@uwp.co.za](mailto:leonilr@uwp.co.za).

Technical: contact Ms Monja Esterhuizen or Mr Leon de Jager, Tel: 27 (0) 12 424 9709, Fax: 27 (0) 12 460 4071 or e-mail: [monjae@uwp.co.za](mailto:monjae@uwp.co.za), [leondj@uwp.co.za](mailto:leondj@uwp.co.za).

For more information on the study, visit the Department's website at: <http://www.dwa.gov.za/projects.aspx>

## **STRATEGY COMMENTS**

The Strategy Steering Committee to provide comments on the distributed strategies by:  
**14 August 2015**

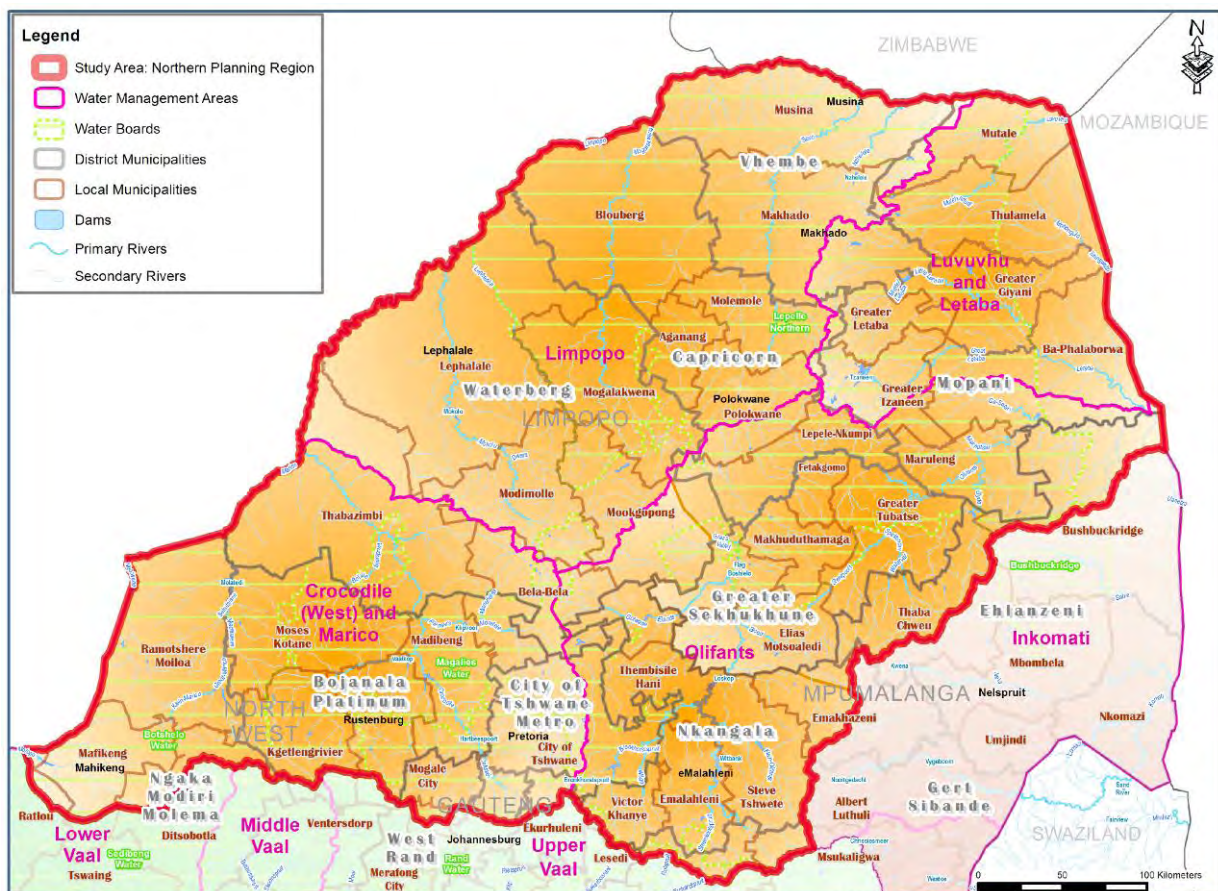
**Comments to be sent to:**  
**Ms Monja Esterhuizen (Northern Planning Region Deputy Study Leader)**  
E-mail: [monjae@uwp.co.za](mailto:monjae@uwp.co.za)

## PRIORITISATION PROCESS

The steps that were followed by the study team to identify the preliminary priority towns are presented below:

- **Step 1:** Identification of Category 4 strategies (towns currently in 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.

Province	Number of Priority Strategies
Gauteng	0 (part of the Larger Vaal Reconciliation Strategy Study Area)
Limpopo	38
Mpumalanga	6
North West	6
<b>Total</b>	<b>50</b>



Continuation of the Northern Planning Region's All Town Reconciliation Strategies: Phase 1

## UPDATED PRIORITISED STRATEGIES

Whole of the Limpopo Province included in the DWS Northern Planning Region

LIMPOPO PROVINCE			
Province	District Municipality	Local Municipality	Strategy
Limpopo	Mopani	Greater Giyani	Giyani System A and B WSS
			Giyani System C WSS
			Giyani System D WSS
			Giyani System F1 WSS
			Giyani System F2 WSS
		Greater Letaba	Sekgosese GWS
		Greater Tzaneen	Modjadjiskloof Scheme
			Thapane RWS
			Tours RWS Scheme
		Ba-Phalaborwa	Namakgale - Lulekani RWS Cluster
		Greater Giyani	Mapuve System N WSS
	Vhembe	Thulamela	Malamulele West WSS
			Malamulele West WSS
			Makhado Mapuve System RWS
		Thulamela	Lambani Thulamela
			Tshifudi RWS
			Nzhelele Thulamela RWS
		Makhado	Nzhelele Makhado RWS
			Makhado
			Middle Letaba RWS
		Musina	Musina
	Capricorn	Blouberg	Senwabarwana GWS
		Molemole	Molemole West
		Polokwane	Hout River RWS
			Moletje East RWS
			Moletje North GWS
			Moletje South GWS
			Olifants-Sand RWS
			Badimong RWS
			Laaste Hoop RWS
			Mankweng RWS
			Mothapo RWS
			Segwasi RWS
			Sebayeng-Dikgale RWS
			Boyne RWS
			Chuene Maja RWS
			Molepo RWS
	Waterberg	Lephalale	Lephalale Urban

**North West Province included in the Central and Northern DWS Planning Regions**

<b>NORTH WEST PROVINCE</b>			
<b>Province</b>	<b>District Municipality</b>	<b>Local Municipality</b>	<b>Strategy</b>
North West	Bojanala Platinum	Kgetlengrivier	Borolelo/Swartruggens
			Koster & Reagile
	Ngaka Modiri Molema	Mahikeng	Mahikeng
		Ramotshere Moiloa	Dinokana
			Motswedi Gopane
			Supingstadt
		Tswaing	Ottosdal
	Dr. Ruth S. Mompoti	Naledi	Stella
		Greater Taung	Reivilo
	Dr. Kenneth Kaunda	Tlokwe	Potchefstroom Urban

**Mpumalanga Province included in the Central, Eastern and Northern DWS Planning Regions – the list below reflects the priorities as identified by the Central and Northern Planning Regions**

<b>MPUMALANGA PROVINCE</b>			
<b>Province</b>	<b>District Municipality</b>	<b>Local Municipality</b>	<b>Strategy</b>
Mpumalanga	Nkangala	Emalahleni	Emalahleni and Springvalley
		Steve Tshwete	Middelburg
		Dr JS Moroka	Ga-Ramantshane
	Ehlanzeni	Thaba Chweu	Mashishing
			Moremela

## **APPENDIX D    SSC TERMS OF REFERENCE**



# **CONTINUATION AND MAINTENANCE OF RECONCILIATION STRATEGIES FOR ALL TOWNS IN THE NORTHERN PLANNING REGION**

## **Terms of Reference for members of the Study Steering Committee**

### **1. INTRODUCTION**

The National Water Act (Act No 36 of 1998) requires consultation with “society at large” in the progressive development of water resource strategies such as the development of Reconciliation Strategies for All Towns in the four Water Resource Planning Regions (North, South, East and Central).

The institutional framework is one of the most important aspects of Integrated Water Resource Management (IWRM), because it determines the effectiveness of policy implementation. Institutions (statutory and non-statutory) are also important in that they are the focus for the Act's requirements to consult widely with water users and other interested persons before policies and strategies relating to the management and use of water resources are implemented.

Although there is no specific provision in the National Water Act for creating non-statutory forums, the experience of the Department of Water and Sanitation (DWS) is that these voluntary bodies have proved to be of great value in IWRM. Stakeholder groups have made significant contributions to water resources management at a local level, by providing essential local knowledge, expertise and information. In this respect the DWS expect Stakeholders to play an important role in the implementation of water resource management strategies.

In 2012 the DWS commissioned four three-year studies by appointing Professional Service Providers for the continuation and maintenance of the bulk water supply reconciliation strategies for all towns in the country. The studies cover the four Water Resource Planning Regions and this study covers the Northern Planning Region. The strategies were developed in 2011 and need to be revised to remain relevant under prevailing conditions. The study is part of an on-going process to ensure sufficient water can be made available for development initiatives in and around all towns.

The primary function of the Study Steering Committee (SSC) will be to provide guidance to the direction of the outcomes of the Strategies and ensuring that the technical aspect of the study is transparent, open and consultative and that cooperative governance is embraced.

## **2. OBJECTIVES**

The objectives of the SSC are to:

- Provide executive guidance to the direction and outcomes of the study;
- Ensure that the various Strategies and their associated recommendations are appropriately communicated; and
- Ensure that the Reconciliation Strategies, after their development, are implemented.

## **3. ROLES AND RESPONSIBILITIES OF THE STUDY STEERING COMMITTEE MEMBERS**

The roles and responsibilities of the SSC could include the following:

- Members have to attend meetings of the SSC and make certain that they are well prepared for meetings. In the event that they cannot attend, a mandated representative may attend on their behalf;
- 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 their and other relevant organizations;
- Incorporate the strategies' recommendations into development plans such as WSDP's, IDP's, Implementation Readiness Studies (RBIG), License Applications etc.; and
- Facilitate the acceptance and sign-off of the updated Reconciliation Strategies.

### **3.1 Scope of work in updating the Reconciliation Strategies**

The primary objectives of the study are to review and refine the existing strategies, identify priority or “hot spot” towns requiring full revisions and document the process on how the recommended interventions (strategy actions) are to be implemented.

This is carried out in collaboration with the respective Regional Offices (ROs) in the Northern Planning Region. The ROs serve as the conduit through which the study team engage with the designated Water Service Authorities - either Local or District Municipalities.

A further key objective is to promote the reconciliation strategies as a core planning product giving the actions needed to secure the required water resources.

Appropriate integration with other planning and management processes, such as the Water Services Development Plans and Integrated Development Plans, as well as cooperation among stakeholder will be key success factors in formulating coherent recommendations and action plans.

The outcomes of the Reconciliation Strategies are specific interventions with particular actions needed to balance the water requirements with water availability through the implementation of regulations, demand management measures and infrastructure development options. Members of the SSC will actively participate in assisting to fulfill the scope of work in order to take ownership of the strategies and take up respective responsibilities for the implementation of interventions that will be identified.

#### **4. ARRANGEMENTS**

The SSC of the Continuation and Maintenance of Reconciliation Strategies for All Towns in the Northern Planning Region is a study committee formed to ensure the development and implementation of the various town Strategies. Whilst the committee comprises representatives from national government, provincial government, local government and civil society the meetings will be facilitated and chaired by the DWS: National Water Resource Planning.

Two SSC workshops were planned with the purpose of each workshop summarized below:

- SSC Workshop 1 (held in April 2013):
  - Introduce the study;
  - Establish and define the role of the SSC;
  - Outline findings during the Inception Phase;
  - Outline the scope of work, methodology, way forward and preliminary study programme; and
  - Prioritise the strategies to be updated.
- SSC Workshop 2 (this workshop):
  - Present methodology for updating strategies;
  - Present the updated reconciliation strategies prioritised at the SSC Workshop 1;
  - Agree on the preferred development scenarios; and
  - Obtain comments and inputs from the SSC.

The appointed Professional Service Provider to perform the following functions for the SSC:

- Send out invitations to the meetings;
- Organise the venue and catering;
- Assist with drawing up the agenda;
- Maintain a contact details database of all members; and
- Compile and timeously distribute the minutes of every meeting.