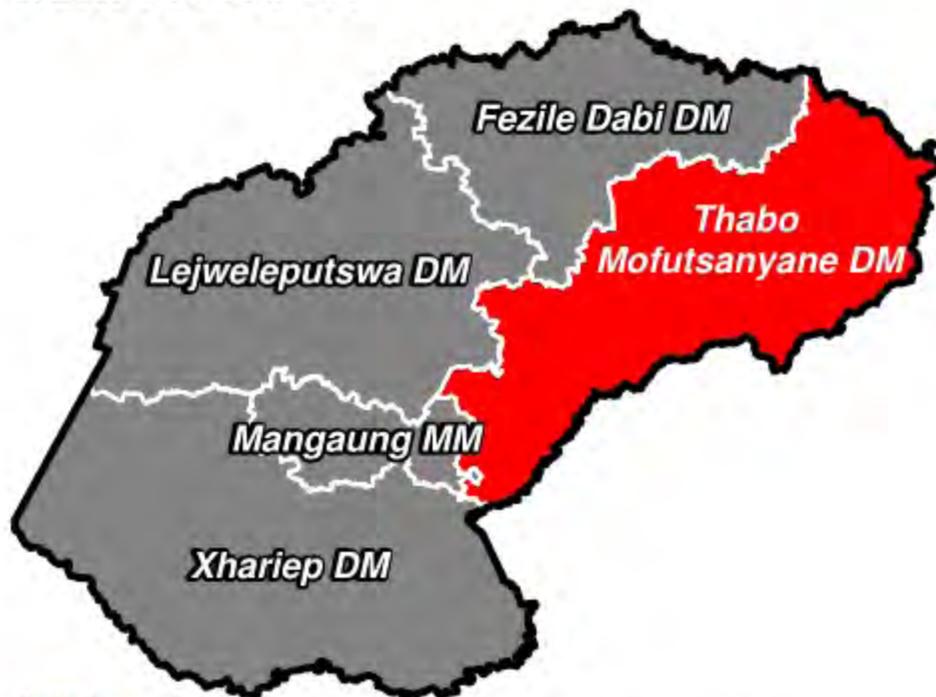


# Water Infrastructure Status & Intervention Plans



## THABO MOFUTSANYANE DISTRICT MUNICIPALITY

*March 2012*



DEPARTMENT OF WATER AFFAIRS  
Directorate Planning and Information

# Water Services Status & Intervention Plans



## Purpose of Document

The purpose of the document is to provide a Provincial Summary on issues relating to the Water Services Development Plan (WSDP). The issues that were focussed on, for the purpose of this document, include Demographics, Water & Sanitation Needs, Associated Services, Water Resource Management, Conservation Demand Management, Initiatives & Goals, Gap Analysis and High Priority Target Areas.

## Background to Reference Framework

District and Local Municipalities (DM, LM) acting as Water Services Authorities (WSA) must manage and maintain water services in their area of jurisdiction. In order to develop a sufficient strategy to manage these services WSDP's were drawn up for the WSA's providing statistics on users and their requirements as well as five year guidelines for implementing water services projects and management of these services. Completed WSDP's were approved by the WSA's as their five-year plan and submitted to the Department of Water Affairs (DWA). The Department has to evaluate the content of the WSDP's and align Macro Planning with activities outlined in the WSDP's. In order to evaluate the WSDP's the Department needs a Reference Framework (RF) document addressing the same issues outlined in the WSDP guideline from the Department perspective. The RF documents can also be utilised to provide strategic support and information to Local Government and Water Services Providers to assist in strategic planning and daily functions. The RF was developed by utilising the Directorate Macro Planning and Information Systems GIS data to compile base maps to address specific topics. Provincial Water Services Planning Teams (PSP's) were appointed to utilise their knowledge and experience in a specific WSA to address the information requirements. Information gathered within the process will feed to a national information system in order to create RF documents that reflect information on a provincial and national level.

## Acknowledgements

*Joint Study by:*

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# Water Services Status & Intervention Plans



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## 1. INTRODUCTION TO THABO MOFUTSANYANE DISTRICT MUNICIPALITY

### 1.1 Locality in the Free State Province

Free State Province has the following five (5) District Municipalities (DM s).

- Xhariep DM
- Lejweleputswa DM
- Thabo Mofutsanyane DM
- Fezile Dabi DM
- Mangaung MM

The Thabo Mofutsanyane District Municipality has the following six (6) Local Municipalities.

- Phumelela LM
- Maluti a Phofung LM
- Nketoana LM
- Dihlabeng LM
- Setsoto LM
- Mantsopa LM

The main towns within the district are Vrede, Memel, Warden, Reitz, Petrus Steyn, Lindley, Arlington, Bethlehem, Harrismith, Kestell, QwaQwa, Clarens, Fouriesburg, Rosendal, Senekal, Marquard, Ficksburg, Clocolan, Excelsior, Ladybrand, Thaba Nchu and Tweespruit.

**Pages 01 and 02** in section 2 provides detail information on settlement distribution and population figures.

There are approximately 86 6538 people residing within  $\pm$  23 1928 households which occupies approximately 103 communities. The DM consists of 56 urban settlements (22 formal towns and 34 former townships), some Squatter Camps, 33 rural settlements and a few farming settlements spread throughout the district. The District Municipality spans over an area of  $\pm$  33,269km<sup>2</sup> which equates to 25.82% of the overall Free State Province.

The age and gender profile already gives an indication that men seek work outside the District Municipality and Province. The male/female split is 46.75/53.25 this indicates permanent labour migration (most likely to the Welkom area and Gauteng province). Vacation migration takes place back into the district this requires additional capacity in the water services infrastructure. Migration from Lesotho through the Thabo Mofutsanyane District creates social and economic problems.

Thabo Mofutsanyane District shares international borders with Lesotho. The other borders are with Kwazulu Natal Province, Mpumalanga Province, Mangaung Metropolitan, Lejweleputswa District and Fezile Dabi District.

Thabo Mofutsanyane DM accounts to approx 29.5% of the Free State economy. The unemployment rate is approximately 13.5%. The economy of Thabo Mofutsanyane is made up of trade, manufacturing, agriculture and construction.



## 2. WATER SERVICES PROFILE

The DM has Water Service Authority Status and is therefore responsible to provide efficient, effective and sustainable water services to the people within their area of jurisdiction.

The accepted minimum levels of service provision as prescribed by the Reconstruction and Development Programme (RDP) are:

- ◆ **Water**
  - A minimum availability of 25l/capita/day,
  - A minimum flow rate of 10l/minute,
  - A maximum walking distance of 200m to the nearest tap.
  - Water must meet SABS 0284 quality standards in terms of chemical content, microbial content, taste, colour and appearance and a guaranteed assurance of water of more than 98% of the year.
  
- ◆ **Sanitation**
  - Individual households to have access to a Ventilated Improved Pit (VIP) latrine as the minimum standard in human sanitation requirements; and
  - a maximum walking distance of 50m from the homestead to the closest sanitation facility.

The level of hardship figures for water services can be defined as water and sanitation services not meeting **all** of the basic RDP criteria mentioned above. Further to this, the DWA Directorate Planning and Information has prepared a Topic Extract on Water Backlog Eradication Strategy for every Water Services Authority and should be read supplementary to this document. The hardship within the DM is discussed in more detail in the paragraphs here after.

### 2.1 Water Supply Needs

The service level profile of the District Municipality shows significant progress in the provision of basic services for water. Adequate service levels have so far reached about 213 252 households which represents 91.9% of the population for water to at least within 200m. This leaves a gap of 8.1% water backlog. The backlog is a combination of infrastructure provision (capital works) as well as operational/management aspects. The critical shortage of O&M funds and adequate staffing result in systems not being maintained and operated efficiently.

The uncontrolled higher levels of water use, vandalism, theft and unaccounted-for water cripples the water supply schemes. The water resources-, water services infrastructure-, upgrading-, refurbishment- and replacement needs are high due to higher levels of services required and expected by the water users.

Details on the water supply type per Settlement are tabled on pages 03 and 04. The District Municipality needs to integrate water related environmental issues in its integrated environmental management plans i.e. grey water management, threats of water pollution and other water resource related challenges.

*Refer to page 3 and 4 in section 2 for more details in this regard.*

### 2.2 Sanitation Needs

The most urgent area for sanitation is access to basic safe sanitation structures. The sanitation backlog is for about 61511 households, ie about 26.5% of the population. The largest backlog is present in the urban and farming settlements this would be addressed by mostly new VIP structures and secondary by upgrading existing structures. The upgrading possibility may be problematic due to a view that such a household insisting on a new facility (as it is their right to have access to this).

The District Municipality is currently focusing on addressing backlogs for provision of basic service, but with a very small yearly budget. The extent of service level upgrading and covering full waterborne sanitation is currently confined to the settlements within the urban areas.

Details on the sanitation supply type per Settlement are tabled on pages 05 and 06.

*Refer to page 5 and 6 in section 2 for more details in this regard.*

### 2.3 Water Services Schemes: Number, Type and Sophistication

There are approximately 25 surface- and groundwater schemes within the DM aiming to serve the people at RDP standard. The district is well developed with local to regional schemes which supply water through extensive bulk distribution systems. These systems usually obtain water from major dams in the area. The most recent development is the construction of the Dihlabeng BWS, Sterkfontein Dam BWS to Qwaqwa regional, Phumelela BWS & Setsoto bulk water supply projects. The smaller scheme areas are dependent on groundwater supply the minority of systems rely on wellfield type of development. Groundwater is a major contributor to water supply and needs to be managed properly.

There are 30 Water Treatment Works (WTW) (with some package plants which were only supposed to be a temporary measure) serving the major water schemes. There are 32 Wastewater Treatment Works (WWTW) within the DM (captured on the DWA/WSA database). Very few (if any) of these works have been accredited with blue or green drop certification and has reached a stage where substantial refurbishment is required to keep the schemes functional. The operation and maintenance of these schemes are also a problem due to a lack of capacity within the LM s.

Surface water as well as groundwater is the main water resources in the District Municipality. Without proper management, the resources will not be sufficient for the growing demand, especially in the urban areas.

Thabo Mofutsanyane DM has not attended to the development of water scheme technical development plans, for all areas within the DM. Although these development plans address most of the major scheme areas, some are dated and needs to be updated.

### 2.4 Water Services Projects

The existing funding grants for the municipal capital projects and operating subsidies for water services are mainly funded by the Municipal Infrastructure Grant (MIG). The main objective of MIG is to assist WSAs by providing grant funding in removing the backlog concerning basic municipal services to poor households. The funding is allocated to the WSA, e.g. the LM. A complete water services project list is included within the latest LM WSDP. The RBIG funding has assisted in the development of the Dihlabeng, Phumelela, Maluti a Phofung & Setsoto LM areas.

The funding streams for infrastructure development over the next three years are tabled within Table 2.4: Funding Streams below:

Table 2.4: Funding Streams

FUNDING STREAM	2011/2012	2012/2013	2013/2014
Municipal Infrastructure Grant	R 204 038 961.84	R 191 074 884.86	R 0
Regional Bulk Infrastructure Grant	R 115 782 056.00	R 100 620 000.00	R 118 180 000.00
Sanitation Human Settlement Grant	R 0	R 0	R 0
Equitable Share (Infrastructure related services)	R 0	R 0	R 0
Accelerated Community Infrastructure Programme	R 13 940 000.00	R 9 160 000.00	R 0

The Topic Extract: Water Backlog Eradication Strategy for the DM has developed a basic cost benchmark for scheme development in the DM based on the availability of the water source and the number of households within a community. This resulted in basic scheme development cost per household as R10 000 for water and R9 500 for sanitation (sanitation capped by the subsidy amount).

This cost benchmark has assisted in determining the total funding allocation required to eradicate water services backlogs and whether the WSA will be able to meet the National water services targets of 2014 (for water supply) and 2014 (for sanitation provision). The amount required to eradicate the water supply backlog is approximately R2 652 million and for sanitation it is R1 184 million. The DM will definitely not meet the national millennium development targets of 2014 with the current funding allocations.. Further to this, the DWA: Directorate Planning and Information has developed a Regional Bulk Master Plan to provide a total perspective per WSA on their first order Regional Bulk Infrastructure requirements

## 2.5 Operational Issues (service quality, water quality, etc.)

Each LM is their own WSA, who is responsible for the water services policy development and project implementation, planning, regulations and Water Services Provider arrangements. The current capacity within the WSA is quite limited that results in poor service quality and operation and maintenance of schemes. Improvements can be made, in areas such as skilled process controllers, monitoring programme and drinking water compliance.

There are still notable challenges being faced by the DM, including waste water quality compliance and monitoring programme.

The challenge is dilapidated infrastructure and lack of qualified artisan and process controllers. Another challenge is inadequate budget to match the age of the infrastructure. Expansions in the towns took place without any expansions to the treatment works. In general all the water and waste water treatment works are overloaded.

The solution is to access to refurbishment and extension budget, estimated at R1 584 million for the entire district, and to budget for the recruitment of qualified Artisans and Process Controllers.

### 2.5.1 Ability to Implement Capital Projects

Each LM within the DM receives the majority of their funding from the MIG and is implementing the programmes. Some management capacity to adequately monitor and manage the disbursement and implementation of this funding is lacking, but is not crippling the implementation process.

### 2.5.2 Ability to Operate and Maintain Schemes

Each LM WSA is currently understaffed and requires skilled personnel to successfully fulfil its water services provision function. A huge capacity problem exists within the DM with respect to staff, appropriate skills and processes. A Section 78 was conducted during 2004. It is however recommended that a WSA evaluates their current WSP arrangements in order to assess the current staffing gaps with respect to skills, resources and processes. This will assist the WSA to identify the mechanism that should be implemented to deliver an effective and efficient service. Alternatively support needs to be provided to each WSA within the DM to implement processes for planning and operational issues.

### 2.5.3 Ability to Ensure Effective Water Services are Progressively Provided in District Municipality

Each WSA within the DM is responsible for water services within their area of jurisdiction and is therefore required to prepare a Water Services Development Plan (WSDP) inclusive of a 5-year plan to eradicate water services backlogs. The WSA s needs to update the WSDP as there are still many gaps identified and planning is required to address these gaps. DWA is providing support to this process in terms of training, process facilitation, as well as monitoring and evaluation.

The overview assessment of the overall quantity (level of detail of the information) and quality (level of accuracy of information to meet the compliancy requirements) assessment of the current WSDP 2011 is illustrated overview Assessment for DM.

### 3. KEY ISSUES AND INTERVENTIONS

The main challenges that face DM in water services provision as per their IDP 2011/12 and confirmed not only in the overview provided above but also within their WSDP of 2011, are as follows:

- The settlements are spread over a vast geographical area which poses management and O&M difficulties,
- Water resources are limited and users aspired higher levels of services,
- High costs are involved to provide adequate water resources, bulk water distribution and water services infrastructure,
- Cost recovery systems are not in place, a culture of free water is problematic in the District Municipality area,
- There are high levels of un-accounted-for water and illegal connections,
- Water Conservation and Demand Management systems are not in place,
- There is an extent of water services backlogs,
- Some infrastructure exceeded its design life,
- In cases infrastructure capacity does not meet the infrastructure demand due to rapid and unplanned growth
- Most schemes require refurbishment- and extension of infrastructure,
- WWTWs exceeding their design capacity and environmental pollution occurs,
- Levels of vandalism and cable/engine theft occurs,
- Shortage of skilled personnel that result on the poor maintenance of existing infrastructure,
- Low revenue generation that has an impact on the financial sustainability of the municipal water & sanitation service. The failure to impose cost recovery, together with poor cost recovery, have meant that the service is currently not generating sufficient revenue. This is also affected by inaccurate consumption data due to a lack of water meters, faulty meters and meters not being read in all areas.
- Many consumers are unemployed and dependent on government grants.

#### 3.1 Access to Water and Sanitation

##### 3.1.1 Water Supply

The WSA s have indicated in their Services Level Policy that all farming communities will be served at RDP standards and urban areas will receive higher levels of service. Based on the backlog study mentioned in paragraph 3.4, the cost to eradicate backlogs and provide water at RDP standards, is R2 652 million. The expansion of regional scheme infrastructure is required to ensure sustainability of water resources.

##### 3.1.2 Sanitation

The WSA s have indicated in their Services Level policy that all farming communities will be served at RDP standards and urban areas will receive waterborne sanitation. Based on the backlog study mentioned in paragraph 3.4, the cost to eradicate sanitation backlogs is R1 184 million.

#### 3.2 Institutional Arrangements and Support

The lack of skilled staff also results in the provision of poor service quality. The WSA capacity Business Plan should be utilised to indicate which training and staff development programmes should be investigated to improve the capacity of the WSA. Specific support may relieve pressures on current limited and low experienced staff, but also improve on the operational and maintenance aspects of regional and rudimentary schemes. Long term financial sustainability of the proposed scheme is heavily dependent on adequate levels of revenue collection and cost recovery. To ensure the long term sustainability of the scheme, revenue collection must be extended to cover all those households that use more than the designated free basic water allocation of 6 kℓ per household per month. One of the challenges faced by the District Municipality is the control of water losses. The unaccounted for losses are high and are made up of:

- Losses through leakages in the old infrastructure
- Unauthorized connections

- Metered connections not being billed

### 3.3 Implementation of Effective Water Conservation and Demand Management (WC&DM) and Other Programmes

The DWA is also currently providing WSDP support to Local Government and is part of the current WSDP enhancement process. The Support Team will ensure that all the linkages with other related planning activities are established as well as building the capacity of the WSA officials and politicians.

## 4. WATER RESOURCES

### 4.1 Surface Water

One of the main challenges facing the supply of Surface Water will be to address the payment for services by end-users. There are a number of dams which are supplying their maximum allocated domestic yield. Dams like the Meulspruit Dam needs to be raised. Also new dam at Senekal is requested.

### 4.2 Groundwater

The borehole yields in the District Municipality falls mostly within the 0 to 3.0 l/s range, and could supply quite a number of communities with safe potable water, provided that the water quality is within limits. The groundwater development should now concentrate on developing well fields instead of the closest potential borehole for individual village supply. Such an exploration programme could have a meaningful impact on the groundwater potential.

Groundwater should play a crucial role to augment surface water resources, especially during periods of drought, or as backup during periods of equipment failure or high demands on surface sources.

It is believed that an approach whereby surface and groundwater resource are planned and operated as a unit will ensure safe, potable and sustainable water supply to communities.

### 4.3 Irrigation

Most irrigation is done for commercial farming. The developed commercial schemes are not operating to their potential

5. TRANSFER PROGRESS WATER SERVICES

TRANSFER AGREEMENT PROGRESS

COMPLETE TA's	MILESTONES	PROGRESS BAR CHART	KEY DATES			Addendums
			Effective Date	Estimated Completion	Signature Date	
59	100%					
WSA NAME	Draft TA Acl. Plan Legal OK Negotiate D/G Sub- Signed	% Prog	Effective Date	Estimated Completion	Signature Date	Addendum 1 Addendum 2 Addendum 3 Addendum 4 Addendum 5
18 Dhabang	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	100%	1-Jul-04		4-Jun-06	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
19 Makli-e-Prithung	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	100%	30-Jun-05		19-Oct-05	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

Legend:

- In Circulation for final signature by DG
- Not complete
- Addendum completed and signed off
- Addendum drafted - signature awaited

VALUE OF ASSETS TRANSFERRED: TA VALUE

WSA NAME	TA Prog. Control	Signature Date	ASSET VALUE (x Rf,000)			TRANSFERRED ASSETS AS PER T.A. VALUES <sup>2</sup> (x Rf,000)							Total Value				
			FA Baseline	RPMS <sup>2</sup> Verified	TA Value <sup>1</sup>	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09		2009/10			
18 Dhabang	<input checked="" type="checkbox"/>	4-Jun-06	3,649	3,649						3,649							3,649
19 Makli-e-Prithung	<input checked="" type="checkbox"/>	19-Oct-05	289,660	289,660	340,740				340,740								340,740

VALUE OF ASSETS TRANSFERRED: FUNCTIONAL ASSESSMENT VALUE

WSA NAME	TA Prog. Control	Signature Date	ASSET VALUE (x Rf,000)			TRANSFERRED ASSETS AS PER VERIFIED FA BASELINE <sup>2</sup> (x Rf,000)							Total Value				
			FA Baseline	RPMS <sup>2</sup> Verified	TA Value <sup>1</sup>	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09		2009/10			
18 Dhabang	<input checked="" type="checkbox"/>	4-Jun-06	3,649	3,649						3,649							3,649
19 Makli-e-Prithung	<input checked="" type="checkbox"/>	19-Oct-05	289,660	289,660	340,740				289,660								289,660

REPLACEMENT VALUE OF ASSETS TRANSFERRED: TA VALUE

WSA NAME	TA Prog. Control	Signature Date	REPLACE COST (x Rf,000)			TRANSFERRED ASSETS AS PER T.A. VALUES <sup>2</sup> (x Rf,000)							Total Value				
			FA Baseline	RPMS <sup>2</sup> Verified	TA Value <sup>1</sup>	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09		2009/10			
18 Dhabang	<input checked="" type="checkbox"/>	4-Jun-06	3,910							3,910							3,910
19 Makli-e-Prithung	<input checked="" type="checkbox"/>	19-Oct-05	333,106		412,310				412,310								412,310

NUMBER OF SCHEMES TRANSFERRED: TA VALUE

WSA NAME	TA Prog. Control	Signature Date	FA Baseline	SCHEMES										SCHEMES TRANSFERRED FA BASE PLUS ADDITIONAL							Total Schemes	
				FA Baseline				RPMS Verified <sup>1</sup>			TA Number of Schemes			2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09		2009/10
				Schemes	Rud.	Projects	Total	Schemes	Rud.	Projects	Total	FA based	Additional									
18 Dhabang	<input checked="" type="checkbox"/>	4-Jun-06	1	1			1		1			1										1
19 Makli-e-Prithung	<input checked="" type="checkbox"/>	19-Oct-05	1	1			1		1			1										1

STAFF TRANSFERRED AND SECONDED

WSA NAME	TA Prog. Control	Staff Transfer Date	STAFF VALUES					STAFF TRANSFERRED													
			PLANNED		ACTUAL			2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	TOTAL			
			FA Baseline	TA Revision	Actual Total	Staff Seconded	Remain DWAF														
18 Dhabang	<input checked="" type="checkbox"/>	06	0	0	0	0															
19 Makli-e-Prithung	<input checked="" type="checkbox"/>	06	0	0	0	0															

REFURBISHMENT SCHEDULE

WSA NAME	REFURBISHMENT (x Rf,000)					DoRA ALLOCATIONS - REFURBISHMENT ONLY (x Rf,000)										FUNDING REQUIREMENTS				
	FA Baseline <sup>1</sup>	RPMS Verified	Budget	Est. per Exec Support	Est. per RPMS <sup>2</sup>	TA Progress <sup>3</sup>	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	Total DoRA	To Budget in DoRA	Additional Needed	Balance Needed
18 Dhabang	0	0	10	10	10	10											10			
19 Makli-e-Prithung	20,341	20,341	20,690	20,690	20,690	20,690	5,300	5,600	5,610	7,300	1,190						21,690			

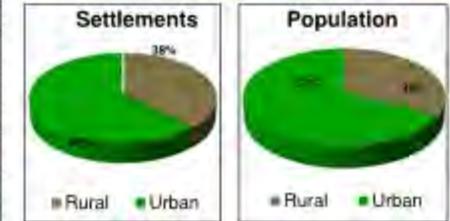
**SECTION 2  
STATUS QUO SITUATION**

**EXISTING DEMOGRAPHICS  
Settlement Based**

SETTLEMENT DEMOGRAPHICS (December 2011)				
DM / MM	LA	Settlements	Population	Households
Fezile Dabi	Mafube Local Municipality	9	68656	18519
Fezile Dabi	Motimaholo Local Municipality	8	150132	43767
Fezile Dabi	Mooikaka Local Municipality	7	170601	43015
Fezile Dabi	Ngwathe Local Municipality	14	130737	37632
Lejweleputswa	Masforyane Local Municipality	13	69531	19909
Lejweleputswa	Matjhabeng Local Municipality	17	349987	109371
Lejweleputswa	Nala Local Municipality	5	106981	29234
Lejweleputswa	Tokologo Local Municipality	9	40475	11605
Lejweleputswa	Tswelopele Local Municipality	6	58935	14904
Mangaung MM	Mangaung Metropolitan Municipality	59	680441	206832
<b>Thabo Mofutsanyane</b>	<b>Dihlabeng Local Municipality</b>	<b>15</b>	<b>126767</b>	<b>34101</b>
<b>Thabo Mofutsanyane</b>	<b>Maluti a Phofung Local Municipality</b>	<b>49</b>	<b>422506</b>	<b>111038</b>
<b>Thabo Mofutsanyane</b>	<b>Mantsopa Local Municipality</b>	<b>12</b>	<b>56128</b>	<b>15135</b>
<b>Thabo Mofutsanyane</b>	<b>Nkoana Local Municipality</b>	<b>9</b>	<b>70837</b>	<b>18988</b>
<b>Thabo Mofutsanyane</b>	<b>Phumelela Local Municipality</b>	<b>8</b>	<b>56596</b>	<b>15426</b>
<b>Thabo Mofutsanyane</b>	<b>Setsootso Local Municipality</b>	<b>10</b>	<b>133660</b>	<b>37240</b>
Xhariep	Kopanong Local Municipality	26	58693	18801
Xhariep	Letsemeng Local Municipality	13	50774	15045
Xhariep	Mohokane Local Municipality	7	49081	13265
Xhariep	Naledi Local Municipality	9	32679	9972

THABO MOFUTSANYANE DM SETTLEMENT TYPE DISTRIBUTION (December 2011)			
Settlement Type	Settlements	Population	Households
Metropolitan Area	0	0	0
Urban - Formal Town	22	64940	17195
Urban - Former Township	31	332183	87878
Urban Fringe - Ex-homeland Towns (Formal Towns)	0	0	0
Working Towns - Mines, etc.	0	0	0
Service Centres - Mines, Prisons etc.	0	0	0
Urban Fringe - Informal Settlements	8	179146	47144
Squatter Camp - Urban	3	3774	1097
Squatter Camp - Rural	0	0	0
Rural - Dense Village > 5000	9	104417	27478
Rural - Small Village <= 5000	24	57998	15263
Rural Scattered	0	0	0
Rural Scattered Dense	0	0	0
Rural Scattered Low Density	0	0	0
Rural Scattered Very Low Density	0	0	0
Farming	6	124060	35873
Unknown	0	0	0

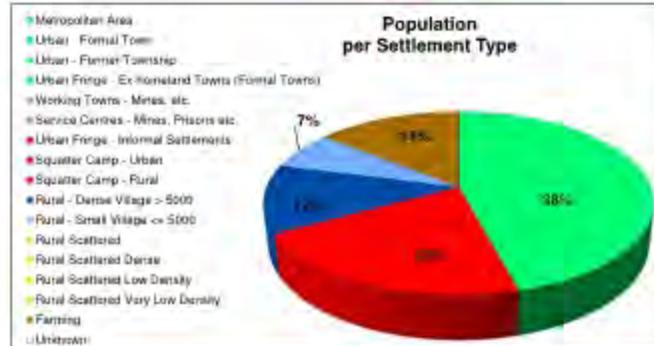
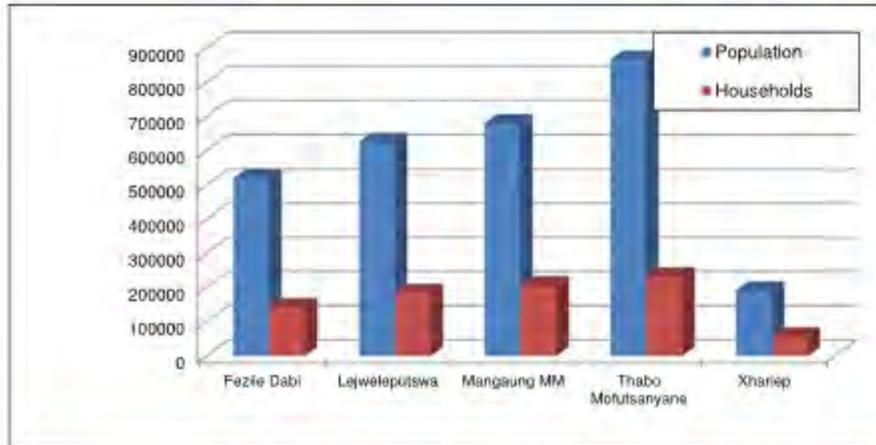
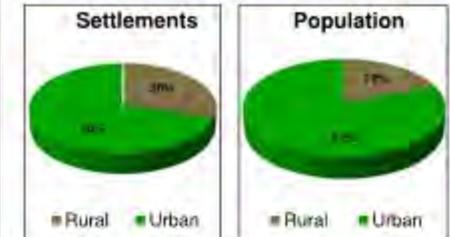
THABO MOFUTSANYANE DM SUMMARY			
Main Type	Settlements	Population	Households
Rural	39	286495	78614
Urban	54	580043	153314
<b>Total</b>	<b>103</b>	<b>866 538</b>	<b>231 928</b>



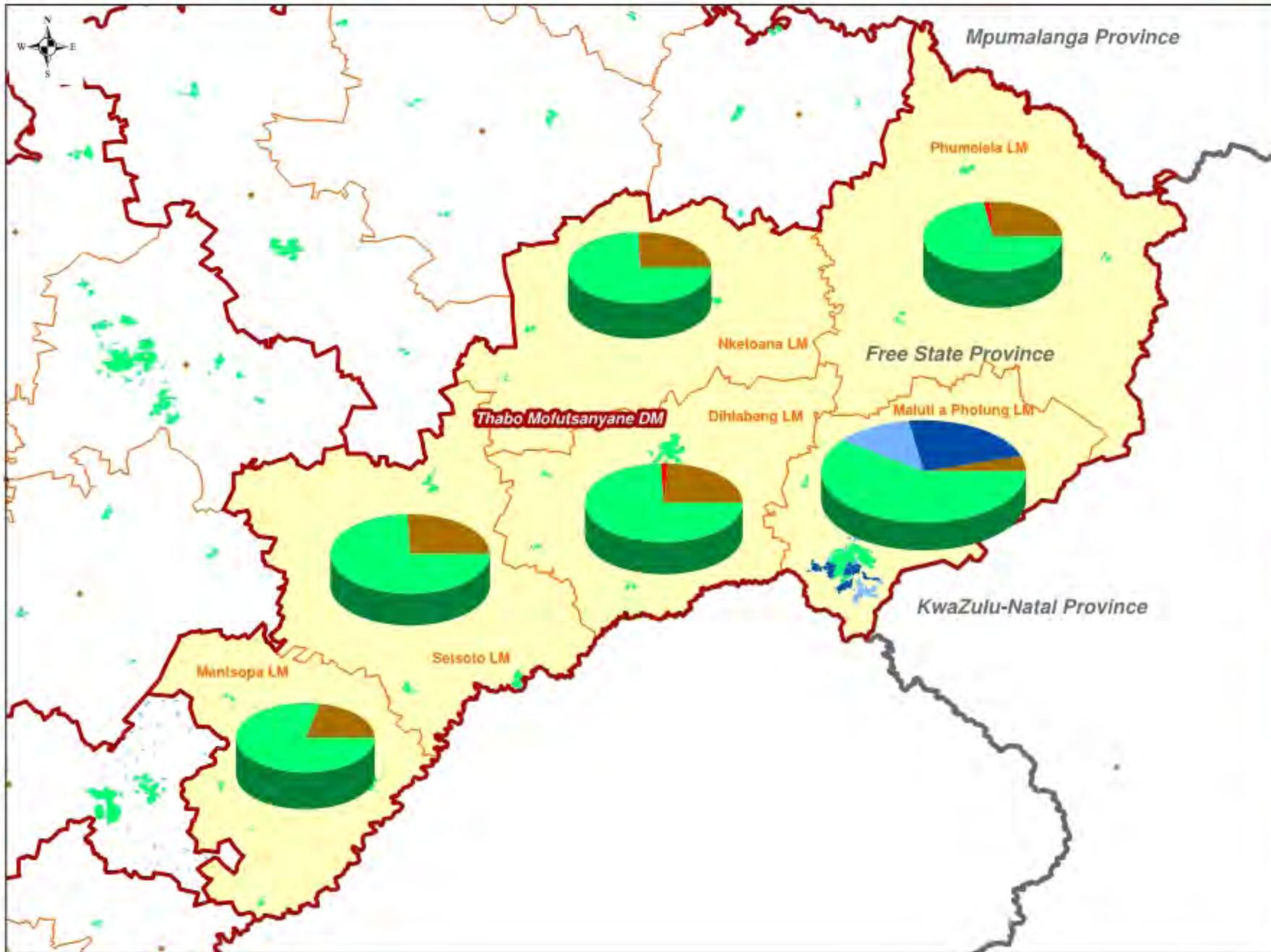
DM SUMMARY			
DM / MM	Settlements	Population	Households
Fezile Dabi	38	520126	142933
Lejweleputswa	50	625909	165023
Mangaung MM	59	680441	206832
<b>Thabo Mofutsanyane</b>	<b>103</b>	<b>866 538</b>	<b>231 928</b>
Xhariep	55	191227	57083
<b>Total</b>	<b>305</b>	<b>2 884 241</b>	<b>823 799</b>



PROVINCIAL SUMMARY			
Main Type	Settlements	Population	Households
Rural	91	548440	152555
Urban	214	2335801	671244
<b>Total</b>	<b>305</b>	<b>2 884 241</b>	<b>823 799</b>



NOTES: Information derived from Reference Framework geodatabase (feature class Settlements).



LOCALITY MAP



EXISTING DEMOGRAPHICS  
Settlement Based

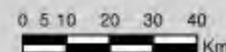
Settlement Types

- Metropolitan Area  
Formal Town  
Former Township  
Ex-homeland Towns
- Working Towns (Mines etc.)  
Service Centres (Prisons etc.)
- Informal Settlements (Urban Fringe)  
Squatter Camp (Urban & Rural)
- Rural - Dense Village (Population > 5000)
- Rural - Small Village (Population <= 5000)
- Rural Scattered  
- Dense  
- Low Density  
- Very Low Density
- Farming

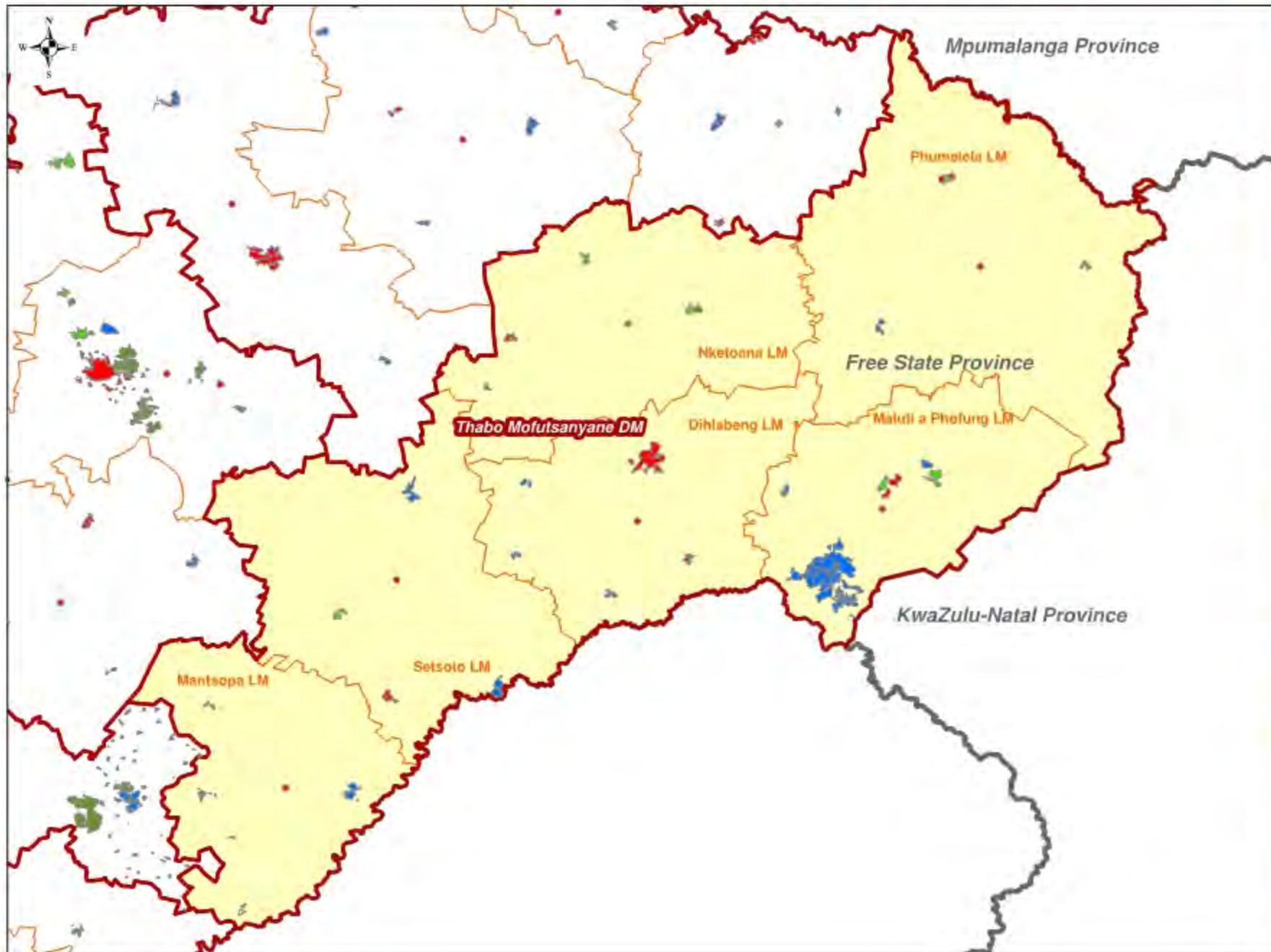
NOTES:  
Pie chart based on population and sized according to total population

BASEMAP LEGEND:

- Provincial Boundaries
- District Municipal Boundaries
- Thabo Mofutsanyane DM
- Local Municipal Boundaries





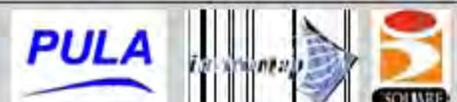
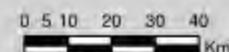


**ACCESS TO WATER**  
Settlement Based

- Settlement Categorisation**
- Formal**
- 1) Adequate
  - 3) Adequate: Shared Services
  - 5) Water Resource Needs
  - 6) O&M Needs
  - 7) Infrastructure Needs
  - 8) Infrastructure & O&M Needs
  - 9) Infrastructure, O&M & Resource Needs
  - 10) No Services
- Informal**
- 2) Adequate
  - 4) No Services

**BASEMAP LEGEND:**

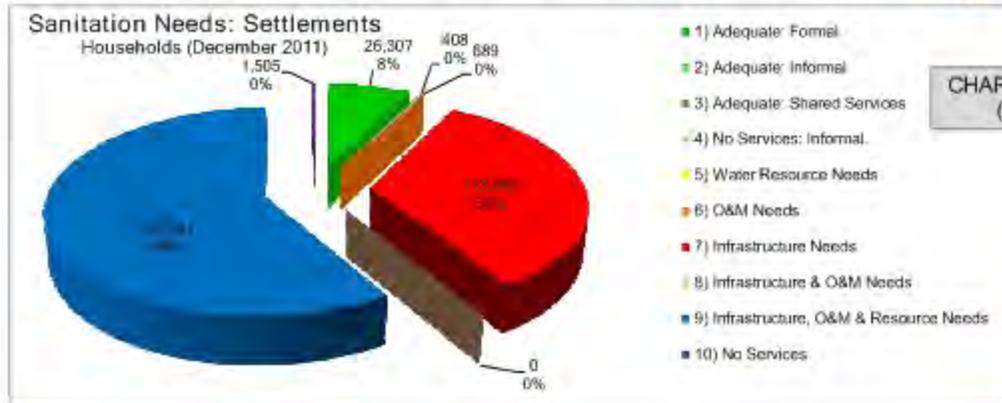
- Provincial Boundaries
- District Municipal Boundaries
- Thabo Mofutsanyane DM
- Local Municipal Boundaries



FREE STATE PROVINCE: THABO MOFUTSANYANE DM

Sanitation Categorisation	FORMAL														INFORMAL													
	Adequate										Water Resources Needs		O&M Needs		Infrastructure Needs						No Services		Adequate		No Services			
	Waterborne		Waterborne Low Flush		Septic Tanks		Non Waterborne		Shared Services						Upgrade		Extensions		Refurbishment						Adequate		No Services	
	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%
1	25,202	96	0	0	650	2	455	2																				
2																									408	100		
3																												
4																												
5																												
6																												
7	29,159	25	0	0	55	0	20,114	17	0	0					17,740	15	33,040	28	18,192	15								
8																												
9	76,660	37	0	0	0	0	18,127	9	0	0	39,302	19	9,890	5	21,972	11	10,786	5	29,164	14								
10																									1,505	100		
<b>Total per DM</b>	<b>131,021</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>705</b>	<b>0</b>	<b>38,696</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>39,302</b>	<b>9,890</b>	<b>39,712</b>	<b>43,826</b>	<b>47,356</b>	<b>1,505</b>	<b>408</b>	<b>689</b>										

This presents the Sanitation Services Level in relation to settlement category totals



This presents the Sanitation Services Level in relation to the need category totals

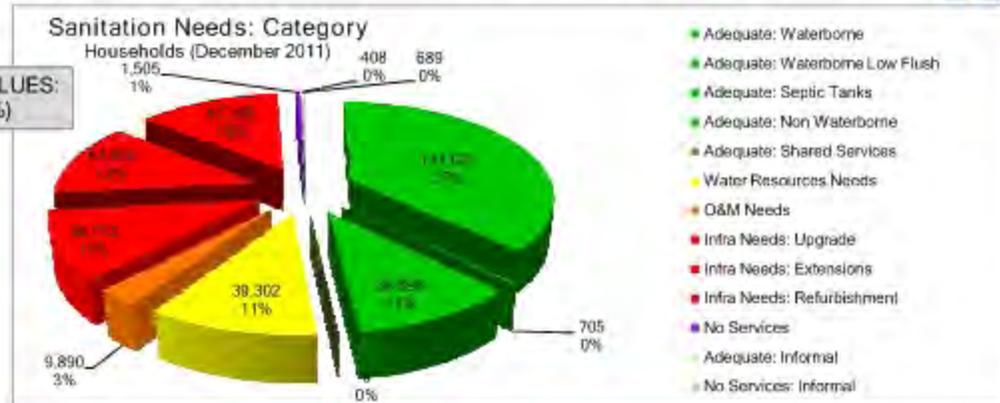
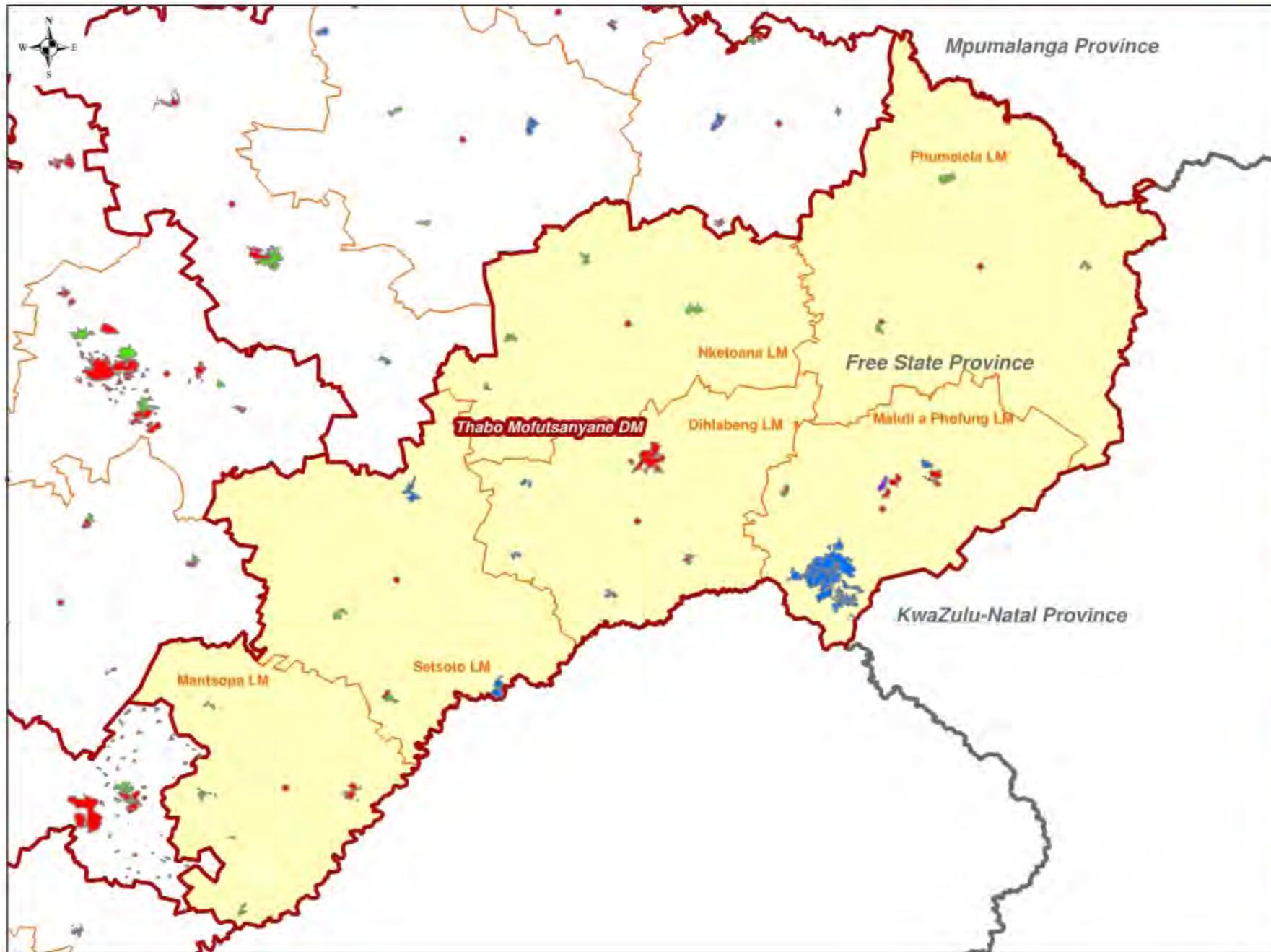


CHART VALUES:  
(HH, %)

1	Adequate	3	Adequate: Shared Services	5	Water Resources Needs	7	Infrastructure Needs	9	Infrastructure, O&M & Resource Needs
2	Adequate: Informal	4	No Services: Informal	6	O&M Needs	8	Infrastructure & O&M Needs	10	No Services



**ACCESS TO SANITATION**  
Settlement Based

**Settlement Categorisation**

**Formal**

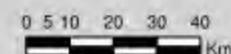
- 1) Adequate
- 3) Adequate: Shared Services
- 5) Water Resource Needs
- 6) O&M Needs
- 7) Infrastructure Needs
- 8) Infrastructure & O&M Needs
- 9) Infrastructure, O&M & Resource Needs
- 10) No Services

**Informal**

- 2) Adequate
- 4) No Services

**BASEMAP LEGEND:**

- Provincial Boundaries
- District Municipal Boundaries
- Thabo Mofutsanyane DM
- Local Municipal Boundaries



MM/DM	LM	REGIONAL BULK								INTERNAL BULK								RETICULATION					
		Number of Schemes	Total Number of Components						Pipe Length (km)	Number of Schemes	Total Number of Components						Pipe Length (km)	Number of Schemes	Total Number of Components				Pipe Length (km)
			Pump Stations	Reservoirs	WTW	WWTW	Boreholes	Abstractions Works			Pump Stations	Reservoirs	WTW	WWTW	Boreholes	Abstractions Works			Street Taps	Eri Connections	House Connections		
Fezile Dabi	Matlabe	0	0	0	0	0	0	0	0	4	6	7	4	6	0	0	25	0	0	0	0	0	
Fezile Dabi	Metsimaholo	0	0	0	0	0	0	0	0	3	21	12	3	7	0	0	47	0	0	0	0	0	
Fezile Dabi	Moghaka	0	0	0	0	0	0	0	34	3	36	17	3	5	0	0	94	0	0	0	0	0	
Fezile Dabi	Ngwalhe	0	0	0	0	0	0	0	5	5	19	19	4	5	0	0	66	0	0	0	0	0	
Lejweleputswa	Masforyana	0	0	0	0	0	0	0	53	5	12	14	4	7	4	0	48	0	0	0	0	0	
Lejweleputswa	Matjhabeng	0	0	0	0	0	0	0	61	6	28	18	0	13	1	0	99	0	0	0	0	0	
Lejweleputswa	Nala	0	0	0	0	0	0	0	0	2	9	15	0	2	0	0	27	0	0	0	0	0	
Lejweleputswa	Takologo	0	0	0	0	0	0	0	0	3	13	15	0	4	25	0	36	0	0	0	0	0	
Lejweleputswa	Tswelopele	0	0	0	0	0	0	0	0	2	10	6	2	2	0	0	58	0	0	0	0	0	
Mangaung Metropolitan Municipality	Mangaung	0	0	0	0	0	0	0	7	3	19	40	3	9	0	0	292	0	0	0	0	3198	
Thabo Mofutsanyane	Ditlhabeng	0	0	0	0	0	0	0	8	5	26	26	6	6	0	0	54	0	0	0	0	0	
Thabo Mofutsanyane	Makuti e Phefong	0	0	0	0	0	0	0	22	3	58	65	5	7	0	0	286	0	0	0	0	0	
Thabo Mofutsanyane	Mantsopa	0	0	0	0	0	0	0	19	5	13	19	5	6	12	0	61	0	0	0	0	0	
Thabo Mofutsanyane	Hkeloane	0	0	0	0	0	0	0	26	6	10	10	5	4	0	0	24	0	0	0	0	0	
Thabo Mofutsanyane	Phumalala	0	0	0	0	0	0	0	0	3	15	6	3	4	1	0	20	0	0	0	0	0	
Thabo Mofutsanyane	Seisoie	0	0	0	0	0	0	0	64	4	28	13	6	5	2	0	51	0	0	0	0	0	
Xhariep	Kopanong	0	0	0	0	0	0	0	64	9	22	49	4	12	0	0	97	0	0	0	0	0	
Xhariep	Leisemeng	0	0	0	0	0	0	0	5	5	7	21	4	6	0	0	20	0	0	0	0	0	
Xhariep	Mohokare	0	0	0	0	0	0	0	86	3	7	11	2	3	0	0	26	0	0	0	0	0	
Xhariep	Naledi	0	0	0	0	0	0	0	0	3	9	6	1	3	12	0	22	0	0	0	0	0	
<b>Total for Province</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>454</b>	<b>80</b>	<b>365</b>	<b>389</b>	<b>64</b>	<b>116</b>	<b>57</b>	<b>0</b>	<b>1405</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3198</b>

## NOTES:

1) Information derived from Reference Framework geodatabase (table XT01).



**EXISTING WATER INFRASTRUCTURE**  
*Schema Based*

**Scheme Classification**

- Regional Bulk
- Internal Bulk
- Reticulation

**Settlement Water Categorisation**

**Formal**

- 1) Adequate
- 3) Adequate: Shared Services
- 5) Water Resource Needs
- 6) O&M Needs
- 7) Infrastructure Needs
- 8) Infrastructure & O&M Needs
- 9) Infrastructure, O&M & Resource Needs
- 10) No Services

**Informal**

- 2) Adequate
- 4) No Services

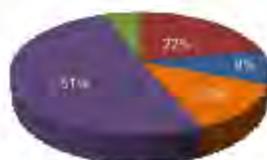
**BASEMAP LEGEND:**

- Provincial Boundaries
- District Municipal Boundaries
- Thabo Mofutsanyane DM
- Local Municipal Boundaries



DEMOGRAPHICS (December 2011)				BASIC SERVICES REQUIREMENTS									
MM/DM	LM	Total Population	Total Households	Affected Population	Affected Households	Potential Cost (R)	Number of Schemes with Required Water Infrastructure						
							Upgrade	Refurbishment	O & M	Replace	Resource	Combination	None
Fezile Dabi	Matube	68,656	18,519	92,529	24,609	315,642,596	1					3	
Fezile Dabi	Metsimaholo	150,132	43,767	60,444	15,823	149,633,425					1		2
Fezile Dabi	Mqhaka	170,601	43,015	199,374	47,470	180,382,468				1		2	
Fezile Dabi	Ngwathe	131,437	37,632	133,725	43,817	395,243,286						5	
Lejweleputswa	Masilonyana	69,532	19,909	76,052	25,693	190,572,621					3	2	
Lejweleputswa	Matjhabeng	349,967	109,371	68,259	21,331	698,397,907						3	3
Lejweleputswa	Nala	106,961	29,234	3,612	931	50,366,314						1	1
Lejweleputswa	Tokologo	40,476	11,605	23,077	8,013	136,761,141					1	2	
Lejweleputswa	Tswelopele	58,935	14,904	36,164	9,854	82,161,795	1				1		
Mangaung Metro	Mangaung Metro	680,385	206,820	275,793	87,001	776,299,022						3	
Thabo Mofutsanyane	Ditlhabeng	126,788	34,101	125,711	33,345	388,394,536						5	
Thabo Mofutsanyane	Mameli a Phofung	422,502	111,638	715,015	171,477	569,941,024					2	1	
Thabo Mofutsanyane	Mentsope	58,181	15,148	77,784	23,013	213,792,424						4	2
Thabo Mofutsanyane	Nkoleana	70,837	18,688	14,237	4,563	101,190,725						2	2
Thabo Mofutsanyane	Phumalela	56,598	15,426	35,237	12,539	96,178,538						1	2
Thabo Mofutsanyane	Setsoto	133,692	37,240	179,086	49,879	214,512,082						5	1
Xhariep	Kopanong	58,894	18,801	7,260	2,129	54,348,428	1			5		1	2
Xhariep	Letseeng	51,183	15,148	49,729	15,024	204,011,222	1				1	2	1
Xhariep	Naledi	32,679	9,972	5,569	1,614	24,073,779					1	1	1
Xhariep	Mohokare	49,081	13,265	56,808	16,807	79,095,989	1					2	
<b>Total for Province</b>		<b>2,885,355</b>	<b>823,903</b>	<b>2,236,446</b>	<b>615,132</b>	<b>R 5,121,019,322</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>9</b>	<b>44</b>	<b>17</b>

Affected Population



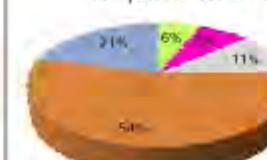
- Fezile Dabi
- Lejweleputswa
- Mangaung Metro
- Thabo Mofutsanyane
- Xhariep

Potential Cost (R)



- Fezile Dabi
- Lejweleputswa
- Mangaung Metro
- Thabo Mofutsanyane
- Xhariep

Percentage of Schemes with Required Water Infrastructure



- Upgrade
- Refurbishment
- O & M
- Replace
- Resource
- Combination
- None

## NOTES:

1) Information derived from Reference Framework geodatabase (table XT02).



**EXISTING WATER INFRASTRUCTURE REQUIREMENTS**  
*Scheme Based*

- Scheme Requirements**
- Upgrade
  - Refurbishment
  - O & M
  - Replace
  - Resource
  - Combination
  - None

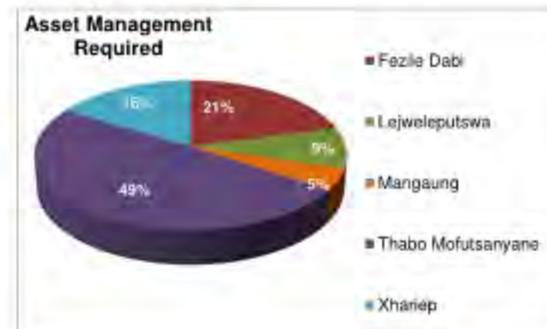
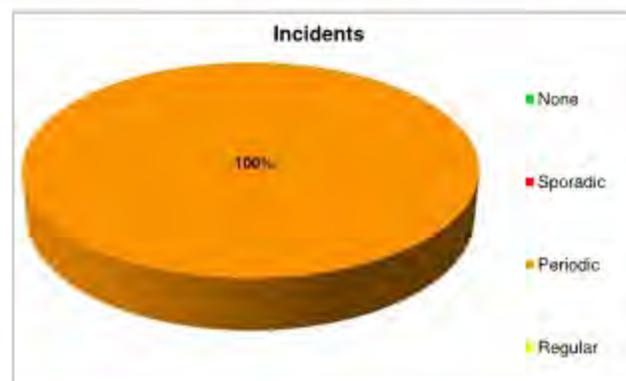
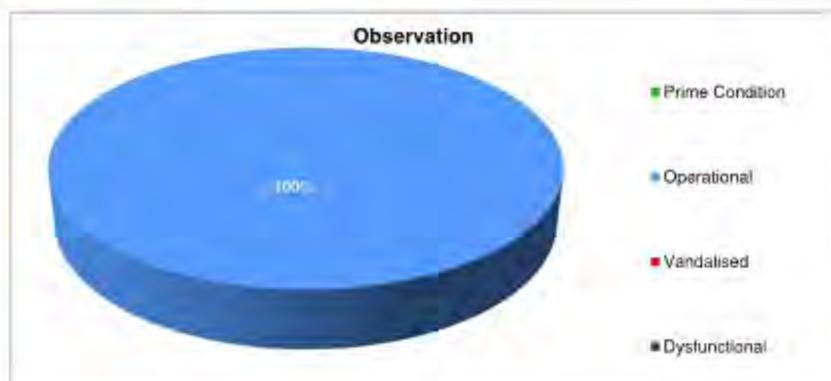
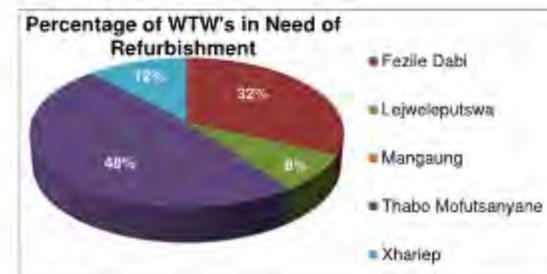
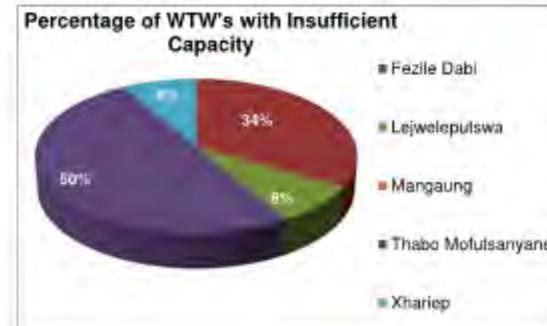
- Settlement Water Categorisation**
- Formal**
- 1) Adequate
  - 3) Adequate: Shared Services
  - 5) Water Resource Needs
  - 6) O&M Needs
  - 7) Infrastructure Needs
  - 8) Infrastructure & O&M Needs
  - 9) Infrastructure, O&M & Resource Needs
  - 10) No Services
- Informal**
- 2) Adequate
  - 4) No Services

**BASEMAP LEGEND:**

- Provincial Boundaries
- District Municipal Boundaries
- Information not submitted
- Thabo Mofutsanyane DM
- Local Municipal Boundaries



MM/DM	LM	Number of WTW's	Total Capacity ML/day	Number of WTW's with Insufficient Capacity	Number of WTW's in need of Refurbishment
Fezile Dabi	Mafube	4	23.16	3	3
Fezile Dabi	Metsimaholo	3	55.614	1	1
Fezile Dabi	Moqhaka	3	71.64	1	1
Fezile Dabi	Ngwathe	4	23.72	3	3
Lejweleputswa	Masilonyana	4	18.12	2	2
Lejweleputswa	Tswelopele	2	12.8	0	0
Mangaung Metropolitan Municipality	Mangaung	3	318	0	0
Thabo Mofutsanyane	Dihlabeng	6	45.1	3	3
Thabo Mofutsanyane	Maluti a Phofung	5	34.6	0	0
Thabo Mofutsanyane	Mantsope	3	14.552	2	2
Thabo Mofutsanyane	Nketoana	5	16.25	3	3
Thabo Mofutsanyane	Phumelela	3	12.79	2	2
Thabo Mofutsanyane	Selsoto	6	41.582	2	2
Xhariep	Kopanong	4	18.62	0	0
Xhariep	Letsemeng	4	7.664	1	1
Xhariep	Mohokare	2	2.75	1	2
Xhariep	Naledi	1	0.1	0	0
<b>Total for Province</b>		<b>64</b>	<b>717.04</b>	<b>24</b>	<b>25</b>



NOTES:  
1) Information concerning capacity of WTW and Number of Staff on Site is completed as available.  
2) Information derived from Reference Framework geodatabase (feature class WTW).



**EXISTING WATER INFRASTRUCTURE: WTW**  
*Component Based*

**Blue Drop Status**  
(data still in process)

Green circle	Yes	(0)
Red circle	No	(0)
Black circle	Unknown	(30)

**Refurbishment Need: WTW**

Red circle	High
Orange circle	Medium
Yellow circle	Low
Green circle	None

**Observation: WTW**

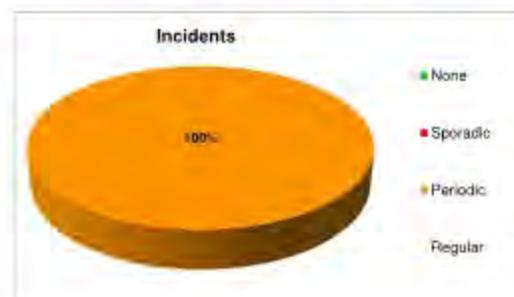
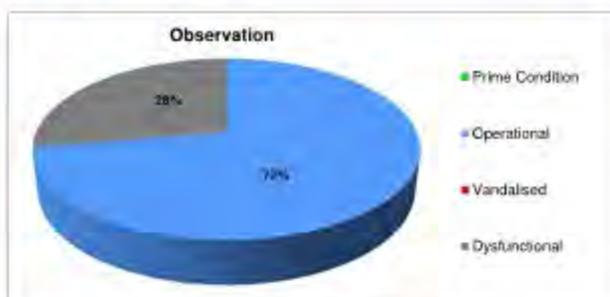
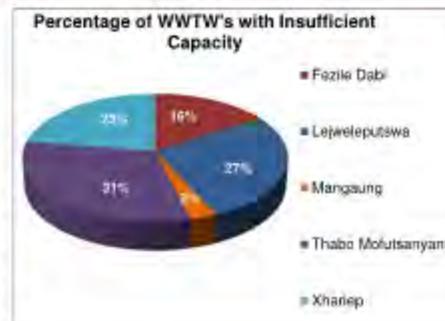
White square	Prime Condition
Light blue square	Operational
Dark blue square	Vandalised
Black square	Dysfunctional
Blue line	Bulk Pipelines

**BASEMAP LEGEND:**

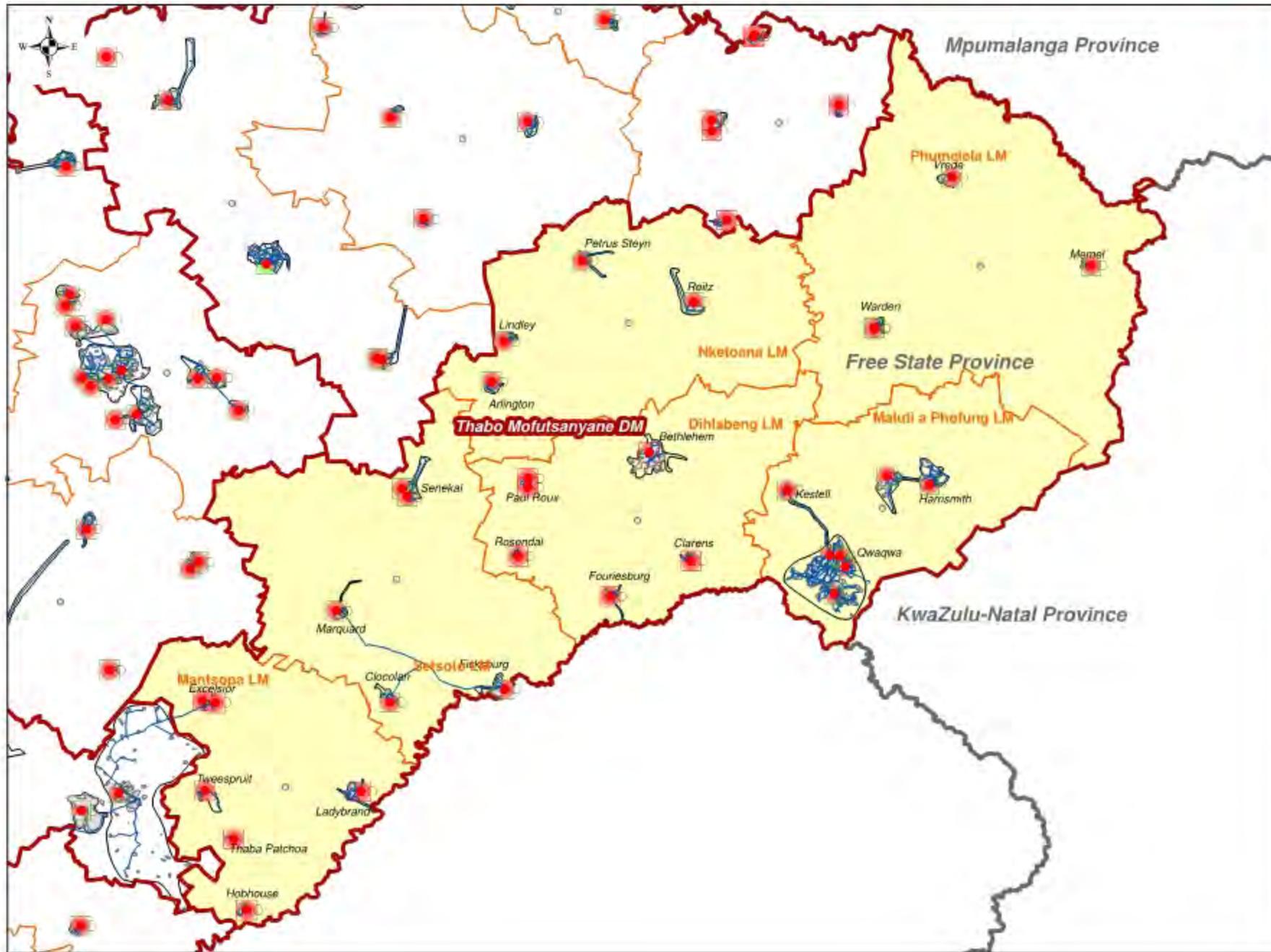
Grey outline	Provincial Boundaries	Red outline	District Municipal Boundaries
Yellow outline	Thabo Mofutsanyane DM	Orange outline	Local Municipal Boundaries



MM/DM	LM	Number of WWTW's	Capacity Ml/day: Average Wet Weather Capacity	Operation Capacity Ml/day: Average Dry Weather Capacity (Based on organic load)	Hydraulic Capacity Ml/day (Based on 24hr flow)	Number of WWTW's with Insufficient Capacity	Number of WWTW's in need of Refurbishment	Number of Staff on Site
Fezile Dabi	Mafube	6	11,411	8,08	10,861	6	6	0
Fezile Dabi	Metsimaholo	7	39,558	39,56	39,56	3	4	0
Fezile Dabi	Moqhaka	5	18	24,8	18	2	4	0
Fezile Dabi	Ngwathe	5	13,65	20,6	13,65	5	5	0
Lejweleputswa	Masilonyana	7	8,354	8,552	8,1	7	7	0
Lejweleputswa	Matjhabeng	13	106,47	108,8	104,47	13	13	0
Lejweleputswa	Nala	2	6,2	9,7	6,2	2	2	0
Lejweleputswa	Tokologo	4	1,7	1,7	2,4	4	4	0
Lejweleputswa	Tswelopele	2	3,2	4,1	3,2	2	2	0
Mangaung Metropolitan Municipality	Mangaung	9	149,75	125,85	129,75	3	3	0
Thabo Mofutsanyane	Dinlabeng	6	29,63	25,93	28,68	6	6	0
Thabo Mofutsanyane	Maluti a Phofung	7	34,2	23,6	34,2	7	7	0
Thabo Mofutsanyane	Mantsopa	6	4,2	19	4,2	6	6	0
Thabo Mofutsanyane	Nketoana	4	12,16	12,16	12,16	4	4	0
Thabo Mofutsanyane	Phumelela	4	5,252	9,152	3,25	4	4	0
Thabo Mofutsanyane	Setsole	5	11,57	31,4	17,26	5	5	0
Xhariep	Kopanong	12	6,051	10,026	6,051	11	12	0
Xhariep	Letsemeng	6	4,93	4,93	4,93	6	6	0
Xhariep	Mohokare	3	1,523	3	1,523	3	3	0
Xhariep	Naledi	3	10	10	10	3	3	0
<b>Total for Province</b>		<b>116</b>	<b>475,81</b>	<b>502</b>	<b>458</b>	<b>102</b>	<b>106</b>	<b>0</b>



NOTES:1) Information concerning capacity of WWTW and Number of Staff on Site is completed as available.2) Information derived from Reference Framework geodatabase feature class WWTW



**EXISTING WATER INFRASTRUCTURE: WWTW**  
*Component Based*

- Green Drop Certification Status**
- Green Drop: Yes (0)
  - Red Drop: No (32)
  - Black Drop: Unknown (0)
- Refurbishment Need: WWTW**
- Red Circle: Yes
  - Green Circle: No
- Observation: WWTW**
- Blue Box: Prime Condition
  - White Box: Operational
  - Grey Box: Vandalised
  - Black Box: Dysfunctional
- Bulk Pipelines**

**BASEMAP LEGEND:**

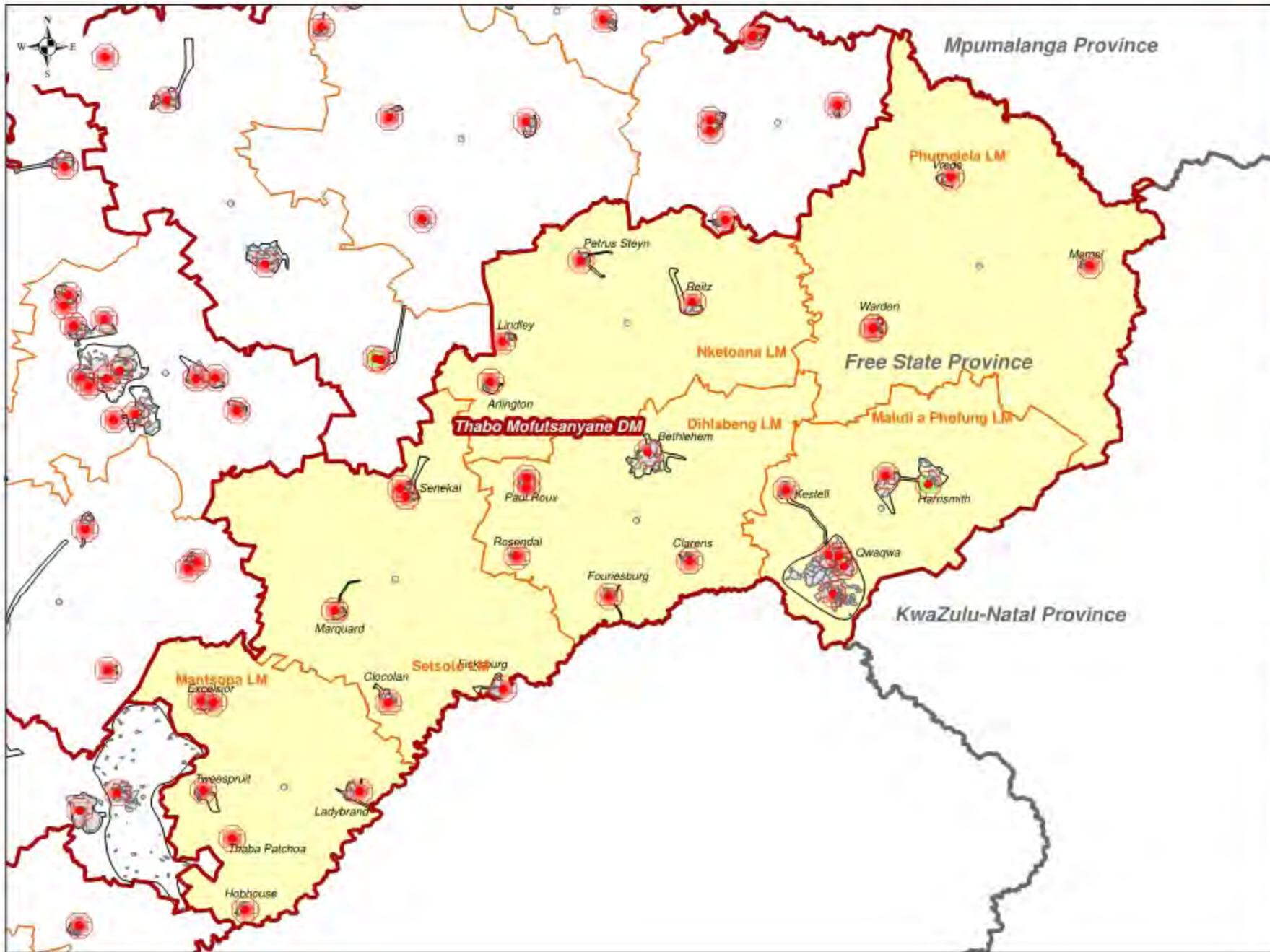
- Grey Line: Provincial Boundaries
- Red Line: District Municipal Boundaries
- Yellow Area: Thabo Mofutsanyane DM
- Orange Line: Local Municipal Boundaries



MM/DM	LM	Number of WWTW's	Number of Staff on Site (Permanently)	COMPLIANCE TO:								
				Supervisory Staff Requirements			Process Controller Staff Requirements			O&M Staff Requirements		
				No	Yes	Unknown	No	Yes	Unknown	No	Yes	Unknown
Fezile Dabi	Mafula	6	0	6			6			6		
Fezile Dabi	Metsimaholo	7	0	7			7			7		
Fezile Dabi	Moghaka	5	0	4	1		5			5		
Fezile Dabi	Ngwathe	5	0	5			5			5		
Lejweleputswa	Masilonyana	7	0	7			7			7		
Lejweleputswa	Majhabeng	13	0	13			13			13		
Lejweleputswa	Nala	2	0	2			2			2		
Lejweleputswa	Tokologo	4	0	4			4			4		
Lejweleputswa	Tswelopele	2	0	1	1		2			2		
Mangaung Metropolitan Municipality	Mangaung	9	0	9			9			9		
Thabo Mofutsanyane	Diblabeng	6	0	6			6			6		
Thabo Mofutsanyane	Maluti a Phofung	7	0	6	1		7			7		
Thabo Mofutsanyane	Mantsopa	6	0	6			6			6		
Thabo Mofutsanyane	Nketoana	4	0	4			4			4		
Thabo Mofutsanyane	Phumelele	4	0	4			4			4		
Thabo Mofutsanyane	Setsole	5	0	5			5			5		
Xhariep	Kopanong	12	0	12			12			12		
Xhariep	Letsameeng	6	0	6			6			6		
Xhariep	Mohokare	3	0	3			3			3		
Xhariep	Naledi	3	0	3			3			3		
<b>Total for Province</b>		<b>116</b>	<b>0</b>									

## NOTES:

- 1) Information concerning Number of Staff on Site and Staff Requirements is completed as available.
- 2) Information derived from Reference Framework geodatabase feature class WWTW



**O&M - STAFF CAPACITY:**  
WWTW  
Component Based

**Green Drop Certification Status**

	Yes	(0)
	No	(32)
	Unknown	(0)

**WWTW - COMPLIANCE TO:**

**Supervisory Staff Requirements**

	No
	Yes
	Unknown

**Process Controller Staff Requirements**

<input type="checkbox"/>	No
<input type="checkbox"/>	Yes
<input type="checkbox"/>	Unknown

**O&M Staff Requirements**

	No
	Yes
	Unknown

**Status of O&M Staff Requirements**

**Process Controller Staff Requirements**

**BASEMAP LEGEND:**

	Provincial Boundaries		District Municipal Boundaries
	Thabo Mofutsanyane DM		Local Municipal Boundaries



NAME	RIVER	OWNER	WMA	LIVE CAPACITY	1.50 YEAR YIELD	DESIGN CAPACITY	UTILISATION GRADE	TYPE OF WATER USE	TOTAL WATER ALLOCATION	TOTAL ANNUAL YIELD
Alémanskraaldam	Sand River	DWA	Moddi Vaal	174		213.1	3-moderate use	irrigation/high value		53
Armaton Dam	Hamman Spruit						No Data			
Arminis Dam	Leoti River	DWA	Upper Orange	13		13	3-moderate use	irrigation/high value		0.5
Cyterfontein							No Data			
Driekopdam	Nuwejaars Spruit	DWA	Upper Vaal	32		35.6	4-approaching design capacity	hydro-power generation		1
England Dam	Mokopospruit					0	No Data			
Fika Pabo Dam(Qwa Qwa)	Tugela River						3-moderate use	domestic/irrigation		
Frankfort Dam	Leeu River Tr.						No Data			
Gerrans Dam	Gerrans Spruit						No Data			
Gibson Dam	Witje River						No Data			
Kranstamien							No Data			
Lindley Dam	Vals River						No Data			
Loch Athlone							No Data			
Loch Athlone Dam	Jordaan River						No Data			
Loch Comond	Jordaan River						No Data			
Lovetala Dam	Klein Leeu River						No Data			
Lucratia Dam	Mopeli River						No Data			
Merin Dam	Liebenbergsvlei River						No Data			
Motimotshodam	Motimotsho River					4.15	3-moderate use	irrigation/livestock		
Meurispruit Dam	Meuri Spruit						No Data			
Newbury Dam	Leoti River						No Data			
Platberg Dam	Platberg River						No Data			
Reitz Dam	Liebenbergsvlei River						No Data			
Rizke Reward Dam	Liebenbergsvlei River						No Data			
Sauspoort Dam	Liebenbergsvlei	DWA	Upper Vaal	17	7		No Data			
Sierfontein Dam	Nuwejaars Spruit	DWA	Upper Vaal	2,617		2656	2-under-utilized	domestic/industry		8.79
Thabana-tshwana							No Data			
Tweespruit Dam	LT Leeu River						No Data			
Vrede Dam	Spruitsonderdal						No Data			
Witwe Dam	Muuspruit						No Data			
Wonderkop Dam	Kr Leeu River						No Data			



LOCALITY MAP



EXISTING SURFACE WATER RESOURCES

Dams - Utilisation Grade

- 2-under-utilized
- 3-moderate use
- 4-approaching design capacity
- 5-exceeding capacity (stressed)
- No Data

Settlements Water Needs Categorisation

Formal

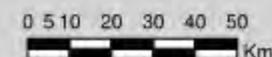
- + 1) Adequate
- + 3) Adequate: Sahred Services
- + 5) Water Resource Needs
- + 6) O&M Needs
- + 7) Infrastructure Needs
- + 8) Infrastructure & O&M Needs
- + 9) Infrastructure, O&M & Resource Needs
- + 10) No Services

Informal

- + 2) Adequate
- + 4) No Services

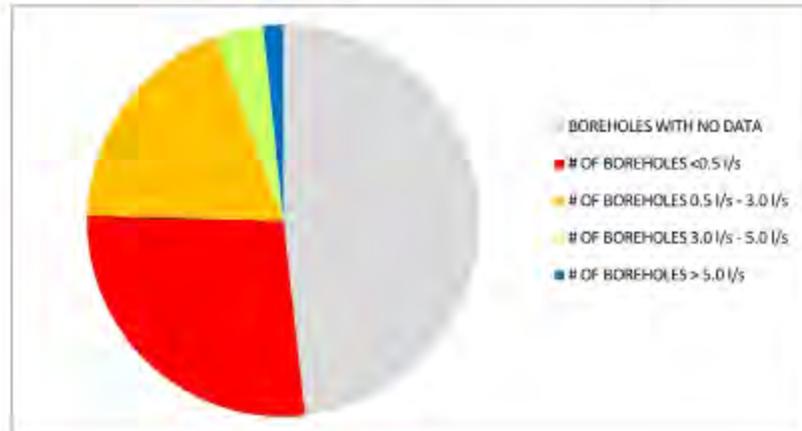
BASEMAP LEGEND:

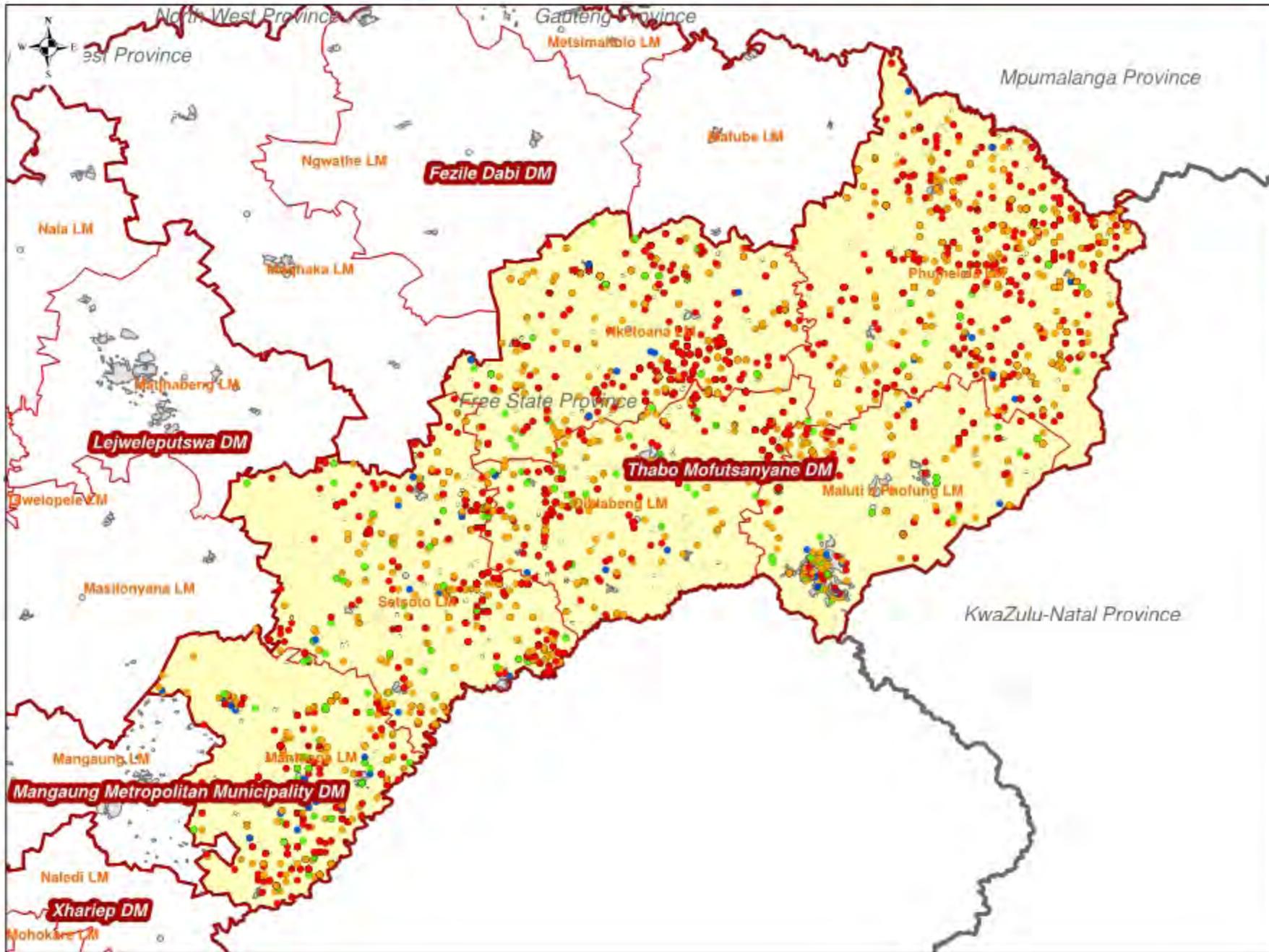
- Provincial Boundaries
- District Municipal Boundaries
- Thabo Mofutsanyane DM
- Local Municipal Boundaries



TOTAL NR OF BOREHOLES	BOREHOLES WITH NO DATA	# OF BOREHOLES <0.5 l/s	# OF BOREHOLES 0.5 l/s - 3.0 l/s	# OF BOREHOLES 3.0 l/s - 5.0 l/s	# OF BOREHOLES > 5.0 l/s
6 125	2956	1666	1156	245	102

AVERAGE BOREHOLE YIELD  
1.21 l/s





LOCALITY MAP



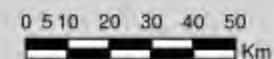
EXISTING BOREHOLE YIELDS

Borehole Yield Classification

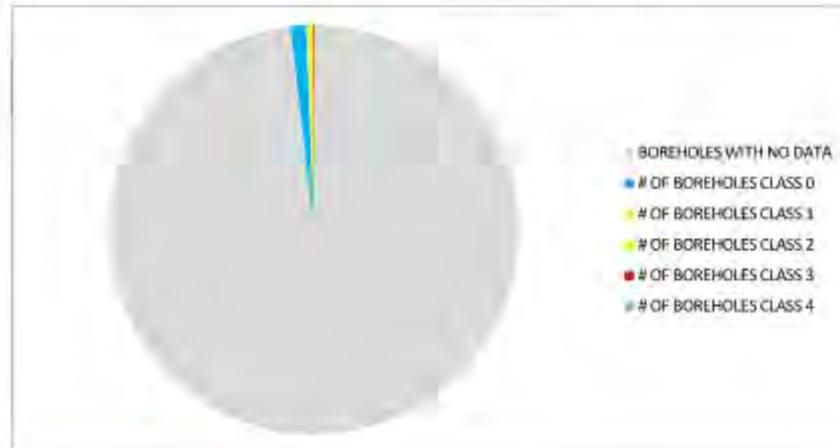
- No Data
- 0 - 0.5 l/s
- 0.5 - 3.0 l/s
- 3.0 - 5.0 l/s
- > 5.0 l/s
- Settlements

BASEMAP LEGEND:

- ▭ Provincial Boundaries
- ▭ District Municipal Boundaries
- ▭ Thabo Mofutsanyane DM
- ▭ Local Municipal Boundaries



TOTAL NR OF BOREHOLES	BOREHOLES WITH NO DATA	# OF BOREHOLES CLASS 0	# OF BOREHOLES CLASS 1	# OF BOREHOLES CLASS 2	# OF BOREHOLES CLASS 3	# OF BOREHOLES CLASS 4
6 125	6 011	76	14	18	6	0



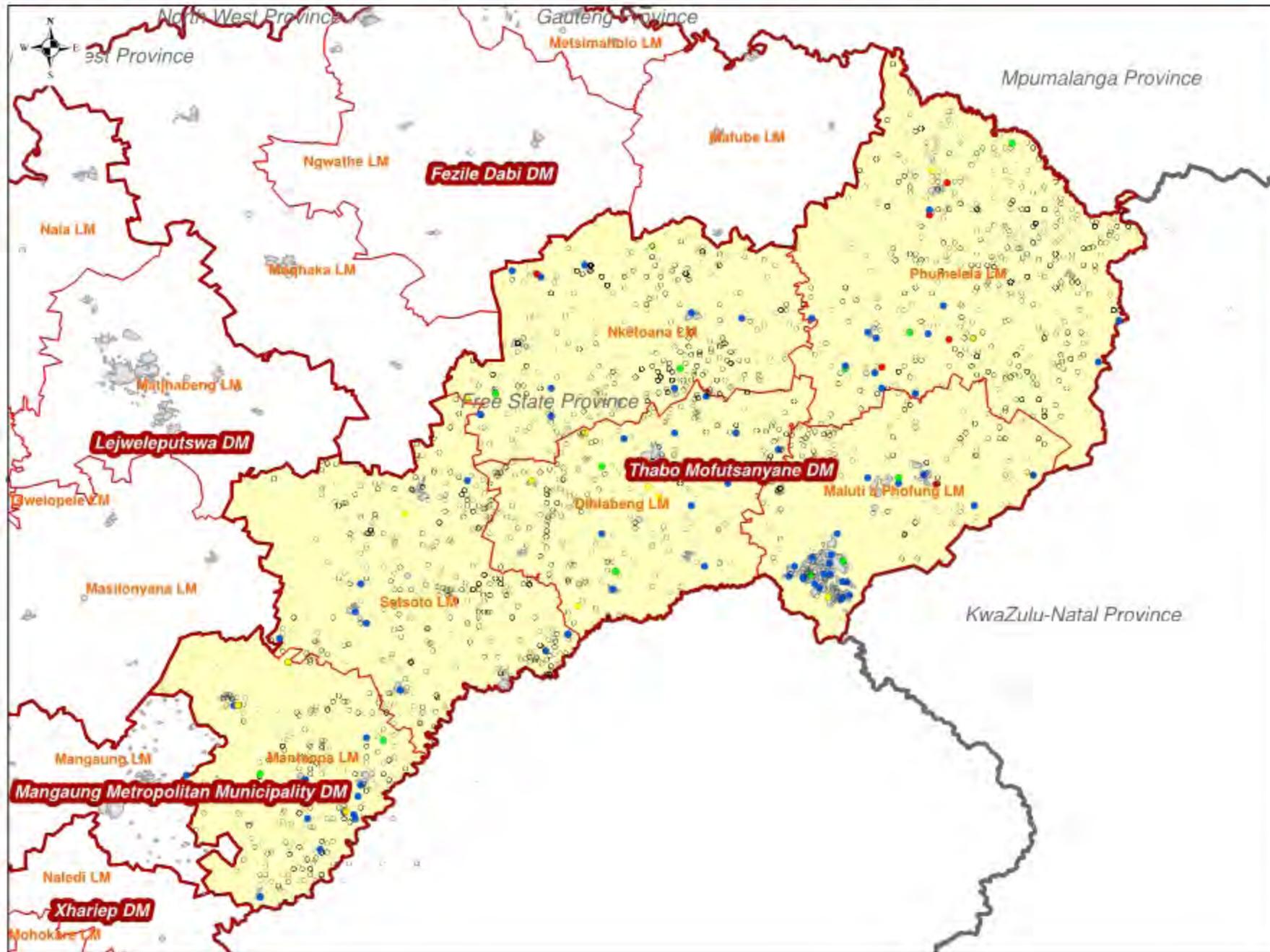
## WATER QUALITY CLASSIFICATION FOR HUMAN CONSUMPTION

BLUE	Class 0	Ideal water quality - suitable for life time use
GREEN	Class 1	Good water quality - suitable for use with rare instances of negative effects
YELLOW	Class 2	Marginal water quality - conditionally acceptable, negative effects may occur in sensitive groups
RED	Class 3	Poor water quality - unsuitable for use without water treatment, chronic health effects may occur
PURPLE	Class 4	Dangerous water quality - totally unsafe for use, acute health effects may occur

## Negative effects can be:

Health effects	Illness
Aesthetic effects	Changes in water colour, taste or odour, staining of laundry or household fixtures
Economic effects	Increased soap consumption, and scaling and corrosion of household pipes

CLASSIFICATION BASED ON: "QUALITY OF DOMESTIC WATER SUPPLIES PUBLISHED JOINTLY BY DEPTS. OF WATER AFFAIRS, HEALTH AND THE WATER RESEARCH COMMISSION"



LOCALITY MAP



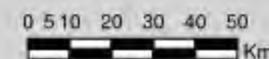
EXISTING BOREHOLE QUALITY

Water Quality Classification

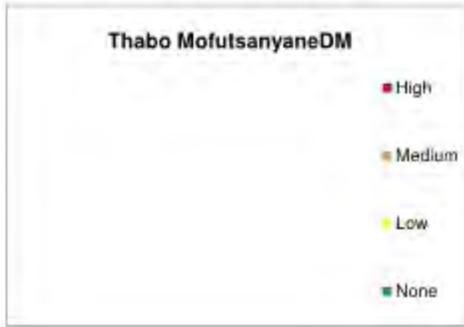
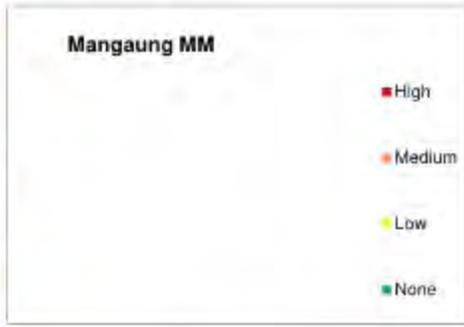
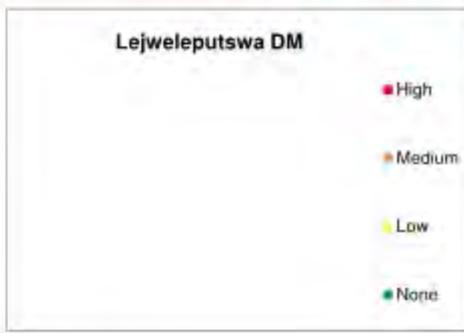
- No Data
- Class 0
- Class 1
- Class 2
- Class 3
- Class 4
- Settlements

BASEMAP LEGEND:

- Provincial Boundaries
- Thabo Mofutsanyane DM
- District Municipal Boundaries
- Local Municipal Boundaries



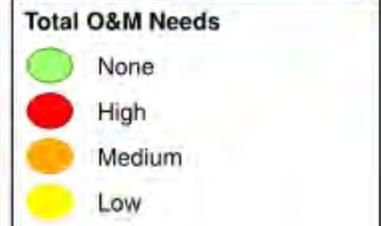
MM/DM	LM	Number of Schemes with O&M Needs			
		None	High	Medium	Low
Fezile Dabi	Matube	Not available	Not available	Not available	Not available
Fezile Dabi	Metsimaholo	Not available	Not available	Not available	Not available
Fezile Dabi	Moghaka	Not available	Not available	Not available	Not available
Fezile Dabi	Ngwathe	Not available	Not available	Not available	Not available
Lejweleputswa	Masilonyana	Not available	Not available	Not available	Not available
Lejweleputswa	Matjhabeng	Not available	Not available	Not available	Not available
Lejweleputswa	Nala	Not available	Not available	Not available	Not available
Lejweleputswa	Tokologo	Not available	Not available	Not available	Not available
Lejweleputswa	Tswelopele	Not available	Not available	Not available	Not available
Mangaung Metropolitan Municipality	Mangaung	Not available	Not available	Not available	Not available
Thabo Mofutsanyane	Dihlabeng	Not available	Not available	Not available	Not available
Thabo Mofutsanyane	Maluti a Phofung	Not available	Not available	Not available	Not available
Thabo Mofutsanyane	Mantsopa	Not available	Not available	Not available	Not available
Thabo Mofutsanyane	Nketoana	Not available	Not available	Not available	Not available
Thabo Mofutsanyane	Phumelela	Not available	Not available	Not available	Not available
Thabo Mofutsanyane	Setsoto	Not available	Not available	Not available	Not available
Xhariep	Kopanong	Not available	Not available	Not available	Not available
Xhariep	Letsemeng	Not available	Not available	Not available	Not available
Xhariep	Mohokare	Not available	Not available	Not available	Not available
Xhariep	Naledi	Not available	Not available	Not available	Not available
<b>Total for Province</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>



**NOTES: Reference Framework - No data**



**O&M NEEDS**  
*Schemm Baaai*



**BASEMAP LEGEND:**

- Provincial Boundaries
- District Municipal Boundaries
- Information not submitted
- Local Municipal Boundaries
- Thabo Mofutsanyane DM







**CURRENT AND COMPLETED BULK PROJECTS**

**Projects Categorisation**

**Current Projects**

- Water Regional Bulk
- Water Internal Bulk
- Sanitation Bulk
- Water Reticulation
- Water Treatment Works

**Completed Projects**

- Completed Projects
- Settlements

**BASEMAP LEGEND:**

- Provincial Boundaries
- District Municipal Boundaries
- Thabo Mofutsanyane DM
- Local Municipal Boundaries

08.57 14 21 28 35  
 Km

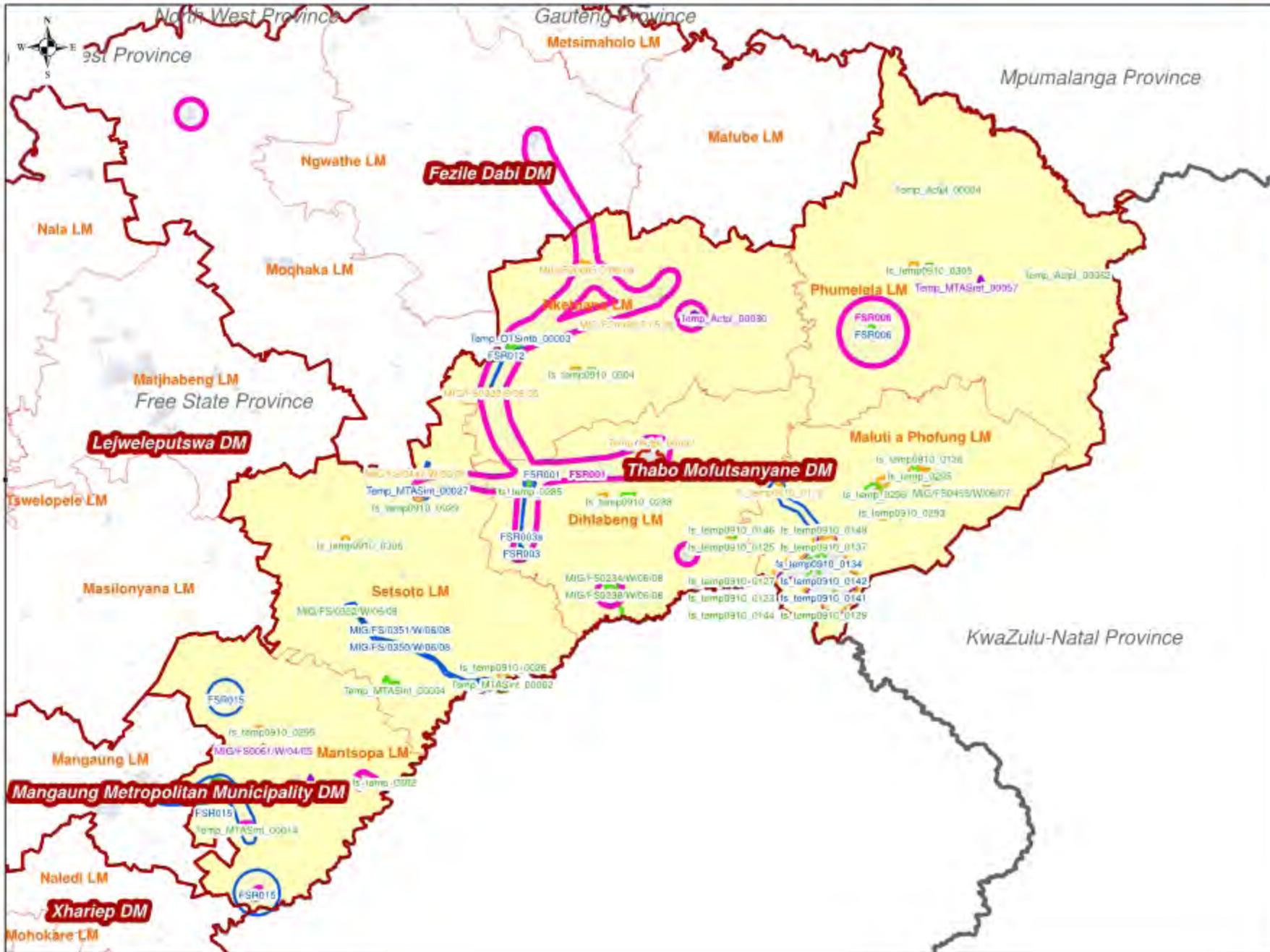


Assessment of each WSA as presented in the WSDP for all Water Services Planning  
 Enabling Factors, Compliancy Elements and Future Plans in relation to:

- Accuracy of Informed (Quality)
- Representation of Total Area (Quantity)
- Implementation Strategies

	<u>TOPIC</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
Topics Assessed	Topic 2	Demographics Profile	I
	Topic 3	Service Levels Profile	II
	Topic 4	Economic Background	III
	Topic 5	Water Services Infrastructure Profile	IV
	Topic 6	Operation & Maintenance	V
	Topic 7	Associated Services	VI
	Topic 8	Conservation & Demand Management	VII
	Topic 9	Water Resources	VIII
	Topic 10	Financial Report	IX
	Topic 11	Water Services Arrangement Profile	X
	Topic 12	Social & Customer Service Requirements	XI
	Overall Topic Assessment	WSDP Status Quo Knowledge Interpretation Report	XII





LOCALITY MAP



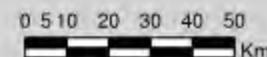
FUTURE BULK INFRASTRUCTURE PROJECTS

Project Category

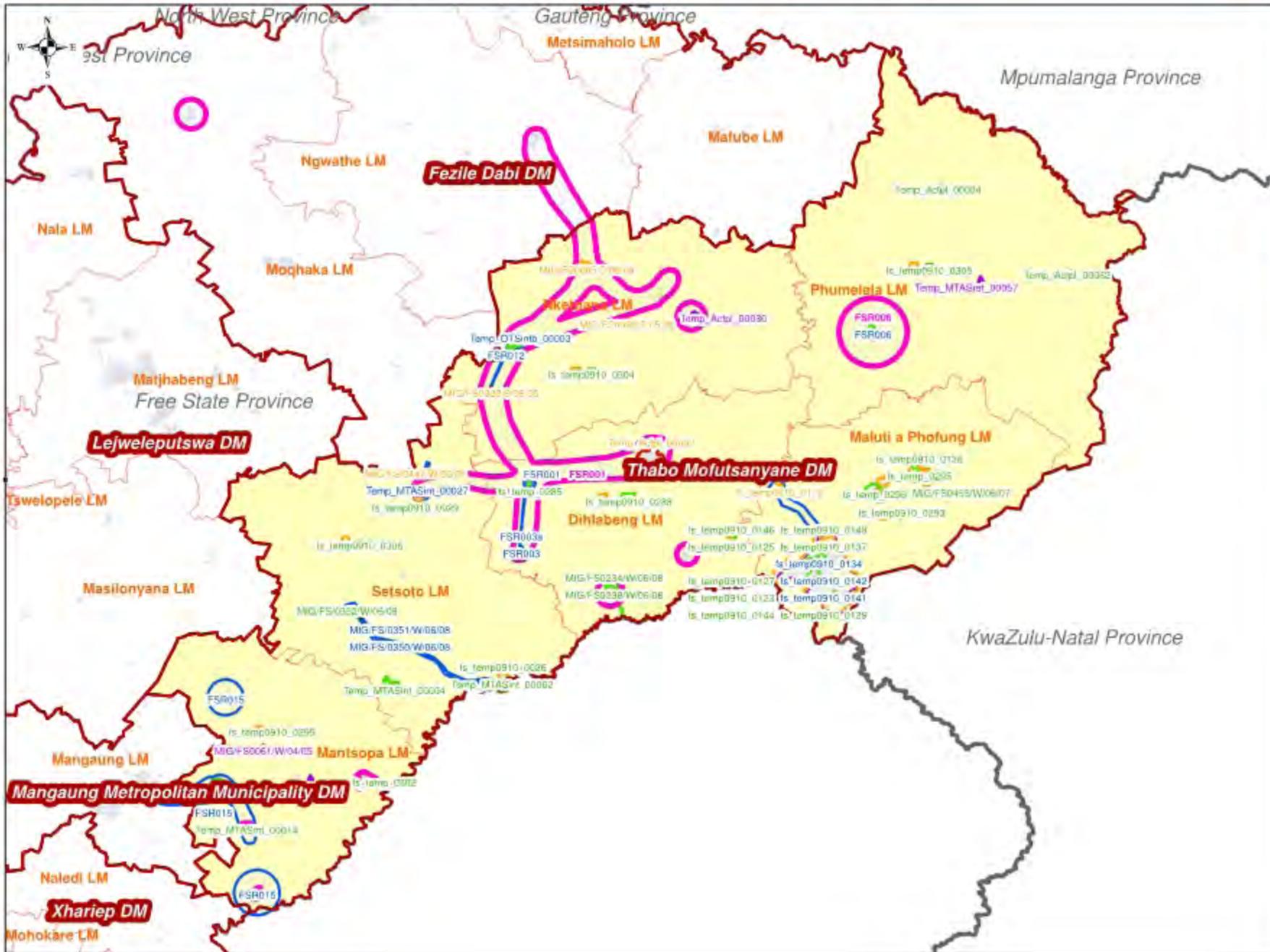
- Water Regional Bulk
- Water Internal Bulk
- Sanitation Bulk
- Water Reticulation
- Water Treatment Works
- Future Resource Development Projects
- Settlements

BASEMAP LEGEND:

- Provincial Boundaries
- District Municipal Boundaries
- Thabo Mofutsanyane DM
- Local Municipal Boundaries







LOCALITY MAP



FUTURE BULK  
INFRASTRUCTURE  
PROJECTS

Project Category

- Water Regional Bulk
- Water Internal Bulk
- Sanitation Bulk
- Water Reticulation
- Water Treatment Works
- Future Resource Development Projects
- Settlements

BASEMAP LEGEND:

- Provincial Boundaries
- District Municipal Boundaries
- Thabo Mofutsanyane DM
- Local Municipal Boundaries

