# A. EXECUTIVE SUMMARY

## A.1 Administration

**Name of WSA**

| | | |
|---|---|---|
| Name | Zululand District Municipality | |
| Address | Private Bag X76<br>ULUNDI<br>3838 | Lot B400, Gagane Street<br>ULUNDI<br>3838 |

**Status of WSDP**

The planned completion dates for the revision of the WSDP are as follows:

- WSDP Steering Committee approval (Draft version) – March 2016
- EXCO approval – May 2016
- Expected Council approval – June 2016

**WSDP drafting team**

The contact persons within the municipality who are responsible for the functioning, planning and implementation of the WSDP are shown in Table A1.1 below:

**Table A1.1: Drafting team**

| Name | Position | Tel Number | Email |
|---|---|---|---|
| Mr JH De Klerk | Municipal Manager | 035 874 5500 | mm@zululand.org.za |
| Mr B Mnguni | Deputy Director: WSA | 035 874 5542 | bmnguni@zululand.org.za |
| Mr Z Dladla | HOD: Technical Services (Acting) | 035 874 5500 | zdladla@zululand.org.za |
| Mr S Landman | HOD: Planning | 035 874 5617 | slandman@zululand.org.za |

**Process followed**

ZDM annually prepares a revised WSDP in time for the approval of the annual municipal budget. Planning work related to various aspects of water services are being dealt with on a continuous basis through the year and the results of such work are then systematically fed into the WSDP.

The WSDP Steering Committee has been established and meets at least four times per year. The steering committee comprises of the ZDM management team, officials from the Local Municipalities, Councillors and consultants involved with the technical work. The aim is to have a first draft of each year's revision ready by end of February. The following approvals are done:

| Item | Date |
|---|---|
| WSDP Steering Committee Meetings | Quarterly |
| Submission of draft WSDP document to WSA for comments | End February |
| WSDP & IDP Steering Committee Approval | End March |
| Representative Forum approval – This forum comprises all Government Departments involved with the IDP process, all Councillors and role players from the private sector. | End April |
| EXCO approval | May |
| Advertise for public comment | End May |
| Council approval | June |
| Submit to DWA for approval | July |

**Public comments**

The WSDP will be advertised during May 2016 for public comment.

**Adoption record**

The 2015/2016 revision of the WSDP has been approved by the ZDM Council during June 2015.

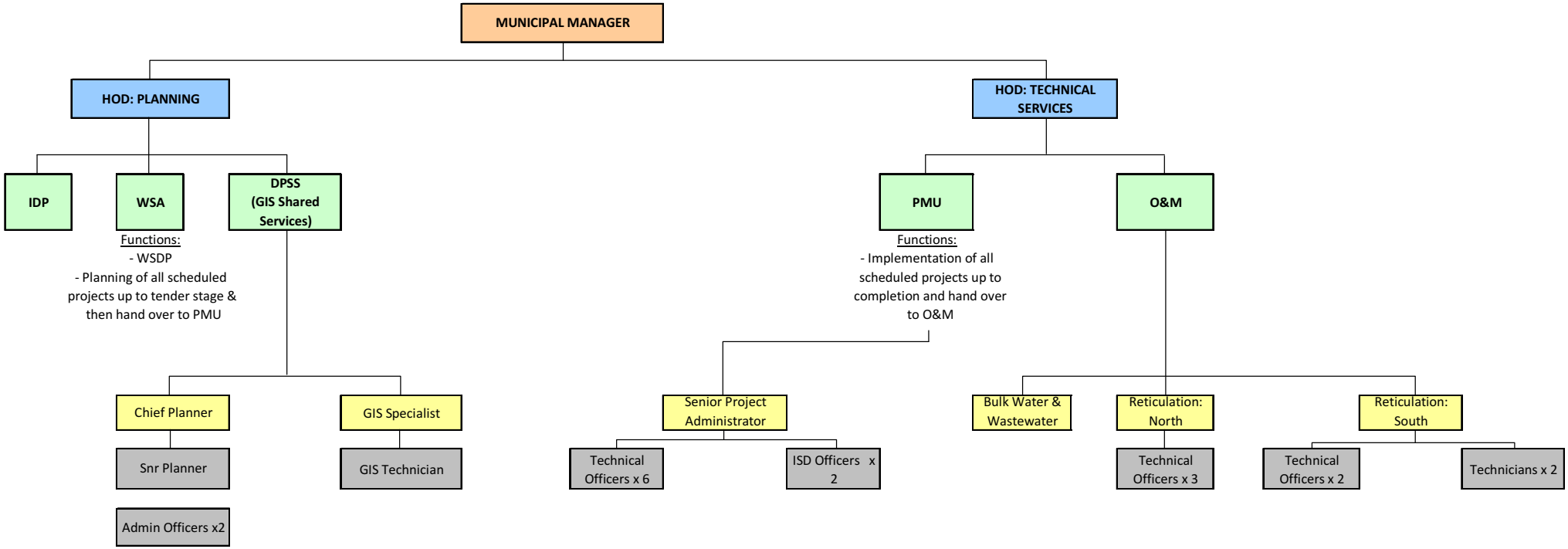
**WSDP co-ordinators**

The WSDP process is managed by the Deputy Director: Water Services Authority in association with the HOD: Planning & Community Development and the HOD: Technical Services and their staff.

**PMU**

The ZDM PMU has been established and is functioning very well. The PMU unit comprises of a Deputy Director, two technical officers, project administrator and secretary. The PMU manager reports to the HOD: Technical Services and is responsible for the implementation of all projects scheduled by the WSA. The WSA unit is situated in the Planning Department and reports to the HOD: Planning. The organograms below indicates the split in functions related to water services:

**Table A1.2: Organogram**



**Water services level policy**

ZDM has compiled a Water Services Policy and this is available from the ZDM website at www.zululand.org.za. The following levels of service for water and sanitation are available from the municipality:

**Table A1.3: Service Levels**

| Domestic Water Supply | | | | |
|---|---|---|---|---|
| **Service Level Number** | **Level of Service** | **Definition** | **Applicable Tariff Structure** | **Norms and Standards** |
| DW1 | Full pressure conventional house connection | Full pressure unrestricted individual erf/yard connection | Stepped block tariff | Design specifications |
| DW2 | Yard tank (RDP standard) | Restricted (to 200l per day) individual erf connection with tank in yard | No charge | Design specifications |
| DW3 | Communal street taps (RDP standards) | Unrestricted full pressure standpipe not further than 200m from dwellings (shared by a number of consumers) | No charge | Design specifications |
| DW4 | Rudimentary | Formalised supply:<br>• Borehole equipped with hand pump<br>• Protected spring<br>• Communal standpipe within 800m from dwellings | No charge | Design specifications |

| Domestic Sanitation | | | | |
|---|---|---|---|---|
| **Service Level Number** | **Level of Service** | **Definition** | **Applicable Tariff Structure** | **Norms and Standards** |
| DS1 | Water borne | Unrestricted connection to municipal sewerage system | Water consumption based tariff structure included in water tariff | Design specifications |
| DS2 | Conservancy tank | Localised temporary sewage storage facility | Rate per load disposed by municipality | Design specifications |
| DS3 | Septic tanks | On-site disposal (self treatment) | No charge | Design specifications |
| DS4 | Ventilated improved pit (VIP) | Dry pit with sufficient capacity on-site disposal based on set standards | No charge | Design specifications |

## A.2 Backlogs

Tables A.2 (a) & (b) below indicate the status in ZDM with regards to water services backlogs in the district.

**Table A.2 (a): Access to water (households)**

| Water | None or Inadequate | Rudimentary <RDP | Communal standpipes RDP | Yard connections >RDP | TOTALS |
|---|---|---|---|---|---|
| AbaQulusi LM | 0 | 0 | 0 | 15 283 | 15 283 |
| eDumbe LM | 0 | 0 | 0 | 5 157 | 5 157 |
| Nongoma LM | 0 | 0 | 0 | 1239 | 1 239 |
| Ulundi LM | 0 | 0 | 0 | 5 520 | 5 520 |
| uPhongolo LM | 0 | 0 | 0 | 3 557 | 3 557 |
| **Total (urban)** | **0** | **0** | **0** | **30 756** | **30 756** |
| AbaQulusi LM | 7 301 | 833 | 7638 | 9 247 | 25 019 |
| eDumbe LM | 3 048 | 616 | 1097 | 6 962 | 11 723 |
| Nongoma LM | 9 446 | 9 273 | 8 979 | 9 234 | 36 932 |
| Ulundi LM | 5 777 | 3 052 | 10 497 | 12 519 | 31 845 |
| uPhongolo LM | 5 653 | 546 | 1306 | 14 074 | 21 579 |
| **Total (rural)** | **31 225** | **14 320** | **29 517** | **52 036** | **127 098** |
| **Total (households)** | **31 225** | **14 320** | **29 517** | **82 792** | **157 854** |

### Table A.2 (b): Access to sanitation

| | None or Inadequate (Excl. Infills/Replacements) | VIP | Septic tank | Waterborne | TOTALS |
|---|---|---|---|---|---|
| | | RDP | RDP | >RDP | |
| AbaQulusi LM | 0 | 0 | 0 | 15 283 | 15 283 |
| eDumbe LM | 0 | 0 | 498 | 4 659 | 5 157 |
| Nongoma LM | 0 | 0 | 0 | 1239 | 1 239 |
| Ulundi LM | 0 | 0 | 0 | 5 520 | 5 520 |
| uPhongolo LM | 0 | 0 | 0 | 3 557 | 3 557 |
| **Total (urban)** | **-** | **-** | **498** | **30 258** | **30 756** |
| AbaQulusi LM | 8 838 | 15 914 | 267 | 0 | 25 019 |
| eDumbe LM | 0 | 11 272 | 199 | 0 | 11 723 |
| Nongoma LM | 8 547 | 28 385 | 0 | 0 | 36 932 |
| Ulundi LM | 8 311 | 23 492 | 42 | 0 | 31 845 |
| uPhongolo LM | 5 375 | 15 846 | 358 | 0 | 21 579 |
| **Total (rural)** | **31 071** | **94 909** | **866** | **0** | **127 098** |
| **Total (households)** | **31 071** | **94 909** | **1 364** | **30 258** | **157 854** |

### Table A.2 (c): Percentage backlogs (water & sanitation)

| WATER | TOTAL HOUSEHOLDS | BACKLOGS | % BACKLOGS | % OF TOTAL BACKLOGS |
|---|---|---|---|---|
| AbaQulusi LM | 40 302 | 8 134 | 20.18% | 17.86% |
| eDumbe LM | 16 880 | 3 664 | 21.71% | 8.04% |
| Nongoma LM | 38 171 | 18 719 | 49.04% | 41.10% |
| Ulundi LM | 37 365 | 8 829 | 23.63% | 19.39% |
| uPhongolo LM | 25 136 | 6 199 | 24.66% | 13.61% |
| **Total** | **157 854** | **45 545** | **28.85%** | **100.00%** |

| SANITATION | TOTAL HOUSEHOLDS | BACKLOGS | % BACKLOGS | % OF TOTAL BACKLOGS |
|---|---|---|---|---|
| AbaQulusi LM | 40 302 | 8 838 | 21.93% | 28.44% |
| eDumbe LM | 16 880 | 0 | 0.00% | 0.00% |
| Nongoma LM | 38 171 | 8 547 | 22.39% | 27.51% |
| Ulundi LM | 37 365 | 8 311 | 22.24% | 26.75% |
| uPhongolo LM | 25 136 | 5 375 | 21.38% | 17.30% |
| **Total** | **157 854** | **31 071** | **19.68%** | **100.00%** |

### Table A.2 (d): 3-year Summary (water and sanitation backlogs against funding allocations)

| YEAR | BACKLOGS(Households) | | ALLOCATIONS | | Household count |
|---|---|---|---|---|---|
| | Water | Sanitation | Water | Sanitation | |
| 2013-2014 | 56 559 | 56 757 | R 288 499 750 | R 65 386 250 | 2010 household count |
| 2014-2015 | 50 653 | 46 027 | R 300 616 500 | R 55 405 500 | |
| 2015-2016 | 47 934 | 37 650 | 440 019 250 | 55 339 750 | |
| 2016-2017 | 45 545 | 31 071 | 281 021 250 | 61 973 750 | |

# A.3 Summary of content

The key information contained in the WSDP is listed below for ease of reference. More detail can be obtained by referring to the respective chapters in the document:

## Chapter 1: Socio Economic Profile

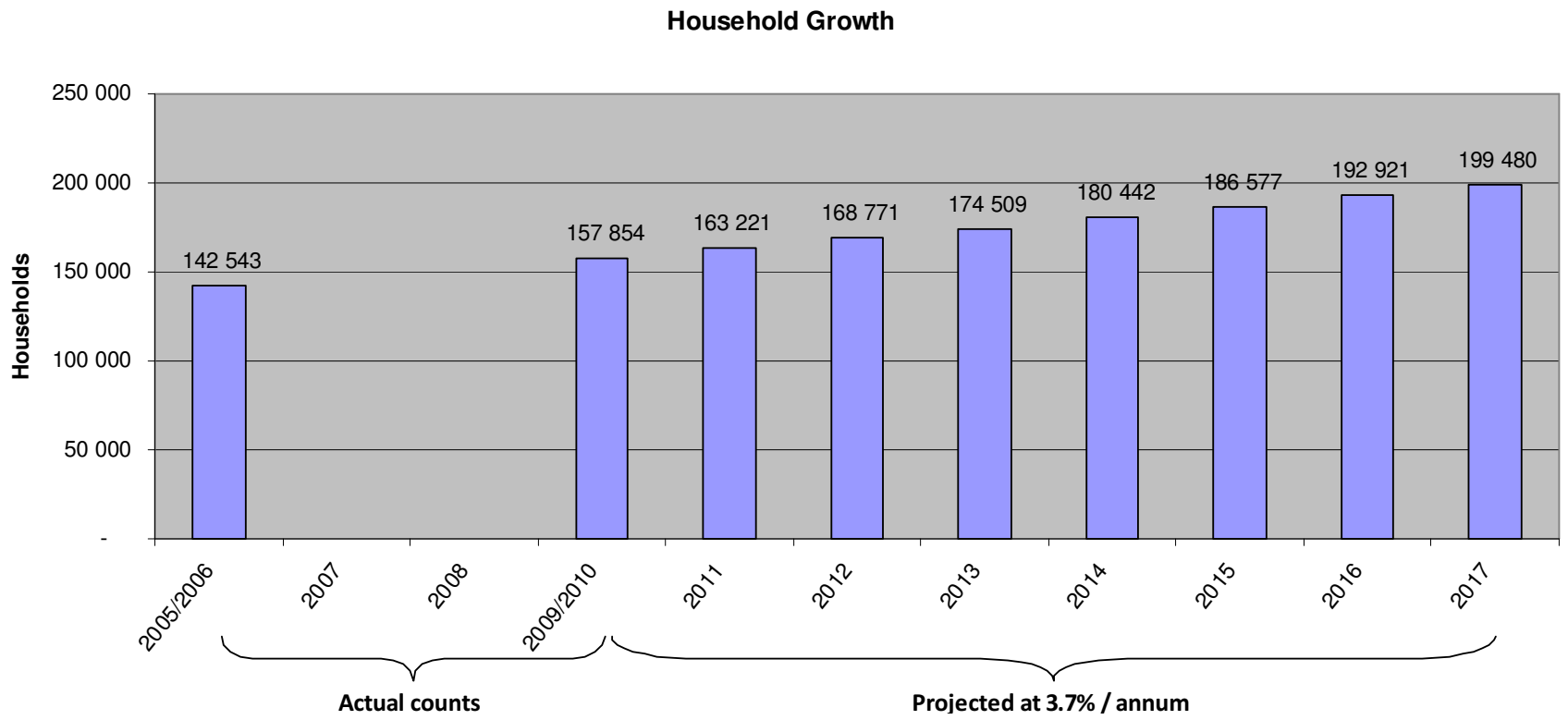
The current consumer profile of the district is indicated in Table A.3 (a) below. These figures reflect a household count which was done by ZDM from aerial photography taken between 2005 and 2006. ZDM has since obtained a complete set of more recent aerial photography which was taken by National Geo-spatial Information (NGI) between 2009 and 2011. The household data set has been updated based on these new aerial photography. A total of **156 988 households** and **866 farm houses** were captured, bringing the total dwellings in ZDM to **157 854**. This compares very well with the Census 2011 household count of 157 748.

When compared to the household count for ZDM from the 2005 and 2006 aerial photography, a consistent **household growth of 3.7%** is evident. Table A.3(a) and (b) depicts the expected household growth for ZDM based on the ZDM household data sets.

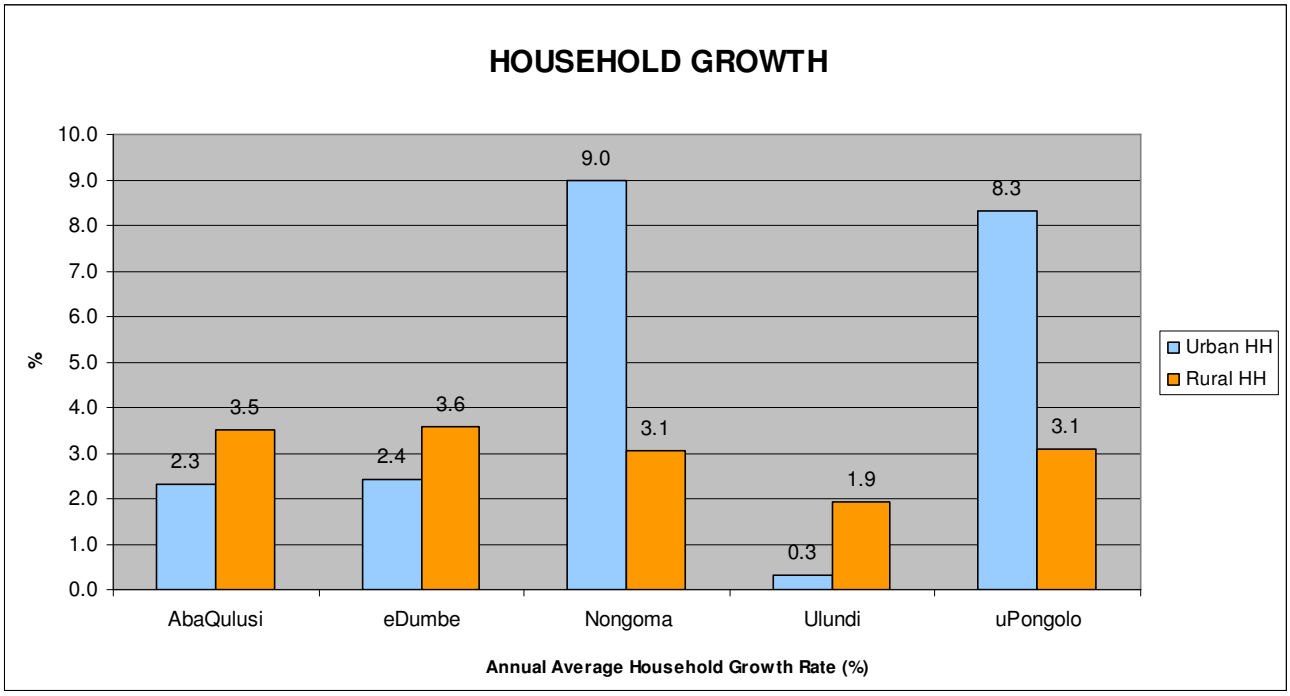
**Table A.3 (a): ZDM and STATSSA Census 2011 household growth analysis (2005 - 2017)**

| | Actual Household Statistics (ZDM) | | | | | | STATSSA Census 2011 | | | Projected Growth (based on ZDM household counts of 2009/2010) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Local Municipality | 2005/2006 | 2007 | 2008 | 2009/2010 | Annual household growth rate | Household Growth (2007 - 2010) | STATSSA (2011) | Average Population | Total Population (ZDM) | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| AbaQulusi | 36 069 | | | 40 302 | 3.4% | 11.7 | 43 299 | 4.90 | 197 480 | 41 672 | 43 089 | 44 554 | 46 069 | 47 635 | 49 255 | 50 930 |
| eDumbe | 15 011 | | | 16 880 | 4.3% | 12.5 | 16 138 | 5.10 | 86 088 | 17 454 | 18 047 | 18 661 | 19 295 | 19 951 | 20 630 | 21 331 |
| Nongoma | 34 056 | | | 38 171 | 4.1% | 12.1 | 34 341 | 4.40 | 167 952 | 39 469 | 40 811 | 42 198 | 43 633 | 45 117 | 46 651 | 48 237 |
| Ulundi | 35 309 | | | 37 365 | 2.0% | 5.8 | 35 198 | 5.70 | 212 981 | 38 635 | 39 949 | 41 307 | 42 712 | 44 164 | 45 666 | 47 218 |
| uPongolo | 22 098 | | | 25 136 | 4.5% | 13.7 | 28 772 | 5.40 | 135 734 | 25 991 | 26 874 | 27 788 | 28 733 | 29 710 | 30 720 | 31 764 |
| **Total** | **142 543** | | | **157 854** | **3.7%** | **11.2** | **157 748** | **5.10** | **805 055** | **163 221** | **168 771** | **174 509** | **180 442** | **186 577** | **192 921** | **199 480** |

**Table A.3 (b): ZDM household growth analysis (2005 - 2017)**



In the following graph the average annual household growth per local municipality can be compared between urban and rural growth. Nongoma and uPhongolo towns show a dramatic increase in urban household growth compared to rural areas.




In Table A.3(c) the domestic dwellings and farm houses per local municipality can be reviewed. Industrial and business properties were only captured in urban areas since it is not always possible to distinguish businesses and commercial buildings in rural areas from aerial photography.

With the updated settlement types according to the provincial WSDP guidelines, many households which were previously classified as urban now fall in other categories. This resulted in the urban household count to have decreased. The rural household count has however increased accordingly.

**Table A.3 (c): Current consumer profile (units)**

| LOCAL MUNICIPALITIES | DOMESTIC | INDUSTRIAL / BUSINESSES | FARM HOUSES | TOTAL |
|---|---|---|---|---|
| AbaQulusi | 15 283 | 1 947 | - | 17 230 |
| eDumbe | 5 157 | 336 | - | 5 493 |
| Nongoma | 1 239 | 483 | - | 1 722 |
| Ulundi | 5 520 | 638 | - | 6 158 |
| uPhongolo | 3 557 | 576 | - | 4 133 |
| **Total (urban)** | **30 756** | **3 980** | **-** | **34 736** |
| AbaQulusi | 24 752 | - | 267 | 25 019 |
| eDumbe | 11 524 | - | 199 | 11 723 |
| Nongoma | 36 932 | - | - | 36 932 |
| Ulundi | 31 803 | - | 42 | 31 845 |
| uPhongolo | 21 221 | - | 358 | 21 579 |
| **Total (rural)** | **126 232** | **-** | **866** | **127 098** |
| **Total** | **156 988** | **3 980** | **866** | **161 834** |

## Chapter 2: Service Level Profile

The current levels of access to water services in the district are indicated below:

**Table A.3 (d): Residential consumers: access to water**

| Water | None or Inadequate | Rudimentary | Communal standpipes | Yard connections | TOTALS |
|---|---|---|---|---|---|
| | | <RDP | RDP | >RDP | |
| AbaQulusi LM | 0 | 0 | 0 | 15 283 | 15 283 |
| eDumbe LM | 0 | 0 | 0 | 5 157 | 5 157 |
| Nongoma LM | 0 | 0 | 0 | 1239 | 1 239 |
| Ulundi LM | 0 | 0 | 0 | 5 520 | 5 520 |
| uPhongolo LM | 0 | 0 | 0 | 3 557 | 3 557 |
| **Total (urban)** | **0** | **0** | **0** | **30 756** | **30 756** |
| AbaQulusi LM | 7 301 | 833 | 7638 | 9 247 | 25 019 |
| eDumbe LM | 3 048 | 616 | 1097 | 6 962 | 11 723 |
| Nongoma LM | 9 446 | 9 273 | 8 979 | 9 234 | 36 932 |
| Ulundi LM | 5 777 | 3 052 | 10 497 | 12 519 | 31 845 |
| uPhongolo LM | 5 653 | 546 | 1306 | 14 074 | 21 579 |
| **Total (rural)** | **31 225** | **14 320** | **29 517** | **52 036** | **127 098** |
| | | | | | |
| **Total (households)** | **31 225** | **14 320** | **29 517** | **82 792** | **157 854** |

**Table A.3 (e): Residential consumers: access to sanitation**

| | None or Inadequate (Excl. Infills/Replacements) | VIP | Septic tank | Waterborne | TOTALS |
|---|---|---|---|---|---|
| | | RDP | RDP | >RDP | |
| AbaQulusi LM | 0 | 0 | 0 | 15 283 | 15 283 |
| eDumbe LM | 0 | 0 | 498 | 4 659 | 5 157 |
| Nongoma LM | 0 | 0 | 0 | 1239 | 1 239 |
| Ulundi LM | 0 | 0 | 0 | 5 520 | 5 520 |
| uPhongolo LM | 0 | 0 | 0 | 3 557 | 3 557 |
| **Total (urban)** | **-** | **-** | **498** | **30 258** | **30 756** |
| AbaQulusi LM | 8 838 | 15 914 | 267 | 0 | 25 019 |
| eDumbe LM | 0 | 11 272 | 199 | 0 | 11 723 |
| Nongoma LM | 8 547 | 28 385 | 0 | 0 | 36 932 |
| Ulundi LM | 8 311 | 23 492 | 42 | 0 | 31 845 |
| uPhongolo LM | 5 375 | 15 846 | 358 | 0 | 21 579 |
| **Total (rural)** | **31 071** | **94 909** | **866** | **0** | **127 098** |
| | | | | | |
| **Total (households)** | **31 071** | **94 909** | **1 364** | **30 258** | **157 854** |

## Chapter 3: Water Resource Profile

The ZDM falls within the Mfolozi (W2), Mkuze (W3) and Pongola (W4) secondary catchments of the Usuthu/Mhlathuze Water Management Area (WMA)[1]. The aerial extent of the ZDM occupies approximately 22% of this WMA. . The total available water and requirements as at year 2000, based on a 98% assurance of supply within these sub-areas, is summarised in Table A.3 (d). It is evident that apart from the Pongola catchments, water from these sub-areas is currently over-utilised and a deficit is created. However, according

[1] *The Usuthu/Mhlathuze WMA is one of 19 areas defined across South Africa in terms of the National Water Act, 1998 (Act 36 of 1998). These WMAs have been defined to improve water resource management within South Africa. With time, each of the WMAs will establish a catchment management agency (CMA) for the regulation and control of water use in the WMA.*

to Basson and Rossouw[2], this deficit is a result of the provision made for future implementation of the Reserve. The Reserve is a legislated requirement of the amount of water required to satisfy the ecological needs of a river system (provisionally estimated at 20%) as well as the basic human needs (that have been established as 25 litres per person per day).

**Table A.3 (f): Water balance - summary of the water available and required within Zululand District Municipality for the year 2000 (Million $m^3$ (kℓ) per annum).**

| | | | Mfolozi | Mkuze | Pongola | Total |
|---|---|---|---|---|---|---|
| Available water | Natural resource | surface water | 36 | 15 | 616 | 667 |
| | | groundwater | 5 | 12 | 8 | 25 |
| | Usable return flow | Irrigation | 5 | 6 | 21 | 32 |
| | | Urban | 4 | 0 | 0 | 4 |
| | | Mining & bulk | 1 | 0 | 0 | 1 |
| | Total local yield* | | **51** | **33** | **645** | **729** |
| | Transfers in | | 0 | 30 | 0 | 30 |
| | **Total available** | | **51** | **63** | **645** | **759** |
| Water requirements | Consumer groups | Irrigation | 51 | 61 | 213 | 325 |
| | | Urban** | 12 | 1 | 1 | 14 |
| | | Rural** | 11 | 10 | 6 | 27 |
| | | Mining & bulk industrial*** | 4 | 0 | 1 | 5 |
| | | Afforestation**** | 2 | 6 | 34 | 42 |
| | Total local requirements | | **80** | **78** | **255** | **413** |
| | Transfers out | | 18 | 0 | 30 | **48** |
| | **Total used** | | **98** | **78** | **285** | **461** |
| **Balance** | | | **-47** | **-15** | **360** | **298** |

*Source: Basson and Rossouw (2003).*
**Includes allowance for impacts of the ecological component of the Reserve, river losses, alien vegetation, rain-fed agriculture and urban run-off on yield.*
***Includes allowance for basic human needs component of the Reserve (25 ℓ/c/d).*
****Mining and bulk industrial water uses that are not part of the urban system.*

*****Afforestation quantities refer to the impact on yield only.*

[2] *Op cit 2 at 23.*

## Chapter 4: Water Conservation/ Demand Management

ZDM has embarked on an extensive Unaccounted for Water programme (UAW), aimed at understanding the usage of water in the district and to provide guidance to future demand management and waterloss interventions. Specific interventions will be launched at individual schemes to address water losses through:

- Pressure management
- Leak repair programmes
- Meter repair & replacement programmes
- Internal plumbing leaks
- Consumer end-use demand management initiatives

The water demand strategy will focus on a number of ways to ensure the reduction of water demand by consumers, for example:

- Influencing the behaviour of consumers
    - School and public educational and awareness programmes aimed at promoting effective usage of water (brochures, advertising, newsletters, demonstrations, exhibits, informative billing, etc)
    - Water services tariff that promotes efficient water usage
    - Any other "win-win" initiatives that could influence consumers positively
- Specific targeted projects like;
    - Repair plumbing leaks inside properties
    - Installation of water flow control devices, etc.

## Chapter 5: Water Services Infrastructure Profile

ZDM has done extensive work on the development of a database that will serve as an asset register, but also to be used as the basis for the development of an asset management system and to capture asset related information electronically for ongoing use. The system has been named 'MANZI' and access can be gained on the ZDM website at www.zululand.org.za once the user has been issued with a username and password.
Table A.3 (e) below provides a brief overview of the schemes in the district that have been captured on the MANZI system and a summary of the infrastructure under consideration, as well as a rough estimate of the value of assets. These figures will be refined over time once the asset management system has been rolled out.

**Table A.3 (g): Summary of schemes in the district**

| Summary Data | LOS | Total | Comment |
|---|---|---|---|
| Number of Schemes | Above RDP - Urban | 14 | |
| | Above RDP - Rural | 46 | |
| | RDP | 100 | |
| | Rudimentary | 135 | |
| | **TOTAL SCHEMES** | **295** | |

Table A.3 (f) below shows examples of infrastructure data that is currently available on the GIS system and MANZI. Although many gaps still exist in the infrastructure information, ZDM has been systematically updating

its infrastructure details and eliminating data gaps where possible within its capability and resources. This process involves both feature as well as attribute data, and will support the asset management system initiative of ZDM which is currently in development

**Table A.3 (h): Summary of infrastructure components available the ZDM GIS**

| Summary Data | LOS | Total |
|---|---|---|
| Number of Schemes | Above RDP - Urban | 14 |
| | Above RDP - Rural | 56 |
| | RDP | 111 |
| | Rudimentary | 135 |
| | **TOTAL SCHEMES** | **316** |

**Table A.3f**

| Summary Data | Description | Total |
|---|---|---|
| **Pipelines** | Bulk | 998.4 km |
| | Reticulation | 5 689.8 km |
| **Installations** | Yard Connection | 25 341 |
| | StandPipe - Barrel | 302 |
| | StandPipe - Communal | 4 792 |
| | Electrical Point | 0 |
| | Valve | 12 807 |
| | Meter | 1268 |
| | Bulk Metering Points | 253 |
| | Handpump | 0 |
| | Pump | 23 |
| | Pump Station | 116 |
| | Source / Abstraction | 489 |
| | Break-pressure Tank | 397 |
| | Storage - Jojo | 205 |
| | Storage - Reservoir | 730 |
| | Treatment (WTW, Sand filters etc) | 53 |
| **Replacement Value** | Civil | R 1 988 605 029.79 |
| | Mechanical | R 580 779 627.48 |
| | Electrical | R 229 914 773.89 |
| | Telemetry | R 12 255 225.37 |

## Chapter 6: Water Balance

A first order water balance is presented in Chapter 6 from available data at the time.

## Chapter 7: Water Services Institutional Arrangements

The ZDM Section 78 investigation process was completed in 2007 and the conclusion was that a single Water Services Provider for the entire district (internal department within ZDM) is the preferred water services provision arrangement for the future and that this be implemented progressively. Certain specialised functions were also listed that should rather be contracted out to private business, although still being part of the overall

WSP structure. These are services that require skilled personnel that are expensive and difficult to source and that are more cost effective to contract in rather than source in-house, for example electrical/mechanical artisans, certain maintenance functions, etc. The detailed outcome of the Section 78 investigation process is captured in Chapter 7 herewith.

## Chapter 8: Customer Services Profile

The provision of high quality water services to consumers involves good water quality and the reliability of water services. This chapter covers interventions implemented or planned by ZDM to address the above mentioned issues. A customer care charter is being drafted that will be the "contract" with the consumer and will also list the consumer's responsibilities in this regard. Work has been done on the drafting of a customer care strategy and the following key focus areas have been identified:

- To know your customers (complete customer database)
- To develop proper mechanisms for effective two way communication with customers
- To provide affordable, high quality services that are accessible to all
- To empower your consumers through education
- To develop a customer focused organisation
- To develop a customer charter and honour the agreement with the customer
- To accelerate the implementation of appropriate service provision structures

## Chapter 9: Financial Profile

This chapter deals with two financial issues related to water services infrastructure, namely:

- New capital projects
- Operations and maintenance (O&M) of existing infrastructure

The details are contained in Chapter 9 but can be summarised in Tables A.3 (g), (h) & (i) below:

**Table A.3 (i): Capital requirements: water**

| WATER | Capital requirements | 2016/2017 | 2017/2018 | >2018 |
|---|---|---|---|---|
| Regional bulk | R 1 923 123 833 | R 380 813 147 | R 351 266 350 | R 1 191 044 336 |
| Secondary bulk | R 1 054 030 068 | R 48 562 125 | R 31 485 265 | R 973 982 678 |
| Reticulation | R 135 680 556 | R 10 548 752 | R 14 254 789 | R 110 877 015 |
| **Total capital (new)** | **R 3 112 834 457** | **R 439 924 024** | **R 397 006 404** | **R 2 275 904 029** |
| Regional bulk (WTW) | R 295 123 300 | TBA | TBA | TBA |
| Secondary bulk | TBA | TBA | TBA | TBA |
| Reticulation | TBA | TBA | TBA | TBA |
| **Total capital (refurbishment)** | TBA | TBA | TBA | TBA |
| **Total capital** | **R 3 407 957 757** | **R 439 924 024** | **R 397 006 404** | **R 2 275 904 029** |

**Table A.3 (j): Capital requirements: sanitation**

| SANITATION | Capital requirements | 2015/2016 | 2016/2017 | 2017/2018 | >2018 |
|---|---|---|---|---|---|
| Bulk infrastructure | R - | R - | R - | R - | R - |
| Reticulation | R - | R - | R - | R - | R - |
| VIP toilets | R 310 710 000 | 56 255 250 | 51 906 375 | TBA | TBA |
| **Total capital (new)** | **R 310 710 000** | **R 56 255 250** | **R 51 906 375** | **R -** | **R -** |
| Bulk infrastructure (WWTW) | 88 136 253 | TBA | TBA | TBA | TBA |
| Reticulation | TBA | TBA | TBA | TBA | TBA |
| VIP toilets (Replacement Prgrm) | 408 880 000 | - | 5 763 750 | TBA | TBA |
| **Total capital (refurbishment)** | **R 497 016 253** | **R -** | **R 5 763 750** | **R -** | **R -** |
| **Total capital** | **R 719 590 000** | **R 56 255 250** | **R 57 670 125** | **TBA** | **TBA** |

**Table A.3 (k): Sources of Capital Income: Water**

| WATER | Expected Funding | 2016/2017 | 2017/2018 | >2018 |
|---|---|---|---|---|
| MIG | R 346 042 500 | R 173 021 250 | R 173 021 250 | TBA |
| DWA (RBIG) | R 108 000 000 | R 108 000 000 | TBA | TBA |
| Housing | R - | R - | R - | R - |
| Other grant funding (MWIG) | R - | TBA | TBA | TBA |
| Loans | R - | R - | R - | R - |
| **TOTAL** | **R 454 042 500** | **R 281 021 250** | **R 173 021 250** | **R -** |
| Capital requirements | R 3 407 957 757 | | | |
| **Shortfall** | **R -2 953 915 257** | | | |

**Table A.3 (l): Sources of Capital Income: Sanitation**

| SANITATION | Expected Funding | 2016/2017 | 2017/2018 | >2018 |
|---|---|---|---|---|
| MIG | R 115 347 500 | 57 673 750 | 57 673 750 | TBA |
| DWA | R - | R - | R - | R - |
| Housing | R 9 300 000 | R 5 000 000 | R 4 300 000 | TBA |
| Other grant funding | R - | R - | R - | R - |
| Loans | R - | R - | R - | R - |
| **TOTAL** | **R 124 647 500** | **R 62 673 750** | **R 61 973 750** | **R -** |
| Capital requirements | R 719 590 000 | | | |
| **Shortfall** | **R -594 942 500** | | | |

**Table A.3 (m): Operational costs and income**

| Operating costs and income | Total 5yr projected | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 |
|---|---|---|---|---|---|---|
| Operational costs | R 1 702 170 457 | R 314 899 527 | R 331 904 101 | R 362 107 374 | R 395 059 145 | R 431 009 527 |
| Personnel costs | R 592 140 014 | R 107 731 006 | R 117 534 528 | R 128 230 170 | R 139 899 116 | R 152 629 935 |
| **Total O&M costs** | **R 2 294 310 471** | **R 422 630 533** | **R 449 438 629** | **R 490 337 544** | **R 534 958 261** | **R 583 639 462** |
| Equitable share: FBS | R 1 517 800 300 | R 277 840 000 | R 299 001 000 | R 326 210 091 | R 355 895 209 | R 388 281 673 |
| Income: sales (actual payment) | R 144 709 365 | R 15 700 199 | R 17 128 917 | R 18 687 649 | R 20 388 225 | R 22 243 553 |
| **Total income** | **R 1 662 509 666** | **R 293 540 199** | **R 316 129 917** | **R 344 897 740** | **R 376 283 434** | **R 410 525 227** |
| **Deficit/surplus** | **R -631 800 805** | **R -129 090 334** | **R -133 308 712** | **R -145 439 804** | **R -158 674 827** | **R -173 114 236** |

**Chapter 10: List of Projects**

The ZDM Water Master Plan comprises of ten back-to-back regional water schemes as listed in the table below. The detailed project list included under Chapter 10 herewith lists sub-projects or phases associated with each regional scheme according to the approved progressive roll-out of the scheme. Sanitation is being rolled out on the back of the water roll-out, except for areas where a water service has already been installed but no sanitation was installed at the time. The water and sanitation projects to be implemented over the next 5 years and beyond are listed in detail in Chapter 10 of the document.

## A.4 Background to the area

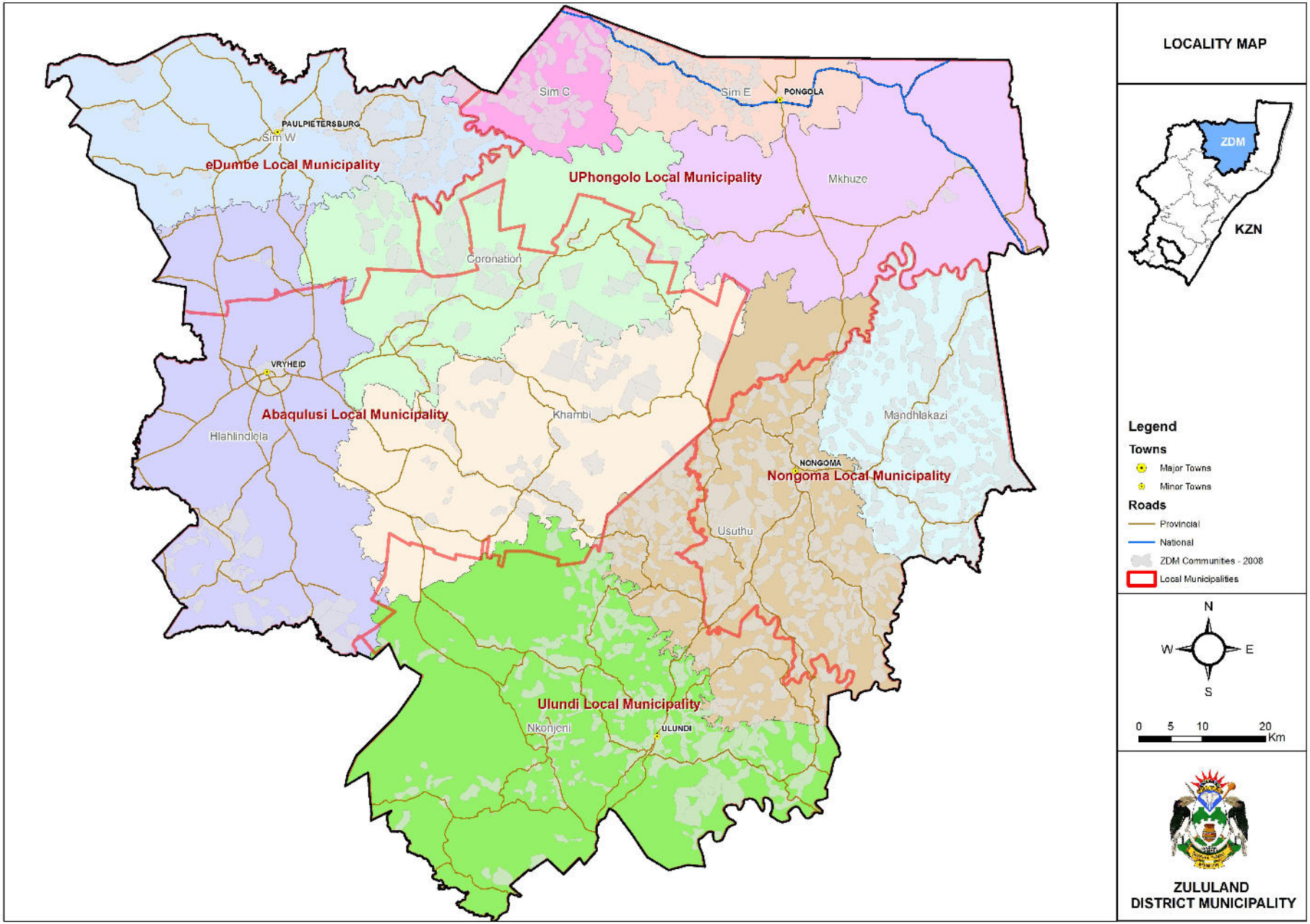
The ZDM is situated in northern KwaZulu-Natal (KZN). It covers an area of 14,808 $km^2$ and is divided into five local municipalities (LMs), namely eDumbe (KZ261), uPhongolo (KZ262), Abaqulusi (KZ263), Nongoma (KZ265), and Ulundi (KZ266) (Figure A4.1). The district is predominantly rural with commercial farmland interspersed by protected areas, towns, and dense to scattered rural settlements within traditional authority areas. The majority of these rural settlements are small, making service delivery to these remote areas extremely costly. The ZDM comprises 1,122 settlements divided into 15 urban areas, 64 dense settlements, 290 villages, 547 scattered settlements and 106 farm settlements.

Land use in the ZDM is linked primarily to tenure and the land with the highest agricultural potential is in private ownership and is mostly used for commercial farming or conservation, with low settlement densities. Private farmlands constitute a large portion of the ZDM's land area. The land use potential varies throughout the district, but are predominantly varieties of grassveld and thornveld. Agricultural activities are mainly forestry (eDumbe, Abaqulusi and around Babanango), sugar cane (uPhongolo), livestock (throughout the district), maize, soya beans, wheat, groundnuts, sorghum, vegetables and sub-tropical fruit. These commercial farms mostly have well developed infrastructure and farming systems. The difficulties they experience relate more to broader economic factors than spatial factors and linkages in the ZDM. In recent years, a number of cattle farms throughout the ZDM have been converted into game farms. These may be linked to tourism and conservation in the district.

In contrast, the non-arable land and land with severe limitations to agriculture, fall into the traditional authority areas and are densely settled. These Ingonyama Trust areas support settlement and subsistence agriculture (there is moderate to restricted agricultural potential), with the Traditional Authorities (TAs) for each LM being divided as follows:

- eDumbe LM: Dlamini TA and Mtetwa TA.
- uPhongolo LM: Masidla TA, Msibi TA, Ntshangase TA and Simelane TA.
- Abaqulusi LM: Hlahlindhlela TA and Kambi TA.
- Nongoma LM: Mandhlakazi TA, Matheni TA and Usuthu TA.
- Ulundi LM: Empetempithini TA, Mbata TA, Mpungose TA, Ndebele TA, Nobamba TA, Ximba TA and Zungu TA.

**Figure A 4.1: Locality map of Zululand District Municipality.**



The area forms part of the Pongola, Mkuze and Mfolozi River Catchments of the Usuthu/Mhlathuze Water Management Area that extends from the high lying areas in the north and west to the Indian Ocean in the east. The northern and western edges of the ZDM are characterised by steep terrain. The Skurweberg and Elandsberg Mountains on the Western side of the ZDM are approximately 1,700 m above sea level. In the northeast there are the Lebombo Mountains. In general the topography slopes and gets less steep from west to east, as well as from north to south, consequently all the main rivers flow in this direction. There are some large relatively flat areas between 200 m and 300 m around the town of Pongola, as well as on the lower reaches of the Mfolozi River (Figure A4.2).

Climatic conditions vary significantly from the northern highlands to the eastern low-lying areas around the town of Pongola. Rainfall is strongly seasonal with more than 80% occurring as thunderstorms between October and March, with the peak months being December to February in the inland areas. Rainfall varies from over 1,000 mm in the north and west, dropping to below 600 mm in the central area around Pongola. The resultant Mean Annual Runoff (MAR) ranges from above 200 mm in the north and west, to below 100 mm in the central areas. Overall the Mean Annual Precipitation (MAP) is 840 mm, and the corresponding MAR 102 mm (12 % of MAP) (Figure A4.3). Annual variability of rainfall is indicated by the historic coefficient of variation of the rainfall record, which ranges from (20 % to 25 %) in the west to greater than 35 % in the Pongola area. In accordance with the rainfall pattern the relative humidity is higher in summer than in winter. Potential mean annual gross evaporation ranges from 1400mm in the west to 1600 mm in the lowveld. The highest mean monthly evaporation is in December and the lowest mean monthly evaporation in June. One strategic dam, namely Pongolapoort/Jozini, has been developed. There is a vast amount of water in the area with both surface resources, as well as good ground water potential.

| **Topography type** | **Percentage of total municipal area** |
|---|---|
| Mountainous | 30% |
| Rolling | 70% |
| Flat | 0% |
| Coastal | 0% |

**Figure A 4.2: Terrain map of Zululand District Municipality.**

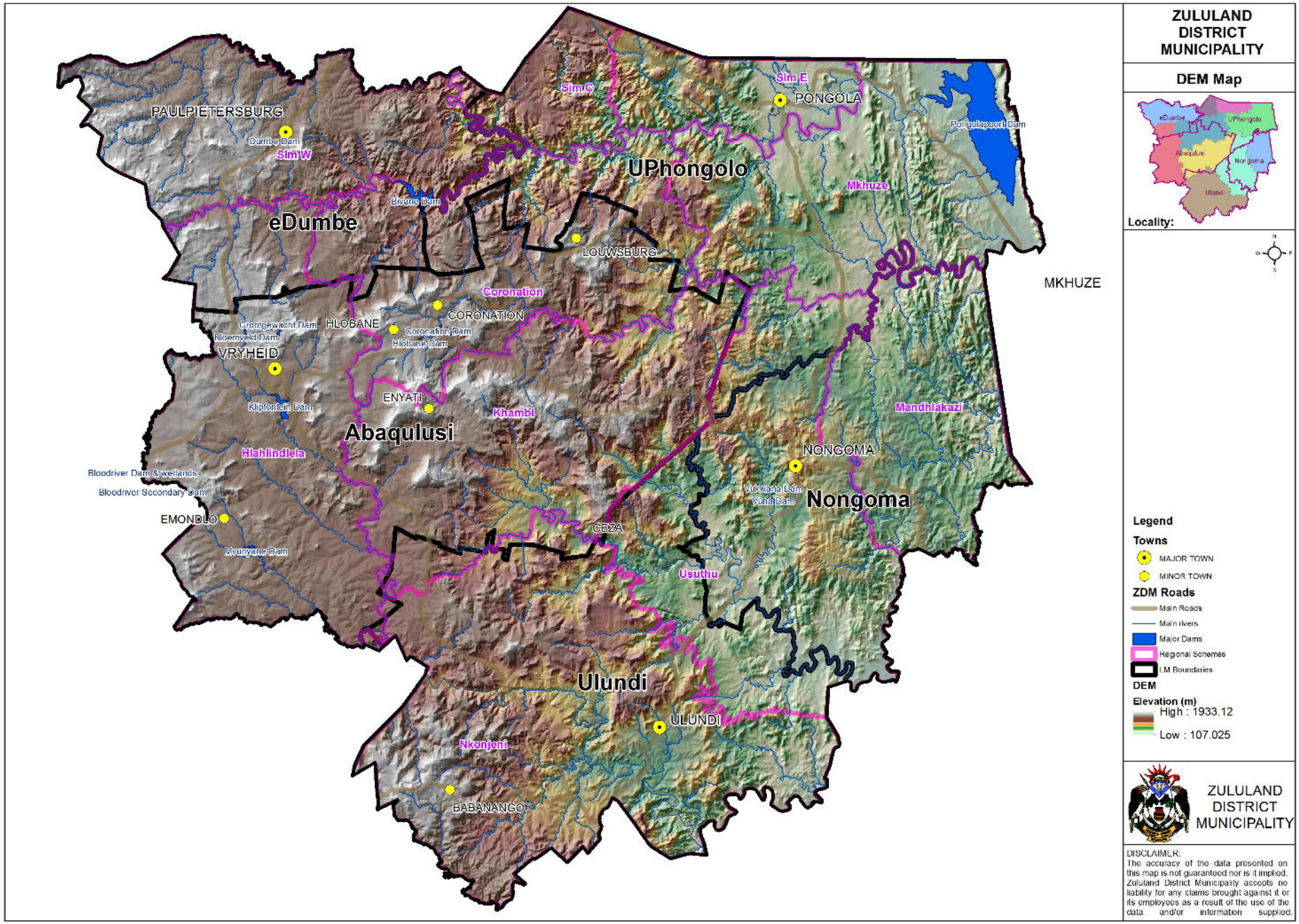
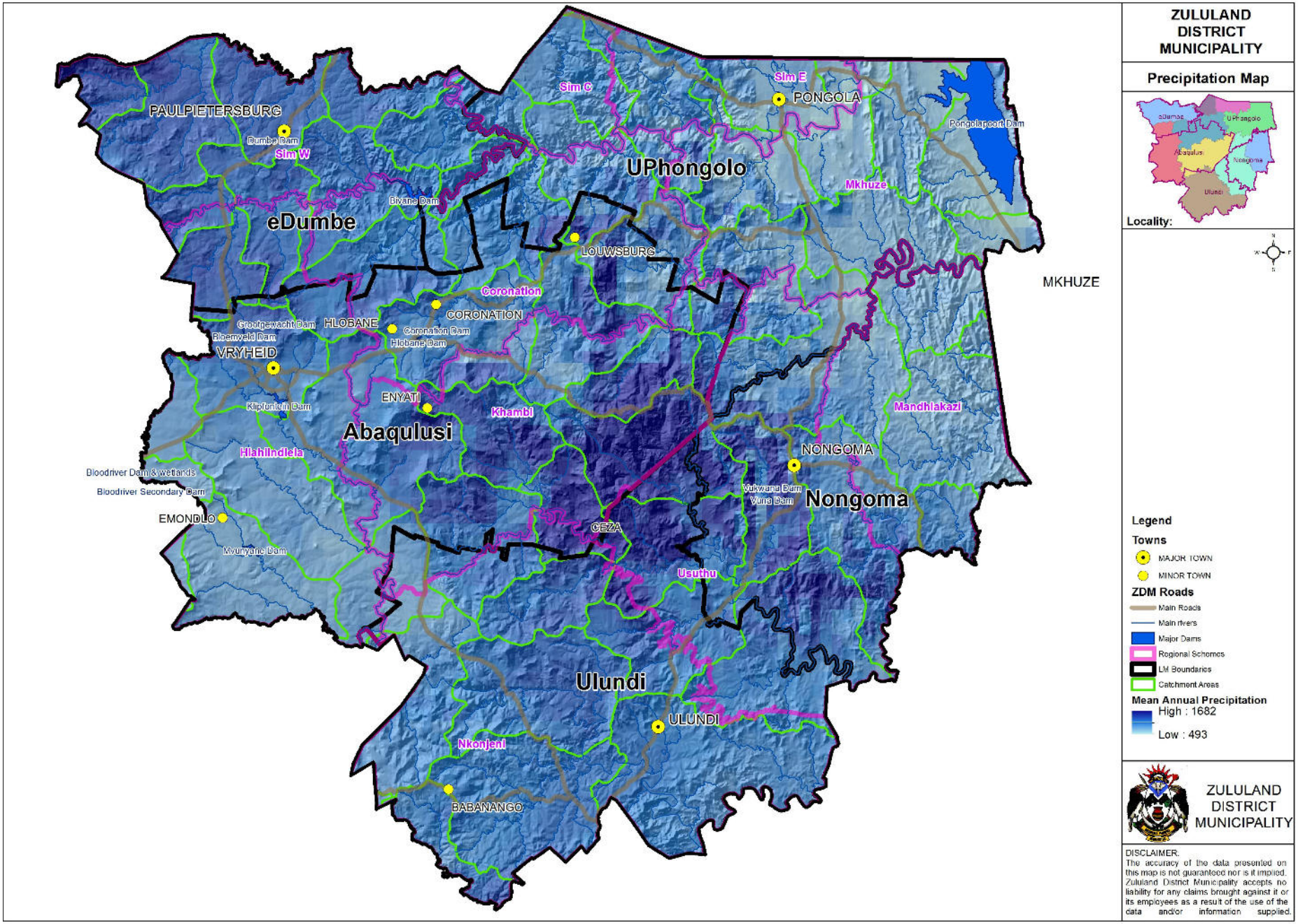


**Figure A 4.3: Precipitation map of Zululand District Municipality.**



# A.5 IDP and WSDP goals

The Integrated Development Plan (IDP) for the ZDM has the following vision and mission statement for the region:

| **IDP vision and mission statement for the municipality** |
|---|
| **Vision**<br>"*We, the people of Zululand are proud communities that are committed to the development of Zululand through hard work, integrity and a common purpose.*"<br><br>**Mission**<br>• **To develop an affluent district by:**<br>  ○ **Optimal delivery of essential services**<br>  ○ **Supporting sustainable local economic development**<br>  ○ **Community participation in service delivery** |

Part of the development objectives for Zululand is facilitating the delivery of basic services that include water services (i.e. water and sanitation provision), strengthening the local economy with particular emphasis on tourism, agriculture and small business sectors, and the sustainable use of land and the natural environment. The importance of the vision and objectives in terms of the WSDP is the development of Zululand through the provision of equitable and sustainable water services leading to an improvement in the quality of life. It therefore follows that planning in respect of water services must increase the current level of service throughout the region with an improvement experienced by all. Planning must therefore be sustainable in terms of water resources, material resources, contractor capacity, management capacity, as well as funding and maintenance cost.

The IDP has a number of key development strategies, namely:

- Delivery and coordination of basic services.
- Social issues of communities.
- Sustainability and environment.
- Economic development.
- Build capacity to lead and manage development in Zululand.

All these development strategies will ultimately link to the need and spatial requirement for water services provision. Spatial development within the ZDM is directly related to the provision and availability of water services, therefore development tends to follow sustainable planning in the WSDP and not force water services provision into areas that are currently not economically viable or sustainable to supply.

The priority issues within the IDP that do not relate directly, but that may impact on water services planning are highlighted as follows:

- **Poverty relief pilot programme**
- **AIDS strategy**
- **Disaster management plan**
- **Land use management framework**
- **Environmental management plan**
- **Local economic development plan**
- **Tourism strategy**
- **Skills development for effective service delivery**

The Water and Sanitation rollout maps can be reviewed under Figure A 5.1 - 5.5, and include the following rollouts:

- Regional Water Supply Schemes
- Intermediate Stand-alone Water Supply Schemes
- Rudimentary Water Supply
- Rural Sanitation
    - New infrastructure
    - Phase 3 Replacement Programme

**Figure A 5.1: Regional Water Supply Schemes**

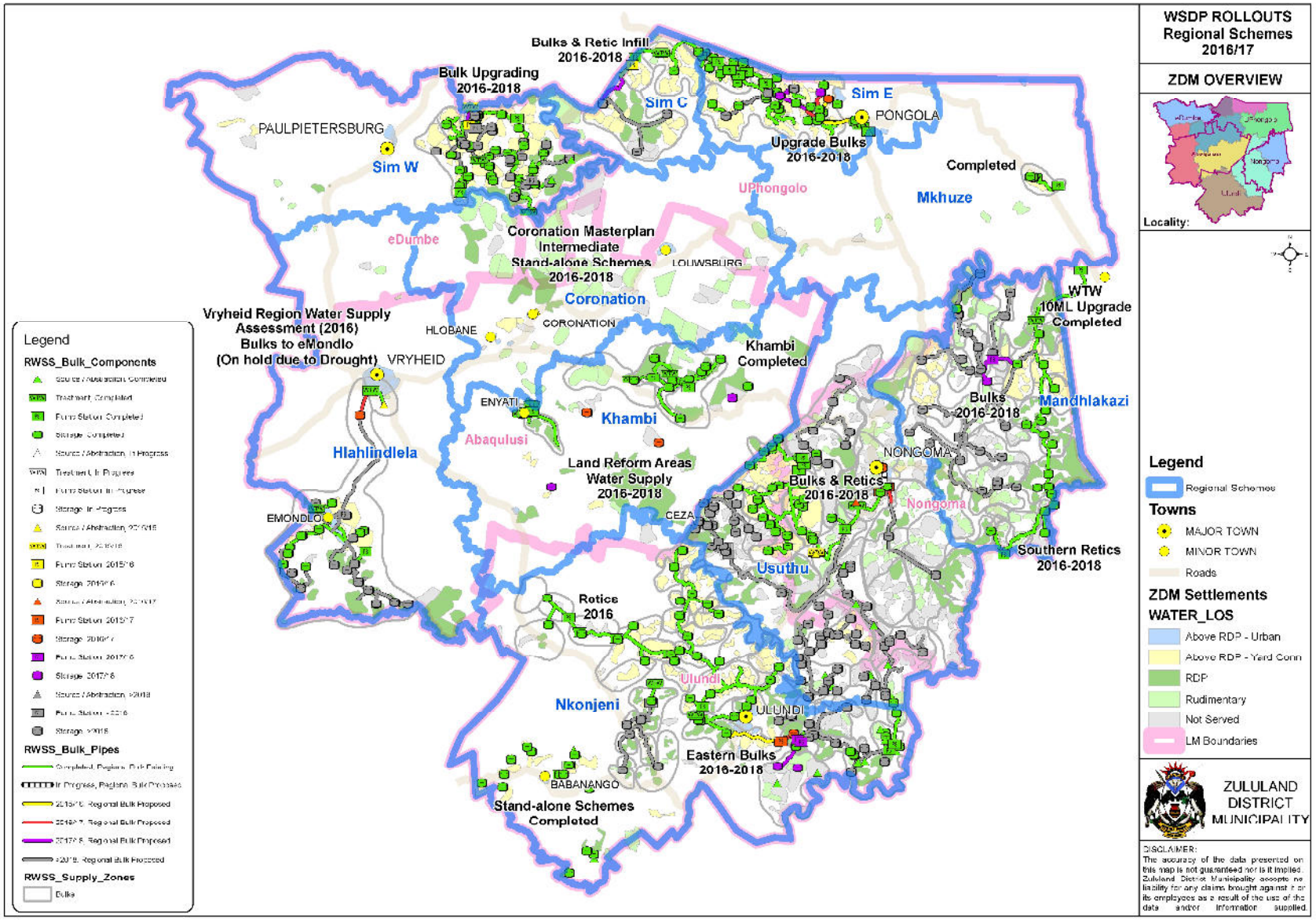


**Figure A 5.2: Intermediate Stand-alone Water Supply Schemes**

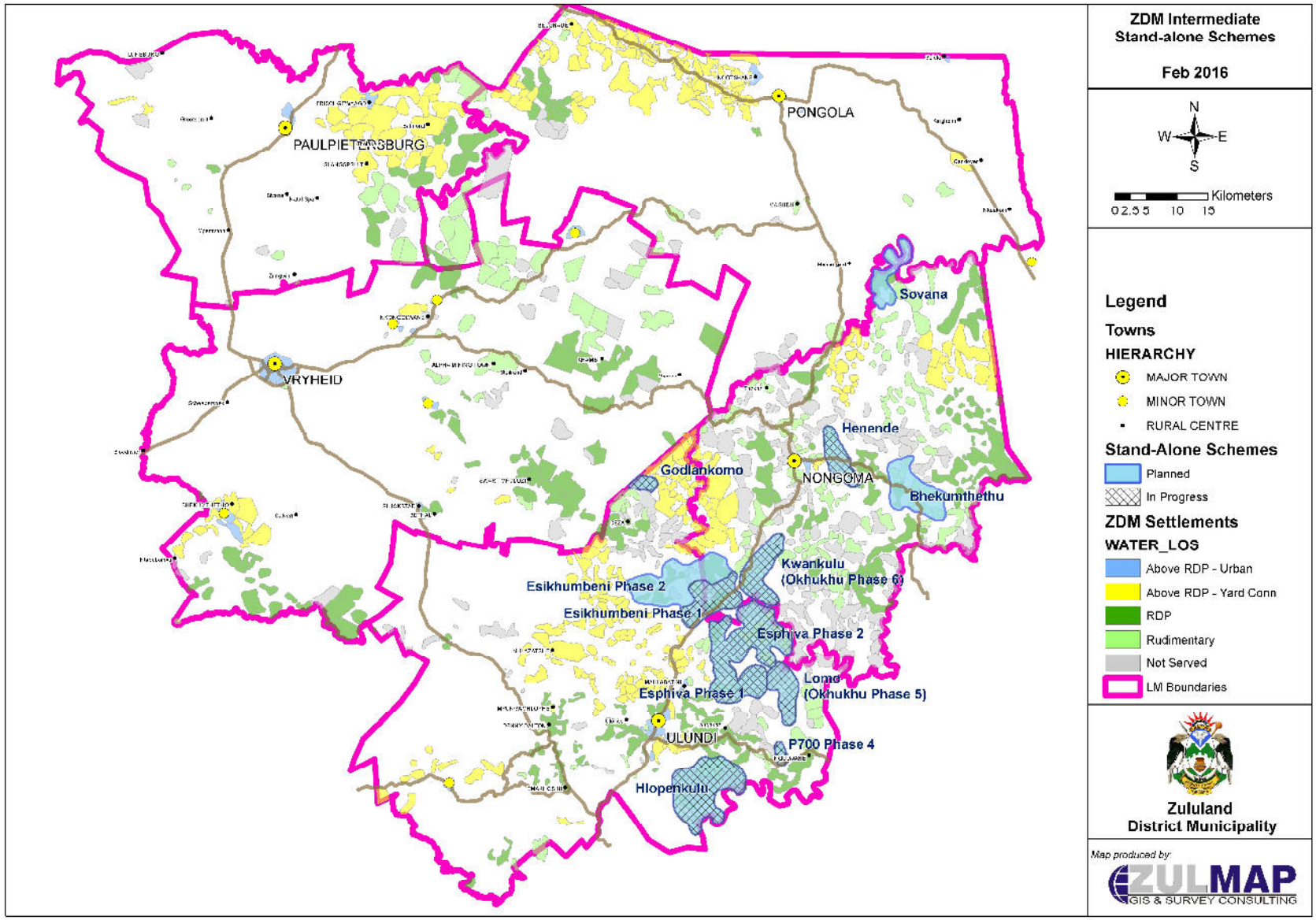


**Figure A 5.3: Rudimentary Water Supply**

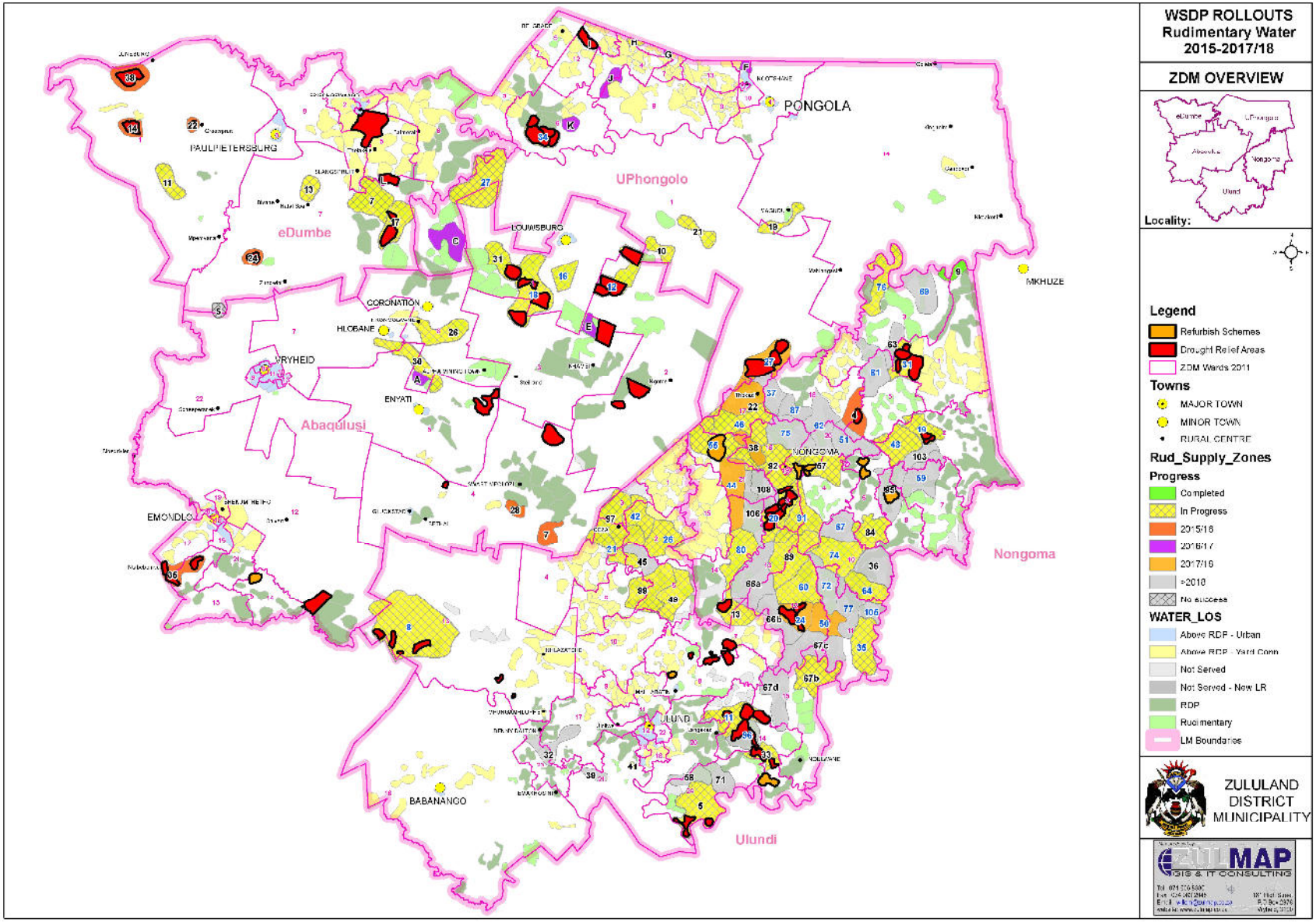


**Figure A 5.4: Rural Sanitation (New infrastructure)**