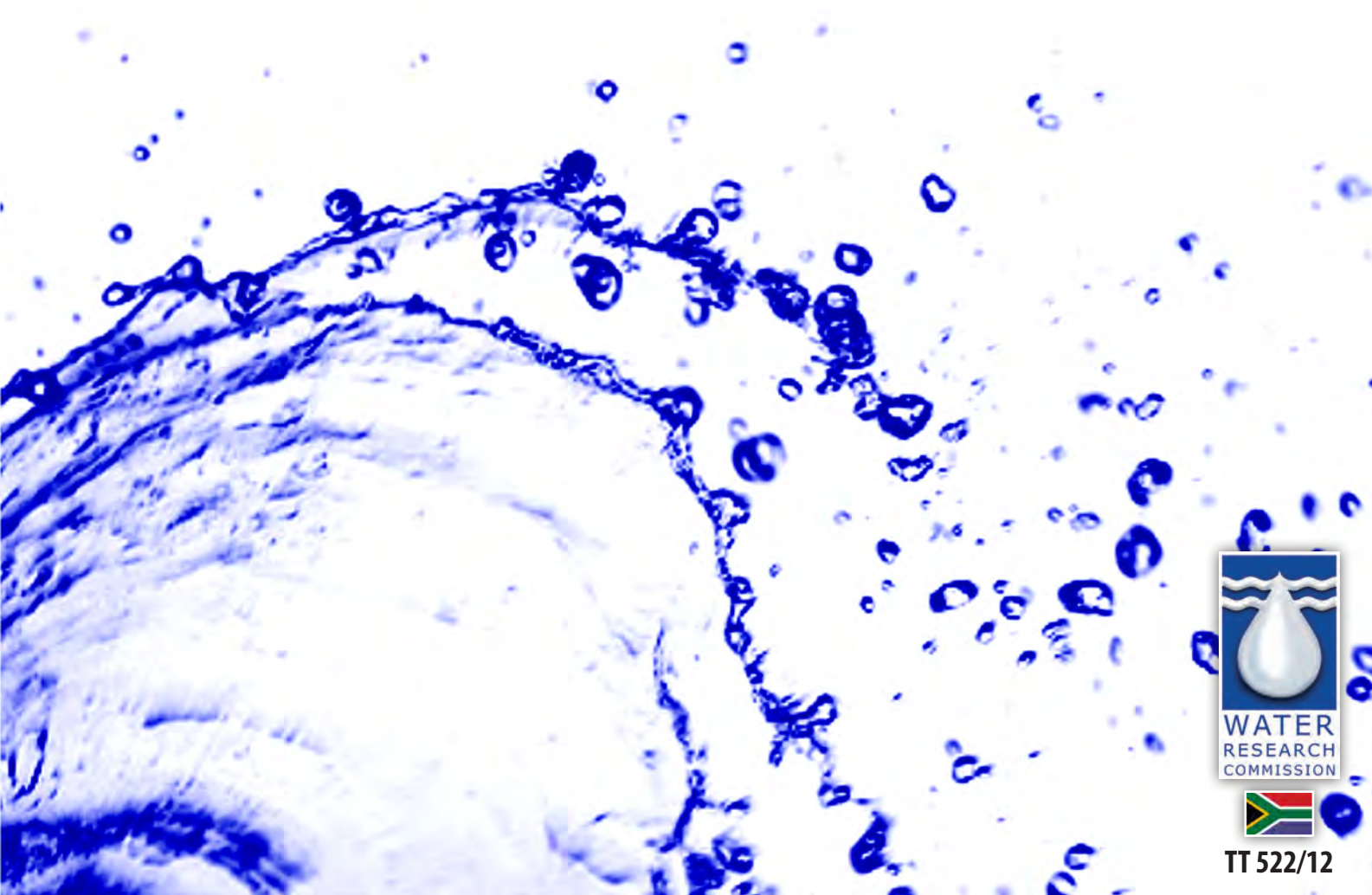


The State of Non-Revenue Water in South Africa (2012)

R Mckenzie, ZN Siquilaba & WA Wegelin



TT 522/12

THE STATE OF NON-REVENUE WATER IN SOUTH AFRICA (2012)

R MCKENZIE, ZN SIQALABA & WA WEGELIN

Report to the
Water Research Commission

by

WRP Consulting Engineers (Pty) Ltd

WRC Report No. TT 522/12

August 2012

Obtainable from

Water Research Commission
Private Bag X03
Gezina, 0031

orders@wrc.org.za or download from www.wrc.org.za

The publication of this report emanates from a project entitled Assessment of Non-Revenue Water in South Africa, (WRC Project No. K5/1996//3)

This report incorporates information gathered through municipal contacts, DWA Ministerial reporting on Non-Revenue Water, the StatsSA Non-Financial Census data as well as the DWA Regulatory Performance Measurement System. The project was funded primarily by the Water Research Commission with additional support from the Department of Water Affairs: Directorates Water Use Efficiency and Water Services. This study was based substantially on the work undertaken in the previous 2007-Assessment of Non-Revenue Water in South Africa (WRC Report TT 300/07), which made significant strides in the benchmarking of water losses in the country.

DISCLAIMER

This report has been reviewed by the Water Research Commission (WRC) and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the WRC, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Every effort has been taken to ensure that the results are accurate and reliable. Neither the Water Research Commission nor the authors shall, however, assume any liability of any kind resulting from the use of the results. Any person making use of the results does so entirely at his/her own risk and should provide the appropriate reference to the WRC.

ISBN 978-1-4312-0263-8

Printed in the Republic of South Africa

© WATER RESEARCH COMMISSION

EXECUTIVE SUMMARY

OVERVIEW

In his 2010 State of the Nation Address, His Excellency JG Zuma, President of the Republic of South Africa, stated

“We are not a water-rich country. Yet we still lose a lot of water through leaking pipes and inadequate infrastructure. We will be putting in place measures to reduce our water loss by half by 2014”.

Although the target for reducing our water losses has been set, there is still no clear indication of what the actual water losses are and how they are split between Physical Leakage (Real Losses) and Commercial Losses (Apparent Losses). The need for monitoring and measurement of water supplied by Water Services Authorities is therefore crucial to gain a better understanding of the nature and extent of the challenges faced by the water sector. The Assessment of Non-Revenue Water in South Africa in conjunction with the Ministerial reporting on Non-Revenue Water were therefore initiated to reinforce the importance of water management as well as developing the knowledge base that will allow for proper planning and informed decision-making.

Data gathered from 132 of the possible 237 municipalities throughout South Africa representing over 75% of the total volume of Municipal water supply show that the current level of Non-Revenue Water estimated for the country as a whole is 36.8%. Of this 25.4% is considered to be losses through physical leakage (real losses).

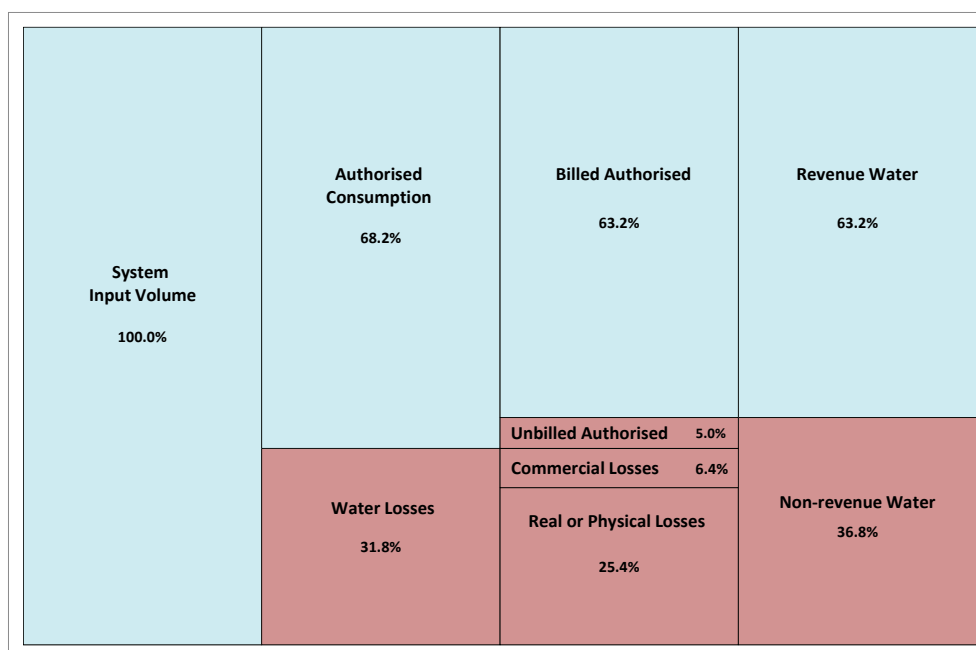


Figure 1: National Water Balance (2009/10)

The Non-Revenue Water figure is similar to the estimated world average of 36.6% but is considered high in comparison to other developed countries and low when compared to other developing countries.

The urban and rural water demand in 2000 was estimated at 3 471 million m³/annum based on the National Water Resource Strategy (DWA, 2004). Applying the national population growth rate plus 1% provides an estimated current urban demand of 4 372 million m³/annum in 2010. Extrapolating the Non-Revenue Water data for the country, provides an estimated urban consumption of 4 292 million m³/annum and a national Non-Revenue Water volume of 1 580 million m³/annum. The extrapolated input volume compares well with the expected urban and rural demand. The results are summarised in **Table 1**.

Table 1: National extrapolated Non-Revenue Water

Category	Population (2010)	Input (mcm/a)	NRW (mcm/a)	RW (mcm/a)	% NRW	l/c/d
A	17 420 512	1 849 091 117	634 192 022	1 214 899 095	34.3%	291
B1	7 756 187	683 667 320	282 585 164	401 082 156	41.3%	241
B2	3 882 070	325 623 095	99 407 207	226 215 889	30.5%	230
Urban Total	29 058 769	2 858 381 532	1 016 184 393	1 842 197 140	35.6%	269
B3	3 845 279	230 642 568	85 229 869	145 412 699	37.0%	164
B4	4 245 736	101 138 956	73 334 514	27 804 442	72.5%	65
Rural Total	8 091 015	331 781 524	158 564 383	173 217 141	47.8%	112
National Total	37 149 784	3 190 163 056	1 174 748 776	2 015 414 281	36.8%	235
Extrapolated	49 988 373	4 292 650 981	1 580 730 012	2 711 920 969	36.8%	235

The national non-revenue water is estimated to be 1 580 million m³/annum which is approximately one-third of the water supplied and almost equal to the total Rand Water supply per annum. Using different production rates, it was possible to estimate the financial value of the Non-Revenue Water as summarised in **Table 2**, from which it can be seen that the estimated value is more than R7 billion annually.

Table 2: Estimated value of Non-Revenue Water per Municipal Category

Municipal Category	Production Rate (R/kl)	Estimated cost to supply water (R million/a)	Estimated value of NRW (R million/a)
A	R5.00	R9 245.46	R3 170.96
B1	R4.50	R3 076.50	R1 271.63
B2	R4.00	R1 302.49	R397.63
Urban Total		R13 624.45	R4 840.22
B3	R3.50	R807.25	R298.30
B4	R3.00	R303.42	R220.00
Rural Total		R1 110.67	R518.30
National Total		R14 735.12	R5 358.52
Extrapolated Total		R19 827.42	R7 210.38

It should be noted that the use of percentages is not recommended by the International Water Association when referring to water losses or leakage levels, since they can often be misleading. The Infrastructure Leakage Index (ILI) is often used as an alternative to percentages when quantifying the real or physical leakage. The ILI indicator is a simple index which typically ranges from 1 in very well managed systems to over 100 in very badly managed systems. The average ILI value for all of the South African Municipalities was estimated to be 6.8 which again is in line with the world average and would be above average (i.e. bad) when compared to most developed countries and well below average (i.e. good) when compared to most developing countries. Effectively, the ILI value of 6.8 tends to support the perception created from the percentage Non-Revenue Water figures for South Africa (36.8%) where there is clearly a high level of wastage or water losses in the country and considerable scope for improvement.

It is clear from the results of this assessment, that water losses in South Africa are currently in line with world norms but have significant scope for savings which is an important consideration in such a water scarce country. Reducing water losses therefore represents an important issue when balancing future water requirements with the available resources.

This study is not the first of its kind, and follows on from the three previous assessments undertaken through the WRC in 2007, 2005 and in 2001. This study is the most comprehensive and detailed study of its type to date and expands on the knowledge acquired previously and through collaborative efforts with the DWA Regional Offices in the data gathering process.

Through the joint efforts of the DWA and WRC, it was possible to capture a larger number of Municipalities and to enhance the reliability of the resulting data. Where possible, the water balance data utilised in the study were obtained for the six years up to financial year ending 2010. This effectively established the most comprehensive non-revenue water data set available to date and the multiple consecutive years of data allow for greater error checking. As a result of the extended database, it was possible to establish more accurate and meaningful extrapolations where required which, in turn, creates a more reliable estimate of the Non-Revenue Water for the country as a whole. In addition, all 237 local municipalities were targeted for the study in contrast to the 60 to 80 data sets initially proposed from which 132 acceptable data sets were obtained. It should be noted, that the 132 data sets used in the analyses represent over 75% of the total municipal water demand for the country with the result that the extrapolation component represents the remaining 25% of the water use.

RESULTS

National water balance

The Non-Revenue Water for municipal water use in South Africa is estimated to be 36.8%. While it is clear that there is significant room for improvement, it is also important to recognise that the South African figure is in line with the World average value of 36.6%.

When considering the figures presented in **Table 1**, the Non-Revenue Water calculation is based on the “Billed Authorised” information as provided by the Financial Departments in each municipality. The issue of payment for the services is not addressed in this assessment and is considered to be a separate, albeit important, issue. Once a bill for water has been issued, it is considered to be part of the “Billed” consumption whether or not payment is ultimately received by

the municipality. This important issue often leads to some confusion over the issue of “Revenue Water” and “Non-Revenue Water”

It is also important to note that in South Africa, the recommendations from the International Water Association have been adopted with regard to the use of the term “Non-Revenue Water” (NRW) in preference to the term “Unaccounted-For-Water” (UFW). The UFW is effectively represented by the “Water Losses” term in **Figure 1**, which at 31.8% is significantly lower than the NRW figure of 36.8%. The UFW-term is open to interpretation and can easily be manipulated during the audit process, which is the main reason that Non-Revenue Water is currently the internationally recognised term.

Levels of payment are very low in some parts of the country and this inadvertently has a major influence on the Non-Revenue Water since there is little incentive to save water when the user has no intention of paying for it. The cost recovery aspect is not part of the Non-Revenue Water calculation either in South Africa or elsewhere in the world and must be addressed through a social and community education programme.

Very limited information exists on the unbilled authorised consumption that was estimated at 5% of the input volume. The apparent or commercial losses were also estimated at 20% of the total water loss but vary considerably between municipalities due to the different ages of the infrastructure and the various meter replacement policies adopted by each municipality. It is estimated that apparent losses could be as high as 80% of the water loss in some municipalities and as low as 5% in others.

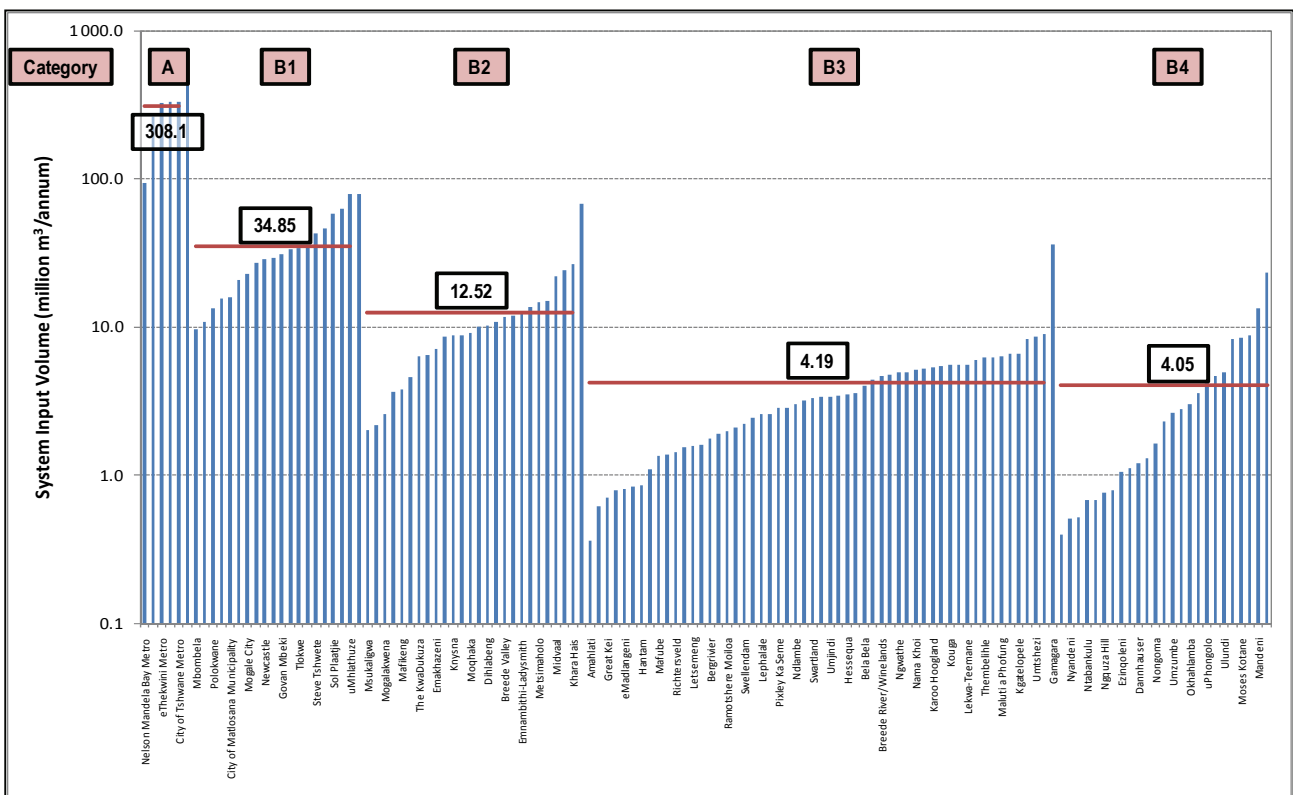


Figure 2: System Input Volume per municipal category (note log scale)

Key Performance Indicators

The percentage Non-Revenue Water per municipal category, based on usable data sets, is shown in **Figure 3**. Also, it should be noted that the national water balance is highly influenced by the metros and municipalities with large cities as shown in **Figure 3**.

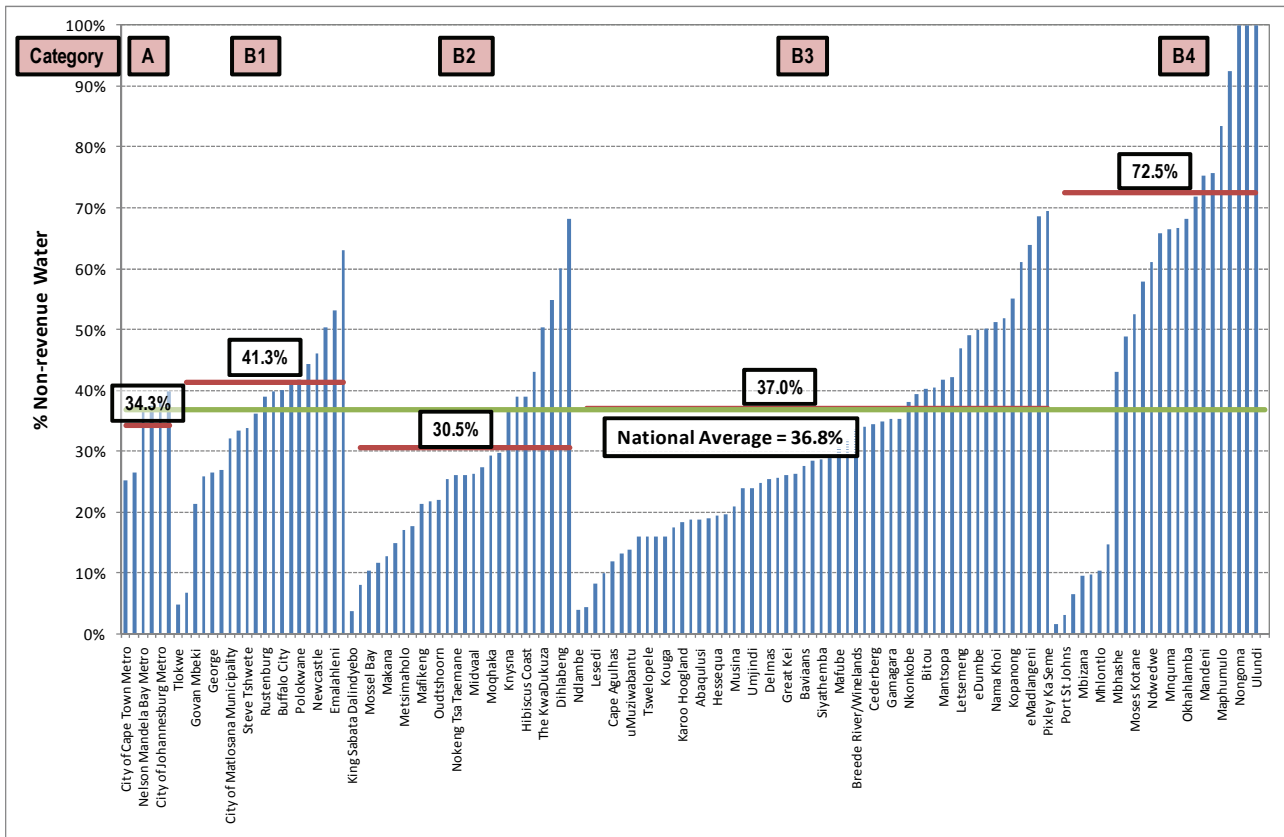


Figure 3: Percentage Non-revenue Water per municipal category

The Non-Revenue Water for municipalities in categories A, B1, B2 and B3 are all within 5% of the national average. Category B1 municipalities are characterised by high population growth, deteriorating infrastructure and lack of capacity and is possibly the reason for the above average Non-Revenue Water. The lower Non-Revenue Water in category B2 could be ascribed to the belief that these towns are easier to manage with the result that the Non-Revenue Water is under control. The data for municipalities in category B3 varies considerable whereas the Non-Revenue Water for Category B4 municipalities is very high due to the level of service and low cost recovery. Fortunately, the volumes of water used in these areas are relatively small with the result that the errors do not have a significant influence on the overall national Non-Revenue Water estimate.

The national Non-Revenue Water figures compare well with international trends as shown in **Figure 4**. The average Non-Revenue Water over the past 5 years for various countries across the world was 36.6%, ranging from over 70% in developing countries such as Albania and Armenia to below 10% in highly developed countries such as Australia and New Zealand.

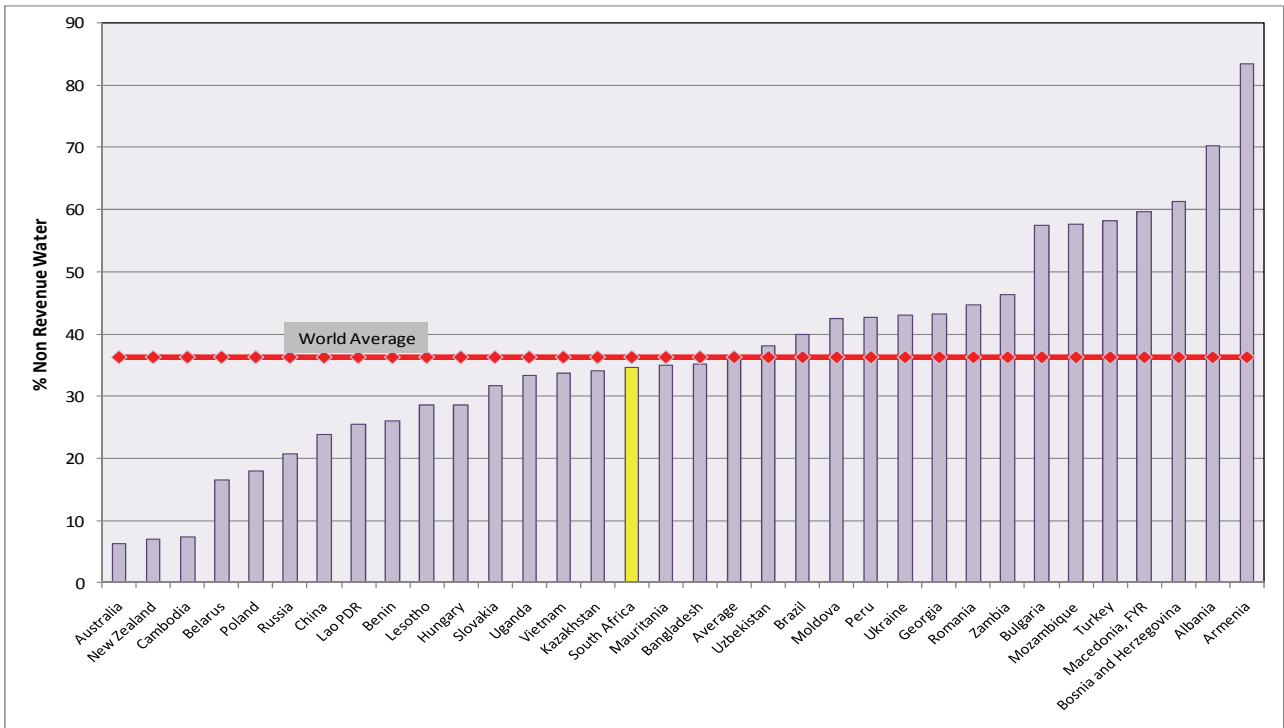


Figure 4 : International % Non-Revenue Water data set

The litres/capita/day per category, based on usable data sets, is shown in **Figure 5**. This figure was based on the total water supplied and the total population served in each Municipality. The water use therefore includes all losses as well as all commercial and industrial use supplied from the municipal system, which can be significant in some areas.

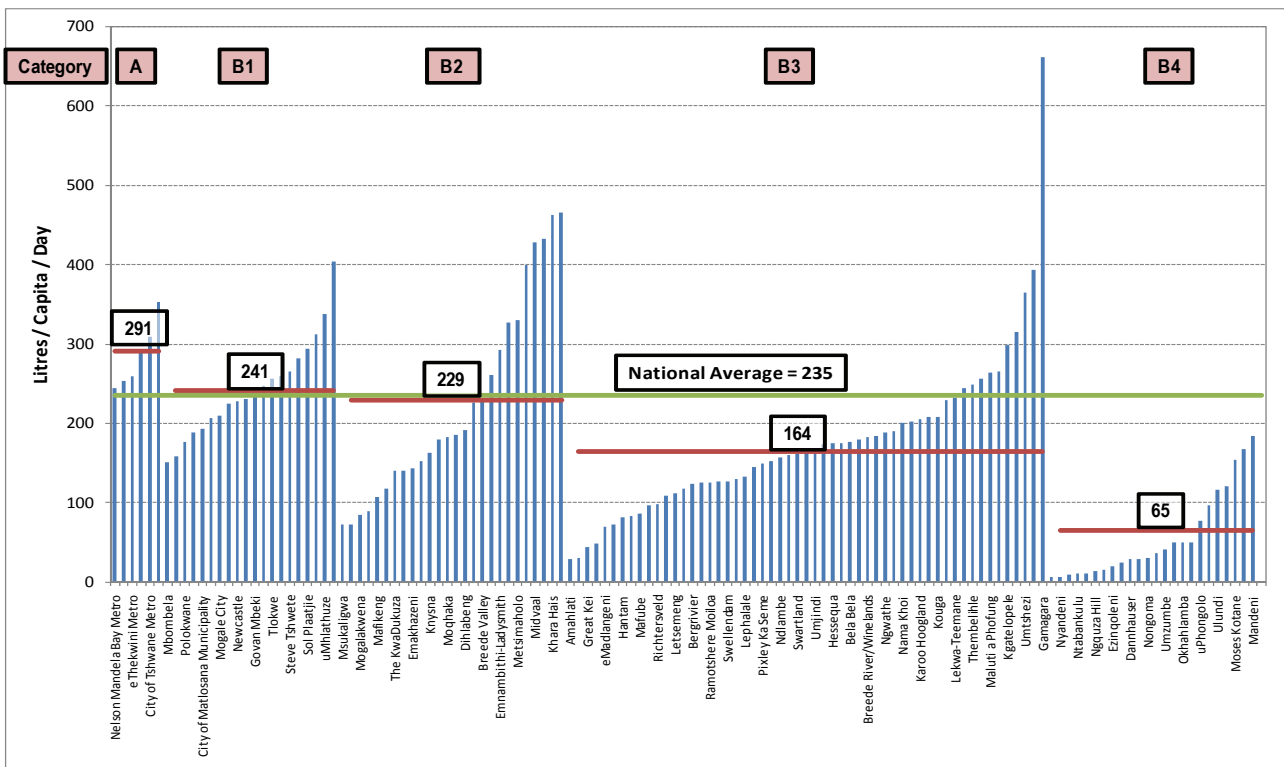


Figure 5: Average litres/capita/day (2005 to 2009)

The average $\ell/c/d$ for the Metros are the highest, but this is to be expected since the total water demand includes the industrial water use and this tends to be relatively high in most Metros which support the highest number of wet industries in the country. Although the datasets for categories B3 and B4 are much smaller, the average per capita consumption seems significantly lower than for the bigger municipalities.

The average per capita consumption for South Africa is high compared to most other countries as shown in **Figure 6**. The international gross average consumption is 173 $\ell/c/d$.

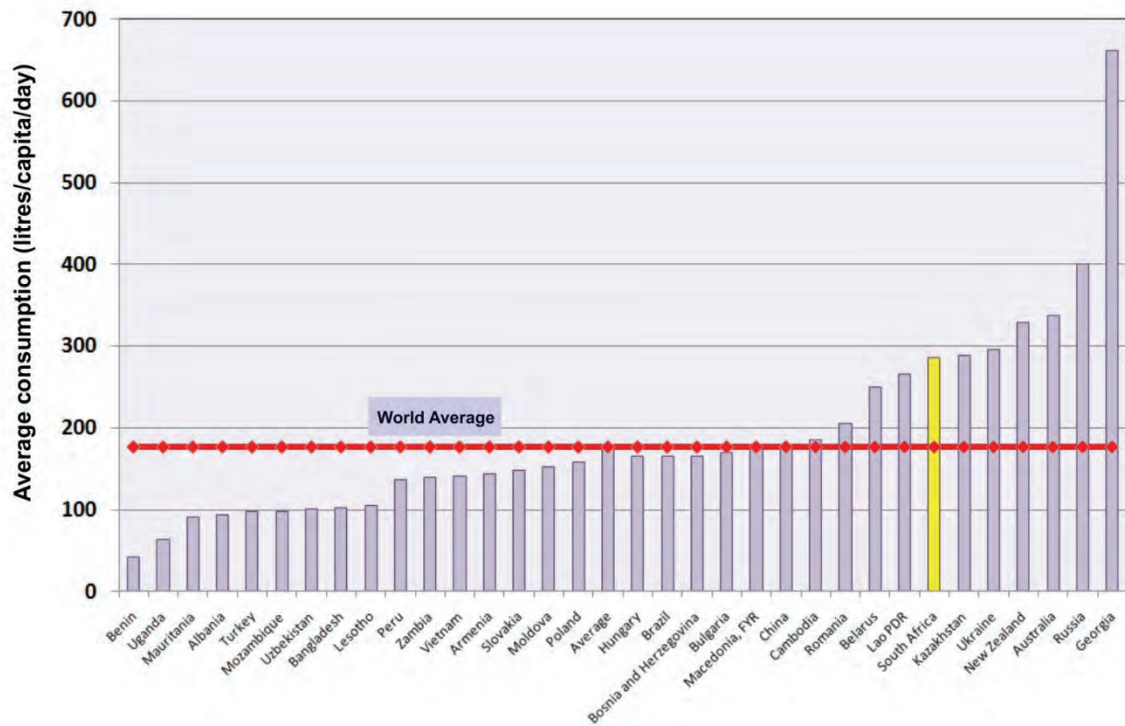


Figure 6: International litres/capita/day

Data Quality

It was found that the quality of the data presented by some municipalities was very poor, especially by the smaller and rural municipalities. In some cases, municipalities have provided the same information for two or three consecutive years indicating that this information is not updated on an annual basis. A further concern is that a significant number of the municipalities could not even provide a system input volume indicating that measurement processes are neither adequate nor effective. It is clear from the observations noted above that Water Demand Management is not taking place, even at a rudimentary level in many areas. In the absence of proper metering and monitoring, appropriate reliable planning cannot be undertaken.

KEY PROBLEM AREAS

- Within municipalities there are often joint responsibilities with the most common issue being the water services division where both Technical and Financial departments have certain responsibilities. This leads to problems especially when trying to formulate the overall water balance for the Municipality and the associated estimate of Non-Revenue Water. The

problem was further compounded by the continual replacement of Councillors, many of who have little experience of Water Services and often do not understand the importance of Water Conservation/Water Demand Management.

- Within DWA there are also joint responsibilities, with insufficient capacity to monitor, regulate, enforce and support the WC/WDM measures throughout the whole country. Additional capacity is required to facilitate an enabling environment, with a clear mandate to “make it happen” within all municipalities.
- Municipalities are continuously in a crisis management mode with limited management information and poor decision-making processes, financial and technical management.
- Lack of human resources at operational level to perform basic functions such as proactive maintenance, leak repairs and community awareness.
- Funding for asset management, operation and maintenance and water loss/Non-Revenue Water reduction was not prioritised whereas most metropolitan and major municipalities agree they can improve WC/WDM by better prioritising their budgets. There are success stories of municipalities that do not have specific WC/WDM budgets but their water distribution systems were well managed and their losses are under control all within the existing O&M budgets.
- Metering, billing and cost recovery, which is a finance function within municipalities, is a major problem area that requires attention. In addition, training of councillors as well as the financial and technical personnel was needed.
- The potential savings that can be achieved through Water Demand Management measures, are often overly optimistic with particular emphasis on the time needed to achieve the savings and the associated costs. Water demand management is rarely a “quick-fix” and should rather be implemented properly through a 5- to 10-year programme after which continuous maintenance for the various interventions is needed. The maintenance issue is rarely included in the original project budget but is essential if the savings achieved are not to be lost within a year or two after project completion.
- The maintenance of the WDM measures should be seen not as a problem but rather as an opportunity to create useful and long-term employment in areas that typically experience very high levels of unemployment.
- Greater input is required from other institutions such as SALGA, CoGTA, DBSA, etc. to assist with resolving issues like political support and high vacancies in certain departments.

Key Interventions required

Water losses in a distribution network are often an indication of the “health” of the water distribution network as most WC/WDM activities were related to the operation and maintenance of the system. In a well-managed system the input volume is known, leaks will be fixed, consumers will be metered and billed, there be limited disruption in the supply and pressures will be within the acceptable range.

The Water Services Act (Act 108 of 1997) and the regulations relating to Compulsory National Standards and Measures to Conserve Water (R509 of 2001) under the Water Services Act of 1997 require Water Services Institutions to perform certain functions to report on and control their water losses. Although the act and regulations are very clear on what is required from Water Services

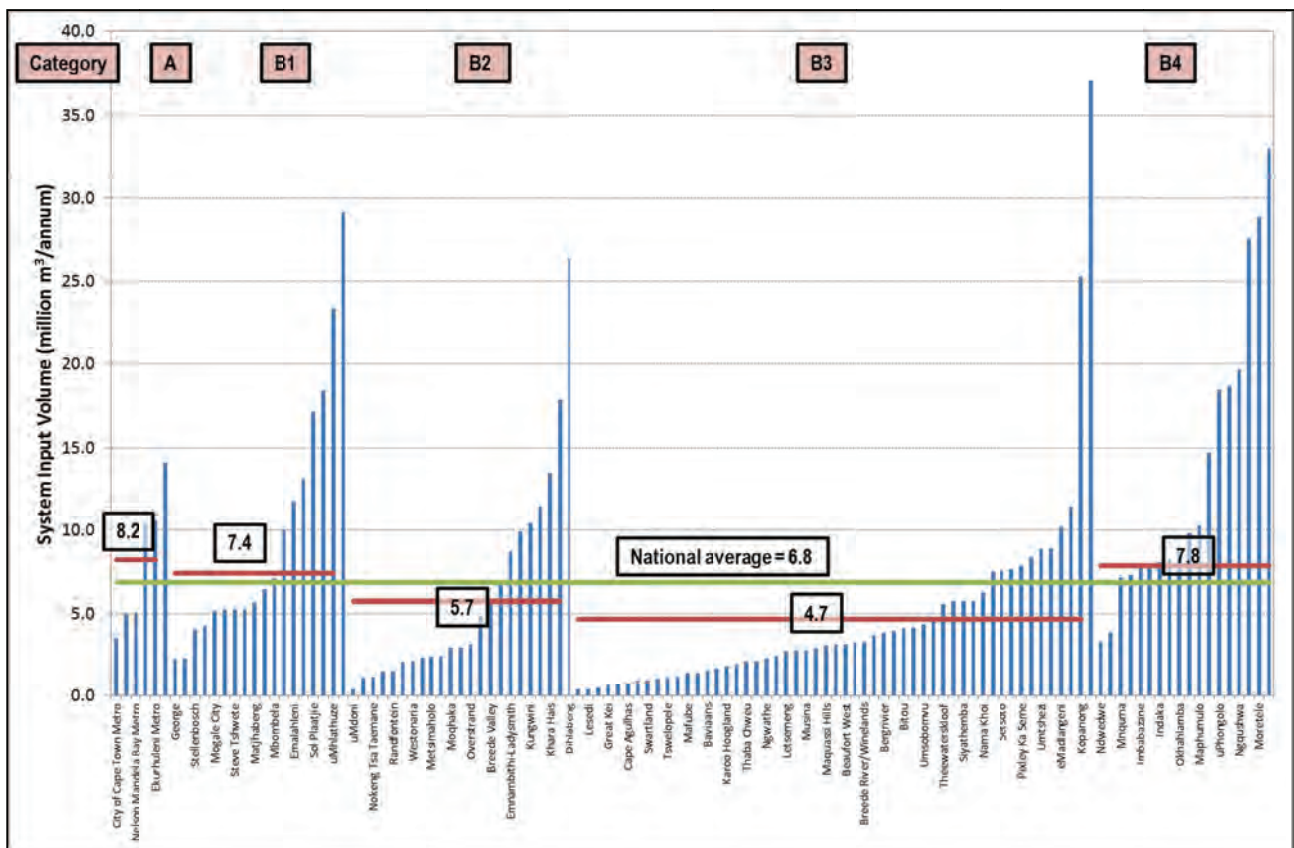
Institutions, these functions are often not performed and is the very core of water losses in most water distribution networks. Enforcing the requirements of the Water Services Regulations, will assist in reducing the water losses in the country and should focus on:

- Resolving intermittent supply and focusing on providing a proper service
- Fixing of internal plumbing leakage by municipalities regardless if services are paid for or not
- Fixing of visible leaks on the distribution network
- Bulk metering and calculations of Non-Revenue Water
- Accurate metering, reading and billing
- Consumer awareness and elimination of inefficient use.

Infrastructure Leakage Index (ILI)

The ILI is a relatively new performance indicator that is used to indicate the level of Real Losses (i.e. Physical leakage) in a water distribution system. The ILI is a non-dimensional indicator and ranges from 1 to over 100. A value of 1 is basically “world’s best practice” and indicates that the level of physical leakage in a system is as low as it can be while a value of 10 would indicate that the physical leakage is 10 times the lowest value. In the case of South Africa, the average ILI value from the various South African municipalities was estimated to be 6.8. This ties in relatively well with the previously mentioned Non-Revenue Water value and again highlights that there is significant room for improvement with regards to reducing leakage from South African systems and at the same time indicates that South Africa is broadly in line with world norms.

Very few municipalities were able to provide details on their length of mains or average operating pressures. The ILI calculations are based on best estimates and available information but will need further refinement.



CONCLUSIONS AND RECOMMENDATIONS

- With each new assessment, more information and base data are available and the levels of extrapolation therefore decrease, with the reliability of the overall assessment improving. The results discussed in this paper are therefore the most comprehensive national non-revenue water database compiled to date.
- It is estimated that the Non-Revenue Water from Municipal water supply systems is approximately 1 580 million m³ per annum representing 36.8% of the total Municipal water supplied (approximately 4 300 million m³/annum). At a nominal production cost of R4.50/m³, this loss represents approximately R7.2 billion per annum.
- Only continuous monitoring, analysis and feedback will improve results. Data must be scrutinised for errors and analysed based on appropriate Key Performance Indicators or KPIs. It was expected that participation would improve once municipalities gain confidence and receive feedback from DWA on their results. Municipalities will wish to compare themselves with other municipalities and this should be promoted as a key motivation for municipalities to participate and support the annual water balance assessments.
- Based on the state and quality of the data obtained from the municipalities, it is evident that a nationwide training programme is required on the basic principles Water Demand Management with specific reference to the development of a meaningful and realistic water balance. The data obtained to date from many municipalities highlight many serious inaccuracies or errors, which may be due to a general lack of understanding of the water balance. With improved knowledge and understanding of the water balance and basic WDM principles, it is anticipated that the quality and usefulness of the data will improve.

- Additional data are required to calculate other key performance indicators. This should include the length of mains, average system pressure, number of connections (meter and unmetered) and domestic and non-domestic water use, etc.
- A major concern is the lack of information from 45% of municipalities. Lack of resources and metering, ignorance, continuous crisis management and apathy are some of the reasons provided for this lack of information. DWA has indicated that it will continue to improve the coverage of the Non-Revenue Water assessment and is targeting 80% of all municipalities in the 2012 assessment.
- Very few municipalities can provide a comprehensive WC/WDM strategy that set targets, intervention programmes and budget requirements. The lack of information from 55% of the municipalities indicates that more than half of the country's municipalities are not even aware they have a problem. As part of the National Water Audit, support should be given to municipalities on the development of WC/WDM strategies, which can then be rolled-up to provincial and national strategies. In this regard, the WRC has just released its WDM Strategy Scorecard Model, which is an ideal tool for assisting water suppliers in developing a simple and pragmatic WDM strategy.
- Various government departments have spent considerable time and money collecting and collating Non-Revenue Water data. These data are of little value if they are not verified, validated and converted into reliable information that can be used for planning purposes.
- Based on various previous studies undertaken for the Department of Water Affairs, it is estimated that a realistic target for Non-Revenue Water of 25% is achievable over a period of 10 years if the required investment of approximately R2 billion per annum is allocated to WDM interventions throughout all Municipalities in South Africa. Although these figures are approximate estimates based on previous interventions and the associated results, they do provide a realistic estimate of the magnitude of investment needed as well as the appropriate period.
- It must be noted that in many Municipalities throughout South Africa, there is a dedicated effort to provide safe potable water to outlying communities that have previously had no access to a formal water supply. There has been a shift in focus in some Municipalities from improving efficiency to the installation of new pipelines and supplies in line with Government policy to improve the level of service to all citizens. Such measures can inadvertently lead to an increase in the levels of Non-Revenue Water when in fact significant improvements are often being made. It is therefore important to take these factors into account when assessing the overall performance of a Municipality and not base the assessment solely on the level of Non-Revenue Water.
- Water Demand Management offers a great opportunity to create sustainable employment opportunities in virtually every Municipality in South Africa. Although the costs of implementing WDM interventions may seem expensive in some cases, the creation of worthwhile employment opportunities should not be overlooked as an associated benefit.
- In many cases, the WDM interventions not only save water but can also create significant energy savings, particularly in systems where water has been pumped at some point in the supply cycle. Water loss savings will also often result in energy savings due to the water treatment process and also the sewage treatment process, both of which can be significant with regard to energy use.

- WDM interventions can often delay expensive infrastructure projects and such savings should always be included in any cost-benefit calculation. If calculated properly, it is often found that WDM interventions are highly cost effective with pay-back periods of less than 12 months.
- Care must be taken when comparing percentage levels of losses or Non-Revenue Water from one year to another. There is a potential problem when using percentages especially in cases where the total legitimate water use declines due to changing behaviour. In such cases, a drop in the legitimate water use due to more efficient water use practices will in fact result in an increase in the percentage Non-Revenue Water that suggests that the situation has deteriorated when in fact it has improved. To overcome this potential problem, it is recommended that two or three water loss indicators are used when expressing water losses rather than simply referring to a single percentage value.
- The percentage level of Non-Revenue Water appears to have risen gradually over the past 10 years from the date of the first assessment. It must be noted, that the number and reliability of the data sets used in the analyses has improved over the years and therefore it is difficult to draw firm conclusions on the percentage level of Non-Revenue Water. The Infrastructure Leakage Index (ILI), which is also used to quantify the level of physical leakage (real losses), has remained relatively constant over the past 10 years at approximately 6.8. The levels of water losses in South Africa therefore suggest that there is significant scope for improvement although the values remain well in line with global norms.
- When comparing the unit water use per capita, South Africa appears to have a relatively high per capita water use, which suggests consumers waste water, and there is significant scope to reduce the unit consumption. It should be noted that, if the consumption is reduced without also reducing the leakage, the percentage Non-Revenue Water will increase; again highlighting one of the problems when using percentages to quantify water losses.

ACKNOWLEDGEMENTS

The authors of this report would like to acknowledge the support from the South African Water Research Commission and the Department of Water Affairs – Directorate Water Use Efficiency and Directorate Water Services for co-funding the project. We also thank all Water Services Authorities who took the time and effort to provide suitable data sets for inclusion in the analyses, the DWA Regional Offices that provided assistance with corresponding and obtaining the data from the Water Services Authorities as well as all those who assisted in the project through their involvement on the Project Steering Committee. The members of the steering committee who assisted with the project are listed below:

Name	Organisation
Mr Trevor Westman	City of Tshwane Metropolitan Municipality
Ms Petunia Ramunenyiwa	Department of Water Affairs – Free State
Ms Lucy Kobe	Department of Water Affairs – Limpopo
Mr Allestair Wensley	Department of Water Affairs – Water Services
Mr Paul Herbst	Department of Water Affairs – Water Use Efficiency
Mr Jeffrey Senoelo	Ekurhuleni Metropolitan Municipality
Mr Simon Scruton	eThekweni Metropolitan Municipality
Prof Johan Nel	North-West University
Mr Mandla Xulu	Rand Water
Mr Mike Rabe	Re-Solve Consulting
Ms Ziyanda Mateta	Rustenburg Municipality
Mr Jay Bhagwan	Water Research Commission

ABBREVIATIONS

DWA	Department of Water Affairs
ILI	Infrastructure Leakage Index
IWA	International Water Association
NRW	Non-Revenue Water
PI	Performance Indicator
RDP	Rural Development Programme
UARL	Unavoidable annual real losses
UFW/UAW	Unaccounted for water
WDM	Water Demand Management
WRC	Water Research Commission
WSA	Water Services Authority
WSDP	Water Services Development Plan
WSP	Water Services Provider

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	III
ACKNOWLEDGEMENTS	XV
ABBREVIATIONS	XVI
1 INTRODUCTION.....	1
1.1 BACKGROUND.....	1
1.2 OBJECTIVES	1
1.3 REPORT LAYOUT	2
2 LITERATURE REVIEW	3
2.1 PREVIOUS NON-REVENUE WATER ASSESSMENTS.....	3
2.1.1 2002 Assessment.....	3
2.1.2 2005 Assessment.....	5
2.1.3 2007 Assessment.....	8
3 TERMINOLOGY	12
3.1 KEY PERFORMANCE INDICATORS	12
3.1.1 % Non-Revenue Water	14
3.1.2 Litres/capita/day	14
3.1.3 Infrastructure Leakage Index	15
3.1.4 The ILI as an Intervention Indicator.....	17
3.1.5 The Water Balance	19
3.2 CHALLENGING SCENARIOS	21
3.2.1 Free Basic Services	21
3.2.3 Unregistered Housing developments and Informal Settlements	22
3.2.4 Billing of Internal Departments	23
3.3 PERTINENT QUESTIONS.....	23
4 METHODOLOGY.....	25
4.1 SUMMARY OF DATA SOURCES.....	25
4.2 COLLECTION OF WATER BALANCE INFORMATION.....	26
4.3 WATER AUDITS.....	28
5 RESULTS	29
5.1 SYSTEM INPUT VOLUME	29
5.2 LITRES PER CAPITA PER DAY.....	31
5.3 PERCENTAGE NON-REVENUE WATER	33
5.4 MUNICIPAL SCORECARD FOR ASSESSING THE POTENTIAL FOR WC/WDM IN MUNICIPALITIES	37

5.5	EXTRAPOLATION OF NON-REVENUE WATER FOR SOUTH AFRICA.....	41
6	CONCLUSIONS AND RECOMMENDATIONS.....	44
6.1	UNDERSTANDING OF NON-REVENUE WATER TERMINOLOGY	45
6.2	INTER-DEPARTMENTAL COOPERATION.....	45
6.3	AWARENESS OF THE IMPORTANCE OF WC/WDM	45
6.4	BILLING AND METERING	45
6.5	ANNUAL INCENTIVE-BASED PERFORMANCE MONITORING	46
6.6	INFRASTRUCTURE ASSET MAINTENANCE	46
7	USEFUL REFERENCES	47

Appendices

Appendix A: Definitions of Terms

Appendix B: Non-Revenue Water Balance Sheets

Appendix C: WC/WDM Score Card

1 INTRODUCTION

1.1 BACKGROUND

In his 2010 State of the Nation Address, His Excellency JG Zuma, President of the Republic of South Africa, stated

“We are not a water rich country. Yet we still lose a lot of water through leaking pipes and inadequate infrastructure. We will be putting in place measures to reduce our water loss by half by 2014”.

Although the target for reducing our water losses has been set, there is still no clear indication of what the actual water losses are and how they are split between Physical Leakage (Real Losses) and Commercial Losses (Apparent Losses). Understanding the split between physical and commercial losses is important since different interventions are required when addressing the two forms of water loss. The need for monitoring and measurement of water supplied by Water Services Authorities is therefore crucial to gain a better understanding of the nature and extent of the challenges faced by the water sector. The Assessment of Non-Revenue Water in South Africa in conjunction with the Ministerial reporting on Non-Revenue Water was therefore initiated to reinforce the importance of water management as well as developing the knowledge base that will allow for proper planning and informed decision making.

It must be noted that this study is not the first of its kind, and follows on from the three previous assessments undertaken through the WRC in 2007 (Seago and Mckenzie), in 2005 (Mckenzie and Seago) and in 2002 (Mckenzie and Lambert). This latest study is the most comprehensive and detailed study of its type to date and expands on the knowledge acquired previously and through collaborative efforts with the DWA Regional Offices in the data gathering process. Data have been gathered from 132 Local Municipalities with representation from all nine provinces across South Africa, which has assisted in providing a more balanced perspective in terms of the extent of water losses in the country. This study further utilises both quantitative information in the form of the water balance provided by the municipalities as well as qualitative information in the form of the Municipal WC/WDM self-assessment scorecard (Mckenzie, 2010). The Scorecard has proved to be an invaluable tool for drawing a meaningful assessment of the state of water losses within the local municipalities and the causes thereof.

1.2 OBJECTIVES

The key objectives of the project were originally defined as follows:

- To undertake annual water audits for the 2007/2008 municipal water year (1 July to 30 June), of full 2008 (1 Jan to 31 December) for between 60 and 80 water supply areas;
- To check the audits for consistency and potential errors before finalising the audits;
- To calculate various performance indicators including non-revenue water;
- To extrapolate the available information to provide an indication of non-revenue water for the whole of South Africa, and
- To disseminate information on the level of Non-Revenue Water in all major centres throughout South Africa.

The study deviated slightly from the original objectives in order to capture a larger number of Municipalities and to enhance the reliability of the resulting data. Where possible, the water balance data utilised in the study were obtained for six years up to financial year ending 2010. This effectively established the most comprehensive Non-Revenue Water data set available to date and the multiple consecutive years of data allow for greater error checking. As a result of the extended database, it was possible to establish more accurate and meaningful extrapolations where required which in turn creates a more reliable estimate of the Non-Revenue Water for the country as a whole. In addition, all 237 local municipalities were targeted for the study in contrast to the 60 to 80 data sets initially proposed from which 132 acceptable data sets were obtained.

Training to the Municipalities on the development and use of the standard IWA Water Balance was provided with additional support from the Masibambane Phase III WDM Support programme undertaken by DWA in parallel with this project. Two complete sets of workshops were held with local authorities in each of the nine regions, which covered all issues related to the development of the water balance in accordance with the IWA methodology as well as the use of appropriate Key Performance Indicators (KPIs) and the associated reporting. These workshops stemmed from the need identified by National Government to capacitate municipalities with particular emphasis on the implementation of water conservation and water demand management. The workshops were also aimed at raising awareness and facilitating the understanding of the importance of WDM in municipalities throughout the country. This need was adequately demonstrated in the poor quality of the data received from a significant number of municipalities. It is envisaged that the quality of the information will continue to improve in future and that regular workshops will help to facilitate the process.

1.3 REPORT LAYOUT

This report is structured in the following manner. The following section contains a literature review, which details the latest trends and challenges in terminology and application of the NRW balance methodology based on discussions with Local Municipalities and the workshops presented as part of this study. This is followed by details of the assessment and a discussion of the results and findings from the study. Finally, the conclusions and recommendations are presented to provide a strategic perspective on the way forward in terms of NRW reporting and WC/WDM implementation in municipalities.

2 LITERATURE REVIEW

2.1 PREVIOUS NON-REVENUE WATER ASSESSMENTS

Various previous assessments of Non-Revenue Water (NRW) have been undertaken in South Africa since the standard International Water Association (IWA) methodology was introduced in the late 1990s. The following three assessments provide the background to the latest assessment, which is documented in this report.

- 2002 – Development of a simple and pragmatic approach to benchmark real losses in potable water distribution systems in South Africa. WRC Report TT 159/01 by Mckenzie and Lambert.
- 2005 – Benchmarking of Leakage from Water Reticulation Systems in South Africa. WRC Report TT 244/05 by Mckenzie and Seago
- 2007 – Non-Revenue Water in South Africa. WRC Report TT 300/07 by Seago and Mckenzie.

These three assessments each provided updated and more reliable information on Municipal Water use than the previous estimates, and in each case, the available data base was expanded to include additional Municipalities which had not previously provided any useful information.

2.1.1 2002 Assessment

The 2002 assessment was fully described in the BENCHLEAK User Guide (**Development of a simple and pragmatic approach to benchmark real losses in potable water distribution systems in South Africa. WRC Report TT 159/01 by Mckenzie and Lambert**) which was the first time that the IWA Water Balance Methodology had been presented officially to South African Municipalities through official WRC software.

The BENCHLEAK software was provided together with a detailed manual to explain the concepts and use of the IWA Water Balance methodology. The BENCHLEAK Model was provided as a simple Excel spreadsheet, which was to be the first of many such models developed and used throughout the world. The document included the recommendations of International Water Association Task Force, on 'best practice' approaches to the water balance methodology as well as an overview of the most appropriate terminology, calculation process and performance indicators traditionally used for calculating Water Losses in South African public water supply systems.

One of the key recommendations made in the report was the adoption of certain standard terminology, which had been agreed by WDM specialists from around the globe. For example, it was recommended that the terms 'Non-Revenue Water' and 'Water Losses' should be used in preference to the familiar (but often vague) term 'Unaccounted-for-Water' – since, with modern techniques, it is now possible to account for virtually all water entering a water distribution system. The use of percentages to express real losses was identified as a potential problem issue as it is now also recognised internationally as being potentially misleading when used as a measure of the efficiency of managing real losses (leakage and overflows) from distribution systems with different levels of consumption. It was recommended that, where possible, the alternative performance

indicator namely the Infrastructure Leakage Index (ILI) should be used when quantifying Physical Leakage.

The BENCHLEAK software was fully described in the report and included definitions for all the components of the standard Water Balance. It also calculates the 'Unavoidable' real losses for any system, taking into account just three key parameters: Length of Mains, Number of Service Connections and Average Operating Pressure, assuming that customer meters are located close to the street/property boundary. The Unavoidable Annual Real Losses are then used in the calculation of an Infrastructure Leakage Index (ILI) as described by Lambert (1999).

It was anticipated that all main Water Supply organisations in South Africa, and their consultants and regulators will use the BENCHLEAK software (or similar) for calculating and comparing their performance in managing Water Losses in the standard IWA format. It was anticipated that all Water Supply organisations would eventually be able to undertake an annual water-balance calculation on a 'whole system' basis. In this manner, the information gathered by the Water Research Commission from the water suppliers on an annual basis could be captured using the standard IWA terminology and would then be directly comparable both within South Africa and also with many other organisations worldwide.

As part of this assessment, water balance calculations were completed for 34 water suppliers throughout South Africa, which covered a wide range of Municipalities from the largest in the country to many of the smaller towns. For each, a full water balance calculation was completed and various key indicators were calculated, full details of which are provided in the report. All data sets were presented anonymously in order to avoid the assessment being perceived in a negative light by those willing to provide information. Some of the key findings were:

- The average operating pressure in the 34 South African water supply systems was estimated to be 47 m with the highest at approximately 75 m and lowest at approximately 30 m. These values are well in line with international norms for developed economies.
- The average Density of Connections was calculated to be 49 connections per km of mains, which is in line with international norms for developed economies.
- The Physical Leakage was estimated to be in the order of 16% of the system input and this figure was accompanied by a strong warning that percentages can be very misleading.
- The Physical Leakage in terms of litres per connection per day was estimated to be 388, which is typical for many systems worldwide.
- The Non-Revenue water as a percentage of the system input was estimated to be 23% and again the use of percentages was flagged as potentially misleading. It was also noted that this estimate was most likely to err on the low side for the country as a whole since only those Municipalities that were actually monitoring their water balance had been included in the survey.
- The average ILI for the 34 data sets was estimated to be 6, which in world terms is neither very poor nor very good. It is a typical value that would be expected in a developed country and significantly lower than one would expect in a developing country.

It was noted that the information provided by many of the water suppliers was potentially unreliable and that the figures presented should be used with caution since many of the normal checks and balances could not be completed properly due to lack of detail. However, it was recommended that the methodology be adopted for use throughout South Africa and that a more rigorous

assessment be undertaken in order to derive more reliable estimates of the water losses throughout South Africa.

2.1.2 2005 Assessment

In 2005, the initial assessment undertaken for the Water Research Commission was repeated in order to verify or correct the information used in the previous assessment and to derive a more robust estimate of water losses in South African Municipalities. The assessment is fully documented in the 2005 reports entitled “**Benchmarking of Leakage from Water Reticulation Systems in South Africa. WRC Report TT 244/05 by Mckenzie and Seago**”

In the 2005 assessment data from approximately 60 water suppliers were obtained and after careful screening the sample data set was reduced to 30 suppliers. For each supplier, various performance indicators were evaluated which are presented in the report. For the purpose of leakage evaluation, it was agreed that the most reliable and meaningful indicator is the Infrastructure Leakage Index (ILI) which is presented in **Figure 7** for 27 of the water utilities considered in the analyses and provides an indication of how effectively a utility is managing real losses under the current operating pressure regime.

A clearly defined water balance is the first essential step in the assessment of volumes of Non-Revenue Water and the management of water losses in potable water distribution systems. The standard IWA water balance provides a breakdown of the water that enters a particular system into various components and in so doing allows the system manager/operator to establish the quantities of water is being used or lost.

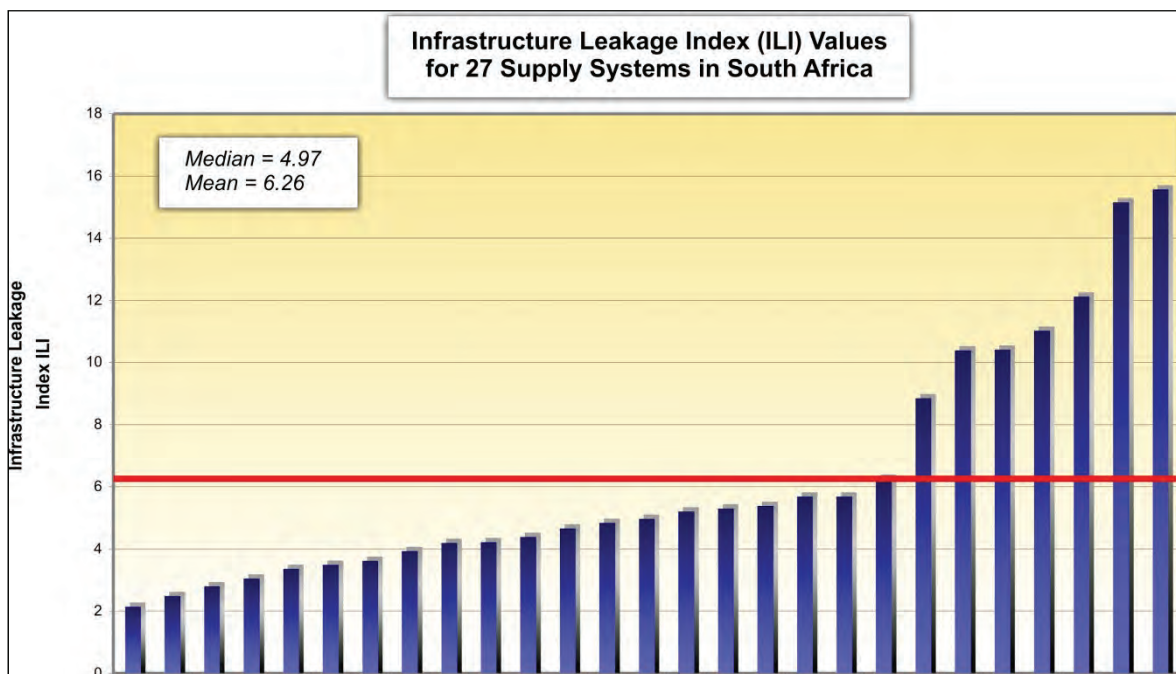


Figure 7: ILI Results for 27 systems in South Africa

From **Figure 7** it can be seen that the ILI values for the South African data range from 2.0 to approximately 15.5 with an average value in the order of 6.0. An ILI value of 2 to 3 would generally

be considered very efficient for South African water utilities. In the case of the system with an ILI of 6, as mentioned above it would not be economically viable to try and target an ILI of below 3.

The data set shown in **Figure 7** was compared to several other international data sets compiled by various WDM specialists from around the world and some results from the UK, North America and Australia are provided in **Figure 8**, **Figure 9**, and **Figure 10** for comparison purposes.

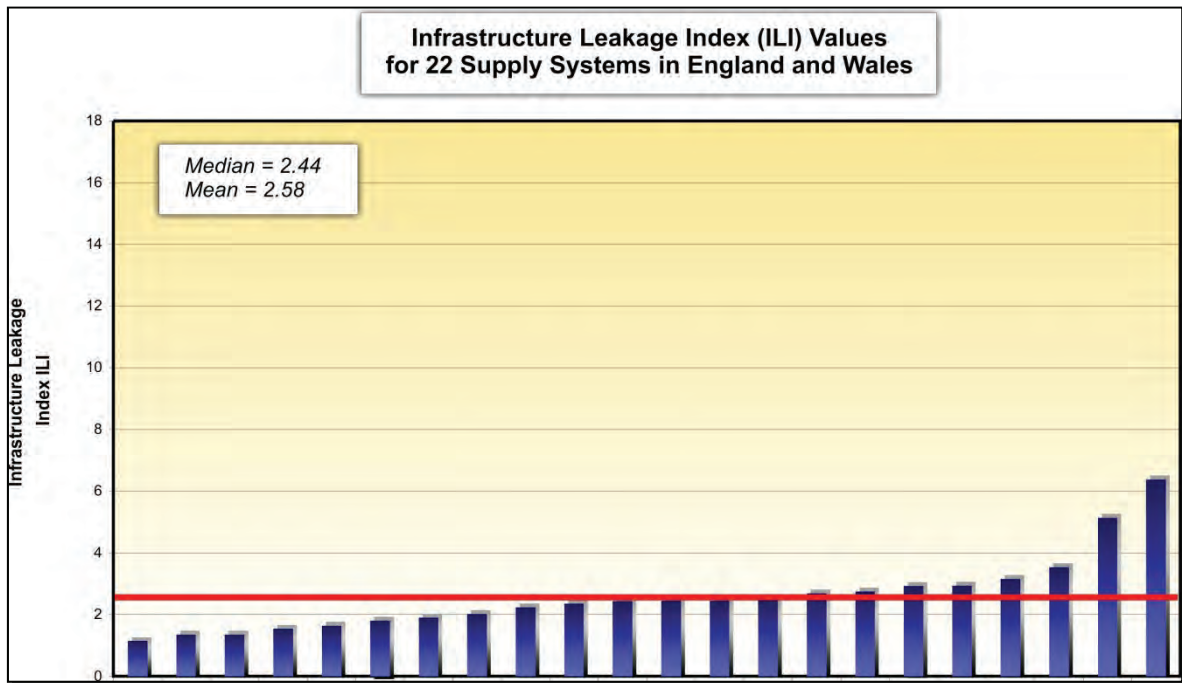


Figure 8: ILI results for 20 system in England and Wales

(Source: Paper by David Howarth, Environment Agency, February 2004)

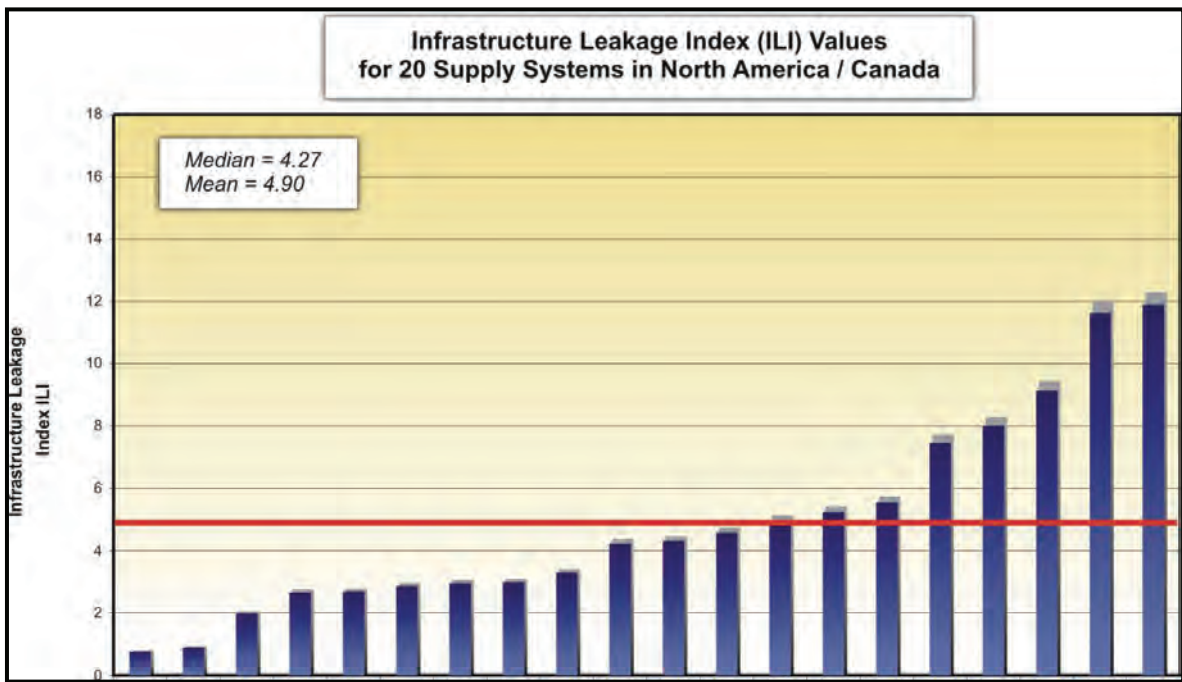


Figure 9: ILI results for 20 systems from the USA and Canada

(Source: Russell Titus, Allan Lambert and Ken Brothers based on various data sources)

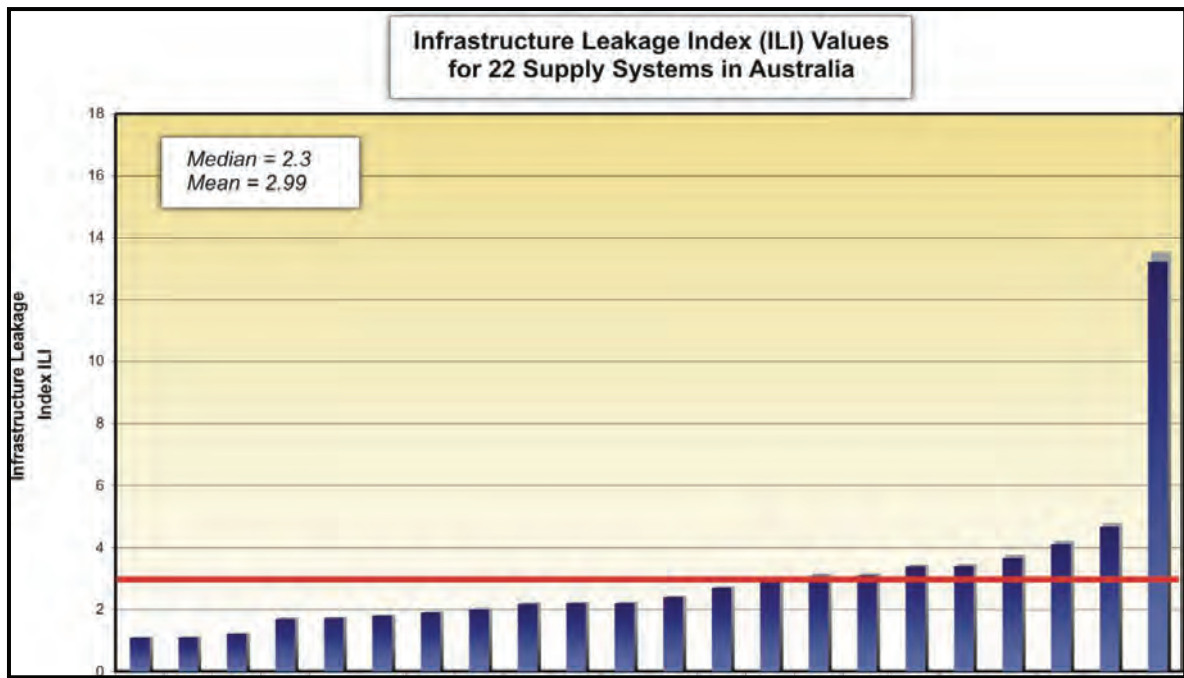


Figure 10: ILI results for 20 systems in Australia

(Source: Paper by Tim Waldron, Wide Bay Water, March 2004)

From the 2005 assessment it was concluded that:

- The South African water supply industry was generally lagging best international practices with respect to leakage management in potable water distribution systems. It was only during 1996 that the Water Research Commission (WRC) identified the need to control the level of unaccounted-for water in South Africa with the result that the development of a standard methodology or terminology for the calculation of water losses was only initiated in the late 1990s.
- The information required to calculate the various performance indicators was often not available from the water suppliers, despite the fact that the information was very basic. It was noted that it was also often very difficult to get the water utilities to fill out the data request forms as they were either too busy or are unwilling to assist.
- It was noted that while the benchmarking procedure was initially developed for complete water distribution systems, the same approach could easily be used for individual management zones within a single supply system if there are more than 2 000 connections and the zone is relatively homogeneous. In this manner it was suggested that the approach could also be used to identify problem management zones within a larger water supply system as well as to compare one system with another.
- It was noted that water supply systems in South Africa were often poorly metered with regard to both bulk and consumer metering.
- With regard to the ILI it was noted that for South African conditions, it would be unusual to achieve an ILI value of below 2.0 and values in the order of 5.0 were common and represented systems in a reasonable condition.

- Based on the results from the final data set documented in the report, it was concluded that an average ILI value of 5.5 was appropriate for South African systems with more than 50 000 connections, 7.8 for systems with between 10 000 and 50 000 service connections and 5.0 for systems with less than 10 000 connections. It was, however, noted that there was no clear correlation between the size of the system and the ILI value.

Based on the conclusions from the report, it was recommended that:

- The importance of leakage management should gain greater exposure and emphasis from water services institutions in South Africa such as the Water Research Commission and the Department of Water Affairs.
- Water services authorities and providers should be made aware of the existence of the leakage-benchmarking methodology in order to create an environment of cooperation when water services institutions embark on further case studies.
- The performance indicators used to benchmark different water suppliers should be chosen carefully in order to make benchmarking across different categories of service providers or demarcation areas meaningful.
- The BENCHLEAK benchmarking model should be compiled into a full database for the South African water supply industry to facilitate collection and collation of data for an on-going annual national benchmarking exercise.

It was further concluded that most of the larger South African water supply systems were in relatively good condition, however, very few of the utilities had sufficient funds to carry out the normally accepted levels of maintenance and renewal. While the ILI values for the South African water utilities were lower than for most other developing countries they were also higher than in the more developed countries. An average ILI value in the order of 6 suggested that there was significant scope for improvement, particularly in a country that has very limited water resources. It was concluded that if the water supply systems were not maintained properly due to lack of resources and funds, they would quickly deteriorate and the ILIs will steadily increase to levels experienced in many other developing countries.

2.1.3 2007 Assessment

In 2007, the 3rd assessment of water losses in Municipal reticulation systems was undertaken for the country. In this instance, one of the key objectives was to try to expand the useful data sets to cover as much of the country as possible and thereafter extrapolate the results to provide an indication of the overall water losses from Municipal reticulation systems for the whole of South Africa.

The 2007 assessment is fully described in the report titled “ **Non-Revenue Water in South Africa. WRC Report TT 300/07 by Seago and Mckenzie** ”, and the key findings and recommendations from the study are provided below.

This project was the first project in which the water balance methodology was used to estimate the magnitude of non-revenue water from reticulation systems throughout the whole of South Africa.

All previous assessments concentrated on establishing a small number of reliable water balances for different Municipalities throughout South Africa to ensure that the Standard IWA Water Balance methodology could be used in South Africa. While many problems were still experienced with the reliability of many data sets, there were sufficient reliable data sets to provide a reasonable estimate of water losses nationally which formed the basis on which future assessments could be made.

Despite the numerous problems associated with the gathering of data from the various water utilities, the study was able to obtain information from 62 of the largest water reticulation systems throughout South Africa. From the analyses of the water balances for each of the water reticulation systems, the following conclusions were drawn:

- The average bulk system input volume per property served for the 19 low to medium income areas analysed as part of the study was approximately 37 kl per property per month. This can be compared to an expected value of approximately 12 kl per property per month, which is considered to be a realistic value for monthly water use per property in such areas where wastage is under control through proper metering and billing procedures.
- The average monthly water use per property in the medium- to high-income areas was estimated to be in the order of 46 kl per property per month.
- It is clear that the relative magnitudes of the different components of the water balance vary significantly between the low- to medium-income areas and the medium- to high-income areas. In the low- to medium-income areas, the greatest problem issue concerns the unbilled authorised consumption which is generally due to the underestimation of water use in areas where tariffs are based on a “deemed consumption” or assumed meter readings.
- In the middle- and high-income areas, the greatest source of water loss is often through physical leakage rather than unauthorised use or unbilled use.

Based on the IWA Water Loss Taskforce workshop held in Australia in February 2005, the following recommendations were made in the report:

- **The use of percentages as an indicator for real losses should be discouraged** although it is accepted that percentages will continue to be used by many Water Utility Managers who are not prepared to discard percentages completely from their list of PIs. It is therefore important when using percentages to highlight the potential pitfalls and to ensure that other PIs are also used. It was therefore recommended that if percentages are used, they should not be used in isolation and must be accompanied by at least one other PI – preferably the losses in litres/connection/day and/or the ILI.
- It was agreed that the ILI is a very useful and powerful indicator, which should be used in place of percentages if possible.
- In addition to the ILI, the following performance indicator for real losses should be used:

litres/connection/day

- This indicator will be suitable for most systems where the density of connections is greater than 20 connections per km mains. In cases where the density of connections drops below 20 per km of mains, it is often appropriate to rather use the following indicator:

m³/km mains/day

- The average operating pressure should be used as a performance indicator since many systems are apparently achieving very low levels of leakage but are being operated at very high pressures, which are often not necessary.
- Finally, the Infrastructure Leakage Index (ILI) is a useful performance indicator for real losses and can often be used to benchmark the real losses from one system against another.

Infrastructure Leakage Index ILI = CARL/UARL

Based on the results obtained from the 62 water reticulation systems, the following conclusions were drawn:

- The density of connections for the South African systems ranged from a maximum of approximately **135 connections/km mains to 18 connections/km mains**. The expected density of connections for a typical system in a developed country is in the order of 50 connections per km mains.
- The average operating pressure for the South African systems ranged from a **minimum of 24 m to 64 m**. It should be noted that this represents the weighted average pressure for the whole reticulation system and pockets of very high or very low pressure may still exist in various systems. These pressures are typical of most normal systems in the world.
- **The average ILI was found to be 7.6** (1.0 being very good and greater than 10 being very poor). Excluding one or two small outlier systems, the ILI ranged from approximately 2 (very good) to more than 20 (very poor). The average ILI value places South Africa in the middle of the world data set and indicates that the real losses in the country are high with significant scope for improvement but lower than most other developing countries. This value is higher than previous estimates due to the larger data set used in the assessment.

This information showed that these water reticulation systems have an average ILI of 7.6. It should be noted, however, that the ILI alone is not a clear indicator of how a water reticulation system is performing regarding the various components of non-revenue water.

Overall Water Balance for South Africa

One of the aims of the study was to use the results obtained from the largest Water reticulation systems in order to carry out an overall assessment of non-revenue water throughout South Africa. Unfortunately the information available from the various water reticulation systems in the country was either not available or of dubious quality in many cases with the result that **any conclusions made regarding the level of Non-Revenue Water for the country as a whole were provided as a preliminary estimate to be revised in future as more reliable data became available.**

In order to make any estimate of the Non-Revenue Water occurring from water reticulation systems throughout South Africa, it was necessary to establish the total water used by the domestic sector. The National Water Resources Strategy of DWAF, stated that South Africa's total urban and rural water requirement for 2000 was 3 471 million m³/annum. When this value was extrapolated using an assumed growth of 3%, it suggested a total municipal water use in 2005 of approximately 4 000 million m³/annum. This estimate was used as the basis for the extrapolation from the 62 water reticulation systems since these results were also based on the 2005 water audits. The total bulk system input volume figure obtained for the 62 systems analysed was 2160 million m³/annum, which represented approximately 54% of the total urban/rural water requirement of the country. This figure was then used to extrapolate the water loss estimate and to derive an estimate of the likely Non-Revenue Water and total water losses for the whole country.

Based on these figures the following assumptions and extrapolations were made:

- The total water losses (physical and commercial) for the 62 systems analysed was estimated to be 670 million m³/annum or 31% of the total water supplied. The Non-Revenue Water is effectively the sum of the total water losses and the estimated un-billed consumption. Estimating the un-billed consumption was difficult in many areas due to a lack of reliable information, however, it was estimated in the cases where proper data were available and subsequently extrapolated to cover the whole country. The un-billed consumption was conservatively estimated to be approximately 104 million m³/annum, which in turn provides **an estimate of 774 million m³/annum for the Non-Revenue Water – approximately 36% of the water supplied.**
- Based on the above figures, the extrapolated total losses from water reticulation systems for the whole of South Africa were estimated to be in the order of 1 150 million m³/annum (extrapolated from the 54% sample size). The total Non-Revenue Water for the whole country was estimated to be 1 430 million m³/annum (extrapolated from the 54% sample size). It should be noted that the free basic water allocation is not included as data were not available. The fact that the majority of water utilities in South Africa are unable to provide such basic data was highlighted as a reflection on the poor state of management of many utilities. To address this problem, it was recommended in the report that the various government departments took action to enforce an annual water audit for all utilities and that such audits were fully supported by the appropriate politicians

3 TERMINOLOGY

One of the key recommendations from the previous WRC study (Seago and Mckenzie, 2007) was to discourage use of the term “Unaccounted for Water” and rather promote the use of the term “Non-Revenue Water” as proposed by the IWA Water Losses Specialist Group. This recommendation was based on the fact that “UAW” is open to distortion and manipulation and therefore not appropriate for defining water losses in water distribution systems. In addition, it was also recommended that the use of percentages to define the water losses should be discouraged since percentage losses are significantly influenced by the overall consumption. Increasing the total consumption, for example, will effectively cause a reduction in the percentage losses despite the reality that the losses may not have changed. Percentages are therefore not recommended for use as a Key Performance Indicator although it is accepted that they will continue to be used by many individuals and organisations. Accepting the reality that percentages are unlikely to be eliminated from everyday use, it was recommended that whenever used, they should be accompanied by several other Key Performance Indicators and that a warning on the possible problems of using percentages to express water losses should always be given.

For the purposes of this study, it is also necessary to clarify a number of issues related to the meaning of certain pertinent terms in use before the commencement of more detailed discussion. Billed consumption is considered to be consumption for which a bill is issued by the municipality. The actual receipt of income for the bill is considered as a separate, albeit important, issue and is not addressed as part of the water balance assessment. Revenue water refers to the volume of water for which revenue should be received, and can be “Billed Metered” as well as Billed Unmetered” water. In other words, the volume of water for which the municipality sends out a bill to a consumer, which must pay for the water or the volume of water distributed. The issue of payment of the bill is not addressed under the Water Balance as this is considered to be a cost recovery issue and not a technical water balance issue. Any free basic water is considered to be “Revenue Water” which has been billed at a zero rate. The Free Basic Water is therefore not considered to be “Non-Revenue Water” despite the fact that it technically generates no revenue.

3.1 KEY PERFORMANCE INDICATORS

Considerable debate has taken place over many years to develop the most appropriate Key Performance Indicators for water utilities throughout the world. Unfortunately, the various committee decisions have sometimes resulted in rigid and often impractical recommendations that tend to be ignored by the politicians and many of the water utility managers. For example, it was originally recommended that percentages must not be used under any circumstances when referring to water losses and specifically physical leakage. Instead, the Infrastructure Leakage Index (ILI) was highlighted as the preferred Key Performance Indicator to be used when referring to physical leakage levels in a system. While such recommendations are valid and based on many years of experience, they tend to be overlooked by the politicians who typically revert to what they know best and what they believe the general public will understand. The problem is therefore to find a Key Performance Indicator that is both reliable and acceptable to the politicians and public alike.

After many years of often heated debate, there is still no consensus on which Key Performance Indicators should be used and the recommendations given below are based on the views of the authors of this report in association with those of the Chairperson of the IWA Water Losses Specialist Group (Mr Tim Waldron from Australia). In summary, there is no single Key Performance Indicator that provides the best indication of water losses for use by politicians, the general public and technical water loss specialists. It is therefore recommended that several indicators should be used together when expressing water losses and that where appropriate a “health warning” should be provided. The recommendations are therefore as follows:

- Percentages will remain in use when expressing water losses despite the fact that they can often be very misleading. For this reason, they should always be used with caution and accompanied by one or more alternative Key Performance Indicators as well as a warning of the potential problems.
- Water losses expressed in litres/connection/day is always a useful Key Performance Indicator and one of the most widely accepted worldwide. It can be used with or without the Pressure Term adjustment (i.e. litres/conn/day/meter of pressure) and is generally the indicator of choice for urban reticulation systems where the density of connections is more than 20 connections per km of main.
- $\text{m}^3/\text{km main/day}$ is often the preferred indicator in rural systems or systems in which the density of connections is relatively low and below 20 conn/km main. This indicator can also be used with or without the pressure adjustment (i.e. $\text{m}^3/\text{km main/day/meter pressure}$).
- The Infrastructure Leakage Index (ILI) is often the preferred indicator by the more technical water loss managers and specialists to define physical water losses (real losses and not apparent or total losses) since it tends to be more robust and unlike percentages is not influenced by changes to the water consumption. It does, however, have its own critics because it will change if the system pressure is altered. It has, however, been widely accepted in many parts of the world since it was first introduced by Allan Lambert (Lambert et al., 1999). South Africa was one of the first countries outside of the UK to embrace the ILI (see Benchleak User Guide, Mckenzie & Lambert, 2002).

The IWA has developed various water loss Key Performance Indicators to evaluate and compare different distribution systems. Calculating KPIs depends on the availability of information, which is not always obtainable.

Based on the availability of information, the following KPIs have been used in this report:

3.1.1 % Non-Revenue Water

Although the use of percentages to define water losses is not recommended by the IWA, the term is widely accepted and used in the South African water industry. For this reason it has been retained although it should be used with caution in the knowledge that it can sometimes be misleading. The percentage NRW is calculated as follows:

$$\% NRW = \frac{\text{System Input volume} - (\text{Billed consumption} + \text{free basic water})}{\text{System Input volume}} \times 100\% NRW$$

Legend	Description
< 15%	Low level of NRW, very good performance
15-30%	Low level of NRW, good performance
30-40%	Average level of NRW, average performance
40-50%	High level of NRW, poor performance
> 50%	Very high level of NRW, Very poor performance
No data	No data provided by the municipality
Dubious data	Data inconsistent, incomplete or seems incorrect

3.1.2 Litres/capita/day

This indicator provides an indication of the gross volume of water used per capita (person) per day. Although the calculation is based on the total system input volume and not just the domestic component, it does provide a useful indicator. Care should be taken in areas where there is a large non-domestic component of water use and if necessary, it should be excluded from the calculation in order to derive a more realistic per capita consumption.

$$l/c/d = \frac{\text{System Input volume} \times 1000 \div 365}{\text{Population}}$$

Legend	Description
<100 l/c/d	Very low average consumption indicating very low level of service or incorrect data
100-200 l/c/d	Low average consumption indicating low level of service or incorrect data or efficient usage
200-300 l/c/d	Average consumption indicating adequate level of service and efficient usage
300-400 l/c/d	High average consumption indicating high level of service, incorrect data and inefficient usage
> 400 l/c/d	Very high average consumption indicating very high level of service, incorrect data or very inefficient usage

For the purposes of this study, the litres per capita per day (l/c/d) was considered to be a useful indicator, as it provides insight into the water use patterns in a particular system. Whilst also not perfect, it is useful in establishing whether certain water conservation measures or projected

savings can be justified or achieved within a particular area or municipal system. For example, Umzumbe Municipality in KwaZulu-Natal has a current NRW figure of 75.8%, however, the average consumption is only 42 l/c/d. This clearly indicates that there is in fact relatively little scope for reducing the water consumption despite what appears to be a very high level of NRW.

3.1.3 Infrastructure Leakage Index

Based on many previous studies, the Infrastructure Leakage Index (ILI) is widely accepted to be the most robust indicator of physical leakage and various bands have been defined over the past 15 years for both developed and developing countries. While most specialists agree that the ILI is a useful indicator for assessing physical leakage, some water loss specialists in the South African municipal sector are of the opinion that the ILI can also be misleading. Once again, it is clear that no single Performance Indicator is beyond reproach and it remains necessary to include several indicators whenever assessing and/or comparing water losses in different reticulation systems.

The IWA methodology of determining and comparing leakage in water distribution systems is now generally accepted as world's best practice. There has, however, been healthy debate regarding the use of various performance indicators and this is expected to continue for many years to come. South Africa has been one of the leading proponents of the use of the Infrastructure Leakage Index (ILI) (Lambert et al., 1999) as the main indicator for comparing levels of leakage amongst Water Utilities for the last ten years. In this regard, South African specialists have worked together with some of the leading specialists in the world to promote the use of a standard methodology to the complex issue of leakage assessment.

The ILI is sometimes criticised for being too simplistic and not incorporating some of the key factors that can influence leakage from a water distribution system. The main points of discussion include:

- ILI values of less than 1.0 should not occur since this implies that the actual leakage is less than the theoretical minimum level of leakage.
- The Unavoidable Annual Real Loss (UARL) equation is too simplistic as it is based only on the length of mains, number of service connections, length of underground pipe from the mains to the point of metering and the average system pressure.
- The use of the ILI in cases where a Water Utility operates under either abnormally high or unusually low pressures.
- The use of the ILI for systems with less than 2000 connections.
- Updating of the original parameters used to calculate the ILI as more reliable information becomes available.

While all of the above points are clearly valid concerns and can be debated at length, the ILI has proved to be extremely useful in South Africa even in many instances where it has been used outside the normally acceptable limitations. In such cases, it must obviously be used with caution and the results should be considered as indicative rather than totally rigorous. Some of the key issues addressed in the South African context are discussed below:

Bulk Storage: In response to the issue of over-simplification, it should be noted that bulk storage is often a major source of leakage in many South African systems and has to be included in the overall water balance. The system input volume for many water supply systems in South Africa is measured before the bulk storage reservoirs and towers. For this reason, utilities are requested to provide their operational capacity of all bulk storage that occurs after the bulk system input meter. A volume is then assigned to the losses through bulk storage depending on how the utilities rate the condition of their bulk storage. In this manner, the losses from the storage facilities are included in the water balance and form part of the real loss calculation. It is important to include only bulk storage in the water balance if the system input volume is measured before the bulk storage.

Systems with less than 2 000 Connections: There has been considerable debate recently (Lambert, 2005) regarding the minimum size of zones that should be evaluated with the ILI calculation. In South Africa, many smaller systems have been included in cases where the areas are completely homogeneous and are fully residential in nature. While the results from such areas are not included in the international data set, they are nonetheless often found to be very useful. Smaller zones are often considered in South Africa and the ILIs derived in the usual manner can often help to identify key problem areas within a larger zone. A typical example of such an analysis is provided in **Table 1** for a small Water Utility serving three relatively small towns.

Table 1: Input data for Emthanjeni Municipality, South Africa

Variable	Description	Units	Britstown	Hanover	De Aar
Lm	Length of mains	km	20	15	114
Ns	Number of service connections	no.	979	919	5485
D	Density of service connections	conns/km	49	62	48
P	Average operating pressure	m	20	38	30
T	% time system is pressurised	%	100	100	100
	Population served by the system	no.	4024	2695	26027
UARL	Unavoidable annual real losses	m ³ /yr	8345	13 942	70 518
	Unavoidable annual real losses	litres/conn/day	23.4	41.5	35.2
INP	Total system input volume	m ³ /yr	220 552	171 404	1 839 785
CON	Total authorised consumption	m ³ /yr	123 369	137 104	1 465 865
AWL	Annual Water Losses	m ³ /yr	97 183	34 300	373 920
%AL	% apparent losses	%	20	20	20
AL	Apparent losses	m ³ /yr	19 437	6 860	74 784
ARL	Annual real losses	m ³ /yr	77 746	27 440	299 136
	Consumption	litres/conn/day	345	409	732
ILI	Infrastructure Leakage Index		9.32	1.97	4.2

When the Water Utility was analysed as one combined area, the ILI value obtained was 4.5. This would most likely have been considered acceptable in the South African context where the average levels of leakage tend to be very high and anything lower than 5.0 tends to be ignored in preference of the areas with higher leakage. In this case, however, (as shown in the Table 1), Britstown had an ILI of 9.3 which suggests unusually high leakage levels. While this figure is

potentially unreliable to some extent since the area has less than 2 000 connections, it proved most useful in directing the project team to a key problem area. On closer inspection it was found that Britstown had a serious billing problem due to a large number of new properties that had been added into the system but were not being billed properly. The issue was eventually addressed and the ILI decreased significantly.

Acceptable Pressure Range: Various specialists have recently questioned the applicability of the ILI in areas with abnormally high pressures or unusually low pressures. The discussion has resulted in a proposed adjustment (Lambert, 2005) to the ILI calculation to incorporate a variable designed to adjust the ILI value in circumstances where the average system pressure is outside the normally accepted range (approximately 30 m to 90 m). While this proposed adjustment can help to manipulate the ILI for systems with unusual pressure conditions, the existing approach has proved most useful in a variety of systems (mainly in Asia) where very low pressures and intermittent supply are experienced. Once again, the ILI values obtained may not be totally reliable and are open to criticism in some respects. In such cases, the ILI values obtained tend to be extremely large (often over 50) and as such are not suitable for general benchmarking with other data sets from around the world. However, the ILI is still considered a useful indicator in its current form for identifying the areas with the highest leakage.

3.1.4 The ILI as an Intervention Indicator

While it was recognized that several performance indicators are required when assessing water losses from a supply system, various us new recommendations were proposed involving the use of the ILI as a key indicator for excessive leakage in a system. The first set of values was suggested by Tim Waldron from Wide Bay Water in association with Allan Lambert with specific reference to the Australian water industry which boasts some of the lowest leakage levels in the world. The proposed guidelines are provided in **Figure 11**.

Proposed Minimum Leakage Activities Based on ILI Classification		ILI<1.5	1.5<ILI<2.0	2.0<ILI<2.5	2.5<ILI<3.0	3.0<ILI<3.5	ILI>3.5
Management Action		Excellent	Good	Reasonable	Fair	Poor	Unacceptable
DO	Economic Pressure Management	Yes	Yes	Yes	Yes	Yes	Yes
	Repair Policy Statement	Yes	Yes	Yes	Yes	Yes	Yes
YOU	Single Detection Intervention			Yes	Yes	Yes	Yes
	Regular Leak Detection Intervention				Yes	Yes	Yes
NEED	Peer Review of Leak Management Activities				Yes	Yes	Yes
	Formulate and Implement Action Plan						Yes

Original source: Allan Lambert, Tim Waldon, Sally Mackinnon

Notes:
 1. Determine your ILI classification (eg "Reasonable" 2.0<ILI<2.5
 2. Look down chart to identify the management actions required for "reasonable" (ie) Economic Pressure Management, Repair Policy Statement, Single Direction Intervention
 3. Wherever the word "Yes" appears you must, as a minimum, implement these management actions

Figure 11: Proposed ILI Classification from Australia (Waldron, 2005)

As can be seen from **Figure 11**, the ILI is being used as an indicator to highlight when specific remedial measures should be implemented. The higher the ILI value, the greater need for more comprehensive leakage reduction activities. An important issue that should be appreciated from **Figure 11** is the relatively low ILI values used in the assessment. Due to the relatively low levels of leakage experienced in Australian water supply systems, the ILI bands used in the analysis are very narrow and the overall ILI values relatively low. In many other countries with greater levels of leakage, it is necessary to look into a more comprehensive and flexible process where a greater range of ILI values can be accommodated.

To address water supply systems in countries with high levels of leakage and correspondingly high ILI values, a revised proposal was later suggested by Liemberger (Liemberger & Mckenzie, 2005) based on their combined experience of using the ILI in many developing countries where the ILI values tend to be significantly higher than those experienced in Australia. The proposed approach is shown in **Figure 12** and was first presented by Liemberger to the IWA Water Loss Task Force in February 2005. The approach was well received and was considered appropriate for use in both developed as well as developing countries.

Technical Performance Category		ILI	Litres/connection/day (when the system is pressurised) at an average pressure of:				
			10 m	20 m	30 m	40 m	50 m
Developed Countries	A	1 - 2		< 50	< 75	< 100	< 125
	B	2 - 4		50-100	75-150	100-200	125-250
	C	4 - 8		100-200	150-300	200-400	250-500
	D	> 8		> 200	> 300	> 400	> 500
Developing Countries	A	1 - 4	< 50	< 100	< 150	< 200	< 250
	B	4 - 8	50-100	100-200	150-300	200-400	250-500
	C	8 - 16	100-200	200-400	300-600	400-800	500-1000
	D	> 16	> 200	> 400	> 600	> 800	> 1000

Figure 12: ILI Bands for Developing Countries (Liemberger & Mckenzie, 2005)

As can be seen from **Figure 12**, different ILI ranges have been provided for developing and developed countries which was not necessary in the earlier Australian proposal. **Figure 12** also attempts to classify the leakage levels within the Water Utilities into four categories based on the ILI value as follows:

- A = Excellent – no specific intervention required.
- B = Good – no urgent action required although should be monitored carefully.
- C = Poor – requires attention.
- D = Very Bad – requires immediate water loss reduction interventions.

It should also be noted, that unlike the Australian recommendations, there is no attempt to define the water loss reduction interventions required. It is assumed that the leakage management specialist will first identify the key problem areas after which the most appropriate interventions will be established to provide the greatest returns for the available budget.

3.1.5 The Water Balance

Although the International Water Association has helped to establish a standardised water balance for use throughout the world, there are always cases that tend to cause problems or confusion. In this regard, the South African situation is possibly one of the most difficult to address using a standard water balance format due to several factors. The most important issues that must be addressed in South Africa include the Free Basic Water as well as an unknown component which is often termed as Non-Recoverable Revenue Water as identified by Seago and Mckenzie (2007).

The Free Basic Water is relatively simple to address and the recommended approach is to consider it Revenue Water that is billed at a zero rate. Some WDM managers treat the Free Basic Water as Non-Revenue Water, which tends to distort the overall level of Non-Revenue Water. The Free Basic Water cannot be considered as Non-Revenue Water since it is technically legitimate use and the WDM manager is not aiming to eliminate this component.

The second component that does create problems in South Africa is the water which is metered and billed to consumers but that will never be paid for due to excessive leakage/wastage. There are many households in South Africa where the internal plumbing losses are abnormally high resulting in very high monthly water bills which the owners cannot afford to pay. Technically, such water is considered to be Metered Billed consumption and is therefore shown in the standard water balance as part of the Revenue Water. The reality of the situation is quite the opposite, however, in that the consumer may never pay for this water and at some point the account may be written off. It is important to identify this component in the overall Water Balance since it often represents a portion of water that can be eliminated without causing any hardship to consumers since it represents either leakage or inefficient use. The standard IWA water balance has therefore been modified slightly for use in South Africa to incorporate these two additional sub-categories of water use as shown in **Figure 13**.

It must be also be noted that in most of the South African Municipalities, the water balance can only be completed using information provided by both the Technical Department and the Financial Department. This can create many problems since the Technical Manager is often held accountable for the levels of Non-Revenue Water in the system while he/she is effectively not responsible for the Billed Consumption, which represents a major part of the balance. It is therefore important to realise that when trying to reduce levels of Non-Revenue Water in a system, both technical and financial departments must be involved and preferably operated under a single Manager.

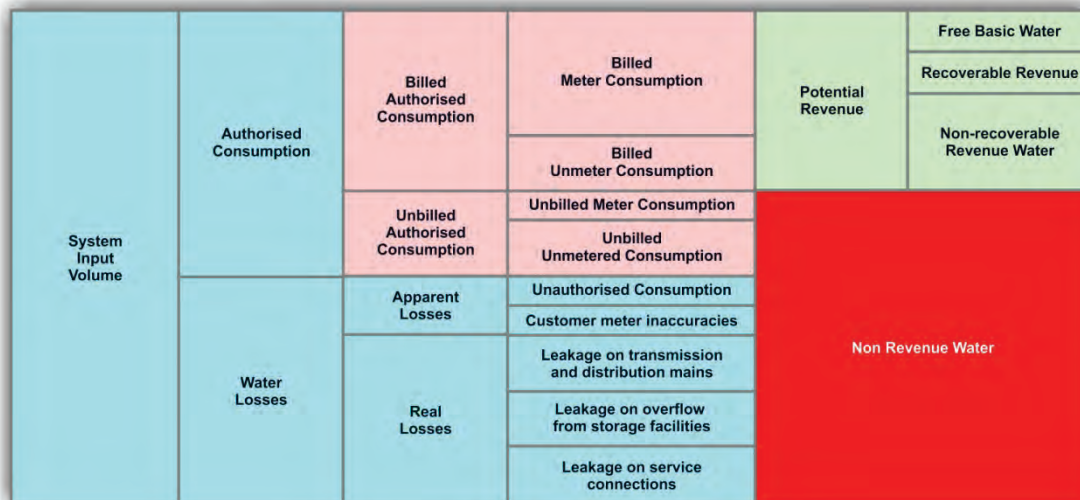


Figure 13: Modified IWA Water Balance (Seago & Mckenzie, 2007)

Figure 13 depicts the IWA water balance and is colour coded in blocks according to the areas of responsibility. As illustrated, the input volume, authorised consumption and water losses in the form of apparent and real losses are under the jurisdiction of the technical department, which is responsible for the physical operation, and maintenance of water reticulation systems. The metering of consumers is usually the responsibility of the technical departments; however, the billing of consumers is typically under the authority of the finance department. The overall Water Balance therefore bridges both the Technical and Financial Departments within a Municipality and such joint responsibility often results in some form of discrepancy. The billed and unbilled

components of the water balance fall under the responsibility of the finance department. As indicated in **Figure 13**, it is clear that some of the components that make up non-revenue water are not managed by the technical team and thus cannot be attributed to the performance of the technical departments. The Non-Revenue Water components of the water balance are based on information from both the technical and finance departments with the result that it is difficult to ensure proper accountability with split responsibility.

What is pertinent for the interpretation of the results of this study is an understanding of the fact that as far as physical leakage is concerned, the technical or engineering department is only responsible for the figures up to the point of metering. From the point of issuing bills, the responsibility for the remainder of the water balance lies with other role players, which in future must be incorporated and taken into account when reporting requirements are issued based on the NRW methodology.

3.2 CHALLENGING SCENARIOS

3.2.1 Free Basic Services

In the South African adaptation of the IWA water balance, free basic water is presented as a component of revenue water, which is billed at a zero rate since this component is subsidised by the Government. WSAs treat this water in the same manner as they treat the normal revenue water. Currently the allocation of Free Basic Water by municipalities is not standardised and many Municipalities now provide a volume, which can vary from the original 6 kl per household per month as stipulated by National Government. Not only is the allocation different in many municipalities but some have also agreed that the free basic allowance will only be provided to indigent households and not across all households. These issues become crucial when attempting to benchmark water losses across the country and drawing comparisons between municipalities. Because Free Basic Water is considered to be revenue water, continuous shifts in the Free Basic Water allocation have the potential to distort the Non-Revenue Water figures and make meaningful comparisons difficult between municipalities. This also opens up the possibility of Free Basic Water being manipulated as an instrument to decrease the NRW figure for a specific Municipality without actually addressing the water losses in the system. Therefore it is recommended that a standard approach be adopted in all water balances when dealing with the Free Basic Water allowance.

3.2.2 Flat Rate Consumption

Flat rate consumption is effectively unmetered consumption for which a standard monetary value is charged on a monthly basis. It is considered to be **unbilled unmetered consumption** and is typically based on 6 m³/month to 15 m³/month in most parts of the country. Previous benchmarking studies on NRW confirm that in most cases where a flat rate is charged, the actual water use is significantly higher than the assumed monthly consumption. Flat rate consumption is sometimes included on the water balance as unbilled unmetered consumption when in fact the municipality issues bills and receives an income with respect to such consumption. It is therefore recommended that flat rate consumption be regarded as **billed unmetered** consumption.

3.2.3 Unregistered Housing developments and Informal Settlements

Another water balance problem concerns the extensive development of RDP houses and informal settlements where often substantial areas are unmetered and remain without a direct consumer who must be billed for the services rendered by the municipality. It has been questioned whether the water going into these areas and developments should be reflected under Non-Revenue Water as from a technical perspective of water losses, the water can be accounted for. From a financial perspective, however, the water supplied to such areas generates no revenue. The consumption should be billed but is usually not metered with the result that bills are not usually generated. Some municipalities are currently trying to include this issue as a component of revenue water. There is currently no consensus on how this issue should be managed or how it should be captured by municipalities in the water balance. Furthermore, it is presently not clear at which level this matter should be resolved. Some of the housing development projects are initiated and implemented by regional authorities without proper communication with the local authorities. It is understood that when the developments are established, the responsibility for the registration and proclamation of the stands as well as the process of linking the consumers to particular stands lies with the Department of Human Settlements, and metering and billing of particular stands can only take place once this process has been concluded. Once these developments have been completed, the matter of who should be billed for the consumption becomes problematic, as often there is lack of political or administrative will and leadership to ensure that the proper processes are followed and that the responsible consumers are linked to the municipal system.

Large Municipalities such as the City of Tshwane Metro have taken measures to install bulk meters for all water supplied to such developments and informal areas and holding the Department of Human Settlements responsible for payment. This volume of water is then considered as revenue water linked to a single consumer measured at the bulk meter. A further challenge involves informal settlements that are often established without the Department's consent. The matter of how informal settlements should be dealt with in the water balance therefore requires substantial investigation and clarification.

The approach adopted by the City of Tshwane Metro attempts to address the deficiencies in the water balance and to provide realistic and useful information. Unfortunately, the methodology is not universally applicable and there is currently no standard method for dealing with similar problems existing in many municipalities throughout South Africa.

National NRW reporting has been initiated throughout the country and is difficult to compare results when the same issue occurring in different municipalities is interpreted and reported differently. Non-revenue Water cannot be viewed in isolation and to some extent, the figures can reflect a number of different challenges related to cooperative governance, poor administration, poor communication and unwillingness to enforce agreements in the municipality. It is therefore extremely difficult to enforce a standard water balance when it effectively utilises information provided by a number of different departments, which in many municipalities tend to work independently from each other. This issue is being improved and it is envisaged that it will gradually be resolved in future assessments.

3.2.4 Billing of Internal Departments

The metering and billing of internal departments is another issue that has created significant confusion in many municipalities. The practice in the majority of municipalities is that internal departments are metered to measure consumption. Many municipalities issue accounts to the other departments of the municipality for water use, however, this is often seen as an administrative issue and no transfer of funds ever occurs. The actual physical transfer or payment for services rendered is often never effected other than a record that the bill has been sent. The challenge with this issue is that although the consumption is metered and billed, the mechanism for the recovery of the costs from the departmental consumers is often not in place. In the absence of legal enforcement structures to ensure that payment can be effected, the volumes of water allocated in this scenario cannot be considered revenue water as these volumes cannot technically be converted into revenue water at any stage unless enforcement can be undertaken.

The various issues mentioned above highlight the complexity of benchmarking water losses in the South African context and most likely, also in most other developing countries. The key issue is that in most developed countries, the unbilled consumption component of the water balance tends to be relatively small or even insignificant in some cases. In developing countries, however, this is rarely the case and in South Africa, a substantial portion of the water losses can be attributed to the unbilled consumption component for a variety of reasons some of which are discussed above.

3.3 PERTINENT QUESTIONS

Based on the findings of the study and the South African scenarios presented several key questions arise:

Is the standard International Water Association NRW methodology appropriate for understanding and measuring water losses in South Africa?

The standard International Water Association NRW methodology has been extensively debated by the water sector throughout the world and has been accepted for use in many countries around the world as an excellent starting point for addressing water losses in municipal water supply systems. The methodology is, however, not without its weaknesses and challenges as highlighted in previous sections for South Africa. It is apparent that certain adjustments and clarifications are required to accommodate some of the unique scenarios that render the interpretation of the water balance somewhat problematic. The basic water balance methodology is an excellent step forward and in order to gain maximum value from such assessments it is necessary to ensure that a systematic approach is used by all municipalities throughout the country.

Should there be a separation of the technical and financial water balance in order to rectify or find a place for the water loss scenarios that occur in South Africa that are not coherently captured or adequately understood through the existing components of the water balance?

The complexities of the water balance presented in this study highlight the fact that the amalgamation of the financial and technical water balance has created some uncertainty and confusion in terms of the primary intent of the balance and the manner in which the information it presents should be interpreted and utilised. The separation of the financial and technical water balance thus requires further consideration and the NRW balance presented in this report should be viewed as a purely volumetric balance and must not be confused by the revenue recovery issues.

What is required in the long term to fully address the matter of water loss reporting in South Africa in a manner that can be standardised, well understood and appropriate for this local context?

The only way that NRW reporting can be completely addressed in the long term is through consistent engagement with the municipalities, mandatory and enforced annual reporting and continuous training and capacity building. Through such engagement, the water balance can be adapted or refined to suit the local context and become a balance that is easily understood and applied by the water services managers throughout the country. Such a process will also provide a platform for municipalities to voice their views and compare their performance to ensure continuous improvement in NRW reduction.

4 METHODOLOGY

4.1 SUMMARY OF DATA SOURCES

The main data sources used in the study are summarised in **Table 1**.

Table 1: Summary of data sources

Source	Description
Base data	
2002: WRC	Preliminary water balance assessments for 34 Municipalities
2005: WRC	Water balance assessments for 30 Municipalities from an initial 60 assessments
2007: WRC	Water balance assessments from 62 Municipalities
2005 StatsSA Non-Financial Census of Municipalities	Report P9115 – for year ending 30 June 2005
2006 StatsSA Non-Financial Census of Municipalities	Report P9115 – for year ending 30 June 2006
2007 StatsSA Non-Financial Census of Municipalities	Report P9115 – for year ending 30 June 2007
2008 Stats SA Non-Financial Census of Municipalities	Report P9115 – for year ending 30 June 2008
2009 StatsSA Non-Financial Census of Municipalities	Unpublished data
2009 Regulatory Performance Measurement System	Survey performed by DWA Dir : Water Services
2010 Regulatory Performance Measurement System	Survey performed by DWA Dir : Water Services
Municipalities	Water balance data was obtained directly from municipalities captured in the templates designed specifically for the study
DWA NIS demographic data	Population and household number, Extrapolated Census 2001 data.
Supporting data	
Strategic Gap Analysis reports (2007, 2008, 2009)	Limited water balance data, System input volume used for verification purposes
All Town Reconciliation Strategy Study	High-level reconciliation strategy for each town in South Africa.
2005 StatsSA Financial Census of Municipalities	Published data
2006 StatsSA Financial Census of Municipalities	Published data
2007 StatsSA Financial Census of Municipalities	Unpublished data

Non-Financial Census of Municipalities

The purpose of the Non-financial Census of Municipalities is to obtain non-financial information from institutions determined by the Local Government Municipal Structures Act, 1998 (Act 117 of 1998). The results of the census provide information that can serve as a framework to stakeholders and policy-makers in planning, as well as monitoring and evaluating the performance

of municipalities. It allows national and provincial government departments to analyse the actual services provided by municipalities.

This survey is currently considered the most comprehensive NRW data set for all municipalities in the country. The data set was then also used as basis for 2005, 2006, 2007, 2008 and 2010. Financial year ending 2009 presented a challenge as the water-related questions were omitted from the Non-Financial Census for this particular year. The reasons for this are unclear. However, through improved communication between the Department of Water Affairs and StatsSA, this problem has since been resolved and the questions reinstated and refined for use in subsequent years.

4.2 COLLECTION OF WATER BALANCE INFORMATION

Following on from the 2007 assessment of Non-Revenue Water, it was considered appropriate to expand the scope of the follow-up assessment with an envisaged target of 60 to 80 data sets or water supply areas. Due to the importance of non-revenue water reporting, the Department of Water Affairs made it a priority to obtain data from all the Water Services Authorities in the country and to obtain an accurate picture of the extent of water losses across the country in order to adequately address the current challenges facing the water sector. This study therefore targeted all 237 local authorities from which 132 comprehensible data sets were collected and collated for use in the study. A simple water balance template was developed in which the data was captured **(See Appendix B)**.

The water balance sheets were completed with information from the available official data sources comprising data derived from municipal sources, StatsSA Non-Financial Census, DWA Regulatory Performance Measurement System and the National Information system. The template was then distributed to all water services managers in the WSAs via email, to complete the gaps and rectify the existing information where necessary. This completion of the water balance sheets was carried out to aid the reporting process.

An extensive engagement process was undertaken as part of the data gathering process through email and telephonic correspondence. Each municipality was contacted telephonically several times on average in order to facilitate the process and provide assistance to municipalities where difficulties were encountered. The follow-up correspondence served as a reminder for the municipalities to submit the required information as well as to query the information received where inconsistencies were apparent. As mentioned previously, the quality of the data received in many cases was of poor quality, which made the verification task particularly time consuming. Through this process a number of the data sets improved as respondents gained a better understanding of what was required which contributed to improving the overall quality of the results. The record of submission per municipal category is summarised in **Table 2**. As depicted by the summary, the data sets utilised in the study are more than twice the number used in the previous 2007 study that utilised 62 data sets.

Table 2: Record of submission per municipal category

Category	No of municipalities*	No submitted	% Submission
A	6	6	100%
B1	21	20	95%
B2	29	26	90%
B3	111	55	50%
B4	70	25	36%
National	237	132	56%

* Excludes district municipalities

As mentioned previously, the data gathering process was problematic in some cases due to the poor availability of data in some municipalities. The availability of data across the various municipalities is shown in **Figure 14**. Only 45 (19%) of the municipalities could supply complete, plausible and comprehensible data. A large portion of the data supplied was erratic and completely unreliable which reflects poorly on the state of record keeping in a significant number of municipalities in the country. Many of the data sets used in the study were obtained from the segment of the municipalities that provided records with gaps and questions. These municipalities were contacted repeatedly and feedback was provided with regards to the data. Through this process, the quality of the data was marginally improved.

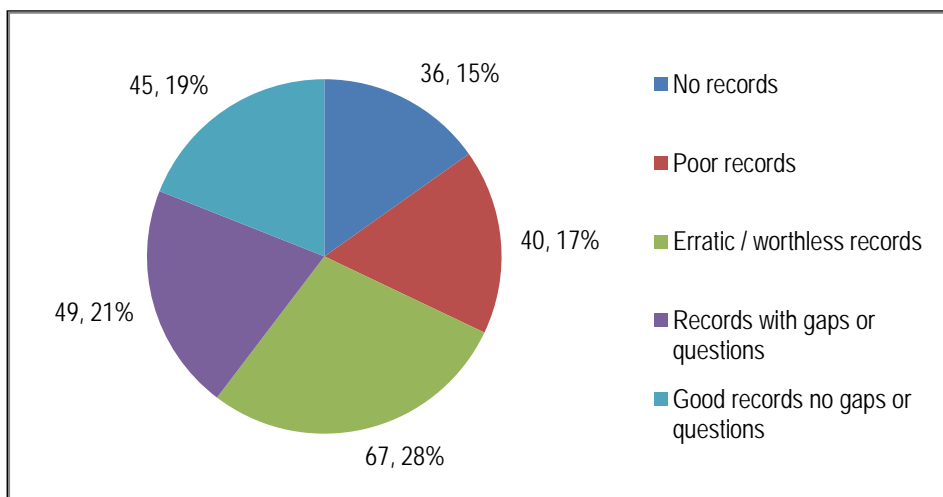


Figure 14: Summary of Municipal Record Keeping

Table 3 and **Table 4** depict the type of water balance errors encountered during the data collection process which emphasises the lack of data validation and verification resulting in errors such as duplicate values from one year to the next and factor 1000 errors with confusion over Ml, kl, m³ and million m³.

Table 5 illustrates the erratic, nonsensical and inconsistent data obtained in 28% of the municipalities, which included unexplained drastic increases or decreases in system input volume between years, and billed consumption volumes, which were more than the system, input volumes resulting in negative NRW volumes.

Table 3: Example of water balance errors

Municipality	Year	Source	Input volume (m ³ /annum)	Billed consumption (m ³ /annum)	Free basic water (m ³ /annum)	NRW (m ³ /annum)
Mantsopa	2005	NFS	3 015 363	2 497 679	517 684	0
Mantsopa	2006	NFS	3 092 048	2 778 992	313 056	0
Gariep	2005	NFS	2 595 256	1 996 648	598 608	0
Gariep	2006	NFS	2 854 741	2 202 259	652 482	0

Table 4: Example of data verification and validation errors

Municipality	Year	Source	Input volume (m ³ /annum)	Billed consumption (m ³ /annum)	Free basic water (m ³ /annum)	NRW (m ³ /annum)
Koukamma	2005	NFS	2 093 268	1 667 388	425 880	0
Koukamma	2006	NFS	2 093 268	1 667 388	425 880	0
Koukamma	2007	NFS	2 093 268	1 667 388	425 880	0

Table 5: Example of inconsistent data

Municipality	Year	Source	Input volume (m ³ /annum)	Billed consumption (m ³ /annum)	Free basic water (m ³ /annum)	NRW (m ³ /annum)
Camdeboo	2005	NFS	5 274 057	2 705 000	1 836 227	732 830
Camdeboo	2006	NFS	301 757	370 500	284 000	-352 743
Camdeboo	2007	NFS	1 719 900	377 910	594 504	747 486

4.3 WATER AUDITS

It was eventually decided not to re-capture the data in the Aqualite Model for this national exercise since it was designed specifically for individual municipalities to help them develop their own water balance. The model does not have any database capabilities and cannot accommodate six years of data which is available as this would involve creating 6 separate balances and for this reason a new form was created using the same methodology but allowing for data-base compatibility. This allowed an ACCESS database system to be developed that can now be used annually to update the information and monitor trends where appropriate.

5 RESULTS

The primary objective of the study was to undertake annual water audits for a sample of water supply areas in South Africa. Through consultation and collaboration with various organisations and institutions, the scope of the study expanded significantly resulting in a sample almost twice the size of that originally envisaged. The findings presented in the report are based on 132 data sets that were considered by the study team to be comprehensible and therefore appropriate for use in the study.

5.1 SYSTEM INPUT VOLUME

The first requirement for the calculation of NRW is the system input volume. It was surprising to discover that many municipalities cannot provide this information which is essential and forms the foundation of sound water management. It is not possible to manage a water supply system if the basic input is unknown. This highlights the importance of more interactive and effective cooperative governance and enforcement of policies and statutes within municipalities. **Figure 15** depicts the large impact that the Metropolitan municipalities (Category A) have on the demand and distribution of resources with their system input volume accounting for approximately 85% of South Africa's total demand. The other municipal categories are comparatively much lower with the rural scattered municipalities showing the lowest system input volumes due to the limited industrial or commercial developments in these areas. The system input volumes also to some extent reflect the rapid urbanisation that South Africa is undergoing which requires careful consideration when planning for water services particularly in the large cities and towns.

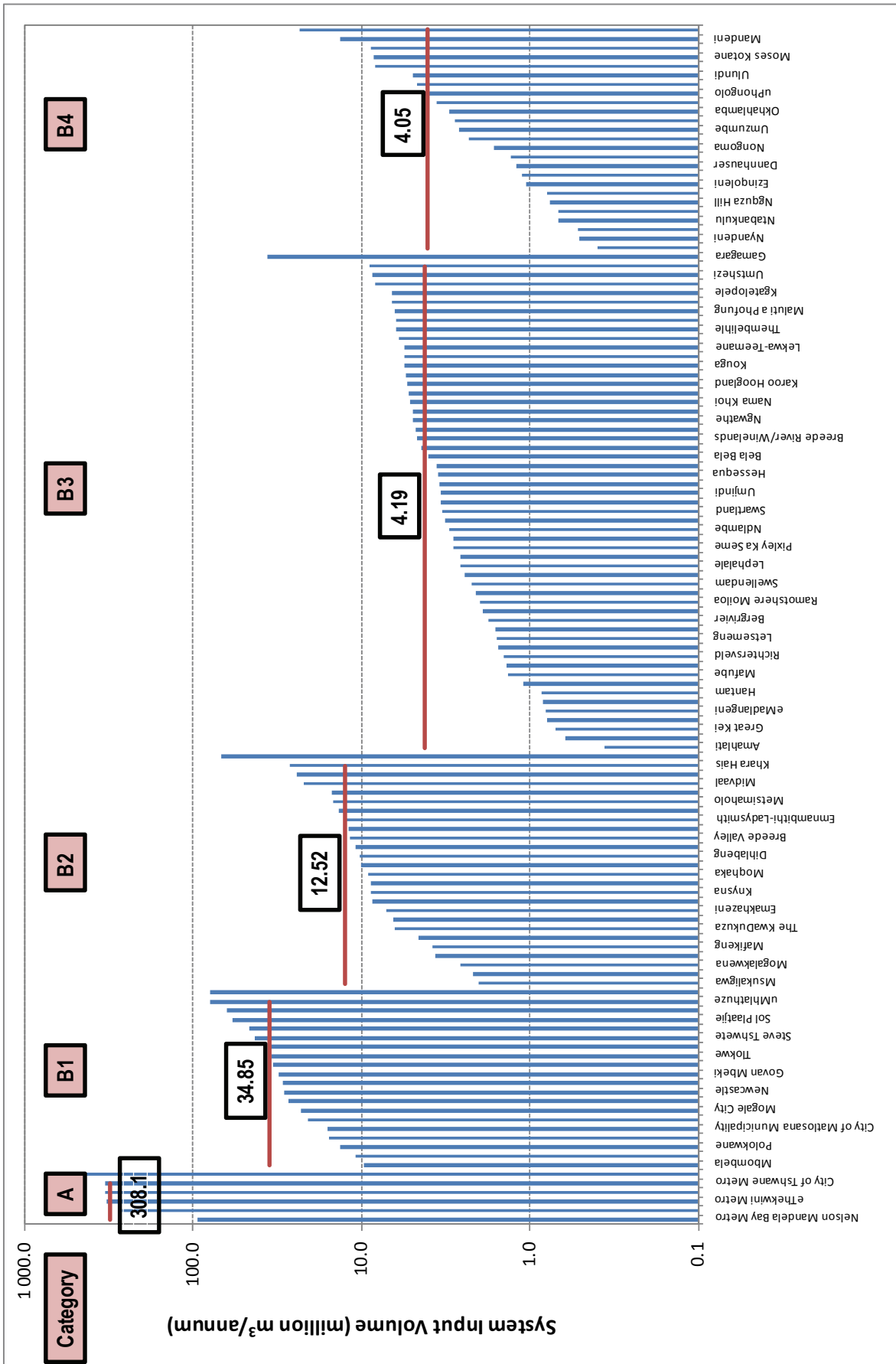


Figure 15: Summary of system input volume results

5.2 LITRES PER CAPITA PER DAY

The levels of inefficient water use are a significant concern to the National Government. **Figure 16** highlights that per capita consumption in South Africa (highlighted in yellow) is above the world average despite the fact the general NRW is in line with the world average. This unusually high per capita water use can be observed throughout many parts of the country and often reflects poor water use practices within the home or excessive irrigation. In some areas, it is also a reflection of high levels of unreported leakage. It is important to note, however, that the national l/c/d consumption at the local level is also highly influenced by the metropolitan municipalities (as shown in **Figure 17**), some of which have a disproportionately large concentration of wet industries that will influence the per capita figures. Once again, the rural scattered municipalities show very low l/c/d consumption, which is due to the lower service levels in such areas.

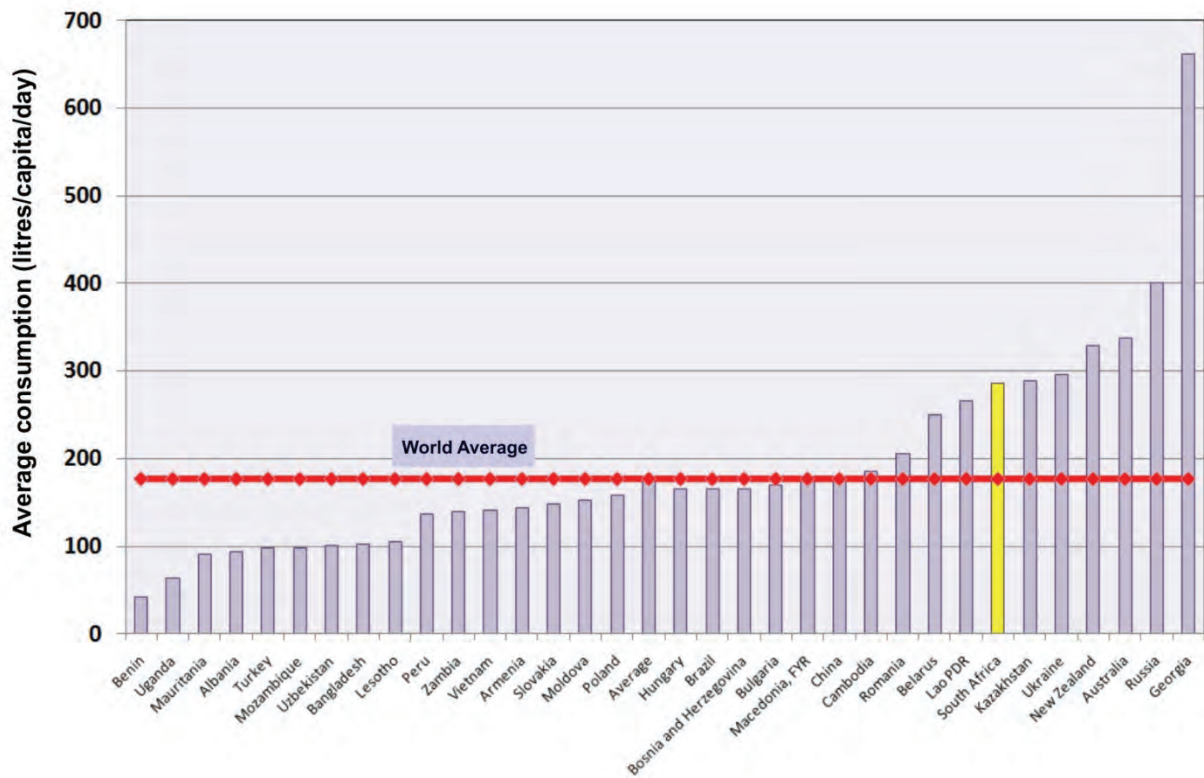


Figure 16: Comparison graph of world average litres per capita per day

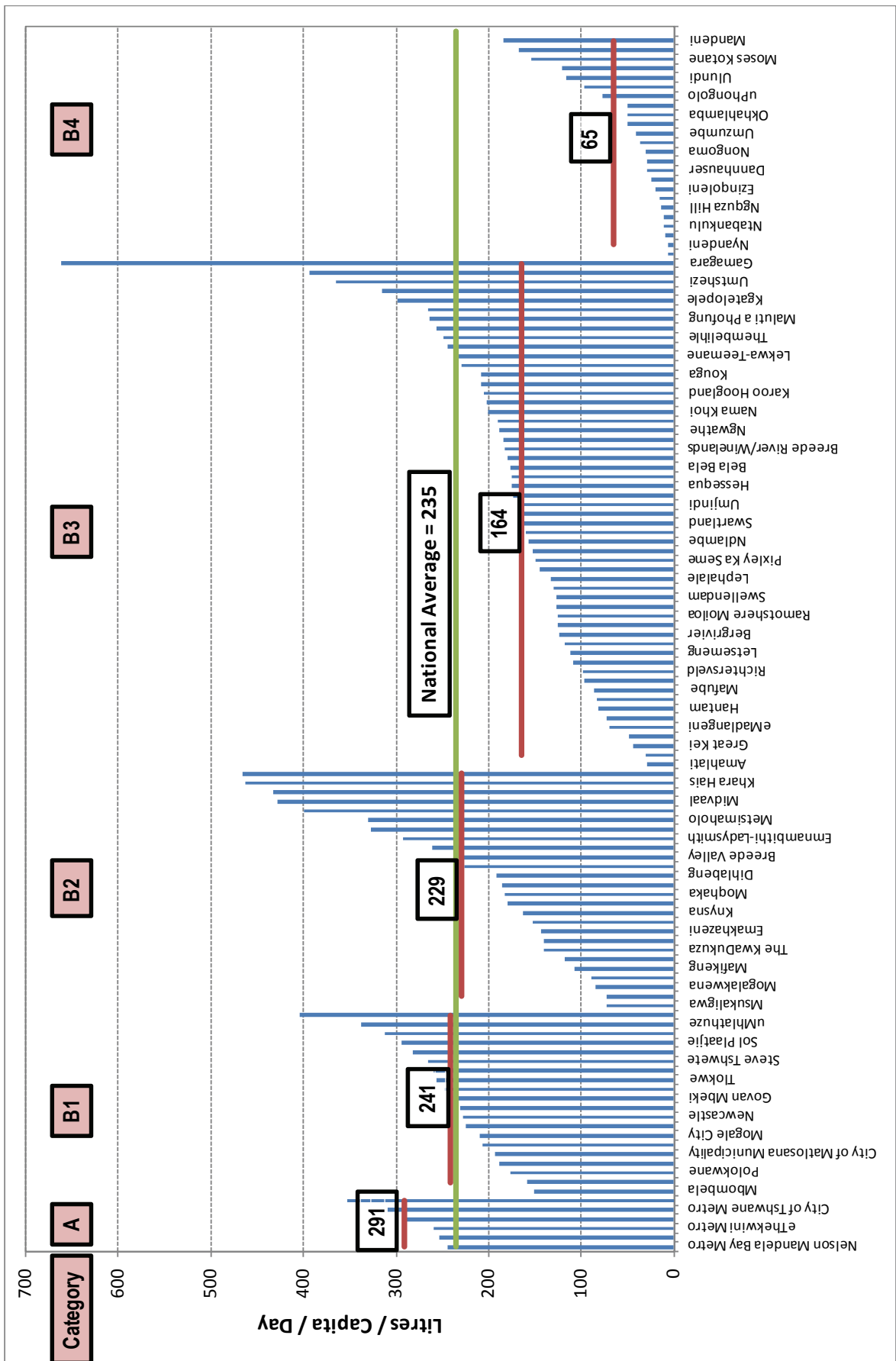


Figure 17: Summary of litres per capita per day per municipal category

5.3 PERCENTAGE NON-REVENUE WATER

The main aim of the study was to estimate the National Non-Revenue Water for the whole of South Africa.

Figure 18 indicates that the national NRW is currently in the order of 36.8% which is largely in line with the world average of 36.2% shown in **Figure 19**. At the national level, it is evident that the figure differs significantly within municipal categories, with the Category A municipalities showing an above average score, which indicates more efficient management of water resources and services due to greater levels of capacity, revenue recovery and infrastructure maintenance amongst many contributing factors. The B1 and B3 municipal categories show above average levels of NRW, which is a matter that should ideally be investigated and addressed through the COGTA turnaround strategy particularly in light of their comparatively lower demand. The levels of NRW appear exceptionally high in the rural scattered municipalities and was anticipated based on the poor availability of information as well as the low service levels in these areas.

One of the key findings of the 2007 non-revenue water report was that the total volume non-revenue water based on extrapolated data from a 54% sample size was 1 430 million m³/annum with a percentage non-revenue water of approximately 36% of the total system input volume. Currently, the extrapolated total volume Non-Revenue Water is estimated at 1 580 million m³/annum with a percentage Non-Revenue water of 36.8% based on data from 56% of Local Authorities representing a population of 29 547 439 citizens.

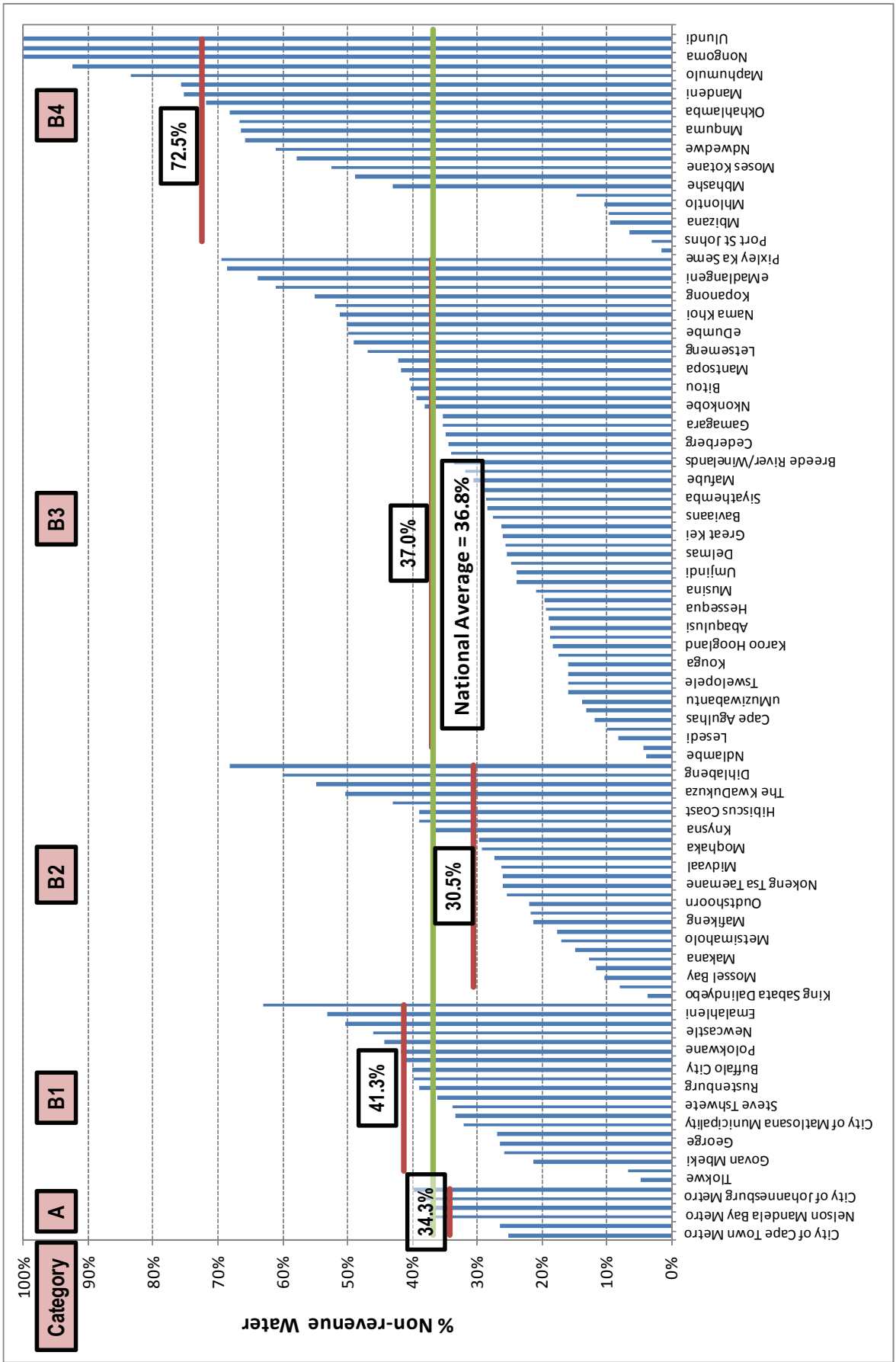


Figure 18: Summary of national percentage Non-Revenue Water per municipal category

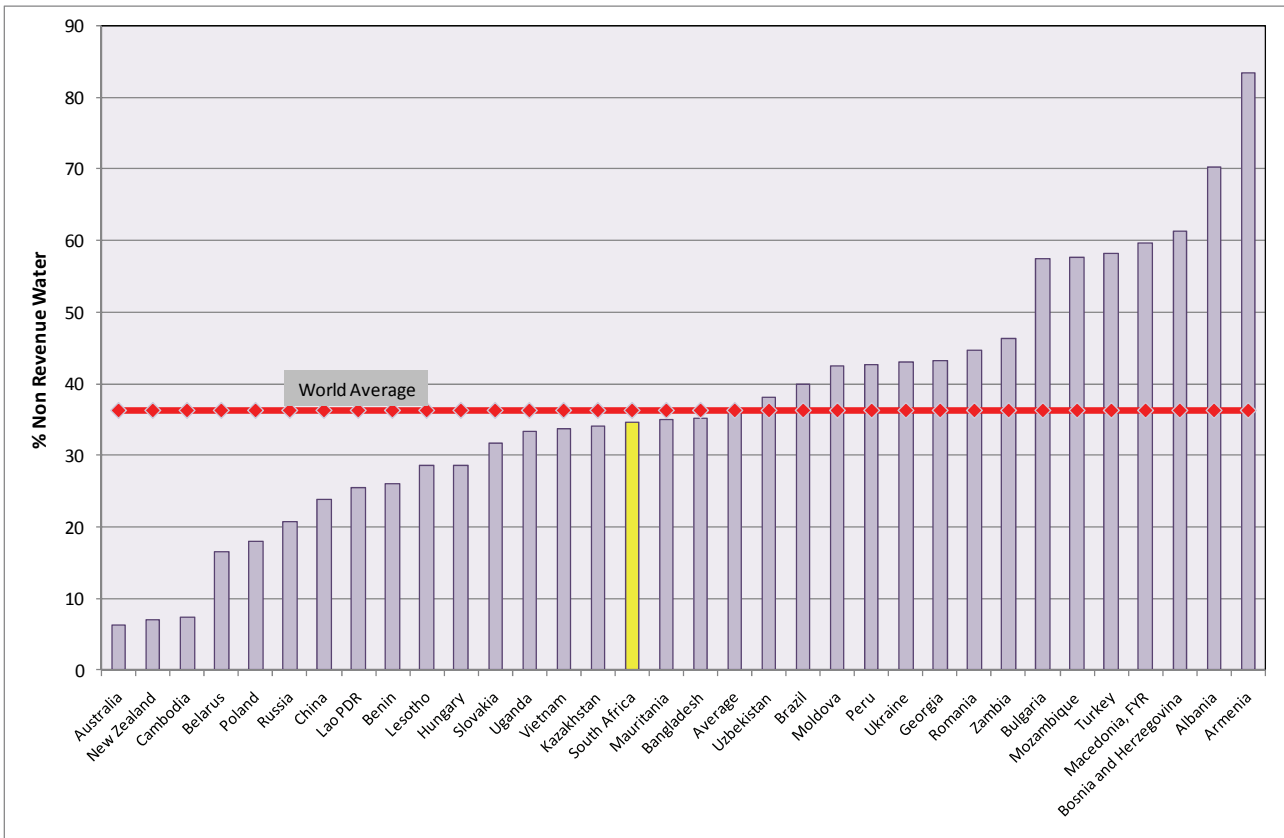


Figure 19: Comparison graph of world average percentage Non-Revenue Water

Infrastructure Leakage Index (ILI)

The ILI is a relatively new performance indicator, which is used to indicate the level of Physical Leakage from a water distribution system. The ILI is a non-dimensional indicator and ranges from 1 to over 100. A value of 1 is basically “world’s best practice” and indicates that the level of physical leakage in a system is as low as it can be while a value of 10 would indicate that the physical leakage is 10 times the lowest value. In the case of South Africa, the average ILI value from the various South African municipalities is estimated to be 6.8. This agrees relatively well with the previously mentioned NRW value and again highlights that there is significant room for improvement with regards to reducing leakage from South African systems and at the same time indicates that South Africa is broadly in line with world norms.

It should be noted that very few municipalities were able to provide details on their length of mains or average operating pressures. The ILI calculations are based on best estimates and available information but should be revised in future as more reliable information becomes available.

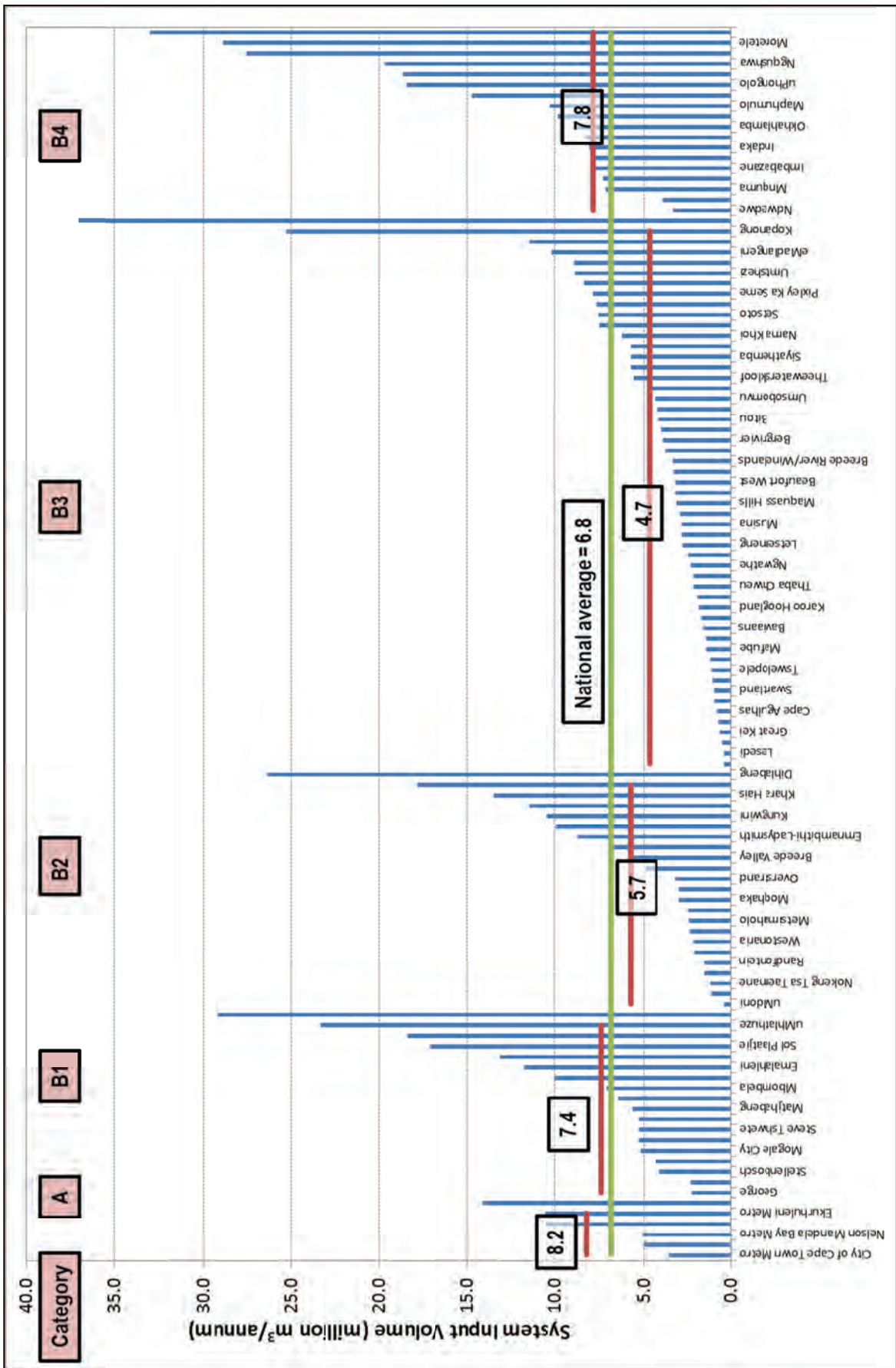


Figure 20: Summary of Infrastructure Leakage Index per municipal category

5.4 MUNICIPAL SCORECARD FOR ASSESSING THE POTENTIAL FOR WC/WDM IN MUNICIPALITIES

One of the key findings of the study, and one presented at recent conferences was that there is currently insufficient implementation of WC/WDM in many municipalities across South Africa. The municipal self-assessment scorecard developed by the WRC bears evidence of this to a limited extent. **Figure 21** illustrates that at the national level, 40% of the WC/WDM aspects assessed fall completely within the red zone, which indicates dysfunctional implementation or rather, lack of implementation on these aspects. The scorecard presents conflicting information on certain aspects. Although many municipalities perceive that their metering and billing and bulk meter management falls within the acceptable and even excellent range, the development of their water balances falls within the dysfunctional zone. This suggests that there is gap between how well municipalities perceive they are doing, and how well they are actually doing in terms of the implementation of WC/WDM. If the bulk meter management and metering and billing were as efficient as perceived, the quality of data as well as the availability of the data would not be as problematic as they are in reality.

The elements that fall within the dysfunctional zone are largely related to public participation and consumer support as well the establishment of WC/WDM in the municipalities which reflects the general neglect of non-engineering or non-technical aspects of NRW reduction. The scorecard assessment provided valuable insight into the aspects of WC/WDM that require closer attention and highlights the need for increased awareness within municipalities of the importance and value of WC/WDM in prudent management of the available water resources. As anticipated, the Category A municipalities performed the best on the scorecard as depicted in **Figure 22**, which is in keeping with the high levels of awareness and reporting in this category. The Category B1 municipalities suggest a comparatively disjointed perception based on their above average performance on the scorecard and below average performance on the other indicators discussed previously. The Category B3 municipalities' performance on the scorecard was largely in keeping with the results obtained from the other indicators and the same is true of the Category B4 municipalities. As anticipated, the Category B3 municipalities displayed an average performance with the poorest performance shown by the Category B4 municipalities. The results from the Category B2 municipalities also display an inflated perception of the implementation of WC/WDM when compared to their below average performance on the percentage NRW and I/c/d indicators.

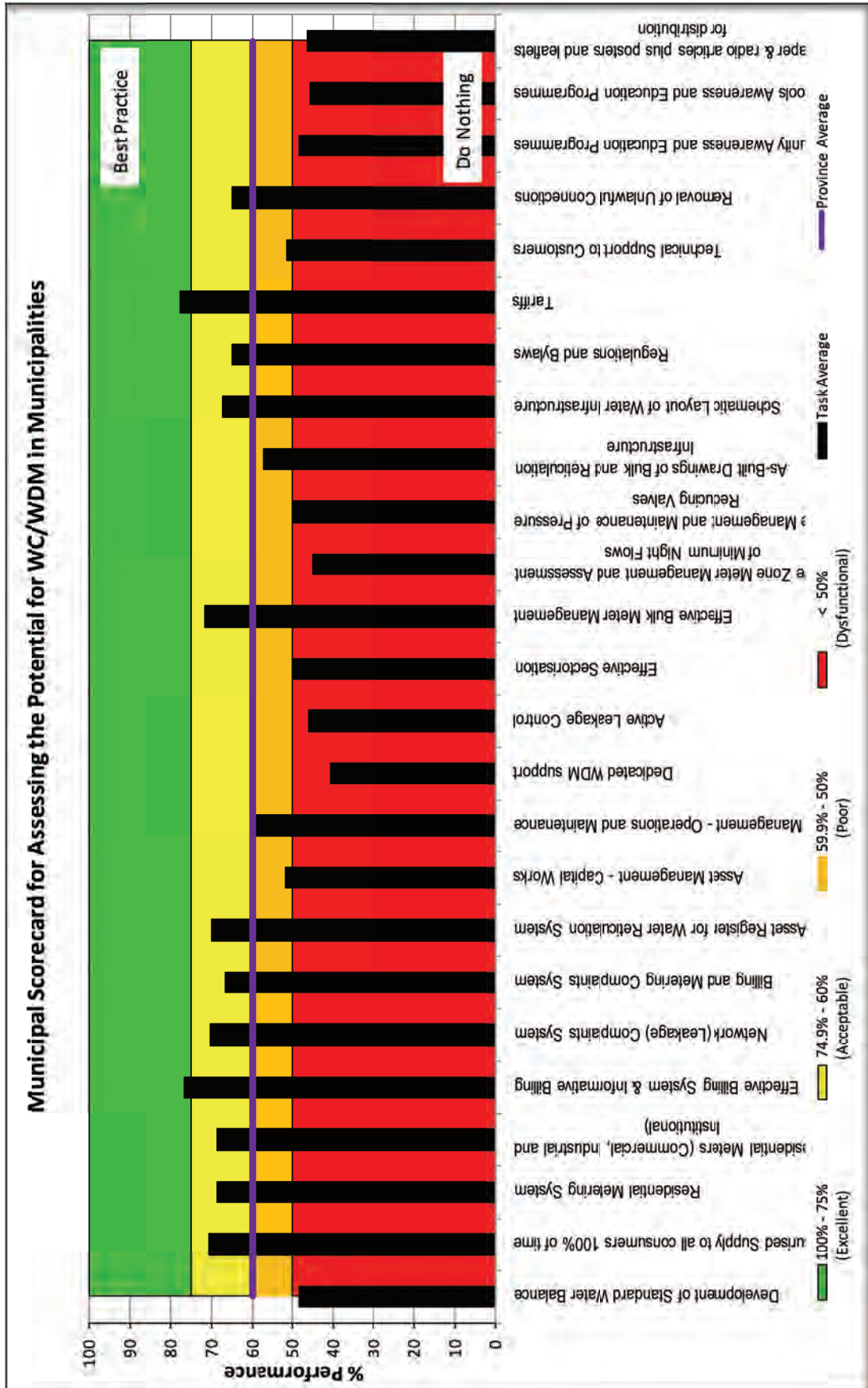


Figure 21: Summary of national municipal scorecard performance

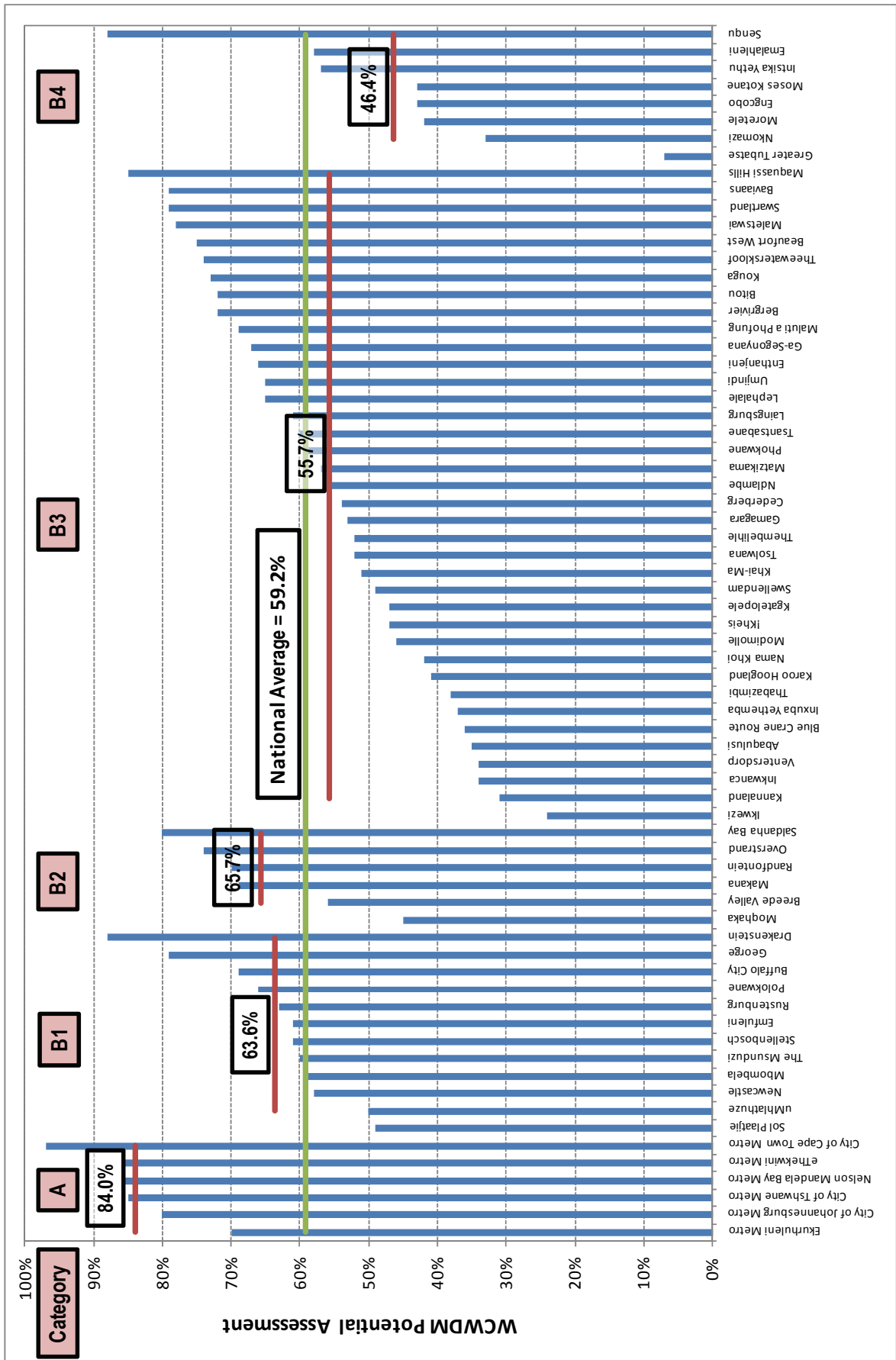


Figure 22: Summary of municipal scorecard performance per municipal category

Six years of water balance data were collected and consolidated. Many of the data sets contained gaps or missing information that some of the water services managers were unable to provide. Due to the representativeness of the sample and the significantly large number of data sets received, it was possible to extrapolate and draw inferences regarding municipalities for which data was unavailable based on the data that was utilised in the study. Furthermore, adequate estimates could be made for most of the municipalities where gaps in the information existed.

As depicted by the water balance sheet developed to capture the information, various flag symbols have been utilised to indicate the range within which the data apply. Based on the national averages for the different indicators, the green flag symbolises a below average result, the orange flag indicates average results and the red flag above average result. When results obtained for the indicators were below zero, a “check data” indication was provided. The “no data” indication was provided where zero was obtained as a result. These symbols assisted in identifying information that needed to be reviewed or information that was completely outside of the expected range which may have been caused by typing errors, etc.

In the end, the data utilised and extrapolated comprised 56% of the local authorities targeted for participation in the study and represented a population of approximately 35.3 million citizens. The results shown in **Figure 23** indicate that non-revenue water is gradually increasing while revenue water is remaining almost constant. If the figures prove to be correct and the trend continues, it is of major concern as it raises doubts regarding the long-term sustainability of water services in municipalities throughout South Africa. It will require another round of assessments to verify whether or not the trends suggested in **Figure 23** are reliable since they are each based on a different number of municipal water balances.

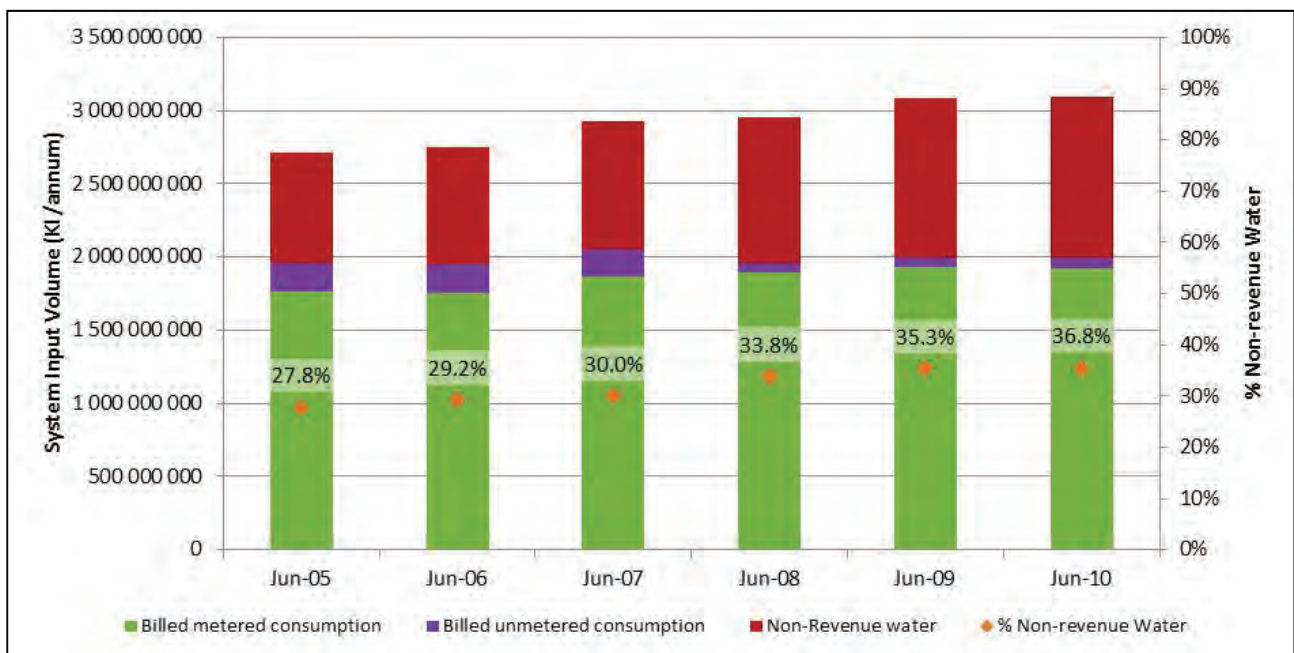


Figure 23: National Water Balance trend

Some of the main reasons for the increase in Non-Revenue Water are as follows:

- Deteriorating municipal metering and billing systems with resulting increased commercial or apparent losses. An example is the City of Johannesburg that has been trying for the past

few years to rectify their billing system while several municipalities have also changed or amalgamated their billing systems with disastrous consequences.

- Deteriorating infrastructure due to aging and lack of preventative maintenance. The reticulation networks in several municipalities have effectively reached the end of their design life and burst pipes are a common phenomenon which results in increased physical leakage.

5.5 EXTRAPOLATION OF NON-REVENUE WATER FOR SOUTH AFRICA

The urban and rural water demand in 2000 was estimated at 3 471 million m³/annum based on the National Water Resource Strategy (DWA, 2004). Applying the national population growth rate plus 1% provides an estimated current urban demand of 4 372 million m³/annum in 2010. Extrapolating the non-revenue water data for the country, provides an estimated urban consumption of 4 292 million m³/annum and a national non-revenue water volume of 1 581 million m³/annum. The extrapolated input volume compares well with the expected urban and rural demand. The results are summarised in **Table 6**.

Table 6: National extrapolated Non-Revenue Water

Category	Population (2010)	Input (mcm/a)	NRW (mcm/a)	RW (mcm/a)	% NRW	l/c/d
A	17 420 512	1 849 091 117	634 192 022	1 214 899 095	34.3%	291
B1	7 756 187	683 667 320	282 585 164	401 082 156	41.3%	241
B2	3 882 070	325 623 095	99 407 207	226 215 889	30.5%	230
Urban Total	29 058 769	2 858 381 532	1 016 184 393	1 842 197 140	35.6%	269
B3	3 845 279	230 642 568	85 229 869	145 412 699	37.0%	164
B4	4 245 736	101 138 956	73 334 514	27 804 442	72.5%	65
Rural Total	8 091 015	331 781 524	158 564 383	173 217 141	47.8%	112
National Total	37 149 784	3 190 163 056	1 174 748 776	2 015 414 281	36.8%	235
Extrapolated	49 988 373	4 292 650 981	1 580 730 012	2 711 920 969	36.8%	235

As an alternative, the Non-Revenue Water was extrapolated per municipal category which provides a total estimated urban consumption of 3 640 million m³/annum. This is significantly lower than the estimated urban consumption of 4 372 million m³/annum. This extrapolation method is highly influenced by the Categories B3 and B4 due to the low number of data sets and as a result, the average consumption drops to 200 l/c/d and the non-revenue water increases to 39%.

Table 7: Extrapolated Non-Revenue Water per municipal category

Category	Population (2010)	Input (mcm/a)	NRW (mcm/a)	RW (mcm/a)	% NRW	l/c/d
A	17 420 512	1 849 091 117	634 192 022	1 214 899 095	34.3%	291
B1	8 092 611	713 321 335	294 842 273	418 479 062	41.3%	241
B2	4 201 444	352 411 778	107 585 337	244 826 441	30.5%	230
Urban Total	29 714 567	2 914 824 230	1 036 619 632	1 878 204 598	35.6%	269
B3	6 705 407	402 195 059	148 624 049	253 571 010	37.0%	164
B4	13 568 398	323 216 897	234 360 281	88 856 616	72.5%	65
Rural Total	20 273 805	725 411 956	382 984 330	342 427 626	52.8%	98
National Total	49 988 372	3 640 236 186	1 419 603 962	2 220 632 224	39.0%	200

For the purposes of this study, an estimated urban and rural consumption of approximately 4 300 million m³/annum is considered more realistic, which is in line with the extrapolated National Water Resource Strategy (DWA, 2004) and was used further in the calculations.

The estimated national non-revenue water is estimated to be 1 580 million m³/annum which is approximately one third of the water supplied and almost equal to the total Rand Water supply per annum. Using different production rates, it was possible to calculate the estimated value of the Non-Revenue Water as summarised in **Table 8**.

Table 8: Estimated value of Non-Revenue Water

Municipal Category	Production Rate (R/kl)	Estimated cost to supply water (R million/a)	Estimated value of NRW (R million/a)
A	R5.00	R9 245.46	R3 170.96
B1	R4.50	R3 076.50	R1 271.63
B2	R4.00	R1 302.49	R397.63
Urban		R13 624.45	R4 840.22
B3	R3.50	R807.25	R298.30
B4	R3.00	R303.42	R220.00
Rural		R1 110.67	R518.30
National		R14 735.12	R5 358.52
Extrapolated		R19 827.42	R7 210.38

It is difficult to assess how much water can possibly be saved from the overall estimate of Non-Revenue Water. All water supply systems leak to some degree and it is not possible to eliminate physical leakage or commercial losses completely. Some of the water included in the water balance under Non-Revenue Water is in fact part of the free basic allowance and as such is legitimate use. This consumption should be changed in the water balances to revenue water and will therefore not reduce the total consumption although it will result in a slight decrease in the Non-Revenue Water.

Another major factor that can influence the results is the non-payment for services in cases where billed consumption is eventually written off. In such cases, water which is currently considered as billed consumption must be reclassified as unbilled consumption. Preliminary estimates suggest that this component could be as high as 20% based on the Local Government Budgets 2009/10 Financial Year Third Quarter Local Government Section 71 Report (May 2010) which shows debtors of R44.8 billion over 90 days of which $\pm 30\%$ or R13 billion is from water. A 20% non-payment level would effectively increase the Non-Revenue Water to 47.7%.

Using the most recent results from the Vaal River Reconciliation strategy undertaken for DWA, it is estimated that approximately 50% (approximately 750 million m^3 /annum) of the Non-Revenue could be saved, representing almost 17% of the system input volume.

The results from this study compare reasonably well with the previous WRC study completed in 2007 which indicated

- The total Non-Revenue Water for the 62 systems analysed was estimated to be approximately 774 million m^3 /annum or approximately 36% of the water supplied.
- The total non-revenue water for the whole country is estimated to be 1 430 million m^3 /annum (extrapolated from the 54% sample size).
- The potential savings that can be achieved from the 62 water reticulation systems analysed are estimated to be 263 million m^3 /annum.
- If the above figure is extrapolated to the whole country (based once again on the 54% sample size), the potential savings are estimated to be almost 500 million m^3 /annum, representing approximately 12.5% of the total system input.

6 CONCLUSIONS AND RECOMMENDATIONS

The findings of the study highlight a number of very critical issues. The current Non-Revenue Water percentage for South Africa stands at an estimated 36.8% with volumetric losses of approximately 1 580 million m³ per annum. This is largely in line with the world average percentage Non-Revenue Water of 36.2%. South Africa, however, cannot afford such losses, being the 30th driest country in the world. With increasing water scarcity, significant service delivery backlogs and poor revenue recovery, the losses are negatively impacting on the ability of the municipalities to provide sustainable and efficient services. Non-Revenue Water remains the product of many factors including poor planning, limited financial resources to implement the necessary programmes, poor infrastructure asset maintenance and lack of capacity. It is clear that decisive and concerted action is required to address the issues coupled with a strong political will and support to elevate the importance of non-revenue water reduction.

Based on the technical evaluation, the following conclusions were drawn:

- The level of Non-Revenue Water throughout South Africa municipalities at 36.8% is high and there is significant scope for improvement.
- The estimated per capita consumption is also relatively high and suggests that there are high levels of wastage within many households throughout the country. While such wastage and inefficient use is unacceptable, it does present an opportunity to implement awareness and education campaigns which can have a significant effect on overall water use.
- It appears that the levels of Non-Revenue Water are gradually rising which is obviously cause for concern. Unfortunately it has not been possible to work with a consistent data set over the previous 10 years and it is therefore difficult to draw firm conclusions in this regard. It is anticipated that future assessments will be more reliable and clear conclusions will be possible.
- Many Municipalities throughout South Africa do not know how much water they are using which is completely unacceptable. Fortunately all of the Metros and most of the larger towns and cities are monitoring their water use which accounts for 50% of the total municipal water use in South Africa.
- Many Municipalities are continuing to address the water supply backlog to residents who have previously not had access to basic water services. Such developments tend to increase the levels of Non-Revenue Water and may reduce the perceived benefits achieved through the various WDM interventions.

Several other key issues were also identified which are discussed in the remainder of **Section 6**.

6.1 UNDERSTANDING OF NON-REVENUE WATER TERMINOLOGY

A clear understanding of the Non-Revenue Water terminology and calculation is vital in obtaining an accurate picture of water losses. One of the key challenges noted during the course of the study was the lack of understanding amongst a number of local authorities related to correctly allocating the volumes of water to different components of the water balance resulting in double counting and the allocation of unbilled unmetered consumption under free basic water. It is thus apparent that further workshops and training are required to ensure a growing efficacy in the development of accurate volumetric water balances. The workshops should ideally follow a phased approach commencing with the basics and gradually becoming more advanced as the non-revenue water reporting improves. The Masibambane Phase 3 support workshops were very helpful in this regard, however the effectiveness of the training will depend on the consistency and continuity of such programme for the message to take root.

6.2 INTER-DEPARTMENTAL COOPERATION

One of the key findings of the study was the importance of the participation of various departments within municipalities in accurate Non-Revenue Water reporting as well as the value of sound internal communication. During the data collection process, it became evident that challenges exist in this regard and often the water loss perspective obtained from the financial departments of the municipalities does not match that obtained from the technical departments. Effective Non-Revenue Water reduction will therefore require much improved communication between the different departments of local authorities, and the involvement of the legal, political, technical, social and financial departments in training, reporting and Non-Revenue Water reduction programmes to comprehensively and sustainably address the prevalent challenges in the water sector.

6.3 AWARENESS OF THE IMPORTANCE OF WC/WDM

A critical observation made during the course of the study as well as the scorecard assessments is that a large number of municipalities are still lacking on many elements of WC/WDM implementation. This highlights that the importance of conserving and managing the available water resources in South Africa is not yet understood by many municipalities. This is further evident in the low budgets allocated to these activities which is a concern that has been expressed by National Treasury. The political role-players must therefore use their prominent positions to raise the profile of water management within municipalities in accordance with the Presidential targets.

6.4 BILLING AND METERING

Undoubtedly, one of the most important aspects of Non-Revenue Water reduction is effective billing and metering. Numerous studies have expounded on this issue at length, however, the common consensus is that proper metering and billing is most effective in promoting water conservation amongst consumers. Furthermore revenue recovery is essential in order for municipalities to provide a sustainable good quality service and as such should be decisively

implemented across the country where practicable. Ultimately, local authorities have a mandate to generate revenue and to operate in a self-sustaining manner and this can only be achieved through proper monitoring of water supply systems in the form of metering and creating a culture of payment for services to enable sound maintenance activities and a high standard of consumer service.

6.5 ANNUAL INCENTIVE-BASED PERFORMANCE MONITORING

Much has already been achieved through various initiatives to promote the annual reporting on Non-Revenue Water, however it is clear that much is still required to support the progressive implementation of WC/WDM throughout South Africa. Initiatives such as the Blue Drop Green Drop performance management approach have been very successful in encouraging countrywide reporting and monitoring of water quality and the same approach could possibly be successfully applied to the reporting and performance monitoring of non-revenue water KPIs. This approach has provided the municipalities with incentives to improve their management of water quality and has promoted voluntary reporting as opposed to grudging or resentful reporting which is often the reality when gathering information of this nature. This approach could also assist in raising awareness amongst municipalities and elevating the importance of non-revenue water reduction.

6.6 INFRASTRUCTURE ASSET MAINTENANCE

The importance of proper planning, budgeting and maintenance of water infrastructure cannot be over emphasised and is essential in reducing water losses and averting a potential water crisis. The maintenance backlogs and the deteriorating infrastructure within municipalities is a matter that must be addressed urgently if the water losses and poor service delivery are to be addressed adequately. It is often not necessary to try and implement highly technical activities but rather a case of dealing with very basic and simple issues such as locating and cleaning of the infrastructure. Such tasks are essential and have the added benefit that they can help to create employment opportunities for local unskilled personnel who are in great need of employment. There is massive scope for such job creation throughout the whole country and many municipalities are already embarking on repair and maintenance projects. It would thus be of substantial benefit on many fronts for municipalities to utilise these opportunities to bolster their capacity, build relationships with the communities and to address the existing maintenance backlogs and local unemployment.

7 USEFUL REFERENCES

- Carpenter, T, Lambert, A and McKenzie, R. (2002). **Applying the IWA Approach to Water Loss Performance Indicators in Australia**. Paper presented at the IWA Conference, Melbourne, 7-12 April 2002.
- DWA, (2010). **National Non-revenue Water Assessment**, Report completed for Directorate Water Services Planning and Information, Department of Water Affairs by WRP Consulting Engineers (Pty)
- Department of Water Affairs, (2004). **National Water Resource Strategy**, First Edition, September 2004.
- IBNET, (2010). **International Benchmarking Network for Water and Sanitation Utilities** (IBNET), Information obtained from website <http://www.ib-net.org>
- Lambert, A and Mckenzie R. (2002). **Benchmarking of Water Losses in New Zealand (Incorporating the User Manual for the Benchloss NZ Software: Version 1A)**. User New Zealand Water & Wastes Association (2002) Manual ISBN 1-877134-35-X; ISBN for CD is 1-877134-39-2. water@nzwwa.org.nz
- Lambert, A, Brown, TG, Takizawa M, Weimer D. (1999) **A review of performance indicators for real losses from water supply systems**. Aqua, Vol 48, No 6. ISSN 0003-7214
- Liemberger, R and Mckenzie, R. (2005) **Accuracy Limitations of the ILI. Is it an Appropriate Indicator for Developing Countries?** Proceedings from the International Water Association Specialist Conference: Leakage 2005, Halifax, Nova Scotia, Canada. pp 82-89. 12-14 September 2005.
- McKenzie, R. and Lambert A. (2002). **Development of a simple and pragmatic approach to benchmark real losses in potable was distribution systems in South Africa: BENCHLEAK**. Report TT159/01 published by the South African Water Research Commission, January 2002. ISBN No. 1 86845 773 7
- Mckenzie, R and Lambert, AO. (2004). **Best Practice Performance Indicators for Non-Revenue Water and Water Loss Components, A Practical Approach**. Water 21, Magazine of the International Water Association, August 2004.
- Mckenzie, R, Seago, C and Bhagwan, J. (2004). **Assessment of Real Losses in Potable Water Distribution Systems: Some Recent Developments**. Paper presented at the International Water Association (IWA) World Water Congress, Marrakech, 21-23 September 2004.
- Mckenzie, RS & Seago, CJ. (2005). **Benchmarking of Leakage from Water Reticulation Systems in South Africa**. Report to the South African Water Research Commission. Report number TT 244/05, ISBN 1-77005-282-8. March 2005.
- Mckenzie, R. (2010). **Municipal WDM Balanced Scorecard Model: User Guide**. Report to the South African Water Research Commission, September 2010.
- Seago, CJ, Mckenzie, RS and Bhagwan, J. (2006) **An Evaluation of Non-Revenue Water in South Africa**. Paper presented at the Water Institute of South Africa Biennial Conference, Durban ICC, 22 to 25 May 2006.

Seago, CJ and McKenzie, RS. (2005). **An Assessment of Non-Revenue Water in South Africa**, Water Research Commission Report TT 300/07, ISBN 978-1-77005-529-2

Seago, C, Mckenzie, R & Bhagwan, J. (2004). **Benchmarking Leakage from Water Reticulation Systems in South Africa**. Paper presented at the 2004 Biennial Water Institute of South Africa Conference, ICC, Cape Town, 3-5 May 2004.

Waldron T. (2005). **Managing and reducing losses from water distribution systems. Manual 10, Executive Summary**. ISBN 0 7242 9498 8

APPENDIX A:

DEFINITIONS OF TERMS

Authorised Consumption

Authorised consumption is the volume of metered (authorised metered) and/or unmetered (authorised unmetered) water taken by registered customers, the water supplier and others who are implicitly or explicitly authorised to do so by the water supplier, for residential, commercial and industrial purposes.

It should be noted that the authorised consumption also includes 'water exported' and, in some cases may include items such as fire-fighting and training, flushing of mains and sewers, street cleaning, watering of municipal gardens, public fountains, building water, etc. These may be billed or unbilled, metered or unmetered, according to local practice.

Billed Authorised Consumption

Billed authorised consumption is the volume of authorised consumption which is billed by the WSA and paid for by the customer. It is effectively the revenue water, which, in turn, comprises:

- Billed metered consumption;
- Billed unmetered consumption.

Commercial Losses

Commercial losses or Apparent Losses are made up from the unauthorised consumption (theft or illegal use) plus all technical and administrative inaccuracies associated with customer metering/billing. While it should be noted that the commercial losses should not normally be a major component of the water balance in most developed countries, it can represent the major element of the total losses in many developing countries. A systematic estimate should be made from local knowledge of the system and an analysis of technical and administrative aspects of the customer metering system.

Non-Revenue Water

Non-Revenue Water is becoming the standard term replacing unaccounted-for water (UFW) in many water balance calculations and is the term recommended by the International Water

Association in preference to UFW. It is a term that can be clearly defined, unlike the unaccounted-for water term which often represents different components to the various water suppliers. Non-Revenue Water incorporates the following items:

- Unbilled authorised consumption;
- Commercial Losses; and
- Physical Leakage.

Physical Leakage

Physical Leakage or Real losses represent the physical leakage from the pressurised system, up to the point of measurement of customer use. In most cases, the physical leakage represents the unknown component in the overall water balance and the purpose of most water balance models is therefore to estimate the magnitude of the leakage so that the Municipality can gauge whether or not it has a serious leakage problem. The physical leakage is generally calculated as the difference between the total losses and the estimated commercial losses.

System Input

The system input represents the volume input to the water supply system from the WSAs own sources allowing for all known errors (i.e. errors on bulk water meters) as well as any water imported from other sources – also corrected for known bulk metering errors.

Unbilled Authorised Consumption

The unbilled authorised consumption is the volume of authorised consumption that is not billed or paid for. The level of unbilled authorised consumption will vary from WRS to WRS and in some areas virtually all water is metered and billed in some manner with the result that the unbilled authorised consumption is zero.

Water Losses

Water losses are the sum of the physical leakage and the commercial losses and are calculated from the difference between the total system input and the authorised consumption. In most countries, the water losses are often referred to as the unaccounted-for water (UFW) although, as mentioned previously, the exact definition of the UFW can vary from country to country.

Unavoidable Annual Real Losses

The minimum level of real losses for a specific system that can be achieved under the most efficient operating conditions. It is an indication of the level of leakage that can theoretically be achieved if everything possible is done to minimise the leakage and is generally not an achievable target for most water suppliers since the UARL is normally well below the economic level of leakage.

APPENDIX B:
NON-REVENUE WATER BALANCE SHEETS

National Non-Revenue Water Assessment

Eastern Cape Province

July 2011



Introductory notes

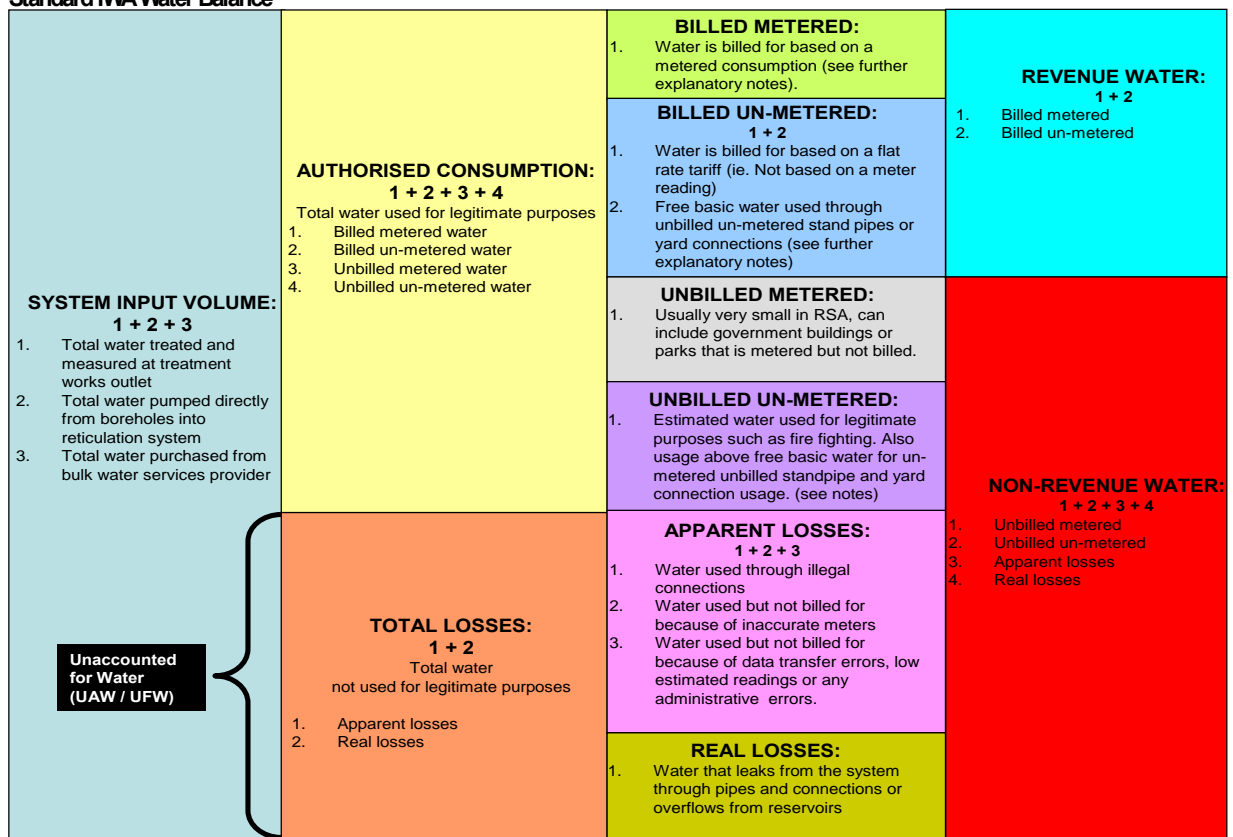
Terminology

Acronym	Description	Link
DWA	Department of Water Affairs	http://www.dwa.gov.za
WS RPMS	Water Services : Regulatory Performance Measurement System	http://www.dwa.gov.za/dir_ws/rpm/
WS NIS	Water Services : National Information System	http://www.dwa.gov.za/dir_ws/wsis/
FBS	Water Services : Free Basic Water Project	http://www.dwaf.gov.za/dir_ws/fbw/
NRW	Non-revenue water. Volume of water for which no revenue is received (preferred term)	
UAW or UFW	Unaccounted-for water. Volume of water lost due to physical and apparent losses (not preferred term)	
StatsSA NEC	Statistics South Africa : Non-Financial Census of Municipalities P9115	http://www.statssa.gov.za/

Information sources

Item	Source	Calculation
Population	DWA WS NIS or municipality	
Households	DWA WS NIS or municipality	
Connections - metered	Extrapolated 2007 DWA - WS FBW serviced above RDP or municipality	
Connections - Unmetered	Extrapolated 2007 DWA - WS FBW serviced at RDP or municipality	
Length of mains (km)	Actual value or calculated at average of 50 connections / km of mains	# connections ÷ 50
(A) System input volume	Total volume of potable water supplied by the municipality in k/annum	
(B) Billed metered consumption	Total volume of water metered and billed by the municipality in k/annum	
(C) Billed unmetered consumption	Total volume of water unmetered and billed by the municipality in k/annum	
Underlined values	Calculated values using trends or averages	

Standard IWA Water Balance



National NRW Assessment

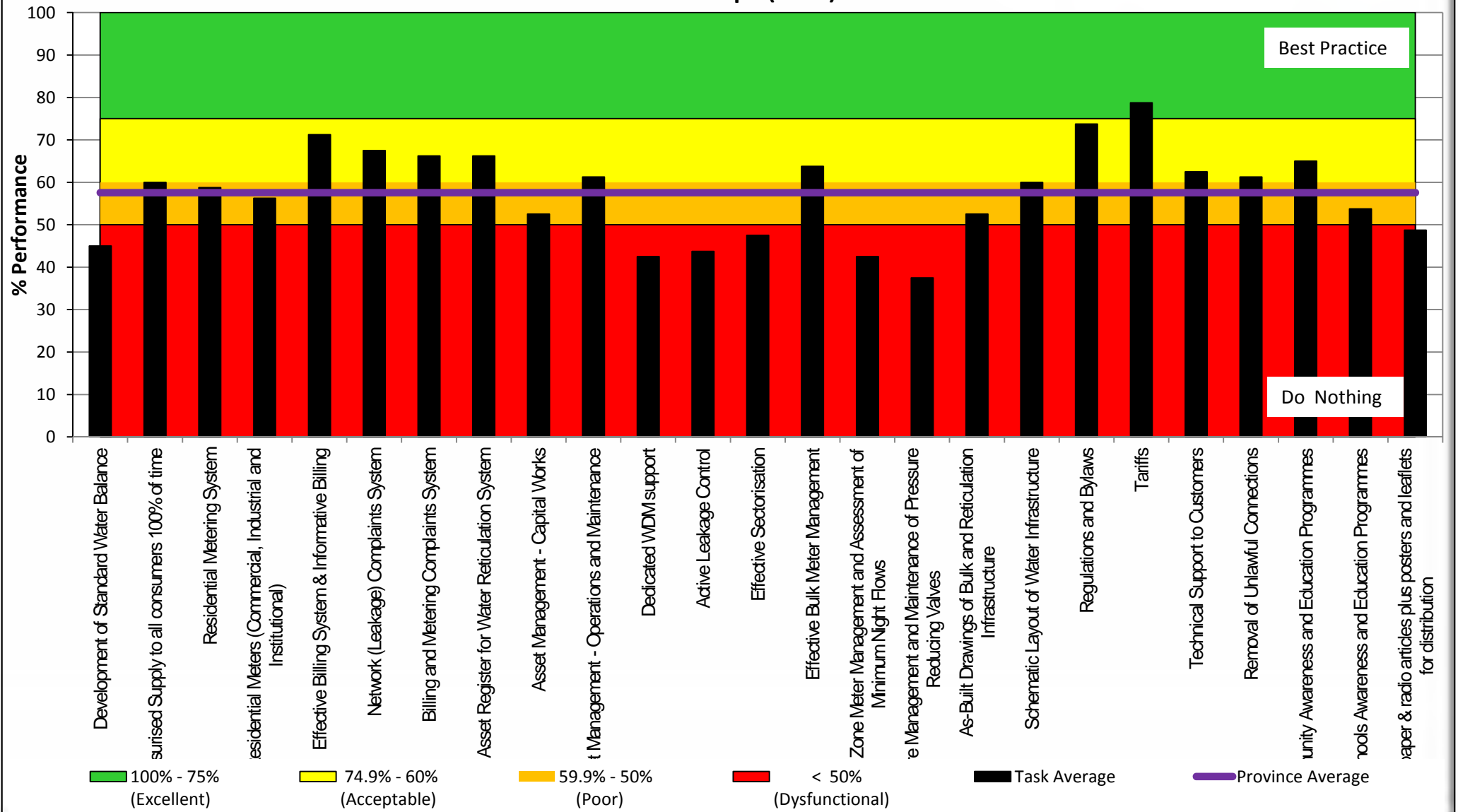


Province Eastern Cape					
No	Municipal Code	District Municipality	Municipality	Category	WSA
1	NMA	Nelson Mandela Bay Metro	Nelson Mandela Bay Metro	A	Yes
2	DC10	Cacadu	Cacadu DM	C1	Yes
3	EC101	Cacadu	Camdeboo	B3	Yes
4	EC102	Cacadu	Blue Crane Route	B3	Yes
5	EC103	Cacadu	Ikwezi	B3	Yes
6	EC104	Cacadu	Makana	B2	Yes
7	EC105	Cacadu	Ndlambe	B3	Yes
8	EC106	Cacadu	Sunday's River Valley	B3	Yes
9	EC107	Cacadu	Baviaans	B3	Yes
10	EC108	Cacadu	Kouga	B3	Yes
11	EC109	Cacadu	Kou-Kamma	B3	Yes
12	DC12	Amathole	Amathole DM	C2	Yes
13	EC121	Amathole	Mbashe	B4	No
14	EC122	Amathole	Mquma	B4	No
15	EC123	Amathole	Great Kei	B3	No
16	EC124	Amathole	Amahlati	B3	No
17	EC125	Amathole	Buffalo City	B1	Yes
18	EC126	Amathole	Ngqushwa	B4	No
19	EC127	Amathole	Nkonkobe	B3	No
20	EC128	Amathole	Nxuba	B3	No
21	DC13	Chris Hani	Chris Hani DM	C2	Yes
22	EC131	Chris Hani	Inxuba Yethemba	B3	No
23	EC132	Chris Hani	Tsolwana	B3	No
24	EC133	Chris Hani	Inkwanza	B3	No
25	EC134	Chris Hani	Lukhanji	B2	No
26	EC135	Chris Hani	Intsika Yethu	B4	No
27	EC136	Chris Hani	Emalahleni	B4	No
28	EC137	Chris Hani	Engcobo	B4	No
29	EC138	Chris Hani	Sakhisizwe	B3	No
30	DC14	Ukhahlamba	Ukhahlamba DM	C2	Yes
31	EC141	Ukhahlamba	Elundini	B4	No
32	EC142	Ukhahlamba	Senqu	B4	No
33	EC143	Ukhahlamba	Maletswai	B3	No
34	EC144	Ukhahlamba	Gariep	B3	No
35	DC15	O.R.Tambo	O.R.Tambo DM	C2	Yes
36	EC151	OR Tambo	Mbizana	B4	No
37	EC152	OR Tambo	Ntabankulu	B4	No
38	EC153	OR Tambo	Ngqiza Hill	B4	No
39	EC154	OR Tambo	Port St Johns	B4	No
40	EC155	OR Tambo	Nyandeni	B4	No
41	EC156	OR Tambo	Mlontle	B4	No
42	EC157	OR Tambo	King Sabata Dalindyebo	B2	No
43	DC44	Alfred Nzo	Alfred Nzo DM	C2	Yes
44	EC441	Alfred Nzo	Matatiele	B3	No
45	EC442	Alfred Nzo	Uzimvubu	B4	No

National NRW Assessment

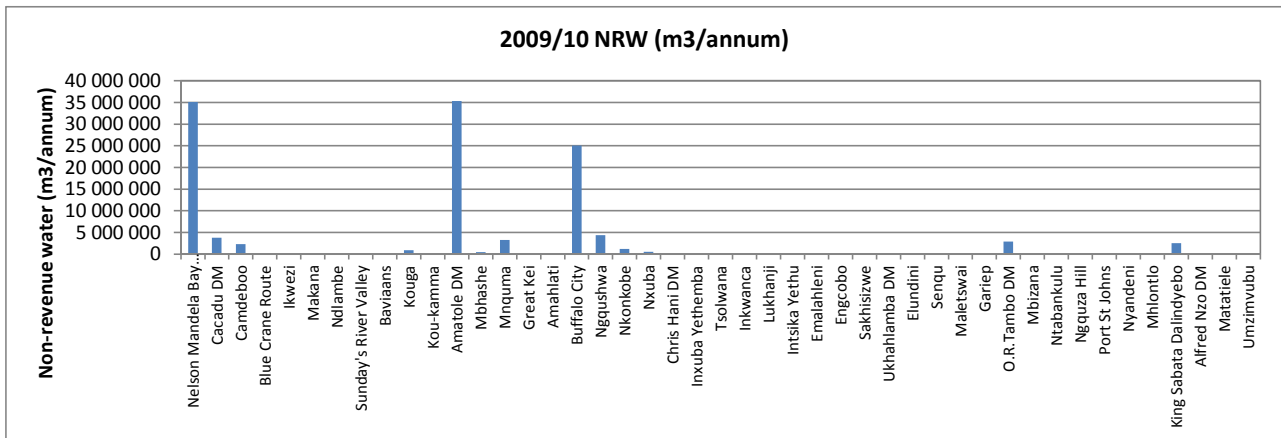
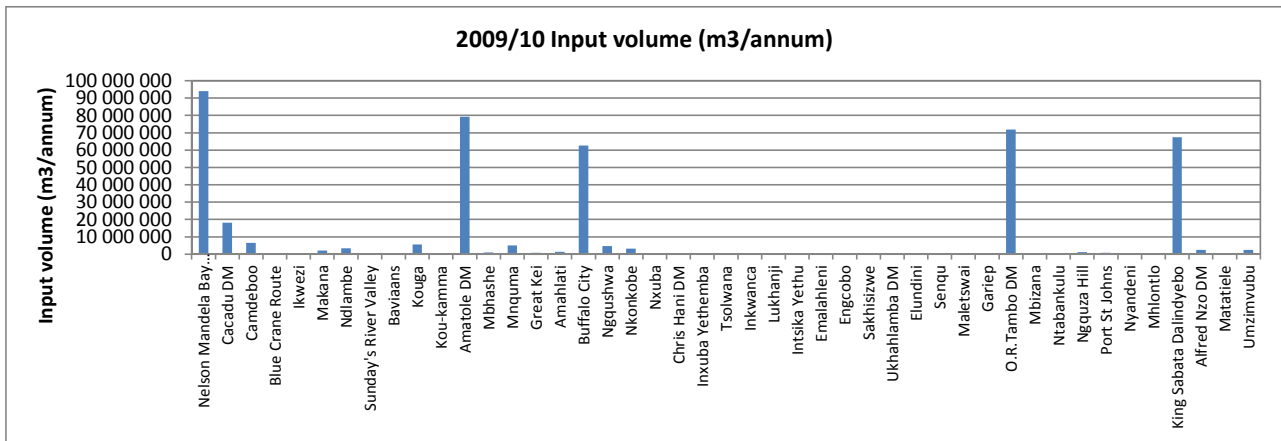
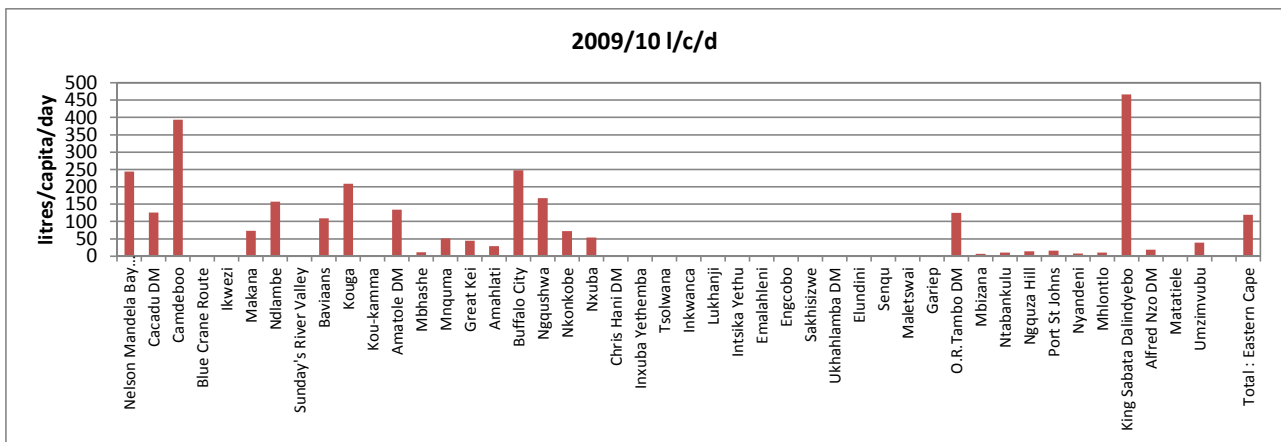
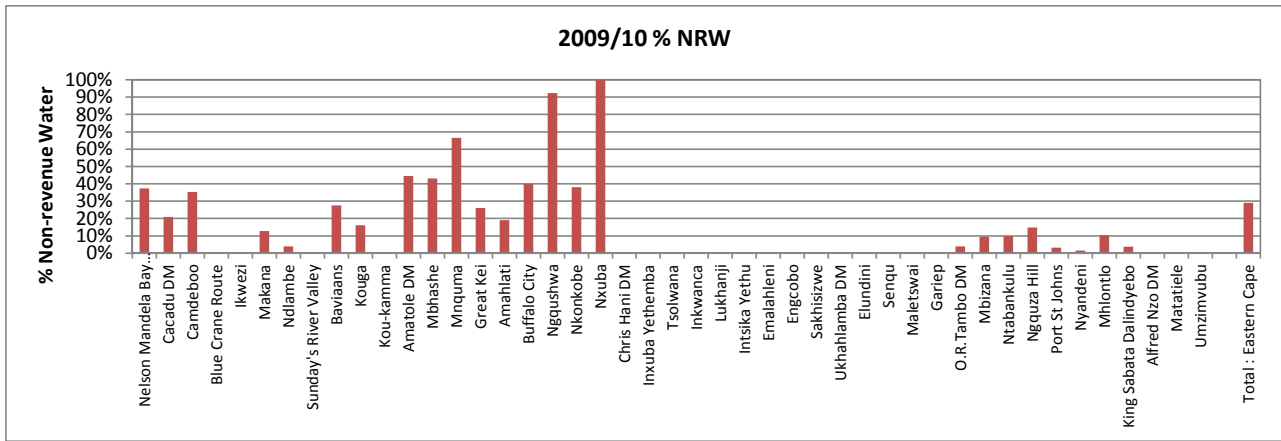


Municipal Scorecard for Assessing the Potential for WC/WDM in Municipalities Eastern Cape (2010)

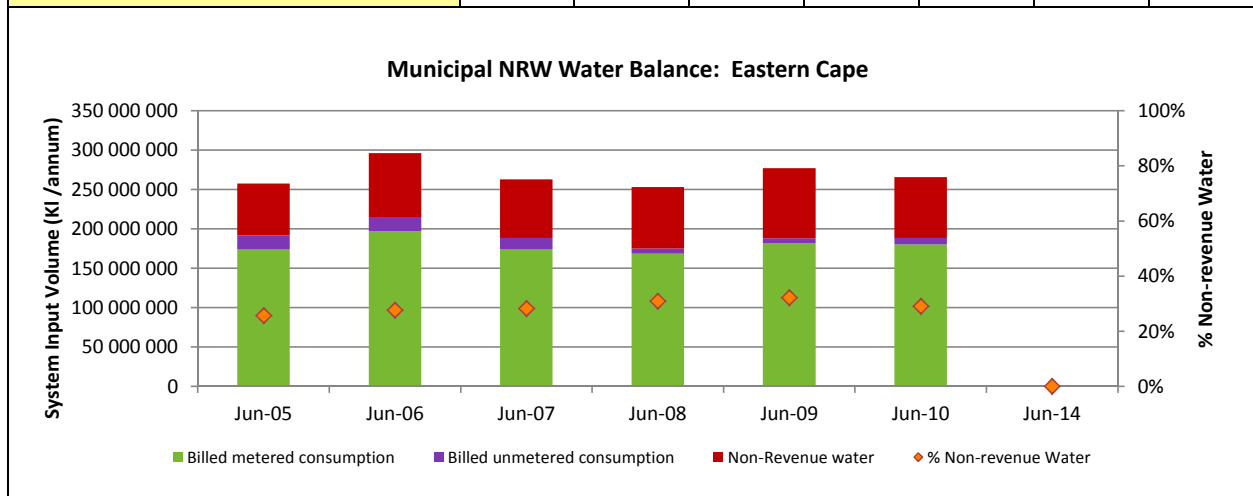


Score	Criteria	# of Records	Comments	Distribution
Record Keeping 45				
1	No records	1	Good records keeping is the first step towards water management and reducing water losses	
2	Poor records	16		
3	Erratic / worthless records	15		
4	Records with gaps or questions	11		
5	Good records no gaps or questions	2		
% NRW 45				
0	No records	19	% Non-revenue water (volume of water for which no income is received). Current estimated national average ±35%	
1	>50%	3		
2	>40% <=50%	2		
3	>30% <=40%	4		
4	>20% <=30%	3		
5	<=20%	14		
litres / capita / day 45				
0	No records	19	Average litres / capita / day based on system input volume. Expected average around 200l/c/d.	
1	>400	1		
2	>300 and <=400	1		
3	>200 and <=300	3		
4	>100 and <=200	6		
5	<=100	15		
NRW Activity 45				
1	No activity	1	Based on local knowledge, scorecard, available records.	
2	Very limited activity	17		
3	Some activity, part of O&M	12		
4	Small scale active programme	13		
5	Large scale active programme	2		
Potential NRW Impact 45				
1	<=50,000	12	Potential impact of intervention based on population. High population = high consumption = higher potential saving.	
2	>50,000 <=100,000	6		
3	>100,000 <=200,000	13		
4	>200,000 <=500,000	9		
5	>500,000	5		

Key Performance Indicators



Province		Eastern Cape						WSA	
Municipal Code									
District Municipality								Category	
Municipality									
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	6 369 305	6 359 934	6 418 303	6 459 375	6 499 786	6 101 127	0	
	Households	1 575 723	1 574 215	1 587 720	1 598 286	1 607 943	1 514 184	0	
	Connections - metered	704 275	706 552	712 095	717 199	724 541	646 455	0	
	Connections - Unmetered	718 288	715 148	720 843	725 804	734 659	563 668	0	
	Length of mains (km)	23 034	22 988	23 183	23 322	23 604	1 942 439	0	
	System input volume	kl/annum	257 616 491	296 045 713	262 860 956	253 002 028	277 244 894	265 746 005	0
	Billed metered consumption	kl/annum	173 669 205	196 848 940	174 002 769	168 407 917	182 016 286	180 507 562	0
	Billed unmetered consumption	kl/annum	17 930 082	17 217 970	14 661 706	6 471 123	6 011 521	8 119 400	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	191 599 286	214 066 910	188 664 475	174 879 040	188 027 807	188 626 962	0
	Non-Revenue water	kl/annum	66 017 205	81 978 803	74 196 481	78 122 988	89 217 087	77 119 043	0
	Water Losses	kl/annum	66 017 205	81 978 803	74 196 481	78 122 988	89 217 087	77 119 043	0
	% Non-revenue water		25.6%	27.7%	28.2%	30.9%	32.2%	29.0%	No data
	% Water Losses		25.6%	27.7%	28.2%	30.9%	32.2%	29.0%	No data
Key performance indicators	Input : Litres / capita / day		111	128	112	107	117	119	No data
	Input: m ³ / household / month		14	16	14	13	14	15	No data
	Billed : Litres / capita / day		82	92	81	74	79	85	No data
	Billed : m ³ / household / month		10	11	10	9	10	10	No data
	% Population growth			-0.15%	0.92%	0.64%	0.63%	-6.13%	
	% Water demand growth			14.92%	-11.21%	-3.75%	9.58%	-4.15%	
Source of information									



Comments

Province		Eastern Cape						WSA	
Municipal Code		NMA						Yes	
District Municipality								Category	
Municipality		Nelson Mandela Bay Metro						A	
Settlements		BETHELSDORP, UITENHAGE, KWANOBUHLE, PORTELIZABETH, SUMMERSTRAND						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	1 023 900	1 033 109	1 039 307	1 046 235	1 052 509	1 056 350		
	Households	278 753	281 261	282 946	284 833	286 546	287 595		
	Connections - metered	244 404	243 000	244 278	245 706	247 000	247 794		
	Connections - Unmetered	8 966	9 047	9 404	9 162	9 247	9 254		
	Length of mains (km)	4 404	4 444	4 468	4 497	4 524	4 544		
	System input volume	kl/annum	81 870 640	84 594 000	89 757 111	96 600 000	101 452 000	94 036 000	
	Billed metered consumption	kl/annum	55 912 000	61 911 200	58 344 783	60 800 000	63 914 272	56 414 000	
	Billed unmetered consumption	kl/annum	5 760 000	523 800	2 000 000	2 500 000	2 500 000	2 500 000	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	61 672 000	62 435 000	60 344 783	63 300 000	66 414 272	58 914 000	0
	Non-Revenue water	kl/annum	20 198 640	22 159 000	29 412 328	33 300 000	35 037 728	35 122 000	0
	Water Losses	kl/annum	20 198 640	22 159 000	29 412 328	33 300 000	35 037 728	35 122 000	0
	% Non-revenue water		24.7%	26.2%	32.8%	34.5%	34.5%	37.3%	No data
	% Water Losses		24.7%	26.2%	32.8%	34.5%	34.5%	37.3%	No data
Key performance indicators	Input : Litres / capita / day		219	224	237	253	264	244	No data
	Input: m ³ / household / month		24	25	26	28	30	27	No data
	Billed : Litres / capita / day		165	166	159	166	173	153	No data
	Billed : m ³ / household / month		18	18	18	19	19	17	No data
	% Population growth			0.90%	0.60%	0.67%	0.60%	0.36%	
	% Water demand growth			3.33%	6.10%	7.62%	5.02%	-7.31%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS Municipality	DWA NIS StatsSA NFC	DWA NIS RPMS		

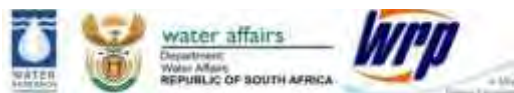
Municipal NRW Water Balance: Nelson Mandela Bay Metro

The chart displays the following data points (approximate values):

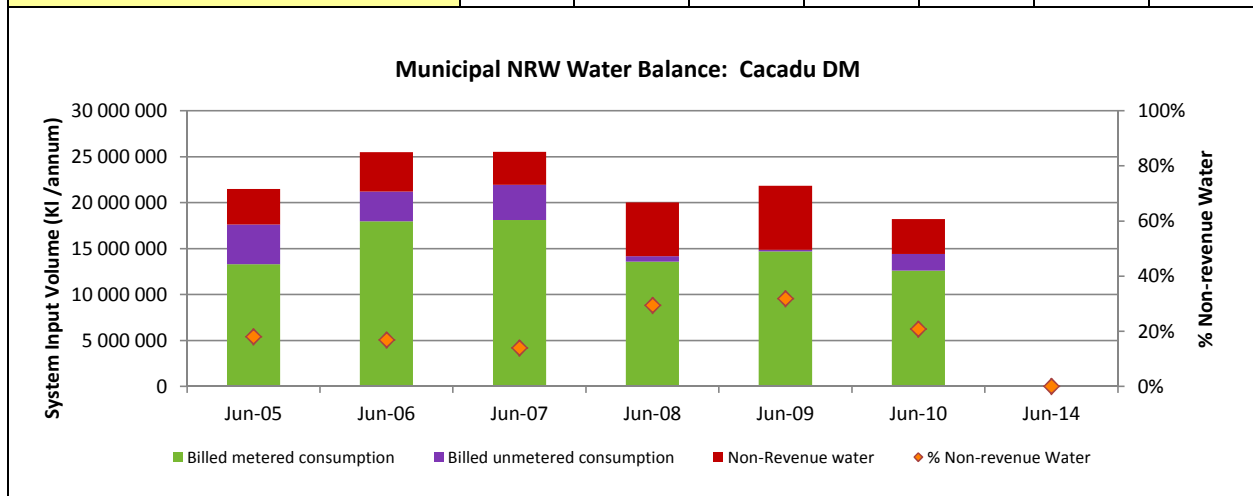
Year	Billed metered consumption (kl)	Billed unmetered consumption (kl)	Non-Revenue water (kl)	% Non-revenue Water
Jun-05	55,912,000	5,760,000	20,198,640	24.7%
Jun-06	61,911,200	523,800	22,159,000	26.2%
Jun-07	58,344,783	2,000,000	29,412,328	32.8%
Jun-08	60,800,000	2,500,000	33,300,000	34.5%
Jun-09	63,914,272	2,500,000	35,037,728	34.5%
Jun-10	56,414,000	2,500,000	35,122,000	37.3%

Comments

National NRW Assessment

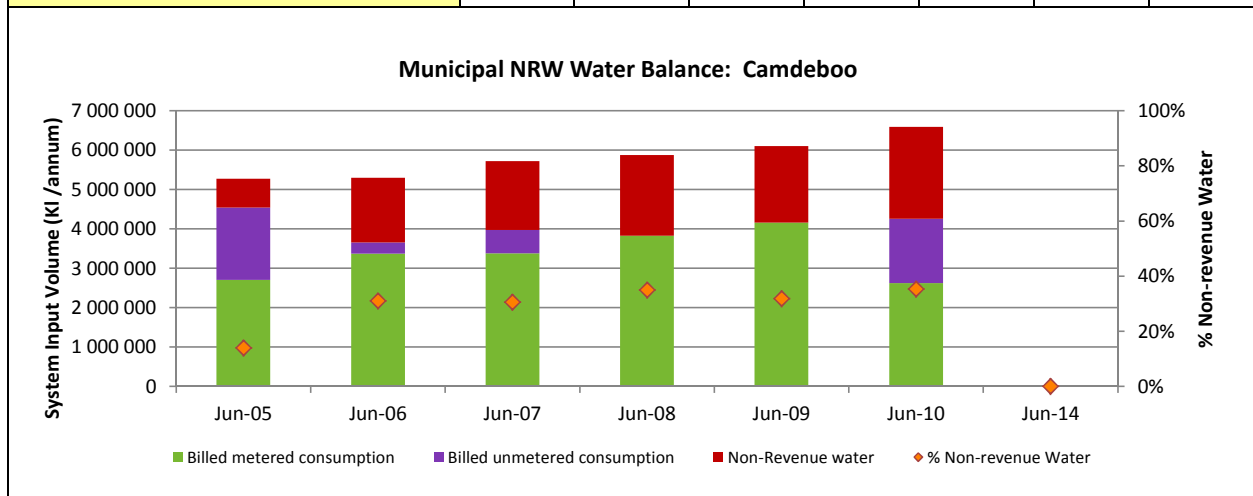


Province		Eastern Cape						WSA	
Municipal Code		DC10						No	
District Municipality		Cacadu						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	389 607	392 687	395 045	397 680	400 066	395 931	0	
	Households	105 536	106 366	107 003	107 720	108 366	107 214	0	
	Connections - metered	93 205	93 942	94 506	95 136	98 325	97 375	0	
	Connections - Unmetered	11 531	11 622	11 691	11 770	16 700	16 456	0	
	Length of mains (km)	2 095	2 111	2 124	2 138	2 301	2 277	0	
	System input volume	kl/annum	21 481 191	25 498 798	25 526 924	20 037 782	21 840 280	18 217 682	0
	Billed metered consumption	kl/annum	13 300 903	17 975 548	18 092 816	13 563 473	14 678 726	12 582 867	0
	Billed unmetered consumption	kl/annum	4 304 046	3 226 640	3 862 464	587 560	200 000	1 840 000	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	17 604 949	21 202 188	21 955 280	14 151 033	14 878 726	14 422 867	0
	Non-Revenue water	kl/annum	3 876 242	4 296 610	3 571 644	5 886 748	6 961 553	3 794 815	0
	Water Losses	kl/annum	3 876 242	4 296 610	3 571 644	5 886 748	6 961 553	3 794 815	0
	% Non-revenue water		18.0%	16.9%	14.0%	29.4%	31.9%	20.8%	No data
	% Water Losses		18.0%	16.9%	14.0%	29.4%	31.9%	20.8%	No data
Key performance indicators	Input : Litres / capita / day		151	178	177	138	150	126	No data
	Input: m³ / household / month		17	20	20	16	17	14	No data
	Billed : Litres / capita / day		124	148	152	97	102	100	No data
	Billed : m³ / household / month		14	17	17	11	11	11	No data
	% Population growth			0.79%	0.60%	0.67%	0.60%	-1.03%	
	% Water demand growth			18.70%	0.11%	-21.50%	9.00%	-16.59%	
Source of information									



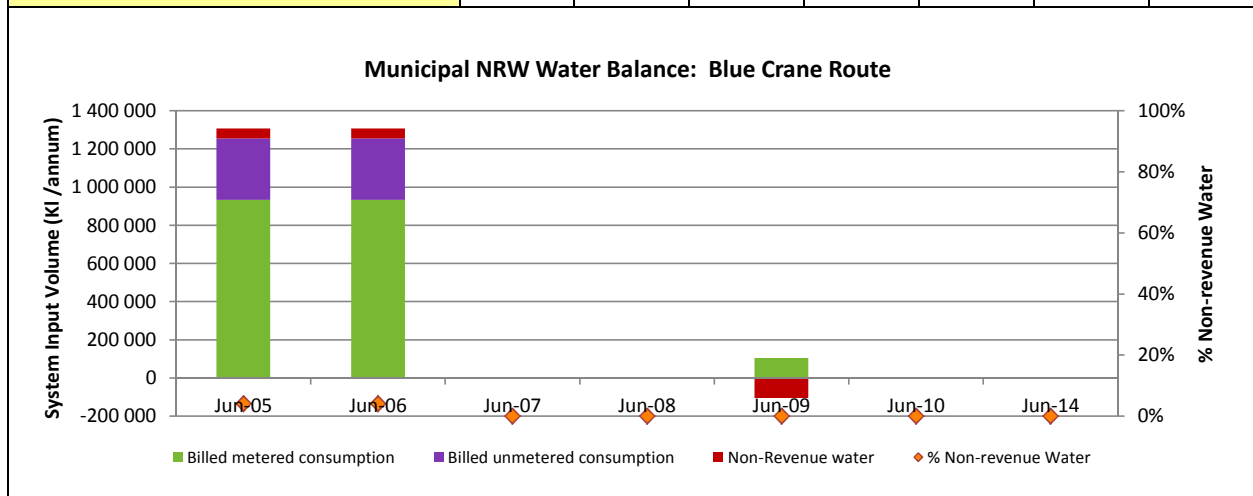
Comments

Province		Eastern Cape						WSA	
Municipal Code		EC101						No	
District Municipality		Cacadu						Category	
Municipality		Camdeboo						B3	
Settlements		GRAAFF-REINET, KROONVALE						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	44 630	44 981	45 251	45 554	45 828	45 912		
	Households	10 908	10 993	11 059	11 132	11 199	11 219		
	Connections - metered	40 374	40 456	40 549	40 589	40 653	40 672		
	Connections - Unmetered	598	602	606	610	614	615		
	Length of mains (km)	249	224	222	224	225	226		
	System input volume	kl/annum	5 274 057	5 301 757	5 719 900	5 878 358	6 404 280	6 590 000	
	Billed metered consumption	kl/annum	2 705 000	3 370 500	3 377 910	3 824 968	4 161 423	2 620 000	
	Billed unmetered consumption	kl/annum	1 836 227	284 000	594 504			1 640 000	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	4 541 227	3 654 500	3 972 414	3 824 968	4 161 423	4 260 000	0
	Non-Revenue water	kl/annum	732 830	1 647 257	1 747 486	2 053 390	1 939 856	2 330 000	0
	Water Losses	kl/annum	732 830	1 647 257	1 747 486	2 053 390	1 939 856	2 330 000	0
	% Non-revenue water		13.9%	31.1%	30.6%	34.9%	31.8%	35.4%	No data
	% Water Losses		13.9%	31.1%	30.6%	34.9%	31.8%	35.4%	No data
Key performance indicators	Input : Litres / capita / day		324	323	346	354	365	393	No data
	Input: m ³ / household / month		40	40	43	44	45	49	No data
	Billed : Litres / capita / day		279	223	241	230	249	254	No data
	Billed : m ³ / household / month		35	28	30	29	31	32	No data
	% Population growth			0.79%	0.60%	0.67%	0.60%	0.18%	
	% Water demand growth			0.53%	7.89%	2.77%	3.79%	8.01%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS RPMS		



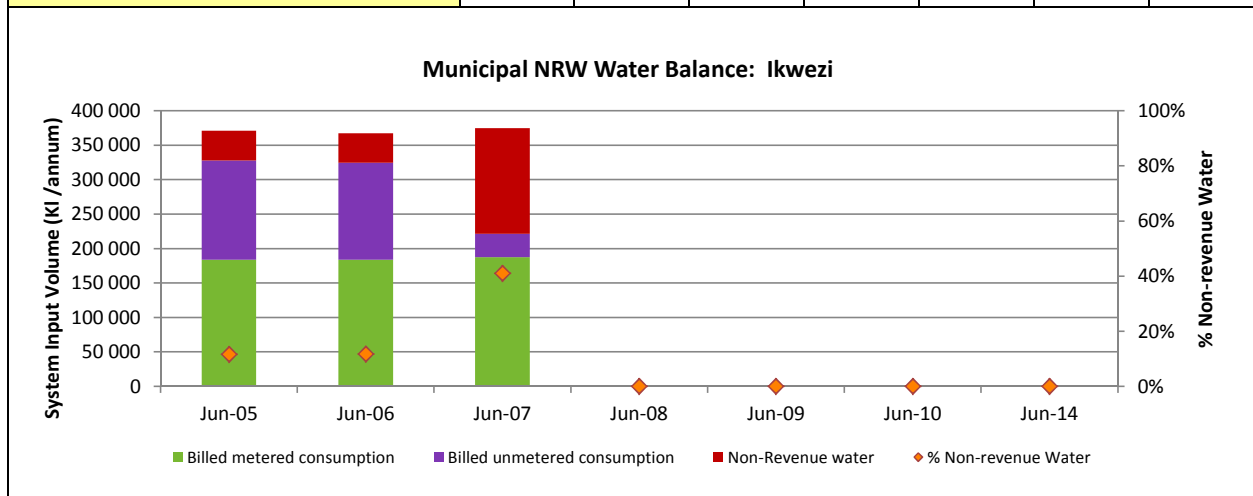
Comments
 Fluctuating input volume?; NRW cannot be negative?

Province		Eastern Cape						WSA
Municipal Code		EC102						No
District Municipality		Cacadu						Category
Municipality		Blue Crane Route						B3
Settlements		SOMERSET EAST						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	35 503	35 784	35 999	36 239	36 455	36 325	
	Households	10 085	10 163	10 223	10 294	10 355	10 316	
	Connections - metered	9 218	9 294	9 347	9 409	9 465	9 434	
	Connections - Unmetered	649	624	628	632	636	633	
	Length of mains (km)	497	498	499	204	202	204	
	System input volume	kl/annum	1 308 034	1 308 034	0			
	Billed metered consumption	kl/annum	933 215	933 215	0		404 524	
	Billed unmetered consumption	kl/annum	321 192	321 192	0			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 254 407	1 254 407	0	0	104 524	0
	Non-Revenue water	kl/annum	53 627	53 627	0	0	-104 524	0
	Water Losses	kl/annum	53 627	53 627	0	0	-104 524	0
	% Non-revenue water		4.1%	4.1%	No data	No data	No data	No data
	% Water Losses		4.1%	4.1%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		101	100	No data	No data	No data	No data
	Input: m ³ / household / month		11	11	No data	No data	No data	No data
	Billed : Litres / capita / day		97	96	No data	No data	8	No data
	Billed : m ³ / household / month		10	10	No data	No data	1	No data
	% Population growth			0.79%	0.60%	0.67%	0.60%	-0.36%
	% Water demand growth			0.00%				
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	



Comments
 Input volume consistent for 2005 and 2006? Data for 2009 seems incorrect?

Province		Eastern Cape						WSA	
Municipal Code		EC103						No	
District Municipality		Cacadu						Category	
Municipality		Ikwezi						B3	
Settlements		Jansenville						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	10 445	10 527	10 589	10 658	10 721	10 763		
	Households	2 899	2 921	2 939	2 957	2 975	2 988		
	Connections - metered	2 777	2 799	2 846	2 834	2 854	2 862		
	Connections - Unmetered	137	138	139	140	144	144		
	Length of mains (km)	58	59	59	59	60	60		
	System input volume	kl/annum	370 918	367 462	374 811				
	Billed metered consumption	kl/annum	183 880	183 880	187 557				
	Billed unmetered consumption	kl/annum	144 000	140 544	33 696				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	327 880	324 424	221 253	0	0	0	0
	Non-Revenue water	kl/annum	43 038	43 038	153 558	0	0	0	0
	Water Losses	kl/annum	43 038	43 038	153 558	0	0	0	0
	% Non-revenue water		11.6%	11.7%	41.0%	No data	No data	No data	No data
	% Water Losses		11.6%	11.7%	41.0%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		97	96	97	No data	No data	No data	No data
	Input: m ³ / household / month		11	10	11	No data	No data	No data	No data
	Billed : Litres / capita / day		86	84	57	No data	No data	No data	No data
	Billed : m ³ / household / month		9	9	6	No data	No data	No data	No data
	% Population growth			0.79%	0.59%	0.65%	0.59%	0.39%	
	% Water demand growth			-0.93%	2.00%				
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS		



Comments
Average consumption seems low?; Fluctuating NRW?

Province		Eastern Cape						WSA	
Municipal Code		EC104						No	
District Municipality		Cacadu						Category	
Municipality		Makana						B2	
Settlements		GRAHAMSTOWN, RIEBEECK EAST						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	74 833	75 426	75 878	76 384	76 842	76 841		
	Households	18 775	18 923	19 037	19 164	19 281	19 281		
	Connections - metered	46 874	47 008	47 440	47 224	47 300	47 326		
	Connections - Unmetered	1 992	2 007	2 020	2 033	2 045	2 045		
	Length of mains (km)	377	380	383	385	447	447		
	System input volume	kl/annum	3 437 034	3 679 472	5 389 320	4 734 660	4 080 000	2 040 000	
	Billed metered consumption	kl/annum	2 110 125	2 446 962	3 598 474	3 404 237	2 610 000	1 580 000	
	Billed unmetered consumption	kl/annum	554 256	707 400	975 120	587 560	200 000	200 000	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 664 381	3 154 362	4 573 594	3 691 797	2 810 000	1 780 000	0
	Non-Revenue water	kl/annum	772 653	525 110	815 726	1 042 863	1 270 000	260 000	0
	Water Losses	kl/annum	772 653	525 110	815 726	1 042 863	1 270 000	260 000	0
	% Non-revenue water		22.5%	14.3%	15.1%	22.0%	31.1%	12.7%	No data
	% Water Losses		22.5%	14.3%	15.1%	22.0%	31.1%	12.7%	No data
Key performance indicators	Input : Litres / capita / day		126	134	195	170	145	73	No data
	Input: m ³ / household / month		15	16	24	21	18	9	No data
	Billed : Litres / capita / day		98	115	165	132	100	63	No data
	Billed : m ³ / household / month		12	14	20	16	12	8	No data
	% Population growth			0.79%	0.60%	0.67%	0.60%	0.00%	
	% Water demand growth			7.05%	46.47%	-12.15%	-13.83%	-50.00%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS RPMS		

Municipal NRW Water Balance: Makana

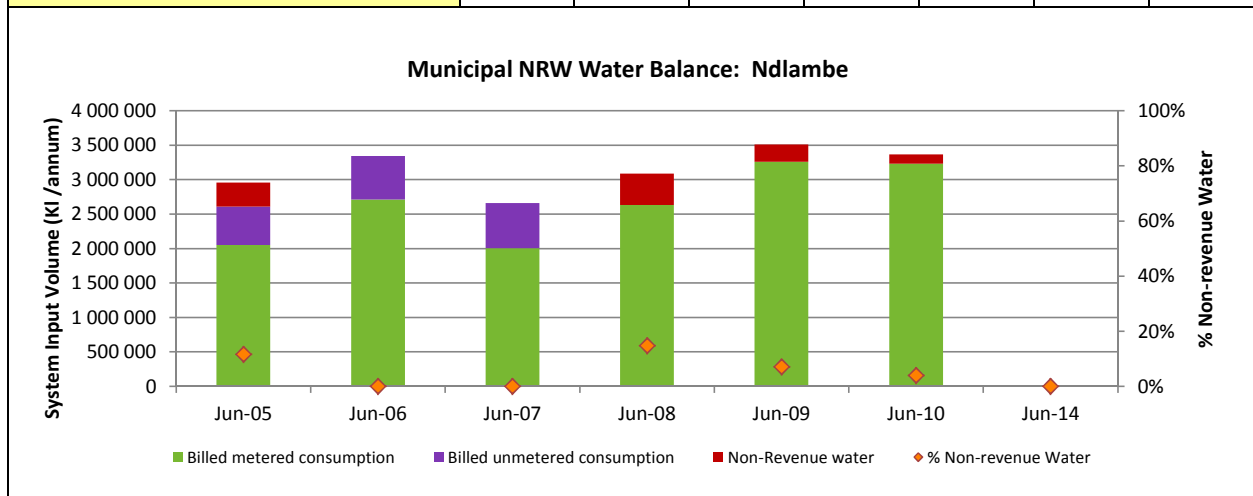
The chart displays two data series: System Input Volume (kl/annum) on the left Y-axis (0 to 6,000,000) and % Non-revenue Water on the right Y-axis (0% to 100%). The X-axis shows years from Jun-05 to Jun-14. The stacked bars represent Billed metered consumption (green), Billed unmetered consumption (purple), and Non-Revenue water (red). The diamond markers represent the % Non-revenue Water. The total input volume shows a peak in Jun-07 and a sharp decline in Jun-10 and Jun-14.

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	2,110,125	554,256	772,653	22.5%
Jun-06	2,446,962	707,400	525,110	14.3%
Jun-07	3,598,474	975,120	815,726	15.1%
Jun-08	3,404,237	587,560	1,042,863	22.0%
Jun-09	2,610,000	200,000	1,270,000	31.1%
Jun-10	1,580,000	200,000	260,000	12.7%
Jun-14				

Comments

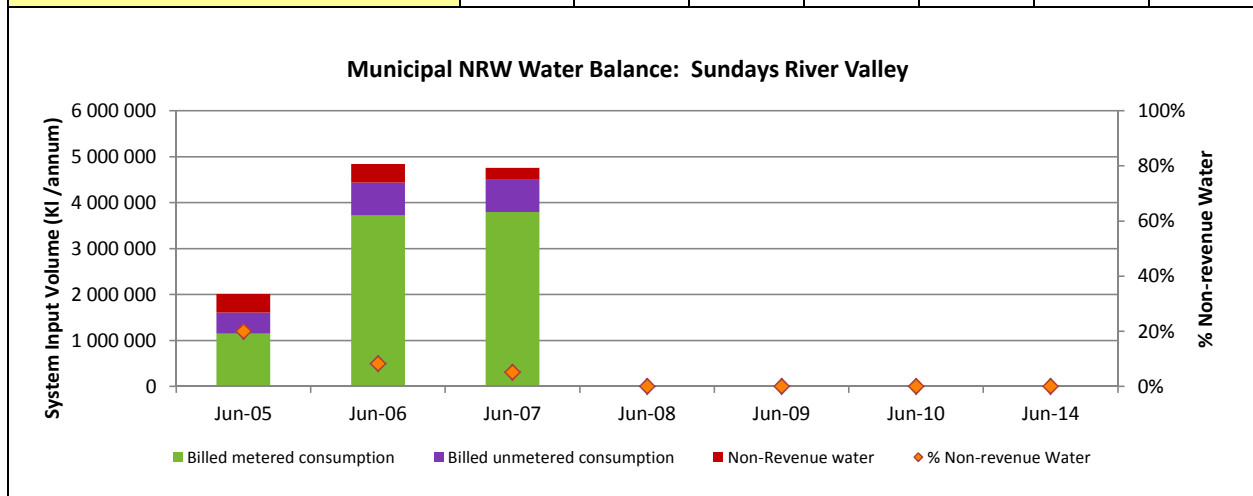
Fluctuating input volume? NRW for 2009 very high?

Province		Eastern Cape						WSA	
Municipal Code		EC105						No	
District Municipality		Cacadu						Category	
Municipality		Ndlambe						B3	
Settlements		PORT ALFRED						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	57 804	58 261	58 612	59 005	59 361	58 571		
	Households	17 027	17 158	17 261	17 379	17 484	17 251		
	Connections - metered	14 080	14 192	14 277	14 373	14 460	14 267		
	Connections - Unmetered	2 982	3 005	3 023	3 044	3 062	3 022		
	Length of mains (km)	344	344	346	348	350	346		
	System input volume	kl/annum	2 956 500	3 342 892	2 661 314	3 086 534	3 511 753	3 368 070	
	Billed metered consumption	kl/annum	2 052 351	2 712 964	2 004 098	2 632 706	3 261 314	3 233 899	
	Billed unmetered consumption	kl/annum	559 224	629 928	657 216		0		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 611 575	3 342 892	2 661 314	2 632 706	3 261 314	3 233 899	0
	Non-Revenue water	kl/annum	344 925	0	0	453 828	250 439	134 170	0
	Water Losses	kl/annum	344 925	0	0	453 828	250 439	134 170	0
	% Non-revenue water		11.7%	Check data	Check data	14.7%	7.1%	4.0%	No data
	% Water Losses		11.7%	No data	No data	14.7%	7.1%	4.0%	No data
Key performance indicators	Input : Litres / capita / day		140	157	124	143	162	158	No data
	Input: m ³ / household / month		14	16	13	15	17	16	No data
	Billed : Litres / capita / day		124	157	124	122	151	151	No data
	Billed : m ³ / household / month		13	16	13	13	16	16	No data
	% Population growth			0.79%	0.60%	0.67%	0.60%	-1.33%	
	% Water demand growth			13.07%	-20.39%	15.98%	13.78%	-4.09%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		



Comments
 NRW cannot be zero for 2006 and 2007? Input volume for 2009 incorrect?

Province		Eastern Cape						WSA
Municipal Code		EC106						No
District Municipality		Cacadu						Category
Municipality		Sundays River Valley						B3
Settlements		Kirkwood						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	41 614	41 943	42 196	42 478	42 732	41 664	
	Households	10 527	10 611	10 675	10 748	10 812	10 543	
	Connections - metered	8 490	8 557	8 608	8 666	8 718	8 500	
	Connections - Unmetered	1 068	1 076	1 083	1 090	1 096	1 069	
	Length of mains (km)	194	193	194	195	196	194	
	System input volume	kl/annum	2 012 020	4 839 000	4 759 098			
	Billed metered consumption	kl/annum	1 146 349	3 721 304	3 795 730			
	Billed unmetered consumption	kl/annum	463 267	717 696	717 696			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 609 616	4 439 000	4 513 426	0	0	0
	Non-Revenue water	kl/annum	402 404	400 000	245 672	0	0	0
	Water Losses	kl/annum	402 404	400 000	245 672	0	0	0
	% Non-revenue water		20.0%	8.3%	5.2%	No data	No data	No data
	% Water Losses		20.0%	8.3%	5.2%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		132	316	309	No data	No data	No data
	Input: m ³ / household / month		16	38	37	No data	No data	No data
	Billed : Litres / capita / day		106	290	293	No data	No data	No data
	Billed : m ³ / household / month		13	35	35	No data	No data	No data
	% Population growth			0.79%	0.60%	0.67%	0.60%	-2.50%
	% Water demand growth			140.50%	-1.65%			
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	



Comments
2005 Input volume seems low?

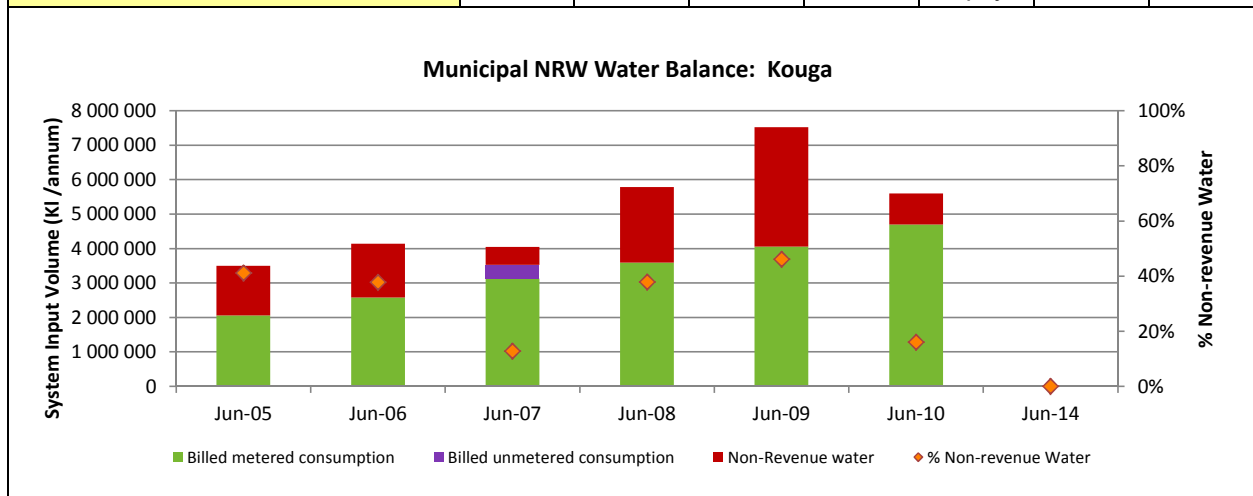
Province		Eastern Cape						WSA	
Municipal Code		EC107						No	
District Municipality		Cacadu						Category	
Municipality		Baviaans						B3	
Settlements		Willowmore						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	15 546	15 669	15 762	15 866	15 960	15 550		
	Households	4 134	4 168	4 192	4 219	4 243	4 136		
	Connections - metered	3 870	3 904	3 924	3 950	3 973	3 874		
	Connections - Unmetered	288	290	292	294	296	288		
	Length of mains (km)	83	84	84	85	85	83		
	System input volume	kl/annum	531 260	429 280	482 433	554 524	626 614	619 612	
	Billed metered consumption	kl/annum	442 717	362 962	331 119	409 999	488 879	448 967	
	Billed unmetered consumption	kl/annum	0	0	61 416		0		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	442 717	362 962	392 535	409 999	488 879	448 967	0
	Non-Revenue water	kl/annum	88 543	66 318	89 898	144 525	137 735	170 645	0
	Water Losses	kl/annum	88 543	66 318	89 898	144 525	137 735	170 645	0
	% Non-revenue water		16.7%	15.4%	18.6%	26.1%	22.0%	27.5%	No data
	% Water Losses		16.7%	15.4%	18.6%	26.1%	22.0%	27.5%	No data
Key performance indicators	Input : Litres / capita / day		94	75	84	96	108	109	No data
	Input: m ³ / household / month		11	9	10	11	12	12	No data
	Billed : Litres / capita / day		78	63	68	71	84	79	No data
	Billed : m ³ / household / month		9	7	8	8	10	9	No data
	% Population growth			0.79%	0.59%	0.66%	0.59%	-2.57%	
	% Water demand growth			-19.20%	12.38%	14.94%	13.00%	-1.12%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		

Municipal NRW Water Balance: Baviaans

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	442 717	0	88 543	16.7%
Jun-06	362 962	0	66 318	15.4%
Jun-07	331 119	61 416	89 898	18.6%
Jun-08	409 999	0	144 525	26.1%
Jun-09	488 879	0	137 735	22.0%
Jun-10	448 967	0	170 645	27.5%
Jun-14				

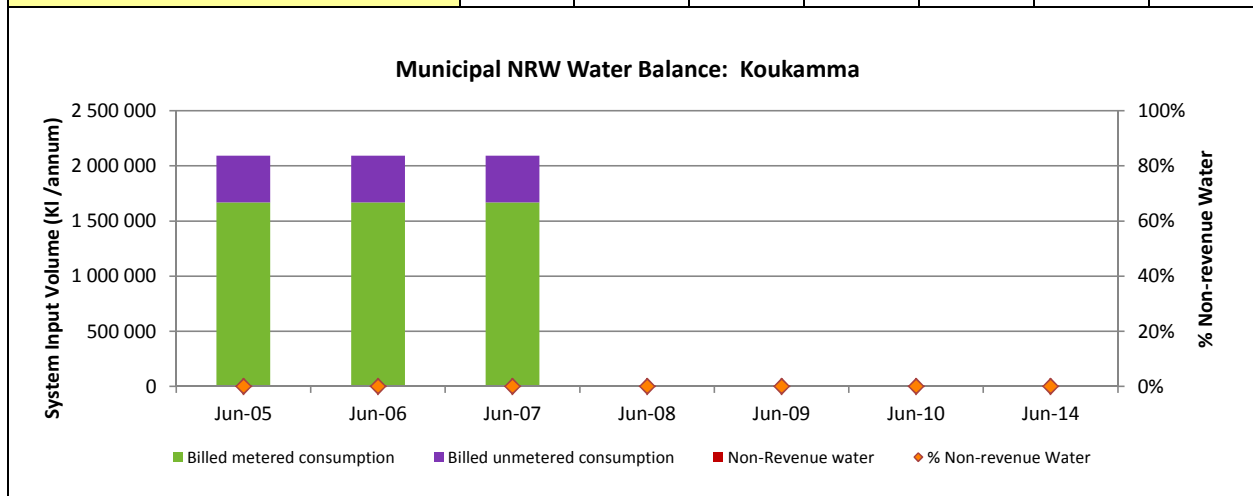
Comments

Province		Eastern Cape						WSA	
Municipal Code		EC108						No	
District Municipality		Cacadu						Category	
Municipality		Kouga						B3	
Settlements		JEFFREY'S BAY, HUMANSDORP						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	73 177	73 757	74 199	74 689	75 137	73 587		
	Households	20 948	21 114	21 241	21 380	21 509	21 064		
	Connections - metered	48 369	48 545	48 626	48 749	48 507	48 425		
	Connections - Unmetered	2 703	2 725	2 744	2 759	2 635	2 477		
	Length of mains (km)	424	425	427	430	523	542		
	System input volume	kl/annum	3 498 400	4 137 633	4 046 780	5 783 707	7 520 633	5 600 000	
	Billed metered consumption	kl/annum	2 059 878	2 576 373	3 130 540	3 591 563	4 052 586	4 700 000	
	Billed unmetered consumption	kl/annum	0	0	396 936				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 059 878	2 576 373	3 527 476	3 591 563	4 052 586	4 700 000	0
	Non-Revenue water	kl/annum	1 438 222	1 561 260	519 304	2 192 144	3 468 047	900 000	0
	Water Losses	kl/annum	1 438 222	1 561 260	519 304	2 192 144	3 468 047	900 000	0
	% Non-revenue water		41.1%	37.7%	12.8%	37.9%	46.1%	16.1%	No data
	% Water Losses		41.1%	37.7%	12.8%	37.9%	46.1%	16.1%	No data
Key performance indicators	Input : Litres / capita / day		131	154	149	212	274	208	No data
	Input: m ³ / household / month		14	16	16	23	29	22	No data
	Billed : Litres / capita / day		77	96	130	132	148	175	No data
	Billed : m ³ / household / month		8	10	14	14	16	19	No data
	% Population growth			0.79%	0.60%	0.66%	0.60%	-2.06%	
	% Water demand growth			18.28%	-2.20%	42.92%	30.03%	-25.54%	
Source of information		DWA NIS	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	DWA NIS Municipality	DWA NIS RPMS		



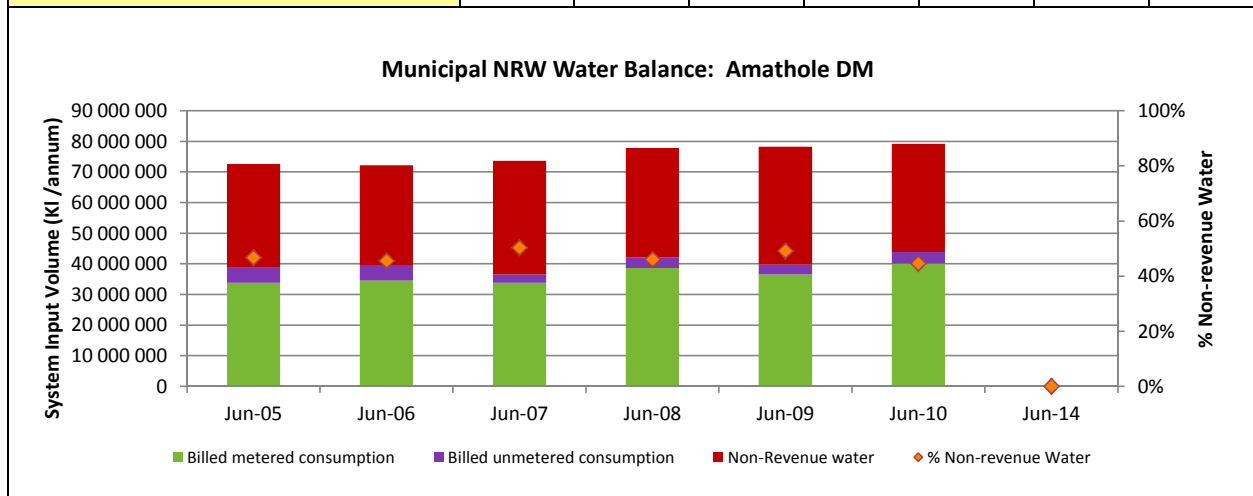
Comments
 Input volume cannot double from 2007 to 2009?

Province		Eastern Cape						WSA
Municipal Code		EC109						No
District Municipality		Cacadu						Category
Municipality		Koukamma						B3
Settlements		Kareedouw						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	36 055	36 339	36 559	36 807	37 030	36 718	
	Households	10 233	10 315	10 376	10 447	10 508	10 416	
	Connections - metered	9 154	9 223	9 279	9 342	9 399	9 319	
	Connections - Unmetered	1 444	1 153	1 460	1 168	1 175	1 165	
	Length of mains (km)	206	208	209	210	211	210	
	System input volume	kl/annum	2 093 268	2 093 268	2 093 268			
	Billed metered consumption	kl/annum	1 667 388	1 667 388	1 667 388			
	Billed unmetered consumption	kl/annum	425 880	425 880	425 880			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	2 093 268	2 093 268	2 093 268	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		Check data	Check data	Check data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		159	158	157	No data	No data	No data
	Input: m ³ / household / month		17	17	17	No data	No data	No data
	Billed : Litres / capita / day		159	158	157	No data	No data	No data
	Billed : m ³ / household / month		17	17	17	No data	No data	No data
	% Population growth			0.79%	0.61%	0.68%	0.61%	-0.84%
	% Water demand growth			0.00%	0.00%			
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	



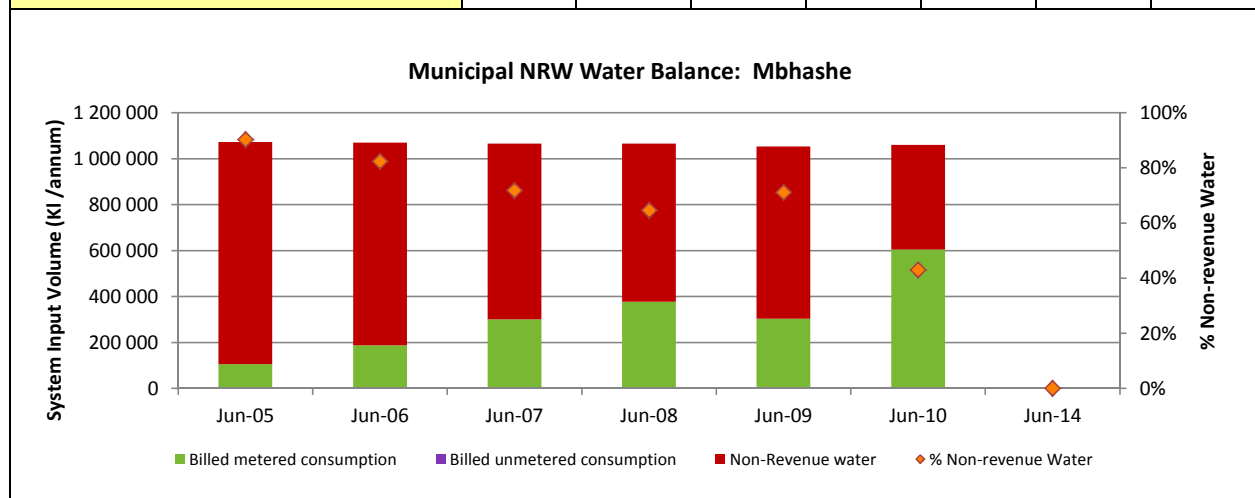
Comments
 Consistent input volume for 2005, 2006 and 2007?

Province		Eastern Cape						WSA	
Municipal Code		DC12						Yes	
District Municipality		Amathole DM						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	1 686 183	1 659 805	1 689 959	1 699 502	1 711 378	1 617 769	0	
	Households	442 951	437 225	444 137	446 840	449 786	424 989	0	
	Connections - metered	235 842	234 987	237 050	238 572	240 056	170 746	0	
	Connections - Unmetered	171 996	168 288	172 090	173 057	174 281	57 809	0	
	Length of mains (km)	8 157	8 065	8 183	8 233	8 287	1 927 668	0	
	System input volume	kl/annum	72 607 003	72 206 209	73 656 757	77 820 639	78 217 726	79 193 991	0
	Billed metered consumption	kl/annum	33 850 725	34 577 266	33 779 841	38 674 994	36 538 560	40 095 776	0
	Billed unmetered consumption	kl/annum	4 871 969	4 749 446	2 812 619	3 383 563	3 285 205	3 779 400	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	38 722 694	39 326 712	36 592 460	42 058 557	39 823 765	43 875 176	0
	Non-Revenue water	kl/annum	33 884 309	32 879 497	37 064 297	35 762 082	38 393 961	35 318 815	0
	Water Losses	kl/annum	33 884 309	32 879 497	37 064 297	35 762 082	38 393 961	35 318 815	0
	% Non-revenue water		46.7%	45.5%	50.3%	46.0%	49.1%	44.6%	No data
	% Water Losses		46.7%	45.5%	50.3%	46.0%	49.1%	44.6%	No data
Key performance indicators	Input : Litres / capita / day		118	119	119	125	125	134	No data
	Input: m ³ / household / month		14	14	14	15	14	16	No data
	Billed : Litres / capita / day		63	65	59	68	64	74	No data
	Billed : m ³ / household / month		7	7	7	8	7	9	No data
	% Population growth			-1.56%	1.82%	0.56%	0.70%	-5.47%	
	% Water demand growth			-0.55%	2.01%	5.65%	0.51%	1.25%	
Source of information									



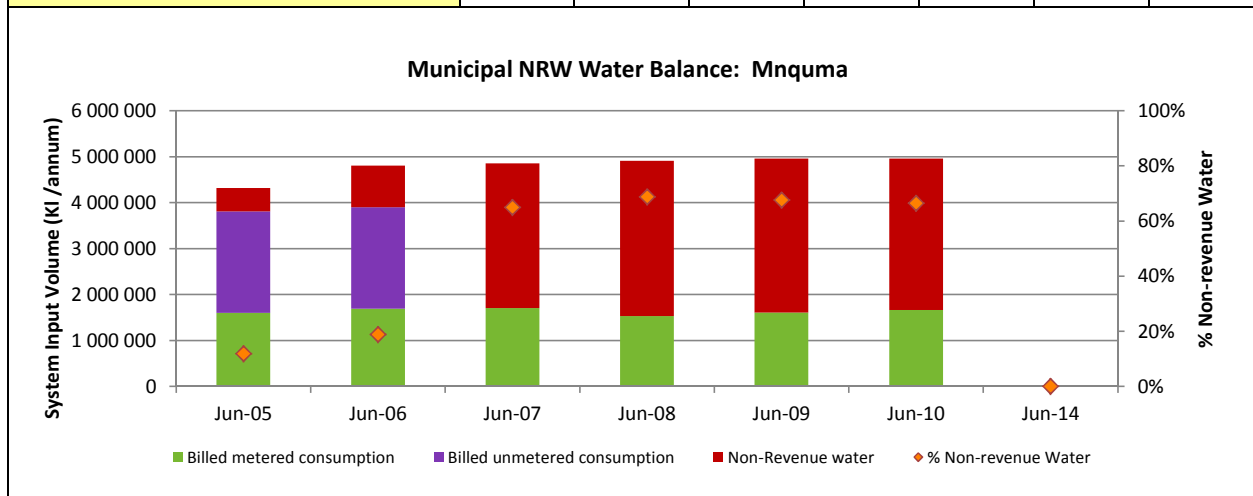
Comments

Province		Eastern Cape						WSA	
Municipal Code		EC121						No	
District Municipality		Amathole						Category	
Municipality		Mbhashe						B4	
Settlements		Idutywa						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	260 130	233 760	255 361	255 361	258 587	256 885		
	Households	56 486	50 761	55 459	55 459	56 161	55 780		
	Connections - metered	8 429	7 574	8 274	8 274	8 379	805		
	Connections - Unmetered	36 584	32 874	35 946	35 916	36 374	55		
	Length of mains (km)	900	809	884	884	895	86		
	System input volume	kl/annum	1 072 809	1 069 583	1 066 420	1 066 420	1 053 116	1 060 093	
	Billed metered consumption	kl/annum	404 811	488 141	301 085	377 838	303 808	603 808	
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	104 811	188 141	301 085	377 838	303 808	603 808	0
	Non-Revenue water	kl/annum	967 997	881 443	765 335	688 582	749 308	456 285	0
	Water Losses	kl/annum	967 997	881 443	765 335	688 582	749 308	456 285	0
	% Non-revenue water		90.2%	82.4%	71.8%	64.6%	71.2%	43.0%	No data
	% Water Losses		90.2%	82.4%	71.8%	64.6%	71.2%	43.0%	No data
Key performance indicators	Input : Litres / capita / day		11	13	11	11	11	11	No data
	Input: m ³ / household / month		2	2	2	2	2	2	No data
	Billed : Litres / capita / day		1	2	3	4	3	6	No data
	Billed : m ³ / household / month		0	0	0	1	0	1	No data
	% Population growth			-10.14%	9.24%	0.00%	1.26%	-0.66%	
	% Water demand growth			-0.30%	-0.30%	0.00%	-1.25%	0.66%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



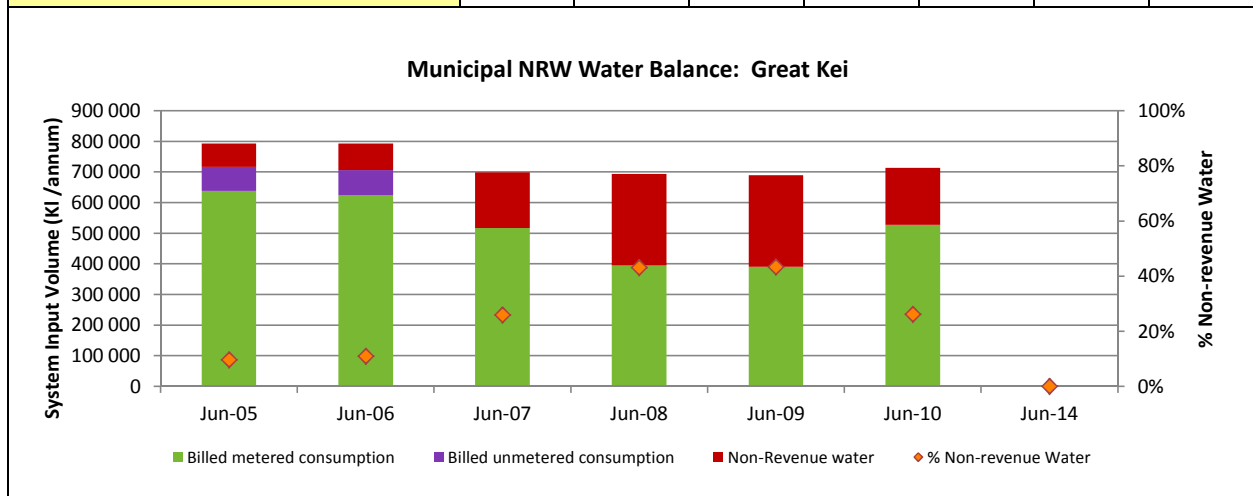
Comments

Province		Eastern Cape						WSA	
Municipal Code		EC122						No	
District Municipality		Amathole						Category	
Municipality		Mnquma						B4	
Settlements		MSOBOMJU						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	289 105	289 098	290 844	292 791	294 552	267 443		
	Households	70 631	70 630	71 033	71 531	71 937	65 324		
	Connections - metered	21 243	21 243	21 371	21 514	21 643	1 470		
	Connections - Unmetered	37 892	37 892	38 408	38 375	38 593	1 130		
	Length of mains (km)	4 183	4 183	4 190	4 198	4 205	1 183		
	System input volume	kl/annum	4 320 000	4 803 108	4 855 502	4 907 896	4 960 289	4 960 589	
	Billed metered consumption	kl/annum	1 598 400	1 687 531	1 704 590	1 533 794	1 604 887	1 663 828	
	Billed unmetered consumption	kl/annum	2 208 960	2 208 960					
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	3 807 360	3 896 491	1 704 590	1 533 794	1 604 887	1 663 828	0
	Non-Revenue water	kl/annum	512 640	906 617	3 150 912	3 374 102	3 355 402	3 296 761	0
	Water Losses	kl/annum	512 640	906 617	3 150 912	3 374 102	3 355 402	3 296 761	0
	% Non-revenue water		11.9%	18.9%	64.9%	68.7%	67.6%	66.5%	No data
	% Water Losses		11.9%	18.9%	64.9%	68.7%	67.6%	66.5%	No data
Key performance indicators	Input : Litres / capita / day		41	46	46	46	46	51	No data
	Input: m ³ / household / month		5	6	6	6	6	6	No data
	Billed : Litres / capita / day		36	37	16	14	15	17	No data
	Billed : m ³ / household / month		4	5	2	2	2	2	No data
	% Population growth			0.00%	0.60%	0.67%	0.60%	-9.20%	
	% Water demand growth			11.18%	1.09%	1.08%	1.07%	0.01%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



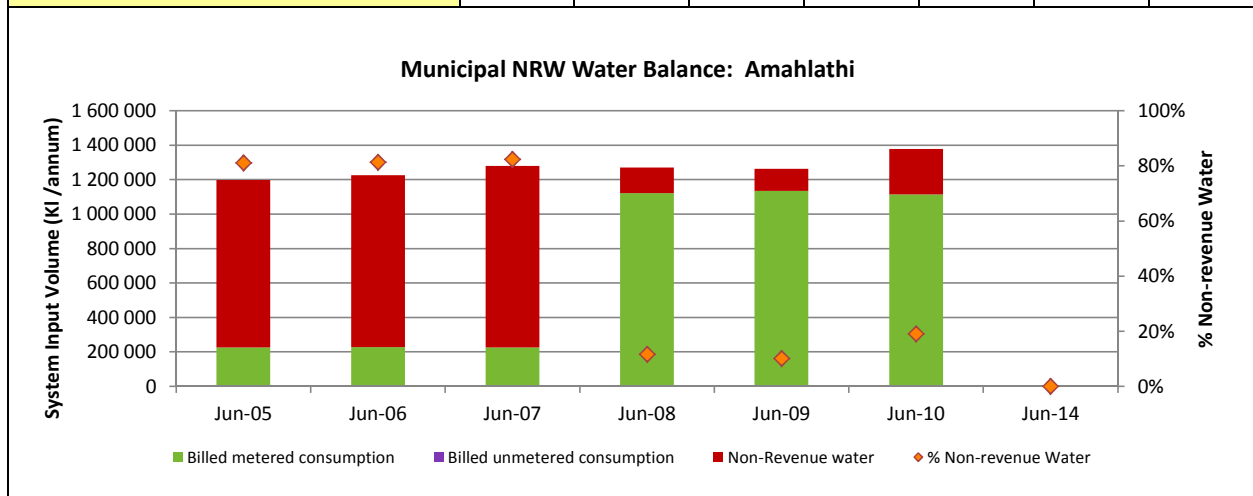
Comments
Billed unmetered consumption very high?

Province		Eastern Cape						WSA	
Municipal Code		EC123						No	
District Municipality		Amathole						Category	
Municipality		Great Kei						B3	
Settlements		KOMGA						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	44 798	44 798	45 065	45 366	45 637	44 142		
	Households	11 996	11 996	12 068	12 152	12 226	11 826		
	Connections - metered	6 827	6 827	6 868	6 914	6 955	2 379		
	Connections - Unmetered	5 243	5 243	5 274	5 311	5 343	324		
	Length of mains (km)	244	244	243	245	246	556 251		
	System input volume	kl/annum	792 976	792 976	698 674	694 038	689 917	713 283	
	Billed metered consumption	kl/annum	638 117	624 300	517 268	394 546	390 590	527 000	
	Billed unmetered consumption	kl/annum	78 559	81 813					
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	716 676	706 113	517 268	394 546	390 590	527 000	0
	Non-Revenue water	kl/annum	76 300	86 863	181 406	299 492	299 327	186 283	0
	Water Losses	kl/annum	76 300	86 863	181 406	299 492	299 327	186 283	0
	% Non-revenue water		9.6%	11.0%	26.0%	43.2%	43.4%	26.1%	No data
	% Water Losses		9.6%	11.0%	26.0%	43.2%	43.4%	26.1%	No data
Key performance indicators	Input : Litres / capita / day		48	48	42	42	41	44	No data
	Input: m ³ / household / month		6	6	5	5	5	5	No data
	Billed : Litres / capita / day		44	43	31	24	23	33	No data
	Billed : m ³ / household / month		5	5	4	3	3	4	No data
	% Population growth			0.00%	0.60%	0.67%	0.60%	-3.28%	
	% Water demand growth			0.00%	-11.89%	-0.66%	-0.59%	3.39%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



Comments
 Consistent input volume for 2005 and 2006? Fluctuating NRW and very low for 2005?

Province		Eastern Cape						WSA	
Municipal Code		EC124						No	
District Municipality		Amathole						Category	
Municipality		Amahlathi						B3	
Settlements		STUTTERHEIM						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	139 985	139 984	140 820	141 743	142 591	130 782		
	Households	36 457	36 457	36 660	36 920	37 129	34 055		
	Connections - metered	43 980	43 980	44 064	44 156	44 244	3 242		
	Connections - Unmetered	46 926	46 926	47 020	47 141	47 238	2 090		
	Length of mains (km)	648	648	622	626	630	361 536		
	System input volume	kl/annum	1 197 330	1 225 993	1 279 246	1 270 886	1 263 328	1 377 401	
	Billed metered consumption	kl/annum	226 855	228 575	225 134	1 122 671	1 134 852	1 115 044	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	226 855	228 575	225 134	1 122 671	1 134 852	1 115 044	0
	Non-Revenue water	kl/annum	970 476	997 417	1 054 082	148 215	128 476	262 357	0
	Water Losses	kl/annum	970 476	997 417	1 054 082	148 215	128 476	262 357	0
	% Non-revenue water		81.1%	81.4%	82.4%	11.7%	10.2%	19.0%	No data
	% Water Losses		81.1%	81.4%	82.4%	11.7%	10.2%	19.0%	No data
Key performance indicators	Input : Litres / capita / day		23	24	25	25	24	29	No data
	Input: m³ / household / month		3	3	3	3	3	3	No data
	Billed : Litres / capita / day		4	4	4	22	22	23	No data
	Billed : m³ / household / month		1	1	1	3	3	3	No data
	% Population growth			0.00%	0.60%	0.66%	0.60%	-8.28%	
	% Water demand growth			2.39%	4.34%	-0.65%	-0.59%	9.03%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



Comments

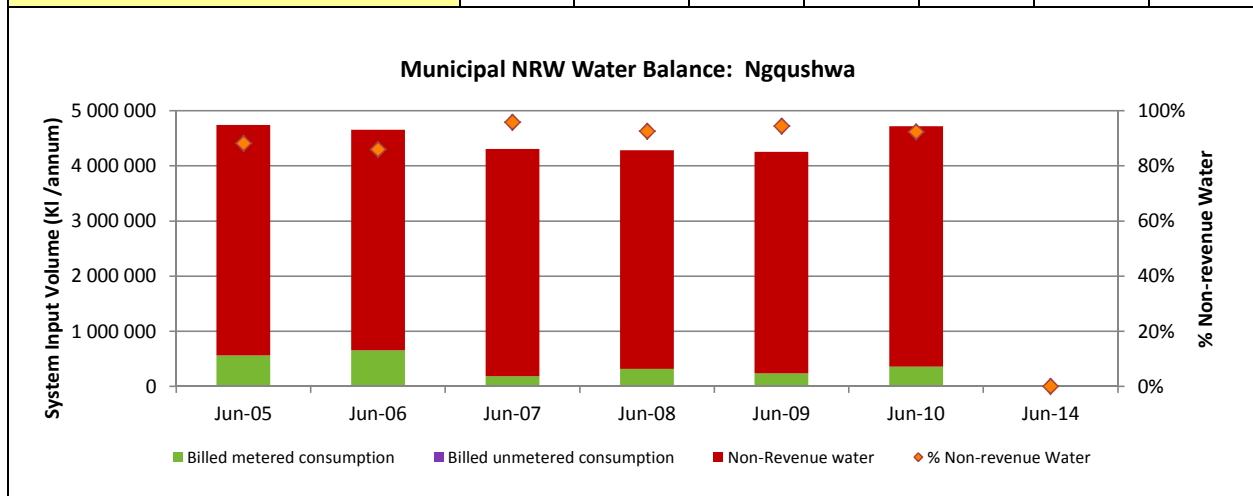
Province		Eastern Cape						WSA	
Municipal Code		EC125						Yes	
District Municipality		Amathole						Category	
Municipality		Buffalo City						B1	
Settlements		BEACON, EAST LONDON, GONUBIE, KING WILLIAM'S TOWN						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	713 555	713 555	717 829	722 603	726 929	694 362		
	Households	203 873	203 873	205 078	206 454	207 674	198 368		
	Connections - metered	457 844	457 844	458 756	459 812	460 769	453 566		
	Connections - Unmetered	43 077	43 077	43 334	43 622	43 880	41 943		
	Length of mains (km)	4 048	4 048	4 042	4 069	4 093	3 940		
	System input volume	kl/annum	57 466 405	56 580 616	58 453 856	62 626 224	63 038 875	62 652 039	
	Billed metered consumption	kl/annum	30 719 002	31 127 020	30 847 454	33 485 690	31 448 300	33 841 267	
	Billed unmetered consumption	kl/annum	2 584 450	2 458 548	2 812 619	3 383 563	3 285 205	3 779 400	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	33 303 452	33 585 568	33 660 073	36 869 253	34 733 505	37 620 667	0
	Non-Revenue water	kl/annum	24 162 953	22 995 048	24 793 783	25 756 971	28 305 370	25 031 372	0
	Water Losses	kl/annum	24 162 953	22 995 048	24 793 783	25 756 971	28 305 370	25 031 372	0
	% Non-revenue water		42.0%	40.6%	42.4%	41.1%	44.9%	40.0%	No data
	% Water Losses		42.0%	40.6%	42.4%	41.1%	44.9%	40.0%	No data
Key performance indicators	Input : Litres / capita / day		221	217	223	237	238	247	No data
	Input: m ³ / household / month		23	23	24	25	25	26	No data
	Billed : Litres / capita / day		128	129	128	140	131	148	No data
	Billed : m ³ / household / month		14	14	14	15	14	16	No data
	% Population growth			0.00%	0.60%	0.67%	0.60%	-4.48%	
	% Water demand growth			-1.54%	3.31%	7.14%	0.66%	-0.61%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS RPMS		

Municipal NRW Water Balance: Buffalo City

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	30 719 002	2 584 450	24 162 953	42.0%
Jun-06	31 127 020	2 458 548	22 995 048	40.6%
Jun-07	30 847 454	2 812 619	24 793 783	42.4%
Jun-08	33 485 690	3 383 563	25 756 971	41.1%
Jun-09	31 448 300	3 285 205	28 305 370	44.9%
Jun-10	33 841 267	3 779 400	25 031 372	40.0%

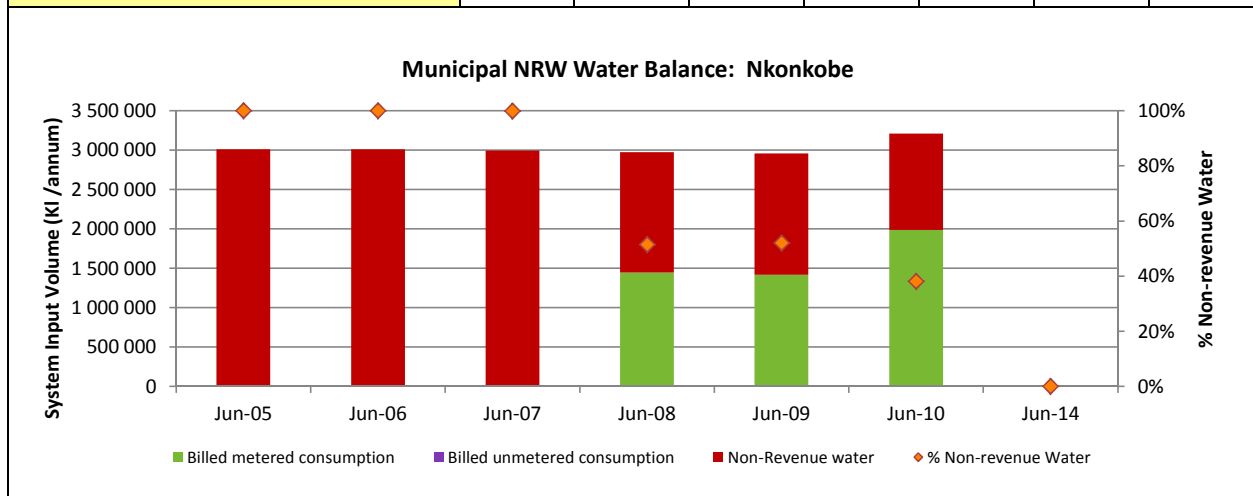
Comments

Province		Eastern Cape						WSA	
Municipal Code		EC126						No	
District Municipality		Amathole						Category	
Municipality		Ngqushwa						B4	
Settlements		Peddie						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	84 173	84 173	84 672	85 223	85 729	77 273		
	Households	22 669	22 669	22 779	22 959	23 069	20 786		
	Connections - metered	5 817	5 817	5 852	5 890	5 925	741		
	Connections - Unmetered	46 972	46 972	47 054	17 189	47 274	726		
	Length of mains (km)	456	456	458	462	464	572 960		
	System input volume	kl/annum	4 745 490	4 655 440	4 309 140	4 281 279	4 256 010	4 721 746	
	Billed metered consumption	kl/annum	563 540	655 199	180 765	316 077	237 888	359 829	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	563 540	655 199	180 765	316 077	237 888	359 829	0
	Non-Revenue water	kl/annum	4 181 950	4 000 241	4 128 375	3 965 202	4 018 122	4 361 917	0
	Water Losses	kl/annum	4 181 950	4 000 241	4 128 375	3 965 202	4 018 122	4 361 917	0
	% Non-revenue water		88.1%	85.9%	95.8%	92.6%	94.4%	92.4%	No data
	% Water Losses		88.1%	85.9%	95.8%	92.6%	94.4%	92.4%	No data
Key performance indicators	Input : Litres / capita / day		154	152	139	138	136	167	No data
	Input: m ³ / household / month		17	17	16	16	15	19	No data
	Billed : Litres / capita / day		18	21	6	10	8	13	No data
	Billed : m ³ / household / month		2	2	1	1	1	1	No data
	% Population growth			0.00%	0.59%	0.65%	0.59%	-9.86%	
	% Water demand growth			-1.90%	-7.44%	-0.65%	-0.59%	10.94%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



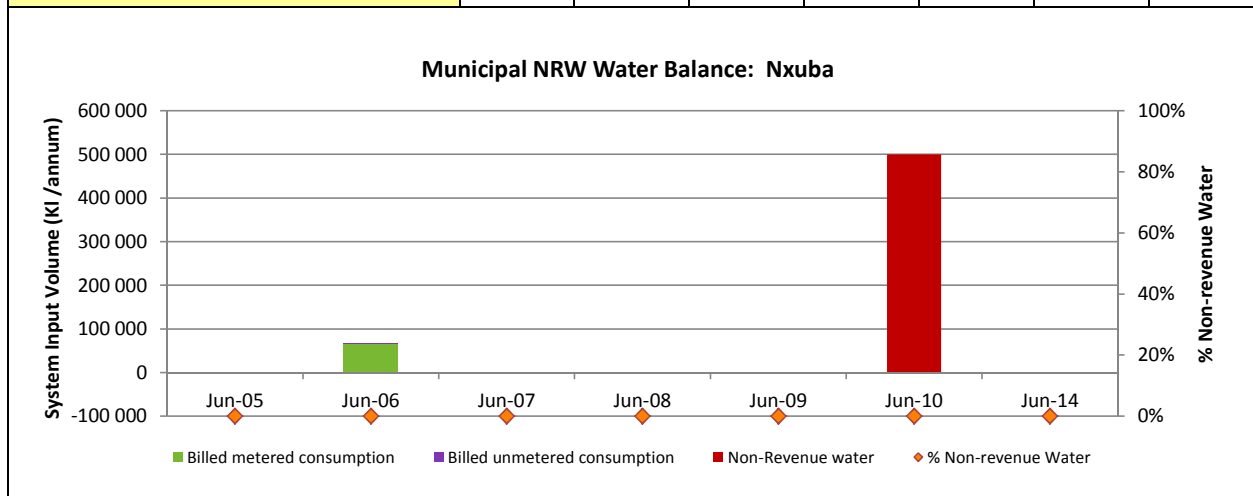
Comments
Fluctuating input volume? NRW cannot be negative for 2006?

Province		Eastern Cape						WSA	
Municipal Code		EC127						No	
District Municipality		Amathole						Category	
Municipality		Nkonkobe						B3	
Settlements		FORT BEAUFORT, ALICE						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	129 420	129 420	130 200	131 078	131 863	121 475		
	Households	33 913	33 913	34 092	34 351	34 533	31 816		
	Connections - metered	15 085	15 085	15 476	15 278	15 369	4 546		
	Connections - Unmetered	14 986	14 986	15 066	15 180	15 260	10 971		
	Length of mains (km)	604	604	605	609	613	431 607		
	System input volume	kl/annum	3 011 993	3 011 993	2 993 949	2 973 895	2 956 194	3 208 991	
	Billed metered consumption	kl/annum	0	0	3 545	1 444 378	1 418 235	1 985 000	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	0	3 545	1 444 378	1 418 235	1 985 000	0
	Non-Revenue water	kl/annum	3 011 993	3 011 993	2 990 404	1 529 517	1 537 956	1 223 991	0
	Water Losses	kl/annum	3 011 993	3 011 993	2 990 404	1 529 517	1 537 956	1 223 991	0
	% Non-revenue water		100.0%	100.0%	99.9%	51.4%	52.0%	38.1%	No data
	% Water Losses		100.0%	100.0%	99.9%	51.4%	52.0%	38.1%	No data
Key performance indicators	Input : Litres / capita / day		64	64	63	62	61	72	No data
	Input: m ³ / household / month		7	7	7	7	7	8	No data
	Billed : Litres / capita / day		0	0	0	30	29	45	No data
	Billed : m ³ / household / month		0	0	0	4	3	5	No data
	% Population growth			0.00%	0.60%	0.67%	0.60%	-7.88%	
	% Water demand growth			0.00%	-0.60%	-0.67%	-0.60%	8.55%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



Comments

Province		Eastern Cape						WSA	
Municipal Code		EC128						No	
District Municipality		Amathole						Category	
Municipality		Nxuba						B3	
Settlements		BEDFORD, ADELAIDE						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	25 017	25 017	25 168	25 337	25 490	25 407		
	Households	6 926	6 926	6 968	7 014	7 057	7 034		
	Connections - metered	6 649	6 649	6 689	6 734	6 775	3 997		
	Connections - Unmetered	349	349	321	323	325	600		
	Length of mains (km)	139	139	140	141	142	134		
	System input volume	kl/annum		66 500				499 849	
	Billed metered consumption	kl/annum		66 500					
	Billed unmetered consumption	kl/annum		125					
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	66 625	0	0	0	0	
	Non-Revenue water	kl/annum	0	-125	0	0	0	499 849	
	Water Losses	kl/annum	0	-125	0	0	0	499 849	
	% Non-revenue water		No data	Check data	No data	No data	No data	No data	No data
	% Water Losses		No data	Check data	No data	No data	No data	100.0%	No data
Key performance indicators	Input : Litres / capita / day		No data	7	No data	No data	No data	54	No data
	Input: m ³ / household / month		No data	1	No data	No data	No data	6	No data
	Billed : Litres / capita / day		No data	7	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	1	No data	No data	No data	No data	No data
	% Population growth			0.00%	0.60%	0.67%	0.60%	-0.33%	
	% Water demand growth			#DIV/0!				#DIV/0!	
Source of information		DWA NIS	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



Comments
2006 input volume and billed metered consumption the same?

Province		Eastern Cape						WSA	
Municipal Code		DC13						Yes	
District Municipality		Chris Hani						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	815 133	811 409	816 279	821 745	826 668	761 383	0	
	Households	197 757	196 841	197 948	199 367	200 490	184 991	0	
	Connections - metered	90 987	90 569	91 113	91 721	92 270	87 016	0	
	Connections - Unmetered	87 793	87 387	87 870	88 510	89 001	80 671	0	
	Length of mains (km)	3 576	3 559	3 580	3 605	3 625	3 354	0	
	System input volume	kl/annum	20 424 176	52 479 823	9 561 959	0	6 387 001	0	0
	Billed metered consumption	kl/annum	14 645 014	28 197 703	3 311 961	0	318 650	0	0
	Billed unmetered consumption	kl/annum	1 491 065	2 169 154	5 571 569	0	26 316	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	16 136 079	30 366 857	8 883 530	0	344 966	0	0
	Non-Revenue water	kl/annum	4 288 097	22 112 966	678 429	0	6 042 035	0	0
	Water Losses	kl/annum	4 288 097	22 112 966	678 429	0	6 042 035	0	0
	% Non-revenue water		21.0%	42.1%	7.1%	No data	94.6%	No data	No data
	% Water Losses		21.0%	42.1%	7.1%	No data	94.6%	No data	No data
Key performance indicators	Input : Litres / capita / day		69	177	32	No data	21	No data	No data
	Input: m ³ / household / month		9	22	4	No data	3	No data	No data
	Billed : Litres / capita / day		54	103	30	No data	1	No data	No data
	Billed : m ³ / household / month		7	13	4	No data	0	No data	No data
	% Population growth			-0.46%	0.60%	0.67%	0.60%	-7.90%	
	% Water demand growth			156.95%	-81.78%		#DIV/0!		
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		

Municipal NRW Water Balance: Chris Hani DM

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	14,645,014	1,491,065	4,288,097	21.0%
Jun-06	28,197,703	2,169,154	22,112,966	42.1%
Jun-07	3,311,961	5,571,569	678,429	7.1%
Jun-08	0	0	0	No data
Jun-09	318,650	26,316	6,042,035	94.6%
Jun-10	0	0	0	No data
Jun-14	0	0	0	No data

Comments

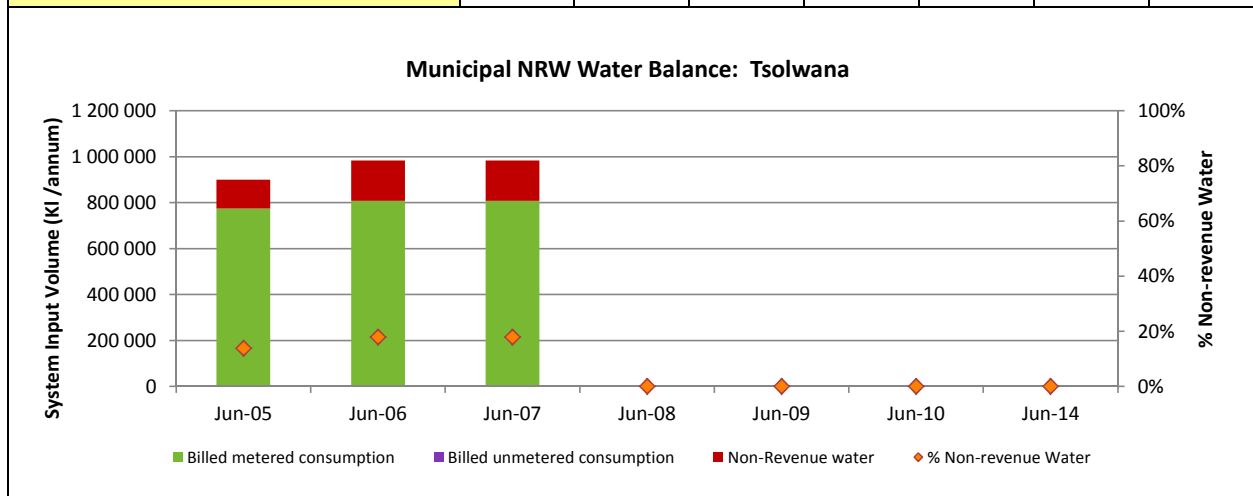
Province		Eastern Cape						WSA	
Municipal Code		EC131						No	
District Municipality		Chris Hani						Category	
Municipality		Inxuba Yethemba						B3	
Settlements		CRADOCK, LUSAKA, MIDDLEBURG						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	60 757	60 477	60 840	61 246	61 613	61 854		
	Households	16 918	16 841	16 941	17 054	17 156	17 223		
	Connections - metered	17 049	16 944	17 042	17 156	17 259	17 326		
	Connections - Unmetered	0	0	0	0	0	0		
	Length of mains (km)	340	339	341	343	345	347		
	System input volume	kl/annum	5 417 418	5 777 182	4 279 900		6 027 781		
	Billed metered consumption	kl/annum	3 702 509	4 916 481	0				
	Billed unmetered consumption	kl/annum	442 773	571 680	3 797 608				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	4 145 282	5 488 161	3 797 608	0	0	0	
	Non-Revenue water	kl/annum	1 272 136	289 021	482 292	0	6 027 781	0	
	Water Losses	kl/annum	1 272 136	289 021	482 292	0	6 027 781	0	
	% Non-revenue water		23.5%	5.0%	11.3%	No data	No data	No data	No data
	% Water Losses		23.5%	5.0%	11.3%	No data	100.0%	No data	No data
Key performance indicators	Input : Litres / capita / day		244	262	193	No data	268	No data	No data
	Input: m ³ / household / month		27	29	21	No data	29	No data	No data
	Billed : Litres / capita / day		187	249	171	No data	No data	No data	No data
	Billed : m ³ / household / month		20	27	19	No data	No data	No data	No data
	% Population growth			-0.46%	0.60%	0.67%	0.60%	0.39%	
	% Water demand growth			6.64%	-25.92%		#DIV/0!		
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		

Municipal NRW Water Balance: Inxuba Yethemba

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	3 702 509	442 773	1 272 136	23.5%
Jun-06	4 916 481	571 680	289 021	5.0%
Jun-07	0	3 797 608	482 292	11.3%
Jun-08	0	0	0	No data
Jun-09	0	0	6 027 781	100.0%
Jun-10	0	0	0	No data
Jun-14	0	0	0	No data

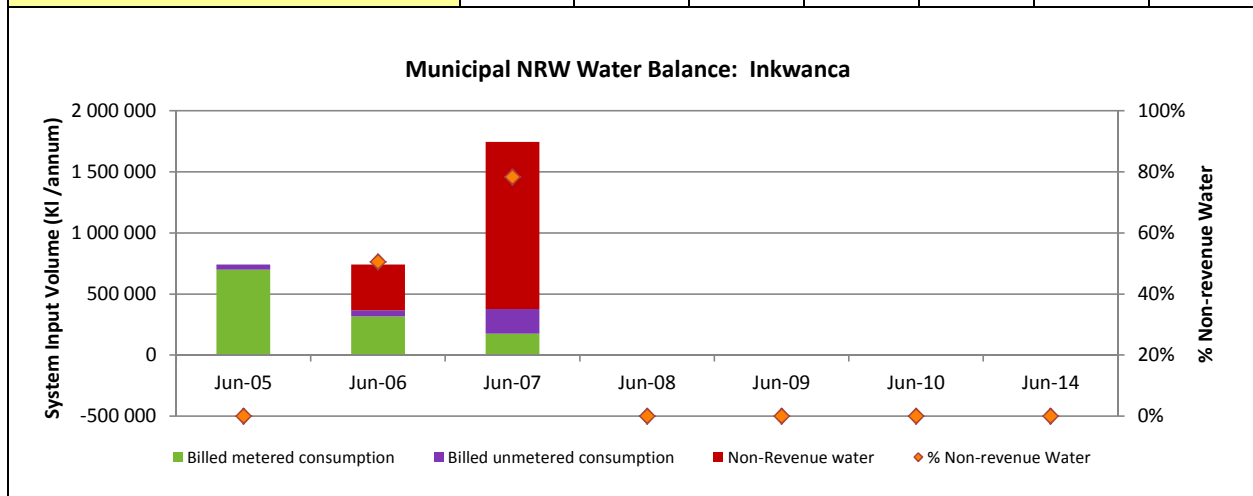
Comments
 2007 Billed unmetered consumption very high? 2009 billed consumption?

Province		Eastern Cape						WSA	
Municipal Code		EC132						No	
District Municipality		Chris Hani						Category	
Municipality		Tsolwana						B3	
Settlements		Tarkastad						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	32 745	32 594	32 786	32 999	33 193	30 094		
	Households	8 269	8 232	8 281	8 334	8 383	7 603		
	Connections - metered	4 946	4 923	4 952	4 984	5 043	4 545		
	Connections - Unmetered	3 372	3 357	3 377	3 399	3 449	3 404		
	Length of mains (km)	466	466	467	468	469	453		
	System input volume	kl/annum	899 471	983 406	983 406				
	Billed metered consumption	kl/annum	775 084	807 412	807 412				
	Billed unmetered consumption	kl/annum	0	0	0				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	775 084	807 412	807 412	0	0	0	0
	Non-Revenue water	kl/annum	124 387	175 994	175 994	0	0	0	0
	Water Losses	kl/annum	124 387	175 994	175 994	0	0	0	0
	% Non-revenue water		13.8%	17.9%	17.9%	No data	No data	No data	No data
	% Water Losses		13.8%	17.9%	17.9%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		75	83	82	No data	No data	No data	No data
	Input: m ³ / household / month		9	10	10	No data	No data	No data	No data
	Billed : Litres / capita / day		65	68	67	No data	No data	No data	No data
	Billed : m ³ / household / month		8	8	8	No data	No data	No data	No data
	% Population growth			-0.46%	0.59%	0.65%	0.59%	-9.34%	
	% Water demand growth			9.33%	0.00%				
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC					



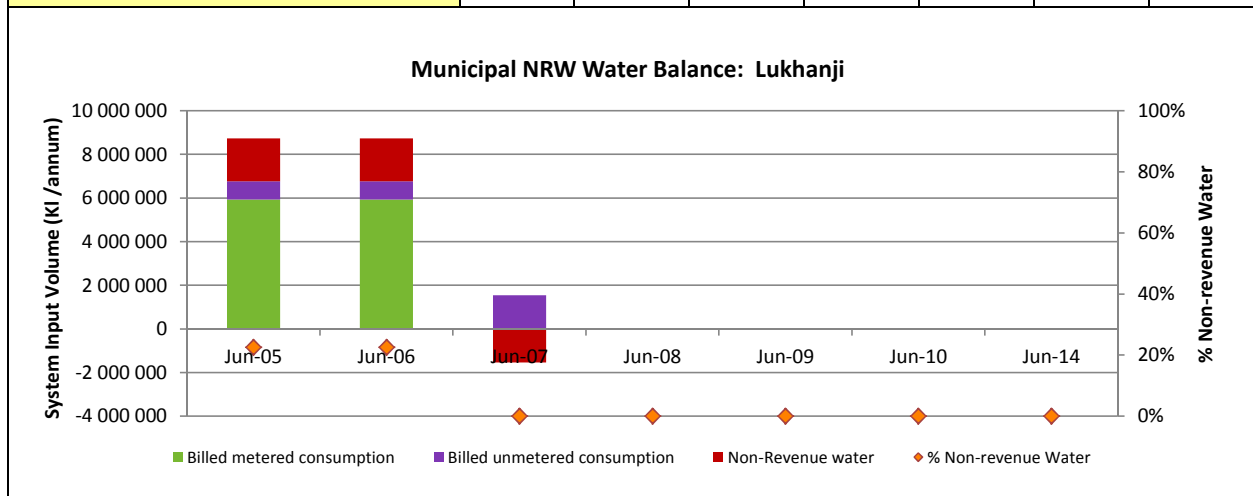
Comments
Consistent values for 2006 and 2007?

Province		Eastern Cape						WSA	
Municipal Code		EC133						No	
District Municipality		Chris Hani						Category	
Municipality		Inkwanca						B3	
Settlements		Molteno						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	20 398	20 303	20 424	20 559	20 682	20 003		
	Households	5 700	5 673	5 706	5 744	5 777	5 587		
	Connections - metered	5 715	5 688	5 722	5 760	5 794	5 604		
	Connections - Unmetered	48	48	48	18	48	48		
	Length of mains (km)	445	444	445	446	446	442		
	System input volume	kl/annum	741 397	741 398	1 743 945				
	Billed metered consumption	kl/annum	697 953	315 302	173 899				
	Billed unmetered consumption	kl/annum	43 445	51 562	203 760				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	741 398	366 864	377 659	0	0	0	0
	Non-Revenue water	kl/annum	-1	374 534	1 366 286	0	0	0	0
	Water Losses	kl/annum	-1	374 534	1 366 286	0	0	0	0
	% Non-revenue water		Check data	50.5%	78.3%	No data	No data	No data	No data
	% Water Losses		Check data	50.5%	78.3%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		100	100	234	No data	No data	No data	No data
	Input: m ³ / household / month		11	11	25	No data	No data	No data	No data
	Billed : Litres / capita / day		100	50	51	No data	No data	No data	No data
	Billed : m ³ / household / month		11	5	6	No data	No data	No data	No data
	% Population growth			-0.47%	0.60%	0.66%	0.60%	-3.28%	
	% Water demand growth			0.00%	135.22%				
Source of information		DWA NIS StatsSA NFC							



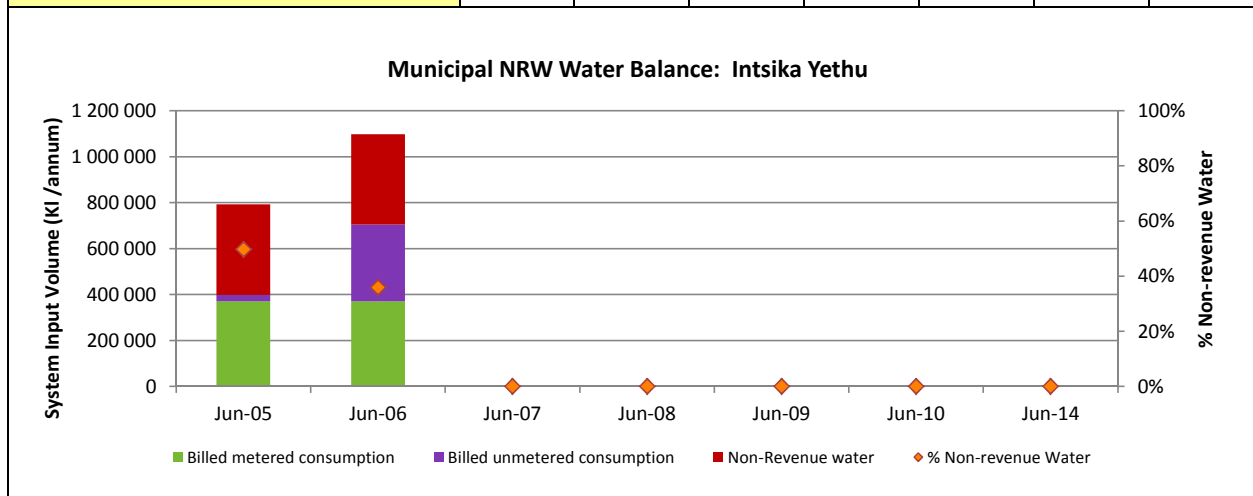
Comments
 Fluctuating input volume? 2005 NRW cannot be negative?

Province		Eastern Cape						WSA
Municipal Code		EC134						No
District Municipality		Chris Hanj						Category
Municipality		Lukhanji						B2
Settlements		EZIBEWENI, QUEENSTOWN						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	185 846	184 997	186 109	187 352	188 475	177 410	
	Households	46 803	46 586	46 856	47 185	47 457	44 667	
	Connections - metered	36 249	36 053	36 270	36 512	36 734	34 574	
	Connections - Unmetered	9 529	9 485	9 540	9 607	9 662	9 094	
	Length of mains (km)	945	944	946	922	928	873	
	System input volume	kl/annum	8 736 475	8 736 475	0			
	Billed metered consumption	kl/annum	5 932 067	5 932 067	0			
	Billed unmetered consumption	kl/annum	836 928	836 928	1 540 080			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	6 768 995	6 768 995	1 540 080	0	0	0
	Non-Revenue water	kl/annum	1 967 480	1 967 480	-1 540 080	0	0	0
	Water Losses	kl/annum	1 967 480	1 967 480	-1 540 080	0	0	0
	% Non-revenue water		22.5%	22.5%	No data	No data	No data	No data
	% Water Losses		22.5%	22.5%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		129	129	No data	No data	No data	No data
	Input: m ³ / household / month		16	16	No data	No data	No data	No data
	Billed : Litres / capita / day		100	100	23	No data	No data	No data
	Billed : m ³ / household / month		12	12	3	No data	No data	No data
	% Population growth			-0.46%	0.60%	0.67%	0.60%	-5.87%
	% Water demand growth			0.00%				
Source of information		DWA NIS StatsSA NFC						



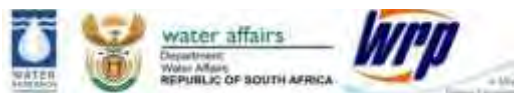
Comments

Province		Eastern Cape						WSA	
Municipal Code		EC135						No	
District Municipality		Chris Hanu						Category	
Municipality		Intsika Yethu						B4	
Settlements		Cofimvaba						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	171 161	170 400	171 418	172 564	173 595	155 963		
	Households	41 314	41 130	41 359	41 656	41 886	37 634		
	Connections - metered	6 257	6 229	6 266	6 308	6 346	5 704		
	Connections - Unmetered	28 809	28 680	28 840	29 047	29 207	26 242		
	Length of mains (km)	704	698	702	707	711	639		
	System input volume	kl/annum	792 220	1 098 013	3 285				
	Billed metered consumption	kl/annum	369 978	369 978	0				
	Billed unmetered consumption	kl/annum	28 647	334 440	0				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	398 625	704 418	0	0	0	0	
	Non-Revenue water	kl/annum	393 595	393 595	3 285	0	0	0	
	Water Losses	kl/annum	393 595	393 595	3 285	0	0	0	
	% Non-revenue water		49.7%	35.8%	No data	No data	No data	No data	
	% Water Losses		49.7%	35.8%	100.0%	No data	No data	No data	
Key performance indicators	Input : Litres / capita / day		13	18	0	No data	No data	No data	
	Input: m ³ / household / month		2	2	0	No data	No data	No data	
	Billed : Litres / capita / day		6	11	No data	No data	No data	No data	
	Billed : m ³ / household / month		1	1	No data	No data	No data	No data	
	% Population growth			-0.44%	0.60%	0.67%	0.60%	-10.16%	
	% Water demand growth			38.60%	-99.70%				
Source of information		DWA NIS StatsSA NFC							

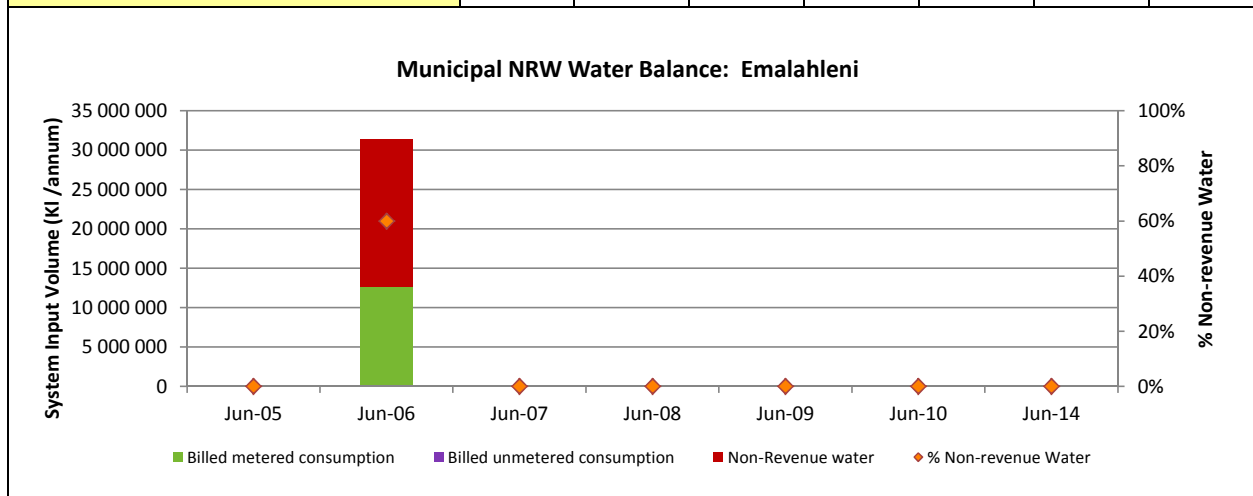


Comments

National NRW Assessment

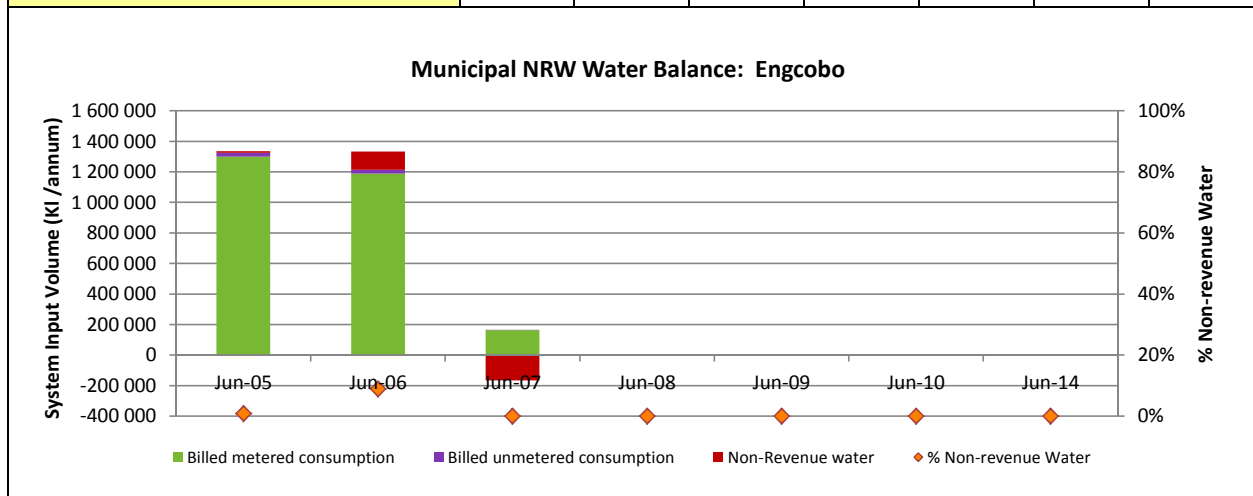


Province		Eastern Cape						WSA
Municipal Code		EC136						No
District Municipality		Chris Hani						Category
Municipality		Emalaheni						B4
Settlements		INDWE, IDA, DORDRECHT, LADY FRERE						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	130 556	129 944	130 722	131 599	132 385	119 177	
	Households	30 624	30 485	30 655	30 858	31 035	27 939	
	Connections - metered	8 645	8 575	8 626	8 684	8 736	7 864	
	Connections - Unmetered	49 444	49 024	49 430	49 257	49 367	47 435	
	Length of mains (km)	555	552	555	559	562	506	
	System input volume	kl/annum	0	31 308 034	0			
	Billed metered consumption	kl/annum	0	12 544 070	0			
	Billed unmetered consumption	kl/annum	0	0	0			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	12 544 070	0	0	0	0
	Non-Revenue water	kl/annum	0	18 763 964	0	0	0	0
	Water Losses	kl/annum	0	18 763 964	0	0	0	0
	% Non-revenue water		No data	59.9%	No data	No data	No data	No data
	% Water Losses		No data	59.9%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	660	No data	No data	No data	No data
	Input: m ³ / household / month		No data	86	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	264	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	34	No data	No data	No data	No data
	% Population growth			-0.47%	0.60%	0.67%	0.60%	-9.98%
	% Water demand growth			#DIV/0!				
Source of information		DWA NIS StatsSA NFC						



Comments

Province		Eastern Cape						WSA	
Municipal Code		EC137						No	
District Municipality		Chris Hani						Category	
Municipality		Engcobo						B4	
Settlements		Engcobo						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	149 594	148 911	149 810	150 825	151 735	136 542		
	Households	32 546	32 383	32 550	32 821	32 989	29 663		
	Connections - metered	3 590	3 574	3 596	3 620	3 642	3 277		
	Connections - Unmetered	49 904	49 804	49 903	20 069	20 172	48 138		
	Length of mains (km)	470	468	470	474	476	428		
	System input volume	kl/annum	1 335 811	1 333 919	0				
	Billed metered consumption	kl/annum	1 298 871	1 187 846	163 613				
	Billed unmetered consumption	kl/annum	25 848	26 640	1 609				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 324 719	1 214 486	165 222	0	0	0	0
	Non-Revenue water	kl/annum	11 092	119 433	-165 222	0	0	0	0
	Water Losses	kl/annum	11 092	119 433	-165 222	0	0	0	0
	% Non-revenue water		0.8%	9.0%	No data	No data	No data	No data	No data
	% Water Losses		0.8%	9.0%	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		24	25	No data	No data	No data	No data	No data
	Input: m ³ / household / month		3	3	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		24	22	3	No data	No data	No data	No data
	Billed : m ³ / household / month		3	3	0	No data	No data	No data	No data
	% Population growth			-0.46%	0.60%	0.68%	0.60%	-10.01%	
	% Water demand growth			-0.14%					
Source of information		DWA NIS StatsSA NFC							



Comments

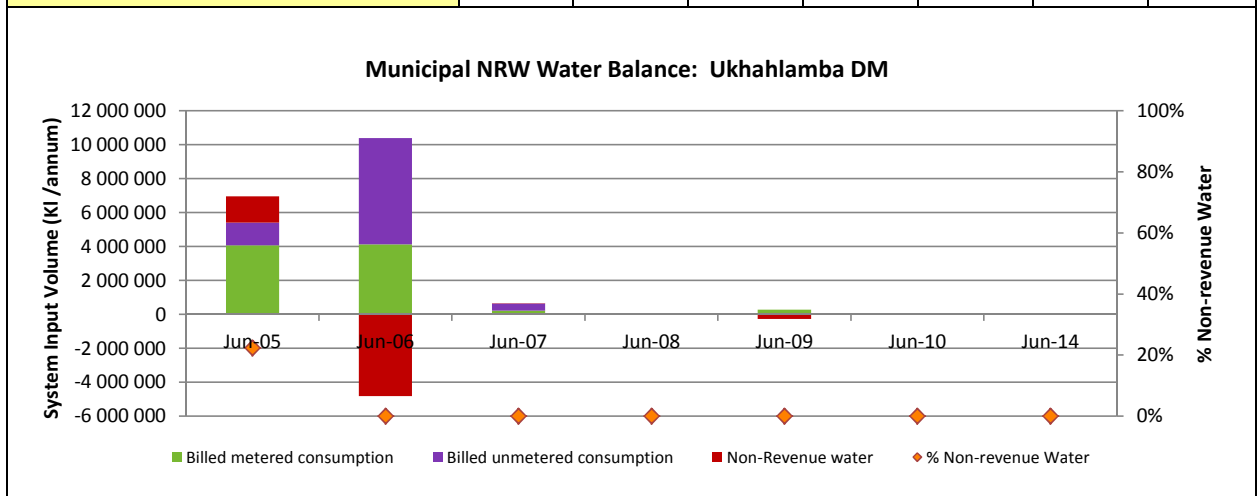
Province		Eastern Cape						WSA	
Municipal Code		EC138						No	
District Municipality		Chris Hani						Category	
Municipality		Sakhisizwe						B3	
Settlements		Elliot						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	64 076	63 783	64 170	64 601	64 990	60 340		
	Households	15 583	15 511	15 600	15 715	15 807	14 675		
	Connections - metered	8 626	8 587	8 639	8 697	8 749	8 123		
	Connections - Unmetered	7 053	7 024	7 064	7 113	7 155	6 642		
	Length of mains (km)	314	312	314	316	318	295		
	System input volume	kl/annum	2 501 384	2 501 396	2 551 423		359 220		
	Billed metered consumption	kl/annum	1 868 552	2 124 547	2 167 037		318 650		
	Billed unmetered consumption	kl/annum	113 424	347 904	28 512		26 316		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 981 976	2 472 451	2 195 549	0	344 966	0	
	Non-Revenue water	kl/annum	519 408	28 945	355 874	0	14 254	0	
	Water Losses	kl/annum	519 408	28 945	355 874	0	14 254	0	
	% Non-revenue water		20.8%	1.2%	13.9%	No data	4.0%	No data	No data
	% Water Losses		20.8%	1.2%	13.9%	No data	4.0%	No data	No data
Key performance indicators	Input : Litres / capita / day		107	107	109	No data	15	No data	No data
	Input: m ³ / household / month		13	13	14	No data	2	No data	No data
	Billed : Litres / capita / day		85	106	94	No data	15	No data	No data
	Billed : m ³ / household / month		11	13	12	No data	2	No data	No data
	% Population growth			-0.46%	0.61%	0.67%	0.60%	-7.15%	
	% Water demand growth			0.00%	2.00%		#DIV/0!		
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC		DWA NIS StatsSA NFC			

Municipal NRW Water Balance: Sakhisizwe

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	1 868 552	113 424	519 408	20.8%
Jun-06	2 124 547	347 904	28 945	1.2%
Jun-07	2 167 037	28 512	355 874	13.9%
Jun-08			0	No data
Jun-09	318 650	26 316	14 254	4.0%
Jun-10			0	No data
Jun-14			0	No data

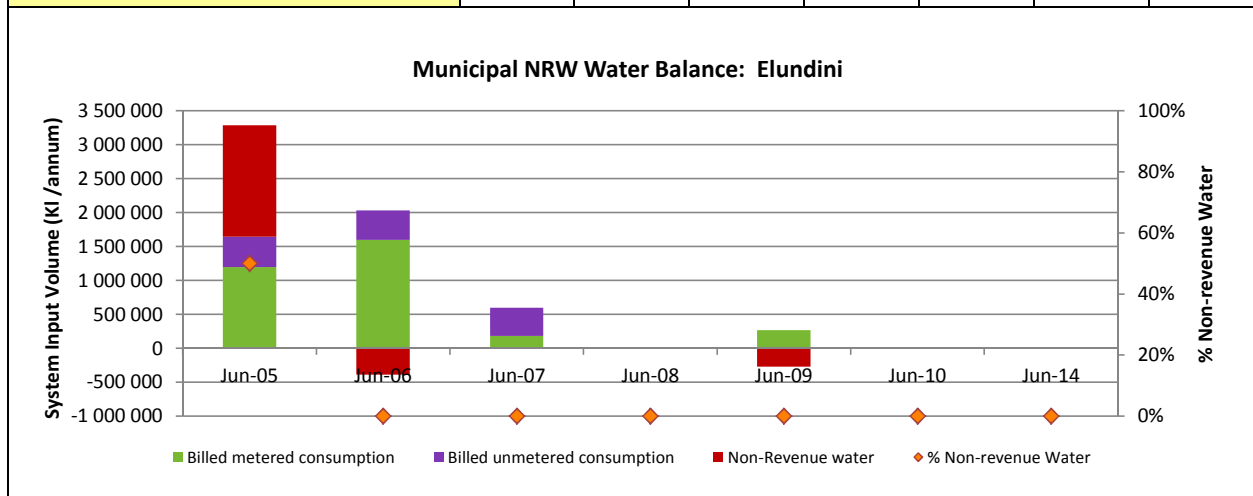
Comments

Province		Eastern Cape						WSA	
Municipal Code		DC14						Yes	
District Municipality		Ukhahlamba						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	347 695	346 868	348 955	351 277	353 397	325 645	0	
	Households	90 406	90 185	90 722	91 326	91 875	84 728	0	
	Connections - metered	38 683	38 591	38 822	39 079	39 316	37 113	0	
	Connections - Unmetered	33 868	33 784	33 984	34 214	34 416	31 224	0	
	Length of mains (km)	1 451	1 447	1 456	1 466	1 475	1 367	0	
	System input volume	kl/annum	6 956 992	5 573 977	627 147	0	0	0	0
	Billed metered consumption	kl/annum	4 069 524	4 123 157	211 806	0	268 693	0	0
	Billed unmetered consumption	kl/annum	1 333 154	6 261 218	415 054	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	5 402 678	10 384 375	626 860	0	268 693	0	0
	Non-Revenue water	kl/annum	1 554 314	-4 810 398	287	0	-268 693	0	0
	Water Losses	kl/annum	1 554 314	-4 810 398	287	0	-268 693	0	0
	% Non-revenue water		22.3%	Check data	0.0%	No data	No data	No data	No data
	% Water Losses		22.3%	Check data	0.0%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		55	44	5	No data	No data	No data	No data
	Input: m ³ / household / month		6	5	1	No data	No data	No data	No data
	Billed : Litres / capita / day		43	82	5	No data	2	No data	No data
	Billed : m ³ / household / month		5	10	1	No data	0	No data	No data
	% Population growth			-0.24%	0.60%	0.67%	0.60%	-7.85%	
	% Water demand growth			-19.88%	-88.75%				
Source of information		DWA NIS StatsSA NFC							



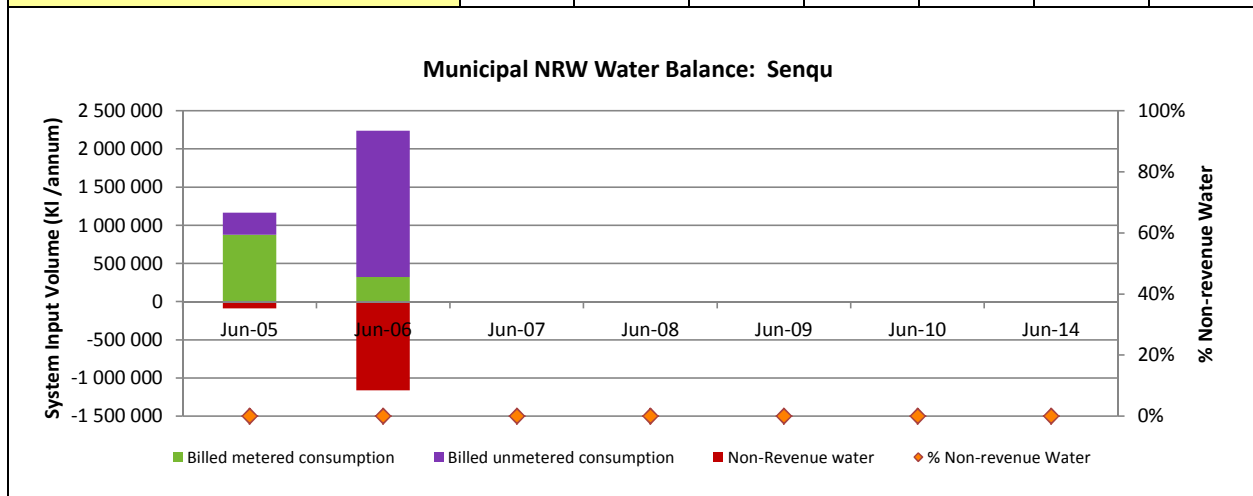
Comments

Province		Eastern Cape						WSA	
Municipal Code		EC141						No	
District Municipality		Ukhahlamba						Category	
Municipality		Elundini						B4	
Settlements		Mount Fletcher						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	140 021	139 693	140 536	141 478	142 328	128 800		
	Households	35 447	35 356	35 561	35 808	36 016	32 586		
	Connections - metered	8 088	8 069	8 448	8 172	8 224	7 440		
	Connections - Unmetered	49 852	49 804	49 946	20 054	20 170	48 250		
	Length of mains (km)	559	557	564	565	568	544		
	System input volume	kl/annum	3 285 000	1 642 500	598 445				
	Billed metered consumption	kl/annum	1 195 812	1 599 300	183 797		268 693		
	Billed unmetered consumption	kl/annum	446 688	432 000	414 648		0		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 642 500	2 031 300	598 445	0	268 693	0	0
	Non-Revenue water	kl/annum	1 642 500	-388 800	0	0	-268 693	0	0
	Water Losses	kl/annum	1 642 500	-388 800	0	0	-268 693	0	0
	% Non-revenue water		50.0%	Check data	Check data	No data	No data	No data	No data
	% Water Losses		50.0%	Check data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		64	32	12	No data	No data	No data	No data
	Input: m ³ / household / month		8	4	1	No data	No data	No data	No data
	Billed : Litres / capita / day		32	40	12	No data	5	No data	No data
	Billed : m ³ / household / month		4	5	1	No data	1	No data	No data
	% Population growth			-0.23%	0.60%	0.67%	0.60%	-9.50%	
	% Water demand growth			-50.00%	-63.56%				
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		



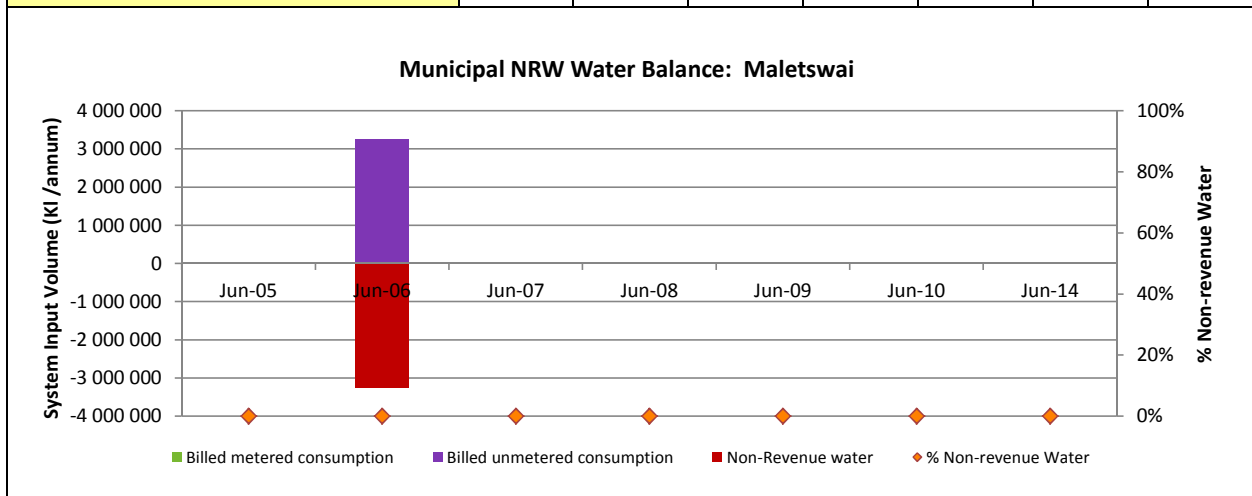
Comments
Fluctuating input volume and billed consumption?

Province		Eastern Cape						WSA
Municipal Code		EC142						No
District Municipality		Ukhahlamba						Category
Municipality		Senqu						B4
Settlements		Barkly East						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	137 747	137 418	138 244	139 166	140 004	126 459	
	Households	35 998	35 913	36 131	36 368	36 587	33 050	
	Connections - metered	42 709	42 679	42 755	42 840	42 947	41 668	
	Connections - Unmetered	42 824	42 794	42 872	42 956	43 034	41 774	
	Length of mains (km)	544	509	543	546	549	469	
	System input volume	kl/annum	1 076 736	1 076 736				
	Billed metered consumption	kl/annum	877 064	321 598				
	Billed unmetered consumption	kl/annum	287 858	1 917 864				
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 164 922	2 239 462	0	0	0	0
	Non-Revenue water	kl/annum	-88 186	-1 162 726	0	0	0	0
	Water Losses	kl/annum	-88 186	-1 162 726	0	0	0	0
	% Non-revenue water		Check data	Check data	No data	No data	No data	No data
	% Water Losses		Check data	Check data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		21	21	No data	No data	No data	No data
	Input: m ³ / household / month		2	2	No data	No data	No data	No data
	Billed : Litres / capita / day		23	45	No data	No data	No data	No data
	Billed : m ³ / household / month		3	5	No data	No data	No data	No data
	% Population growth			-0.24%	0.60%	0.67%	0.60%	-9.67%
	% Water demand growth			0.00%				
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



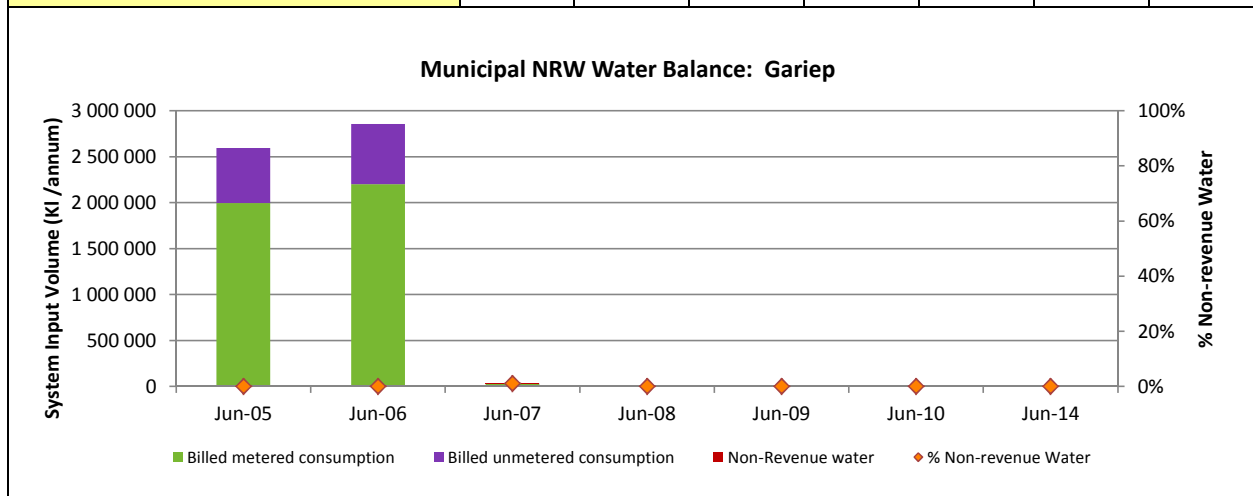
Comments
 Consistent input volume? 2006 Billed unmetered very high?

Province		Eastern Cape						WSA
Municipal Code		EC143						No
District Municipality		Ukhahlamba						Category
Municipality		Maletswai						B3
Settlements		ALIWAL NORTH						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	38 017	37 924	38 151	38 405	38 634	38 085	
	Households	10 154	10 129	10 191	10 257	10 320	10 174	
	Connections - metered	9 567	9 544	9 604	9 665	9 723	9 584	
	Connections - Unmetered	647	646	650	654	658	649	
	Length of mains (km)	204	204	205	206	208	205	
	System input volume	kl/annum	0	0	0			
	Billed metered consumption	kl/annum	0	0	0			
	Billed unmetered consumption	kl/annum	0	3 258 872	0			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	3 258 872	0	0	0	0
	Non-Revenue water	kl/annum	0	-3 258 872	0	0	0	0
	Water Losses	kl/annum	0	-3 258 872	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	235	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	27	No data	No data	No data	No data
	% Population growth			-0.24%	0.60%	0.67%	0.60%	-1.42%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



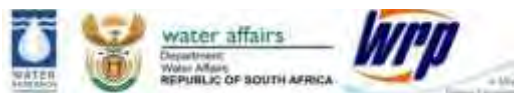
Comments

Province		Eastern Cape						WSA	
Municipal Code		EC144						No	
District Municipality		Ukhahlamba						Category	
Municipality		Gariep						B3	
Settlements		Burgersdorp						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	31 910	31 833	32 024	32 228	32 431	32 301		
	Households	8 807	8 787	8 839	8 893	8 952	8 918		
	Connections - metered	8 349	8 299	8 349	8 402	8 455	8 424		
	Connections - Unmetered	545	543	547	550	554	552		
	Length of mains (km)	477	477	478	479	480	479		
	System input volume	kl/annum	2 595 256	2 854 741	28 702				
	Billed metered consumption	kl/annum	1 996 648	2 202 259	28 009				
	Billed unmetered consumption	kl/annum	598 608	652 482	406				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 595 256	2 854 741	28 415	0	0	0	0
	Non-Revenue water	kl/annum	0	0	287	0	0	0	0
	Water Losses	kl/annum	0	0	287	0	0	0	0
	% Non-revenue water		Check data	Check data	1.0%	No data	No data	No data	No data
	% Water Losses		No data	No data	1.0%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		223	246	2	No data	No data	No data	No data
	Input: m ³ / household / month		25	27	0	No data	No data	No data	No data
	Billed : Litres / capita / day		223	246	2	No data	No data	No data	No data
	Billed : m ³ / household / month		25	27	0	No data	No data	No data	No data
	% Population growth			-0.24%	0.60%	0.64%	0.63%	-0.40%	
	% Water demand growth			10.00%	-98.99%				
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS		

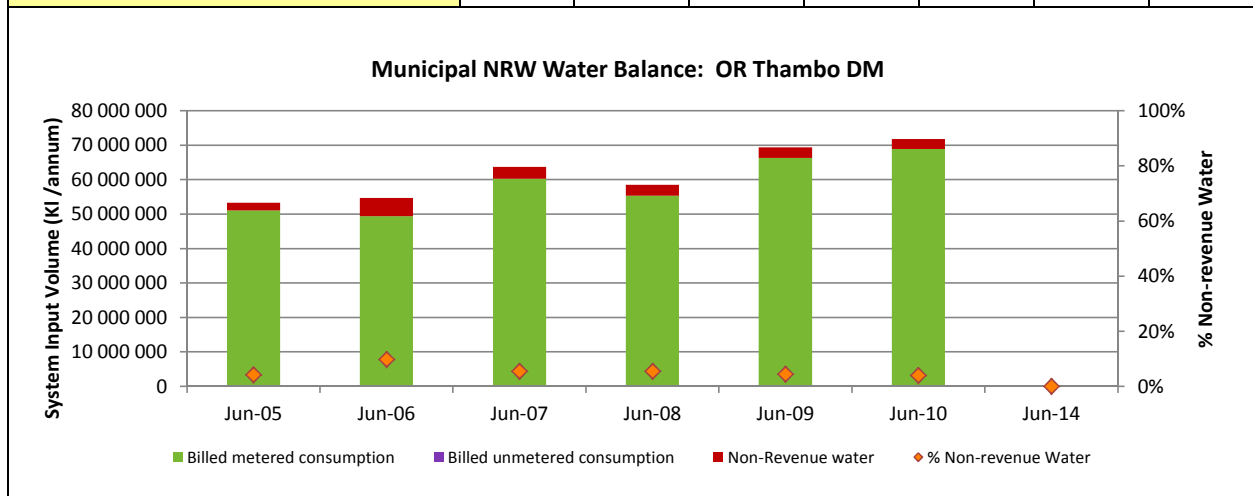


Comments
 NRW cannot be zero? 2007 input volume cannot be correct?

National NRW Assessment

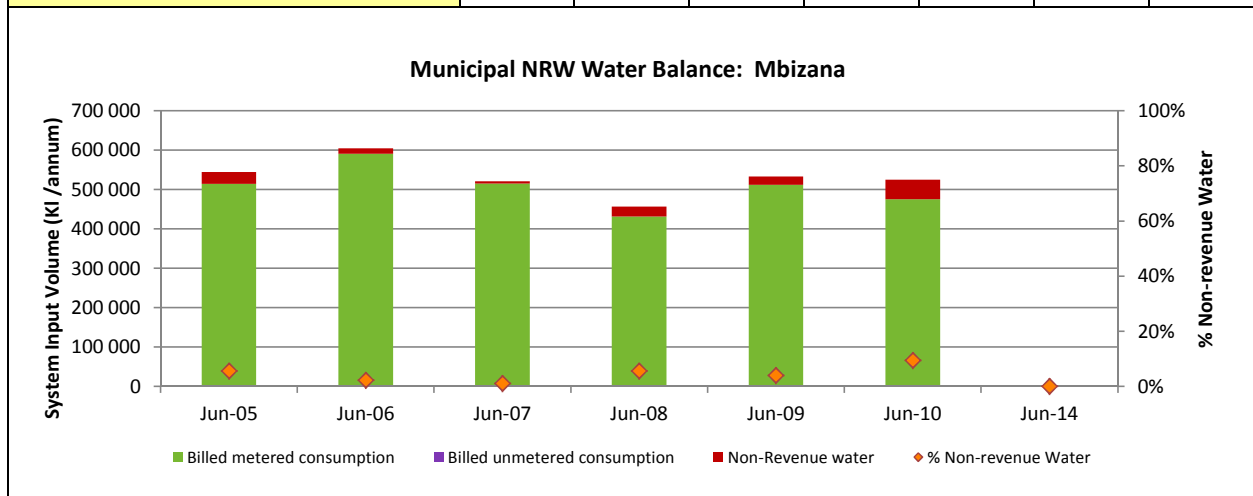


Province		Eastern Cape						WSA	
Municipal Code		DC15						Yes	
District Municipality		O.R. Tambo						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	1 707 203	1 714 314	1 724 609	1 736 098	1 746 501	1 576 165	0	
	Households	361 966	363 442	365 478	368 061	370 135	334 138	0	
	Connections - metered	11 136	12 016	12 738	13 240	13 688	14 940	0	
	Connections - Unmetered	350 830	351 426	352 192	354 821	356 447	319 198	0	
	Length of mains (km)	1 822	1 823	1 823	1 823	1 823	1 823	0	
	System input volume	kl/annum	53 303 707	54 720 124	63 731 058	58 543 608	69 347 888	71 832 332	0
	Billed metered consumption	kl/annum	51 088 105	49 378 995	60 261 562	55 369 450	66 297 385	68 948 919	0
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	51 088 105	49 378 995	60 261 562	55 369 450	66 297 385	68 948 919	0
	Non-Revenue water	kl/annum	2 215 603	5 341 128	3 469 497	3 174 158	3 050 503	2 883 413	0
	Water Losses	kl/annum	2 215 603	5 341 128	3 469 497	3 174 158	3 050 503	2 883 413	0
	% Non-revenue water		4.2%	9.8%	5.4%	5.4%	4.4%	4.0%	No data
	% Water Losses		4.2%	9.8%	5.4%	5.4%	4.4%	4.0%	No data
Key performance indicators	Input : Litres / capita / day		86	87	101	92	109	125	No data
	Input: m³ / household / month		12	13	15	13	16	18	No data
	Billed : Litres / capita / day		82	79	96	87	104	120	No data
	Billed : m³ / household / month		12	11	14	13	15	17	No data
	% Population growth			0.42%	0.60%	0.67%	0.60%	-9.75%	
	% Water demand growth			2.66%	16.47%	-8.14%	18.46%	3.58%	
Source of information									



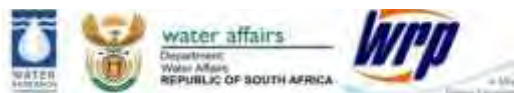
Comments

Province		Eastern Cape						WSA	
Municipal Code		EC151						No	
District Municipality		OR Thambo						Category	
Municipality		Mbizana						B4	
Settlements		Bizana						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	250 037	251 069	252 584	254 271	255 797	229 872		
	Households	48 831	49 027	49 289	49 631	49 895	44 841		
	Connections - metered	240	234	231	279	262	250		
	Connections - Unmetered	48 591	48 793	49 058	49 352	49 633	44 591		
	Length of mains (km)	174	175	175	175	175	175		
	System input volume	kl/annum	544 740	604 562	520 985	456 732	533 459	525 210	
	Billed metered consumption	kl/annum	514 164	591 051	515 303	431 289	512 059	475 580	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	514 164	591 051	515 303	431 289	512 059	475 580	0
	Non-Revenue water	kl/annum	30 576	13 512	5 682	25 443	21 400	49 630	0
	Water Losses	kl/annum	30 576	13 512	5 682	25 443	21 400	49 630	0
	% Non-revenue water		5.6%	2.2%	1.1%	5.6%	4.0%	9.4%	No data
	% Water Losses		5.6%	2.2%	1.1%	5.6%	4.0%	9.4%	No data
Key performance indicators	Input : Litres / capita / day		6	7	6	5	6	6	No data
	Input: m ³ / household / month		1	1	1	1	1	1	No data
	Billed : Litres / capita / day		6	6	6	5	5	6	No data
	Billed : m ³ / household / month		1	1	1	1	1	1	No data
	% Population growth			0.41%	0.60%	0.67%	0.60%	-10.13%	
	% Water demand growth			10.98%	-13.82%	-12.33%	16.80%	-1.55%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		

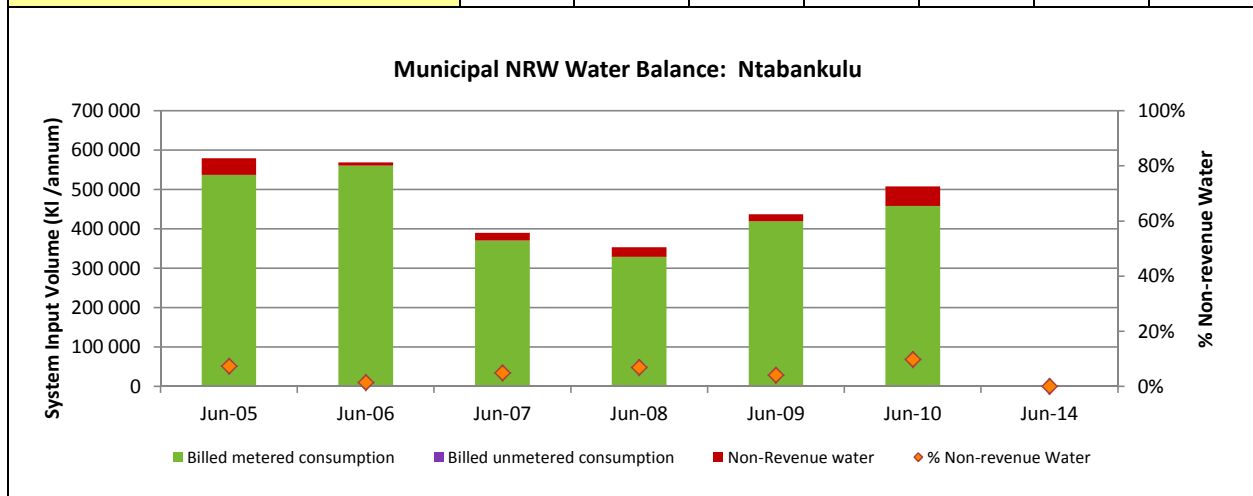


Comments

National NRW Assessment

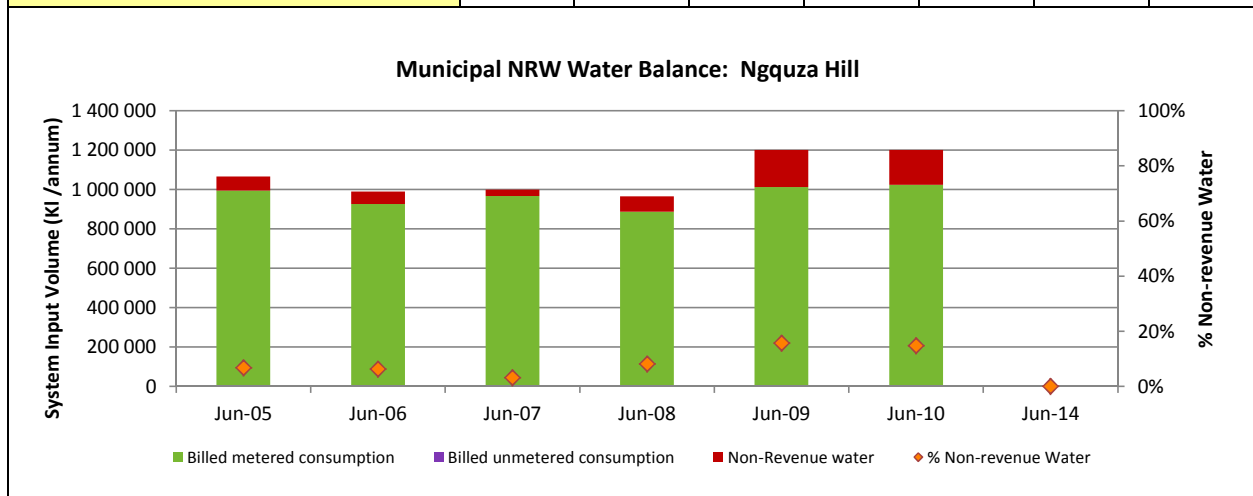


Province		Eastern Cape						WSA	
Municipal Code		EC152						No	
District Municipality		OR Thambo						Category	
Municipality		Ntabankulu						B4	
Settlements		Ntabankulu						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	139 974	140 563	141 405	142 347	143 196	128 619		
	Households	29 030	29 140	29 297	29 518	29 677	26 659		
	Connections - metered	160	243	248	248	212	134		
	Connections - Unmetered	28 870	28 897	29 049	29 270	29 465	26 525		
	Length of mains (km)	192	192	192	192	192	192		
	System input volume	kl/annum	579 502	568 729	389 675	352 954	437 044	507 740	
	Billed metered consumption	kl/annum	536 795	560 835	370 827	328 840	419 173	458 230	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	536 795	560 835	370 827	328 840	419 173	458 230	0
	Non-Revenue water	kl/annum	42 707	7 894	18 848	24 114	17 871	49 510	0
	Water Losses	kl/annum	42 707	7 894	18 848	24 114	17 871	49 510	0
	% Non-revenue water		7.4%	1.4%	4.8%	6.8%	4.1%	9.8%	No data
	% Water Losses		7.4%	1.4%	4.8%	6.8%	4.1%	9.8%	No data
Key performance indicators	Input : Litres / capita / day		11	11	8	7	8	11	No data
	Input: m ³ / household / month		2	2	1	1	1	2	No data
	Billed : Litres / capita / day		11	11	7	6	8	10	No data
	Billed : m ³ / household / month		2	2	1	1	1	1	No data
	% Population growth			0.42%	0.60%	0.67%	0.60%	-10.18%	
	% Water demand growth			-1.86%	-31.48%	-9.42%	23.82%	16.18%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



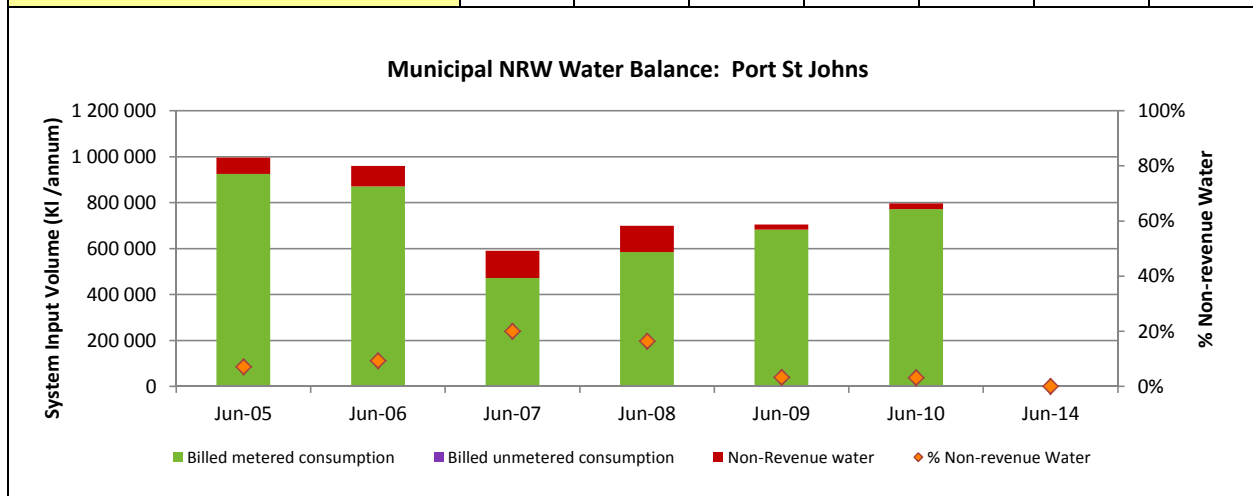
Comments

Province		Eastern Cape						WSA	
Municipal Code		EC153						No	
District Municipality		OR Thambo						Category	
Municipality		Ngquza Hill						B4	
Settlements		Flagstaff						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	260 511	261 586	263 150	264 891	266 478	239 593		
	Households	53 831	54 037	54 339	54 728	55 034	49 485		
	Connections - metered	201	418	531	430	497	601		
	Connections - Unmetered	53 630	53 619	53 808	54 298	54 537	48 884		
	Length of mains (km)	177	177	177	177	177	177		
	System input volume	kl/annum	1 066 650	989 086	998 975	965 920	1 200 720	1 201 456	
	Billed metered consumption	kl/annum	994 843	926 750	967 228	887 823	1 011 706	1 023 624	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	994 843	926 750	967 228	887 823	1 011 706	1 023 624	0
	Non-Revenue water	kl/annum	71 807	62 336	31 747	78 097	189 014	177 832	0
	Water Losses	kl/annum	71 807	62 336	31 747	78 097	189 014	177 832	0
	% Non-revenue water		6.7%	6.3%	3.2%	8.1%	15.7%	14.8%	No data
	% Water Losses		6.7%	6.3%	3.2%	8.1%	15.7%	14.8%	No data
Key performance indicators	Input : Litres / capita / day		11	10	10	10	12	14	No data
	Input: m ³ / household / month		2	2	2	1	2	2	No data
	Billed : Litres / capita / day		10	10	10	9	10	12	No data
	Billed : m ³ / household / month		2	1	1	1	2	2	No data
	% Population growth			0.41%	0.60%	0.66%	0.60%	-10.09%	
	% Water demand growth			-7.27%	1.00%	-3.31%	24.31%	0.06%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



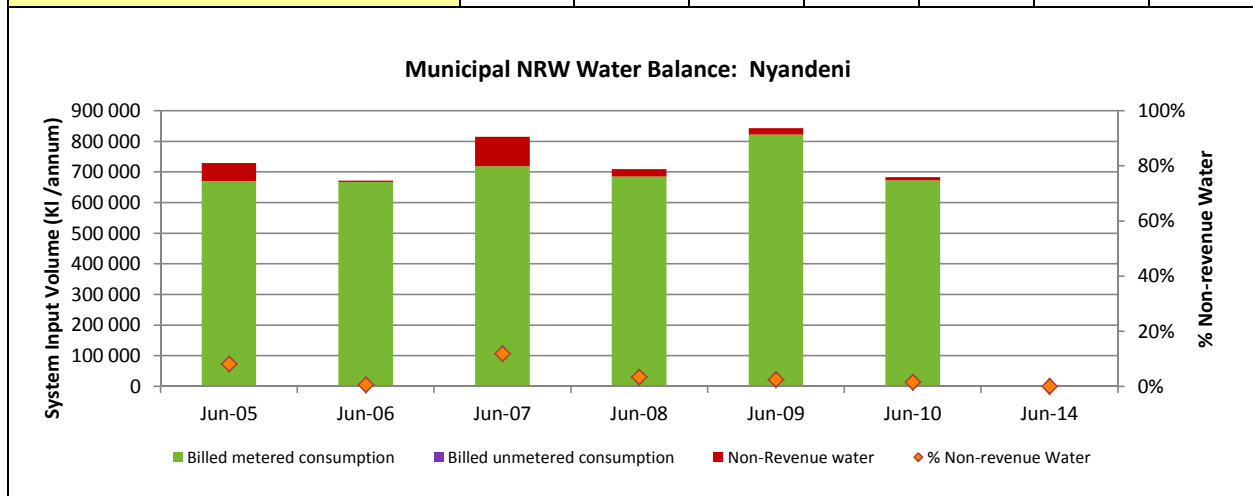
Comments

Province		Eastern Cape						WSA	
Municipal Code		EC154						No	
District Municipality		OR Thambo						Category	
Municipality		Port St Johns						B4	
Settlements		Port St Johns						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	148 150	148 770	149 656	150 642	151 542	136 487		
	Households	30 469	30 597	30 772	30 995	31 175	28 077		
	Connections - metered	152	231	252	241	201	169		
	Connections - Unmetered	30 317	30 366	30 520	30 754	30 974	27 908		
	Length of mains (km)	111	111	111	111	111	111		
	System input volume	kl/annum	995 788	959 452	590 043	698 704	704 765	796 750	
	Billed metered consumption	kl/annum	925 167	870 402	472 013	584 327	681 947	771 820	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	925 167	870 402	472 013	584 327	681 947	771 820	0
	Non-Revenue water	kl/annum	70 621	89 051	118 030	114 377	22 818	24 930	0
	Water Losses	kl/annum	70 621	89 051	118 030	114 377	22 818	24 930	0
	% Non-revenue water		7.1%	9.3%	20.0%	16.4%	3.2%	3.1%	No data
	% Water Losses		7.1%	9.3%	20.0%	16.4%	3.2%	3.1%	No data
Key performance indicators	Input : Litres / capita / day		18	18	11	13	13	16	No data
	Input: m ³ / household / month		3	3	2	2	2	2	No data
	Billed : Litres / capita / day		17	16	9	11	12	15	No data
	Billed : m ³ / household / month		3	2	1	2	2	2	No data
	% Population growth			0.42%	0.60%	0.66%	0.60%	-9.93%	
	% Water demand growth			-3.65%	-38.50%	18.42%	0.87%	13.05%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



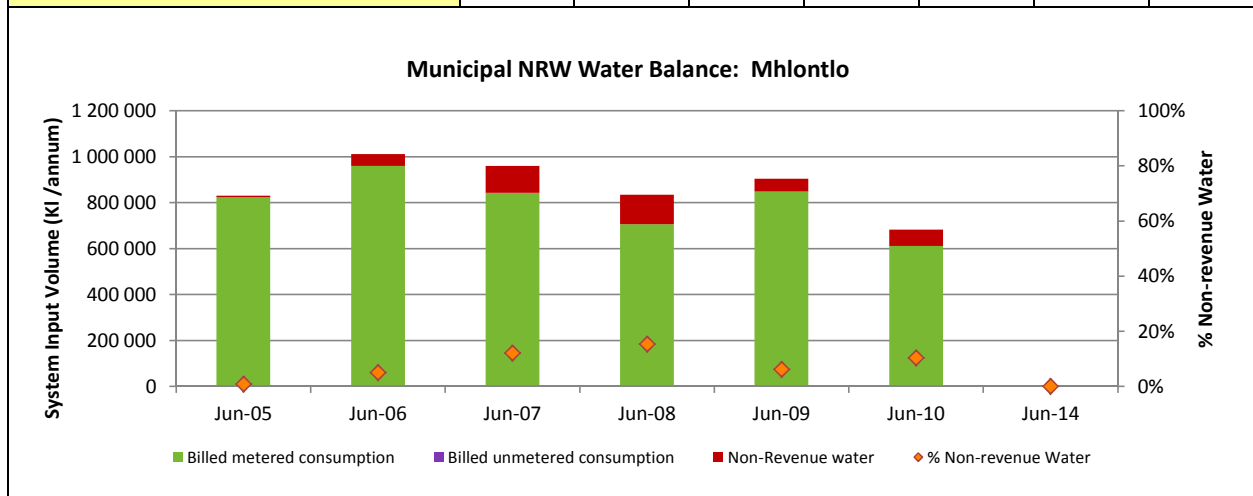
Comments

Province		Eastern Cape						WSA	
Municipal Code								No	
District Municipality		OR Thambo						Category	
Municipality		Nyandeni						B4	
Settlements		Libode						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	279 974	281 149	282 834	284 715	286 417	257 212		
	Households	58 186	58 430	58 767	59 179	59 523	53 458		
	Connections - metered	250	205	289	173	266	290		
	Connections - Unmetered	57 936	58 225	58 478	59 006	59 257	53 168		
	Length of mains (km)	358	358	358	358	358	358		
	System input volume	kl/annum	729 740	672 004	815 282	709 002	843 345	683 400	
	Billed metered consumption	kl/annum	670 230	667 760	718 478	685 300	822 620	673 120	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	670 230	667 760	718 478	685 300	822 620	673 120	0
	Non-Revenue water	kl/annum	59 510	4 244	96 805	23 702	20 725	10 280	0
	Water Losses	kl/annum	59 510	4 244	96 805	23 702	20 725	10 280	0
	% Non-revenue water		8.2%	0.6%	11.9%	3.3%	2.5%	1.5%	No data
	% Water Losses		8.2%	0.6%	11.9%	3.3%	2.5%	1.5%	No data
Key performance indicators	Input : Litres / capita / day		7	7	8	7	8	7	No data
	Input: m ³ / household / month		1	1	1	1	1	1	No data
	Billed : Litres / capita / day		7	7	7	7	8	7	No data
	Billed : m ³ / household / month		1	1	1	1	1	1	No data
	% Population growth			0.42%	0.60%	0.67%	0.60%	-10.20%	
	% Water demand growth			-7.91%	21.32%	-13.04%	18.95%	-18.97%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



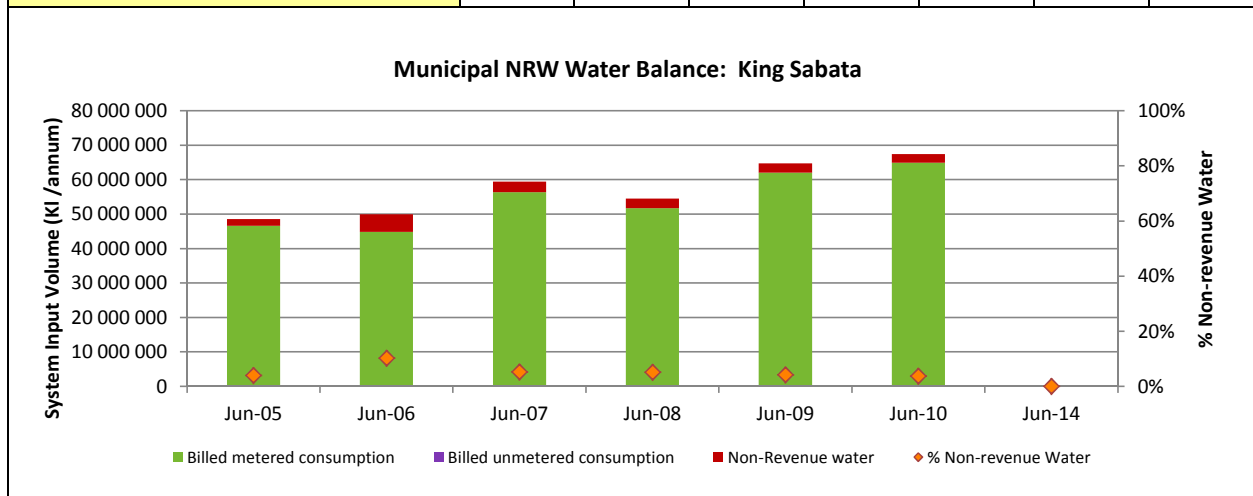
Comments

Province		Eastern Cape						WSA	
Municipal Code		EC156						No	
District Municipality		OR Thambo						Category	
Municipality		Mhlonlo						B4	
Settlements		Qumbu						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	204 292	205 147	206 386	207 774	209 025	187 948		
	Households	45 867	46 059	46 314	46 645	46 907	42 176		
	Connections - metered	180	173	170	165	155	153		
	Connections - Unmetered	45 687	45 886	46 144	46 480	46 752	42 023		
	Length of mains (km)	358	358	358	358	358	358		
	System input volume	kl/annum	830 567	1 040 803	959 348	834 902	903 432	682 640	
	Billed metered consumption	kl/annum	823 635	959 860	842 913	706 713	848 092	611 850	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	823 635	959 860	842 913	706 713	848 092	611 850	0
	Non-Revenue water	kl/annum	6 932	50 943	116 435	128 189	55 340	70 790	0
	Water Losses	kl/annum	6 932	50 943	116 435	128 189	55 340	70 790	0
	% Non-revenue water		0.8%	5.0%	12.1%	15.4%	6.1%	10.4%	No data
	% Water Losses		0.8%	5.0%	12.1%	15.4%	6.1%	10.4%	No data
Key performance indicators	Input : Litres / capita / day		11	13	13	11	12	10	No data
	Input: m ³ / household / month		2	2	2	1	2	1	No data
	Billed : Litres / capita / day		11	13	11	9	11	9	No data
	Billed : m ³ / household / month		1	2	2	1	2	1	No data
	% Population growth			0.42%	0.60%	0.67%	0.60%	-10.08%	
	% Water demand growth			21.70%	-5.09%	-12.97%	8.21%	-24.44%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



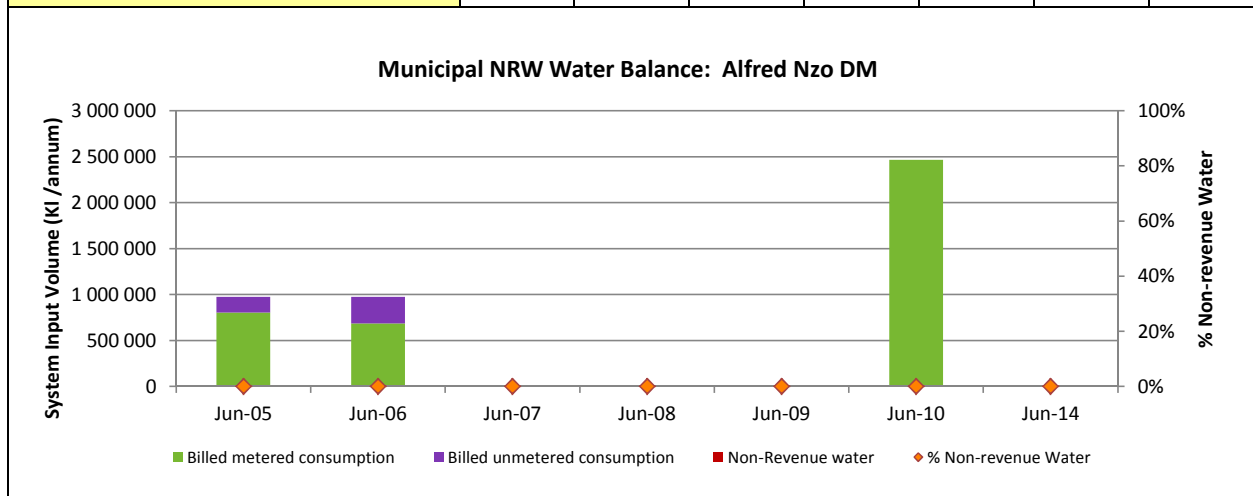
Comments

Province		Eastern Cape						WSA	
Municipal Code		EC157						No	
District Municipality		OR Thambo						Category	
Municipality		King Sabata						B2	
Settlements		MBUQE, UMTATA						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	424 265	426 030	428 594	431 458	434 046	396 434		
	Households	95 752	96 152	96 700	97 365	97 924	89 442		
	Connections - metered	9 953	10 512	11 017	11 704	12 095	13 343		
	Connections - Unmetered	85 799	85 640	85 135	85 661	85 829	76 099		
	Length of mains (km)	453	453	453	453	453	453		
	System input volume	kl/annum	48 556 721	49 915 488	59 456 750	54 525 394	64 725 123	67 435 136	
	Billed metered consumption	kl/annum	46 623 271	44 802 338	56 374 800	51 745 158	62 001 788	64 934 695	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	46 623 271	44 802 338	56 374 800	51 745 158	62 001 788	64 934 695	0
	Non-Revenue water	kl/annum	1 933 450	5 113 150	3 081 950	2 780 236	2 723 335	2 500 441	0
	Water Losses	kl/annum	1 933 450	5 113 150	3 081 950	2 780 236	2 723 335	2 500 441	0
	% Non-revenue water		4.0%	10.2%	5.2%	5.1%	4.2%	3.7%	No data
	% Water Losses		4.0%	10.2%	5.2%	5.1%	4.2%	3.7%	No data
Key performance indicators	Input : Litres / capita / day		314	321	380	346	409	466	No data
	Input: m ³ / household / month		42	43	51	47	55	63	No data
	Billed : Litres / capita / day		301	288	360	329	391	449	No data
	Billed : m ³ / household / month		41	39	49	44	53	60	No data
	% Population growth			0.42%	0.60%	0.67%	0.60%	-8.67%	
	% Water demand growth			2.80%	19.11%	-8.29%	18.71%	4.19%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



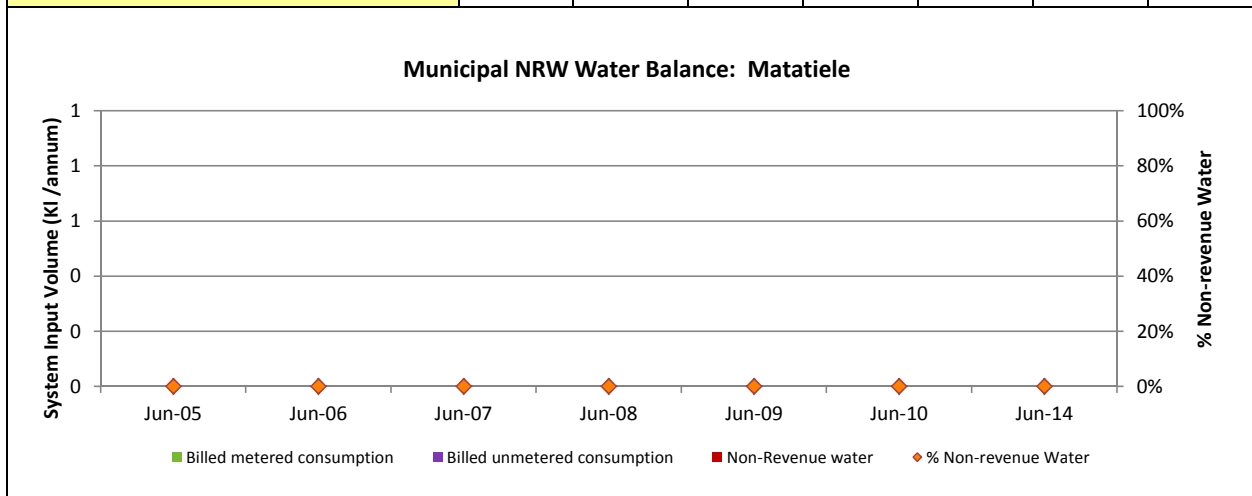
Comments

Province		Eastern Cape						WSA	
Municipal Code		DC44						Yes	
District Municipality		Alfred Nzo						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	399 584	401 742	404 149	406 838	409 267	367 884	0	
	Households	98 354	98 895	99 486	100 139	100 745	90 529	0	
	Connections - metered	23 321	23 448	23 588	23 745	23 887	21 474	0	
	Connections - Unmetered	53 303	53 595	53 914	54 270	54 597	49 060	0	
	Length of mains (km)	1 532	1 541	1 550	1 560	1 570	1 411	0	
	System input volume	kl/annum	972 782	972 782	0	0	0	2 466 000	0
	Billed metered consumption	kl/annum	802 934	685 070	0	0	0	2 466 000	0
	Billed unmetered consumption	kl/annum	169 848	287 712	0	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	972 782	972 782	0	0	0	2 466 000	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0	0
	% Non-revenue water		Check data	Check data	No data	No data	No data	Check data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		7	7	No data	No data	No data	18	No data
	Input: m ³ / household / month		1	1	No data	No data	No data	2	No data
	Billed : Litres / capita / day		7	7	No data	No data	No data	18	No data
	Billed : m ³ / household / month		1	1	No data	No data	No data	2	No data
	% Population growth			0.54%	0.60%	0.67%	0.60%	-10.11%	
	% Water demand growth			0.00%				#DIV/0!	
Source of information									



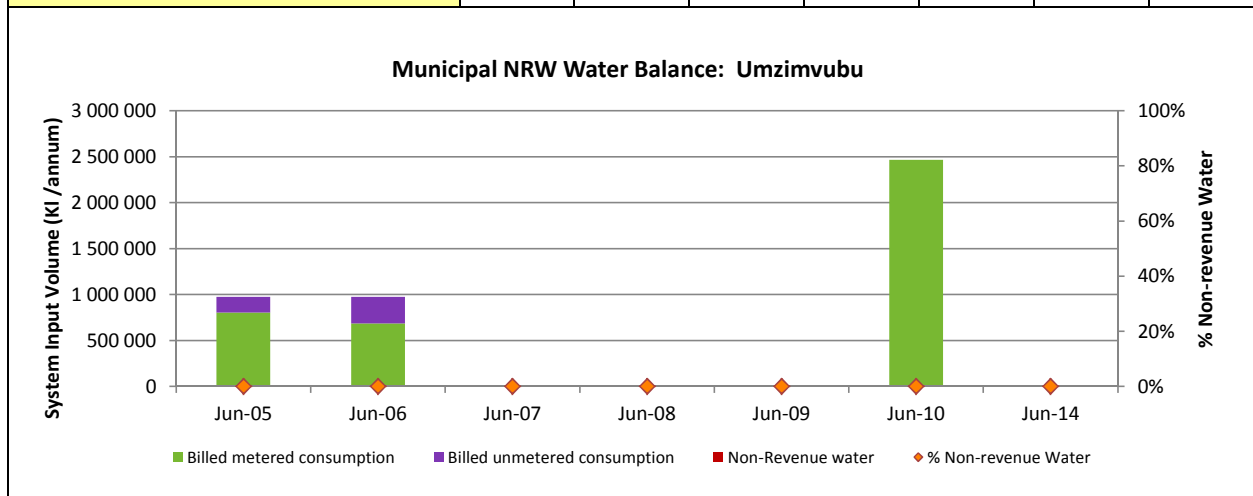
Comments

Province		Eastern Cape						WSA
Municipal Code		EC441						No
District Municipality		Alfred Nzo						Category
Municipality		Matatiele						B3
Settlements		MOUNT CURRIE, MATATIELE						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	211 586	212 769	214 038	215 444	216 726	194 931	
	Households	52 913	53 219	53 546	53 880	54 217	48 726	
	Connections - metered	14 179	14 259	14 344	14 438	14 524	13 063	
	Connections - Unmetered	25 724	25 873	26 032	26 194	26 358	23 688	
	Length of mains (km)	798	803	808	813	818	735	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.56%	0.60%	0.66%	0.60%	-10.06%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



Comments

Province		Eastern Cape						WSA	
Municipal Code		EC442						No	
District Municipality		Alfred Nzo						Category	
Municipality		Umzimvubu						B4	
Settlements		Mount Ayliff						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	187 998	188 973	190 111	191 394	192 541	172 953		
	Households	45 441	45 676	45 940	46 259	46 528	41 803		
	Connections - metered	9 142	9 189	9 245	9 307	9 363	8 440		
	Connections - Unmetered	27 580	27 722	27 882	28 076	28 239	25 372		
	Length of mains (km)	734	738	743	748	752	676		
	System input volume	kl/annum	972 782	972 782				2 466 000	
	Billed metered consumption	kl/annum	802 934	685 070				2 466 000	
	Billed unmetered consumption	kl/annum	169 848	287 712					
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	972 782	972 782	0	0	0	2 466 000	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0	0
	% Non-revenue water		Check data	Check data	No data	No data	No data	Check data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		14	14	No data	No data	No data	39	No data
	Input: m ³ / household / month		2	2	No data	No data	No data	5	No data
	Billed : Litres / capita / day		14	14	No data	No data	No data	39	No data
	Billed : m ³ / household / month		2	2	No data	No data	No data	5	No data
	% Population growth			0.52%	0.60%	0.67%	0.60%	-10.17%	
	% Water demand growth			0.00%				#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	DWA NIS RPMS		



Comments
Consistent input volume?

National Non-Revenue Water Assessment

Free State Province

July 2011



Introductory notes

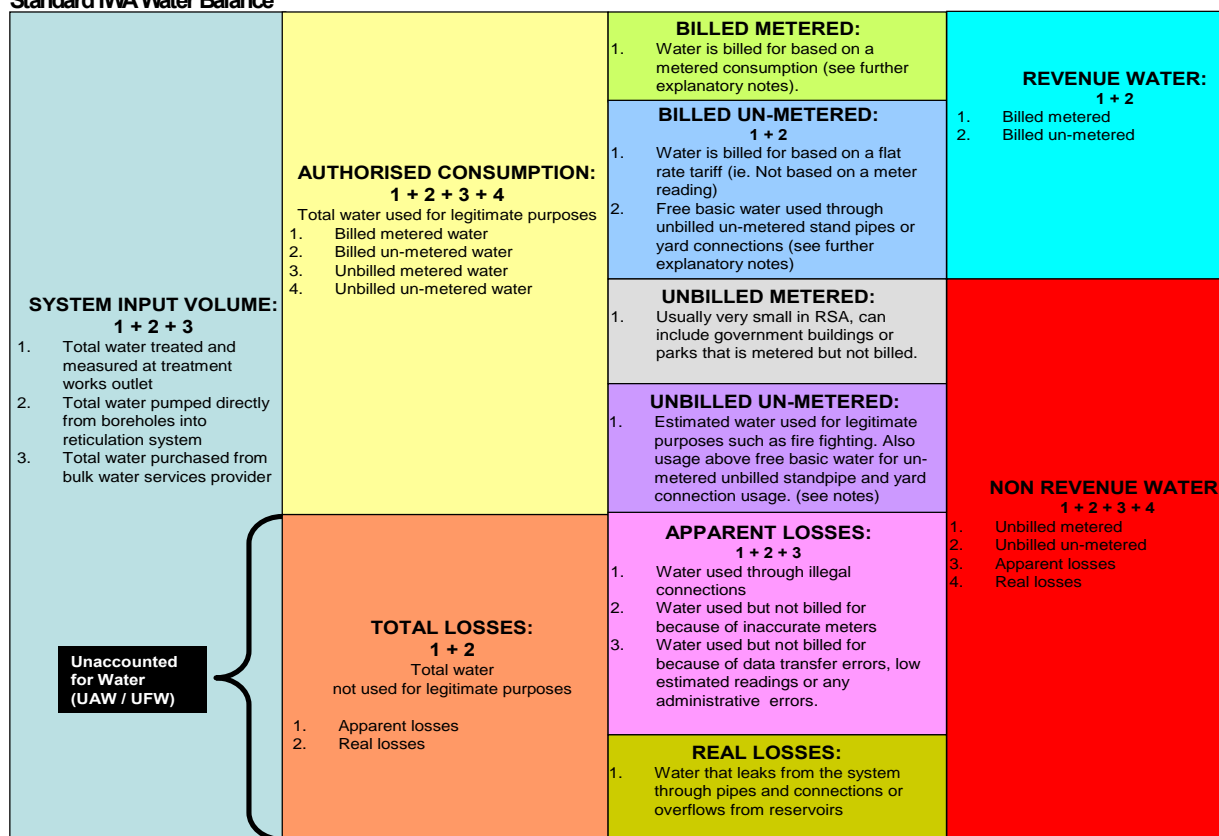
Terminology

Acronym	Description	Link
DWA	Department of Water Affairs	http://www.dwa.gov.za
WS RPMS	Water Services : Regulatory Performance Measurement System	http://www.dwa.gov.za/dir_ws/rpm/
WS NIS	Water Services : National Information System	http://www.dwa.gov.za/dir_ws/wsis/
FBS	Water Services : Free Basic Water Project	http://www.dwaf.gov.za/dir_ws/fbw/
NRW	Non-revenue water. Volume of water for which no revenue is received (preferred term)	
UAW or UFW	Unaccounted-for water. Volume of water lost due to physical and apparent losses (not preferred term)	
StatsSA NEC	Statistics South Africa : Non-Financial Census of Municipalities P9115	http://www.statssa.gov.za/

Information sources

Item	Source	Calculation
Population	DWA WS NIS or municipality	
Households	DWA WS NIS or municipality	
Connections - metered	Extrapolated 2007 DWA - WS FBW serviced above RDP or municipality	
Connections - Unmetered	Extrapolated 2007 DWA - WS FBW serviced at RDP or municipality	
Length of mains (km)	Actual value or calculated at average of 50 connections / km of mains	# connections ÷ 50
(A) System input volume	Total volume of potable water supplied by the municipality in k/annum	
(B) Billed metered consumption	Total volume of water metered and billed by the municipality in k/annum	
(C) Billed unmetered consumption	Total volume of water unmetered and billed by the municipality in k/annum	
Underlined values	Calculated values using trends or averages	

Standard IWA Water Balance

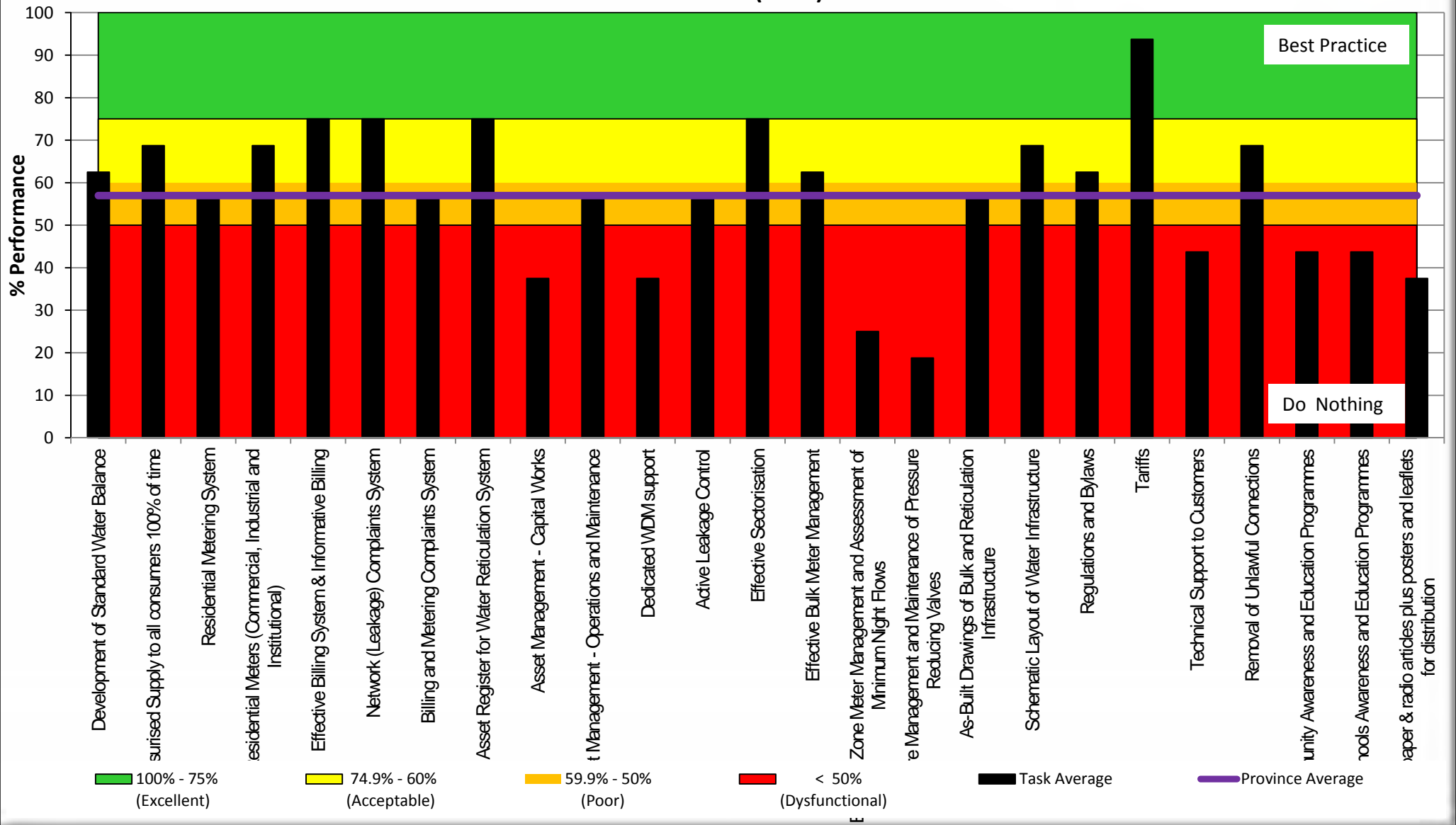


Province		Free State			
No	Municipal Code	District Municipality	Municipality	Category	WSA
1	DC16	Xhariep	Xhariep DM	C1	No
2	FS161	Xhariep	Letsameeng	B3	Yes
3	FS162	Xhariep	Kopanong	B3	Yes
4	FS163	Xhariep	Mabokare	B3	Yes
5	DC17	Dr Ruth Segomotsi Mompati	Dr Ruth Segomotsi Mompati DM	C1	No
6	FS171	Dr Ruth Segomotsi Mompati	Naledi	B3	Yes
7	FS172	Dr Ruth Segomotsi Mompati	Mangaung	B1	Yes
8	FS173	Dr Ruth Segomotsi Mompati	Mantsoa	B3	Yes
9	DC18	Lejweleputswa	Lejweleputswa DM	C1	No
10	FS181	Lejweleputswa	Masiloanya	B3	Yes
11	FS182	Lejweleputswa	Tokologo	B3	Yes
12	FS183	Lejweleputswa	Tswelopele	B3	Yes
13	FS184	Lejweleputswa	Matjhabeng	B1	Yes
14	FS185	Lejweleputswa	Nala	B3	Yes
15	DC19	Thabo Mofutsanyane	Thabo Mofutsanyane DM	C1	No
16	FS191	Thabo Mofutsanyana	Setsoto	B3	Yes
17	FS192	Thabo Mofutsanyana	Dibabeng	B2	Yes
18	FS193	Thabo Mofutsanyana	Nketeana	B3	Yes
19	FS194	Thabo Mofutsanyana	Moluti a Phofung	B3	Yes
20	FS195	Thabo Mofutsanyana	Phumelela	B3	Yes
21	DC20	Fezile Dabi	Fezile Dabi DM	C1	No
22	FS201	Fezile Dabi	Moghaka	B2	Yes
23	FS203	Fezile Dabi	Ngwathe	B3	Yes
24	FS204	Fezile Dabi	Metsimahole	B2	Yes
25	FS205	Fezile Dabi	Mafube	B3	Yes

National NRW Assessment

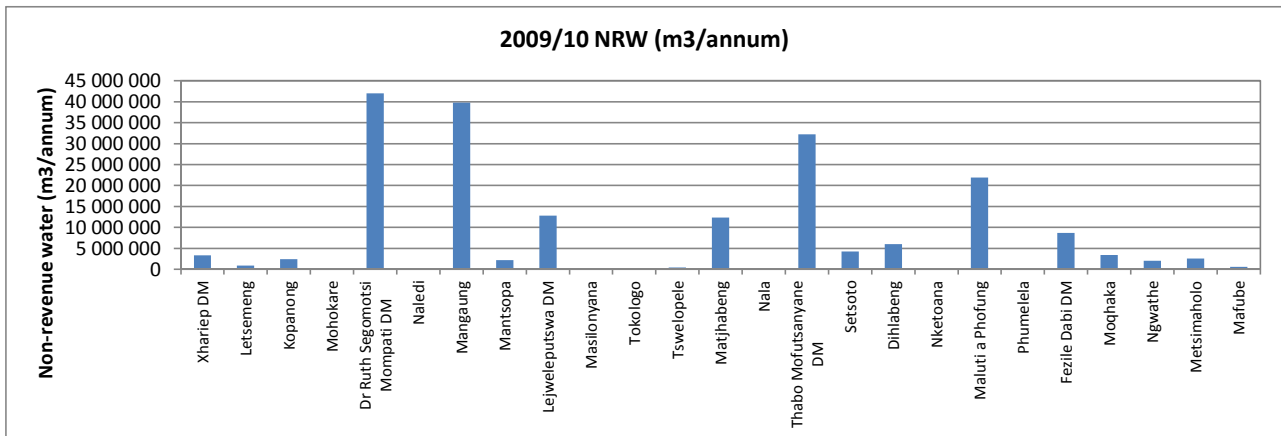
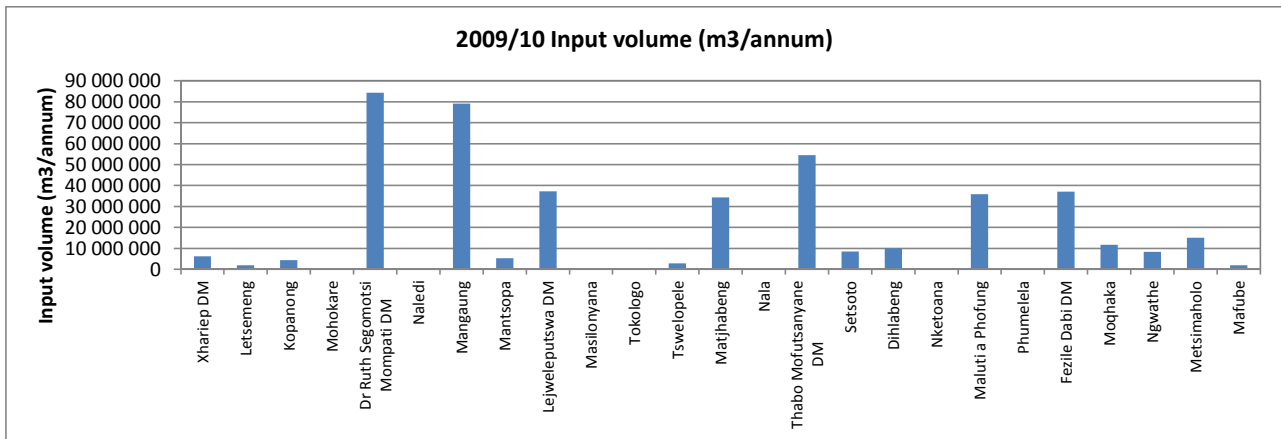
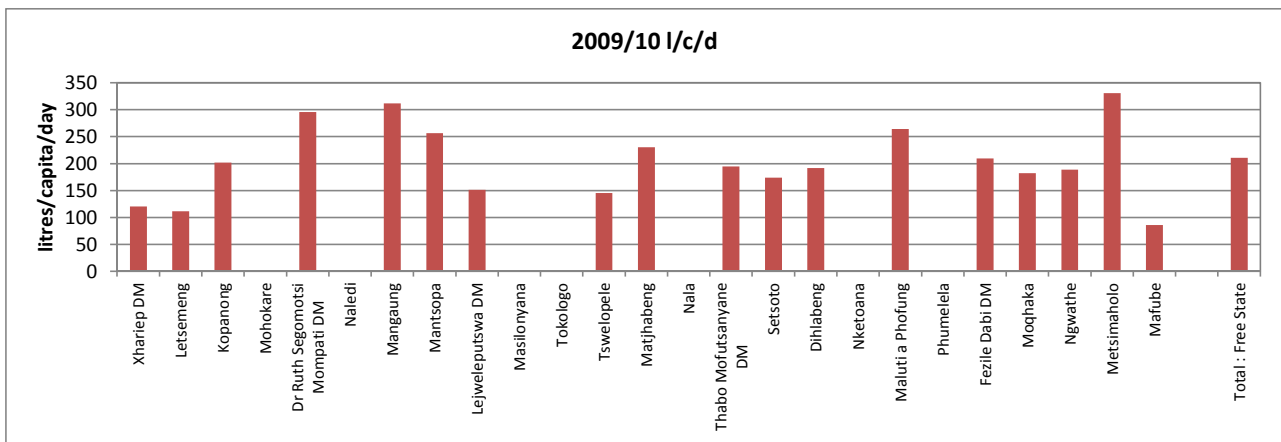
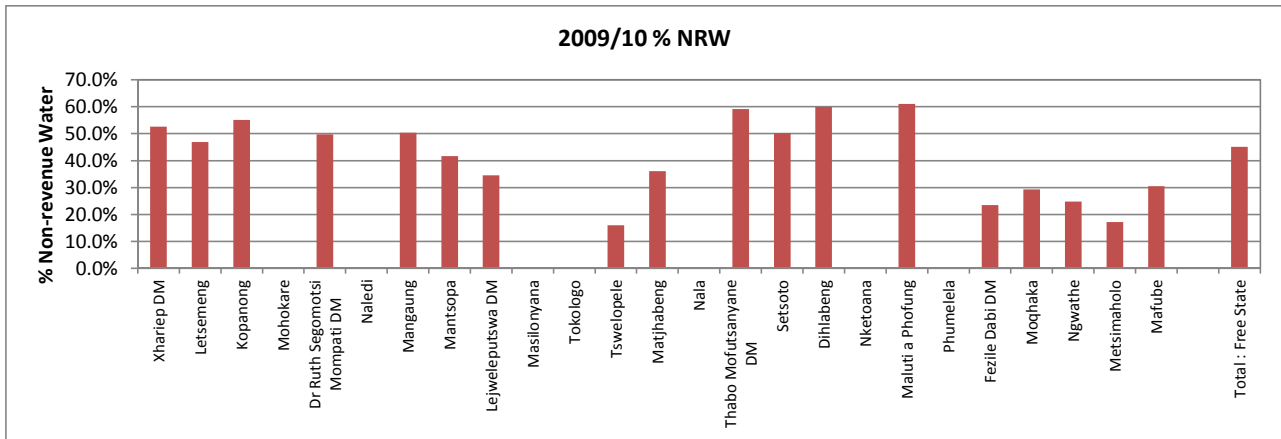


**Municipal Scorecard for Assessing the Potential for WC/WDM in Municipalities
Free State (2010)**

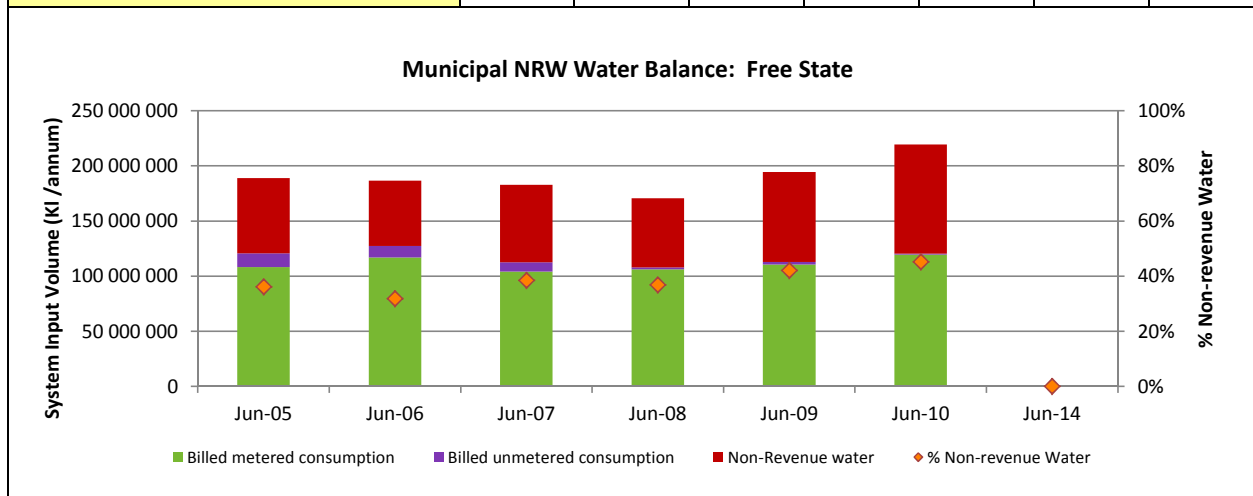


Score	Criteria	# of Records	Comments	Distribution
Record Keeping 25				
1	No records	0	Good records keeping is the first step towards water management and reducing water losses	
2	Poor records	6		
3	Erratic / worthless records	9		
4	Records with gaps or questions	6		
5	Good records no gaps or questions	4		
% NRW 25				
0	No records	7	% Non-revenue water (volume of water for which no income is received). Current estimated national average $\pm 35\%$	
1	>50%	7		
2	>40% <=50%	3		
3	>30% <=40%	3		
4	>20% <=30%	3		
5	<=20%	2		
litres / capita / day 25				
0	No records	7	Average litres / capita / day based on system input volume. Expected average around 200l/c/d.	
1	>400	0		
2	>300 and <=400	2		
3	>200 and <=300	6		
4	>100 and <=200	9		
5	<=100	1		
NRW Activity 25				
1	No activity	5	Based on local knowledge, scorecard, available records.	
2	Very limited activity	10		
3	Some activity, part of O&M	9		
4	Small scale active programme	1		
5	Large scale active programme	0		
Potential NRW Impact 25				
1	<=50,000	4	Potential impact of intervention based on population. High population = high consumption = higher potential saving.	
2	>50,000 <=100,000	7		
3	>100,000 <=200,000	7		
4	>200,000 <=500,000	3		
5	>500,000	4		

Key Performance Indicators

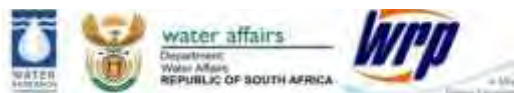


Province		Free State						WSA	
Municipal Code									
District Municipality								Category	
Municipality									
Settlements								Target Jun-14	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10		
Input Data	Population	2 762 615	2 771 405	2 788 033	2 799 180	2 815 973	2 848 248	0	
	Households	785 481	787 958	792 696	795 862	800 643	810 108	0	
	Connections - metered	479 052	494 194	535 968	566 620	514 994	499 452	0	
	Connections - Unmetered	169 520	155 716	161 331	156 303	142 121	156 757	0	
	Length of mains (km)	12 656	12 692	12 749	12 796	12 855	12 536	0	
	System input volume	kl/annum	189 046 957	186 728 267	182 873 752	170 660 078	194 488 393	219 402 981	0
	Billed metered consumption	kl/annum	108 076 159	116 900 828	104 187 682	106 300 822	110 464 210	119 598 352	0
	Billed unmetered consumption	kl/annum	12 683 569	10 421 504	8 341 990	1 512 833	2 291 658	739 864	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	120 759 729	127 322 332	112 529 672	107 813 655	112 755 868	120 338 216	0
	Non-Revenue water	kl/annum	68 287 228	59 405 935	70 344 080	62 846 423	81 732 525	99 064 765	0
	Water Losses	kl/annum	68 287 228	59 405 935	70 344 080	62 846 423	81 732 525	99 064 765	0
	% Non-revenue water		36.1%	31.8%	38.5%	36.8%	42.0%	45.2%	No data
	% Water Losses		36.1%	31.8%	38.5%	36.8%	42.0%	45.2%	No data
Key performance indicators	Input : Litres / capita / day		187	185	180	167	189	211	No data
	Input: m³ / household / month		20	20	19	18	20	23	No data
	Billed : Litres / capita / day		120	126	111	106	110	116	No data
	Billed : m³ / household / month		13	13	12	11	12	12	No data
	% Population growth			0.32%	0.60%	0.40%	0.60%	1.15%	
	% Water demand growth			-1.23%	-2.06%	-6.68%	13.96%	12.81%	
Source of information									

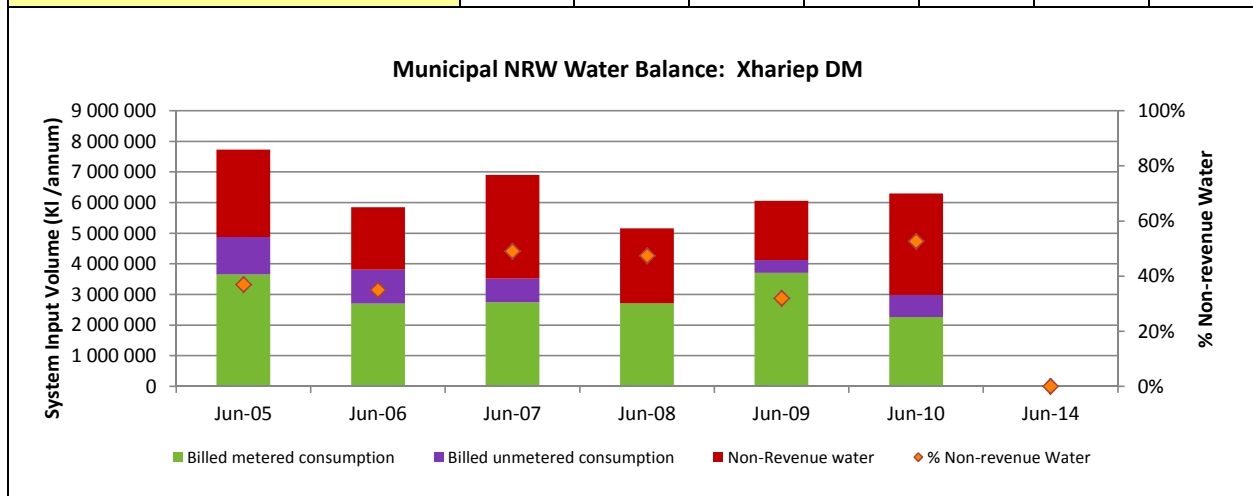


Comments

National NRW Assessment

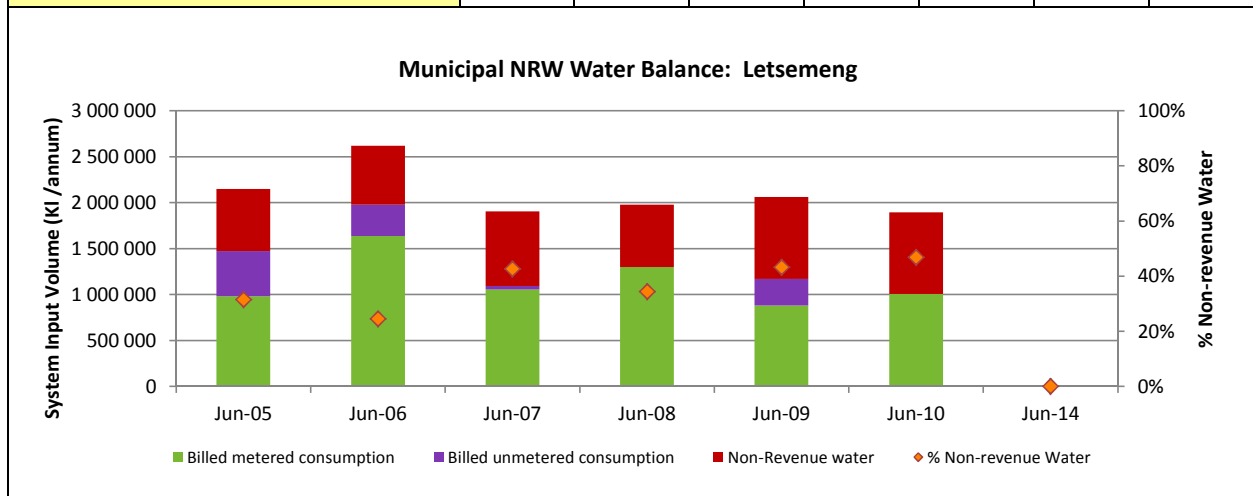


Province		Free State						WSA	
Municipal Code		FS162						Yes	
District Municipality		Xhariep						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	140 072	140 711	141 553	142 117	142 971	143 155	0	
	Households	42 338	42 529	42 785	42 957	43 215	43 308	0	
	Connections - metered	20 374	20 467	31 225	38 741	20 794	20 713	0	
	Connections - Unmetered	3 043	3 056	3 825	4 474	3 105	3 096	0	
	Length of mains (km)	468	470	473	475	478	476	0	
	System input volume	kl/annum	7 728 755	5 853 472	6 903 305	5 159 566	6 063 891	6 301 728	0
	Billed metered consumption	kl/annum	3 652 902	2 703 601	2 746 865	2 715 166	3 708 000	2 263 337	0
	Billed unmetered consumption	kl/annum	1 223 575	1 105 926	773 936	0	421 000	724 000	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	4 876 478	3 809 527	3 520 801	2 715 166	4 129 000	2 987 337	0
	Non-Revenue water	kl/annum	2 852 277	2 043 945	3 382 504	2 444 400	1 934 891	3 314 391	0
	Water Losses	kl/annum	2 852 277	2 043 945	3 382 504	2 444 400	1 934 891	3 314 391	0
	% Non-revenue water		36.9%	34.9%	49.0%	47.4%	31.9%	52.6%	No data
	% Water Losses		36.9%	34.9%	49.0%	47.4%	31.9%	52.6%	No data
Key performance indicators	Input : Litres / capita / day		151	114	134	99	116	121	No data
	Input: m³ / household / month		15	11	13	10	12	12	No data
	Billed : Litres / capita / day		95	74	68	52	79	57	No data
	Billed : m³ / household / month		10	7	7	5	8	6	No data
	% Population growth			0.46%	0.60%	0.40%	0.60%	0.13%	
	% Water demand growth			-24.26%	17.94%	-25.26%	17.53%	3.92%	
Source of information									



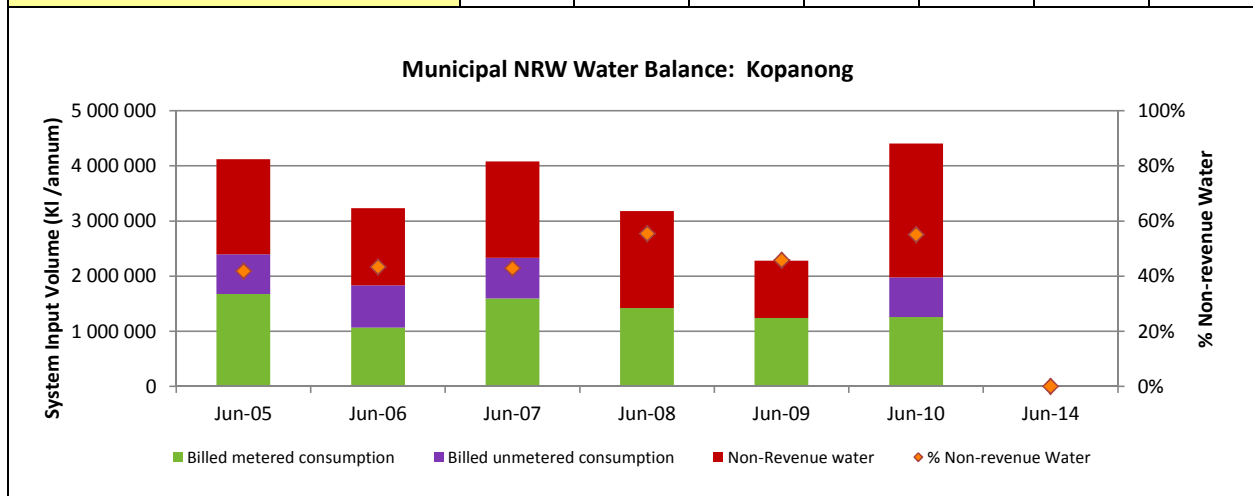
Comments

Province		Free State						WSA	
Municipal Code		FS161						Yes	
District Municipality		Xhariep						Category	
Municipality		Letsemeng						B3	
Settlements		DITLHAKE, KOFFIEFONTEIN						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	45 228	45 434	45 704	45 884	46 160	46 591		
	Households	13 268	13 326	13 405	13 460	13 540	13 667		
	Connections - metered	41 553	41 606	41 675	41 721	41 792	41 902		
	Connections - Unmetered	1 794	1 802	1 843	1 820	1 834	1 848		
	Length of mains (km)	267	268	270	271	272	275		
	System input volume	kl/annum	2 149 223	2 620 409	1 902 960	1 977 597	2 060 000	1 895 728	
	Billed metered consumption	kl/annum	982 112	1 636 558	1 055 024	1 297 577	880 000	1 007 337	
	Billed unmetered consumption	kl/annum	489 816	340 134	37 592		290 000		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 471 928	1 976 692	1 092 616	1 297 577	1 170 000	1 007 337	0
	Non-Revenue water	kl/annum	677 295	643 717	810 344	680 020	890 000	888 391	0
	Water Losses	kl/annum	677 295	643 717	810 344	680 020	890 000	888 391	0
	% Non-revenue water		31.5%	24.6%	42.6%	34.4%	43.2%	46.9%	No data
	% Water Losses		31.5%	24.6%	42.6%	34.4%	43.2%	46.9%	No data
Key performance indicators	Input : Litres / capita / day		130	158	114	118	122	111	No data
	Input: m ³ / household / month		13	16	12	12	13	12	No data
	Billed : Litres / capita / day		89	119	65	77	69	59	No data
	Billed : m ³ / household / month		9	12	7	8	7	6	No data
	% Population growth			0.46%	0.59%	0.39%	0.60%	0.93%	
	% Water demand growth			21.92%	-27.38%	3.92%	4.17%	-7.97%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC		DWA NIS RPMS			



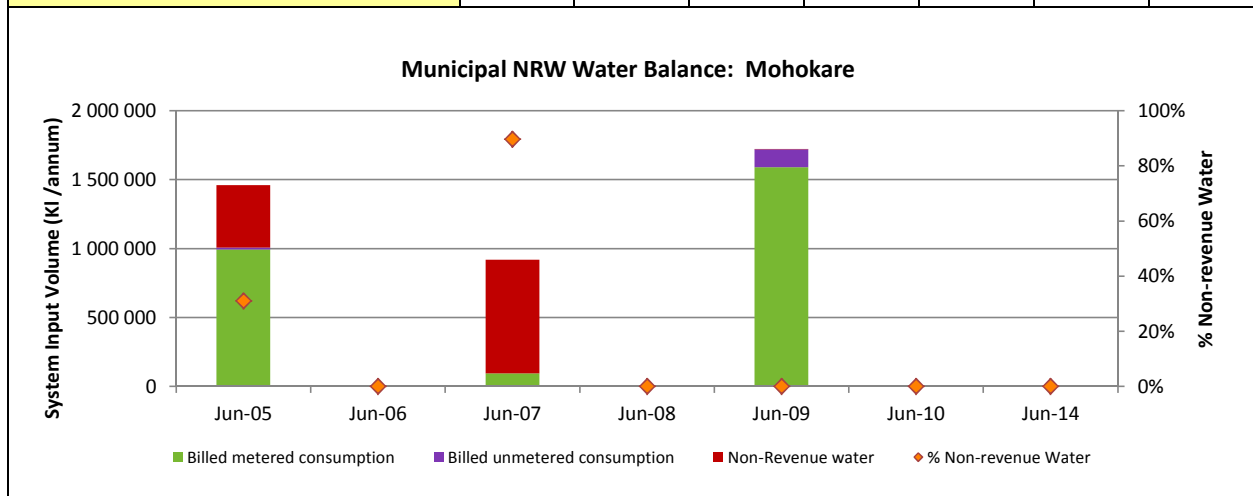
Comments
2005 Input volume seems high?

Province		Free State						WSA	
Municipal Code		FS162						Yes	
District Municipality		Xhariep						Category	
Municipality		Kopanong						B3	
Settlements		Trompsburg						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	58 022	58 286	58 637	58 873	59 226	59 777		
	Households	19 061	19 149	19 265	19 342	19 459	19 641		
	Connections - metered			10 636	18 071				
	Connections - Unmetered			750	1 387				
	Length of mains (km)								
	System input volume	kl/annum	4 119 764	3 233 063	4 082 048	3 481 970	2 281 891	4 406 000	
	Billed metered consumption	kl/annum	1 676 313	1 067 043	1 597 179	1 447 590	1 238 000	1 256 000	
	Billed unmetered consumption	kl/annum	721 080	765 792	736 344		0	724 000	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 397 393	1 832 835	2 333 523	1 417 590	1 238 000	1 980 000	0
	Non-Revenue water	kl/annum	1 722 371	1 400 228	1 748 525	1 764 380	1 043 891	2 426 000	0
	Water Losses	kl/annum	1 722 371	1 400 228	1 748 525	1 764 380	1 043 891	2 426 000	0
	% Non-revenue water		41.8%	43.3%	42.8%	55.4%	45.7%	55.1%	No data
	% Water Losses		41.8%	43.3%	42.8%	55.4%	45.7%	55.1%	No data
Key performance indicators	Input : Litres / capita / day		195	152	191	148	106	202	No data
	Input: m ³ / household / month		18	14	18	14	10	19	No data
	Billed : Litres / capita / day		113	86	109	66	57	91	No data
	Billed : m ³ / household / month		10	8	10	6	5	8	No data
	% Population growth			0.45%	0.60%	0.40%	0.60%	0.93%	
	% Water demand growth			-21.52%	26.26%	-22.05%	-28.29%	93.09%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC		DWA NIS StatsSA NFC	DWA NIS RPMS		



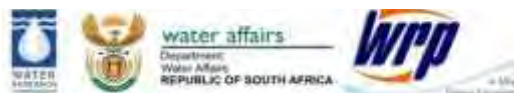
Comments
Fluctuating input volume?

Province		Free State						WSA	
Municipal Code		FS163						Yes	
District Municipality		Xhariep						Category	
Municipality		Mohokare						B3	
Settlements		SOUTH EASTERN, ZASTRON						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	36 822	36 991	37 212	37 360	37 585	36 787		
	Households	10 009	10 054	10 115	10 155	10 216	10 000		
	Connections - metered	8 820	8 864	8 944	8 949	9 003	8 842		
	Connections - Unmetered	4 249	4 254	4 262	4 267	4 275	4 248		
	Length of mains (km)	204	202	204	204	206	204		
	System input volume	kl/annum	1 459 768		918 297		1 722 000		
	Billed metered consumption	kl/annum	994 477		94 662		1 590 000		
	Billed unmetered consumption	kl/annum	12 679		0		131 000		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 007 157	0	94 662	0	1 721 000	0	
	Non-Revenue water	kl/annum	452 611	0	823 635	0	1 000	0	
	Water Losses	kl/annum	452 611	0	823 635	0	1 000	0	
	% Non-revenue water		31.0%	No data	89.7%	No data	0.1%	No data	No data
	% Water Losses		31.0%	No data	89.7%	No data	0.1%	No data	No data
Key performance indicators	Input : Litres / capita / day		109	No data	68	No data	126	No data	No data
	Input: m ³ / household / month		12	No data	8	No data	14	No data	No data
	Billed : Litres / capita / day		75	No data	7	No data	125	No data	No data
	Billed : m ³ / household / month		8	No data	1	No data	14	No data	No data
	% Population growth			0.46%	0.60%	0.40%	0.60%	-2.12%	
	% Water demand growth				#DIV/0!		#DIV/0!		
Source of information		DWA NIS StatsSA NFC		DWA NIS StatsSA NFC		DWA NIS RPMS			

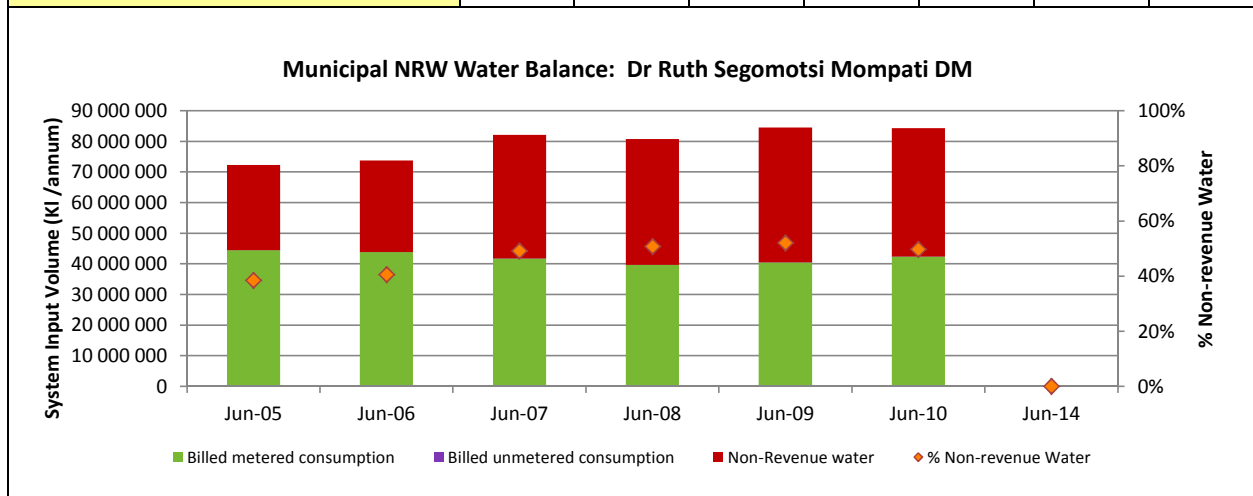


Comments
Fluctuating input volume?

National NRW Assessment



Province		Free State						WSA	
Municipal Code		DC17						No	
District Municipality		Dr Ruth Segomotsi Mompati						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	749 081	753 805	758 330	761 367	765 934	781 471	0	
	Households	222 811	224 217	225 562	226 464	227 822	232 570	0	
	Connections - metered	108 286	121 594	121 487	127 089	132 637	135 496	0	
	Connections - Unmetered	73 727	60 565	60 813	55 306	50 711	55 939	0	
	Length of mains (km)	3 639	3 651	3 664	3 680	3 693	3 704	0	
	System input volume	kl/annum	72 263 352	73 798 140	82 076 003	80 715 973	84 566 554	84 358 852	0
	Billed metered consumption	kl/annum	44 485 757	43 867 193	41 764 056	39 697 040	40 543 586	42 364 873	0
	Billed unmetered consumption	kl/annum	22 236	19 854	20 400	20 106	20 658	15 864	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	44 507 993	43 887 047	41 784 456	39 717 146	40 564 244	42 380 737	0
	Non-Revenue water	kl/annum	27 755 359	29 911 093	40 291 547	40 998 827	44 002 310	41 978 115	0
	Water Losses	kl/annum	27 755 359	29 911 093	40 291 547	40 998 827	44 002 310	41 978 115	0
	% Non-revenue water		38.4%	40.5%	49.1%	50.8%	52.0%	49.8%	No data
	% Water Losses		38.4%	40.5%	49.1%	50.8%	52.0%	49.8%	No data
Key performance indicators	Input : Litres / capita / day		264	268	297	290	302	296	No data
	Input: m³ / household / month		27	27	30	30	31	30	No data
	Billed : Litres / capita / day		163	160	151	143	145	149	No data
	Billed : m³ / household / month		17	16	15	15	15	15	No data
	% Population growth			0.63%	0.60%	0.40%	0.60%	2.03%	
	% Water demand growth			2.12%	11.22%	-1.66%	4.77%	-0.25%	
Source of information									



Comments

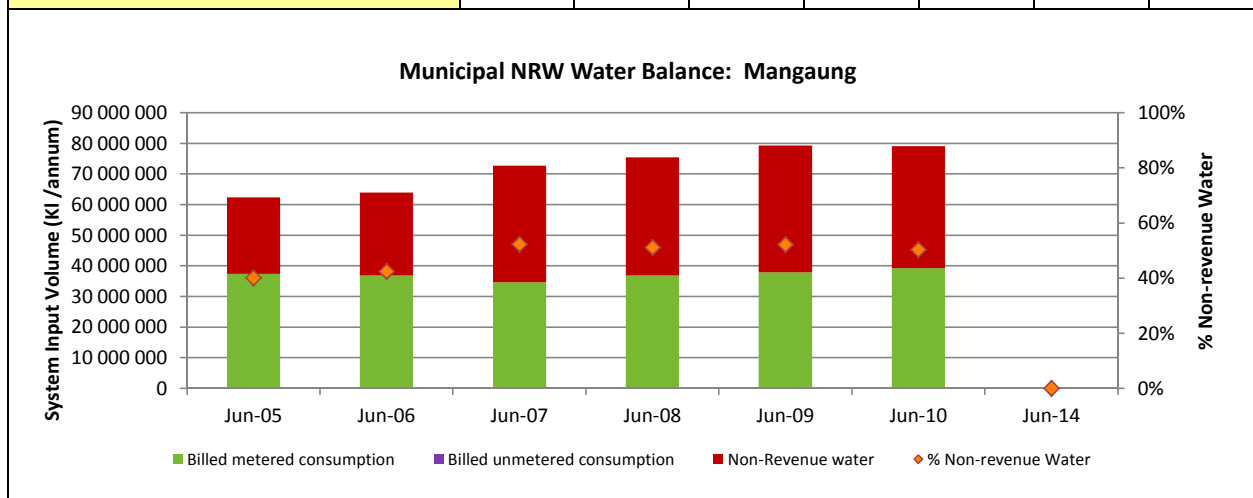
Province		North West						WSA
Municipal Code		FS171						Yes
District Municipality		Dr Ruth Segomotsi Mompati						Category
Municipality		Naledi						B3
Settlements		HUHUDI, VRYBURG						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	28 414	28 593	28 765	28 880	29 052	30 023	
	Households	8 236	8 289	8 338	8 372	8 422	8 704	
	Connections - metered	7 276	7 322	7 366	7 395	7 439	7 688	
	Connections - Unmetered	1 040	1 047	1 023	1 027	1 033	1 068	
	Length of mains (km)	166	167	168	168	169	175	
	System input volume	kl/annum	4 661 938	4 562 705	4 106 789			
	Billed metered consumption	kl/annum	4 107 267	3 919 591	3 488 267			
	Billed unmetered consumption	kl/annum	0	0	0			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	4 107 267	3 919 591	3 488 267	0	0	0
	Non-Revenue water	kl/annum	554 671	643 114	618 522	0	0	0
	Water Losses	kl/annum	554 671	643 114	618 522	0	0	0
	% Non-revenue water		11.9%	14.1%	15.1%	No data	No data	No data
	% Water Losses		11.9%	14.1%	15.1%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		450	437	391	No data	No data	No data
	Input: m ³ / household / month		47	46	41	No data	No data	No data
	Billed : Litres / capita / day		396	376	332	No data	No data	No data
	Billed : m ³ / household / month		42	39	35	No data	No data	No data
	% Population growth			0.63%	0.60%	0.40%	0.60%	3.34%
	% Water demand growth			-2.13%	-9.99%			
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	

Municipal NRW Water Balance: Naledi

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	4 107 267	0	554 671	11.9%
Jun-06	3 919 591	0	643 114	14.1%
Jun-07	3 488 267	0	618 522	15.1%
Jun-08			0	No data
Jun-09			0	No data
Jun-10			0	No data
Jun-14			0	No data

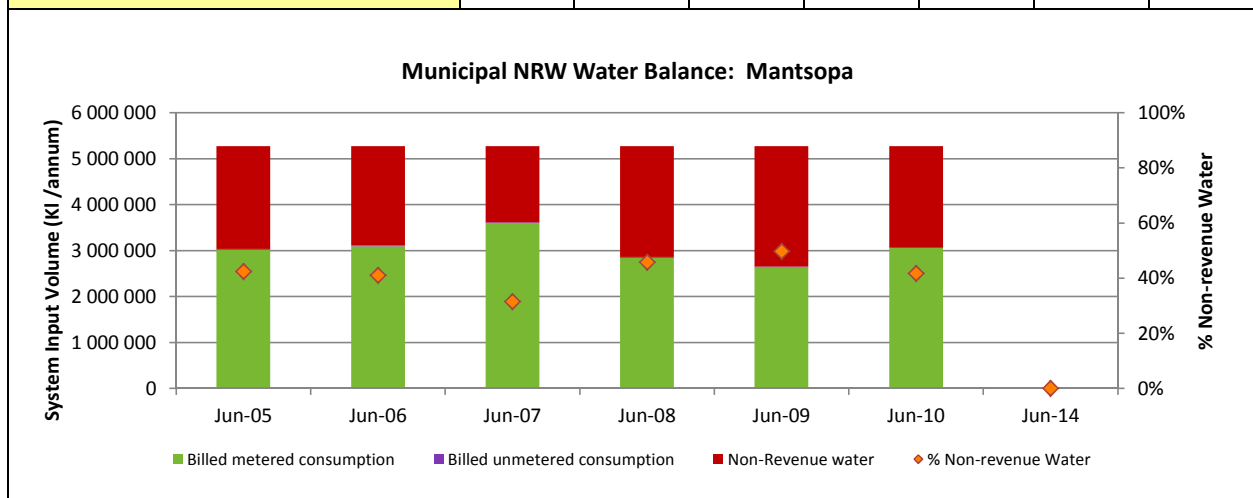
Comments

Province		Free State						WSA	
Municipal Code		FS172						Yes	
District Municipality		Dr Ruth Segomotsi Mompati						Category	
Municipality		Mangaung						B1	
Settlements		BLOEMFONTEIN, BOTSHABELO, MANGAUNG, BULTFONTEIN						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	663 407	667 591	671 597	674 285	678 330	695 083		
	Households	199 616	200 876	202 081	202 887	204 103	209 141		
	Connections - metered	89 757	102 529	102 378	107 840	113 344	115 727		
	Connections - Unmetered	69 044	56 239	56 390	50 928	46 235	52 227		
	Length of mains (km)	3 345	3 356	3 368	3 384	3 396	3 401		
	System input volume	kl/annum	62 328 407	63 962 428	72 696 207	75 442 966	79 293 547	79 085 845	
	Billed metered consumption	kl/annum	37 363 127	36 855 554	34 681 776	36 855 554	37 912 025	39 305 132	
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	37 363 127	36 855 554	34 681 776	36 855 554	37 912 025	39 305 132	0
	Non-Revenue water	kl/annum	24 965 280	27 106 874	38 014 431	38 587 412	41 381 522	39 780 713	0
	Water Losses	kl/annum	24 965 280	27 106 874	38 014 431	38 587 412	41 381 522	39 780 713	0
	% Non-revenue water		40.1%	42.4%	52.3%	51.1%	52.2%	50.3%	No data
	% Water Losses		40.1%	42.4%	52.3%	51.1%	52.2%	50.3%	No data
Key performance indicators	Input : Litres / capita / day		257	262	297	307	320	312	No data
	Input: m ³ / household / month		26	27	30	31	32	32	No data
	Billed : Litres / capita / day		154	151	141	150	153	155	No data
	Billed : m ³ / household / month		16	15	14	15	15	16	No data
	% Population growth			0.63%	0.60%	0.40%	0.60%	2.47%	
	% Water demand growth			2.62%	13.65%	3.78%	5.10%	-0.26%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC		



Comments

Province		Free State						WSA	
Municipal Code		FS173						Yes	
District Municipality		Dr Ruth Segomotsi Mompati						Category	
Municipality		Mantsopa						B3	
Settlements		MALUTI, LADYBRAND						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	57 260	57 621	57 968	58 202	58 552	56 365		
	Households	14 959	15 052	15 143	15 205	15 297	14 725		
	Connections - metered	11 253	11 743	11 743	11 854	11 854	12 081		
	Connections - Unmetered	3 706	3 309	3 400	3 351	3 443	2 644		
	Length of mains (km)	128	128	128	128	128	128		
	System input volume	kl/annum	5 273 007	5 273 007	5 273 007	5 273 007	5 273 007	5 273 007	
	Billed metered consumption	kl/annum	3 015 363	3 092 048	3 594 013	2 841 486	2 631 561	3 059 741	
	Billed unmetered consumption	kl/annum	22 236	19 854	20 400	20 106	20 658	15 864	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	3 037 599	3 111 902	3 614 413	2 861 592	2 652 219	3 075 605	0
	Non-Revenue water	kl/annum	2 235 408	2 161 105	1 658 594	2 411 415	2 620 788	2 197 402	0
	Water Losses	kl/annum	2 235 408	2 161 105	1 658 594	2 411 415	2 620 788	2 197 402	0
	% Non-revenue water		42.4%	41.0%	31.5%	45.7%	49.7%	41.7%	No data
	% Water Losses		42.4%	41.0%	31.5%	45.7%	49.7%	41.7%	No data
Key performance indicators	Input : Litres / capita / day		252	251	249	248	247	256	No data
	Input: m ³ / household / month		29	29	29	29	29	30	No data
	Billed : Litres / capita / day		145	148	171	135	124	149	No data
	Billed : m ³ / household / month		17	17	20	16	14	17	No data
	% Population growth			0.63%	0.60%	0.40%	0.60%	-3.74%	
	% Water demand growth			0.00%	0.00%	0.00%	0.00%	0.00%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS RPMS		

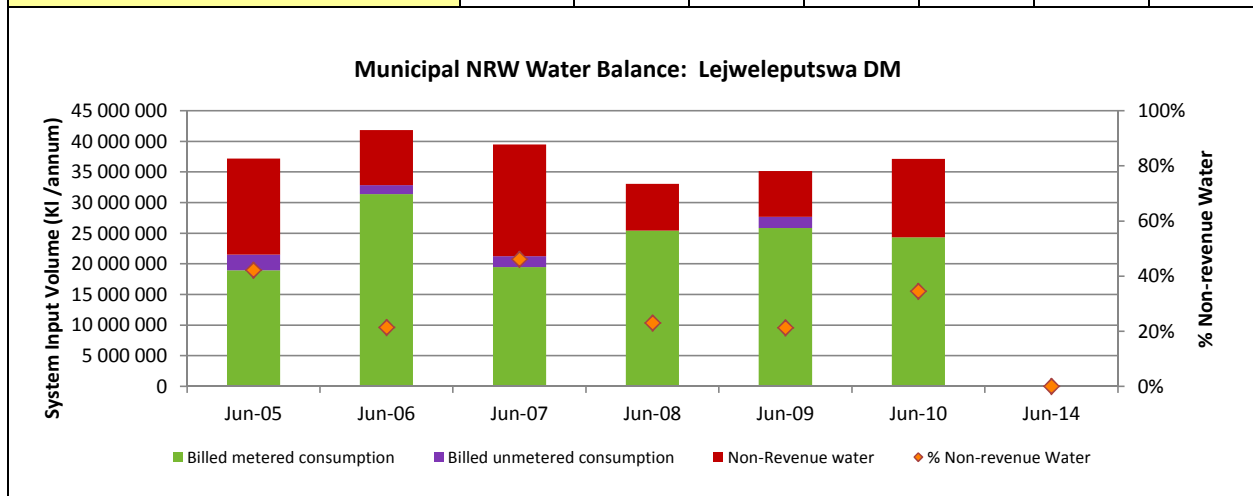


Comments

National NRW Assessment



Province		Free State						WSA	
Municipal Code		DC18						No	
District Municipality		Lejweleputswa						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	658 213	656 379	660 319	662 961	666 939	671 443	0	
	Households	193 761	193 219	194 382	195 158	196 332	197 676	0	
	Connections - metered	124 647	125 312	126 757	127 766	131 095	132 062	0	
	Connections - Unmetered	39 750	38 890	37 865	37 138	34 243	34 148	0	
	Length of mains (km)	2 974	2 970	2 978	2 984	2 992	3 009	0	
	System input volume	kl/annum	37 174 453	41 843 811	39 511 712	33 045 866	35 136 497	37 168 428	0
	Billed metered consumption	kl/annum	18 926 682	31 382 719	19 463 396	25 453 797	25 828 402	24 331 515	0
	Billed unmetered consumption	kl/annum	2 565 024	1 490 002	1 801 450	0	1 850 000	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	21 491 706	32 872 721	21 264 846	25 453 797	27 678 402	24 331 515	0
	Non-Revenue water	kl/annum	15 682 747	8 971 090	18 246 866	7 592 068	7 458 095	12 836 912	0
	Water Losses	kl/annum	15 682 747	8 971 090	18 246 866	7 592 068	7 458 095	12 836 912	0
	% Non-revenue water		42.2%	21.4%	46.2%	23.0%	21.2%	34.5%	No data
	% Water Losses		42.2%	21.4%	46.2%	23.0%	21.2%	34.5%	No data
Key performance indicators	Input : Litres / capita / day		155	175	164	137	144	152	No data
	Input: m³ / household / month		16	18	17	14	15	16	No data
	Billed : Litres / capita / day		89	137	88	105	114	99	No data
	Billed : m³ / household / month		9	14	9	11	12	10	No data
	% Population growth			-0.28%	0.60%	0.40%	0.60%	0.68%	
	% Water demand growth			12.56%	-5.57%	-16.36%	6.33%	5.78%	
Source of information									

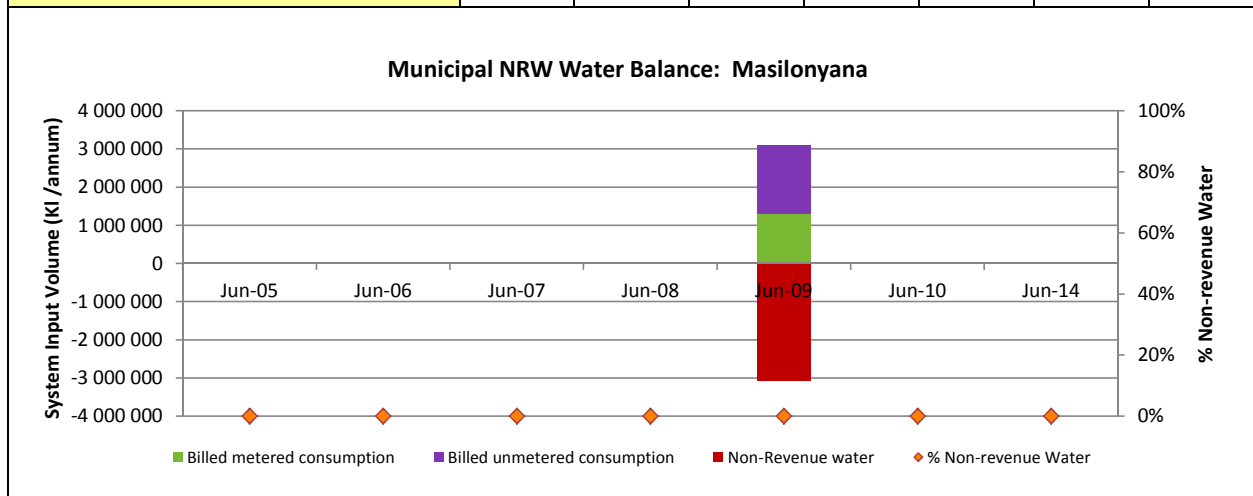


Comments

National NRW Assessment

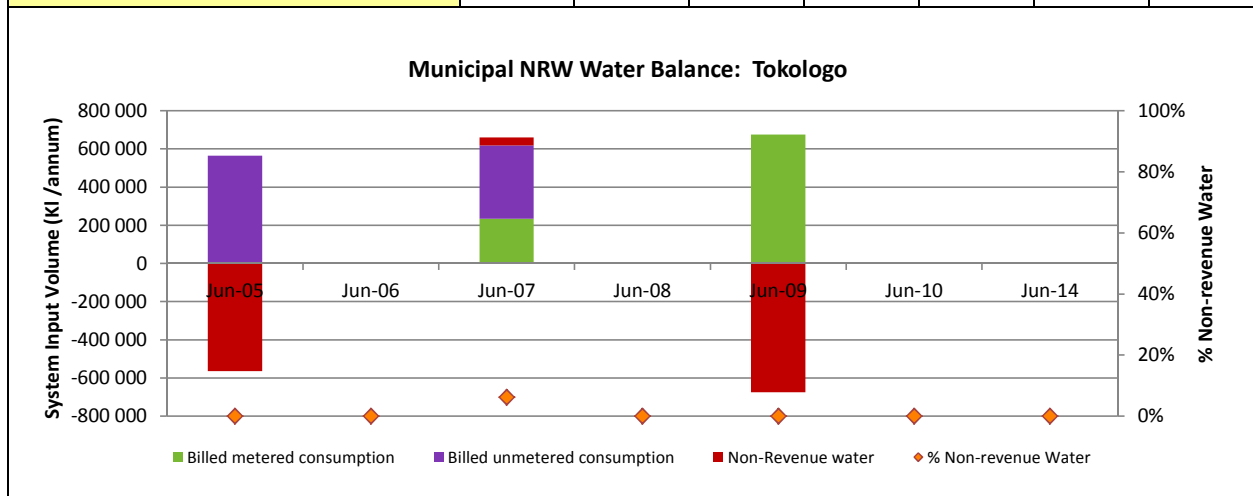


Province		Free State						WSA
Municipal Code		FS181						Yes
District Municipality		Lejweleputswa						Category
Municipality		Masilonyana						B3
Settlements		LUSAKA, MASILO, MAKELEKETLA, THEUNISSEN						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	64 973	64 793	65 183	65 444	65 838	68 038	
	Households	18 079	18 030	18 140	18 211	18 321	18 932	
	Connections - metered	15 956	15 912	16 008	16 072	16 169	16 709	
	Connections - Unmetered	2 233	2 227	2 240	2 249	2 263	2 338	
	Length of mains (km)	364	363	365	366	369	384	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum					1 300 000	
	Billed unmetered consumption	kl/annum					1 800 000	
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	3 100 000	0
	Non-Revenue water	kl/annum	0	0	0	0	-3 100 000	0
	Water Losses	kl/annum	0	0	0	0	-3 100 000	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	129	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	14	No data
	% Population growth			-0.28%	0.60%	0.40%	0.60%	3.34%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS RPMS	DWA NIS	



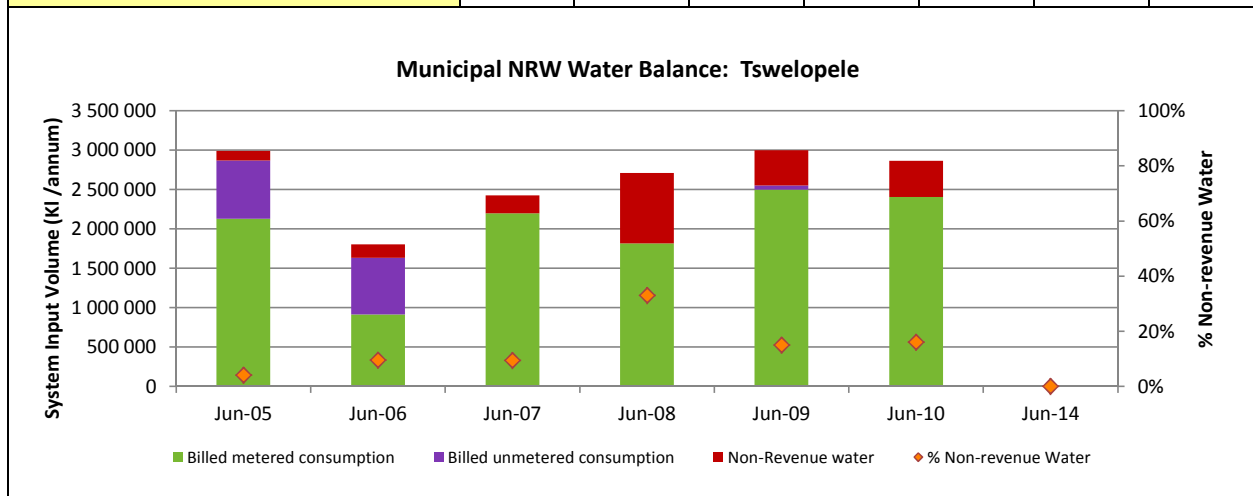
Comments

Province		Free State						WSA
Municipal Code		FS182						Yes
District Municipality		Lejweleputswa						Category
Municipality		Tokologo						B3
Settlements		MODDERVAAL, DEALESVILLE						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	34 174	34 079	34 285	34 424	34 631	33 621	
	Households	9 789	9 759	9 818	9 859	9 919	9 630	
	Connections - metered	8 585	8 564	8 643	8 648	8 700	8 446	
	Connections - Unmetered	1 262	1 258	1 266	1 271	1 279	1 244	
	Length of mains (km)	197	196	198	198	200	194	
	System input volume	kl/annum	0	0	660 128			
	Billed metered consumption	kl/annum	0	0	234 000		675 125	
	Billed unmetered consumption	kl/annum	564 144	0	385 128			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	564 144	0	619 128	0	675 125	0
	Non-Revenue water	kl/annum	-564 144	0	41 000	0	-675 125	0
	Water Losses	kl/annum	-564 144	0	41 000	0	-675 125	0
	% Non-revenue water		No data	No data	6.2%	No data	No data	No data
	% Water Losses		No data	No data	6.2%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	53	No data	No data	No data
	Input: m ³ / household / month		No data	No data	6	No data	No data	No data
	Billed : Litres / capita / day		45	No data	49	No data	53	No data
	Billed : m ³ / household / month		5	No data	5	No data	6	No data
	% Population growth			-0.28%	0.60%	0.41%	0.60%	-2.92%
	% Water demand growth				#DIV/0!			
Source of information		DWA NIS StatsSA NFC		DWA NIS StatsSA NFC		DWA NIS StatsSA NFC		



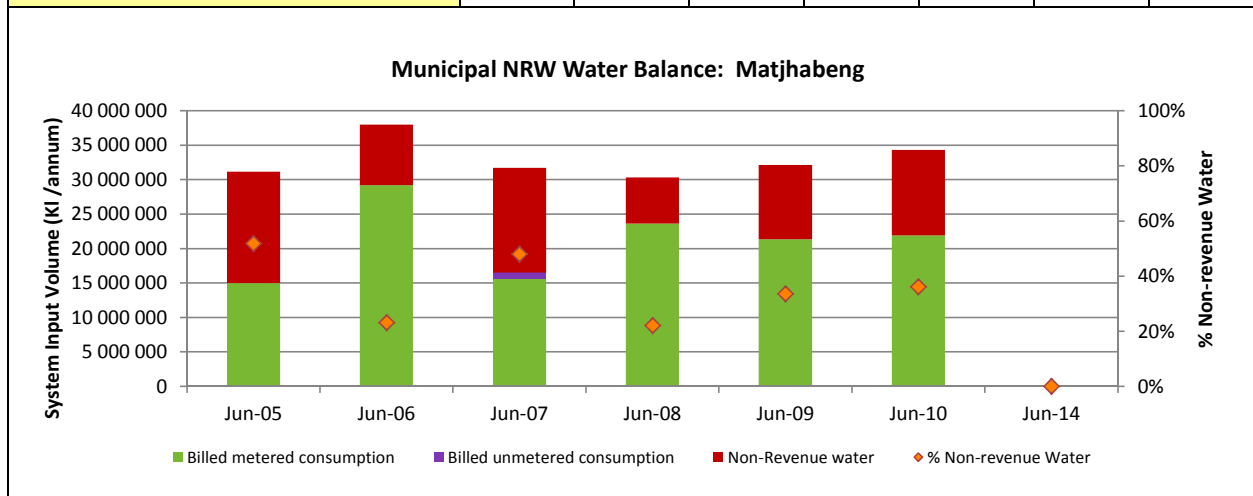
Comments
Inconsistent data

Province		Free State						WSA	
Municipal Code		FS183						Yes	
District Municipality		Lejweleputswa						Category	
Municipality		Tswelopele						B3	
Settlements		PHAHAMENG, VETVAAL, HOOPSTAD						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	54 894	54 741	55 069	55 289	55 621	53 892		
	Households	13 334	13 296	13 377	13 430	13 512	13 092		
	Connections - metered	9 082	9 056	9 414	9 147	9 202	8 946		
	Connections - Unmetered	4 332	4 349	4 346	4 363	4 390	4 253		
	Length of mains (km)	268	268	269	270	272	263		
	System input volume	kl/annum	2 991 894	1 804 881	2 423 589	2 711 795	3 000 000	2 863 509	
	Billed metered consumption	kl/annum	2 127 282	914 871	2 196 663	1 815 748	2 500 000	2 404 671	
	Billed unmetered consumption	kl/annum	741 384	718 920	0		50 000		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 868 666	1 633 791	2 196 663	1 815 748	2 550 000	2 404 671	0
	Non-Revenue water	kl/annum	123 228	171 090	226 926	896 046	450 000	458 837	0
	Water Losses	kl/annum	123 228	171 090	226 926	896 046	450 000	458 837	0
	% Non-revenue water		4.1%	9.5%	9.4%	33.0%	15.0%	16.0%	No data
	% Water Losses		4.1%	9.5%	9.4%	33.0%	15.0%	16.0%	No data
Key performance indicators	Input : Litres / capita / day		149	90	121	134	148	146	No data
	Input: m ³ / household / month		19	11	15	17	19	18	No data
	Billed : Litres / capita / day		143	82	109	90	126	122	No data
	Billed : m ³ / household / month		18	10	14	11	16	15	No data
	% Population growth			-0.28%	0.60%	0.40%	0.60%	-3.11%	
	% Water demand growth			-39.67%	34.28%	11.89%	10.63%	-4.55%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS		



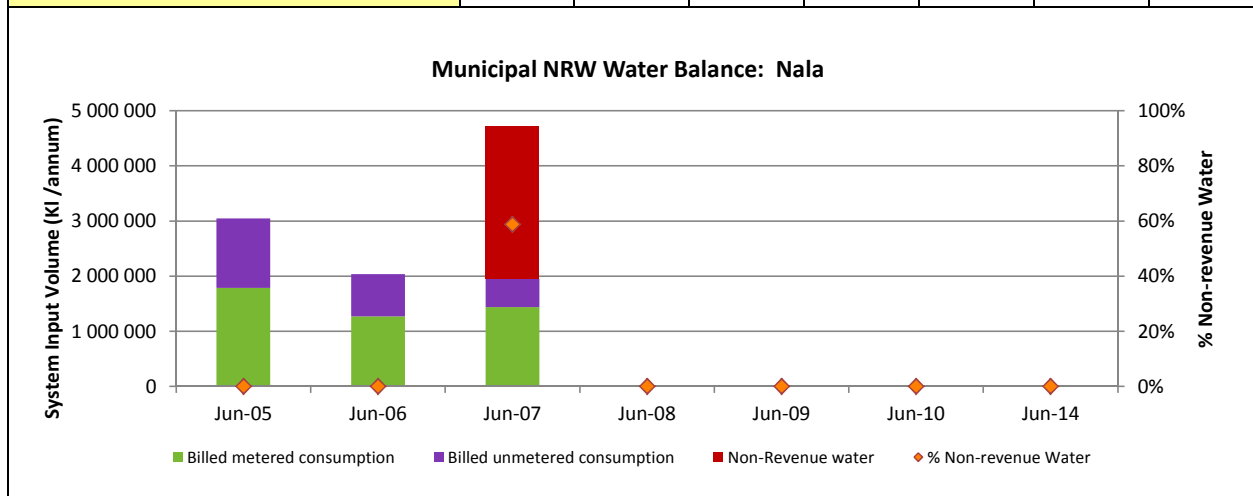
Comments

Province		Free State						WSA	
Municipal Code		FS184						Yes	
District Municipality		Lejweleputswa						Category	
Municipality		Matjhabeng						B1	
Settlements		BRONMILLE, SANDRIVER, KUTLWANONG, MELODING, WELKOM						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	400 946	399 828	402 226	403 834	406 255	407 800		
	Households	124 055	123 709	124 452	124 948	125 698	126 175		
	Connections - metered	66 418	67 245	68 341	69 116	72 093	72 225		
	Connections - Unmetered	27 854	27 027	25 931	25 156	22 188	22 054		
	Length of mains (km)	1 574	1 574	1 574	1 574	1 574	1 570		
	System input volume	kl/annum	31 134 867	38 000 000	31 700 976	30 334 071	32 136 497	34 304 919	
	Billed metered consumption	kl/annum	15 011 204	29 200 000	15 596 016	23 638 049	21 353 277	21 926 844	
	Billed unmetered consumption	kl/annum	0	0	902 569		0		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	15 011 204	29 200 000	16 498 585	23 638 049	21 353 277	21 926 844	0
	Non-Revenue water	kl/annum	16 123 663	8 800 000	15 202 391	6 696 022	10 783 220	12 378 075	0
	Water Losses	kl/annum	16 123 663	8 800 000	15 202 391	6 696 022	10 783 220	12 378 075	0
	% Non-revenue water		51.8%	23.2%	48.0%	22.1%	33.6%	36.1%	No data
	% Water Losses		51.8%	23.2%	48.0%	22.1%	33.6%	36.1%	No data
Key performance indicators	Input : Litres / capita / day		213	260	216	206	217	230	No data
	Input: m ³ / household / month		21	26	21	20	21	23	No data
	Billed : Litres / capita / day		103	200	112	160	144	147	No data
	Billed : m ³ / household / month		10	20	11	16	14	14	No data
	% Population growth			-0.28%	0.60%	0.40%	0.60%	0.38%	
	% Water demand growth			22.05%	-16.58%	-4.31%	5.94%	6.75%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC		



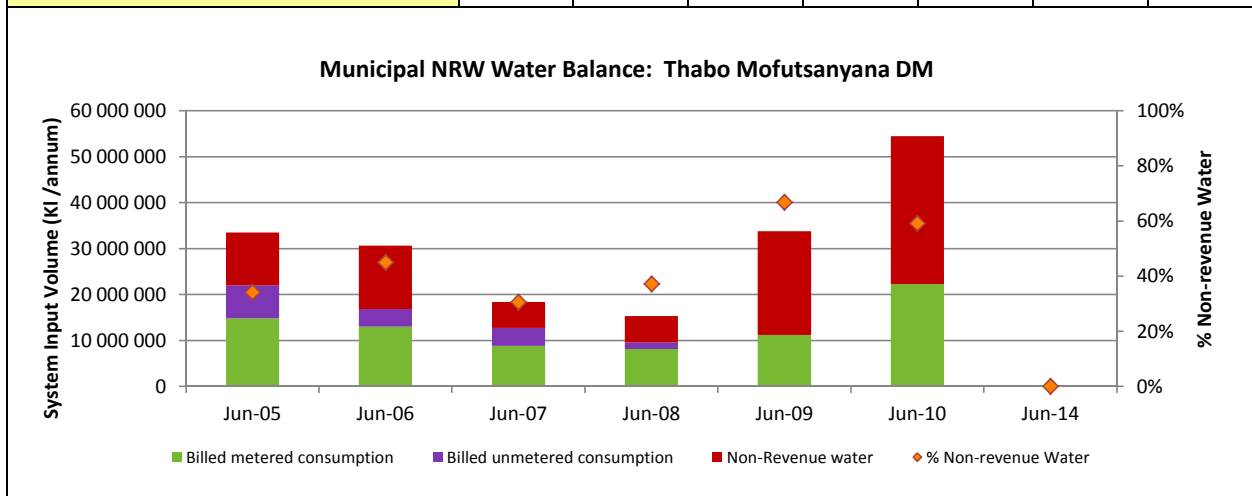
Comments

Province		Free State						WSA	
Municipal Code		FS185						Yes	
District Municipality		Lejweleputswa						Category	
Municipality		Nala						B3	
Settlements		KGOTSONG, MONYAKENG, BOTHAVILLE						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	103 226	102 938	103 556	103 970	104 594	108 092		
	Households	28 504	28 425	28 595	28 710	28 882	29 847		
	Connections - metered	24 606	24 537	24 684	24 783	24 932	25 766		
	Connections - Unmetered	4 070	4 058	4 083	4 099	4 124	4 264		
	Length of mains (km)	574	572	575	578	584	604		
	System input volume	kl/annum	3 047 692	2 038 930	4 727 019				
	Billed metered consumption	kl/annum	1 788 196	1 267 848	1 436 717				
	Billed unmetered consumption	kl/annum	1 259 496	771 082	513 753				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	3 047 692	2 038 930	1 950 470	0	0	0	0
	Non-Revenue water	kl/annum	0	0	2 776 549	0	0	0	0
	Water Losses	kl/annum	0	0	2 776 549	0	0	0	0
	% Non-revenue water		Check data	Check data	58.7%	No data	No data	No data	No data
	% Water Losses		No data	No data	58.7%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		81	54	125	No data	No data	No data	No data
	Input: m³ / household / month		9	6	14	No data	No data	No data	No data
	Billed : Litres / capita / day		81	54	52	No data	No data	No data	No data
	Billed : m³ / household / month		9	6	6	No data	No data	No data	No data
	% Population growth			-0.28%	0.60%	0.40%	0.60%	3.34%	
	% Water demand growth			-33.10%	131.84%				
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC					



Comments
 2005 and 2006 NRW cannot be zero? Fluctuating input volume?

Province		Free State						WSA	
Municipal Code		DC19						No	
District Municipality		Thabo Mofutsanyana						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	746 337	748 596	753 088	756 096	760 630	767 614	0	
	Households	197 622	198 216	199 406	200 206	201 406	203 327	0	
	Connections - metered	109 439	109 770	138 746	154 800	111 534	91 044	0	
	Connections - Unmetered	39 581	39 701	45 242	45 745	40 339	49 689	0	
	Length of mains (km)	2 980	2 989	3 007	3 019	3 037	2 666	0	
	System input volume	kl/annum	33 478 199	30 608 320	18 350 819	15 319 970	33 752 488	54 490 905	0
	Billed metered consumption	kl/annum	14 798 824	13 010 657	8 795 249	8 128 713	11 190 126	22 253 893	0
	Billed unmetered consumption	kl/annum	7 226 788	3 848 278	3 946 204	1 492 727	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	22 025 612	16 858 935	12 741 453	9 621 440	11 190 126	22 253 893	0
	Non-Revenue water	kl/annum	11 452 587	13 749 385	5 609 366	5 698 530	22 562 362	32 237 012	0
	Water Losses	kl/annum	11 452 587	13 749 385	5 609 366	5 698 530	22 562 362	32 237 012	0
	% Non-revenue water		34.2%	44.9%	30.6%	37.2%	66.8%	59.2%	No data
	% Water Losses		34.2%	44.9%	30.6%	37.2%	66.8%	59.2%	No data
Key performance indicators	Input : Litres / capita / day		123	112	67	56	122	194	No data
	Input: m³ / household / month		14	13	8	6	14	22	No data
	Billed : Litres / capita / day		81	62	46	35	40	79	No data
	Billed : m³ / household / month		9	7	5	4	5	9	No data
	% Population growth			0.30%	0.60%	0.40%	0.60%	0.92%	
	% Water demand growth			-8.57%	-40.05%	-16.52%	120.32%	61.44%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC		



Comments

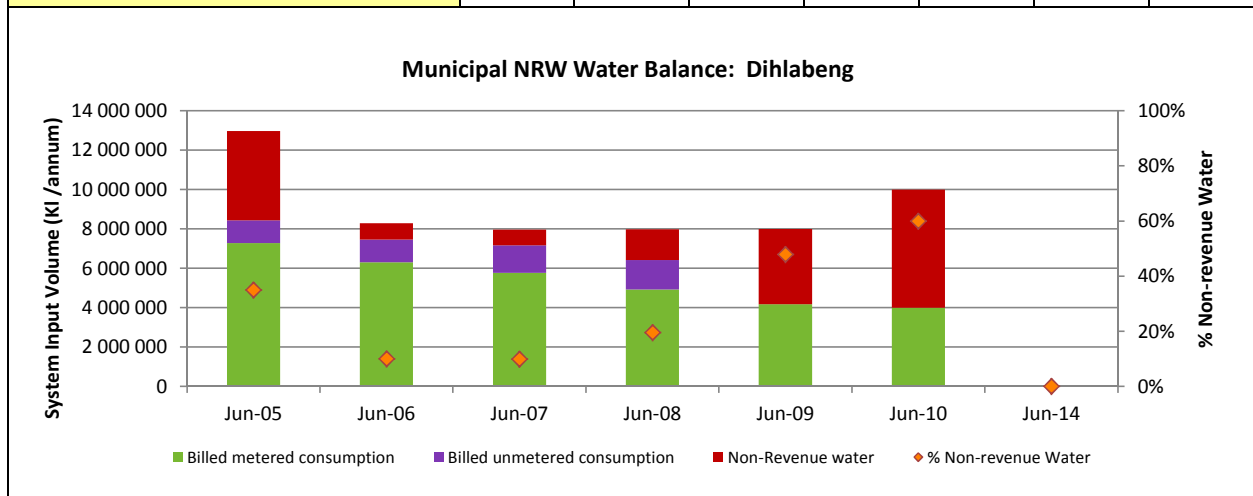
Province		Free State						WSA	
Municipal Code		FS191						No	
District Municipality		Thabo Mofutsanyana						Category	
Municipality		Setsoto						B3	
Settlements		HLOHLOWANE, MATWABENG, MOEMANENG, SENEKAL						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	127 864	128 251	129 021	129 536	130 313	134 668		
	Households	35 679	35 785	36 000	36 146	36 363	37 579		
	Connections - metered	22 774	22 843	22 980	23 072	23 240	3 504		
	Connections - Unmetered	43 419	43 458	43 237	13 291	43 374	22 925		
	Length of mains (km)	748	720	724	727	732	380		
	System input volume	kl/annum	6 273 957	6 052 126	7 398 736	7 341 520	8 534 000	8 560 905	
	Billed metered consumption	kl/annum	1 552 271	1 964 153	2 217 588	3 202 204	5 944 462	4 263 893	
	Billed unmetered consumption	kl/annum	2 814 328	2 084 688	1 846 800	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	4 366 599	4 048 841	4 064 388	3 202 204	5 944 462	4 263 893	0
	Non-Revenue water	kl/annum	1 907 358	2 003 285	3 334 348	4 139 316	2 589 538	4 297 012	0
	Water Losses	kl/annum	1 907 358	2 003 285	3 334 348	4 139 316	2 589 538	4 297 012	0
	% Non-revenue water		30.4%	33.1%	45.1%	56.4%	30.3%	50.2%	No data
	% Water Losses		30.4%	33.1%	45.1%	56.4%	30.3%	50.2%	No data
Key performance indicators	Input : Litres / capita / day		134	129	157	155	179	174	No data
	Input: m ³ / household / month		15	14	17	17	20	19	No data
	Billed : Litres / capita / day		94	86	86	68	125	87	No data
	Billed : m ³ / household / month		10	9	9	7	14	9	No data
	% Population growth			0.30%	0.60%	0.40%	0.60%	3.34%	
	% Water demand growth			-3.54%	22.25%	-0.77%	16.24%	0.32%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS		

Municipal NRW Water Balance: Setsoto

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	1 552 271	2 814 328	1 907 358	30.4%
Jun-06	1 964 153	2 084 688	2 003 285	33.1%
Jun-07	2 217 588	1 846 800	3 334 348	45.1%
Jun-08	3 202 204	0	4 139 316	56.4%
Jun-09	5 944 462	0	2 589 538	30.3%
Jun-10	4 263 893	0	4 297 012	50.2%

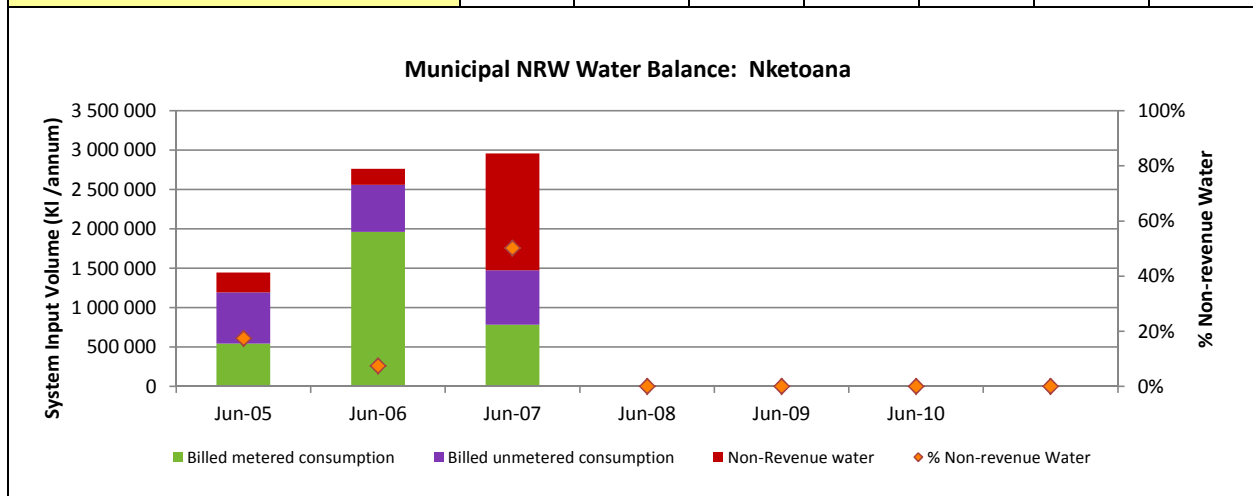
Comments

Province		Free State						WSA	
Municipal Code		FS192						Yes	
District Municipality		Thabo Mofutsanyana						Category	
Municipality		Dihlabeng						B2	
Settlements		BETHLEHEM, BOHLOKONG, MASHAENG						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	135 626	136 036	136 853	137 401	138 225	142 846		
	Households	36 482	36 591	36 810	36 960	37 181	38 424		
	Connections - metered			19 318	31 786				
	Connections - Unmetered			5 303	4 534				
	Length of mains (km)								
	System input volume	kl/annum	12 973 170	8 294 043	7 956 900	7 978 450	8 000 000	10 000 000	
	Billed metered consumption	kl/annum	7 283 637	6 296 805	5 764 060	4 926 509	4 166 720	4 000 000	
	Billed unmetered consumption	kl/annum	1 153 740	1 168 632	1 404 000	4 492 727			
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	8 437 377	7 465 437	7 168 060	6 419 236	4 166 720	4 000 000	0
	Non-Revenue water	kl/annum	4 535 793	828 606	788 840	1 559 214	3 833 280	6 000 000	0
	Water Losses	kl/annum	4 535 793	828 606	788 840	1 559 214	3 833 280	6 000 000	0
	% Non-revenue water		35.0%	10.0%	9.9%	19.5%	47.9%	60.0%	No data
	% Water Losses		35.0%	10.0%	9.9%	19.5%	47.9%	60.0%	No data
Key performance indicators	Input : Litres / capita / day		262	167	159	159	159	192	No data
	Input: m ³ / household / month		30	19	18	18	18	22	No data
	Billed : Litres / capita / day		170	150	144	128	83	77	No data
	Billed : m ³ / household / month		19	17	16	14	9	9	No data
	% Population growth			0.30%	0.60%	0.40%	0.60%	3.34%	
	% Water demand growth			-36.07%	-4.06%	0.27%	0.27%	25.00%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS RPMS		



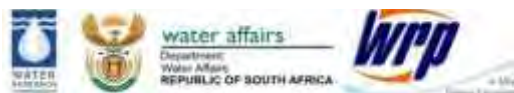
Comments
2005 Input volume seems high?

Province		Free State						WSA	
Municipal Code		FS193						Yes	
District Municipality		Thabo Mofutsanyana						Category	
Municipality		Nketoana						B3	
Settlements		RIEMLAND, RIETZ						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	62 383	62 571	62 946	63 196	63 575	62 178		
	Households	15 759	15 807	15 902	15 965	16 060	15 708		
	Connections - metered	43 790	43 832	43 945	43 970	44 054	43 745		
	Connections - Unmetered	2 063	2 069	2 082	2 090	2 402	2 056		
	Length of mains (km)	347	348	320	321	323	346		
	System input volume	kl/annum	1 444 069	2 763 045	2 957 287				
	Billed metered consumption	kl/annum	543 432	1 962 696	781 067				
	Billed unmetered consumption	kl/annum	648 936	594 958	692 644				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 192 368	2 557 654	1 473 711	0	0	0	0
	Non-Revenue water	kl/annum	251 701	205 391	1 483 576	0	0	0	0
	Water Losses	kl/annum	251 701	205 391	1 483 576	0	0	0	0
	% Non-revenue water		17.4%	7.4%	50.2%	No data	No data	No data	No data
	% Water Losses		17.4%	7.4%	50.2%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		63	121	129	No data	No data	No data	No data
	Input: m ³ / household / month		8	15	15	No data	No data	No data	No data
	Billed : Litres / capita / day		52	112	64	No data	No data	No data	No data
	Billed : m ³ / household / month		6	13	8	No data	No data	No data	No data
	% Population growth			0.30%	0.60%	0.40%	0.60%	-2.20%	
	% Water demand growth			91.34%	7.03%				
Source of information		DWA NIS StatsSA NFC							

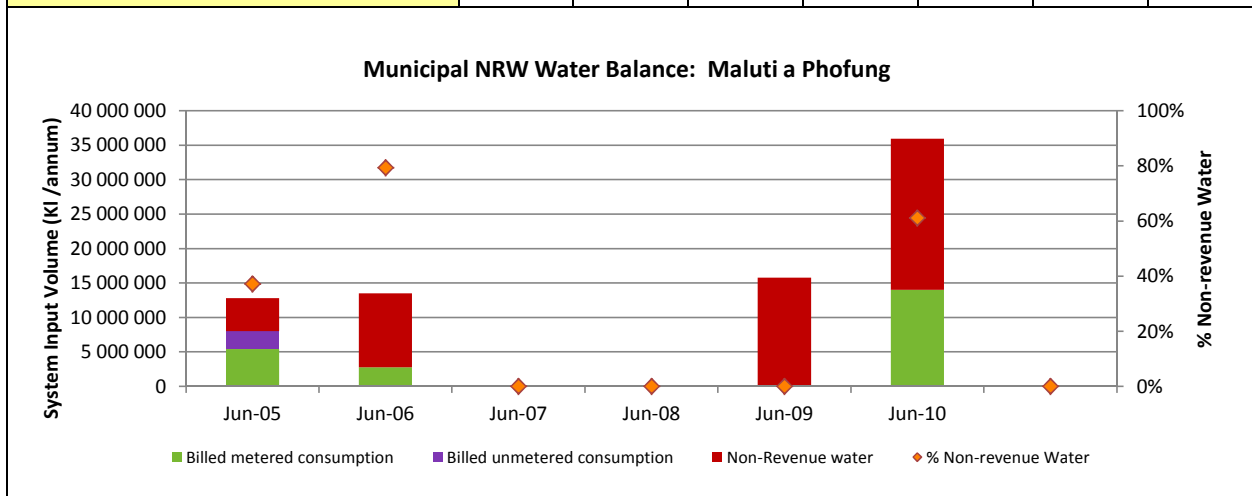


Comments
Inconsistent input volume?

National NRW Assessment

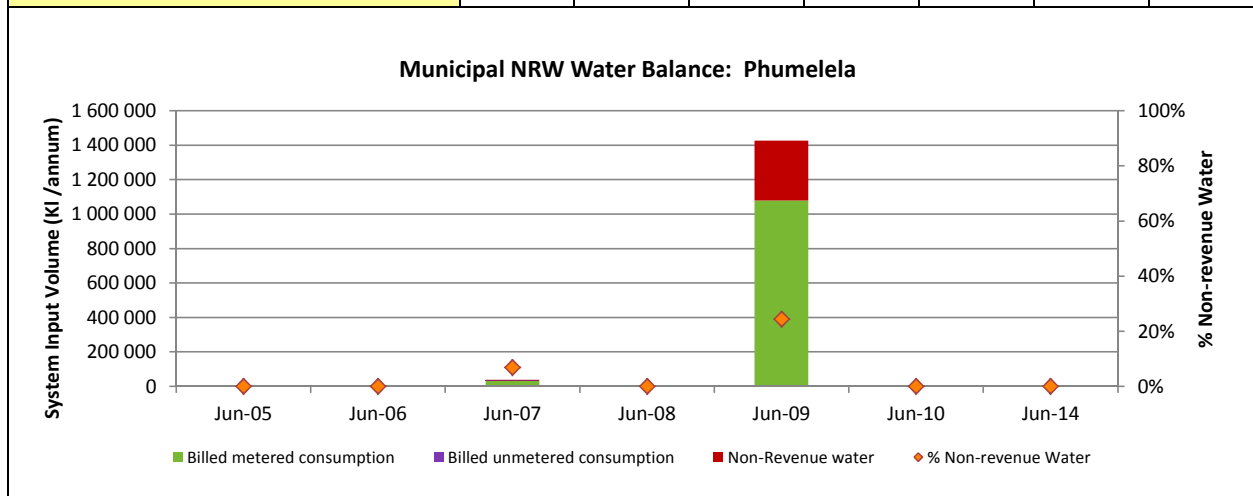


Province		Free State						WSA	
Municipal Code		FS194						Yes	
District Municipality		Thabo Mofutsanyana						Category	
Municipality		Maluti a Phofung						B3	
Settlements		BOLATA, DRAKENSBURG, HARANKOPANE, PHUTHADITJABA, MAKWANE, QWAQWA						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	367 621	368 735	370 947	372 428	374 662	372 267		
	Households	96 693	96 986	97 568	97 957	98 544	97 915		
	Connections - metered	72 874	73 095	73 533	73 827	74 270	73 795		
	Connections - Unmetered	24 399	24 473	24 620	24 718	24 866	24 707		
	Length of mains (km)	1 945	1 954	1 963	1 971	1 983	1 970		
	System input volume	kl/annum	12 787 003	13 499 106			15 792 000	35 930 000	
	Billed metered consumption	kl/annum	5 419 484	2 787 003				13 990 000	
	Billed unmetered consumption	kl/annum	2 609 784	0					
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	8 029 268	2 787 003	0	0	0	13 990 000	0
	Non-Revenue water	kl/annum	4 757 735	10 712 103	0	0	15 792 000	21 940 000	0
	Water Losses	kl/annum	4 757 735	10 712 103	0	0	15 792 000	21 940 000	0
	% Non-revenue water		37.2%	79.4%	No data	No data	No data	61.1%	No data
	% Water Losses		37.2%	79.4%	No data	No data	100.0%	61.1%	No data
Key performance indicators	Input : Litres / capita / day		95	100	No data	No data	115	264	No data
	Input: m³ / household / month		11	12	No data	No data	13	31	No data
	Billed : Litres / capita / day		60	21	No data	No data	No data	103	No data
	Billed : m³ / household / month		7	2	No data	No data	No data	12	No data
	% Population growth			0.30%	0.60%	0.40%	0.60%	-0.64%	
	% Water demand growth			5.57%			#DIV/0!	127.52%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC			DWA NIS RPMS	DWA NIS RPMS		



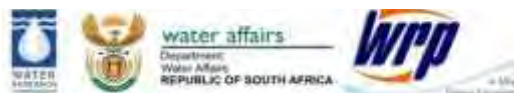
Comments

Province		Free State						WSA
Municipal Code		FS195						Yes
District Municipality		Thabo Mofutsanyana						Category
Municipality		Phumelela						B3
Settlements		EZENZELENI, THEMBALIHLE, VREDE						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	52 843	53 003	53 321	53 535	53 855	55 655	
	Households	13 009	13 047	13 126	13 178	13 258	13 701	
	Connections - metered			9 000	12 145			
	Connections - Unmetered				1 112			
	Length of mains (km)							
	System input volume	kl/annum			37 896		1 426 488	
	Billed metered consumption	kl/annum			32 534		1 078 944	
	Billed unmetered consumption	kl/annum			2 760			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	35 294	0	1 078 944	0
	Non-Revenue water	kl/annum	0	0	2 602	0	347 544	0
	Water Losses	kl/annum	0	0	2 602	0	347 544	0
	% Non-revenue water		No data	No data	6.9%	No data	24.4%	No data
	% Water Losses		No data	No data	6.9%	No data	24.4%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	2	No data	73	No data
	Input: m³ / household / month		No data	No data	0	No data	9	No data
	Billed : Litres / capita / day		No data	No data	2	No data	55	No data
	Billed : m³ / household / month		No data	No data	0	No data	7	No data
	% Population growth			0.30%	0.60%	0.40%	0.60%	3.34%
	% Water demand growth				#DIV/0!		#DIV/0!	
Source of information				DWA NIS StatsSA NFC		DWA NIS StatsSA NFC		

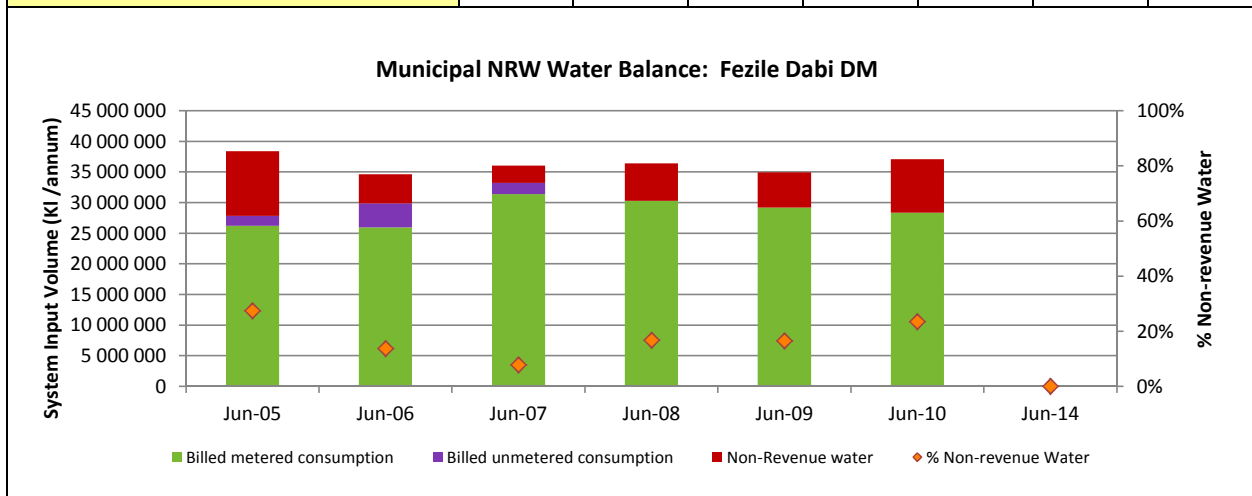


Comments
2007 data seems incorrect?

National NRW Assessment

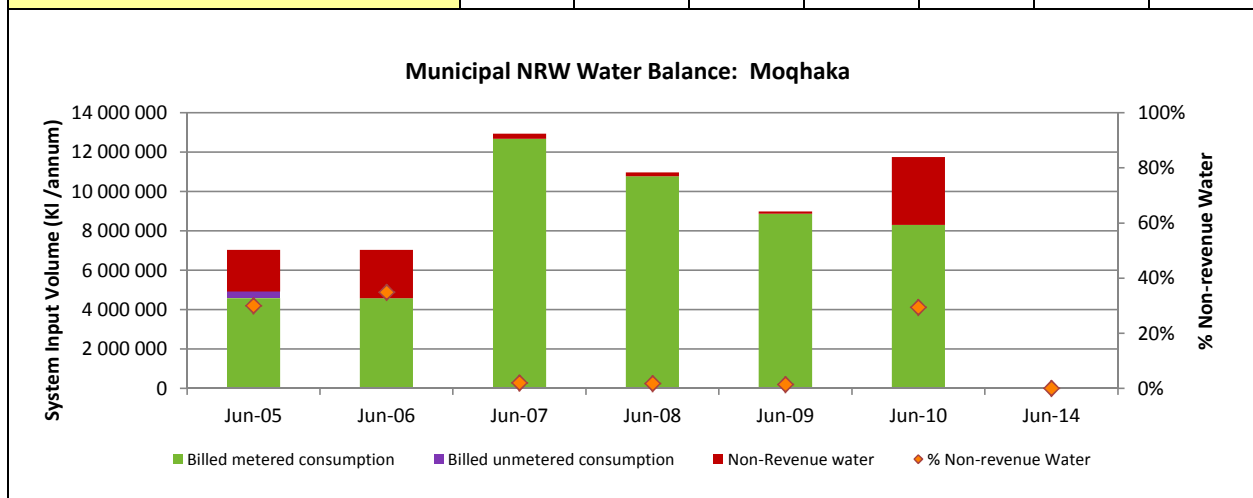


Province		Free State						WSA	
Municipal Code		DC20						No	
District Municipality		Fezile Dabi						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	468 912	471 914	474 743	476 639	479 499	484 565	0	
	Households	128 949	129 777	130 561	131 077	131 868	133 227	0	
	Connections - metered	116 307	117 052	117 754	118 224	118 933	120 137	0	
	Connections - Unmetered	13 419	13 505	13 586	13 640	13 722	13 886	0	
	Length of mains (km)	2 595	2 611	2 627	2 637	2 653	2 680	0	
	System input volume	kl/annum	38 402 198	34 624 524	36 031 913	36 418 703	34 968 963	37 083 069	0
	Billed metered consumption	kl/annum	26 211 994	25 936 658	31 418 116	30 306 106	29 194 096	28 384 734	0
	Billed unmetered consumption	kl/annum	1 645 946	3 957 444	1 800 000	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	27 857 940	29 894 102	33 218 116	30 306 106	29 194 096	28 384 734	0
	Non-Revenue water	kl/annum	10 544 258	4 730 422	2 813 797	6 112 597	5 774 867	8 698 335	0
	Water Losses	kl/annum	10 544 258	4 730 422	2 813 797	6 112 597	5 774 867	8 698 335	0
	% Non-revenue water		27.5%	13.7%	7.8%	16.8%	16.5%	23.5%	No data
	% Water Losses		27.5%	13.7%	7.8%	16.8%	16.5%	23.5%	No data
Key performance indicators	Input : Litres / capita / day		224	201	208	209	200	210	No data
	Input: m³ / household / month		25	22	23	23	22	23	No data
	Billed : Litres / capita / day		163	174	192	174	167	160	No data
	Billed : m³ / household / month		18	19	21	19	18	18	No data
	% Population growth			0.64%	0.60%	0.40%	0.60%	1.06%	
	% Water demand growth			-9.84%	4.06%	1.07%	-3.98%	6.05%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC		DWA NIS StatsSA NFC			



Comments

Province		Free State						WSA	
Municipal Code		FS201						Yes	
District Municipality		Fezile Dabi						Category	
Municipality		Moghaka						B2	
Settlements		KROONKOP, KROONSTAD, MAOKENG						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	169 863	170 951	171 976	172 663	173 699	176 473		
	Households	44 092	44 374	44 641	44 818	45 087	45 806		
	Connections - metered	38 828	39 077	39 314	39 468	39 705	40 339		
	Connections - Unmetered	5 528	5 563	5 597	5 619	5 653	5 743		
	Length of mains (km)	887	893	898	902	907	922		
	System input volume	kl/annum	7 028 760	7 028 760	12 944 105	10 965 368	8 986 630	11 744 810	
	Billed metered consumption	kl/annum	4 580 676	4 580 676	12 685 222	10 774 960	8 864 697	8 297 246	
	Billed unmetered consumption	kl/annum	339 456	0	0				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	4 920 132	4 580 676	12 685 222	10 774 960	8 864 697	8 297 246	0
	Non-Revenue water	kl/annum	2 108 628	2 448 084	258 883	190 408	121 933	3 447 564	0
	Water Losses	kl/annum	2 108 628	2 448 084	258 883	190 408	121 933	3 447 564	0
	% Non-revenue water		30.0%	34.8%	2.0%	1.7%	1.4%	29.4%	No data
	% Water Losses		30.0%	34.8%	2.0%	1.7%	1.4%	29.4%	No data
Key performance indicators	Input : Litres / capita / day		113	113	206	174	142	182	No data
	Input: m ³ / household / month		13	13	24	20	17	21	No data
	Billed : Litres / capita / day		79	73	202	171	140	129	No data
	Billed : m ³ / household / month		9	9	24	20	16	15	No data
	% Population growth			0.64%	0.60%	0.40%	0.60%	1.60%	
	% Water demand growth			0.00%	84.16%	-15.29%	-18.05%	30.69%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC		



Comments
2007 input volume seems high?

Province		Free State						WSA	
Municipal Code		FS203						Yes	
District Municipality		Fezile Dabi						Category	
Municipality		Ngwathe						B3	
Settlements		KOEPEL, PHIRTONA, TUMAHOLE, PARYS						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	120 258	121 027	121 751	122 237	122 970	120 546		
	Households	34 118	34 338	34 546	34 681	34 892	34 205		
	Connections - metered	31 622	31 824	32 014	32 142	32 335	31 697		
	Connections - Unmetered	2 702	2 720	2 736	2 747	2 764	2 709		
	Length of mains (km)	686	694	695	698	702	688		
	System input volume	kl/annum	7 521 708	6 053 850	6 053 850	7 404 969	8 756 088	8 304 347	
	Billed metered consumption	kl/annum	7 429 542	3 552 289	3 552 289	4 853 105	6 153 920	6 240 000	
	Billed unmetered consumption	kl/annum	0	2 308 392	1 800 000		0		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	7 429 542	5 860 681	5 352 289	4 853 105	6 153 920	6 240 000	0
	Non-Revenue water	kl/annum	92 166	193 169	701 561	2 551 865	2 602 168	2 064 317	0
	Water Losses	kl/annum	92 166	193 169	701 561	2 551 865	2 602 168	2 064 317	0
	% Non-revenue water		1.2%	3.2%	11.6%	34.5%	29.7%	24.9%	No data
	% Water Losses		1.2%	3.2%	11.6%	34.5%	29.7%	24.9%	No data
Key performance indicators	Input : Litres / capita / day		171	137	136	166	195	189	No data
	Input: m³ / household / month		18	15	15	18	21	20	No data
	Billed : Litres / capita / day		169	133	120	109	137	142	No data
	Billed : m³ / household / month		18	14	13	12	15	15	No data
	% Population growth			0.64%	0.60%	0.40%	0.60%	-1.97%	
	% Water demand growth			-19.51%	0.00%	22.32%	18.25%	-5.16%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC		DWA NIS RPMS	DWA NIS RPMS		

Municipal NRW Water Balance: Ngwathe

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	7 429 542	0	0	0%
Jun-06	3 552 289	2 308 392	0	0%
Jun-07	3 552 289	1 800 000	0	0%
Jun-08	4 853 105	0	2 551 865	34.5%
Jun-09	6 153 920	0	2 602 168	29.7%
Jun-10	6 240 000	0	2 064 317	24.9%
Jun-14	8 304 347	0	0	0%

Comments

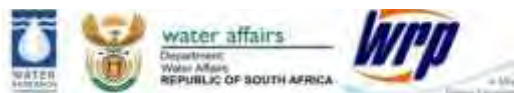
Province		Free State						WSA	
Municipal Code		FS204						Yes	
District Municipality		Fezile Dabi						Category	
Municipality		Metsimaholo						B2	
Settlements		REFENGGOTSO, SASOLBURG, VAALPARK, ZAMDELA						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	119 423	120 187	120 909	121 391	122 120	124 806		
	Households	34 888	35 111	35 322	35 464	35 677	36 462		
	Connections - metered	30 859	31 057	31 243	31 368	31 556	32 250		
	Connections - Unmetered	4 239	4 266	4 292	4 309	4 335	4 430		
	Length of mains (km)	702	706	711	714	718	734		
	System input volume	kl/annum	21 020 000	19 970 356	15 462 400	16 315 802	15 332 674	15 060 000	
	Billed metered consumption	kl/annum	12 319 510	16 503 503	13 880 415	13 349 324	12 818 232	12 476 000	
	Billed unmetered consumption	kl/annum	1 306 490	1 649 052	0				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	13 626 000	18 152 555	13 880 415	13 349 324	12 818 232	12 476 000	0
	Non-Revenue water	kl/annum	7 394 000	1 817 801	1 581 985	2 966 479	2 514 442	2 584 000	0
	Water Losses	kl/annum	7 394 000	1 817 801	1 581 985	2 966 479	2 514 442	2 584 000	0
	% Non-revenue water		35.2%	9.1%	10.2%	18.2%	16.4%	17.2%	No data
	% Water Losses		35.2%	9.1%	10.2%	18.2%	16.4%	17.2%	No data
Key performance indicators	Input : Litres / capita / day		482	455	350	368	344	331	No data
	Input: m ³ / household / month		50	47	36	38	36	34	No data
	Billed : Litres / capita / day		313	414	315	301	288	274	No data
	Billed : m ³ / household / month		33	43	33	31	30	29	No data
	% Population growth			0.64%	0.60%	0.40%	0.60%	2.20%	
	% Water demand growth			-4.99%	-22.57%	5.52%	-6.03%	-1.78%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS RPMS		

Municipal NRW Water Balance: Metsimaholo

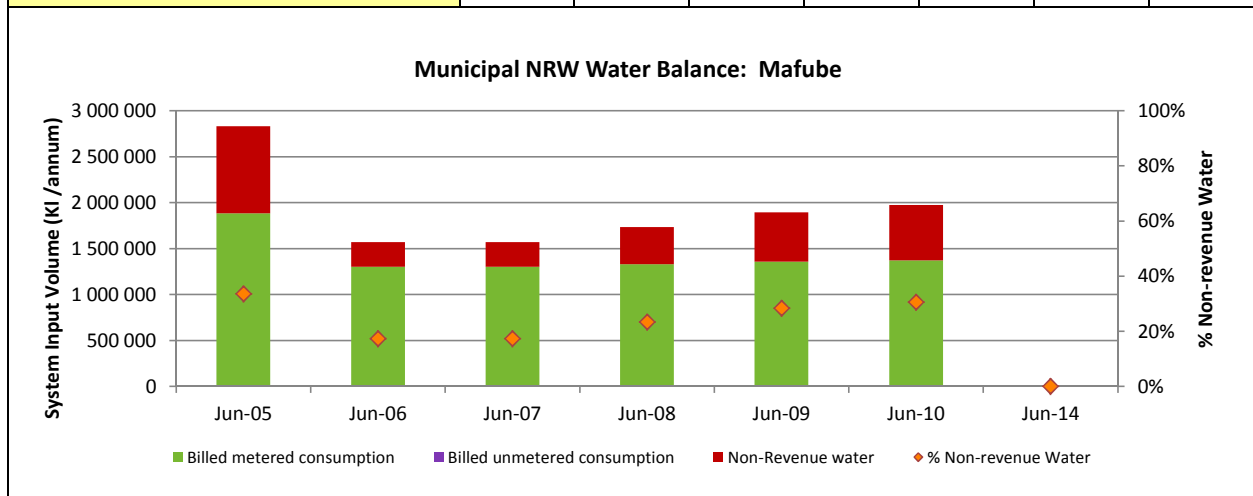
Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	12 319 510	1 306 490	7 394 000	35.2%
Jun-06	16 503 503	1 649 052	1 817 801	9.1%
Jun-07	13 880 415	0	1 581 985	10.2%
Jun-08	13 349 324	0	2 966 479	18.2%
Jun-09	12 818 232	0	2 514 442	16.4%
Jun-10	12 476 000	0	2 584 000	17.2%
Jun-14	15 060 000	0	0	0%

Comments

National NRW Assessment



Province		Free State						WSA	
Municipal Code		FS205						Yes	
District Municipality		Fezile Dabi						Category	
Municipality		Mafube						B3	
Settlements		NAMAADI, QALABOTJHA, FRANKFORT						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	59 368	59 749	60 107	60 348	60 710	62 740		
	Households	15 851	15 954	16 052	16 114	16 212	16 754		
	Connections - metered	14 998	15 095	15 485	15 246	15 337	15 850		
	Connections - Unmetered	949	955	964	965	974	1 003		
	Length of mains (km)	349	324	323	324	326	337		
	System input volume	kl/annum	2 831 730	1 571 558	1 571 558	1 732 565	1 893 571	1 973 942	
	Billed metered consumption	kl/annum	1 882 266	1 300 190	1 300 190	1 328 719	1 357 247	1 371 488	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 882 266	1 300 190	1 300 190	1 328 719	1 357 247	1 371 488	0
	Non-Revenue water	kl/annum	949 464	271 368	271 368	403 846	536 324	602 454	0
	Water Losses	kl/annum	949 464	271 368	271 368	403 846	536 324	602 454	0
	% Non-revenue water		33.5%	17.3%	17.3%	23.3%	28.3%	30.5%	No data
	% Water Losses		33.5%	17.3%	17.3%	23.3%	28.3%	30.5%	No data
Key performance indicators	Input : Litres / capita / day		131	72	72	79	85	86	No data
	Input: m ³ / household / month		15	8	8	9	10	10	No data
	Billed : Litres / capita / day		87	60	59	60	61	60	No data
	Billed : m ³ / household / month		10	7	7	7	7	7	No data
	% Population growth			0.64%	0.60%	0.40%	0.60%	3.34%	
	% Water demand growth			-44.50%	0.00%	10.25%	9.29%	4.24%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC		



Comments
2009 input volume seems incorrect?

National Non-Revenue Water Assessment

Gauteng Province

July 2011



Introductory notes

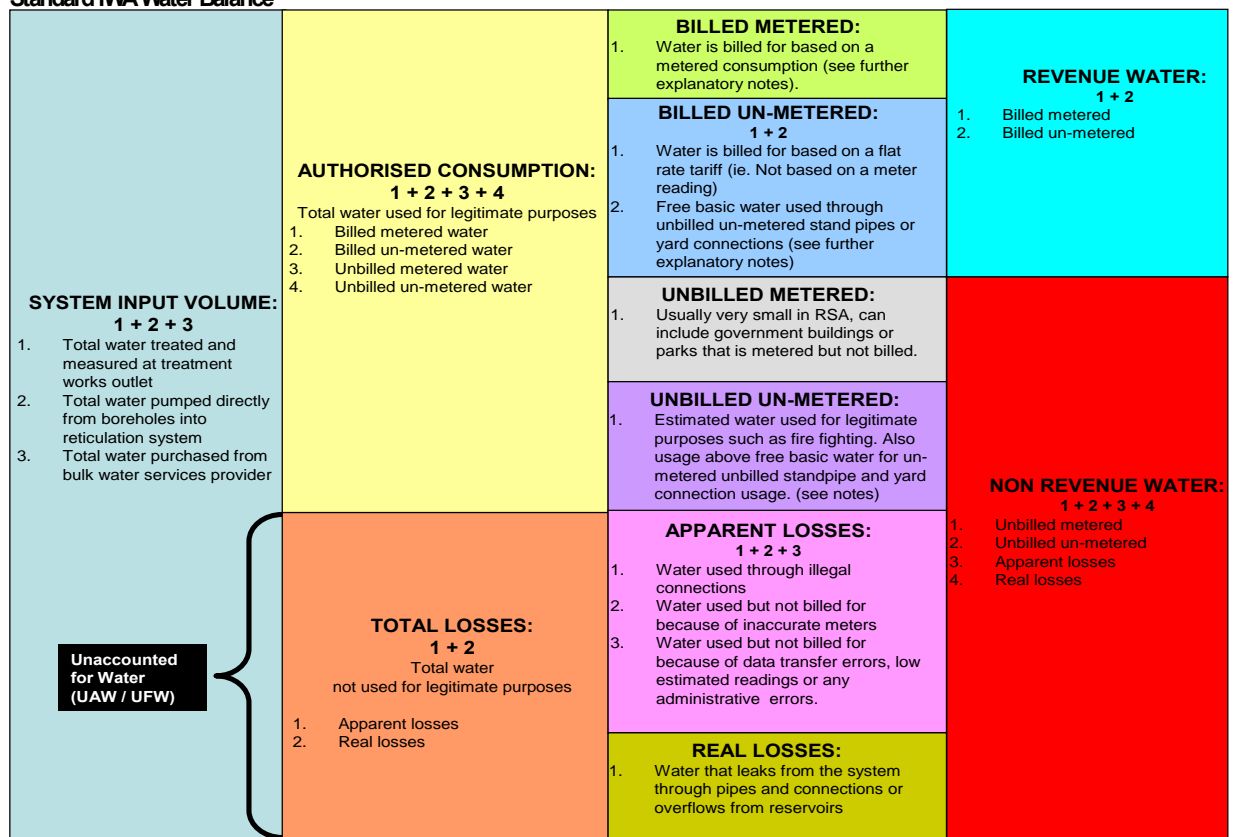
Terminology

Acronym	Description	Link
DWA	Department of Water Affairs	http://www.dwa.gov.za
WS RPMS	Water Services : Regulatory Performance Measurement System	http://www.dwa.gov.za/dir_ws/rpm/
WS NIS	Water Services : National Information System	http://www.dwa.gov.za/dir_ws/wsis/
FBS	Water Services : Free Basic Water Project	http://www.dwaf.gov.za/dir_ws/fbw/
NRW	Non-revenue water. Volume of water for which no revenue is received (preferred term)	
UAW or UFW	Unaccounted-for water. Volume of water lost due to physical and apparent losses (not preferred term)	
StatsSA NEC	Statistics South Africa : Non-Financial Census of Municipalities P9115	http://www.statssa.gov.za/

Information sources

Item	Source	Calculation
Population	DWA WS NIS or municipality	
Households	DWA WS NIS or municipality	
Connections - metered	Extrapolated 2007 DWA - WS FBW serviced above RDP or municipality	
Connections - Unmetered	Extrapolated 2007 DWA - WS FBW serviced at RDP or municipality	
Length of mains (km)	Actual value or calculated at average of 50 connections / km of mains	# connections ÷ 50
(A) System input volume	Total volume of potable water supplied by the municipality in k/annum	
(B) Billed metered consumption	Total volume of water metered and billed by the municipality in k/annum	
(C) Billed unmetered consumption	Total volume of water unmetered and billed by the municipality in k/annum	
Underlined values	Calculated values using trends or averages	

Standard IWA Water Balance



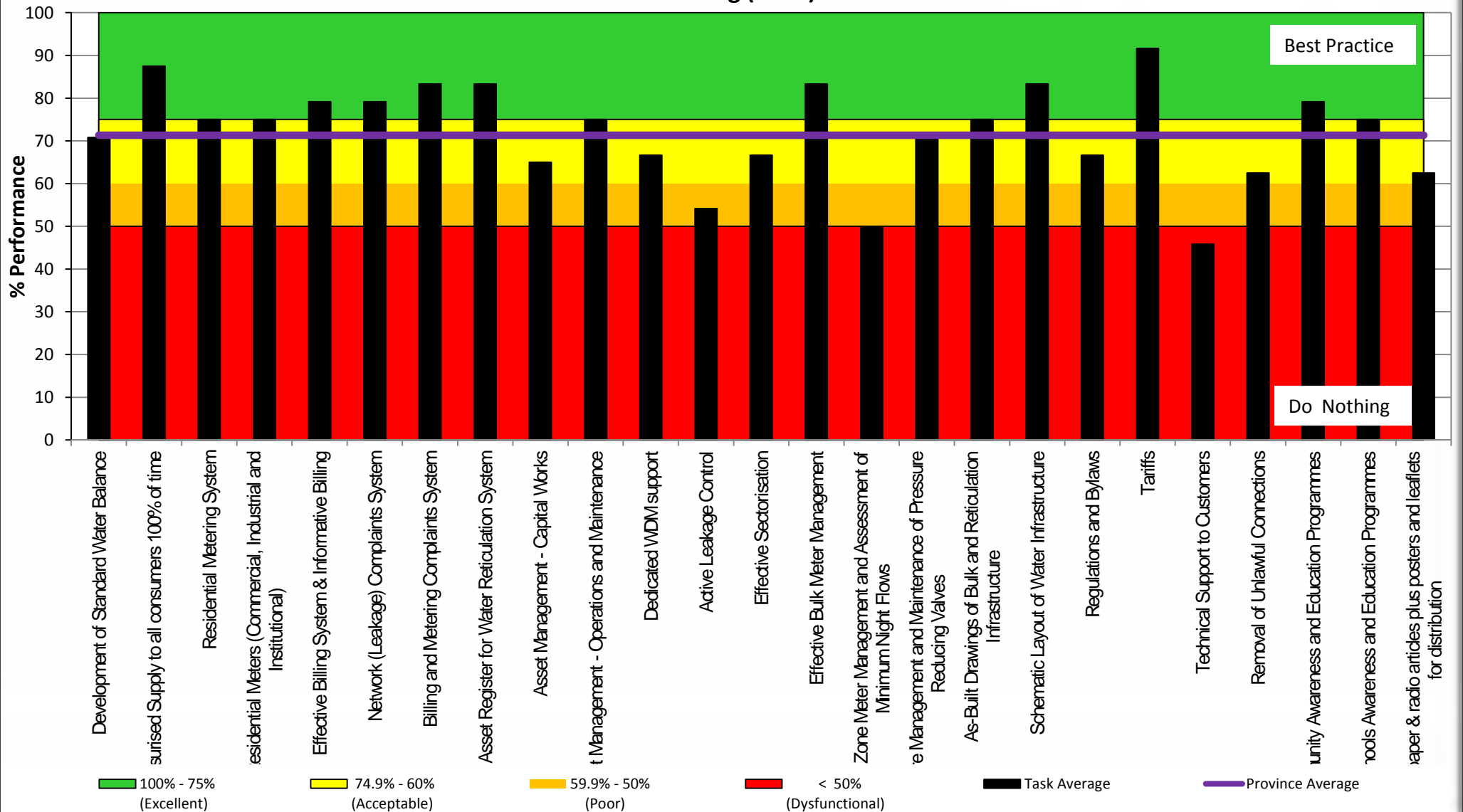
Province	Gauteng
----------	---------

No	Municipal Code	District Municipality	Municipality	Category	WSA
1	JHB	City of Johannesburg Metro	City of Johannesburg Metro	A	Yes
2	TSH	City of Tshwane Metro	City of Tshwane Metro	A	Yes
3	EKU	Ekurhuleni Metro	Ekurhuleni Metro	A	Yes
4	DC42	Sedibeng	Sedibeng DM	C1	No
5	GT421	Sedibeng	Erfuli	B1	Yes
6	GT422	Sedibeng	Midvaal	B2	Yes
7	GT423	Sedibeng	Lesedi	B3	Yes
8	DC46	Metsweding	Metsweding DM	C1	No
9	GT461	Metsweding	Nokeng-Tsa-Taemane	B2	Yes
10	GT462	Metsweding	Kungwini	B2	Yes
11	DC48	West Rand	West Rand DM	C1	Yes
12	GT481	West Rand	Mogale City	B1	Yes
13	GT482	West Rand	Randfontein	B2	Yes
14	GT483	West Rand	Westonaria	B2	Yes
15	GT484	West Rand	Merapong	B2	Yes

National NRW Assessment

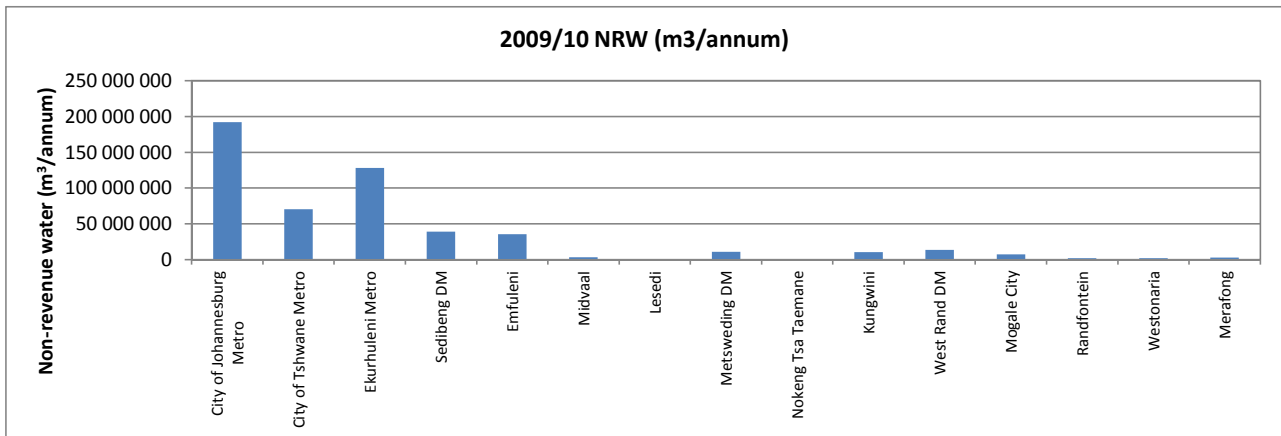
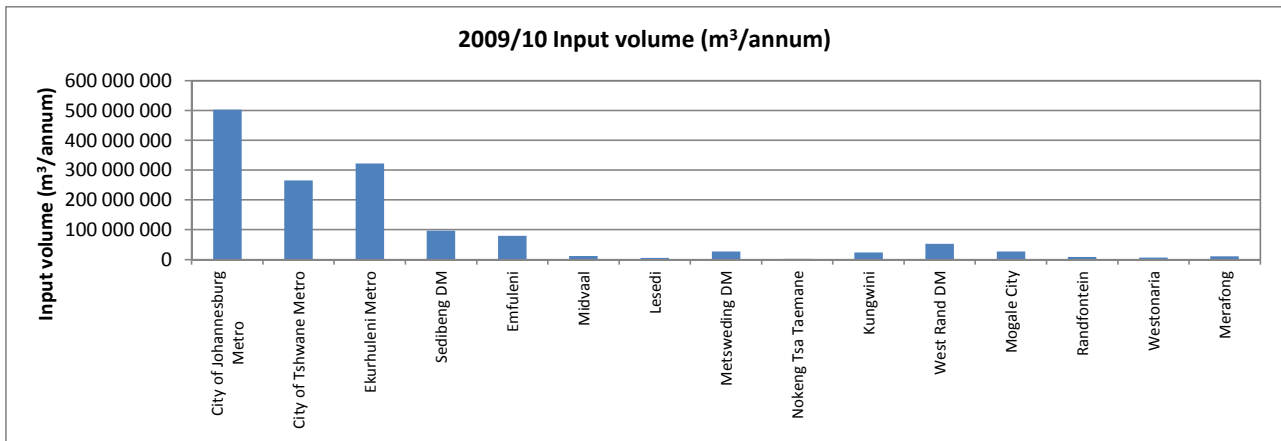
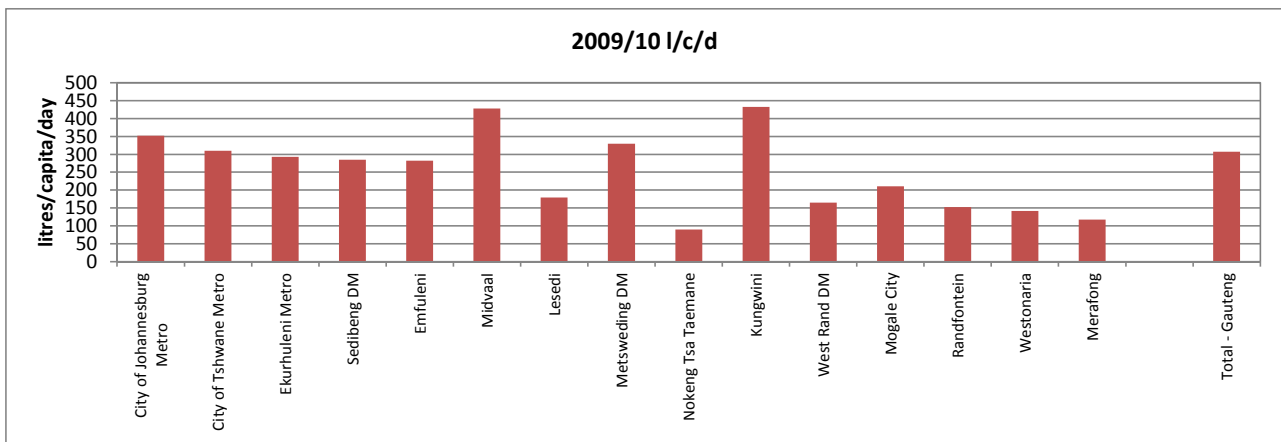
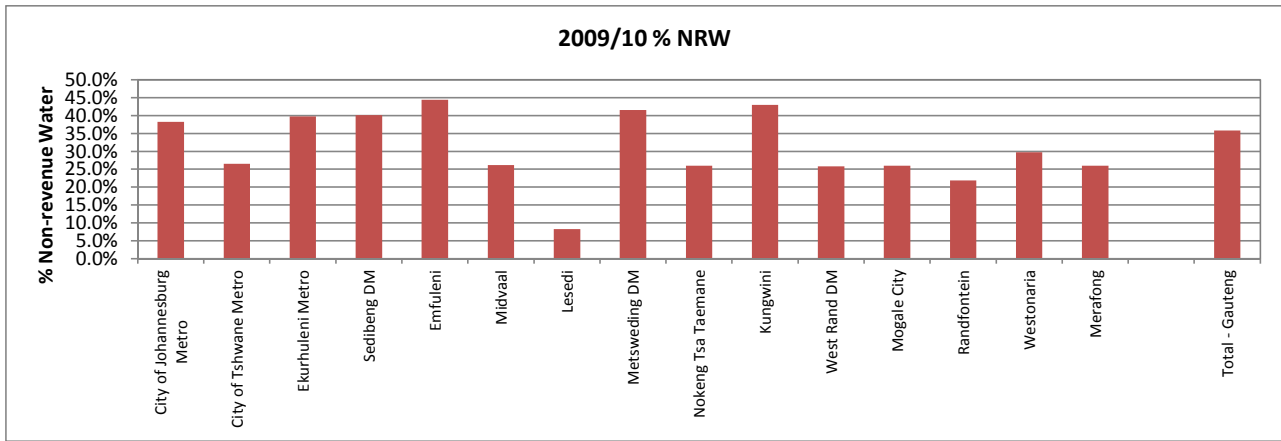


Municipal Scorecard for Assessing the Potential for WC/WDM in Municipalities Gauteng (2010)

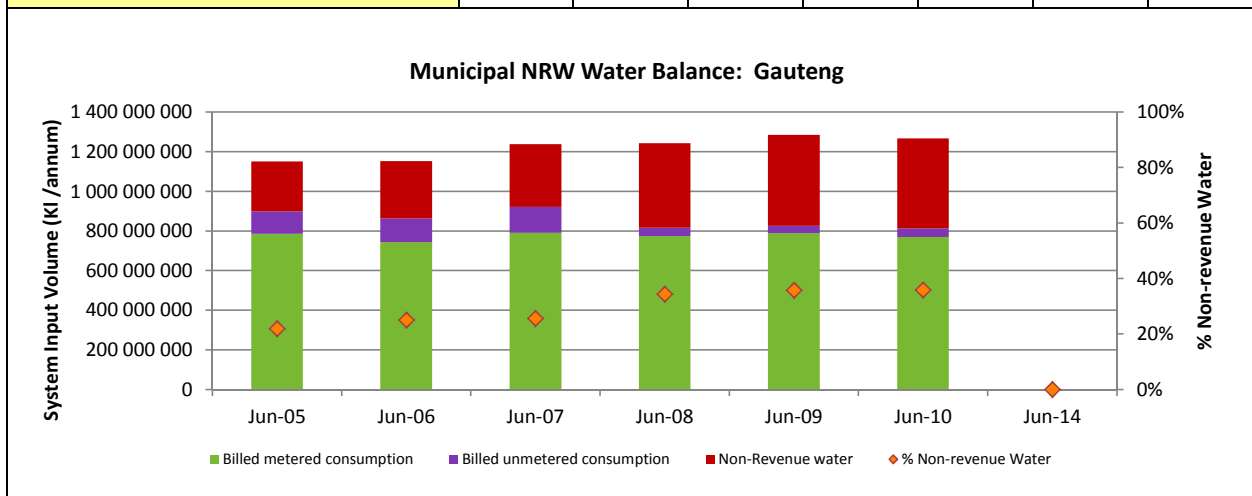


Score	Criteria	# of Records	Comments	Distribution
Record Keeping 15				
1	No records	0	Good records keeping is the first step towards water management and reducing water losses	
2	Poor records	0		
3	Erratic / worthless records	3		
4	Records with gaps or questions	0		
5	Good records no gaps or questions	12		
% NRW 15				
0	No records	0	% Non-revenue water (volume of water for which no income is received). Current estimated national average $\pm 35\%$	
1	>50%	0		
2	>40% <=50%	4		
3	>30% <=40%	2		
4	>20% <=30%	8		
5	<=20%	1		
litres / capita / day 15				
0	No records	0	Average litres / capita / day based on system input volume. Expected average around 200l/c/d.	
1	>400	2		
2	>300 and <=400	3		
3	>200 and <=300	4		
4	>100 and <=200	5		
5	<=100	1		
NRW Activity 15				
1	No activity	0	Based on local knowledge, scorecard, available records.	
2	Very limited activity	1		
3	Some activity, part of O&M	5		
4	Small scale active programme	9		
5	Large scale active programme	0		
Potential NRW Impact 15				
1	<=50 000	0	Potential impact of intervention based on population. High population = high consumption = higher potential saving.	
2	>50 000 <=100 000	3		
3	>100 000 <=200 000	3		
4	>200 000 <=500 000	3		
5	>500 000	6		

Key Performance Indicators

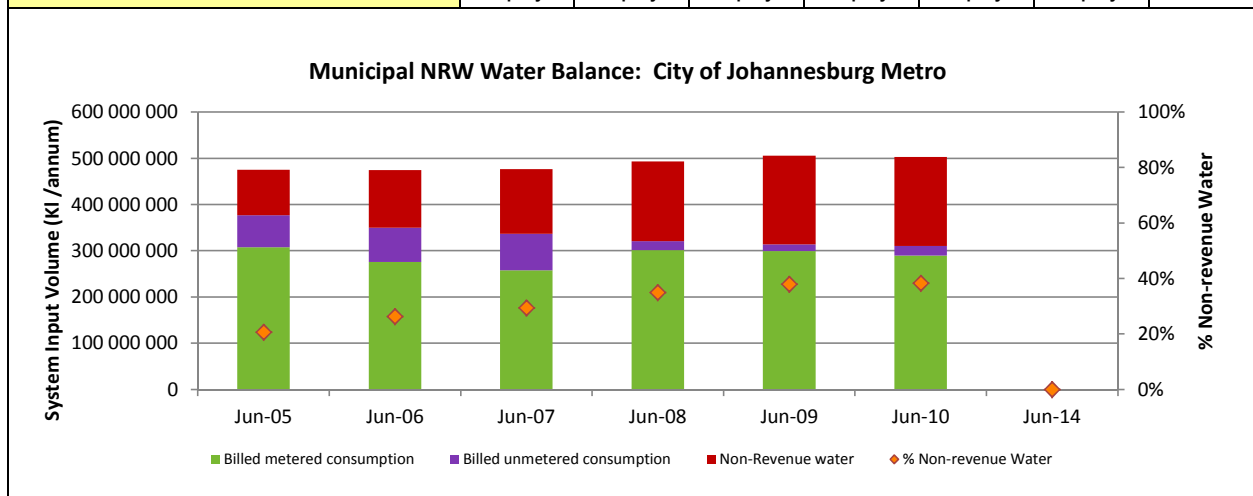


Province		Gauteng						WSA	
Municipal Code									
District Municipality								Category	
Municipality									
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	10 605 956	10 819 619	10 884 539	11 045 268	11 111 542	11 312 487	0	
	Households	3 310 610	3 377 410	3 397 666	3 447 923	3 468 607	3 530 826	0	
	Connections - metered	1 516 842	1 583 803	1 655 803	1 745 305	1 781 146	1 812 990	0	
	Connections - Unmetered	257 188	237 069	215 762	185 608	154 879	212 542	0	
	Length of mains (km)	36 718	37 262	38 286	39 171	39 406	40 743	0	
	System input volume	kl/annum	1 150 008 098	1 151 964 820	1 238 334 923	1 243 221 483	1 284 160 431	1 267 201 932	0
	Billed metered consumption	kl/annum	785 309 799	743 828 997	791 019 334	773 843 270	788 183 313	768 622 138	0
	Billed unmetered consumption	kl/annum	113 455 390	119 863 565	130 550 123	42 666 387	37 526 265	44 166 909	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	898 765 189	863 692 562	921 569 457	816 509 657	825 709 578	812 789 048	0
	Non-Revenue water	kl/annum	251 242 909	288 272 258	316 765 466	426 711 826	458 450 853	454 412 885	0
	Water Losses	kl/annum	251 242 909	288 272 258	316 765 466	426 711 826	458 450 853	454 412 885	0
	% Non-revenue water		21.8%	25.0%	25.6%	34.3%	35.7%	35.9%	No data
	% Water Losses		21.8%	25.0%	25.6%	34.3%	35.7%	35.9%	No data
Key performance indicators	Input : Litres / capita / day		297	292	312	308	317	307	No data
	Input: m ³ / household / month		29	28	30	30	31	30	No data
	Billed : Litres / capita / day		232	219	232	203	204	197	No data
	Billed : m ³ / household / month		23	21	23	20	20	19	No data
	% Population growth			2.01%	0.60%	1.48%	0.60%	1.81%	
	% Water demand growth			0.17%	7.50%	0.39%	3.29%	-1.32%	
Source of information									



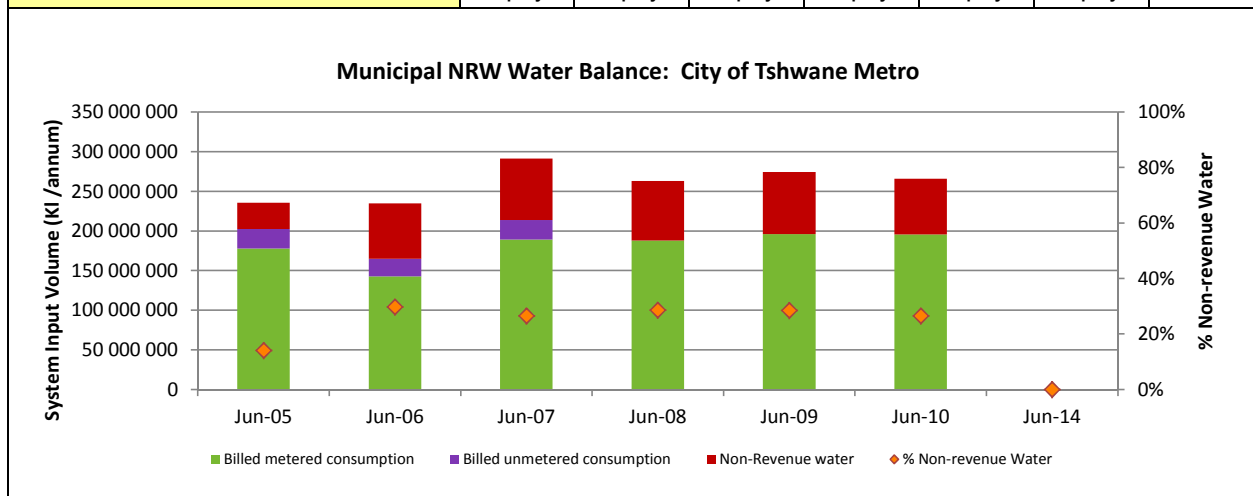
Comments

Province		Gauteng						WSA	
Municipal Code		JHB						Yes	
District Municipality		City of Johannesburg Metro						Category	
Municipality		City of Johannesburg Metro						A	
Settlements		CHIAWELO B, SANDTON, SOWETO						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	3 680 086	3 753 967	3 776 488	3 833 129	3 856 125	3 913 967		
	Households	1 205 975	1 230 191	1 237 568	1 256 127	1 263 669	1 282 624		
	Connections - metered	308 674	362 960	405 937	442 910	450 489	451 951		
	Connections - Unmetered	221 180	200 823	179 234	148 616	117 430	107 416		
	Length of mains (km)	10 607	10 607	10 787	10 958	10 990	11 296		
	System input volume	kl/annum	474 951 381	474 756 204	476 728 007	493 039 487	505 350 244	502 956 153	
	Billed metered consumption	kl/annum	307 368 665	276 050 358	257 973 928	301 199 969	299 164 941	289 415 013	
	Billed unmetered consumption	kl/annum	69 507 864	73 946 952	78 664 767	19 839 783	14 658 783	21 262 647	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	376 876 529	349 997 310	336 638 695	321 039 752	313 823 724	310 677 660	0
	Non-Revenue water	kl/annum	98 074 852	124 758 894	140 089 312	171 999 735	191 526 520	192 278 493	0
	Water Losses	kl/annum	98 074 852	124 758 894	140 089 312	171 999 735	191 526 520	192 278 493	0
	% Non-revenue water		20.6%	26.3%	29.4%	34.9%	37.9%	38.2%	No data
	% Water Losses		20.6%	26.3%	29.4%	34.9%	37.9%	38.2%	No data
Key performance indicators	Input : Litres / capita / day		354	346	346	352	359	352	No data
	Input: m ³ / household / month		33	32	32	33	33	33	No data
	Billed : Litres / capita / day		281	255	244	229	223	217	No data
	Billed : m ³ / household / month		26	24	23	21	21	20	No data
	% Population growth			2.01%	0.60%	1.50%	0.60%	1.50%	
	% Water demand growth			-0.04%	0.42%	3.42%	2.50%	-0.47%	
Source of information		DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality		



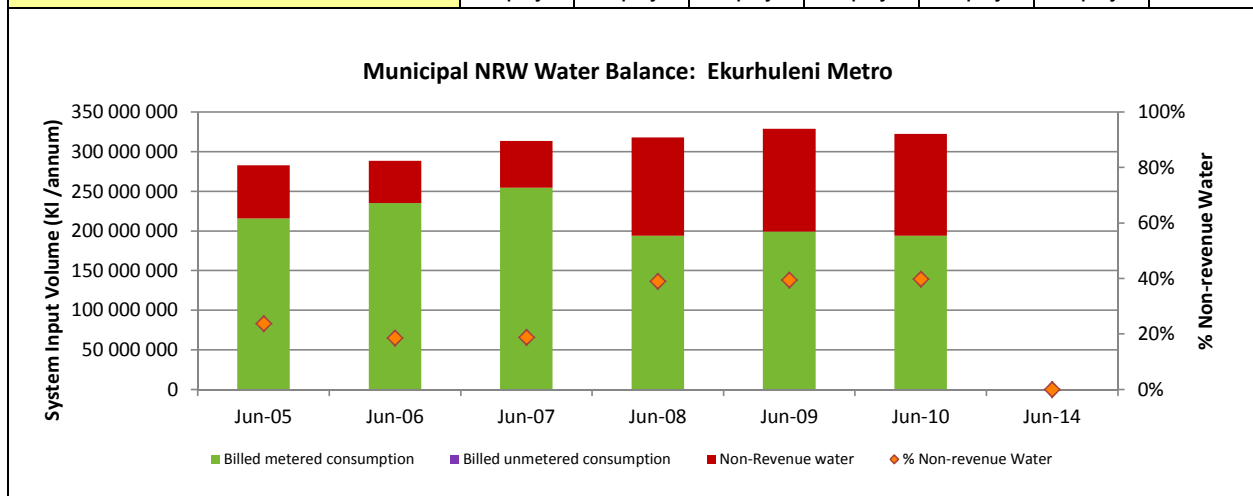
Comments

Province		Gauteng						WSA	
Municipal Code		TSH						Yes	
District Municipality		City of Tshwane Metro						Category	
Municipality		City of Tshwane Metro						A	
Settlements		AKASIA, PRETORIA, SOSHANGULVE, CENTURION, ATTERIDGEVILLE, MAMELODI, ODI, TEMBA						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	2 174 145	2 224 250	2 237 599	2 271 161	2 284 788	2 353 332		
	Households	646 409	661 310	665 277	675 256	679 307	699 686		
	Connections - metered	355 610	361 312	368 495	389 109	404 842	423 414		
	Connections - Unmetered	299	0	0	0	0	0		
	Length of mains (km)	7 999	8 393	8 786	8 823	8 859	9 141		
	System input volume	kl/annum	235 694 250	234 577 659	291 140 281	263 075 471	274 447 685	265 845 467	
	Billed metered consumption	kl/annum	177 643 059	142 716 993	189 205 186	187 764 388	196 182 598	195 426 657	
	Billed unmetered consumption	kl/annum	24 940 157	22 197 179	24 715 622	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	202 583 216	164 914 172	213 920 808	187 764 388	196 182 598	195 426 657	0
	Non-Revenue water	kl/annum	33 111 034	69 663 487	77 219 473	75 311 083	78 265 087	70 418 810	0
	Water Losses	kl/annum	33 111 034	69 663 487	77 219 473	75 311 083	78 265 087	70 418 810	0
	% Non-revenue water		14.0%	29.7%	26.5%	28.6%	28.5%	26.5%	No data
	% Water Losses		14.0%	29.7%	26.5%	28.6%	28.5%	26.5%	No data
Key performance indicators	Input : Litres / capita / day		297	289	356	317	329	309	No data
	Input: m ³ / household / month		30	30	36	32	34	32	No data
	Billed : Litres / capita / day		255	203	262	227	235	228	No data
	Billed : m ³ / household / month		26	21	27	23	24	23	No data
	% Population growth			2.30%	0.60%	1.50%	0.60%	3.00%	
	% Water demand growth			-0.47%	24.11%	-9.64%	4.32%	-3.13%	
Source of information		DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality		



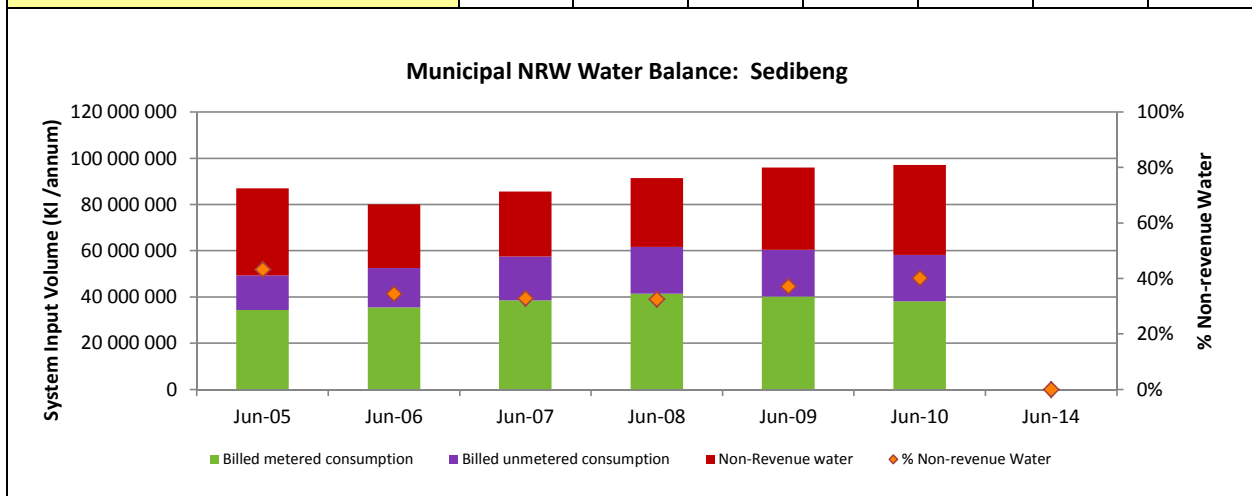
Comments

Province		Gauteng						WSA	
Municipal Code		EKU						Yes	
District Municipality		Ekurhuleni Metro						Category	
Municipality		Ekurhuleni Metro						A	
Settlements		ACTONVILLE, BOKSBURG, BRAKPAN, GERMISTON						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	2 829 986	2 892 108	2 909 461	2 953 102	2 970 824	3 015 386		
	Households	892 383	911 975	917 442	931 208	936 792	950 844		
	Connections - metered	377 263	378 727	396 390	421 409	426 295	430 462		
	Connections - Unmetered						67 108		
	Length of mains (km)	8 384	8 446	8 809	9 365	9 473	10 077		
	System input volume	kl/annum	282 970 013	288 375 444	313 659 638	317 977 206	328 769 346	322 249 616	
	Billed metered consumption	kl/annum	215 700 847	235 004 771	254 623 170	193 888 712	199 057 077	193 973 397	
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	215 700 847	235 004 771	254 623 170	193 888 712	199 057 077	193 973 397	0
	Non-Revenue water	kl/annum	67 269 166	53 370 673	59 036 468	124 088 494	129 712 269	128 276 219	0
	Water Losses	kl/annum	67 269 166	53 370 673	59 036 468	124 088 494	129 712 269	128 276 219	0
	% Non-revenue water		23.8%	18.5%	18.8%	39.0%	39.5%	39.8%	No data
	% Water Losses		23.8%	18.5%	18.8%	39.0%	39.5%	39.8%	No data
Key performance indicators	Input : Litres / capita / day		274	273	295	295	303	293	No data
	Input: m ³ / household / month		26	26	28	28	29	28	No data
	Billed : Litres / capita / day		209	223	240	180	184	176	No data
	Billed : m ³ / household / month		20	21	23	17	18	17	No data
	% Population growth			2.20%	0.60%	1.50%	0.60%	1.50%	
	% Water demand growth			1.91%	8.77%	1.38%	3.39%	-1.98%	
Source of information		DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality		



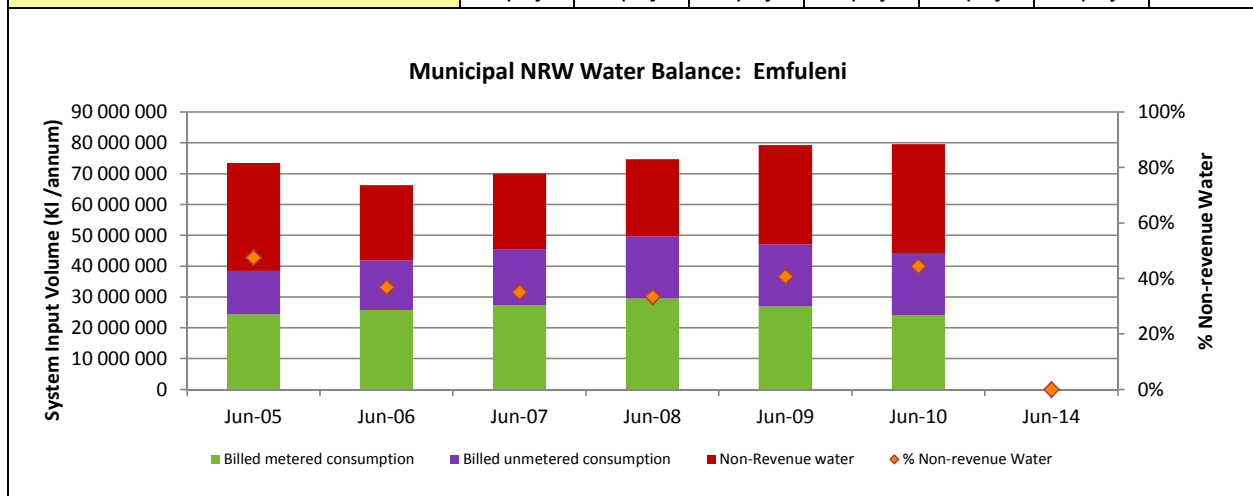
Comments

Province		Gauteng						WSA	
Municipal Code		DC42						Yes	
District Municipality		Sedibeng						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	889 642	896 332	901 712	915 240	920 731	934 542	0	
	Households	264 641	266 631	268 235	272 258	273 891	277 999	0	
	Connections - metered	252 753	254 655	256 184	260 027	261 587	265 510	0	
	Connections - Unmetered	11 003	11 086	11 153	11 320	11 388	11 559	0	
	Length of mains (km)	5 142	5 179	5 208	5 282	5 313	5 392	0	
	System input volume	kl/annum	86 982 188	80 134 215	85 616 198	91 362 924	96 053 229	97 107 804	0
	Billed metered consumption	kl/annum	34 367 985	35 499 865	38 488 943	41 502 173	40 217 403	38 057 957	0
	Billed unmetered consumption	kl/annum	14 975 775	16 995 374	19 027 789	20 129 676	20 129 723	20 129 770	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	49 343 760	52 495 239	57 516 732	61 631 849	60 347 126	58 187 727	0
	Non-Revenue water	kl/annum	37 638 428	27 638 976	28 099 466	29 731 075	35 706 103	38 920 077	0
	Water Losses	kl/annum	37 638 428	27 638 976	28 099 466	29 731 075	35 706 103	38 920 077	0
	% Non-revenue water		43.3%	34.5%	32.8%	32.5%	37.2%	40.1%	No data
	% Water Losses		43.3%	34.5%	32.8%	32.5%	37.2%	40.1%	No data
Key performance indicators	Input : Litres / capita / day		268	245	260	273	286	285	No data
	Input: m ³ / household / month		27	25	27	28	29	29	No data
	Billed : Litres / capita / day		152	160	175	184	180	171	No data
	Billed : m ³ / household / month		16	16	18	19	18	17	No data
	% Population growth			0.75%	0.60%	1.50%	0.60%	1.50%	
	% Water demand growth			-7.87%	6.84%	6.71%	5.13%	1.10%	
Source of information									



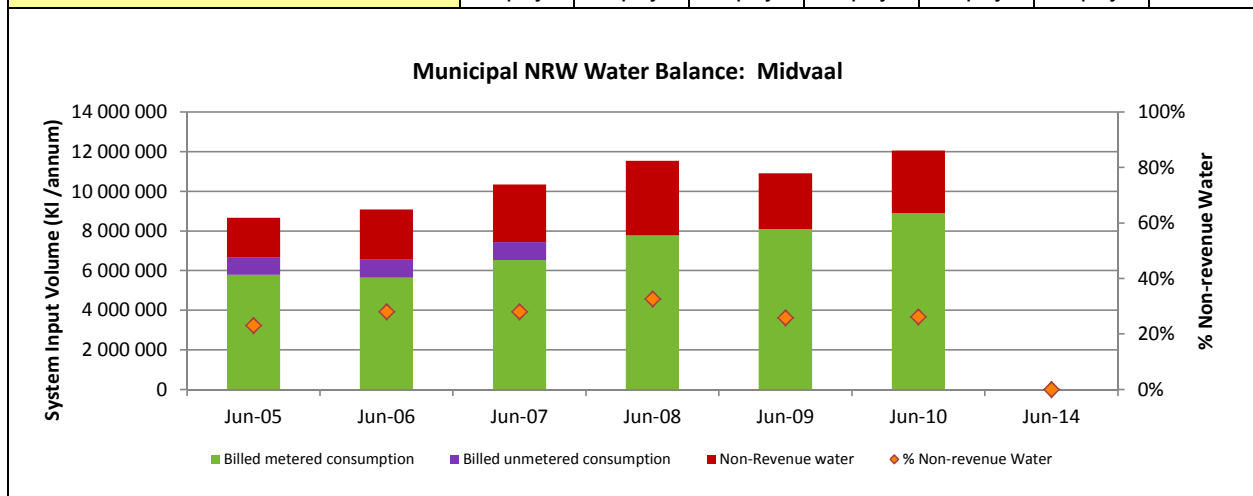
Comments

Province		Gauteng						WSA	
Municipal Code		GT421						Yes	
District Municipality		Sedibeng						Category	
Municipality		Emfuleni						B1	
Settlements		BEDWORTH PARK, EVATON, SEBOKENG, SHARPEVILLE, VEREENIGING						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	736 369	741 906	746 359	757 555	762 100	773 532		
	Households	219 606	221 259	222 587	225 924	227 282	230 691		
	Connections - metered	209 674	211 250	212 548	215 706	217 000	220 255		
	Connections - Unmetered	8 906	8 973	9 027	9 162	9 217	9 355		
	Length of mains (km)	4 372	4 404	4 431	4 497	4 524	4 592		
	System input volume	kl/annum	73 410 924	66 267 621	69 983 719	74 677 044	79 315 608	79 559 382	
	Billed metered consumption	kl/annum	24 405 783	25 757 658	27 356 795	29 541 740	26 920 469	24 120 973	
	Billed unmetered consumption	kl/annum	14 089 488	16 102 272	18 115 056	20 127 840	20 127 840	20 127 840	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	38 495 271	41 859 930	45 471 851	49 669 580	47 048 309	44 248 813	0
	Non-Revenue water	kl/annum	34 915 653	24 407 691	24 511 868	25 007 464	32 267 299	35 310 569	0
	Water Losses	kl/annum	34 915 653	24 407 691	24 511 868	25 007 464	32 267 299	35 310 569	0
	% Non-revenue water		47.6%	36.8%	35.0%	33.5%	40.7%	44.4%	No data
	% Water Losses		47.6%	36.8%	35.0%	33.5%	40.7%	44.4%	No data
Key performance indicators	Input : Litres / capita / day		273	245	257	270	285	282	No data
	Input: m ³ / household / month		28	25	26	28	29	29	No data
	Billed : Litres / capita / day		143	155	167	180	169	157	No data
	Billed : m ³ / household / month		15	16	17	18	17	16	No data
	% Population growth			0.75%	0.60%	1.50%	0.60%	1.50%	
	% Water demand growth			-9.73%	5.61%	6.71%	6.21%	0.31%	
Source of information		DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality		



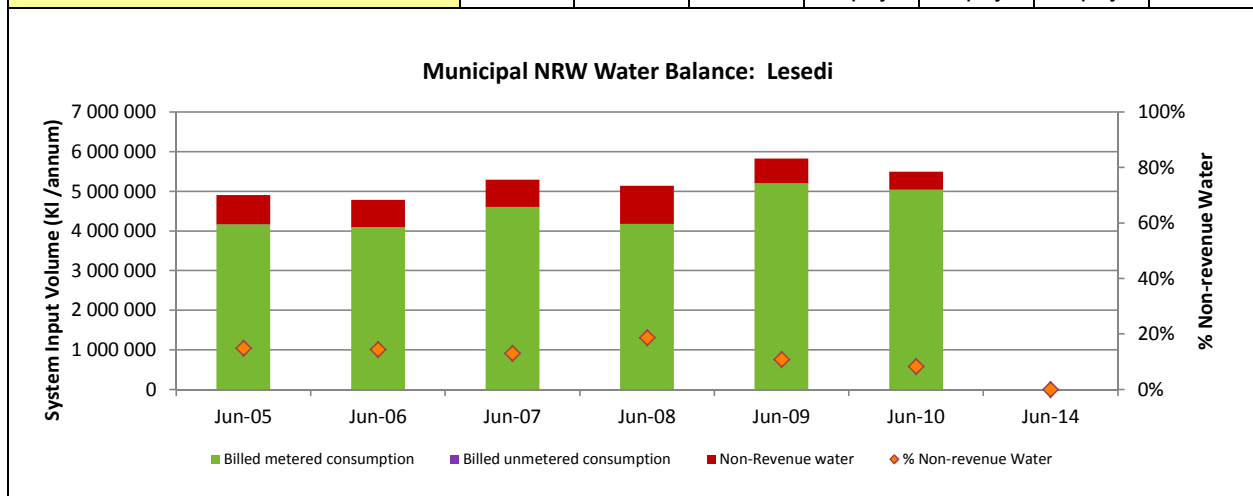
Comments

Province		Gauteng						WSA	
Municipal Code		GT422						Yes	
District Municipality		Sedibeng						Category	
Municipality		Midvaal						B2	
Settlements		MEYERTON, WATERDAL						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	73 435	73 988	74 432	75 549	76 002	77 142		
	Households	23 444	23 617	23 762	24 120	24 262	24 626		
	Connections - metered	21 488	21 650	21 780	22 107	22 240	22 573		
	Connections - Unmetered	2 098	2 143	2 426	2 158	2 174	2 203		
	Length of mains (km)	472	475	478	485	488	496		
	System input volume	kl/annum	8 668 261	9 081 412	10 341 976	11 546 379	10 908 271	12 053 525	
	Billed metered consumption	kl/annum	5 789 802	5 649 066	6 529 098	7 780 393	8 096 934	8 896 469	
	Billed unmetered consumption	kl/annum	884 592	891 360	910 944	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	6 674 394	6 540 426	7 440 042	7 780 393	8 096 934	8 896 469	0
	Non-Revenue water	kl/annum	1 993 867	2 540 986	2 901 934	3 765 986	2 811 337	3 157 056	0
	Water Losses	kl/annum	1 993 867	2 540 986	2 901 934	3 765 986	2 811 337	3 157 056	0
	% Non-revenue water		23.0%	28.0%	28.1%	32.6%	25.8%	26.2%	No data
	% Water Losses		23.0%	28.0%	28.1%	32.6%	25.8%	26.2%	No data
Key performance indicators	Input : Litres / capita / day		323	336	381	419	393	428	No data
	Input: m ³ / household / month		31	32	36	40	37	41	No data
	Billed : Litres / capita / day		249	242	274	282	292	316	No data
	Billed : m ³ / household / month		24	23	26	27	28	30	No data
	% Population growth			0.75%	0.60%	1.50%	0.60%	1.50%	
	% Water demand growth			4.77%	13.88%	11.65%	-5.53%	10.50%	
Source of information		DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality		



Comments

Province		Gauteng						WSA	
Municipal Code		GT423						Yes	
District Municipality		Sedibeng						Category	
Municipality		Lesedi						B3	
Settlements		RATANDA, HEIDELBURG, DEVON						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	79 838	80 438	80 921	82 136	82 629	83 868		
	Households	21 591	21 755	21 886	22 214	22 347	22 682		
	Connections - metered	21 591	21 755	21 886	22 214	22 347	22 682		
	Connections - Unmetered	0	0	0	0	0	0		
	Length of mains (km)	299	299	299	300	301	304		
	System input volume	kl/annum	4 903 003	4 785 182	5 290 503	5 139 501	5 829 350	5 494 897	
	Billed metered consumption	kl/annum	4 172 400	4 093 141	4 603 050	4 180 040	5 200 000	5 040 515	
	Billed unmetered consumption	kl/annum	1 695	1 742	1 789	1 836	1 883	1 930	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	4 174 095	4 094 883	4 604 839	4 181 876	5 201 883	5 042 445	0
	Non-Revenue water	kl/annum	728 908	690 299	685 664	957 625	627 467	452 452	0
	Water Losses	kl/annum	728 908	690 299	685 664	957 625	627 467	452 452	0
	% Non-revenue water		14.9%	14.4%	13.0%	18.6%	10.8%	8.2%	No data
	% Water Losses		14.9%	14.4%	13.0%	18.6%	10.8%	8.2%	No data
Key performance indicators	Input : Litres / capita / day		168	163	179	171	193	180	No data
	Input: m ³ / household / month		19	18	20	19	22	20	No data
	Billed : Litres / capita / day		143	139	156	139	172	165	No data
	Billed : m ³ / household / month		16	16	18	16	19	19	No data
	% Population growth			0.75%	0.60%	1.50%	0.60%	1.50%	
	% Water demand growth			-2.40%	10.56%	-2.85%	13.42%	-5.74%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality		

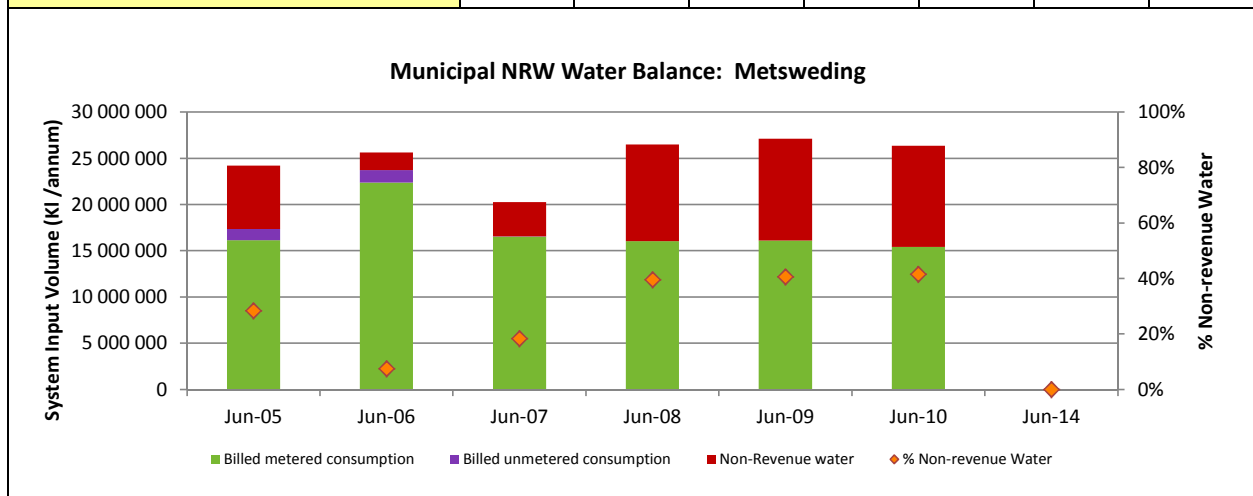


Comments

National NRW Assessment



Province		Gauteng						WSA	
Municipal Code		DC46						No	
District Municipality		Metsweding						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	205 066	210 201	211 461	214 632	215 921	219 160	0	
	Households	58 776	60 266	60 626	61 539	61 905	62 834	0	
	Connections - metered	50 839	52 112	52 425	53 211	53 531	54 334	0	
	Connections - Unmetered	4 895	5 019	5 049	5 125	5 155	5 233	0	
	Length of mains (km)	1 115	1 143	1 149	1 167	1 174	1 191	0	
	System input volume	kl/annum	24 201 285	25 628 555	20 268 555	26 480 055	27 119 818	26 352 214	0
	Billed metered consumption	kl/annum	16 155 269	22 357 991	16 504 991	16 020 171	16 100 000	15 400 000	0
	Billed unmetered consumption	kl/annum	1 182 746	1 347 640	62 640	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	17 338 015	23 705 631	16 567 631	16 020 171	16 100 000	15 400 000	0
	Non-Revenue water	kl/annum	6 863 270	1 922 924	3 700 924	10 459 884	11 019 818	10 952 214	0
	Water Losses	kl/annum	6 863 270	1 922 924	3 700 924	10 459 884	11 019 818	10 952 214	0
	% Non-revenue water		28.4%	7.5%	18.3%	39.5%	40.6%	41.6%	No data
	% Water Losses		28.4%	7.5%	18.3%	39.5%	40.6%	41.6%	No data
Key performance indicators	Input : Litres / capita / day		323	334	263	338	344	329	No data
	Input: m³ / household / month		34	35	28	36	37	35	No data
	Billed : Litres / capita / day		232	309	215	204	204	193	No data
	Billed : m³ / household / month		25	33	23	22	22	20	No data
	% Population growth			2.50%	0.60%	1.50%	0.60%	1.50%	
	% Water demand growth			5.90%	-20.91%	30.65%	2.42%	-2.83%	
Source of information									



Comments

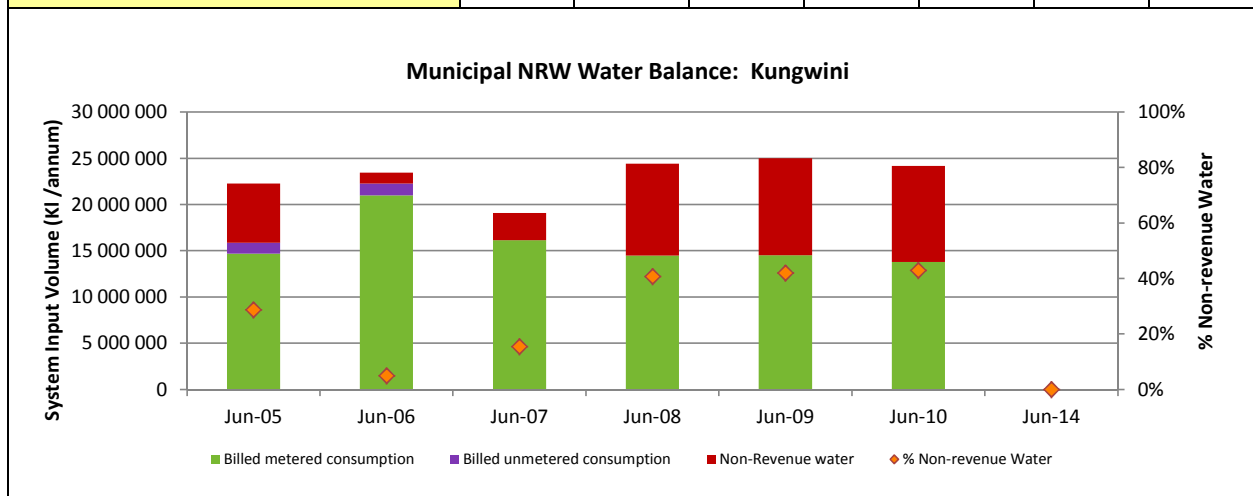
Province		Gauteng						WSA	
Municipal Code		GT461						Yes	
District Municipality		Metsweding						Category	
Municipality		Nokeng Tsa Taemane						B2	
Settlements		DINOKANA, ZEERUST						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	61 720	63 370	63 749	64 704	65 094	66 070		
	Households	17 538	18 007	18 114	18 389	18 498	18 775		
	Connections - metered	15 432	15 844	15 939	16 178	16 276	16 520		
	Connections - Unmetered	1 442	1 484	1 489	1 512	1 524	1 544		
	Length of mains (km)	337	347	349	354	356	364		
	System input volume	kl/annum	1 946 285	2 181 555	1 181 555	2 078 253	2 119 818	2 162 214	
	Billed metered consumption	kl/annum	1 455 269	1 359 991	359 991	1 550 000	1 600 000	1 600 000	
	Billed unmetered consumption	kl/annum	5 746	62 640	62 640	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 461 015	1 422 631	422 631	1 550 000	1 600 000	1 600 000	0
	Non-Revenue water	kl/annum	485 270	758 924	758 924	528 253	519 818	562 214	0
	Water Losses	kl/annum	485 270	758 924	758 924	528 253	519 818	562 214	0
	% Non-revenue water		24.9%	34.8%	64.2%	25.4%	24.5%	26.0%	No data
	% Water Losses		24.9%	34.8%	64.2%	25.4%	24.5%	26.0%	No data
Key performance indicators	Input : Litres / capita / day		86	94	51	88	89	90	No data
	Input: m³ / household / month		9	10	5	9	10	10	No data
	Billed : Litres / capita / day		65	62	18	66	67	66	No data
	Billed : m³ / household / month		7	7	2	7	7	7	No data
	% Population growth			2.67%	0.60%	1.50%	0.60%	1.50%	
	% Water demand growth			12.09%	-45.84%	75.89%	2.00%	2.00%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC		

Municipal NRW Water Balance: Nokeng Tsa Taemane

Year	Billed metered consumption (kl)	Billed unmetered consumption (kl)	Non-Revenue water (kl)	% Non-revenue Water
Jun-05	1 455 269	5 746	485 270	24.9%
Jun-06	1 359 991	62 640	758 924	34.8%
Jun-07	359 991	62 640	758 924	64.2%
Jun-08	1 550 000	0	528 253	25.4%
Jun-09	1 600 000	0	519 818	24.5%
Jun-10	1 600 000	0	562 214	26.0%
Jun-14				

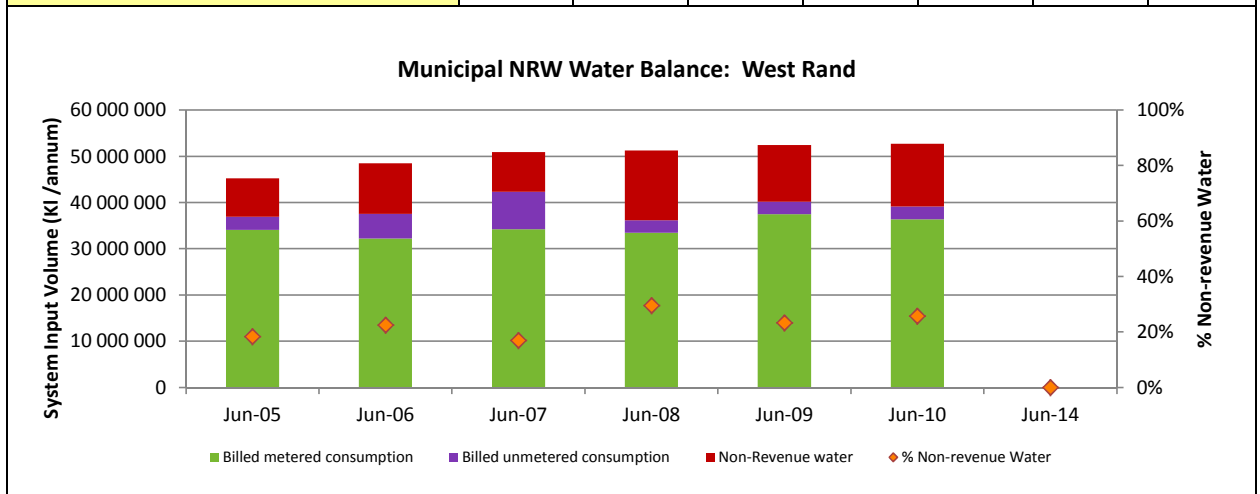
Comments

Province		Gauteng						WSA	
Municipal Code		GT462						Yes	
District Municipality		Metsweding						Category	
Municipality		Kungwini						B2	
Settlements		BRONKHORSTSPRUIT, EKANGALA, ZITHOBENI						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	143 346	146 831	147 712	149 928	150 827	153 089		
	Households	41 238	42 259	42 512	43 150	43 407	44 058		
	Connections - metered	35 407	36 268	36 486	37 033	37 255	37 814		
	Connections - Unmetered	3 453	3 538	3 560	3 613	3 635	3 689		
	Length of mains (km)	777	796	804	813	818	830		
	System input volume	kl/annum	22 255 000	23 447 000	19 087 000	24 401 802	25 000 000	24 190 000	
	Billed metered consumption	kl/annum	14 700 000	20 998 000	16 145 000	14 470 171	14 500 000	13 800 000	
	Billed unmetered consumption	kl/annum	1 177 000	1 285 000	0	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	15 877 000	22 283 000	16 145 000	14 470 171	14 500 000	13 800 000	0
	Non-Revenue water	kl/annum	6 378 000	1 164 000	2 942 000	9 931 631	10 500 000	10 390 000	0
	Water Losses	kl/annum	6 378 000	1 164 000	2 942 000	9 931 631	10 500 000	10 390 000	0
	% Non-revenue water		28.7%	5.0%	15.4%	40.7%	42.0%	43.0%	No data
	% Water Losses		28.7%	5.0%	15.4%	40.7%	42.0%	43.0%	No data
Key performance indicators	Input : Litres / capita / day		425	437	354	446	454	433	No data
	Input: m ³ / household / month		45	46	37	47	48	46	No data
	Billed : Litres / capita / day		303	416	299	264	263	247	No data
	Billed : m ³ / household / month		32	44	32	28	28	26	No data
	% Population growth			2.43%	0.60%	1.50%	0.60%	1.50%	
	% Water demand growth			5.36%	-18.60%	27.85%	2.45%	-3.24%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA		



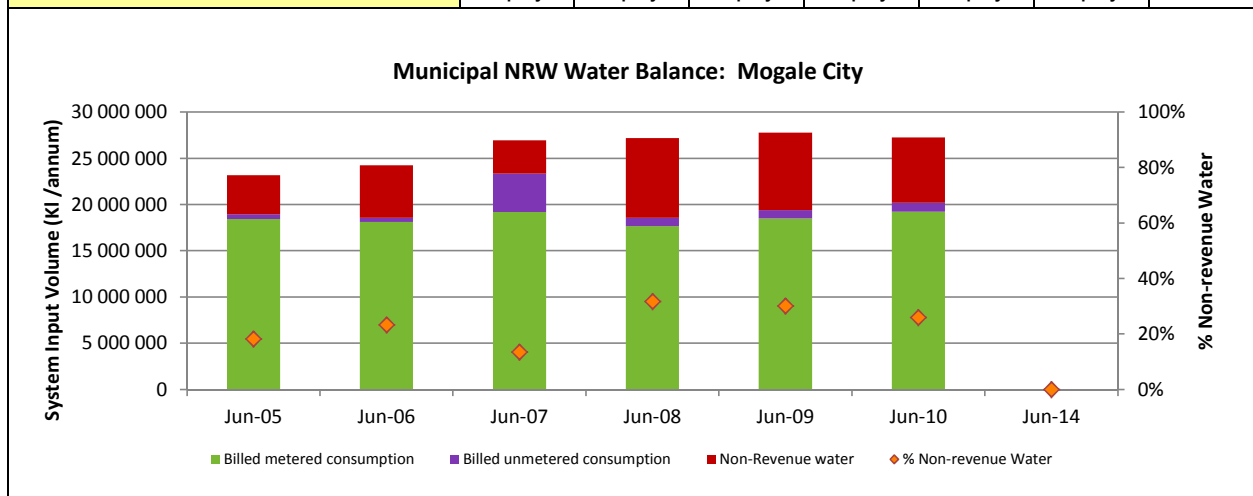
Comments

Province		Gauteng						WSA	
Municipal Code		DC48						No	
District Municipality		West Rand						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	827 031	842 761	847 818	858 004	863 153	876 100	0	
	Households	242 426	247 037	248 518	251 535	253 043	256 839	0	
	Connections - metered	171 703	174 036	176 372	178 639	184 403	187 319	0	
	Connections - Unmetered	19 811	20 142	20 327	20 547	20 905	21 227	0	
	Length of mains (km)	3 472	3 525	3 546	3 577	3 597	3 646	0	
	System input volume	kl/annum	45 208 981	48 492 743	50 922 244	51 286 340	52 420 109	52 690 678	0
	Billed metered consumption	kl/annum	34 073 974	32 199 019	34 223 116	33 467 857	37 461 294	36 349 114	0
	Billed unmetered consumption	kl/annum	2 848 848	5 376 420	8 079 305	2 696 928	2 737 759	2 774 492	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	36 922 822	37 575 439	42 302 421	36 164 785	40 199 053	39 123 606	0
	Non-Revenue water	kl/annum	8 286 159	10 917 304	8 619 823	15 121 555	12 221 056	13 567 072	0
	Water Losses	kl/annum	8 286 159	10 917 304	8 619 823	15 121 555	12 221 056	13 567 072	0
	% Non-revenue water		18.3%	22.5%	16.9%	29.5%	23.3%	25.7%	No data
	% Water Losses		18.3%	22.5%	16.9%	29.5%	23.3%	25.7%	No data
Key performance indicators	Input : Litres / capita / day		150	158	165	164	166	165	No data
	Input: m ³ / household / month		16	16	17	17	17	17	No data
	Billed : Litres / capita / day		122	122	137	115	128	122	No data
	Billed : m ³ / household / month		13	13	14	12	13	13	No data
	% Population growth			1.90%	0.60%	1.20%	0.60%	1.50%	
	% Water demand growth			7.26%	5.01%	0.72%	2.21%	0.52%	
Source of information									



Comments

Province		Gauteng						WSA	
Municipal Code		GT481						Yes	
District Municipality		West Rand						Category	
Municipality		Mogale City						B1	
Settlements		KAGISO, KRUGERSDORP, RIETVALLEI						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	334 171	340 526	342 568	347 705	349 791	355 038		
	Households	101 144	103 065	103 684	105 240	105 870	107 458		
	Connections - metered	49 023	49 023	50 608	51 608	56 609	57 609		
	Connections - Unmetered	2 451	2 451	2 530	2 580	2 830	2 880		
	Length of mains (km)	671	671	675	677	680	685		
	System input volume	kl/annum	23 163 490	24 229 135	26 944 534	27 168 486	27 762 410	27 257 044	
	Billed metered consumption	kl/annum	18 412 450	18 110 119	19 172 414	17 667 857	18 484 451	19 219 114	
	Billed unmetered consumption	kl/annum	529 656	468 000	4 156 992	883 392	924 223	960 956	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	18 942 106	18 578 119	23 329 406	18 551 249	19 408 674	20 180 070	0
	Non-Revenue water	kl/annum	4 221 384	5 651 016	3 615 128	8 617 237	8 353 736	7 076 974	0
	Water Losses	kl/annum	4 221 384	5 651 016	3 615 128	8 617 237	8 353 736	7 076 974	0
	% Non-revenue water		18.2%	23.3%	13.4%	31.7%	30.1%	26.0%	No data
	% Water Losses		18.2%	23.3%	13.4%	31.7%	30.1%	26.0%	No data
Key performance indicators	Input : Litres / capita / day		190	195	215	214	217	210	No data
	Input: m ³ / household / month		19	20	22	22	22	21	No data
	Billed : Litres / capita / day		155	149	187	146	152	156	No data
	Billed : m ³ / household / month		16	15	19	15	15	16	No data
	% Population growth			1.90%	0.60%	1.50%	0.60%	1.50%	
	% Water demand growth			4.60%	11.21%	0.83%	2.19%	-1.82%	
Source of information		DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality		



Comments

Province		Gauteng						WSA	
Municipal Code		GT482						Yes	
District Municipality		West Rand						Category	
Municipality		Randfontein						B2	
Settlements		MOHLAKENG, RANDFONTEIN, TOEKOMSRUS						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	148 042	150 858	151 763	154 039	154 964	157 288		
	Households	43 595	44 424	44 692	45 362	45 633	46 317		
	Connections - metered	40 344	41 108	41 355	41 975	42 227	42 860		
	Connections - Unmetered	2 504	2 552	2 568	2 606	2 622	2 664		
	Length of mains (km)	857	873	878	892	897	940		
	System input volume	kl/annum	7 489 290	8 029 360	8 337 400	8 595 700	8 666 188	8 740 000	
	Billed metered consumption	kl/annum	6 196 092	4 547 094	6 398 000	6 000 000	6 369 552	6 830 000	
	Billed unmetered consumption	kl/annum	360 000	1 202 112	126 000				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	6 556 092	5 749 206	6 524 000	6 000 000	6 369 552	6 830 000	0
	Non-Revenue water	kl/annum	933 198	2 280 154	1 813 400	2 595 700	2 296 636	1 910 000	0
	Water Losses	kl/annum	933 198	2 280 154	1 813 400	2 595 700	2 296 636	1 910 000	0
	% Non-revenue water		12.5%	28.4%	21.8%	30.2%	26.5%	21.9%	No data
	% Water Losses		12.5%	28.4%	21.8%	30.2%	26.5%	21.9%	No data
Key performance indicators	Input : Litres / capita / day		139	146	151	153	153	152	No data
	Input: m ³ / household / month		14	15	16	16	16	16	No data
	Billed : Litres / capita / day		121	104	118	107	113	119	No data
	Billed : m ³ / household / month		13	11	12	11	12	12	No data
	% Population growth			1.90%	0.60%	1.50%	0.60%	1.50%	
	% Water demand growth			7.21%	3.84%	3.10%	0.82%	0.85%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality		

Municipal NRW Water Balance: Randfontein

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	6 196 092	360 000	933 198	12.5%
Jun-06	4 547 094	1 202 112	2 280 154	28.4%
Jun-07	6 398 000	126 000	1 813 400	21.8%
Jun-08	6 000 000		2 595 700	30.2%
Jun-09	6 369 552		2 296 636	26.5%
Jun-10	6 830 000		1 910 000	21.9%
Jun-14				

Comments

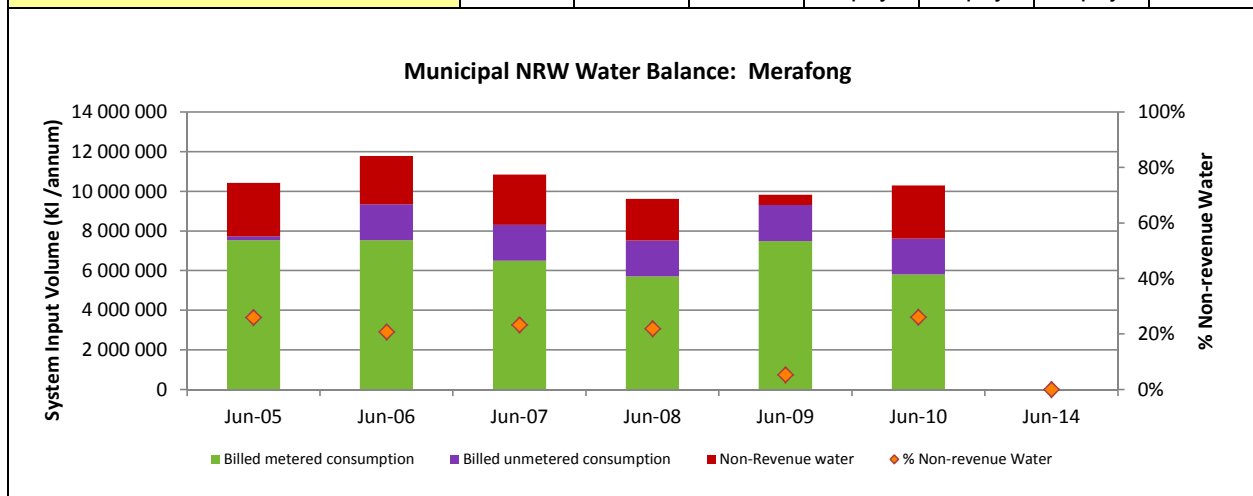
Province		Gauteng						WSA	
Municipal Code		GT483						Yes	
District Municipality		West Rand						Category	
Municipality		Westonaria						B2	
Settlements		BEKKERSDAL, GEMSBOKFONTEIN, WESTONARIA						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	116 903	119 127	119 843	121 642	122 371	124 207		
	Households	33 642	34 284	34 488	35 005	35 217	35 745		
	Connections - metered	26 560	27 066	27 228	27 637	27 803	28 220		
	Connections - Unmetered	6 205	6 323	6 364	6 456	6 495	6 593		
	Length of mains (km)	655	668	672	682	686	696		
	System input volume	kl/annum	4 130 425	4 445 575	4 801 222	5 901 145	6 165 684	6 404 434	
	Billed metered consumption	kl/annum	1 940 165	2 016 539	2 152 702	4 100 000	5 117 380	4 500 000	
	Billed unmetered consumption	kl/annum	1 764 000	1 892 772	1 982 777				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	3 704 165	3 909 311	4 135 479	4 100 000	5 117 380	4 500 000	0
	Non-Revenue water	kl/annum	426 260	536 264	665 743	1 801 145	1 048 304	1 904 434	0
	Water Losses	kl/annum	426 260	536 264	665 743	1 801 145	1 048 304	1 904 434	0
	% Non-revenue water		10.3%	12.1%	13.9%	30.5%	17.0%	29.7%	No data
	% Water Losses		10.3%	12.1%	13.9%	30.5%	17.0%	29.7%	No data
Key performance indicators	Input : Litres / capita / day		97	102	110	133	138	141	No data
	Input: m ³ / household / month		10	11	12	14	15	15	No data
	Billed : Litres / capita / day		87	90	95	92	115	99	No data
	Billed : m ³ / household / month		9	10	10	10	12	10	No data
	% Population growth			1.90%	0.60%	1.50%	0.60%	1.50%	
	% Water demand growth			7.63%	8.00%	22.91%	4.48%	3.87%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality		

Municipal NRW Water Balance: Westonaria

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	1 940 165	1 764 000	426 260	10.3%
Jun-06	2 016 539	1 892 772	536 264	12.1%
Jun-07	2 152 702	1 982 777	665 743	13.9%
Jun-08	4 100 000		1 801 145	30.5%
Jun-09	5 117 380		1 048 304	17.0%
Jun-10	4 500 000		1 904 434	29.7%
Jun-14				No data

Comments

Province		Gauteng						WSA	
Municipal Code		GT484						Yes	
District Municipality		West Rand						Category	
Municipality		Merafong						B2	
Settlements		CARLETONVILLE, DOORNFONTEIN, FOCHVILLE, WESTDRIEFONTEIN						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	227 915	232 250	233 644	234 618	236 027	239 567		
	Households	64 045	65 264	65 654	65 928	66 323	67 318		
	Connections - metered	55 779	56 839	57 484	57 419	57 764	58 630		
	Connections - Unmetered	8 654	8 845	8 868	8 905	8 958	9 093		
	Length of mains (km)	1 289	1 313	1 321	1 326	1 334	1 354		
	System input volume	kl/annum	10 425 776	11 788 673	10 839 088	9 621 009	9 825 827	10 289 200	
	Billed metered consumption	kl/annum	7 525 267	7 525 267	6 500 000	5 700 000	7 489 911	5 800 000	
	Billed unmetered consumption	kl/annum	195 192	1 813 536	1 813 536	1 813 536	1 813 536	1 813 536	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	7 720 459	9 338 803	8 313 536	7 513 536	9 303 447	7 613 536	0
	Non-Revenue water	kl/annum	2 705 317	2 449 870	2 525 552	2 107 473	522 380	2 675 664	0
	Water Losses	kl/annum	2 705 317	2 449 870	2 525 552	2 107 473	522 380	2 675 664	0
	% Non-revenue water		25.9%	20.8%	23.3%	21.9%	5.3%	26.0%	No data
	% Water Losses		25.9%	20.8%	23.3%	21.9%	5.3%	26.0%	No data
Key performance indicators	Input : Litres / capita / day		125	139	127	112	114	118	No data
	Input: m ³ / household / month		14	15	14	12	12	13	No data
	Billed : Litres / capita / day		93	110	97	88	108	87	No data
	Billed : m ³ / household / month		10	12	11	9	12	9	No data
	% Population growth			1.90%	0.60%	0.42%	0.60%	1.50%	
	% Water demand growth			13.07%	-8.06%	-11.24%	2.13%	4.72%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality		



Comments

National Non-Revenue Water Assessment

KwaZulu Natal Province

July 2011



Introductory notes

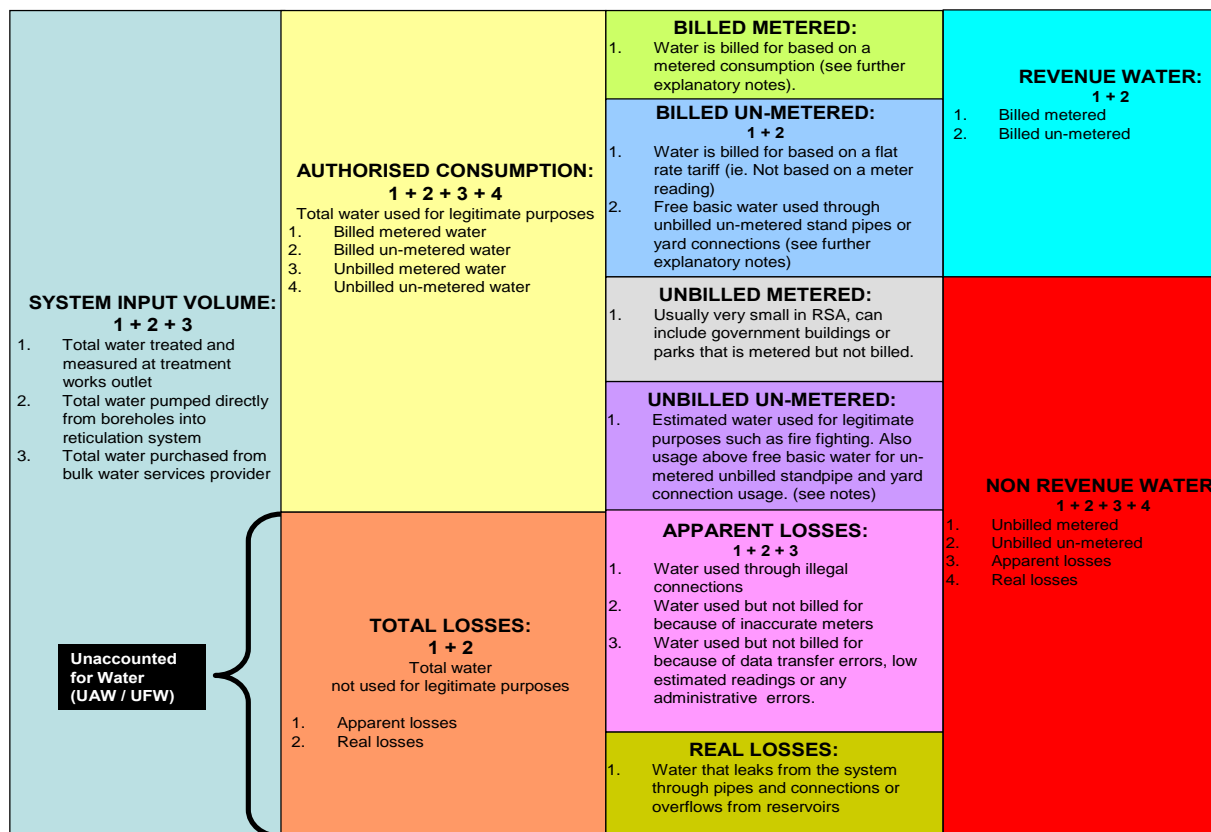
Terminology

Acronym	Description	Link
DWA	Department of Water Affairs	http://www.dwa.gov.za
WS RPMS	Water Services : Regulatory Performance Measurement System	http://www.dwa.gov.za/dir_ws/rpms/
WS NIS	Water Services : National Information System	http://www.dwa.gov.za/dir_ws/wsis/
FBS	Water Services : Free Basic Water Project	http://www.dwa.gov.za/dir_ws/fbw/
NRW	Non-revenue water. Volume of water for which no revenue is received (preferred term)	
UAW or UFW	Unaccounted-for water. Volume of water lost due to physical and apparent losses (not preferred term)	
StatsSA NEC	Statistics South Africa : Non-Financial Census of Municipalities P9115	http://www.statssa.gov.za/

Information sources

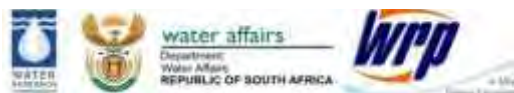
Item	Source	Calculation
Population	DWA WS NIS or municipality	
Households	DWA WS NIS or municipality	
Connections - metered	Extrapolated 2007 DWA - WS FBW serviced above RDP or municipality	
Connections - Unmetered	Extrapolated 2007 DWA - WS FBW serviced at RDP or municipality	
Length of mains (km)	Actual value or calculated at average of 50 connections / km of mains	# connections ÷ 50
(A) System input volume	Total volume of potable water supplied by the municipality in k/annum	
(B) Billed metered consumption	Total volume of water metered and billed by the municipality in k/annum	
(C) Billed unmetered consumption	Total volume of water unmetered and billed by the municipality in k/annum	
Underlined values	Calculated values using trends or averages	

Standard IWA Water Balance



Province		KwaZulu-Natal			
No	Municipal Code	District Municipality	Municipality	Category	WSA
1	ETH	eThekweni Metro	eThekweni Metro	A	Yes
2	DC21	Ugu District	Ugu District DM	C2	Yes
3	KZN211	Ugu	uMambo	B4	No
4	KZN212	Ugu	uMdoni	B2	No
5	KZN213	Ugu	Umzumbe	B4	No
6	KZN214	Ugu	uMuziwabantu	B3	No
7	KZN215	Ugu	Ezingoleni	B4	No
8	KZN216	Ugu	Hibiscus Coast	B2	No
9	DC22	Umgungundlovu	Umgungundlovu DM	C2	Yes
10	KZN221	Umgungundlovu	uMshwathi	B4	No
11	KZN222	Umgungundlovu	uMngeni	B2	No
12	KZN223	Umgungundlovu	Mpofana	B3	No
13	KZN224	Umgungundlovu	Impendle	B4	No
14	KZN225	Umgungundlovu	The Msunduzi	B1	Yes
15	KZN226	Umgungundlovu	Mkhambathini	B3	No
16	KZN227	Umgungundlovu	Richmond	B4	No
17	DC23	Uthukela	Uthukela DM	C2	Yes
18	KZN232	Uthukela	Emnambithi-Ladysmith	B2	No
19	KZN233	Uthukela	Indaka	B4	No
20	KZN234	Uthukela	Umtshezi	B3	No
21	KZN235	Uthukela	Okhahlamba	B4	No
22	KZN236	Uthukela	Imbabazane	B4	No
23	DC24	Umzinyathi	Umzinyathi DM	C2	Yes
24	KZN241	Umzinyathi	Endumeni	B3	No
25	KZN242	Umzinyathi	Nquthu	B4	No
26	KZN244	Umzinyathi	Msinga	B4	No
27	KZN245	Umzinyathi	Umvoti	B3	No
28	DC25	Amajuba	Amajuba DM	C2	Yes
29	KZN252	Amajuba	Newcastle	B1	Yes
30	KZN253	Amajuba	eMadlangeni	B3	No
31	KZN254	Amajuba	Dannhauser	B4	No
32	DC26	Zululand	Zululand DM	C2	Yes
33	KZN261	Zululand	eDumbe	B3	No
34	KZN262	Zululand	uPhongolo	B4	No
35	KZN263	Zululand	Abaqulusi	B3	No
36	KZN265	Zululand	Nongoma	B4	No
37	KZN266	Zululand	Ulundi	B4	No
38	DC27	Umkhanyakude	Umkhanyakude DM	C2	Yes
39	KZN271	Umkhanyakude	Umhlabayalingana	B4	No
40	KZN272	Umkhanyakude	Jozini	B4	No
41	KZN273	Umkhanyakude	The Big Five False Bay	B3	No
42	KZN274	Umkhanyakude	Hlabisa	B4	No
43	KZN275	Umkhanyakude	Mtubatuba	B3	No
44	DC28	uThungulu	uThungulu DM	C2	Yes
45	KZN281	Uthungulu	Mbonambi	B4	No

National NRW Assessment

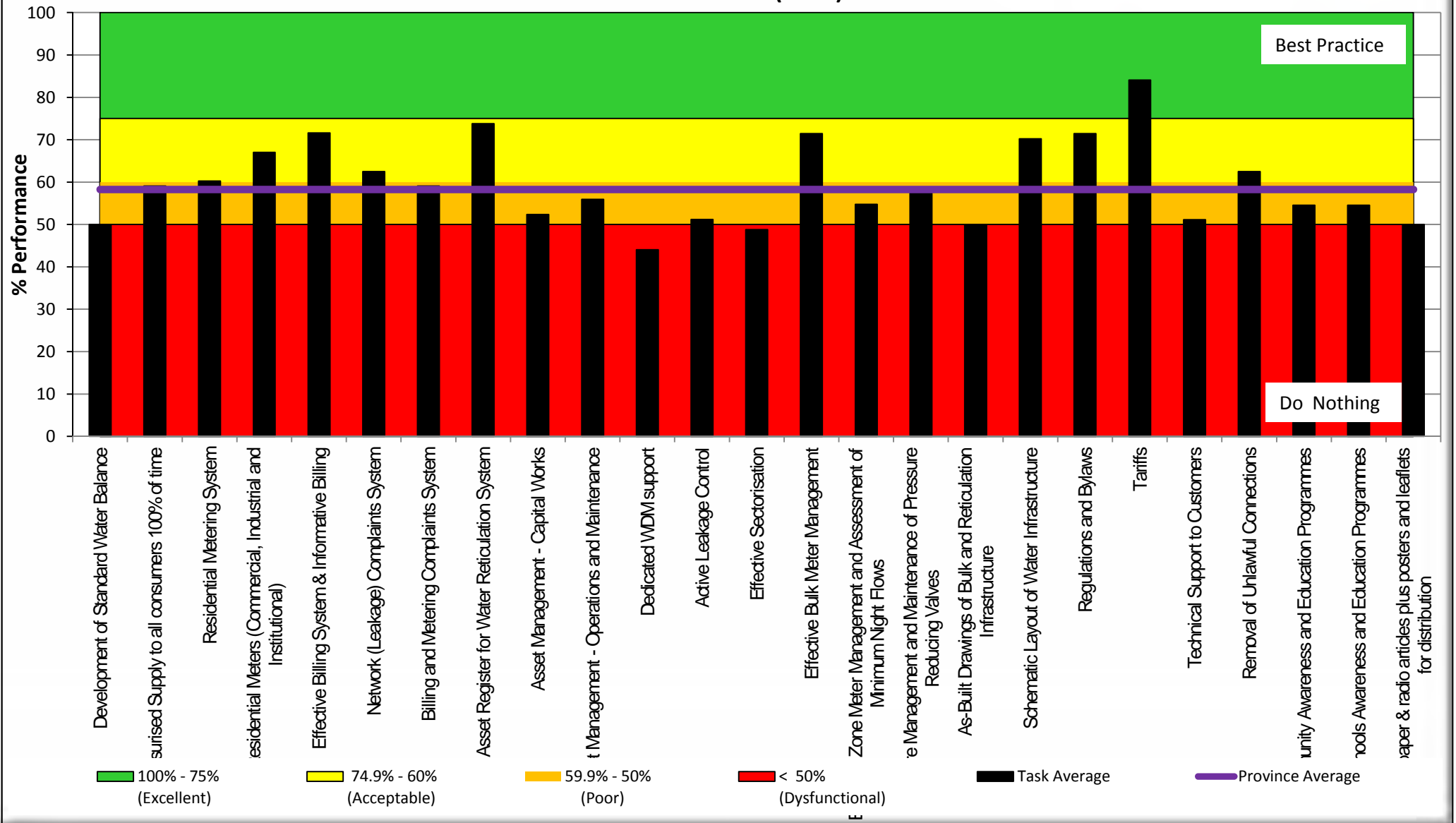


No	Municipal Code	District Municipality	Municipality	Category	WSA
46	KZN282	Uthungulu	uMhlatuze	B1	Yes
47	KZN283	Uthungulu	Ntambanana	B4	No
48	KZN284	Uthungulu	Umlalazi	B4	No
49	KZN285	Uthungulu	Mthonjaneni	B3	No
50	KZN286	Uthungulu	Nkandla	B4	No
51	DC29	Ilembe	Ilembe DM	C2	Yes
52	KZN291	Ilembe	Mandeni	B4	No
53	KZN292	Ilembe	The KwaDukuza	B2	No
54	KZN293	Ilembe	Ndwedwe	B4	No
55	KZN294	Ilembe	Maphumulo	B4	No
56	DC43	Sisonke	Sisonke DM	C2	Yes
57	KZN431	Sisonke	Ingwe	B4	No
58	KZN432	Sisonke	Kwa Sani	B3	No
59	KZN433	Sisonke	Greater Kokstad	B2	No
60	KZN434	Sisonke	Ubuhlebezwe	B4	No
61	KZN435	Sisonke	Umzimkhulu	B4	No

National NRW Assessment

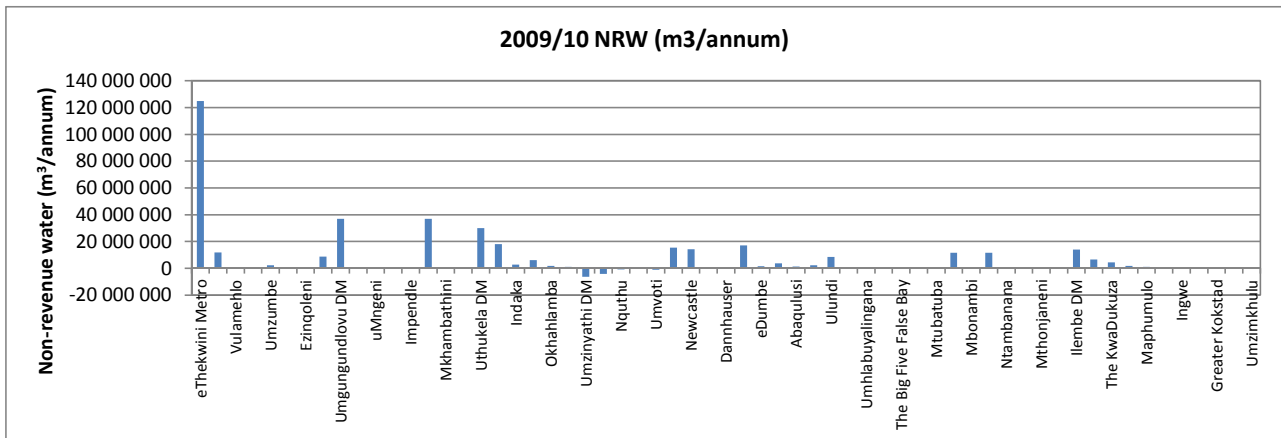
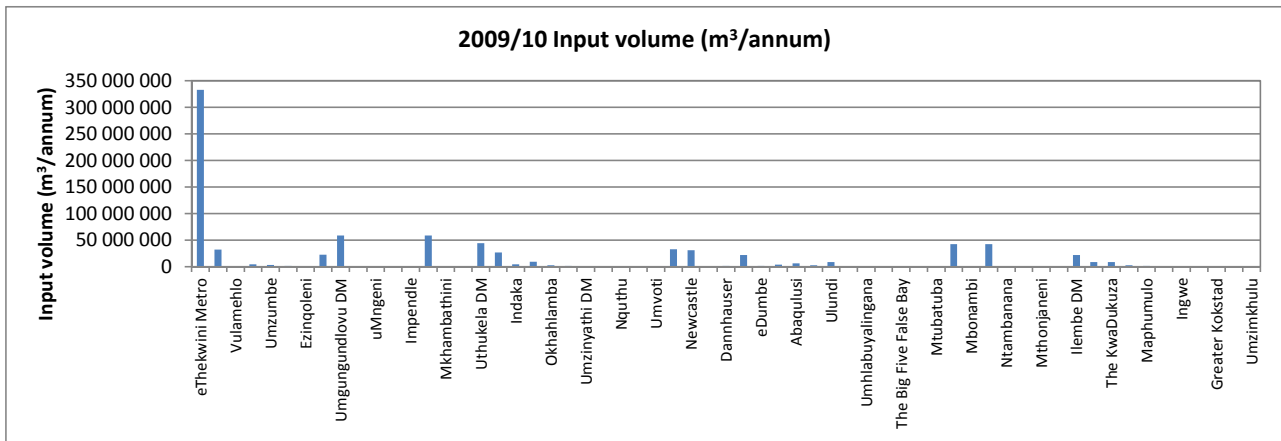
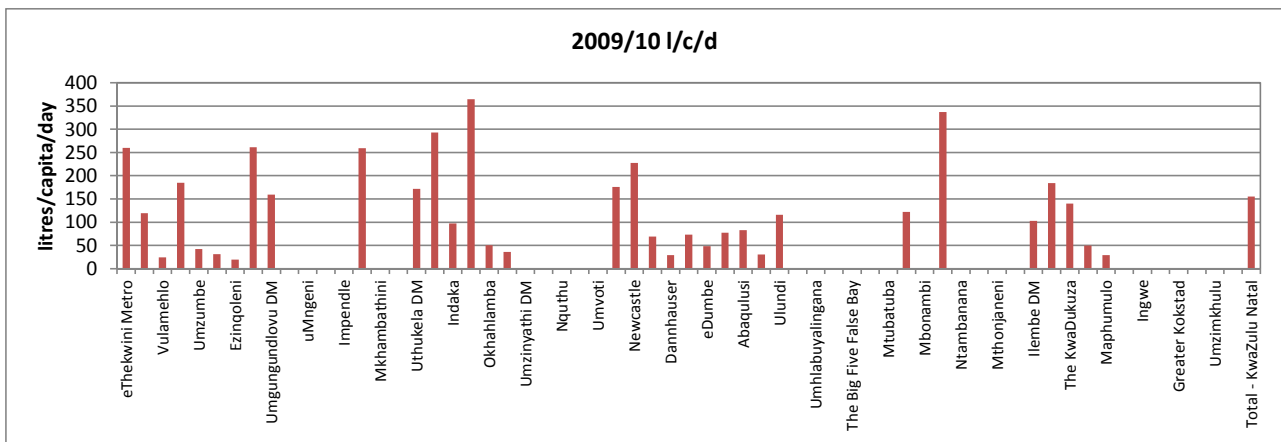
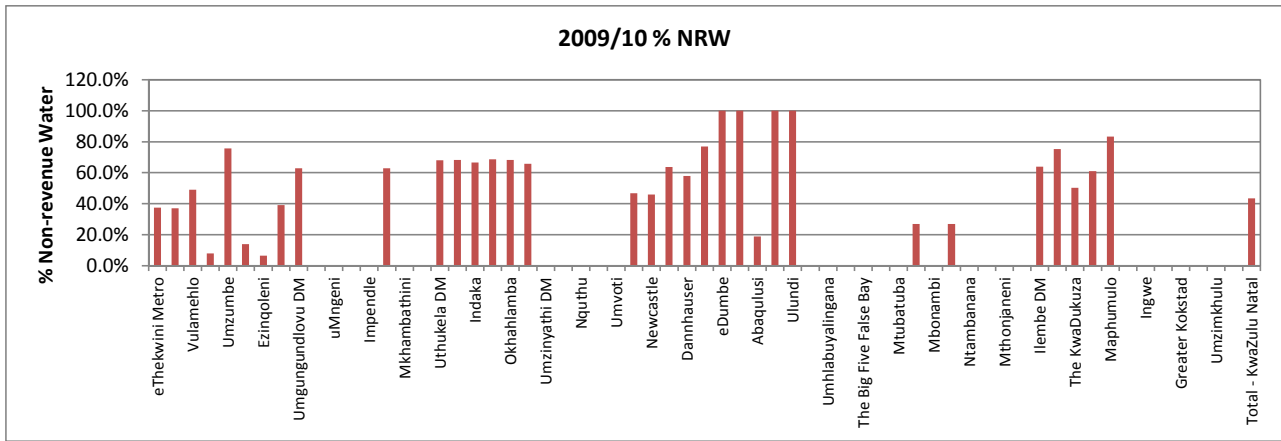


**Municipal Scorecard for Assessing the Potential for WC/WDM in Municipalities
KwaZulu Natal (2010)**

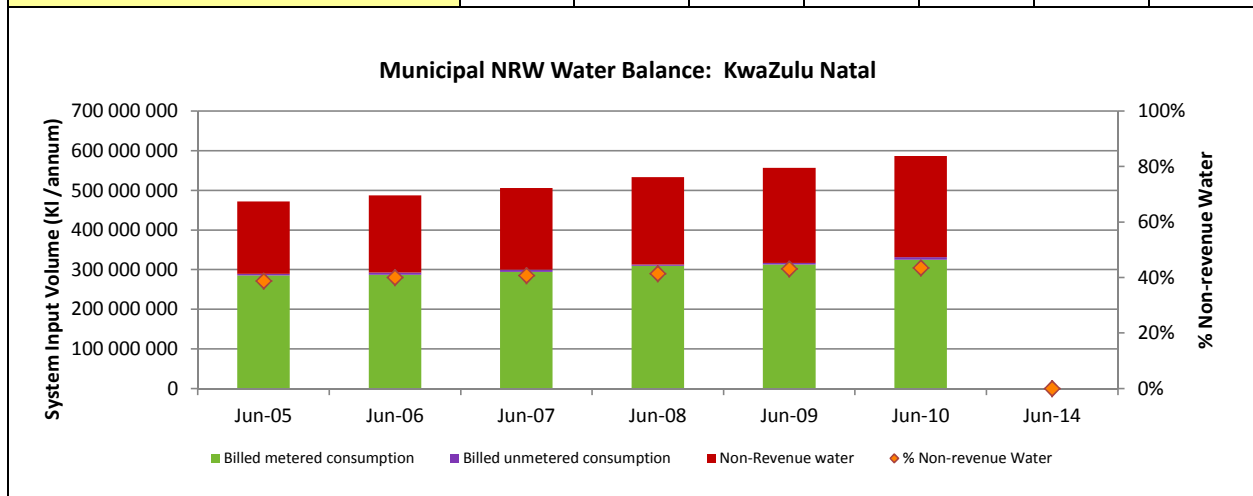


Score	Criteria	# of Records	Comments	Distribution
Record Keeping 61				
1	No records	20	Good records keeping is the first step towards water management and reducing water losses	<ul style="list-style-type: none"> No records Poor records Erratic / worthless records Records with gaps or questions Good records no gaps or questions
2	Poor records	10		
3	Erratic / worthless records	14		
4	Records with gaps or questions	6		
5	Good records no gaps or questions	11		
% NRW 61				
0	No records	28	% Non-revenue water (volume of water for which no income is received). Current estimated national average $\pm 35\%$	<ul style="list-style-type: none"> No records >50% >40% \leq 50% >30% \leq 40% >20% \leq 30% \leq 20%
1	>50%	21		
2	>40% \leq 50%	3		
3	>30% \leq 40%	3		
4	>20% \leq 30%	2		
5	\leq 20%	4		
litres / capita / day 61				
0	No records	27	Average litres / capita / day based on system input volume. Expected average around 200l/c/d.	<ul style="list-style-type: none"> No records >400 >300 and \leq 400 >200 and \leq 300 >100 and \leq 200 \leq 100
1	>400	0		
2	>300 and \leq 400	2		
3	>200 and \leq 300	5		
4	>100 and \leq 200	10		
5	\leq 100	17		
NRW Activity 61				
1	No activity	0	Based on local knowledge, scorecard, available records.	<ul style="list-style-type: none"> No activity Very limited activity Some activity, part of O&M Small scale active programme Large scale active programme
2	Very limited activity	37		
3	Some activity, part of O&M	23		
4	Small scale active programme	0		
5	Large scale active programme	1		
Potential NRW Impact 61				
1	\leq 50 000	7	Potential impact of intervention based on population. High population = high consumption = higher potential saving.	<ul style="list-style-type: none"> \leq 50 000 >50 000 \leq 100 000 >100 000 \leq 200 000 >200 000 \leq 500 000 >500 000
2	>50 000 \leq 100 000	14		
3	>100 000 \leq 200 000	21		
4	>200 000 \leq 500 000	9		
5	>500 000	10		

Key Performance Indicators



Province		KwaZulu-Natal						WSA	
Municipal Code									
District Municipality								Category	
Municipality									
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	10 344 437	10 430 535	10 492 407	10 570 443	10 638 023	10 366 994	0	
	Households	2 399 021	2 418 899	2 432 515	2 449 051	2 457 377	2 385 106	0	
	Connections - metered	736 711	762 619	779 680	793 083	850 265	878 841	0	
	Connections - Unmetered	270 839	272 647	273 559	275 333	283 663	265 250	0	
	Length of mains (km)	24 538	24 849	25 056	25 872	25 596	28 356	0	
	System input volume	kl/annum	471 969 280	487 313 292	505 773 071	533 418 641	556 514 458	586 579 818	0
	Billed metered consumption	kl/annum	285 250 285	286 680 490	294 418 650	309 500 135	312 491 154	325 168 823	0
	Billed unmetered consumption	kl/annum	4 026 563	5 900 668	5 228 756	3 384 461	4 051 128	6 527 330	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	289 276 849	292 581 158	299 647 406	312 884 596	316 542 282	331 696 153	0
	Non-Revenue water	kl/annum	182 692 431	194 732 134	206 125 665	220 534 045	239 972 176	254 883 665	0
	Water Losses	kl/annum	182 692 431	194 732 134	206 125 665	220 534 045	239 972 176	254 883 665	0
	% Non-revenue water		38.7%	40.0%	40.8%	41.3%	43.1%	43.5%	No data
	% Water Losses		38.7%	40.0%	40.8%	41.3%	43.1%	43.5%	No data
Key performance indicators	Input : Litres / capita / day		125	128	132	138	143	155	No data
	Input: m ³ / household / month		16	17	17	18	19	20	No data
	Billed : Litres / capita / day		77	77	78	81	82	88	No data
	Billed : m ³ / household / month		10	10	10	11	11	12	No data
	% Population growth			0.83%	0.59%	0.74%	0.64%	-2.55%	
	% Water demand growth			3.25%	3.79%	5.47%	4.33%	5.40%	
Source of information									



Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		ETH						Yes	
District Municipality		eThekweni Municipality Metro						Category	
Municipality		eThekweni Municipality Metro						A	
Settlements		AMANZIMTOTI, DURBAN, INANDA, ISIPINGO, KWA-MASHU						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	3 346 733	3 375 631	3 395 871	3 421 552	3 442 070	3 509 256		
	Households	894 717	902 442	907 845	912 458	912 458	912 458		
	Connections - metered	381 254	398 331	410 455	420 044	431 856	442 721		
	Connections - Unmetered	0	0	0	0	0	0		
	Length of mains (km)	10 572	10 782	10 922	11 659	11 311	11 643		
	System input volume	kl/annum	288 217 464	294 379 376	303 628 029	320 877 966	331 525 801	332 941 393	
	Billed metered consumption	kl/annum	204 369 175	200 685 625	202 045 211	204 220 551	202 431 500	208 119 455	
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	204 369 175	200 685 625	202 045 211	204 220 551	202 431 500	208 119 455	0
	Non-Revenue water	kl/annum	83 848 289	93 693 751	101 582 818	116 657 415	129 094 301	124 821 938	0
	Water Losses	kl/annum	83 848 289	93 693 751	101 582 818	116 657 415	129 094 301	124 821 938	0
	% Non-revenue water		29.1%	31.8%	33.5%	36.4%	38.9%	37.5%	No data
	% Water Losses		29.1%	31.8%	33.5%	36.4%	38.9%	37.5%	No data
Key performance indicators	Input : Litres / capita / day		236	239	245	257	264	260	No data
	Input: m ³ / household / month		27	27	28	29	30	30	No data
	Billed : Litres / capita / day		167	163	163	164	161	162	No data
	Billed : m ³ / household / month		19	19	19	19	18	19	No data
	% Population growth			0.86%	0.60%	0.76%	0.60%	1.95%	
	% Water demand growth			2.14%	3.14%	5.68%	3.32%	0.43%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS Municipality	DWA NIS Municipality	DWA NIS		

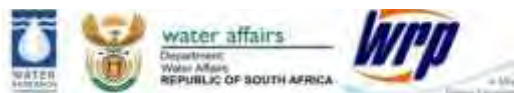
Municipal NRW Water Balance: eThekweni Municipality Metro

The chart displays two data series: System Input Volume (kl/annum) on the left Y-axis and % Non-revenue Water on the right Y-axis. The X-axis shows years from Jun-05 to Jun-10. The System Input Volume is represented by stacked bars where the bottom portion is Billed metered consumption (green) and the top portion is Non-Revenue water (red). The % Non-revenue Water is indicated by orange diamonds on the right Y-axis.

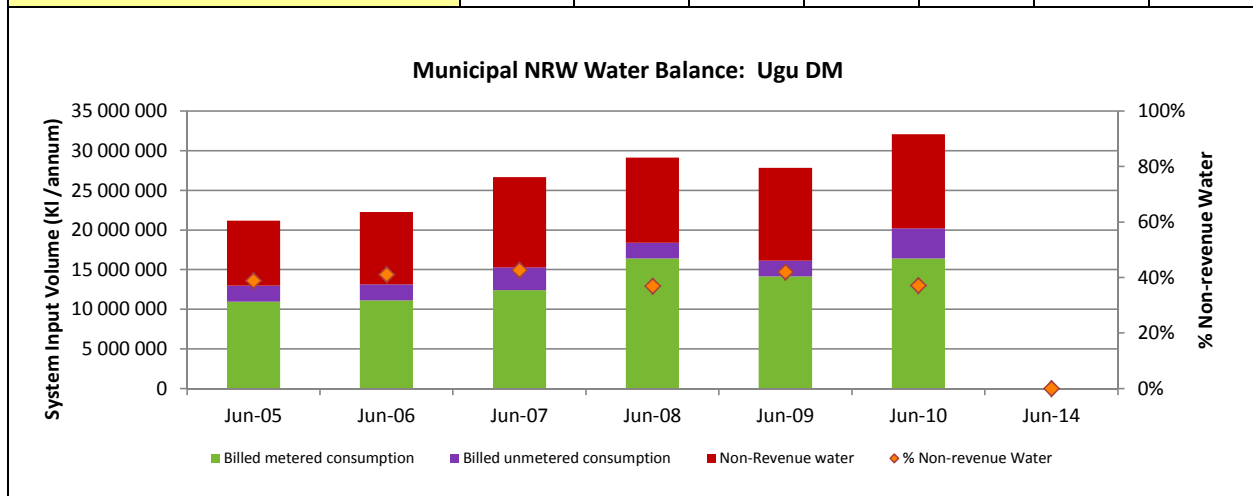
Year	Billed metered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	204 369 175	83 848 289	29.1%
Jun-06	200 685 625	93 693 751	31.8%
Jun-07	202 045 211	101 582 818	33.5%
Jun-08	204 220 551	116 657 415	36.4%
Jun-09	202 431 500	129 094 301	38.9%
Jun-10	208 119 455	124 821 938	37.5%

Comments

National NRW Assessment

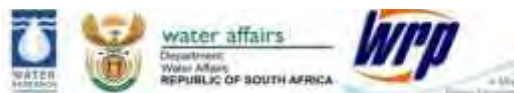


Province		KwaZulu-Natal						WSA	
Municipal Code		DC21						Yes	
District Municipality		Ugu						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	758 597	764 328	768 875	774 625	779 243	735 583	0	
	Households	170 202	171 475	172 454	173 781	174 773	165 319	0	
	Connections - metered	35 939	35 939	35 939	35 939	35 939	35 939	0	
	Connections - Unmetered	3 028	3 028	3 028	3 028	3 028	3 028	0	
	Length of mains (km)	3 883	3 883	3 883	3 883	3 883	3 883	0	
	System input volume	kl/annum	21 184 300	22 266 493	26 667 747	29 117 165	27 822 891	32 092 567	0
	Billed metered consumption	kl/annum	10 947 177	11 111 841	12 414 573	16 408 937	14 165 091	16 399 764	0
	Billed unmetered consumption	kl/annum	2 016 477	2 016 477	2 862 646	1 967 795	1 967 795	3 791 304	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	12 963 654	13 128 318	15 277 219	18 376 732	16 132 886	20 191 068	0
	Non-Revenue water	kl/annum	8 220 646	9 138 175	11 390 528	10 740 433	11 690 005	11 901 499	0
	Water Losses	kl/annum	8 220 646	9 138 175	11 390 528	10 740 433	11 690 005	11 901 499	0
	% Non-revenue water		38.8%	41.0%	42.7%	36.9%	42.0%	37.1%	No data
	% Water Losses		38.8%	41.0%	42.7%	36.9%	42.0%	37.1%	No data
Key performance indicators	Input : Litres / capita / day		77	80	95	103	98	120	No data
	Input: m³ / household / month		10	11	13	14	13	16	No data
	Billed : Litres / capita / day		47	47	54	65	57	75	No data
	Billed : m³ / household / month		6	6	7	9	8	10	No data
	% Population growth			0.76%	0.59%	0.75%	0.60%	-5.60%	
	% Water demand growth			5.11%	19.77%	9.18%	-4.45%	15.35%	
Source of information									

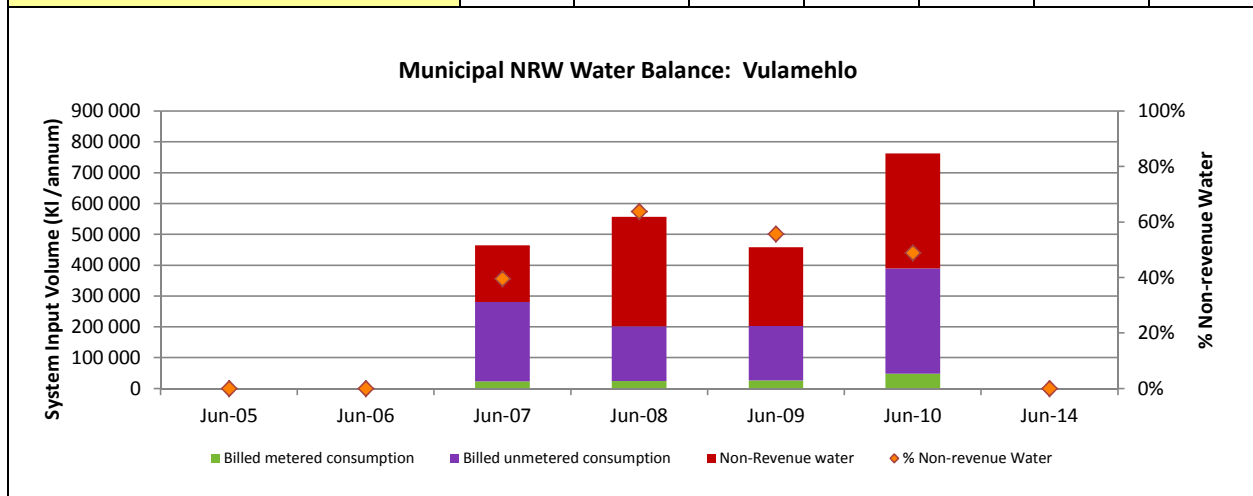


Comments

National NRW Assessment



Province		KwaZulu-Natal						WSA	
Municipal Code		KZN211						No	
District Municipality		Ugu						Category	
Municipality		Vulamehlo						B4	
Settlements		UMZINTO, DUDUDU						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	89 426	90 094	90 621	91 284	91 819	85 121		
	Households	17 802	17 935	18 031	18 169	18 265	16 929		
	Connections - metered	186	186	186	186	186	186		
	Connections - Unmetered	261	261	261	261	261	261		
	Length of mains (km)	104	104	104	104	104	104		
	System input volume	kl/annum	0	0	464 155	556 986	458 499	762 761	
	Billed metered consumption	kl/annum	0	0	22 747	24 540	25 981	47 915	
	Billed unmetered consumption	kl/annum	0	0	257 826	177 231	177 231	341 466	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	0	280 573	201 771	203 212	389 381	0
	Non-Revenue water	kl/annum	0	0	183 582	355 215	255 287	373 380	0
	Water Losses	kl/annum	0	0	183 582	355 215	255 287	373 380	0
	% Non-revenue water		No data	No data	39.6%	63.8%	55.7%	49.0%	No data
	% Water Losses		No data	No data	39.6%	63.8%	55.7%	49.0%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	14	17	14	25	No data
	Input: m³ / household / month		No data	No data	2	3	2	4	No data
	Billed : Litres / capita / day		No data	No data	8	6	6	13	No data
	Billed : m³ / household / month		No data	No data	1	1	1	2	No data
	% Population growth			0.75%	0.58%	0.73%	0.59%	-7.29%	
	% Water demand growth				#DIV/0!	20.00%	-17.68%	66.36%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		

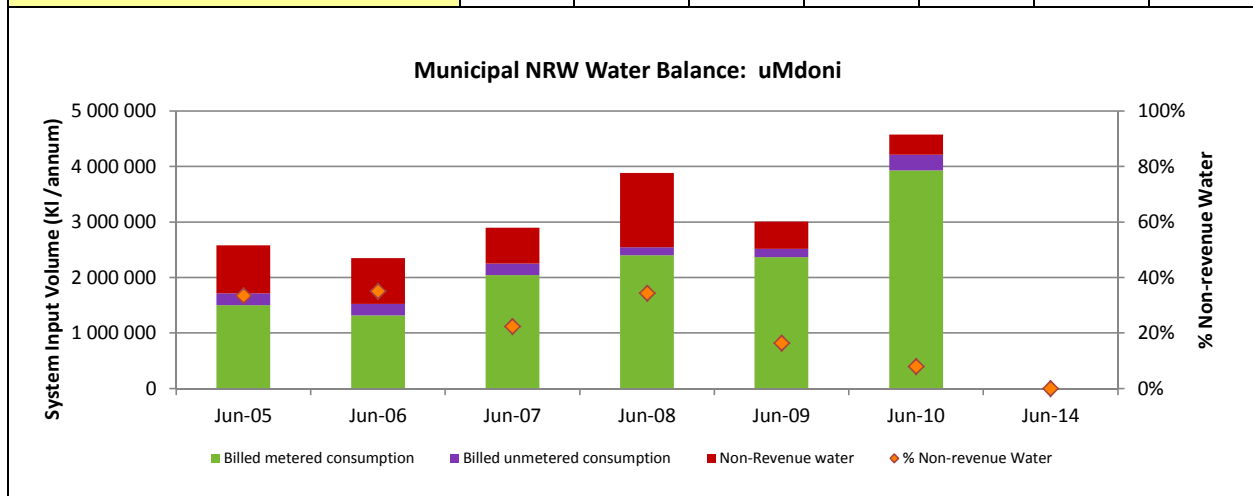


Comments

National NRW Assessment

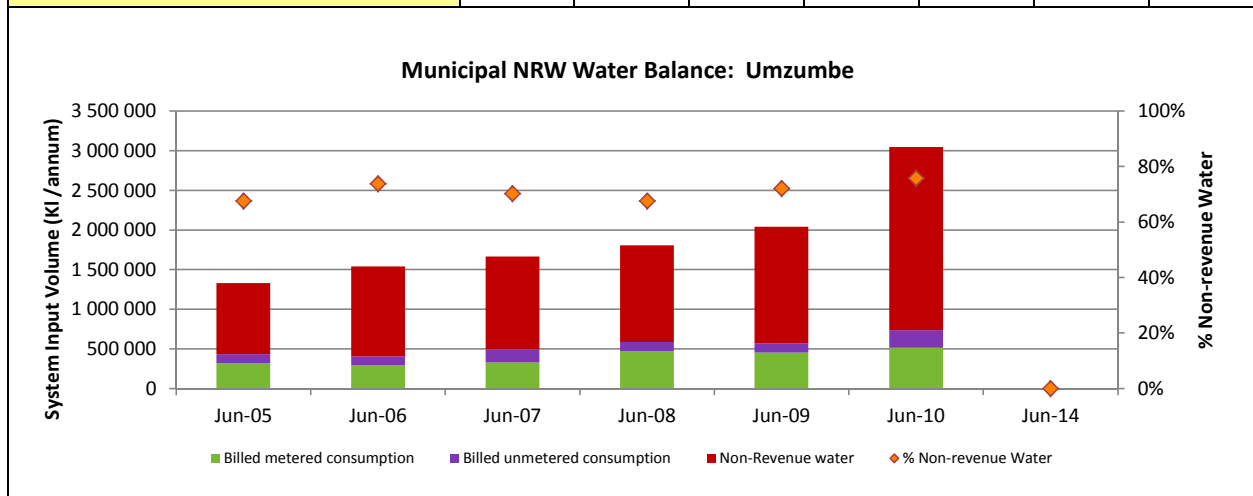


Province		KwaZulu-Natal						WSA	
Municipal Code		KZN212						No	
District Municipality		Ugu						Category	
Municipality		uMdoni						B2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	67 139	67 647	68 055	68 570	68 982	67 779		
	Households	17 294	17 424	17 528	17 660	17 765	17 457		
	Connections - metered	8 013	8 013	8 013	8 013	8 013	8 013		
	Connections - Unmetered	398	398	398	398	398	398		
	Length of mains (km)	600	600	600	600	600	600		
	System input volume	kl/annum	2 578 074	2 347 537	2 899 599	3 881 854	3 005 577	4 577 570	
	Billed metered consumption	kl/annum	1 504 355	1 314 247	2 041 424	2 401 710	2 369 301	3 932 681	
	Billed unmetered consumption	kl/annum	211 113	211 113	211 113	145 120	145 120	279 599	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 715 468	1 525 360	2 252 537	2 546 830	2 514 421	4 212 280	0
	Non-Revenue water	kl/annum	862 606	822 177	647 062	1 335 024	491 156	365 290	0
	Water Losses	kl/annum	862 606	822 177	647 062	1 335 024	491 156	365 290	0
	% Non-revenue water		33.5%	35.0%	22.3%	34.4%	16.3%	8.0%	No data
	% Water Losses		33.5%	35.0%	22.3%	34.4%	16.3%	8.0%	No data
Key performance indicators	Input : Litres / capita / day		105	95	117	155	119	185	No data
	Input: m ³ / household / month		12	11	14	18	14	22	No data
	Billed : Litres / capita / day		70	62	91	102	100	170	No data
	Billed : m ³ / household / month		8	7	11	12	12	20	No data
	% Population growth			0.76%	0.60%	0.76%	0.60%	-1.74%	
	% Water demand growth			-8.94%	23.52%	33.88%	-22.57%	52.30%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



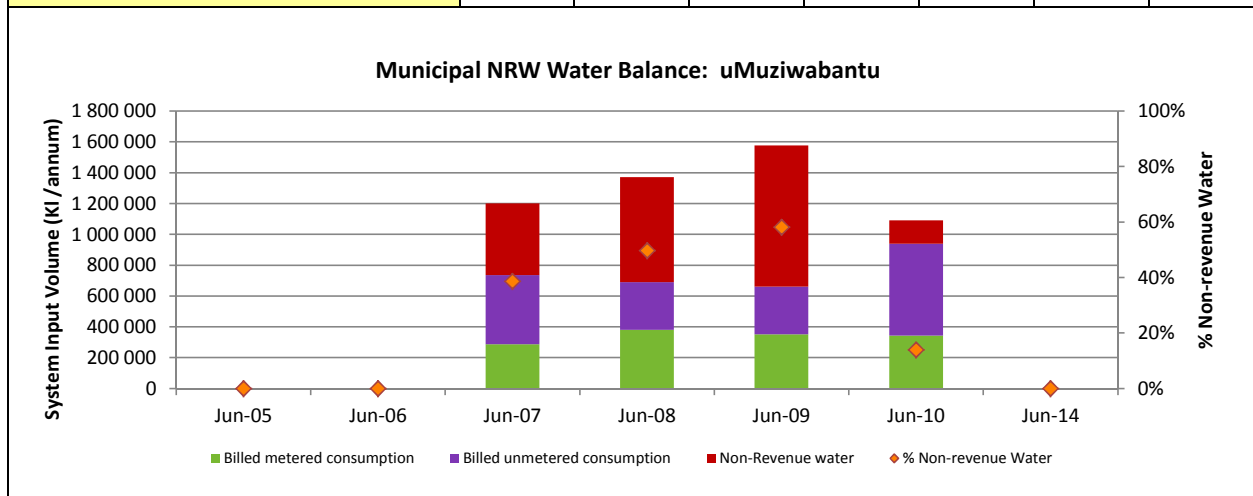
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN213						No	
District Municipality		Ugu						Category	
Municipality		Umzumbe						B4	
Settlements		GUMBINI, INYONYANA, NOMAKHAZANA, UMZUMBE						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	208 871	210 451	211 708	213 302	214 575	198 911		
	Households	43 283	43 609	43 861	44 206	44 461	41 221		
	Connections - metered	1 593	1 593	1 593	1 593	1 593	1 593		
	Connections - Unmetered	550	550	550	550	550	550		
	Length of mains (km)	351	351	351	351	351	351		
	System input volume	kl/annum	1 328 966	1 541 584	1 665 641	1 807 927	2 041 261	3 044 395	
	Billed metered consumption	kl/annum	320 253	292 415	326 606	469 539	453 453	513 629	
	Billed unmetered consumption	kl/annum	111 024	111 024	168 702	115 966	115 966	223 430	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	431 277	403 439	495 308	585 506	569 419	737 059	0
	Non-Revenue water	kl/annum	897 689	1 138 145	1 170 333	1 222 421	1 471 842	2 307 336	0
	Water Losses	kl/annum	897 689	1 138 145	1 170 333	1 222 421	1 471 842	2 307 336	0
	% Non-revenue water		67.5%	73.8%	70.3%	67.6%	72.1%	75.8%	No data
	% Water Losses		67.5%	73.8%	70.3%	67.6%	72.1%	75.8%	No data
Key performance indicators	Input : Litres / capita / day		17	20	22	23	26	42	No data
	Input: m ³ / household / month		3	3	3	3	4	6	No data
	Billed : Litres / capita / day		6	5	6	8	7	10	No data
	Billed : m ³ / household / month		1	1	1	1	1	1	No data
	% Population growth			0.76%	0.60%	0.75%	0.60%	-7.30%	
	% Water demand growth			16.00%	8.05%	8.54%	12.91%	49.14%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN214						No	
District Municipality		Ugu						Category	
Municipality		uMuziwabantu						B3	
Settlements		Harding						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	99 313	100 066	100 655	101 396	102 000	95 043		
	Households	21 498	21 654	21 771	21 938	22 057	20 559		
	Connections - metered	1 205	1 205	1 205	1 205	1 205	1 205		
	Connections - Unmetered	181	181	181	181	181	181		
	Length of mains (km)	535	535	535	535	535	535		
	System input volume	kl/annum	0	0	1 201 310	1 370 471	1 577 329	1 090 646	
	Billed metered consumption	kl/annum	0	0	286 943	380 408	351 035	342 988	
	Billed unmetered consumption	kl/annum	0	0	449 791	309 188	309 188	595 706	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	0	736 734	689 596	660 223	938 694	0
	Non-Revenue water	kl/annum	0	0	464 576	680 875	917 106	151 952	0
	Water Losses	kl/annum	0	0	464 576	680 875	917 106	151 952	0
	% Non-revenue water		No data	No data	38.7%	49.7%	58.1%	13.9%	No data
	% Water Losses		No data	No data	38.7%	49.7%	58.1%	13.9%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	33	37	42	31	No data
	Input: m ³ / household / month		No data	No data	5	5	6	4	No data
	Billed : Litres / capita / day		No data	No data	20	19	18	27	No data
	Billed : m ³ / household / month		No data	No data	3	3	2	4	No data
	% Population growth			0.76%	0.59%	0.74%	0.60%	-6.82%	
	% Water demand growth				#DIV/0!	14.08%	15.09%	-30.85%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		

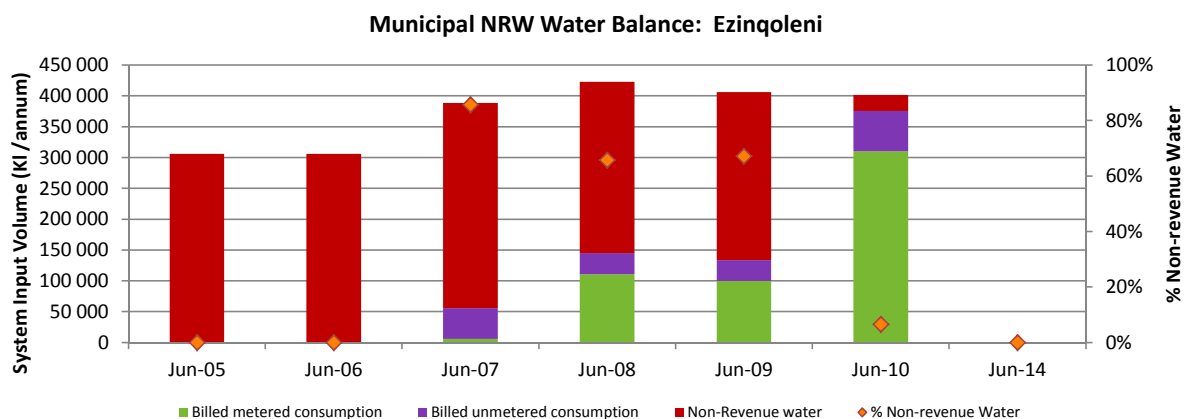


Comments

National NRW Assessment

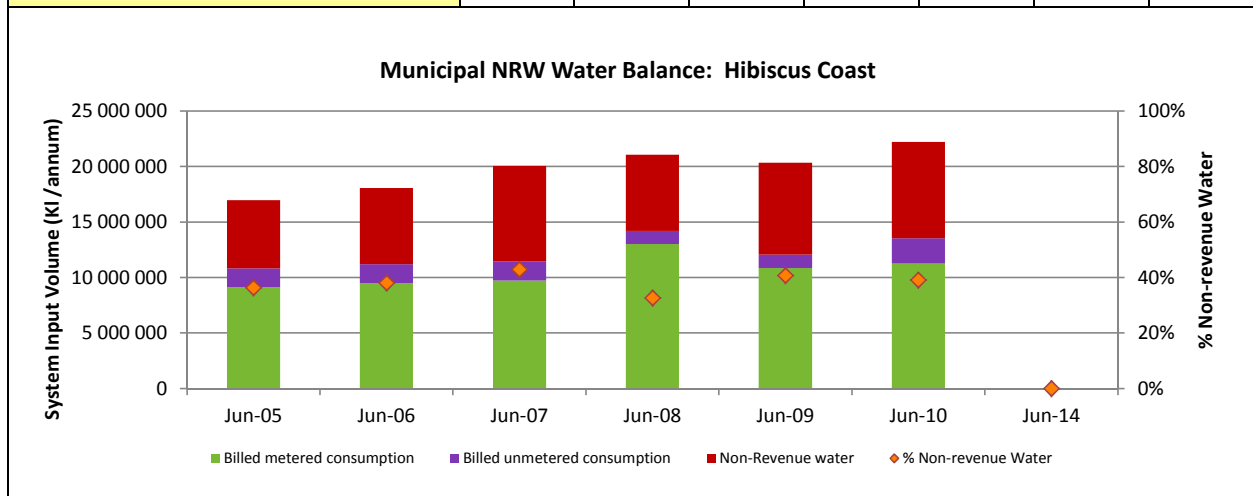


Province		KwaZulu-Natal						WSA	
Municipal Code		KZN215						No	
District Municipality		Ugu						Category	
Municipality		Ezinqoleni						B4	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	58 727	59 166	59 516	59 955	60 311	55 911		
	Households	12 094	12 182	12 247	12 347	12 413	11 506		
	Connections - metered	63	63	63	63	63	63		
	Connections - Unmetered	70	70	70	70	70	70		
	Length of mains (km)	51	51	51	51	51	51		
	System input volume	kl/annum	306 000	306 000	388 334	422 801	406 399	401 749	
	Billed metered consumption	kl/annum	0	0	6 079	110 803	99 648	309 968	
	Billed unmetered consumption	kl/annum	0	0	49 401	33 958	33 958	65 427	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	0	55 480	144 761	133 606	375 395	0
	Non-Revenue water	kl/annum	306 000	306 000	332 854	278 040	272 793	26 354	0
	Water Losses	kl/annum	306 000	306 000	332 854	278 040	272 793	26 354	0
	% Non-revenue water		No data	No data	85.7%	65.8%	67.1%	6.6%	No data
	% Water Losses		100.0%	100.0%	85.7%	65.8%	67.1%	6.6%	No data
Key performance indicators	Input : Litres / capita / day		14	14	18	19	18	20	No data
	Input: m³ / household / month		2	2	3	3	3	3	No data
	Billed : Litres / capita / day		No data	No data	3	7	6	18	No data
	Billed : m³ / household / month		No data	No data	0	1	1	3	No data
	% Population growth			0.75%	0.59%	0.74%	0.59%	-7.30%	
	% Water demand growth			0.00%	26.91%	8.88%	-3.88%	-1.14%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



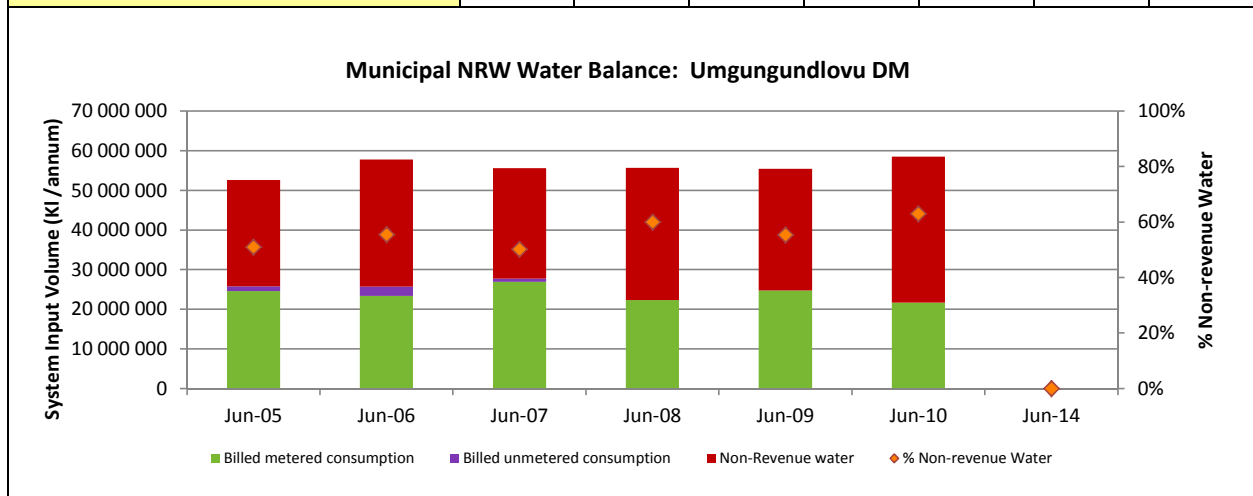
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN216						No	
District Municipality		Ugu						Category	
Municipality		Hibiscus Coast						B2	
Settlements		GAMALAKHE, GCILIMA, PORT SHEPSTONE,						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	235 121	236 904	238 320	240 118	241 556	232 818		
	Households	58 231	58 671	59 016	59 461	59 812	57 647		
	Connections - metered	24 879	24 879	24 879	24 879	24 879	24 879		
	Connections - Unmetered	1 568	1 568	1 568	1 568	1 568	1 568		
	Length of mains (km)	2 242	2 242	2 242	2 242	2 242	2 242		
	System input volume	kl/annum	16 971 260	18 071 372	20 048 708	21 077 127	20 333 826	22 215 446	
	Billed metered consumption	kl/annum	9 122 569	9 505 179	9 730 774	13 021 937	10 865 673	11 252 583	
	Billed unmetered consumption	kl/annum	1 694 340	1 694 340	1 725 813	1 186 331	1 186 331	2 285 676	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	10 816 909	11 199 519	11 456 587	14 208 268	12 052 004	13 538 259	0
	Non-Revenue water	kl/annum	6 154 351	6 871 853	8 592 121	6 868 858	8 281 822	8 677 187	0
	Water Losses	kl/annum	6 154 351	6 871 853	8 592 121	6 868 858	8 281 822	8 677 187	0
	% Non-revenue water		36.3%	38.0%	42.9%	32.6%	40.7%	39.1%	No data
	% Water Losses		36.3%	38.0%	42.9%	32.6%	40.7%	39.1%	No data
Key performance indicators	Input : Litres / capita / day		198	209	230	240	231	261	No data
	Input: m ³ / household / month		24	26	28	30	28	32	No data
	Billed : Litres / capita / day		126	130	132	162	137	159	No data
	Billed : m ³ / household / month		15	16	16	20	17	20	No data
	% Population growth			0.76%	0.60%	0.75%	0.60%	-3.62%	
	% Water demand growth			6.48%	10.94%	5.13%	-3.53%	9.25%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



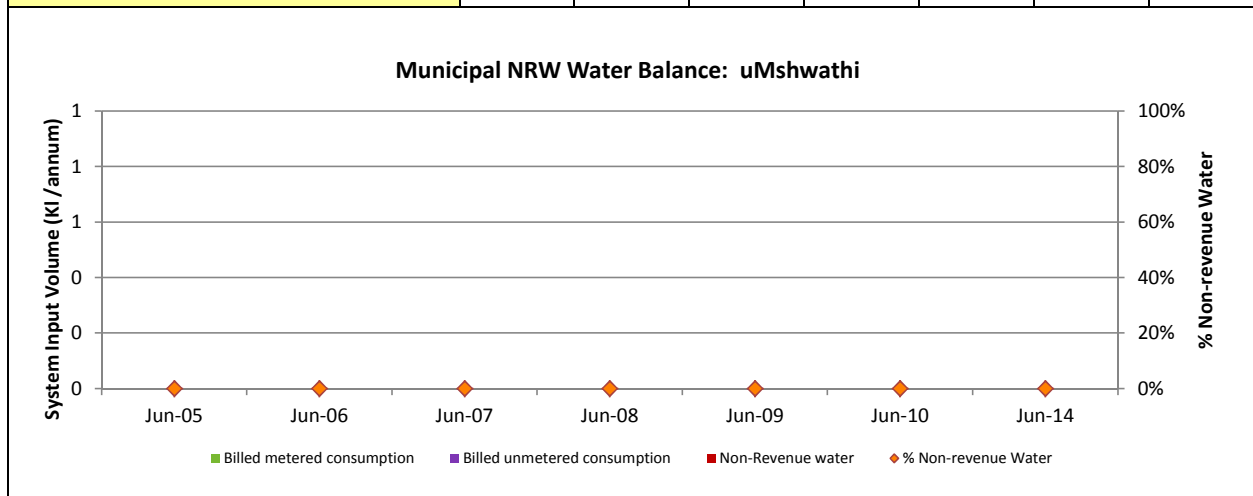
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		DC22						Yes	
District Municipality		Umgungundlovu						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	990 836	997 429	1 003 168	1 010 279	1 016 114	1 003 785	0	
	Households	242 834	244 449	245 787	247 608	248 962	246 429	0	
	Connections - metered	134 662	138 146	140 677	141 404	145 786	142 730	0	
	Connections - Unmetered	20 510	20 642	20 739	20 892	20 990	19 716	0	
	Length of mains (km)	1 707	1 717	1 726	1 738	1 747	1 655	0	
	System input volume	kl/annum	52 643 408	57 738 151	55 570 588	55 690 118	55 426 244	58 492 009	0
	Billed metered consumption	kl/annum	24 595 102	23 377 544	26 940 695	22 302 063	24 734 255	21 653 346	0
	Billed unmetered consumption	kl/annum	1 206 352	2 310 607	755 981	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	25 801 454	25 688 151	27 696 676	22 302 063	24 734 255	21 653 346	0
	Non-Revenue water	kl/annum	26 841 954	32 050 000	27 873 912	33 388 055	30 691 989	36 838 663	0
	Water Losses	kl/annum	26 841 954	32 050 000	27 873 912	33 388 055	30 691 989	36 838 663	0
	% Non-revenue water		51.0%	55.5%	50.2%	60.0%	55.4%	63.0%	No data
	% Water Losses		51.0%	55.5%	50.2%	60.0%	55.4%	63.0%	No data
Key performance indicators	Input : Litres / capita / day		146	159	152	151	149	160	No data
	Input: m ³ / household / month		18	20	19	19	19	20	No data
	Billed : Litres / capita / day		71	71	76	60	67	59	No data
	Billed : m ³ / household / month		9	9	9	8	8	7	No data
	% Population growth			0.67%	0.58%	0.71%	0.58%	-1.21%	
	% Water demand growth			9.68%	-3.75%	0.22%	-0.47%	5.53%	
Source of information									



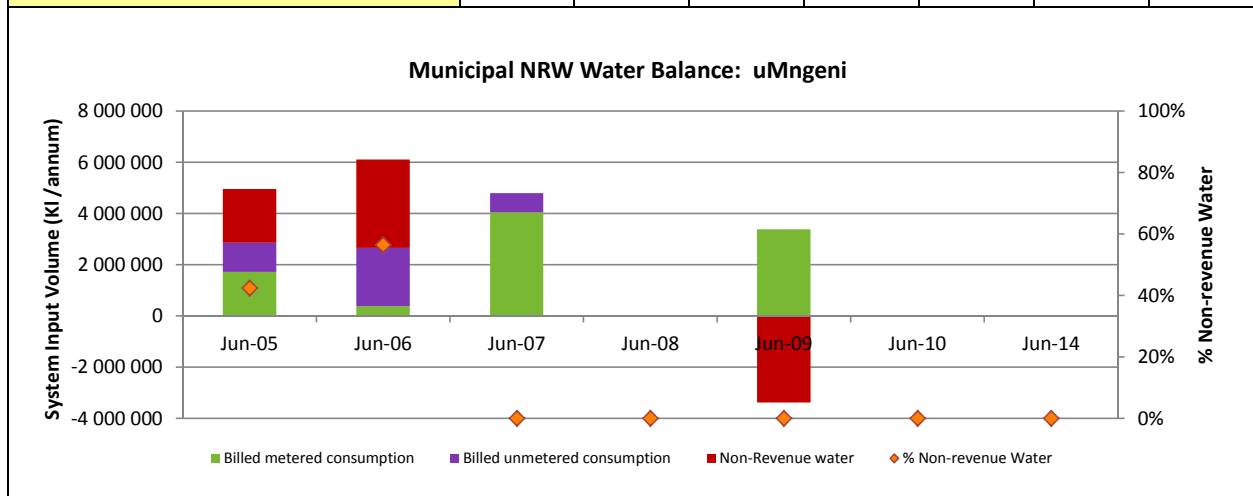
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN221						No
District Municipality		Umgungundlovu						Category
Municipality		uMshwathi						B4
Settlements		Wartburg						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	115 588	116 334	116 971	117 739	118 400	110 152	
	Households	26 686	26 852	26 976	27 183	27 307	25 457	
	Connections - metered	15 073	15 174	15 254	15 354	15 440	14 365	
	Connections - Unmetered	5 824	5 857	5 884	5 929	5 956	5 553	
	Length of mains (km)	448	424	423	426	428	398	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.65%	0.55%	0.66%	0.56%	-6.97%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



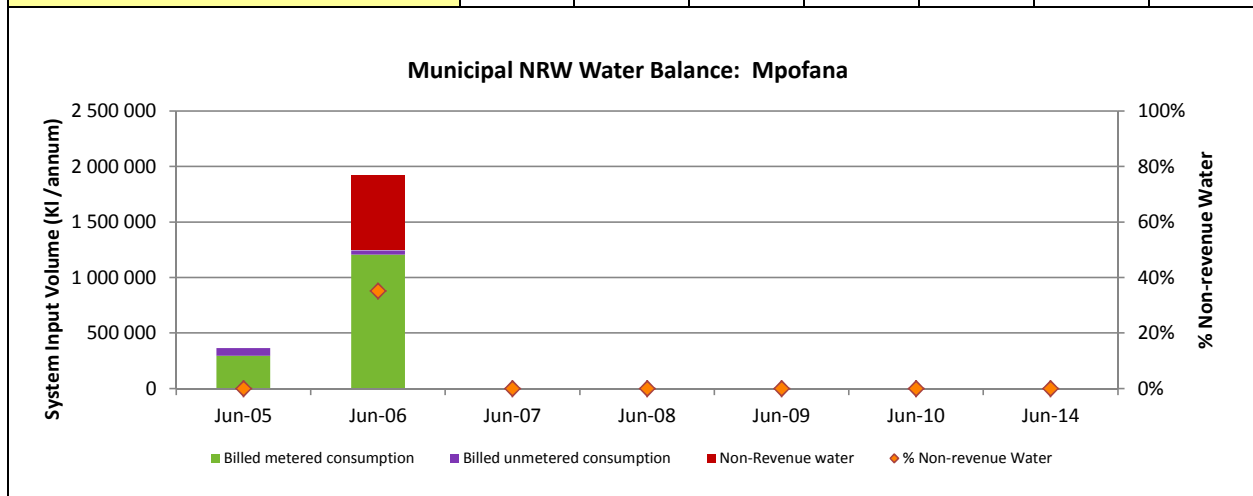
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN222						No
District Municipality		Umgungundlovu						Category
Municipality		uMngeni						B2
Settlements		HOWICK, LIONS RIVER, MPOPHOMENI						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	78 321	78 791	79 192	79 641	80 048	78 528	
	Households	22 774	22 913	23 019	23 167	23 275	22 891	
	Connections - metered	20 689	20 813	20 919	21 038	21 146	20 744	
	Connections - Unmetered	2 210	2 223	2 234	2 248	2 258	2 221	
	Length of mains (km)	458	461	463	466	468	459	
	System input volume	kl/annum	4 957 414	6 103 084	4 798 316			
	Billed metered consumption	kl/annum	1 721 380	383 147	4 042 335		3 380 749	
	Billed unmetered consumption	kl/annum	1 136 800	2 271 607	755 981			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	2 858 180	2 654 754	4 798 316	0	3 380 749	0
	Non-Revenue water	kl/annum	2 099 234	3 448 330	0	0	-3 380 749	0
	Water Losses	kl/annum	2 099 234	3 448 330	0	0	-3 380 749	0
	% Non-revenue water		42.3%	56.5%	Check data	No data	No data	No data
	% Water Losses		42.3%	56.5%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		173	212	166	No data	No data	No data
	Input: m³ / household / month		18	22	17	No data	No data	No data
	Billed : Litres / capita / day		100	92	166	No data	116	No data
	Billed : m³ / household / month		10	10	17	No data	12	No data
	% Population growth			0.60%	0.51%	0.57%	0.51%	-1.90%
	% Water demand growth			23.11%	-21.38%			
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



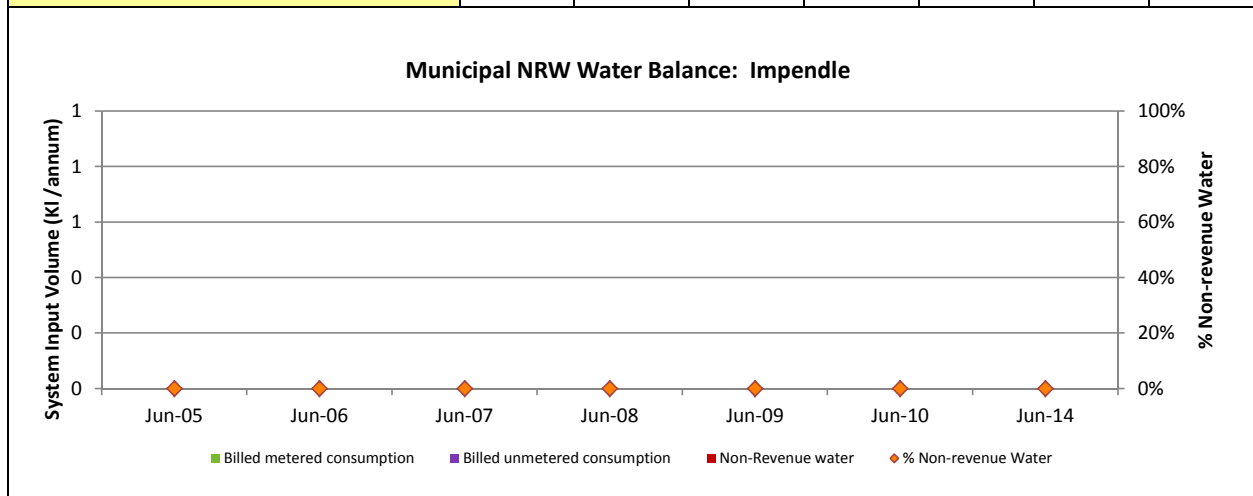
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN223						No	
District Municipality		Umgungundlovu						Category	
Municipality		Mpofana						B3	
Settlements		MOOI RIVER						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	39 223	39 473	39 678	39 918	40 129	38 300		
	Households	10 721	10 790	10 841	10 914	10 965	10 487		
	Connections - metered	9 220	9 278	9 327	9 383	9 433	9 003		
	Connections - Unmetered	1 560	1 570	1 577	1 588	1 595	1 526		
	Length of mains (km)	216	217	218	219	221	211		
	System input volume	kl/annum	365 232	1 921 920					
	Billed metered consumption	kl/annum	295 680	1 206 420					
	Billed unmetered consumption	kl/annum	69 552	39 000					
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	365 232	1 245 420	0	0	0	0	
	Non-Revenue water	kl/annum	0	676 500	0	0	0	0	
	Water Losses	kl/annum	0	676 500	0	0	0	0	
	% Non-revenue water		Check data	35.2%	No data	No data	No data	No data	
	% Water Losses		No data	35.2%	No data	No data	No data	No data	
Key performance indicators	Input : Litres / capita / day		26	133	No data	No data	No data	No data	
	Input: m ³ / household / month		3	15	No data	No data	No data	No data	
	Billed : Litres / capita / day		26	86	No data	No data	No data	No data	
	Billed : m ³ / household / month		3	10	No data	No data	No data	No data	
	% Population growth			0.64%	0.52%	0.60%	0.53%	-4.56%	
	% Water demand growth			426.22%					
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



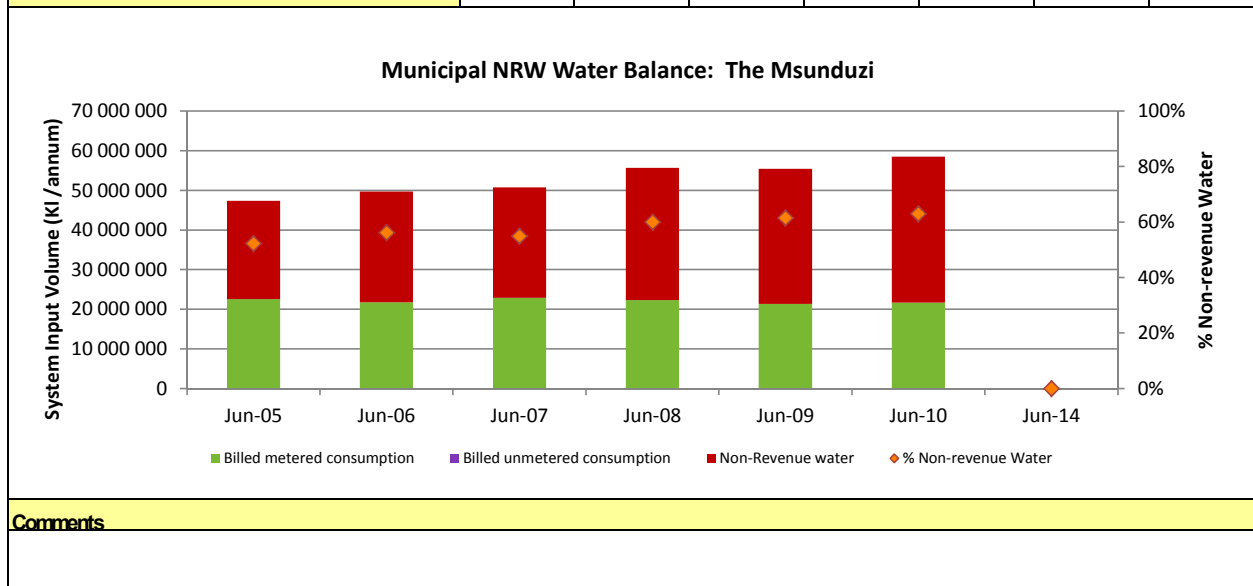
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN224						No
District Municipality		Umgungundlovu						Category
Municipality		Impendle						B4
Settlements								Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	36 039	36 272	36 479	36 732	36 939	34 241	
	Households	8 286	8 341	8 383	8 448	8 490	7 876	
	Connections - metered	6 367	6 408	6 444	6 489	6 526	6 049	
	Connections - Unmetered	1 414	1 424	1 431	1 442	1 449	1 344	
	Length of mains (km)	156	157	158	159	159	148	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.65%	0.57%	0.69%	0.56%	-7.30%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



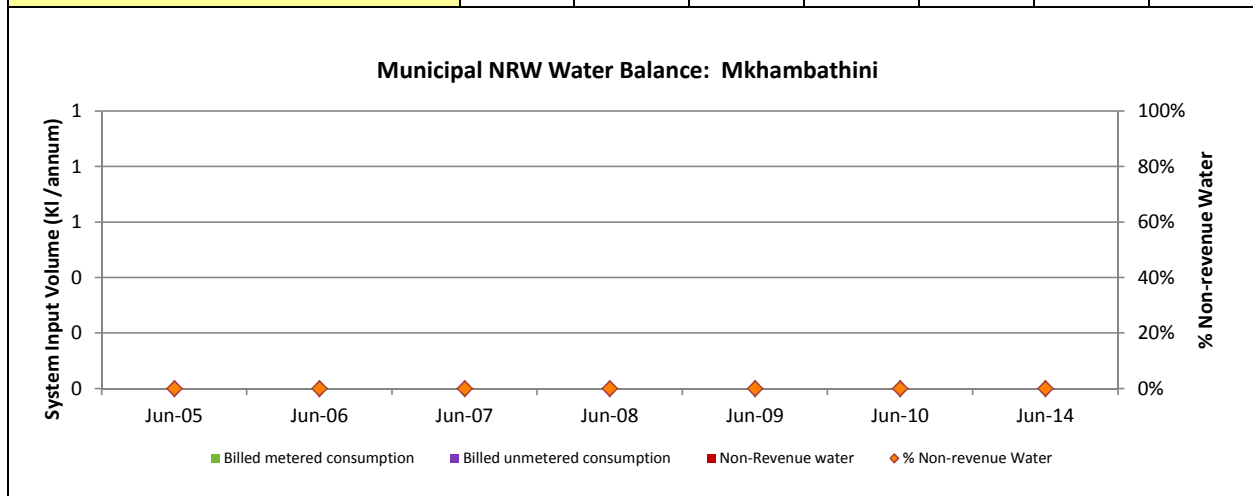
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN225						Yes	
District Municipality		Umgungundlovu						Category	
Municipality		The Msunduzi						B1	
Settlements		EDENDALE, PIETERMARITZBURG, NEW HANOVER, IMBALI						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	591 174	595 214	598 773	603 278	606 888	618 027		
	Households	146 285	147 284	148 163	149 280	150 171	152 920		
	Connections - metered	69 845	72 919	75 101	75 414	79 439	79 719		
	Connections - Unmetered								
	Length of mains (km)								
	System input volume	kl/annum	47 320 762	49 713 147	50 772 272	55 690 118	55 426 244	58 492 009	
	Billed metered consumption	kl/annum	22 578 042	21 787 977	22 898 360	22 302 063	21 353 506	21 653 346	
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	22 578 042	21 787 977	22 898 360	22 302 063	21 353 506	21 653 346	0
	Non-Revenue water	kl/annum	24 742 720	27 925 170	27 873 912	33 388 055	34 072 738	36 838 663	0
	Water Losses	kl/annum	24 742 720	27 925 170	27 873 912	33 388 055	34 072 738	36 838 663	0
	% Non-revenue water		52.3%	56.2%	54.9%	60.0%	61.5%	63.0%	No data
	% Water Losses		52.3%	56.2%	54.9%	60.0%	61.5%	63.0%	No data
Key performance indicators	Input : Litres / capita / day		219	229	232	253	250	259	No data
	Input: m ³ / household / month		27	28	29	31	31	32	No data
	Billed : Litres / capita / day		105	100	105	101	96	96	No data
	Billed : m ³ / household / month		13	12	13	12	12	12	No data
	% Population growth			0.68%	0.60%	0.75%	0.60%	1.84%	
	% Water demand growth			5.06%	2.13%	9.69%	-0.47%	5.53%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		



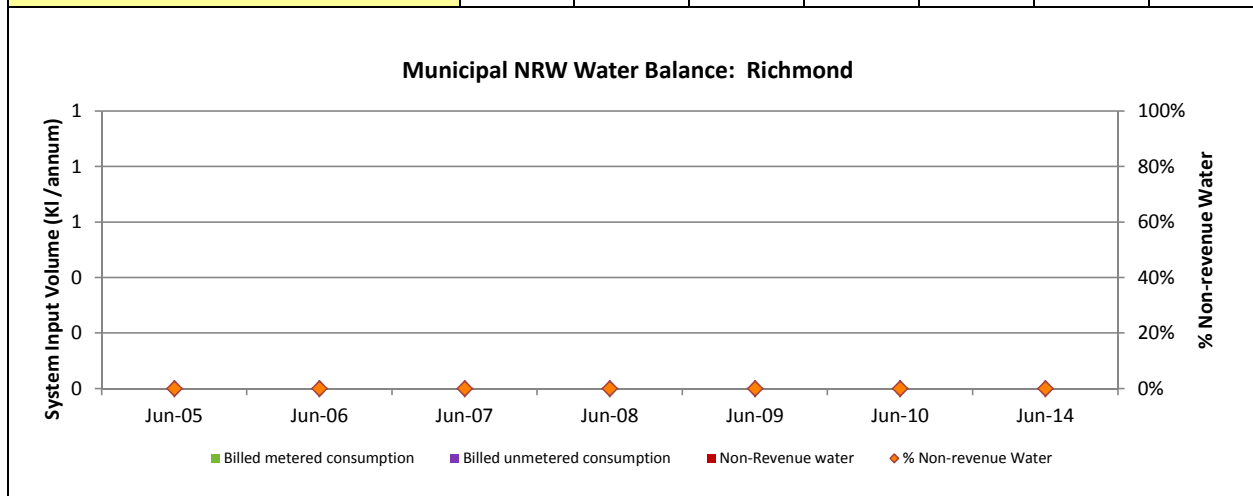
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN226						No
District Municipality		Umgungundlovu						Category
Municipality		Mkhambathini						B3
Settlements		Camperdown						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	63 160	63 584	63 950	64 408	64 780	60 238	
	Households	14 104	14 198	14 269	14 375	14 447	13 454	
	Connections - metered	8 213	8 268	8 315	8 375	8 423	7 833	
	Connections - Unmetered	2 788	2 807	2 821	2 842	2 856	2 660	
	Length of mains (km)	220	221	223	224	226	210	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.67%	0.58%	0.72%	0.58%	-7.01%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



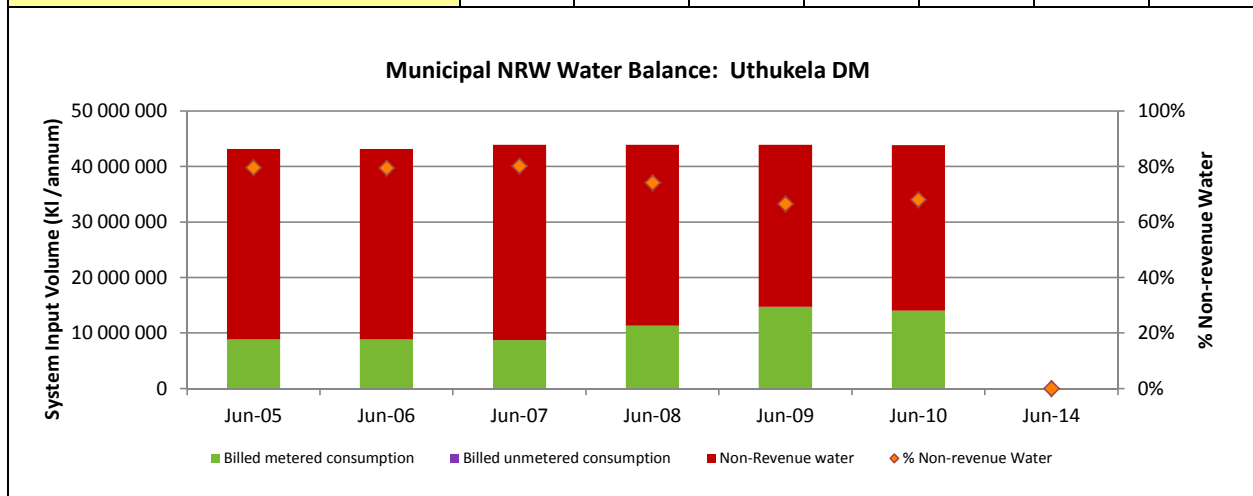
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN227						No
District Municipality		Umgungundlovu						Category
Municipality		Richmond						B4
Settlements		RICHMOND						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	67 331	67 761	68 125	68 563	68 930	64 299	
	Households	13 978	14 071	14 136	14 241	14 307	13 344	
	Connections - metered	5 255	5 288	5 347	5 351	5 390	5 048	
	Connections - Unmetered	6 747	6 764	6 793	6 843	6 875	6 442	
	Length of mains (km)	239	244	242	244	245	229	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.64%	0.54%	0.64%	0.54%	-6.72%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



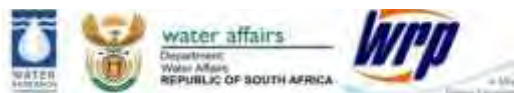
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		DC23						Yes	
District Municipality		Uthukela						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	717 762	722 862	727 150	732 564	736 914	700 721	0	
	Households	154 575	155 653	156 514	157 763	158 633	151 179	0	
	Connections - metered	32 069	32 723	33 391	34 073	34 769	35 479	0	
	Connections - Unmetered	122 506	122 929	123 123	123 690	123 866	115 701	0	
	Length of mains (km)	3 092	3 113	3 130	3 155	3 173	3 024	0	
	System input volume	kl/annum	43 179 500	43 179 500	43 909 500	43 909 500	43 909 500	43 889 500	0
	Billed metered consumption	kl/annum	8 817 460	8 851 653	8 708 286	11 340 014	14 708 111	14 016 127	0
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	8 817 460	8 851 653	8 708 286	11 340 014	14 708 111	14 016 127	0
	Non-Revenue water	kl/annum	34 362 040	34 327 847	35 201 214	32 569 486	29 201 389	29 873 373	0
	Water Losses	kl/annum	34 362 040	34 327 847	35 201 214	32 569 486	29 201 389	29 873 373	0
	% Non-revenue water		79.6%	79.5%	80.2%	74.2%	66.5%	68.1%	No data
	% Water Losses		79.6%	79.5%	80.2%	74.2%	66.5%	68.1%	No data
Key performance indicators	Input : Litres / capita / day		165	164	165	164	163	172	No data
	Input: m³ / household / month		23	23	23	23	23	24	No data
	Billed : Litres / capita / day		34	34	33	42	55	55	No data
	Billed : m³ / household / month		5	5	5	6	8	8	No data
	% Population growth			0.71%	0.59%	0.74%	0.59%	-4.91%	
	% Water demand growth			0.00%	1.69%	0.00%	0.00%	-0.05%	
Source of information									

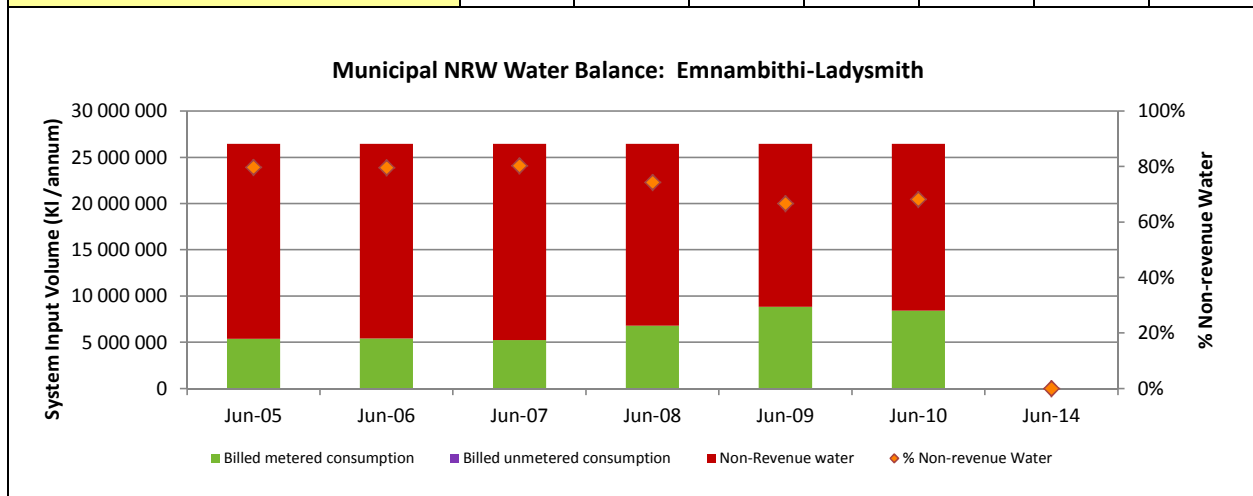


Comments

National NRW Assessment

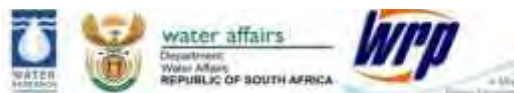


Province		KwaZulu-Natal						WSA	
Municipal Code		KZN232						No	
District Municipality		Uthukela						Category	
Municipality		Emnambithi-Ladysmith						B2	
Settlements		EMAKHEKHENI, EZAKHENI, LADYSMITH						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	246 587	248 339	249 817	251 684	253 182	247 220		
	Households	58 023	58 434	58 774	59 216	59 560	58 168		
	Connections - metered	19 562	19 961	20 035	20 444	20 861	21 287		
	Connections - Unmetered	74 729	74 987	73 874	74 214	74 319	69 421		
	Length of mains (km)	1.886	1.899	1.878	1.893	1.904	1.814		
	System input volume	kl/annum	26 462 500	26 462 500	26 462 500	26 462 500	26 462 500	26 462 500	
	Billed metered consumption	kl/annum	5 378 651	5 399 509	5 224 972	6 804 008	8 824 867	8 409 676	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	5 378 651	5 399 509	5 224 972	6 804 008	8 824 867	8 409 676	0
	Non-Revenue water	kl/annum	21 083 849	21 062 991	21 237 528	19 658 492	17 637 633	18 052 824	0
	Water Losses	kl/annum	21 083 849	21 062 991	21 237 528	19 658 492	17 637 633	18 052 824	0
	% Non-revenue water		79.7%	79.6%	80.3%	74.3%	66.7%	68.2%	No data
	% Water Losses		79.7%	79.6%	80.3%	74.3%	66.7%	68.2%	No data
Key performance indicators	Input : Litres / capita / day		294	292	290	288	286	293	No data
	Input: m³ / household / month		38	38	38	37	37	38	No data
	Billed : Litres / capita / day		60	60	57	74	95	93	No data
	Billed : m³ / household / month		8	8	7	10	12	12	No data
	% Population growth			0.71%	0.60%	0.75%	0.60%	-2.35%	
	% Water demand growth			0.00%	0.00%	0.00%	0.00%	0.00%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		

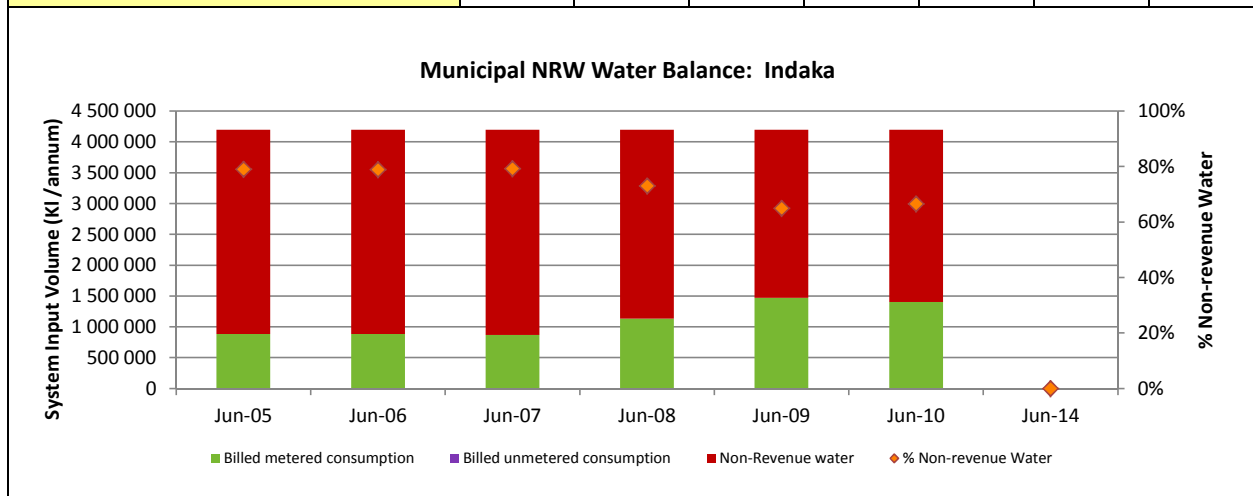


Comments

National NRW Assessment

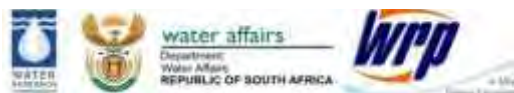


Province		KwaZulu-Natal						WSA	
Municipal Code		KZN233						No	
District Municipality		Uthukela						Category	
Municipality		Indaka						B4	
Settlements		AMAKHASI, WAAIHOEK						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	124 225	125 093	125 837	126 762	127 514	118 206		
	Households	24 516	24 683	24 812	25 016	25 146	23 322		
	Connections - metered	3 207	3 272	3 339	3 407	3 477	3 548		
	Connections - Unmetered	12 251	12 293	12 312	12 369	12 387	11 570		
	Length of mains (km)	309	311	313	316	317	302		
	System input volume	kl/annum	4 197 500	4 197 500	4 197 500	4 197 500	4 197 500	4 197 500	
	Billed metered consumption	kl/annum	881 746	885 165	870 829	1 134 001	1 470 811	1 401 613	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	881 746	885 165	870 829	1 134 001	1 470 811	1 401 613	0
	Non-Revenue water	kl/annum	3 315 754	3 312 335	3 326 671	3 063 499	2 726 689	2 795 887	0
	Water Losses	kl/annum	3 315 754	3 312 335	3 326 671	3 063 499	2 726 689	2 795 887	0
	% Non-revenue water		79.0%	78.9%	79.3%	73.0%	65.0%	66.6%	No data
	% Water Losses		79.0%	78.9%	79.3%	73.0%	65.0%	66.6%	No data
Key performance indicators	Input : Litres / capita / day		93	92	91	91	90	97	No data
	Input: m ³ / household / month		14	14	14	14	14	15	No data
	Billed : Litres / capita / day		19	19	19	25	32	32	No data
	Billed : m ³ / household / month		3	3	3	4	5	5	No data
	% Population growth			0.70%	0.59%	0.74%	0.59%	-7.30%	
	% Water demand growth			0.00%	0.00%	0.00%	0.00%	0.00%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		

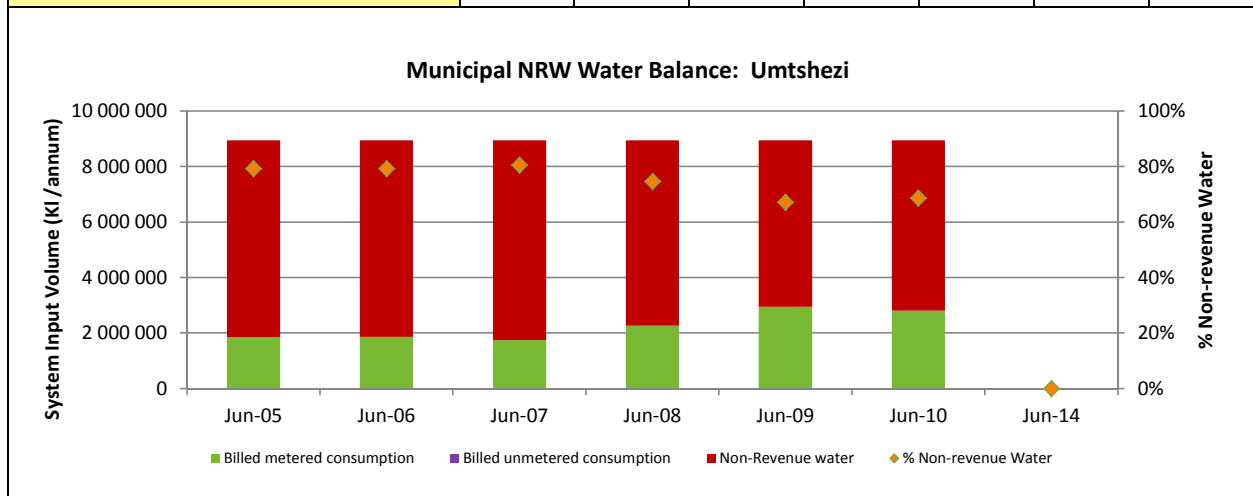


Comments

National NRW Assessment

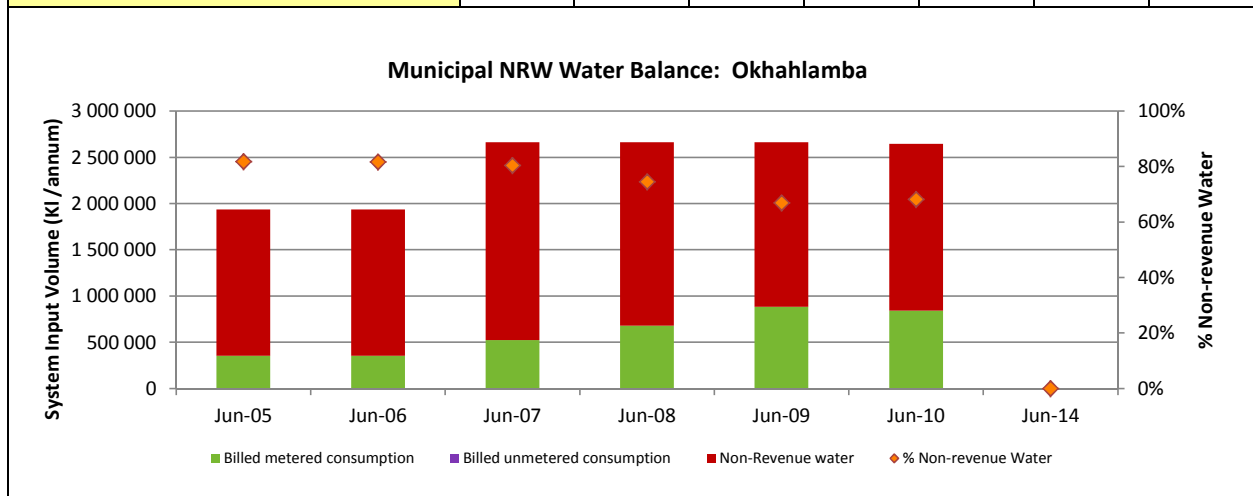


Province		KwaZulu-Natal						WSA	
Municipal Code		KZN						No	
District Municipality		Uthukela						Category	
Municipality		Umtshezi						B3	
Settlements		ESTCOURT, WEMBEZI						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	65 550	66 020	66 412	66 914	67 310	67 183		
	Households	15 062	15 168	15 259	15 371	15 463	15 435		
	Connections - metered	6 734	6 872	6 678	6 815	6 954	7 096		
	Connections - Unmetered	25 726	25 815	24 625	24 738	24 773	23 140		
	Length of mains (km)	649	654	626	634	635	605		
	System input volume	kl/annum	8 942 500	8 942 500	8 942 500	8 942 500	8 942 500	8 942 500	
	Billed metered consumption	kl/annum	1 851 667	1 858 847	1 741 657	2 268 003	2 941 622	2 803 225	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 851 667	1 858 847	1 741 657	2 268 003	2 941 622	2 803 225	0
	Non-Revenue water	kl/annum	7 090 833	7 083 653	7 200 843	6 674 497	6 000 878	6 139 275	0
	Water Losses	kl/annum	7 090 833	7 083 653	7 200 843	6 674 497	6 000 878	6 139 275	0
	% Non-revenue water		79.3%	79.2%	80.5%	74.6%	67.1%	68.7%	No data
	% Water Losses		79.3%	79.2%	80.5%	74.6%	67.1%	68.7%	No data
Key performance indicators	Input : Litres / capita / day		374	371	369	366	364	365	No data
	Input: m ³ / household / month		49	49	49	48	48	48	No data
	Billed : Litres / capita / day		77	77	72	93	120	114	No data
	Billed : m ³ / household / month		10	10	10	12	16	15	No data
	% Population growth			0.72%	0.59%	0.76%	0.59%	-0.19%	
	% Water demand growth			0.00%	0.00%	0.00%	0.00%	0.00%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



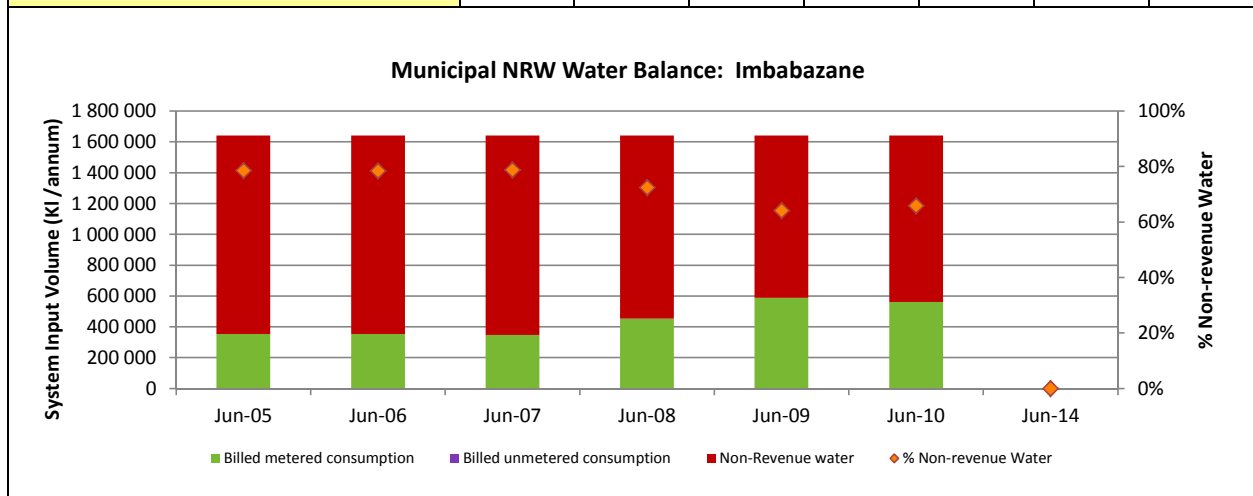
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN235						No	
District Municipality		Uthukela						Category	
Municipality		Okhahlamba						B4	
Settlements		Bergville						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	150 329	151 410	152 296	153 424	154 329	143 359		
	Households	30 531	30 732	30 880	31 180	31 331	29 100		
	Connections - metered	1 283	1 309	2 003	2 044	2 086	2 129		
	Connections - Unmetered	4 900	4 917	7 387	7 421	7 432	6 942		
	Length of mains (km)	124	125	188	189	190	184		
	System input volume	kl/annum	1 934 500	1 934 500	2 664 500	2 664 500	2 664 500	2 644 500	
	Billed metered consumption	kl/annum	352 698	354 066	522 497	680 401	882 487	840 968	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	352 698	354 066	522 497	680 401	882 487	840 968	0
	Non-Revenue water	kl/annum	1 581 802	1 580 434	2 142 003	1 984 099	1 782 013	1 803 532	0
	Water Losses	kl/annum	1 581 802	1 580 434	2 142 003	1 984 099	1 782 013	1 803 532	0
	% Non-revenue water		81.8%	81.7%	80.4%	74.5%	66.9%	68.2%	No data
	% Water Losses		81.8%	81.7%	80.4%	74.5%	66.9%	68.2%	No data
Key performance indicators	Input : Litres / capita / day		35	35	48	48	47	51	No data
	Input: m ³ / household / month		5	5	7	7	7	8	No data
	Billed : Litres / capita / day		6	6	9	12	16	16	No data
	Billed : m ³ / household / month		1	1	1	2	2	2	No data
	% Population growth			0.72%	0.59%	0.74%	0.59%	-7.11%	
	% Water demand growth			0.00%	37.74%	0.00%	0.00%	-0.75%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



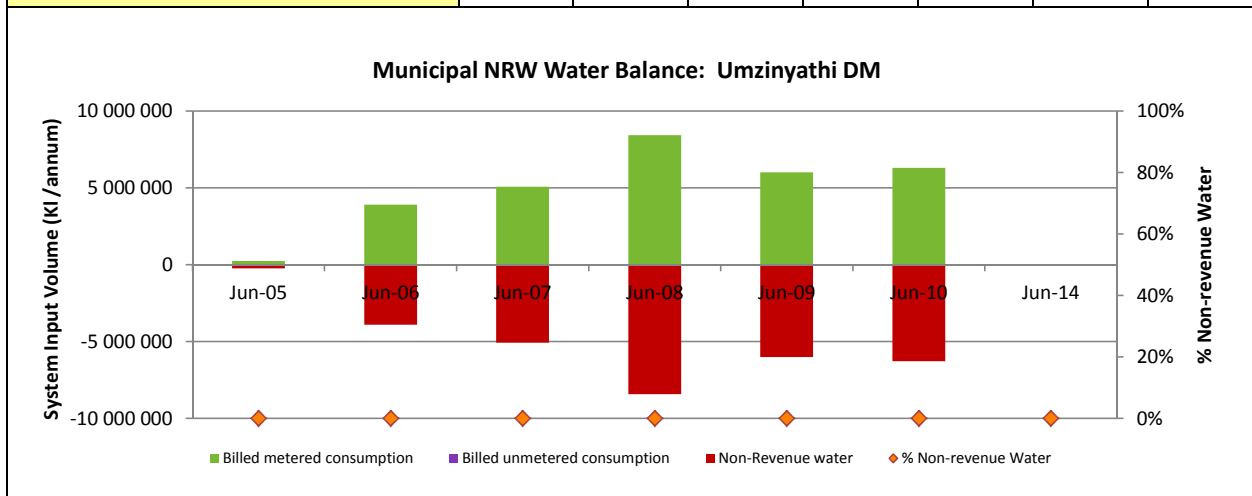
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN236						No	
District Municipality		Uthukela						Category	
Municipality		Imbabazane						B4	
Settlements		Loskop						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	131 071	132 000	132 788	133 780	134 579	124 753		
	Households	26 443	26 636	26 789	26 980	27 133	25 154		
	Connections - metered	1 283	1 309	1 336	1 363	1 391	1 419		
	Connections - Unmetered	4 900	4 917	4 925	4 948	4 955	4 628		
	Length of mains (km)	124	125	125	126	127	124		
	System input volume	kl/annum	1 642 500	1 642 500	1 642 500	1 642 500	1 642 500	1 642 500	
	Billed metered consumption	kl/annum	352 698	354 066	348 331	453 601	588 324	560 645	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	352 698	354 066	348 331	453 601	588 324	560 645	0
	Non-Revenue water	kl/annum	1 289 802	1 288 434	1 294 169	1 188 899	1 054 176	1 081 855	0
	Water Losses	kl/annum	1 289 802	1 288 434	1 294 169	1 188 899	1 054 176	1 081 855	0
	% Non-revenue water		78.5%	78.4%	78.8%	72.4%	64.2%	65.9%	No data
	% Water Losses		78.5%	78.4%	78.8%	72.4%	64.2%	65.9%	No data
Key performance indicators	Input : Litres / capita / day		34	34	34	34	33	36	No data
	Input: m ³ / household / month		5	5	5	5	5	5	No data
	Billed : Litres / capita / day		7	7	7	9	12	12	No data
	Billed : m ³ / household / month		1	1	1	1	2	2	No data
	% Population growth			0.71%	0.60%	0.75%	0.60%	-7.30%	
	% Water demand growth			0.00%	0.00%	0.00%	0.00%	0.00%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



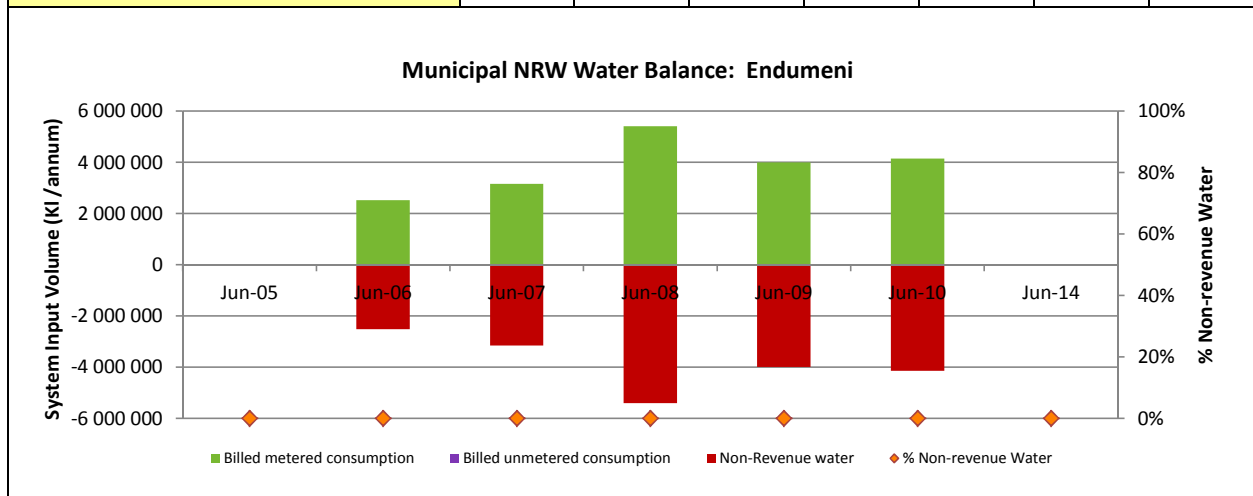
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		DC24						Yes	
District Municipality		Umzinyathi						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	513 416	516 406	519 402	523 164	526 197	494 407	0	
	Households	105 787	106 442	106 953	107 770	108 294	102 040	0	
	Connections - metered	11 365	12 311	13 029	13 209	13 002	13 344	0	
	Connections - Unmetered	0	0	0	0	34	75	0	
	Length of mains (km)	227	246	261	264	261	268	0	
	System input volume	kl/annum	0	0	0	0	0	0	
	Billed metered consumption	kl/annum	245 286	3 905 077	5 081 633	8 430 714	6 004 203	6 295 468	0
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	245 286	3 905 077	5 081 633	8 430 714	6 004 203	6 295 468	0
	Non-Revenue water	kl/annum	-245 286	-3 905 077	-5 081 633	-8 430 714	-6 004 203	-6 295 468	0
	Water Losses	kl/annum	-245 286	-3 905 077	-5 081 633	-8 430 714	-6 004 203	-6 295 468	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		1	21	27	44	31	35	No data
	Billed : m ³ / household / month		0	3	4	7	5	5	No data
	% Population growth			0.58%	0.58%	0.72%	0.58%	-6.04%	
	% Water demand growth								
Source of information									



Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN241						No	
District Municipality		Umzinyathi						Category	
Municipality		Endumeni						B3	
Settlements		DUNDEE, GLENCOE						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	54 900	55 218	55 544	55 967	56 298	57 462		
	Households	13 835	13 915	13 997	14 101	14 184	14 475		
	Connections - metered	7 709	8 464	8 869	8 977	8 806	8 808		
	Connections - Unmetered	0	0	0	0	33	68		
	Length of mains (km)	154	169	177	180	177	178		
	System input volume	kl/annum							
	Billed metered consumption	kl/annum		2 517 388	3 160 653	5 413 145	3 991 102	4 146 053	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	2 517 388	3 160 653	5 413 145	3 991 102	4 146 053	0
	Non-Revenue water	kl/annum	0	-2 517 388	-3 160 653	-5 413 145	-3 991 102	-4 146 053	0
	Water Losses	kl/annum	0	-2 517 388	-3 160 653	-5 413 145	-3 991 102	-4 146 053	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	125	156	265	194	198	No data
	Billed : m ³ / household / month		No data	15	19	32	23	24	No data
	% Population growth			0.58%	0.59%	0.76%	0.59%	2.07%	
	% Water demand growth								
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		

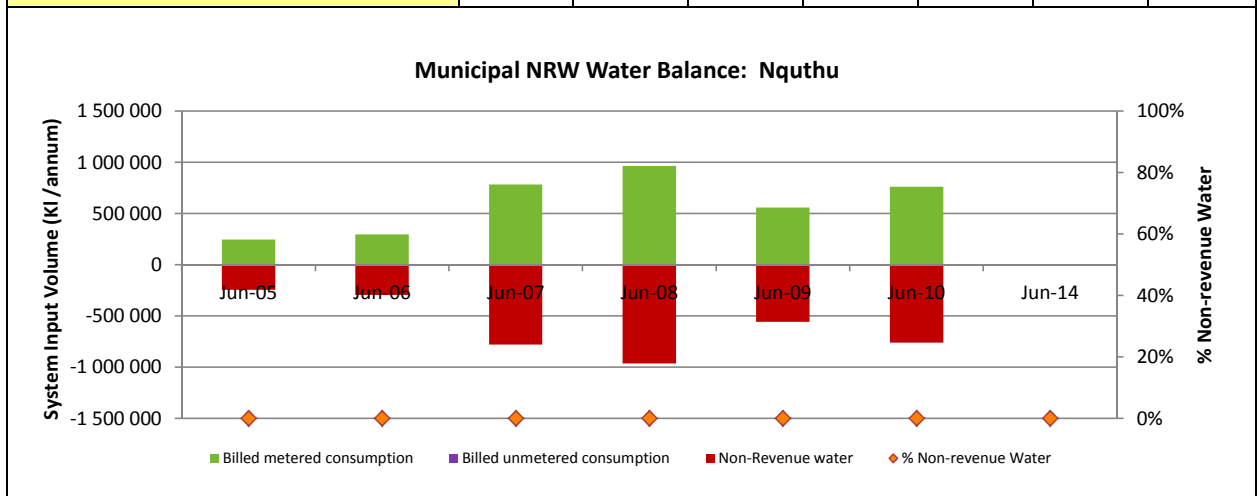


Comments

National NRW Assessment



Province		KwaZulu-Natal						WSA	
Municipal Code		KZN242						No	
District Municipality		Umzinyathi						Category	
Municipality		Nguthu						B4	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	180 914	182 028	183 097	184 440	185 517	171 972		
	Households	33 565	33 774	33 930	34 203	34 363	31 858		
	Connections - metered	788	1 083	1 281	1 326	1 409	1 597		
	Connections - Unmetered	0	0	0	0	1	2		
	Length of mains (km)	46	22	26	27	28	32		
	System input volume	kl/annum							
	Billed metered consumption	kl/annum	245 286	296 314	781 676	963 672	558 105	761 924	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	245 286	296 314	781 676	963 672	558 105	761 924	0
	Non-Revenue water	kl/annum	-245 286	-296 314	-781 676	-963 672	-558 105	-761 924	0
	Water Losses	kl/annum	-245 286	-296 314	-781 676	-963 672	-558 105	-761 924	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		4	4	12	14	8	12	No data
	Billed : m ³ / household / month		1	1	2	2	1	2	No data
	% Population growth			0.62%	0.59%	0.73%	0.58%	-7.30%	
	% Water demand growth								
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		

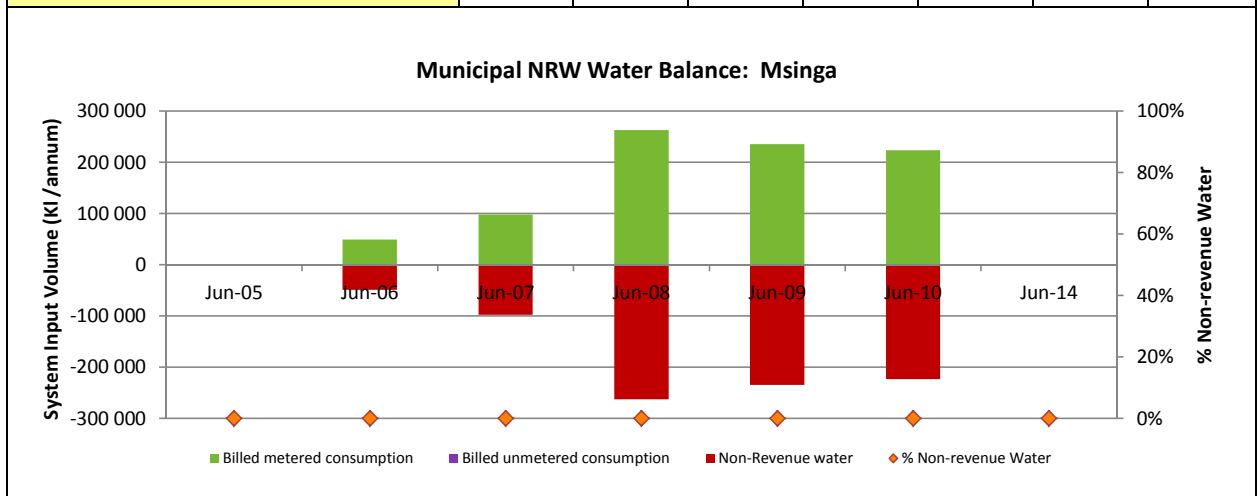


Comments

National NRW Assessment

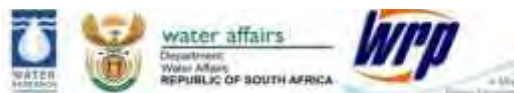


Province		KwaZulu-Natal						WSA	
Municipal Code		KZN244						No	
District Municipality		Umzinyathi						Category	
Municipality		Msinga						B4	
Settlements		Pomeroy						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	178 990	180 011	181 060	182 394	183 462	170 071		
	Households	36 321	36 562	36 730	37 006	37 181	34 473		
	Connections - metered	0	40	83	91	92	126		
	Connections - Unmetered	0	0	0	0	0	1		
	Length of mains (km)	0	4	2	2	2	3		
	System input volume	kl/annum							
	Billed metered consumption	kl/annum		49 295	97 839	262 672	235 138	223 458	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	49 295	97 839	262 672	235 138	223 458	0
	Non-Revenue water	kl/annum	0	-49 295	-97 839	-262 672	-235 138	-223 458	0
	Water Losses	kl/annum	0	-49 295	-97 839	-262 672	-235 138	-223 458	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data	No data
	Input: m³ / household / month		No data	No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	1	1	4	4	4	No data
	Billed : m³ / household / month		No data	0	0	1	1	1	No data
	% Population growth			0.57%	0.58%	0.74%	0.59%	-7.30%	
	% Water demand growth								
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		

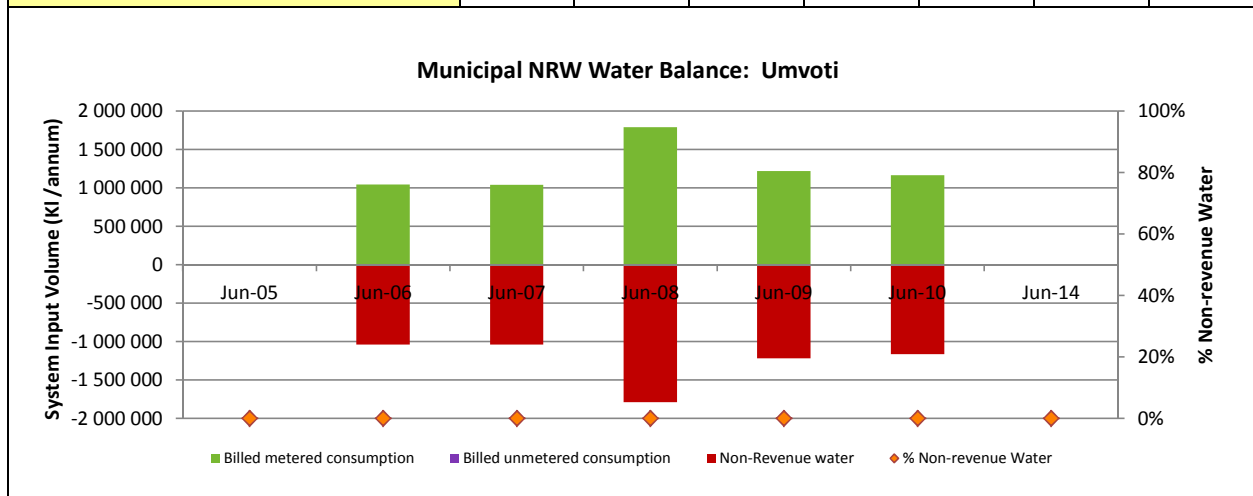


Comments

National NRW Assessment

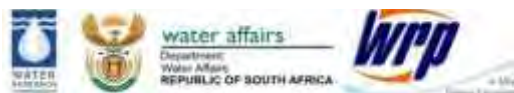


Province		KwaZulu-Natal						WSA	
Municipal Code		KZN245						No	
District Municipality		Umzinyathi						Category	
Municipality		Umvoti						B3	
Settlements		UMVOTI, GREYTOWN						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	98 612	99 149	99 701	100 363	100 920	94 902		
	Households	22 066	22 191	22 296	22 460	22 566	21 234		
	Connections - metered	2 868	2 724	2 796	2 815	2 695	2 813		
	Connections - Unmetered	0	0	0	0	0	4		
	Length of mains (km)	57	54	56	56	54	56		
	System input volume	kl/annum	0	0	0				
	Billed metered consumption	kl/annum	0	1 042 080	1 041 465	1 791 225	1 219 858	1 164 033	
	Billed unmetered consumption	kl/annum	0	0	0				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	1 042 080	1 041 465	1 791 225	1 219 858	1 164 033	0
	Non-Revenue water	kl/annum	0	-1 042 080	-1 041 465	-1 791 225	-1 219 858	-1 164 033	0
	Water Losses	kl/annum	0	-1 042 080	-1 041 465	-1 791 225	-1 219 858	-1 164 033	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data	No data
	Input: m³ / household / month		No data	No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	29	29	49	33	34	No data
	Billed : m³ / household / month		No data	4	4	7	5	5	No data
	% Population growth			0.54%	0.56%	0.66%	0.55%	-5.96%	
	% Water demand growth								
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		

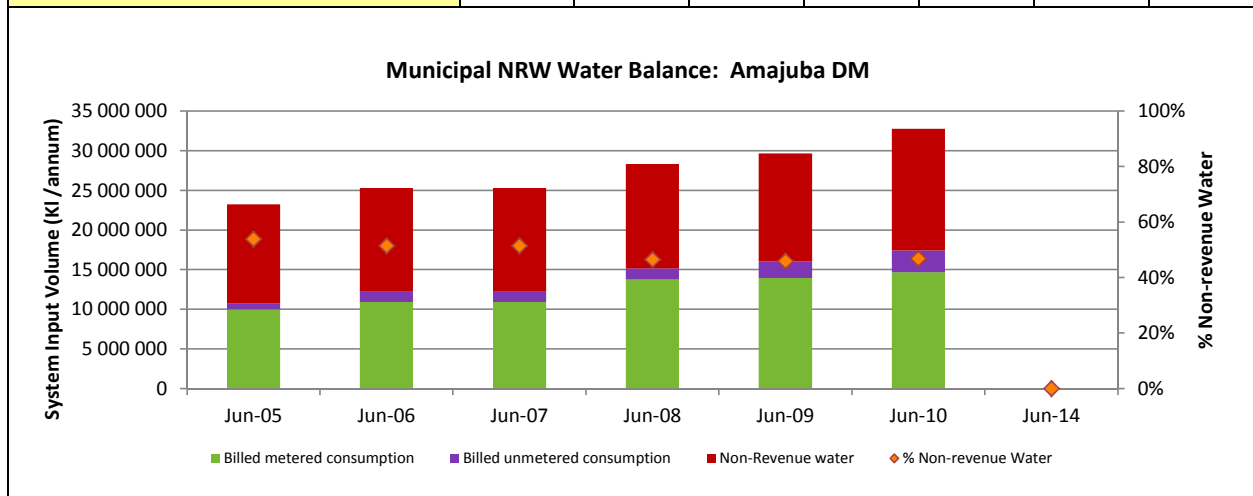


Comments

National NRW Assessment

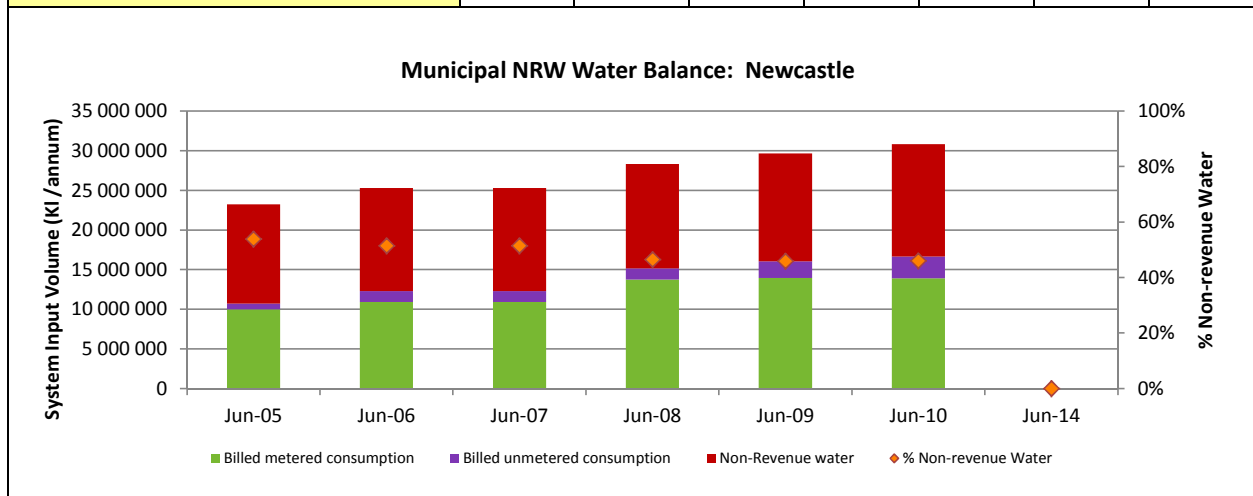


Province		KwaZulu-Natal						WSA	
Municipal Code		DC25						Yes	
District Municipality		Amajuba						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	508 142	511 147	514 203	518 075	521 169	510 517	0	
	Households	110 135	110 780	111 432	112 296	112 958	110 828	0	
	Connections - metered	0	0	0	0	39 607	39 607	0	
	Connections - Unmetered	0	0	0	0	7 393	7 393	0	
	Length of mains (km)	0	0	0	0	0	153	0	
	System input volume	kl/annum	23 238 625	25 275 589	25 275 589	28 333 333	29 642 833	32 777 217	0
	Billed metered consumption	kl/annum	9 995 574	10 926 025	10 926 025	13 750 000	13 957 320	14 686 398	0
	Billed unmetered consumption	kl/annum	732 934	1 347 624	1 347 624	1 416 666	2 083 333	2 736 026	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	10 728 509	12 273 649	12 273 649	15 166 666	16 040 653	17 422 424	0
	Non-Revenue water	kl/annum	12 510 116	13 001 940	13 001 940	13 166 667	13 602 180	15 354 793	0
	Water Losses	kl/annum	12 510 116	13 001 940	13 001 940	13 166 667	13 602 180	15 354 793	0
	% Non-revenue water		53.8%	51.4%	51.4%	46.5%	45.9%	46.8%	No data
	% Water Losses		53.8%	51.4%	51.4%	46.5%	45.9%	46.8%	No data
Key performance indicators	Input : Litres / capita / day		125	135	135	150	156	176	No data
	Input: m³ / household / month		18	19	19	21	22	25	No data
	Billed : Litres / capita / day		58	66	65	80	84	93	No data
	Billed : m³ / household / month		8	9	9	11	12	13	No data
	% Population growth			0.59%	0.60%	0.75%	0.60%	-2.04%	
	% Water demand growth			8.77%	0.00%	12.10%	4.62%	10.57%	
Source of information									



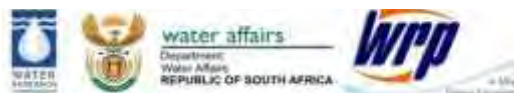
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN252						Yes	
District Municipality		Amajuba						Category	
Municipality		Newcastle						B1	
Settlements		BUHLEBOMZINYATHI, MADADENI, NEWCASTLE, OSIZWENI						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	362 640	364 790	366 975	369 744	371 958	371 028		
	Households	81 355	81 840	82 327	82 950	83 446	83 238		
	Connections - metered					39 607	39 607		
	Connections - Unmetered					7 393	7 393		
	Length of mains (km)								
	System input volume	kl/annum	23 238 625	25 275 589	25 275 589	28 333 333	29 642 833	30 807 095	
	Billed metered consumption	kl/annum	9 995 574	10 926 025	10 926 025	13 750 000	13 957 320	13 906 446	
	Billed unmetered consumption	kl/annum	732 934	1 347 624	1 347 624	1 416 666	2 083 333	2 736 026	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	10 728 509	12 273 649	12 273 649	15 166 666	16 040 653	16 642 472	0
	Non-Revenue water	kl/annum	12 510 116	13 001 940	13 001 940	13 166 667	13 602 180	14 164 623	0
	Water Losses	kl/annum	12 510 116	13 001 940	13 001 940	13 166 667	13 602 180	14 164 623	0
	% Non-revenue water		53.8%	51.4%	51.4%	46.5%	45.9%	46.0%	No data
	% Water Losses		53.8%	51.4%	51.4%	46.5%	45.9%	46.0%	No data
Key performance indicators	Input : Litres / capita / day		176	190	189	210	218	227	No data
	Input: m³ / household / month		24	26	26	28	30	31	No data
	Billed : Litres / capita / day		81	92	92	112	118	123	No data
	Billed : m³ / household / month		11	12	12	15	16	17	No data
	% Population growth			0.59%	0.60%	0.75%	0.60%	-0.25%	
	% Water demand growth			8.77%	0.00%	12.10%	4.62%	3.93%	
Source of information		DWA NIS	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		

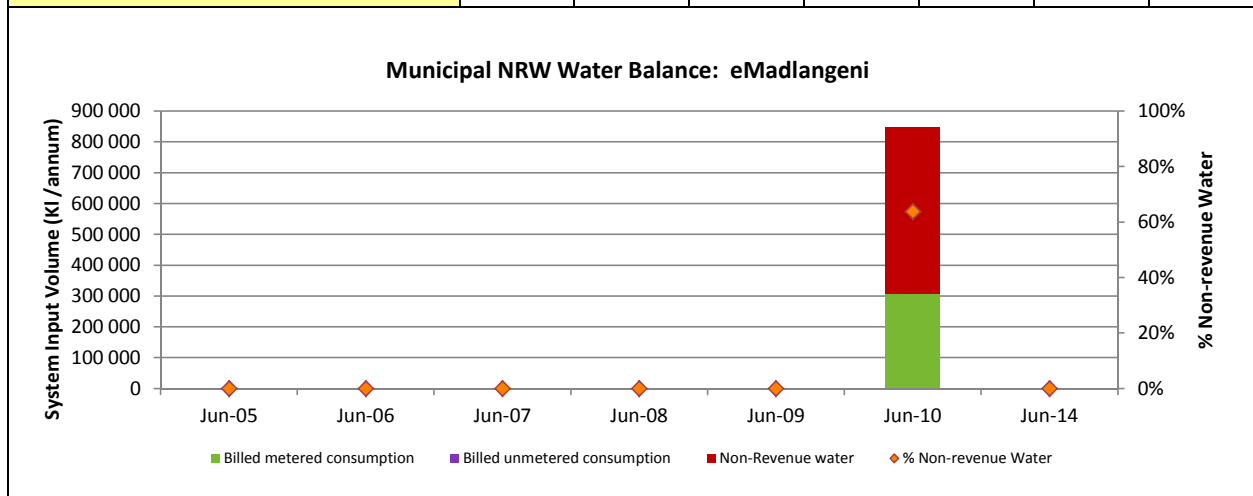


Comments

National NRW Assessment

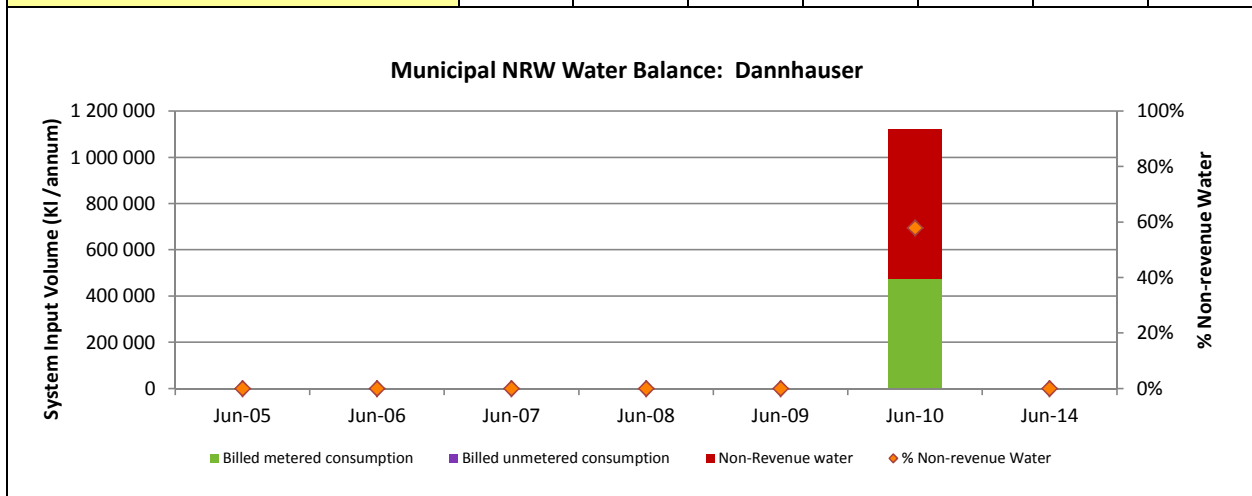


Province		KwaZulu-Natal						WSA	
Municipal Code		KZN253						No	
District Municipality		Amajuba						Category	
Municipality		eMadlangeni						B3	
Settlements		Bloedrivier, Groenvlei, Kingsley, Utrecht						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	34 783	34 988	35 196	35 461	35 672	33 549		
	Households	6 993	7 034	7 076	7 133	7 175	6 749		
	Connections - metered								
	Connections - Unmetered								
	Length of mains (km)						66		
	System input volume	kl/annum					848 501		
	Billed metered consumption	kl/annum					307 248		
	Billed unmetered consumption	kl/annum					0		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	307 248	0	
	Non-Revenue water	kl/annum	0	0	0	0	541 253	0	
	Water Losses	kl/annum	0	0	0	0	541 253	0	
	% Non-revenue water		No data	No data	No data	No data	No data	63.8%	No data
	% Water Losses		No data	No data	No data	No data	No data	63.8%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	69	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	10	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	25	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	4	No data
	% Population growth			0.59%	0.59%	0.75%	0.60%	-5.95%	
	% Water demand growth							#DIV/0!	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



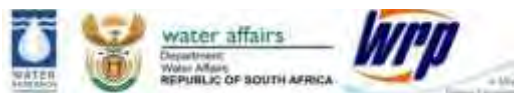
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN254						No	
District Municipality		Amajuba						Category	
Municipality		Dannhauser						B4	
Settlements		Dannhauser, Hattingspruit, Dumacol						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	110 719	111 369	112 032	112 870	113 539	105 940		
	Households	21 787	21 906	22 029	22 213	22 337	20 841		
	Connections - metered								
	Connections - Unmetered								
	Length of mains (km)						87		
	System input volume	kl/annum						1 121 621	
	Billed metered consumption	kl/annum						472 704	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	472 704	0	
	Non-Revenue water	kl/annum	0	0	0	0	648 917	0	
	Water Losses	kl/annum	0	0	0	0	648 917	0	
	% Non-revenue water		No data	No data	No data	No data	No data	57.9%	No data
	% Water Losses		No data	No data	No data	No data	No data	57.9%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	29	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	4	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	12	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	2	No data
	% Population growth			0.59%	0.60%	0.75%	0.59%	-6.69%	
	% Water demand growth							#DIV/0!	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		

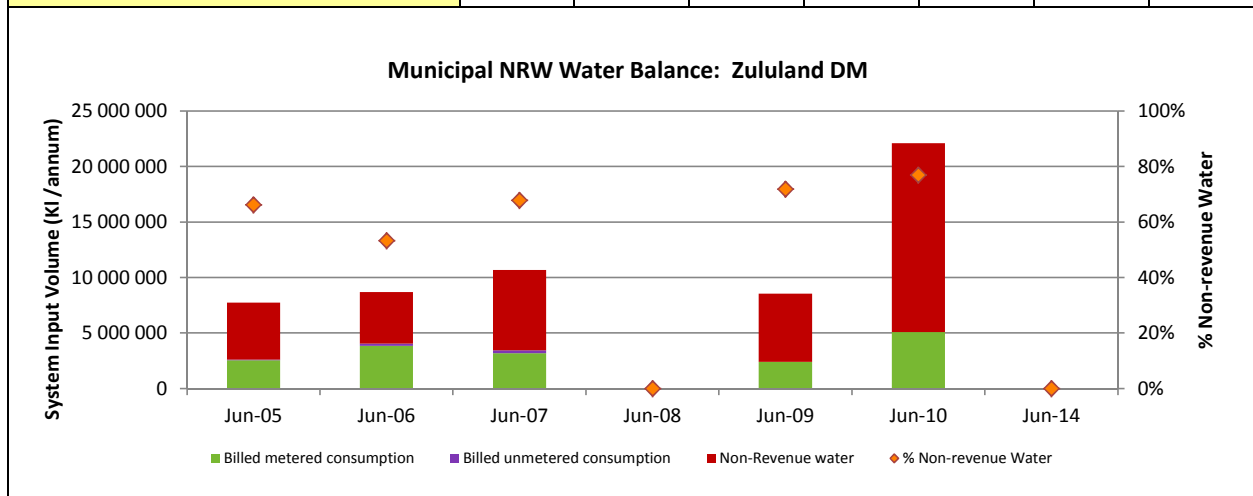


Comments

National NRW Assessment

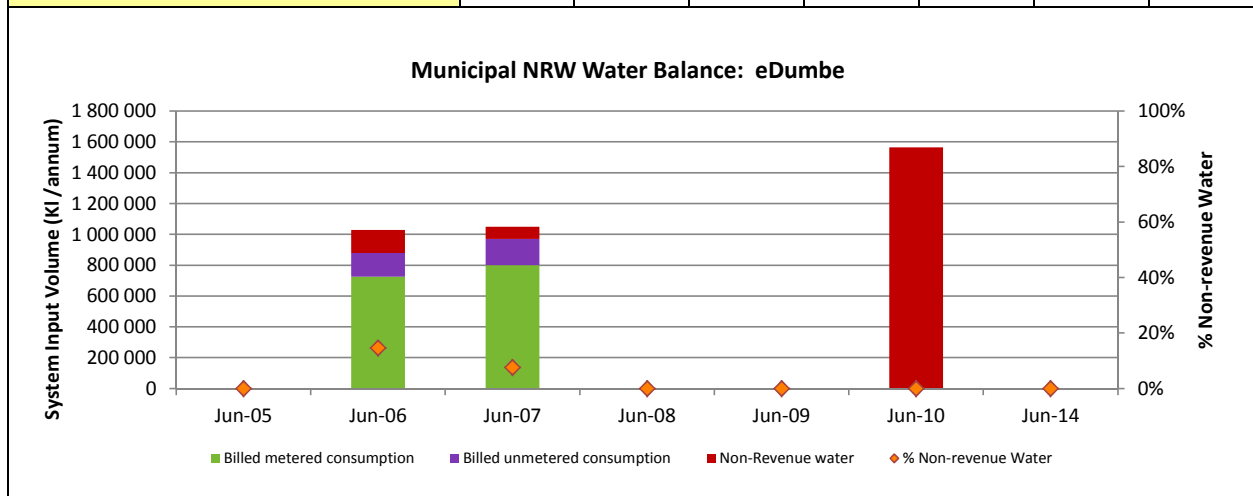


Province		KwaZulu-Natal						WSA	
Municipal Code		DC26						Yes	
District Municipality		Zululand						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	848 239	855 892	860 973	867 403	872 563	825 250	0	
	Households	160 452	161 894	162 781	164 064	164 969	152 177	0	
	Connections - metered	0	0	0	0	0	0	0	
	Connections - Unmetered	0	0	0	0	0	0	0	
	Length of mains (km)	0	0	0	0	0	630	0	
	System input volume	kl/annum	7 729 910	8 687 860	10 686 100	0	8 558 710	22 109 144	0
	Billed metered consumption	kl/annum	2 539 932	3 829 351	3 172 449	0	2 411 808	5 086 759	0
	Billed unmetered consumption	kl/annum	70 800	225 960	262 505	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	2 610 732	4 055 311	3 434 954	0	2 411 808	5 086 759	0
	Non-Revenue water	kl/annum	5 119 178	4 632 549	7 251 146	0	6 146 902	17 022 385	0
	Water Losses	kl/annum	5 119 178	4 632 549	7 251 146	0	6 146 902	17 022 385	0
	% Non-revenue water		66.2%	53.3%	67.9%	No data	71.8%	77.0%	No data
	% Water Losses		66.2%	53.3%	67.9%	No data	71.8%	77.0%	No data
Key performance indicators	Input : Litres / capita / day		25	28	34	No data	27	73	No data
	Input: m³ / household / month		4	4	5	No data	4	12	No data
	Billed : Litres / capita / day		8	13	11	No data	8	17	No data
	Billed : m³ / household / month		1	2	2	No data	1	3	No data
	% Population growth			0.90%	0.59%	0.75%	0.59%	-5.42%	
	% Water demand growth			12.39%	23.00%		#DIV/0!	158.32%	
Source of information									



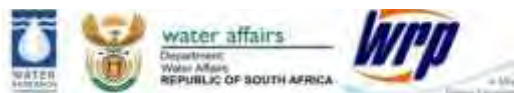
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN261						No
District Municipality		Zululand						Category
Municipality		eDumbe						B3
Settlements		PAULPIETERSBURG						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	88 986	89 789	90 325	91 005	91 548	88 744	
	Households	17 153	17 315	17 413	17 548	17 647	13 122	
	Connections - metered							
	Connections - Unmetered							
	Length of mains (km)						73	
	System input volume	kl/annum		1 028 750	1 050 000			1 565 581
	Billed metered consumption	kl/annum		725 246	800 000			
	Billed unmetered consumption	kl/annum		153 504	170 496			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	878 750	970 496	0	0	0
	Non-Revenue water	kl/annum	0	150 000	79 504	0	0	1 565 581
	Water Losses	kl/annum	0	150 000	79 504	0	0	1 565 581
	% Non-revenue water		No data	14.6%	7.6%	No data	No data	No data
	% Water Losses		No data	14.6%	7.6%	No data	No data	100.0%
Key performance indicators	Input : Litres / capita / day		No data	31	32	No data	No data	48
	Input: m ³ / household / month		No data	5	5	No data	No data	10
	Billed : Litres / capita / day		No data	27	29	No data	No data	No data
	Billed : m ³ / household / month		No data	4	5	No data	No data	No data
	% Population growth			0.90%	0.60%	0.75%	0.60%	-3.06%
	% Water demand growth			#DIV/0!	2.07%			#DIV/0!
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	

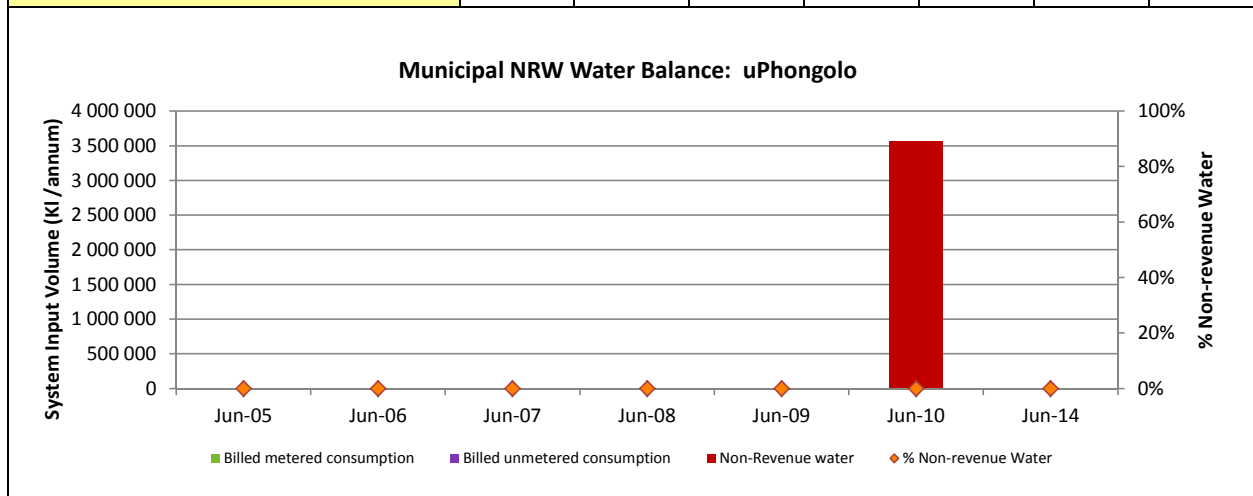


Comments

National NRW Assessment



Province		KwaZulu-Natal						WSA
Municipal Code		KZN262						No
District Municipality		Zululand						Category
Municipality		uPhongolo						B4
Settlements		Phongola, Belgrade						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	130 102	131 263	132 047	133 030	133 821	125 643	
	Households	28 282	28 531	28 692	28 918	29 085	27 312	
	Connections - metered							
	Connections - Unmetered							
	Length of mains (km)						134	
	System input volume	kl/annum					3 561 798	
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	3 561 798	0
	Water Losses	kl/annum	0	0	0	0	3 561 798	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	100.0%
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	78
	Input: m³ / household / month		No data	No data	No data	No data	No data	11
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.89%	0.60%	0.74%	0.59%	-6.11%
	% Water demand growth							#DIV/0!
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	

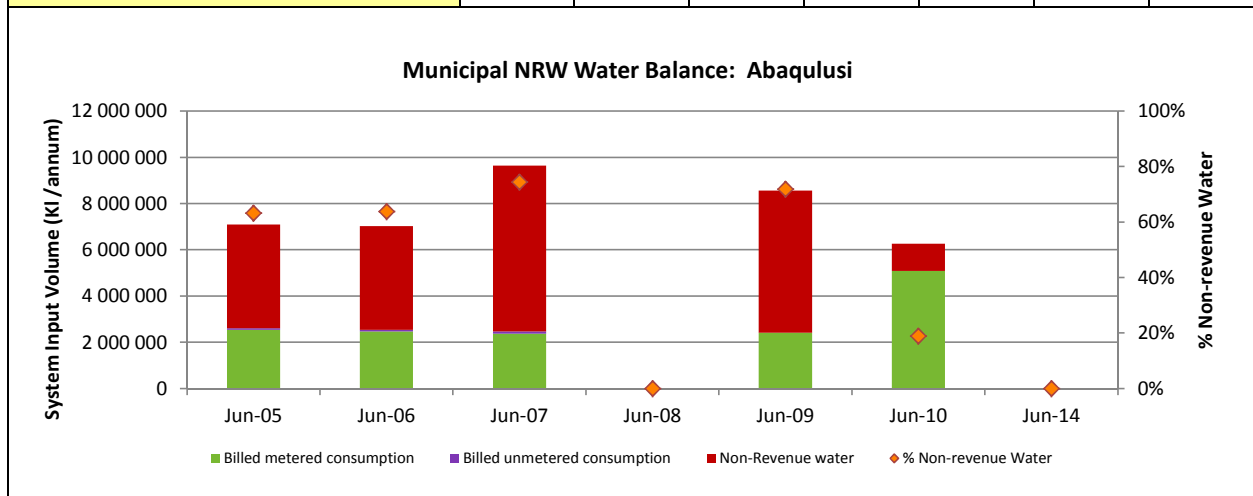


Comments

National NRW Assessment

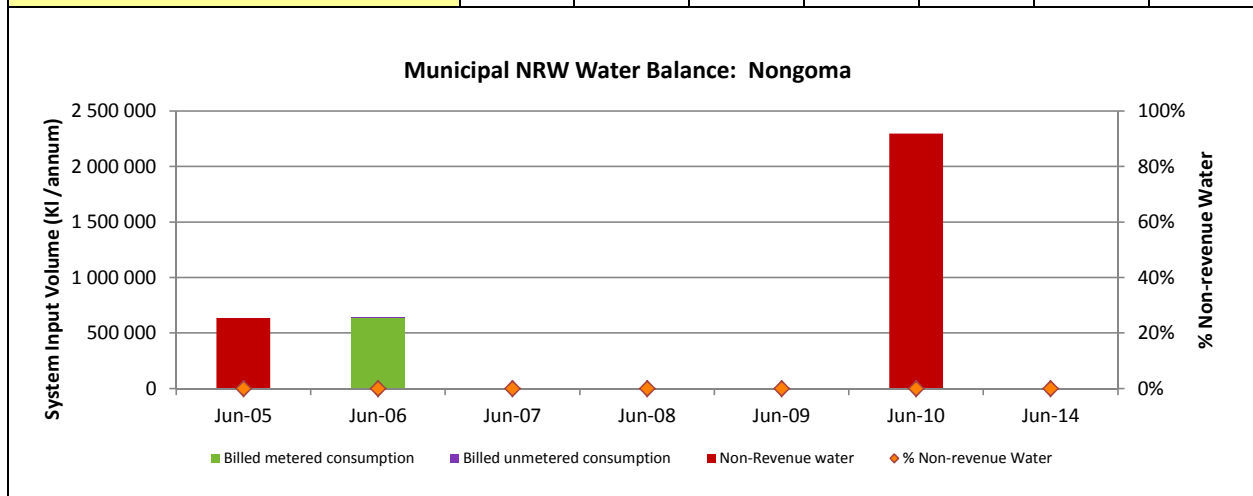


Province		KwaZulu-Natal						WSA	
Municipal Code		KZN263						No	
District Municipality		Zululand						Category	
Municipality		Abaqulusi						B3	
Settlements		MONDLO, VRYHEID						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	207 170	209 054	210 296	211 886	213 148	206 585		
	Households	40 861	41 234	41 477	41 788	42 034	40 751		
	Connections - metered								
	Connections - Unmetered								
	Length of mains (km)						177		
	System input volume	kl/annum	7 093 281	7 022 481	9 636 100		8 558 710	6 268 776	
	Billed metered consumption	kl/annum	2 539 932	2 469 132	2 372 449		2 411 808	5 086 759	
	Billed unmetered consumption	kl/annum	70 800	70 800	92 009		0		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 610 732	2 539 932	2 464 458	0	2 411 808	5 086 759	0
	Non-Revenue water	kl/annum	4 482 549	4 482 549	7 171 642	0	6 146 902	1 182 017	0
	Water Losses	kl/annum	4 482 549	4 482 549	7 171 642	0	6 146 902	1 182 017	0
	% Non-revenue water		63.2%	63.8%	74.4%	No data	71.8%	18.9%	No data
	% Water Losses		63.2%	63.8%	74.4%	No data	71.8%	18.9%	No data
Key performance indicators	Input : Litres / capita / day		94	92	126	No data	110	83	No data
	Input: m ³ / household / month		14	14	19	No data	17	13	No data
	Billed : Litres / capita / day		35	33	32	No data	31	67	No data
	Billed : m ³ / household / month		5	5	5	No data	5	10	No data
	% Population growth			0.91%	0.59%	0.76%	0.60%	-3.08%	
	% Water demand growth			-1.00%	37.22%		#DIV/0!	-26.76%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



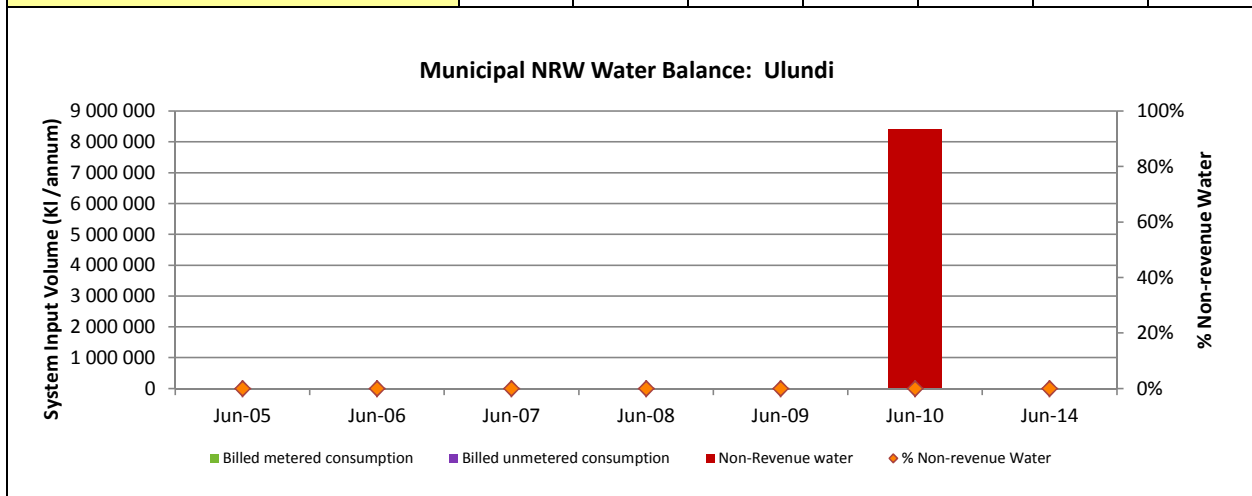
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN265						No	
District Municipality		Zululand						Category	
Municipality		Nongoma						B4	
Settlements		Nongoma						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	215 026	216 972	218 257	219 878	221 178	205 243		
	Households	35 899	36 239	36 424	36 701	36 888	34 228		
	Connections - metered								
	Connections - Unmetered								
	Length of mains (km)						68		
	System input volume	kl/annum	636 629	636 629	0			2 297 335	
	Billed metered consumption	kl/annum	0	634 973	0				
	Billed unmetered consumption	kl/annum	0	1 656	0				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	636 629	0	0	0	0	
	Non-Revenue water	kl/annum	636 629	0	0	0	0	2 297 335	
	Water Losses	kl/annum	636 629	0	0	0	0	2 297 335	
	% Non-revenue water		No data	Check data	No data	No data	No data	No data	No data
	% Water Losses		100.0%	No data	No data	No data	No data	100.0%	No data
Key performance indicators	Input : Litres / capita / day		8	8	No data	No data	No data	31	No data
	Input: m ³ / household / month		1	1	No data	No data	No data	6	No data
	Billed : Litres / capita / day		No data	8	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	1	No data	No data	No data	No data	No data
	% Population growth			0.91%	0.59%	0.74%	0.59%	-7.20%	
	% Water demand growth			0.00%				#DIV/0!	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



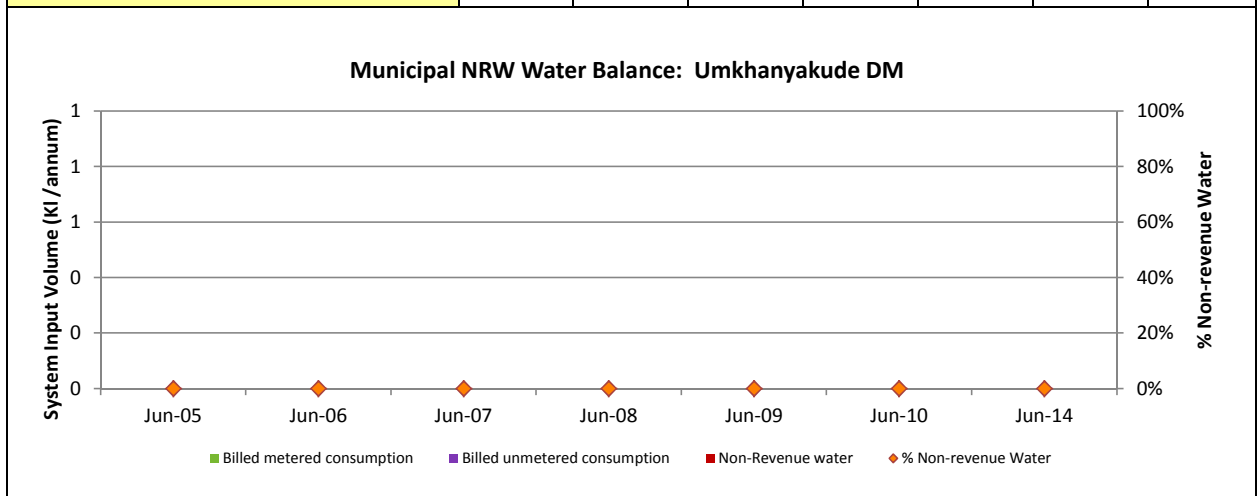
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN266						No	
District Municipality		Zululand						Category	
Municipality		Ulundi						B4	
Settlements		Ulundi						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	206 955	208 814	210 048	211 604	212 868	199 035		
	Households	38 257	38 575	38 775	39 109	39 315	36 764		
	Connections - metered								
	Connections - Unmetered								
	Length of mains (km)						179		
	System input volume	kl/annum					8 415 655		
	Billed metered consumption	kl/annum							
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0	
	Non-Revenue water	kl/annum	0	0	0	0	8 415 655	0	
	Water Losses	kl/annum	0	0	0	0	8 415 655	0	
	% Non-revenue water		No data	No data	No data	No data	No data	No data	
	% Water Losses		No data	No data	No data	No data	No data	100.0%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	116	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	19	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data	No data
	% Population growth			0.90%	0.59%	0.74%	0.60%	-6.50%	
	% Water demand growth							#DIV/0!	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



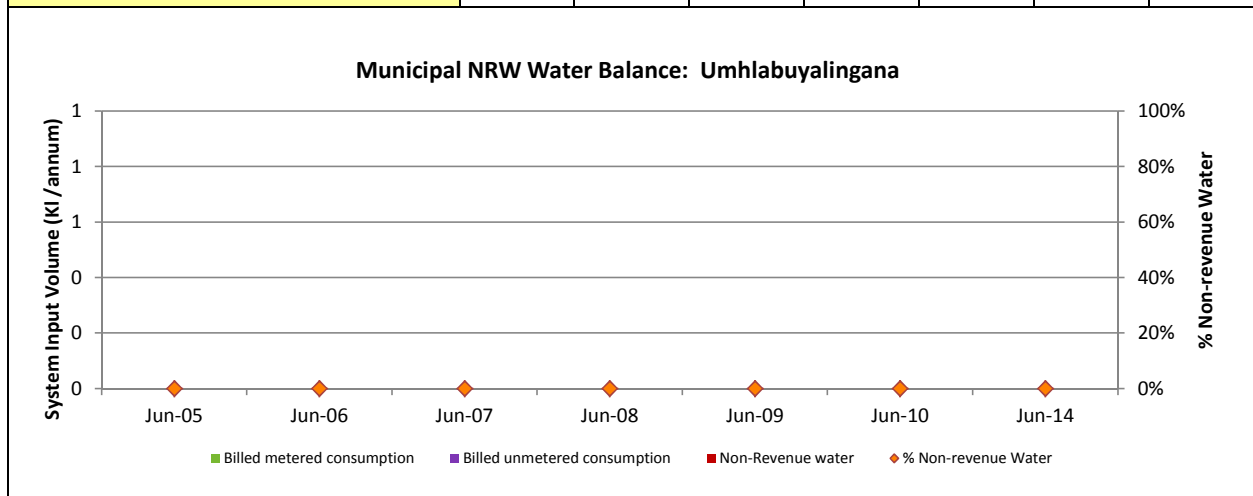
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		DC27						Yes
District Municipality		Umkhanyakude						Category
Municipality								C2
Settlements								Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	609 051	616 510	620 151	624 717	628 419	583 909	0
	Households	112 599	113 995	114 550	115 481	116 039	107 876	0
	Connections - metered	33 572	33 984	34 185	34 438	34 643	32 401	0
	Connections - Unmetered	37 097	37 558	37 736	38 046	38 225	35 455	0
	Length of mains (km)	1 413	1 431	1 438	1 450	1 457	1 357	0
	System input volume	kl/annum	0	0	0	0	0	0
	Billed metered consumption	kl/annum	0	0	0	0	0	0
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			1.22%	0.59%	0.74%	0.59%	-7.08%
	% Water demand growth							
Source of information								



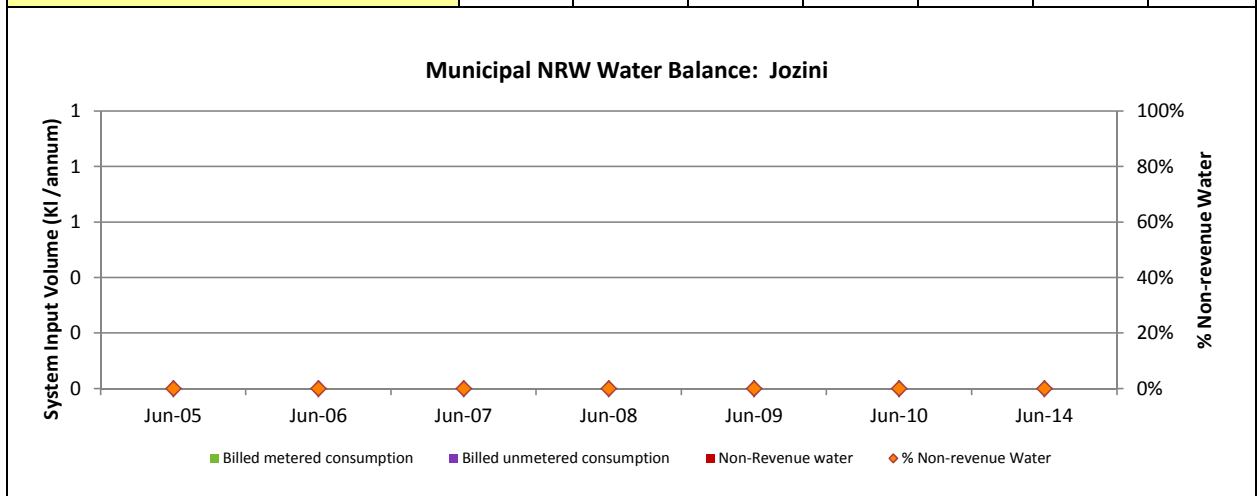
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN271						No
District Municipality		Umkhanyakude						Category
Municipality		Umhlabuyalingana						B4
Settlements		Emangusi						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	152 677	154 550	155 449	156 561	157 467	145 974	
	Households	29 471	29 844	29 988	30 222	30 367	28 137	
	Connections - metered	8 393	8 496	8 546	8 607	8 657	8 025	
	Connections - Unmetered	4 707	4 767	4 790	4 827	4 850	4 494	
	Length of mains (km)	262	265	267	269	270	250	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			1.23%	0.58%	0.72%	0.58%	-7.30%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



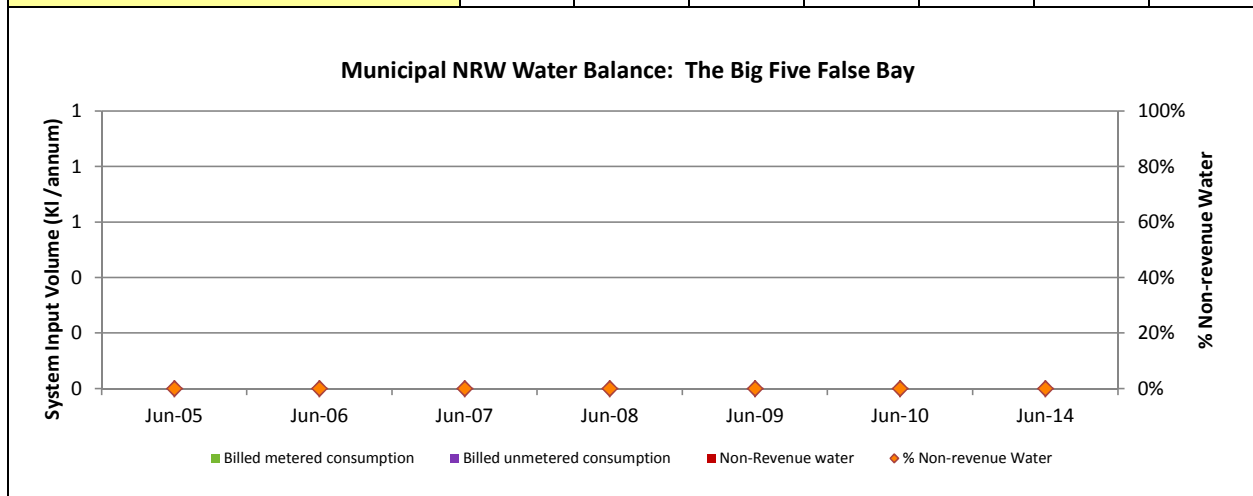
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN272						No
District Municipality		Umkhanyakude						Category
Municipality		Jozini						B4
Settlements		Mkuze						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	197 882	200 307	201 491	202 984	204 185	189 302	
	Households	37 844	38 297	38 481	38 807	38 991	36 167	
	Connections - metered	7 900	7 997	8 044	8 104	8 152	7 558	
	Connections - Unmetered	16 554	16 749	16 829	16 972	17 052	15 817	
	Length of mains (km)	489	495	497	502	504	468	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			1.23%	0.59%	0.74%	0.59%	-7.29%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



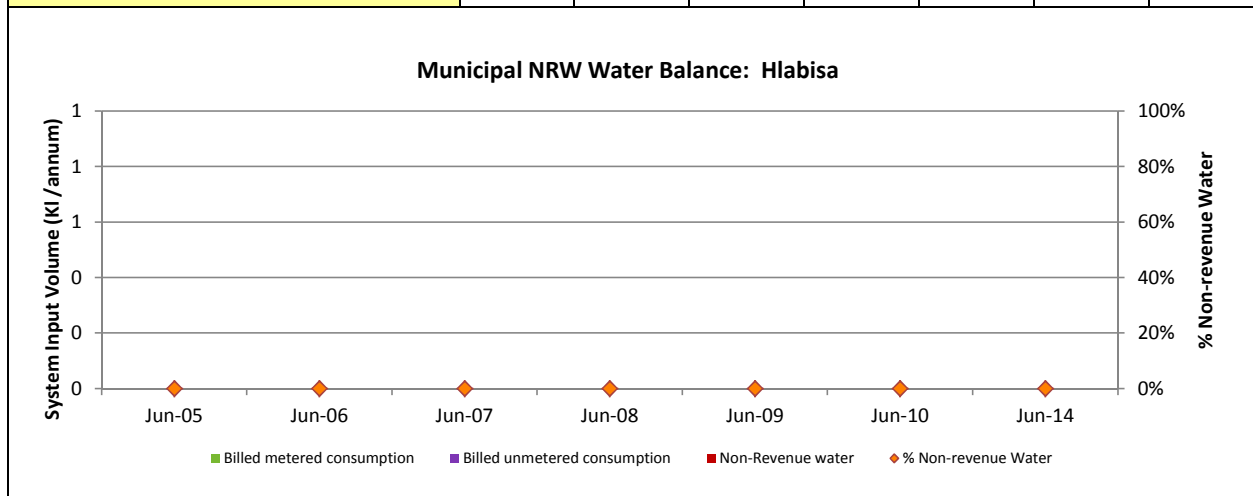
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN						No
District Municipality		Umkhanyakude						Category
Municipality		The Big Five False Bay						B3
Settlements		Hluhluwe						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	33 725	34 136	34 341	34 598	34 808	32 265	
	Households	7 010	7 092	7 131	7 191	7 230	6 702	
	Connections - metered	5 923	5 995	6 034	6 076	6 113	5 666	
	Connections - Unmetered	358	362	364	367	369	342	
	Length of mains (km)	126	127	128	129	130	120	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			1.22%	0.60%	0.75%	0.61%	-7.31%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



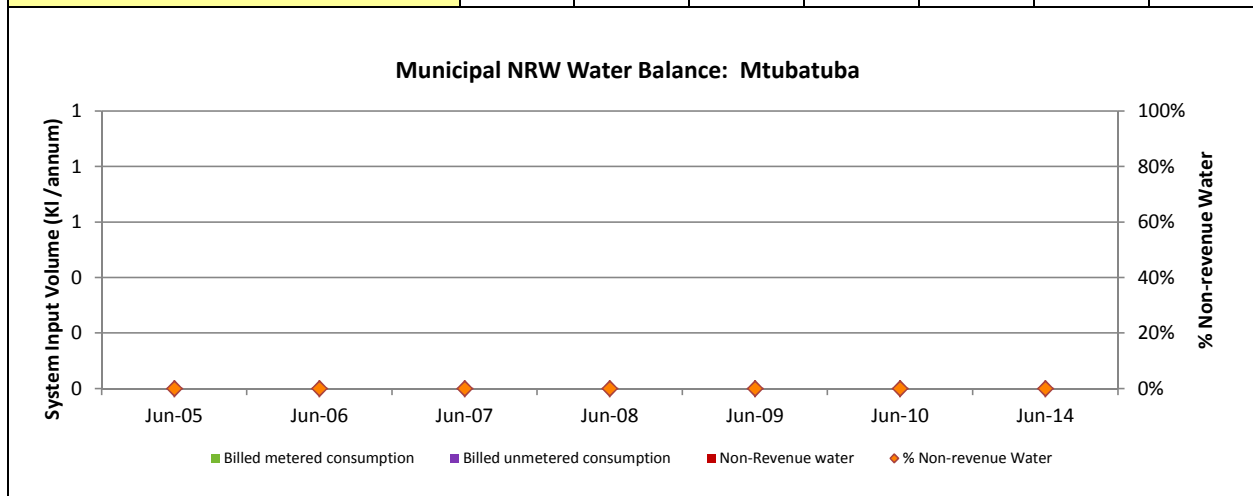
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN						No
District Municipality		Umkhanyakude						Category
Municipality		Hlabisa						B4
Settlements		Somkele						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	194 782	197 164	198 334	199 806	201 005	186 429	
	Households	31 261	31 663	31 809	32 066	32 214	29 870	
	Connections - metered	4 522	4 578	4 605	4 639	4 667	4 328	
	Connections - Unmetered	15 264	15 457	15 529	15 654	15 726	14 582	
	Length of mains (km)	396	404	403	406	408	378	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			1.22%	0.59%	0.74%	0.60%	-7.25%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN						No
District Municipality		Umkhanyakude						Category
Municipality		Mtubatuba						B3
Settlements		Mtubatuba						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	29 985	30 353	30 536	30 768	30 954	29 939	
	Households	7 013	7 099	7 141	7 195	7 237	7 000	
	Connections - metered	6 834	6 917	6 959	7 012	7 054	6 823	
	Connections - Unmetered	220	223	224	226	227	220	
	Length of mains (km)	144	143	144	145	146	144	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			1.23%	0.60%	0.76%	0.60%	-3.28%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	

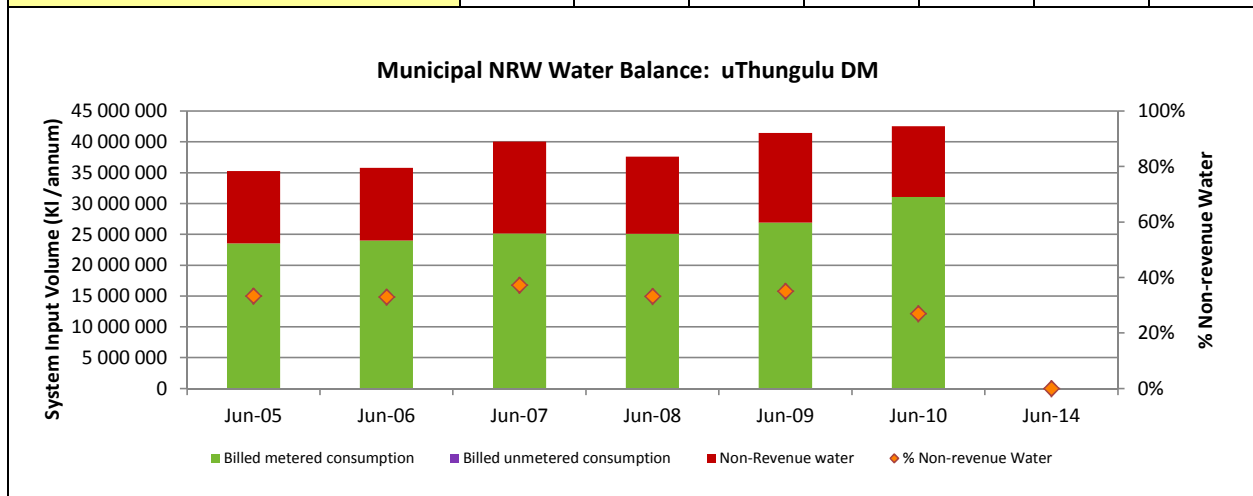


Comments

National NRW Assessment

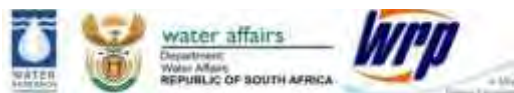


Province		KwaZulu-Natal						WSA	
Municipal Code		DC28						Yes	
District Municipality		uThungulu						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	967 236	976 830	982 663	990 036	1 000 788	954 382	0	
	Households	197 272	199 183	200 242	201 931	203 003	193 538	0	
	Connections - metered	60 012	62 912	63 456	65 098	65 509	63 006	0	
	Connections - Unmetered	48 051	48 508	48 744	49 180	49 420	45 913	0	
	Length of mains (km)	1 895	1 912	1 921	1 936	1 968	1 839	0	
	System input volume	kl/annum	35 285 136	35 786 323	40 035 518	37 618 269	41 463 656	42 557 901	0
	Billed metered consumption	kl/annum	23 518 762	23 993 374	25 129 778	25 119 463	26 918 445	31 059 590	0
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	23 518 762	23 993 374	25 129 778	25 119 463	26 918 445	31 059 590	0
	Non-Revenue water	kl/annum	11 766 374	11 792 949	14 905 740	12 498 806	14 545 211	11 498 311	0
	Water Losses	kl/annum	11 766 374	11 792 949	14 905 740	12 498 806	14 545 211	11 498 311	0
	% Non-revenue water		33.3%	33.0%	37.2%	33.2%	35.1%	27.0%	No data
	% Water Losses		33.3%	33.0%	37.2%	33.2%	35.1%	27.0%	No data
Key performance indicators	Input : Litres / capita / day		100	100	112	104	114	122	No data
	Input: m³ / household / month		15	15	17	16	17	18	No data
	Billed : Litres / capita / day		67	67	70	70	74	89	No data
	Billed : m³ / household / month		10	10	10	10	11	13	No data
	% Population growth			0.99%	0.60%	0.75%	1.09%	-4.64%	
	% Water demand growth			1.42%	11.87%	-6.04%	10.22%	2.64%	
Source of information									

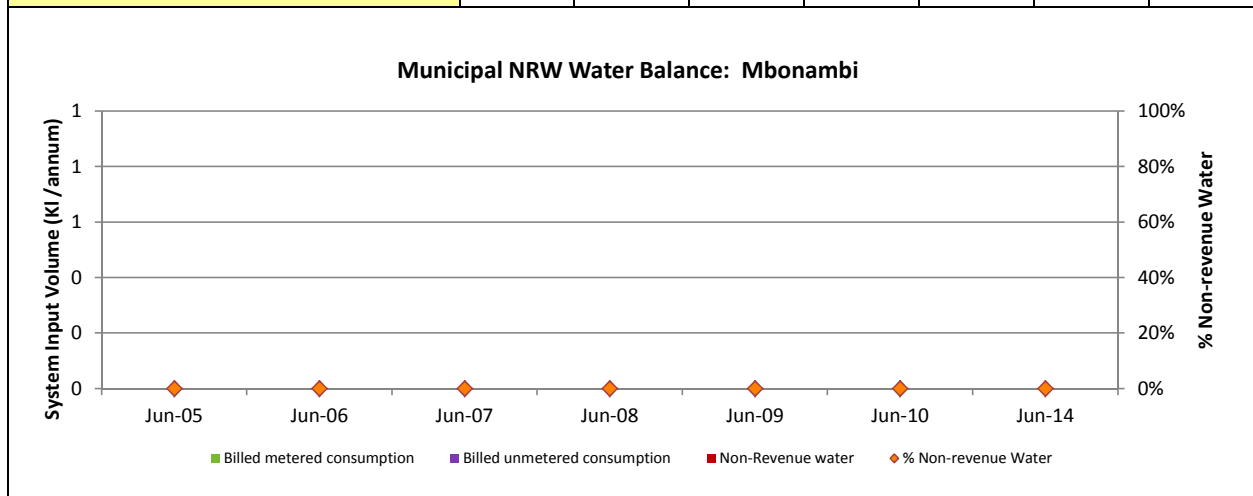


Comments

National NRW Assessment



Province		KwaZulu-Natal						WSA
Municipal Code		KZN281						No
District Municipality		Uthungulu						Category
Municipality		Mbonambi						B4
Settlements		KwaMbonambi						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	113 826	114 951	115 638	116 506	117 200	108 834	
	Households	21 348	21 553	21 665	21 850	21 966	20 407	
	Connections - metered	6 383	6 446	6 484	6 533	6 572	6 403	
	Connections - Unmetered	41 870	41 984	42 046	42 149	42 243	41 347	
	Length of mains (km)	365	369	371	374	376	349	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.99%	0.60%	0.75%	0.60%	-7.14%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	

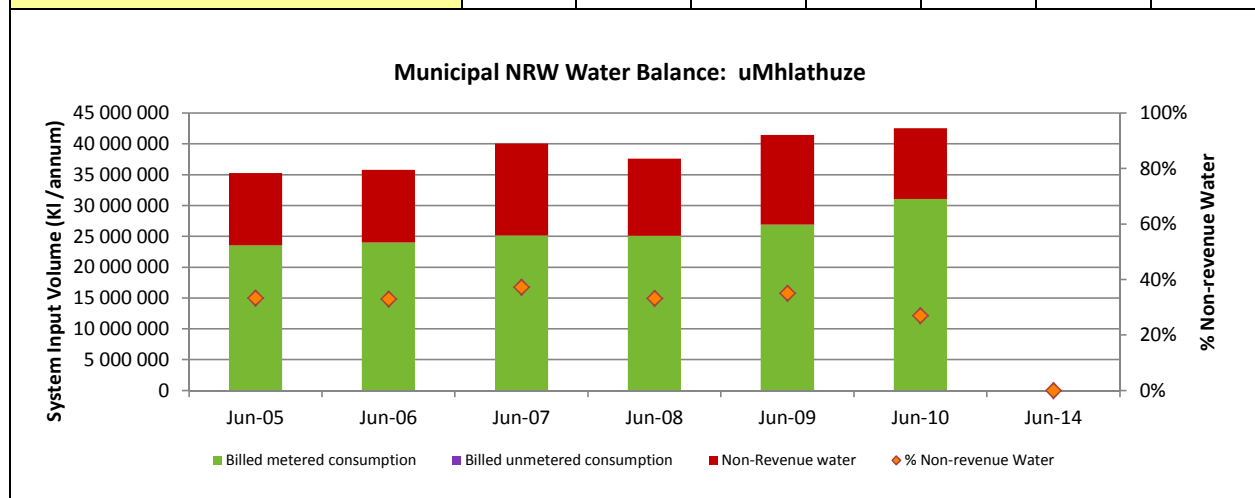


Comments

National NRW Assessment

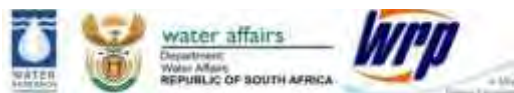


Province		KwaZulu-Natal						WSA	
Municipal Code		KZN						Yes	
District Municipality		Uthungulu						Category	
Municipality		uMhlathuze						B1	
Settlements		DONDOLO, EMPANGENI, RICHARDS BAY, ESIKHAWINI						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	331 036	334 331	336 339	338 890	345 776	345 776		
	Households	80 563	81 368	81 858	82 478	82 972	82 000		
	Connections - metered	19 500	22 000	22 300	23 635	23 800	24 213		
	Connections - Unmetered								
	Length of mains (km)	124	124	124	124	145	145		
	System input volume	kl/annum	35 285 136	35 786 323	40 035 518	37 618 269	41 463 656	42 557 901	
	Billed metered consumption	kl/annum	23 518 762	23 993 374	25 129 778	25 119 463	26 918 445	31 059 590	
	Billed unmetered consumption	kl/annum							
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	23 518 762	23 993 374	25 129 778	25 119 463	26 918 445	31 059 590	0
	Non-Revenue water	kl/annum	11 766 374	11 792 949	14 905 740	12 498 806	14 545 211	11 498 311	0
	Water Losses	kl/annum	11 766 374	11 792 949	14 905 740	12 498 806	14 545 211	11 498 311	0
	% Non-revenue water		33.3%	33.0%	37.2%	33.2%	35.1%	27.0%	No data
	% Water Losses		33.3%	33.0%	37.2%	33.2%	35.1%	27.0%	No data
Key performance indicators	Input : Litres / capita / day		292	293	326	304	329	337	No data
	Input: m ³ / household / month		36	37	41	38	42	43	No data
	Billed : Litres / capita / day		195	197	205	203	213	246	No data
	Billed : m ³ / household / month		24	25	26	25	27	32	No data
	% Population growth			1.00%	0.60%	0.76%	2.03%	0.00%	
	% Water demand growth			1.42%	11.87%	-6.04%	10.22%	2.64%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		

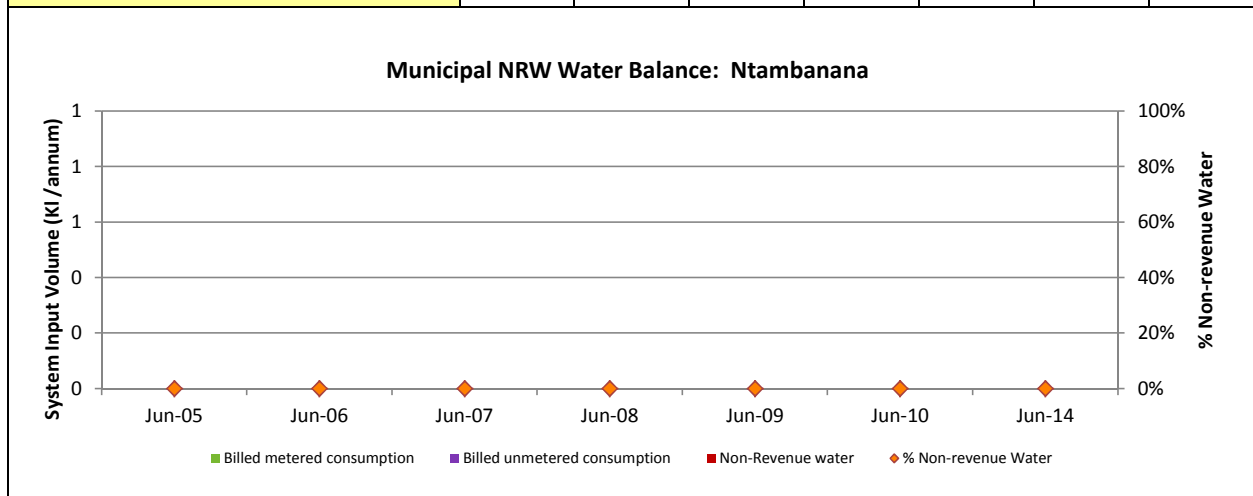


Comments

National NRW Assessment

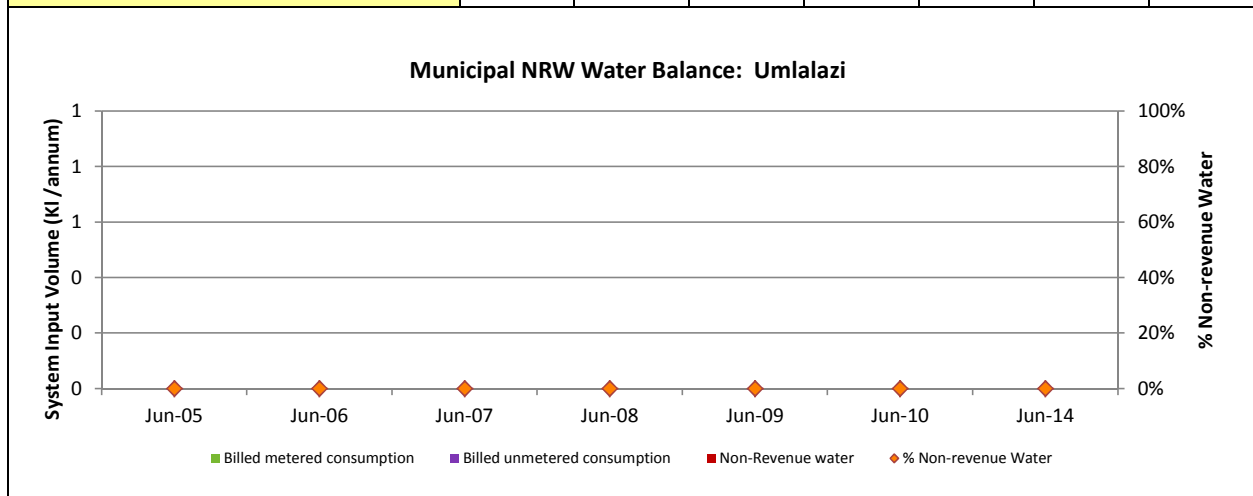


Province		KwaZulu-Natal						WSA
Municipal Code		KZN283						No
District Municipality		Uthungulu						Category
Municipality		Ntambanana						B4
Settlements		Ntambanana						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	90 777	91 685	92 228	92 903	93 456	86 628	
	Households	13 953	14 078	14 147	14 280	14 350	13 299	
	Connections - metered	2 984	3 044	3 032	3 054	3 072	2 848	
	Connections - Unmetered	4 965	5 009	5 034	5 081	5 406	4 732	
	Length of mains (km)	159	160	161	163	164	152	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			1.00%	0.59%	0.73%	0.60%	-7.31%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



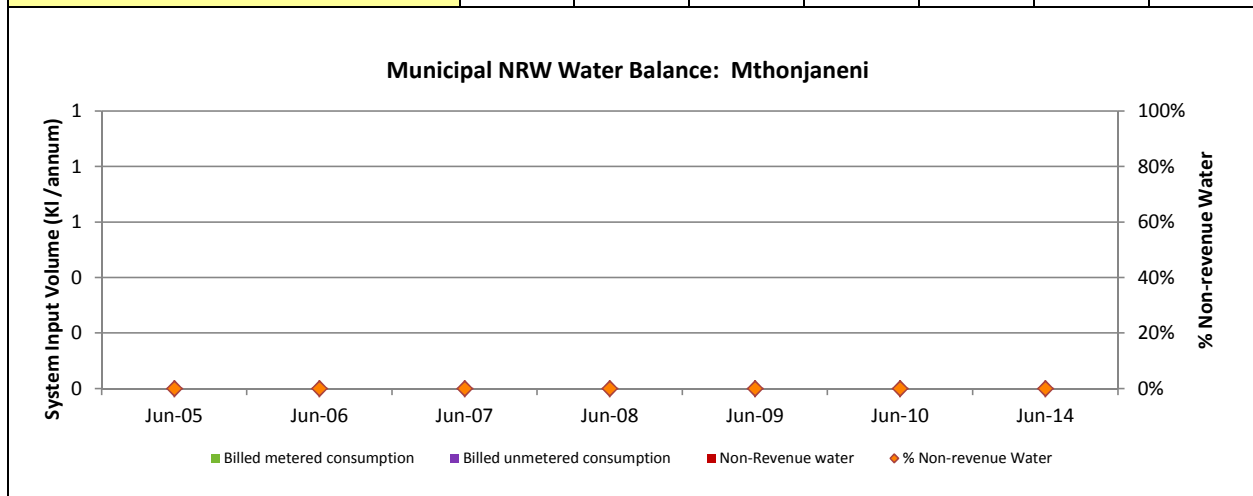
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN						No
District Municipality		Uthungulu						Category
Municipality		Umlalazi						B4
Settlements								Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	235 548	237 893	239 313	241 109	242 544	225 598	
	Households	43 032	43 448	43 667	44 034	44 255	41 158	
	Connections - metered	14 120	14 260	14 345	14 453	14 539	13 523	
	Connections - Unmetered	17 886	18 058	18 149	18 302	18 394	17 107	
	Length of mains (km)	640	646	650	655	659	613	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			1.00%	0.60%	0.75%	0.60%	-6.99%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



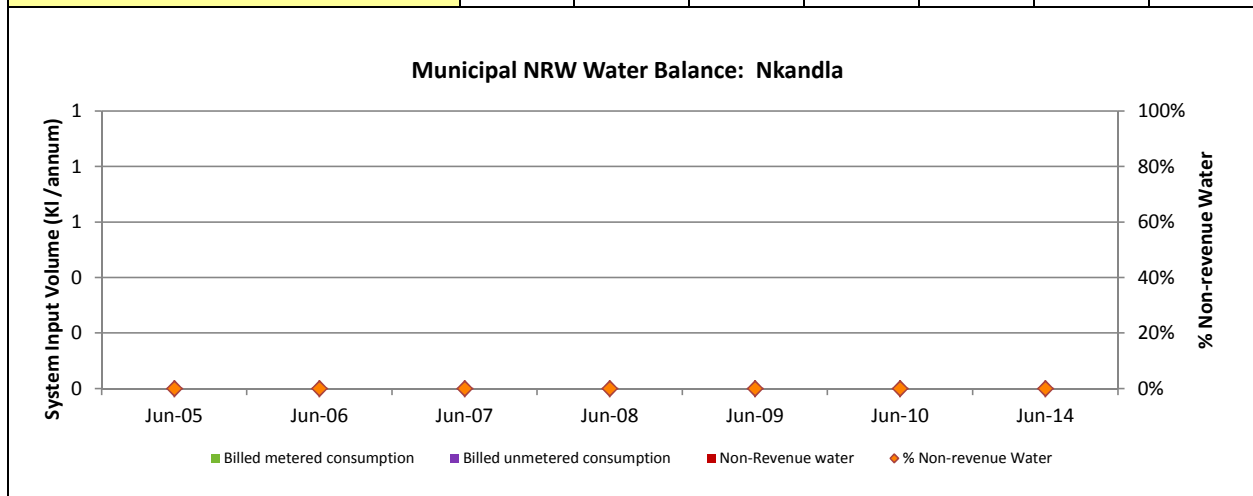
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN285						No
District Municipality		Uthungulu						Category
Municipality		Mthonjaneni						B3
Settlements		Melmoth						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	53 748	54 274	54 593	55 001	55 323	51 778	
	Households	11 294	11 397	11 453	11 564	11 620	10 875	
	Connections - metered	8 097	8 176	8 225	8 286	8 335	7 800	
	Connections - Unmetered	2 754	2 779	2 793	2 820	2 834	2 652	
	Length of mains (km)	217	219	220	222	223	209	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.98%	0.59%	0.75%	0.59%	-6.41%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



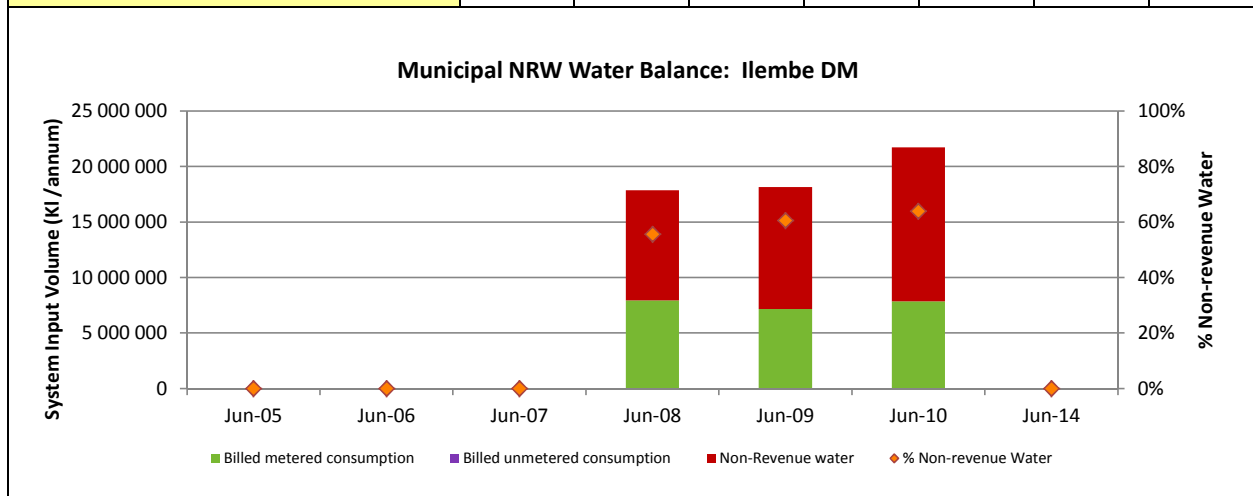
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN286						No
District Municipality		Uthungulu						Category
Municipality		Nkandla						B4
Settlements		Nkandla						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	142 301	143 696	144 552	145 627	146 489	135 768	
	Households	27 082	27 339	27 452	27 725	27 840	25 799	
	Connections - metered	8 928	9 046	9 070	9 137	9 194	8 548	
	Connections - Unmetered	40 577	40 677	40 724	40 828	40 873	40 076	
	Length of mains (km)	390	394	396	399	404	372	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.98%	0.60%	0.74%	0.59%	-7.32%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



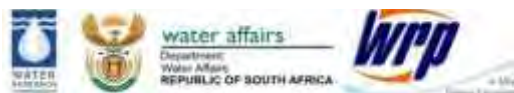
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		DC29						Yes	
District Municipality		Ilembe						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	597 185	602 205	605 807	610 362	614 008	580 001	0	
	Households	134 603	135 723	136 503	137 575	138 366	131 221	0	
	Connections - metered	0	0	0	0	0	26 603	0	
	Connections - Unmetered	0	0	0	0	0	0	0	
	Length of mains (km)	0	0	0	0	0	2 205	0	
	System input volume	kl/annum	0	0	0	17 872 290	18 164 823	21 720 087	0
	Billed metered consumption	kl/annum	0	0	0	7 928 393	7 160 421	7 851 916	0
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	0	0	0	7 928 393	7 160 421	7 851 916	0
	Non-Revenue water	kl/annum	0	0	0	9 943 897	11 004 402	13 868 171	0
	Water Losses	kl/annum	0	0	0	9 943 897	11 004 402	13 868 171	0
	% Non-revenue water		No data	No data	No data	55.6%	60.6%	63.8%	No data
	% Water Losses		No data	No data	No data	55.6%	60.6%	63.8%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	80	81	103	No data
	Input: m ³ / household / month		No data	No data	No data	11	11	14	No data
	Billed : Litres / capita / day		No data	No data	No data	36	32	37	No data
	Billed : m ³ / household / month		No data	No data	No data	5	4	5	No data
	% Population growth			0.84%	0.60%	0.75%	0.60%	-5.54%	
	% Water demand growth					#DIV/0!	1.64%	19.57%	
Source of information									

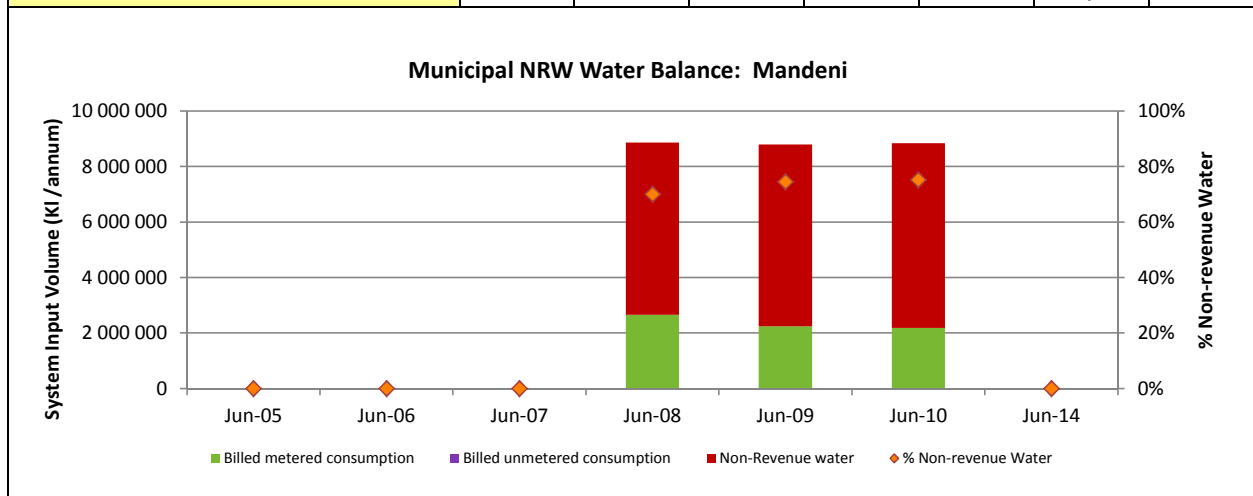


Comments

National NRW Assessment

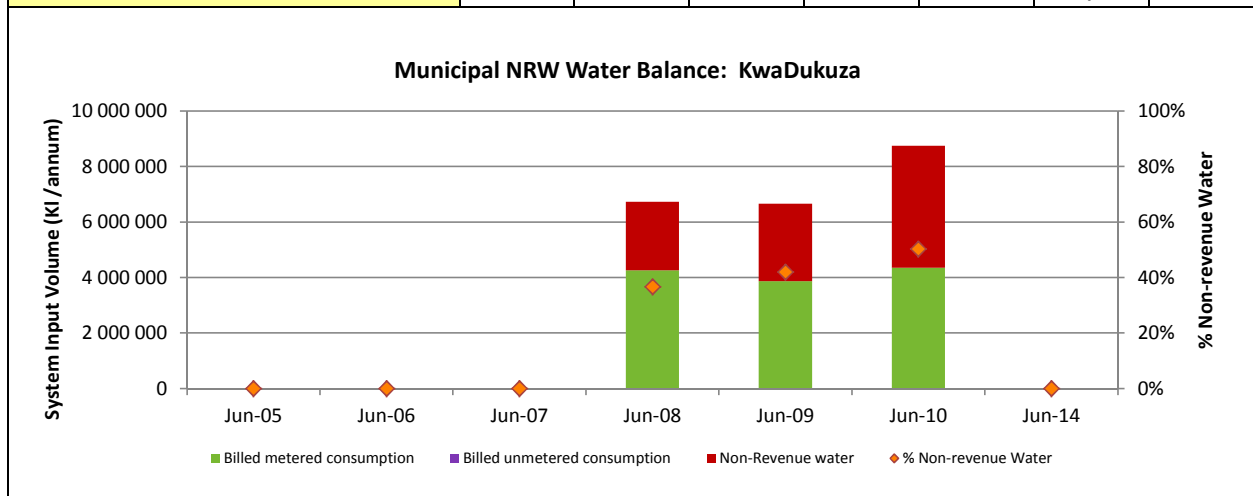


Province		KwaZulu-Natal						WSA	
Municipal Code		KZN291						No	
District Municipality		Ilembe						Category	
Municipality		Mandeni						B4	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	137 129	138 287	139 117	140 163	141 001	131 671		
	Households	32 352	32 623	32 811	33 064	33 254	31 053		
	Connections - metered						4 790		
	Connections - Unmetered						0		
	Length of mains (km)						361		
	System input volume	kl/annum				8 861 373	8 797 110	8 846 940	
	Billed metered consumption	kl/annum				2 656 399	2 238 415	2 189 113	
	Billed unmetered consumption	kl/annum				0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	0	0	2 656 399	2 238 415	2 189 113	0
	Non-Revenue water	kl/annum	0	0	0	6 204 974	6 558 695	6 657 827	0
	Water Losses	kl/annum	0	0	0	6 204 974	6 558 695	6 657 827	0
	% Non-revenue water		No data	No data	No data	70.0%	74.6%	75.3%	No data
	% Water Losses		No data	No data	No data	70.0%	74.6%	75.3%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	173	171	184	No data
	Input: m³ / household / month		No data	No data	No data	22	22	24	No data
	Billed : Litres / capita / day		No data	No data	No data	52	43	46	No data
	Billed : m³ / household / month		No data	No data	No data	7	6	6	No data
	% Population growth			0.84%	0.60%	0.75%	0.60%	-6.62%	
	% Water demand growth					#DIV/0!	-0.73%	0.57%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	NRW report	



Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN292						No	
District Municipality		Ilembe						Category	
Municipality		KwaDukuza						B2	
Settlements		LOWER TUGELA, STANGER						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	169 415	170 845	171 870	173 170	174 211	171 344		
	Households	46 755	47 148	47 427	47 793	48 077	47 286		
	Connections - metered						14 316		
	Connections - Unmetered					0	0		
	Length of mains (km)						417		
	System input volume	kl/annum				6 728 643	6 663 211	8 750 568	
	Billed metered consumption	kl/annum				4 263 583	3 866 301	4 349 094	
	Billed unmetered consumption	kl/annum						0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	0	0	4 263 583	3 866 301	4 349 094	0
	Non-Revenue water	kl/annum	0	0	0	2 465 060	2 796 910	4 401 474	0
	Water Losses	kl/annum	0	0	0	2 465 060	2 796 910	4 401 474	0
	% Non-revenue water		No data	No data	No data	36.6%	42.0%	50.3%	No data
	% Water Losses		No data	No data	No data	36.6%	42.0%	50.3%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	106	105	140	No data
	Input: m ³ / household / month		No data	No data	No data	12	12	15	No data
	Billed : Litres / capita / day		No data	No data	No data	67	61	70	No data
	Billed : m ³ / household / month		No data	No data	No data	7	7	8	No data
	% Population growth			0.84%	0.60%	0.76%	0.60%	-1.65%	
	% Water demand growth					#DIV/0!	-0.97%	31.33%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	NRW report	

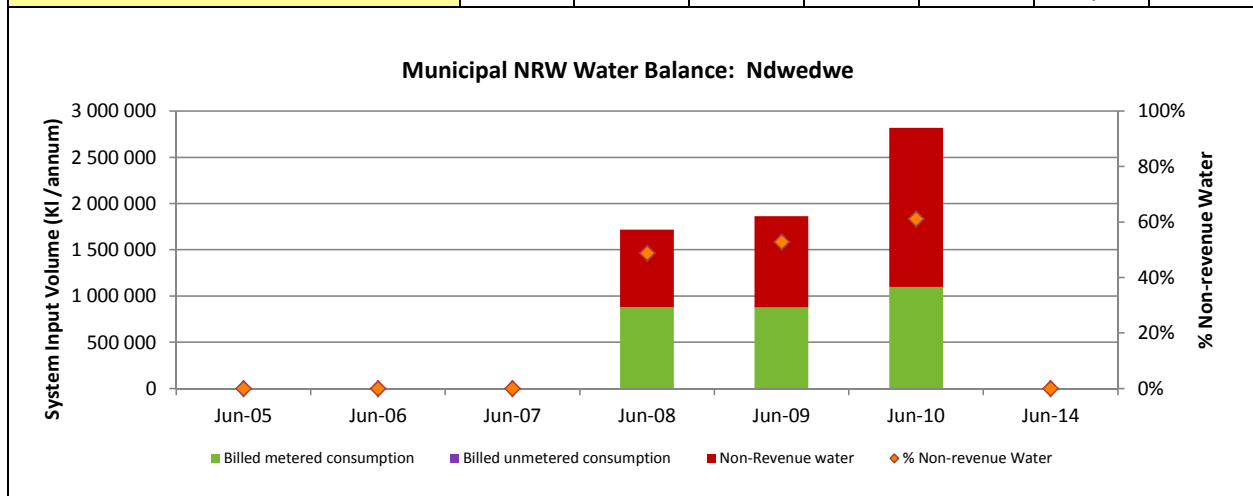


Comments

National NRW Assessment

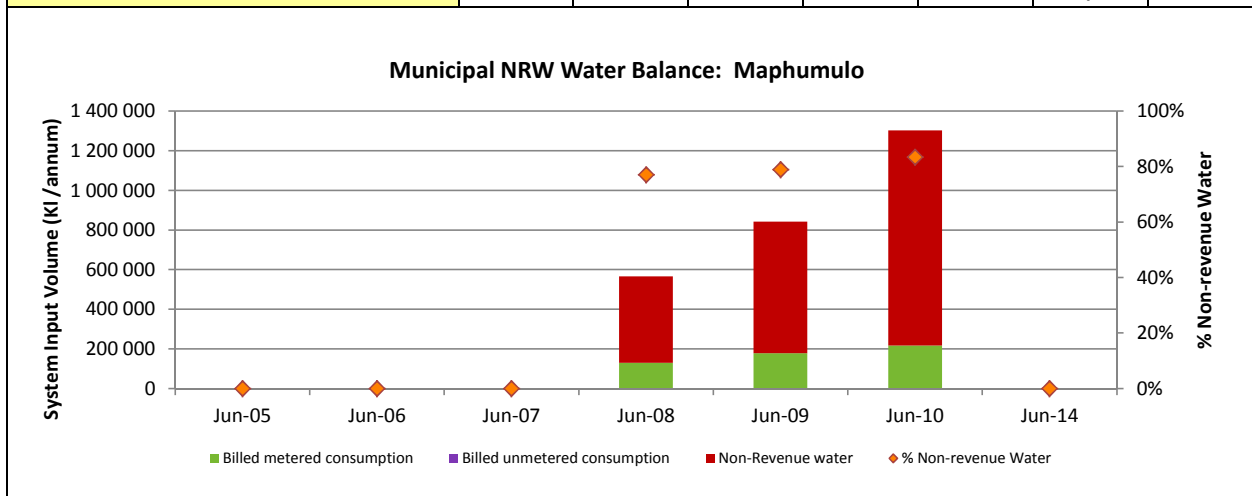


Province		KwaZulu-Natal						WSA	
Municipal Code		KZN293						No	
District Municipality		Ilembe						Category	
Municipality		Ndwedwe						B4	
Settlements		Ndwedwe						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	162 031	163 389	164 364	165 593	166 579	154 409		
	Households	30 746	31 000	31 177	31 419	31 599	29 299		
	Connections - metered						7 057		
	Connections - Unmetered						0		
	Length of mains (km)						1 144		
	System input volume	kl/annum				1 716 501	1 862 265	2 820 534	
	Billed metered consumption	kl/annum				878 849	877 993	1 097 508	
	Billed unmetered consumption	kl/annum				0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	0	0	878 849	877 993	1 097 508	0
	Non-Revenue water	kl/annum	0	0	0	837 652	984 272	1 723 026	0
	Water Losses	kl/annum	0	0	0	837 652	984 272	1 723 026	0
	% Non-revenue water		No data	No data	No data	48.8%	52.9%	61.1%	No data
	% Water Losses		No data	No data	No data	48.8%	52.9%	61.1%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	28	31	50	No data
	Input: m ³ / household / month		No data	No data	No data	5	5	8	No data
	Billed : Litres / capita / day		No data	No data	No data	15	14	19	No data
	Billed : m ³ / household / month		No data	No data	No data	2	2	3	No data
	% Population growth			0.84%	0.60%	0.75%	0.60%	-7.31%	
	% Water demand growth					#DIV/0!	8.49%	51.46%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	NRW Report	



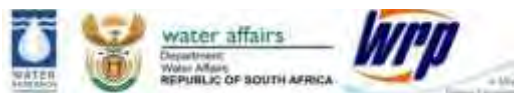
Comments

Province		KwaZulu-Natal						WSA	
Municipal Code		KZN294						No	
District Municipality		Ilembe						Category	
Municipality		Maphumulo						B4	
Settlements		Maphumulo						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	128 610	129 684	130 456	131 436	132 217	122 577		
	Households	24 750	24 952	25 088	25 299	25 436	23 583		
	Connections - metered						440		
	Connections - Unmetered						0		
	Length of mains (km)						283		
	System input volume	kl/annum				565 773	842 237	1 302 045	
	Billed metered consumption	kl/annum				129 562	177 712	216 201	
	Billed unmetered consumption	kl/annum				0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	0	0	129 562	177 712	216 201	0
	Non-Revenue water	kl/annum	0	0	0	436 211	664 525	1 085 844	0
	Water Losses	kl/annum	0	0	0	436 211	664 525	1 085 844	0
	% Non-revenue water		No data	No data	No data	77.1%	78.9%	83.4%	No data
	% Water Losses		No data	No data	No data	77.1%	78.9%	83.4%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	12	17	29	No data
	Input: m ³ / household / month		No data	No data	No data	2	3	5	No data
	Billed : Litres / capita / day		No data	No data	No data	3	4	5	No data
	Billed : m ³ / household / month		No data	No data	No data	0	1	1	No data
	% Population growth			0.84%	0.60%	0.75%	0.59%	-7.29%	
	% Water demand growth					#DIV/0!	48.86%	54.59%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	NRW report	

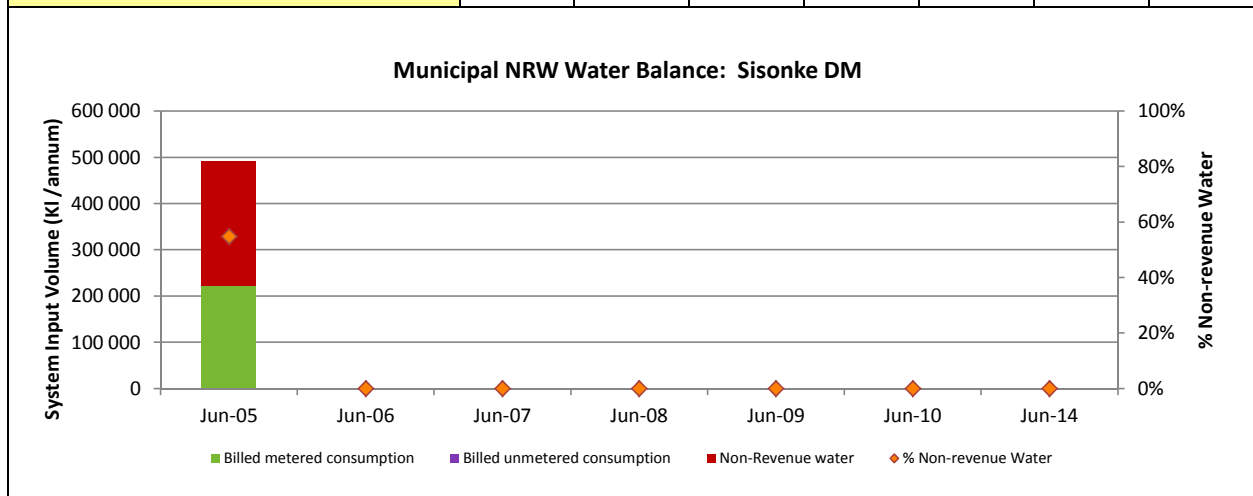


Comments

National NRW Assessment

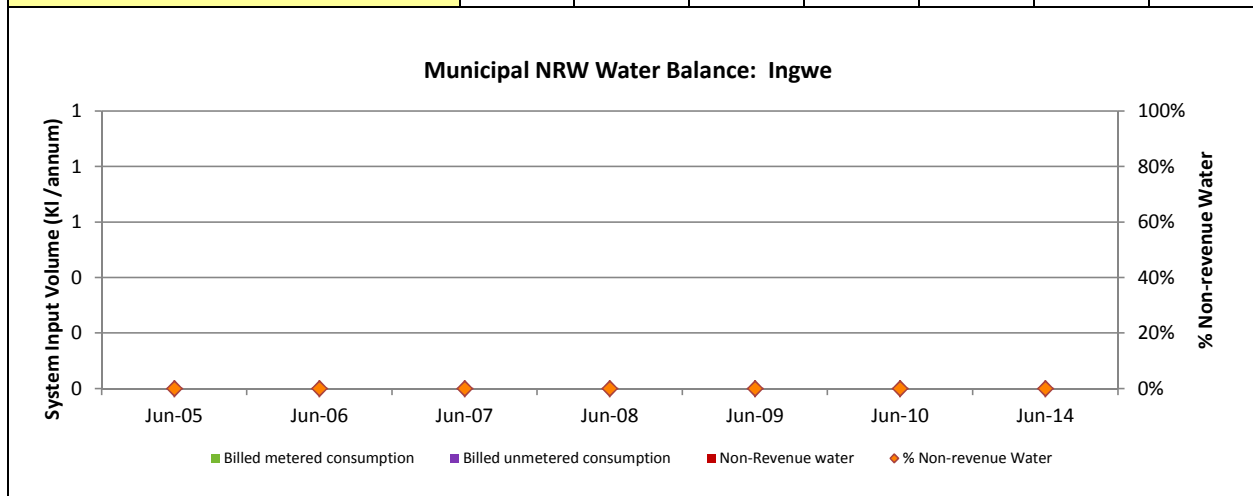


Province		KwaZulu-Natal						WSA	
Municipal Code		DC43						Yes	
District Municipality		Sisonke						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	487 240	491 295	494 144	497 666	500 538	469 183	0	
	Households	115 845	116 863	117 454	118 324	118 922	112 041	0	
	Connections - metered	47 838	48 274	48 548	48 878	49 154	47 012	0	
	Connections - Unmetered	39 647	39 982	40 189	40 497	40 707	37 969	0	
	Length of mains (km)	1 750	1 765	1 775	1 788	1 797	1 700	0	
	System input volume	kl/annum	490 937	0	0	0	0	0	0
	Billed metered consumption	kl/annum	221 817	0	0	0	0	0	0
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	221 817	0	0	0	0	0	0
	Non-Revenue water	kl/annum	269 120	0	0	0	0	0	0
	Water Losses	kl/annum	269 120	0	0	0	0	0	0
	% Non-revenue water		54.8%	No data	No data	No data	No data	No data	No data
	% Water Losses		54.8%	No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		3	No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		0	No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		1	No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		0	No data	No data	No data	No data	No data	No data
	% Population growth			0.83%	0.58%	0.71%	0.58%	-6.26%	
	% Water demand growth								
Source of information									



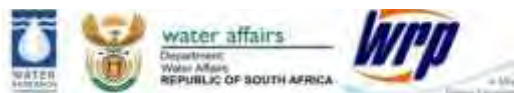
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN431						No
District Municipality		Sisonke						Category
Municipality		Ingwe						B4
Settlements		Creighton						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	119 096	120 317	121 011	121 874	122 572	113 676	
	Households	24 791	25 031	25 161	25 355	25 487	23 645	
	Connections - metered	8 200	8 284	8 332	8 391	8 439	7 827	
	Connections - Unmetered	40 465	40 566	40 624	10 703	40 759	9 984	
	Length of mains (km)	373	377	379	382	384	356	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			1.03%	0.58%	0.71%	0.57%	-7.26%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	

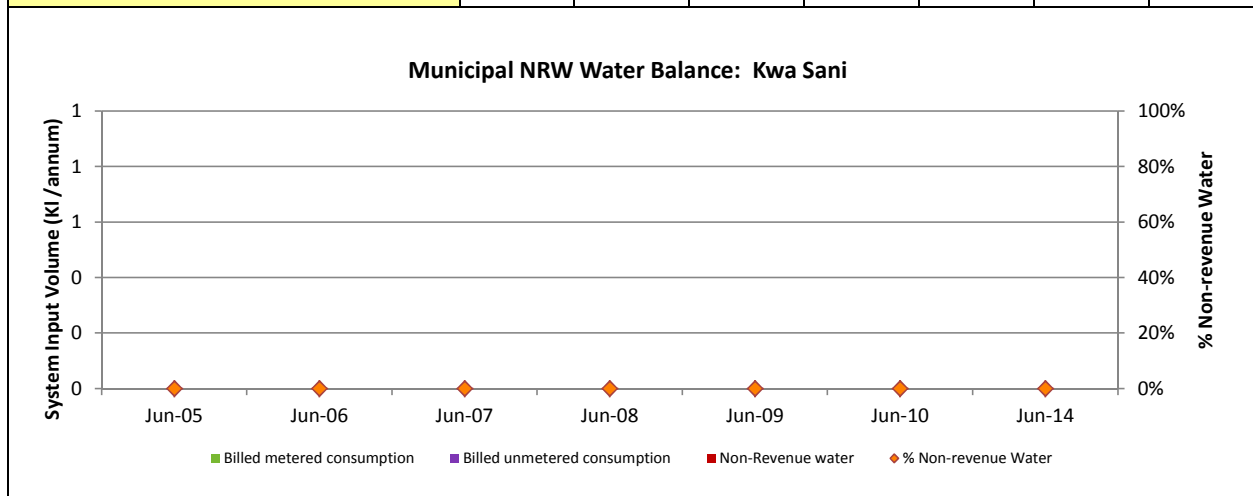


Comments

National NRW Assessment

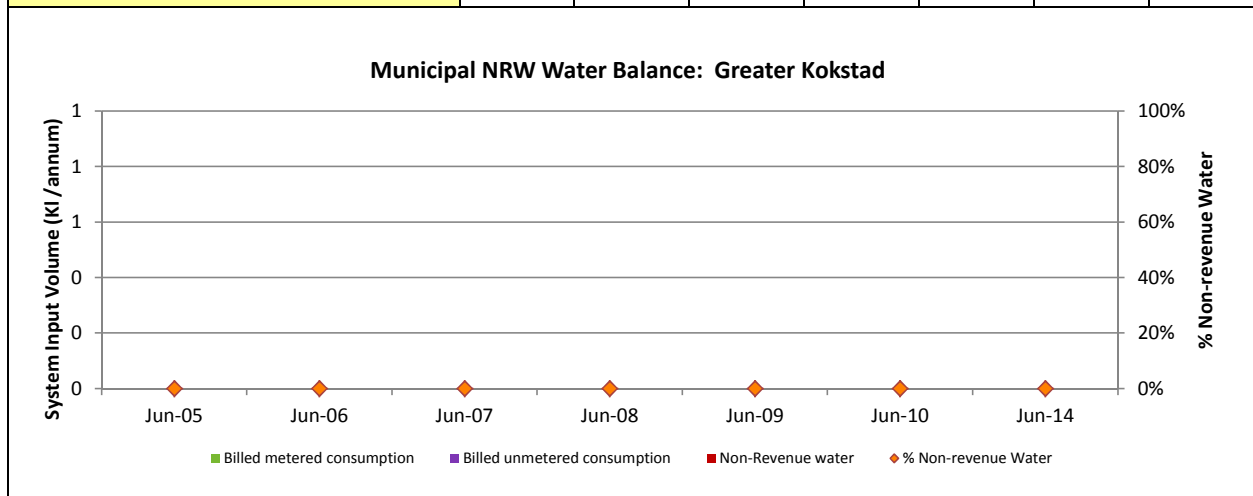


Province		KwaZulu-Natal						WSA
Municipal Code		KZN432						No
District Municipality		Sisonke						Category
Municipality		Kwa Sani						B3
Settlements		Underberg						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	16 914	17 067	17 153	17 249	17 336	16 200	
	Households	5 139	5 190	5 215	5 241	5 266	4 937	
	Connections - metered	3 890	3 925	3 945	3 967	3 987	3 726	
	Connections - Unmetered	1 275	1 287	1 294	1 300	1 306	1 225	
	Length of mains (km)	403	404	405	405	406	99	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.90%	0.50%	0.56%	0.50%	-6.55%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



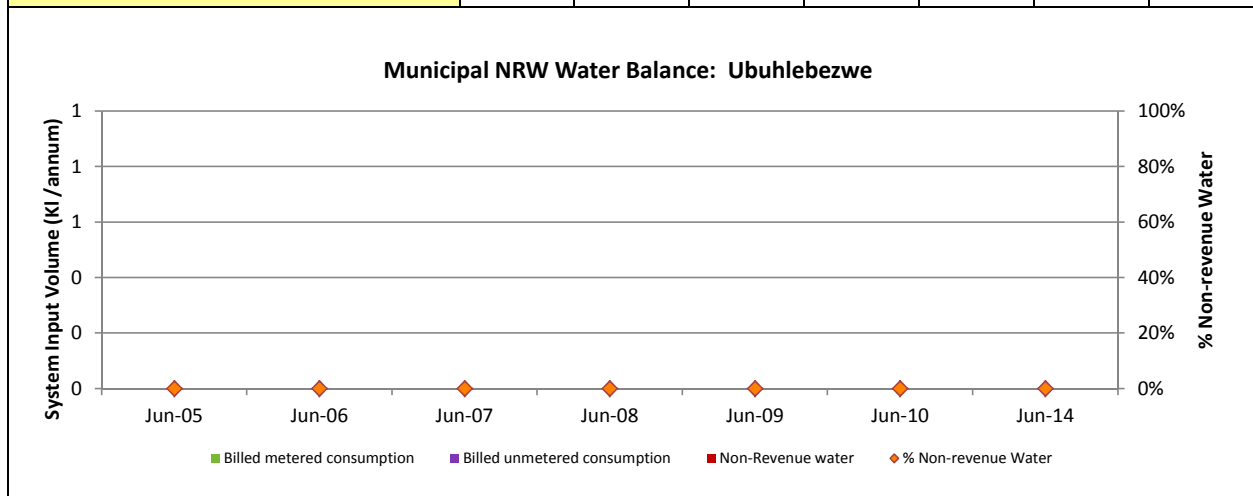
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN433						No
District Municipality		Sisonke						Category
Municipality		Greater Kokstad						B2
Settlements		KOKSTAD						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	62 300	62 920	63 273	63 685	64 041	63 436	
	Households	22 665	22 945	23 045	23 190	23 291	23 121	
	Connections - metered	20 879	21 087	21 205	21 343	21 462	21 260	
	Connections - Unmetered	1 932	1 956	1 965	1 977	1 986	1 974	
	Length of mains (km)	456	464	463	466	469	465	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			1.00%	0.56%	0.65%	0.56%	-0.94%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



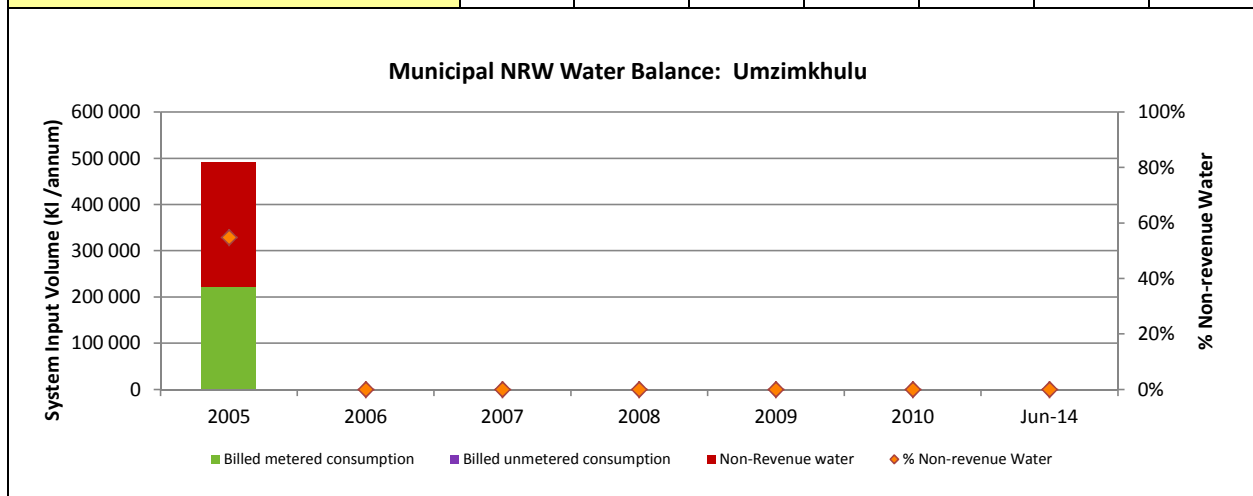
Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN434						No
District Municipality		Sisonke						Category
Municipality		Ubuhlebezwe						B4
Settlements		IXOPO						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	112 603	113 743	114 397	115 204	115 868	107 839	
	Households	24 813	25 070	25 198	25 395	25 526	23 749	
	Connections - metered	6 297	6 360	6 397	6 442	6 479	6 030	
	Connections - Unmetered	12 684	12 815	12 880	12 981	13 048	12 140	
	Length of mains (km)	380	384	386	388	391	363	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			1.01%	0.57%	0.71%	0.58%	-6.93%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



Comments

Province		KwaZulu-Natal						WSA
Municipal Code		KZN435						No
District Municipality		Sisonke						Category
Municipality		Umzimkhulu						B4
Settlements		Umzimkhulu						Target
Year ending		2005	2006	2007	2008	2009	2010	Jun-14
Input Data	Population	176 327	177 248	178 310	179 654	180 721	168 032	
	Households	38 437	38 627	38 835	39 143	39 352	36 589	
	Connections - metered	8 573	8 618	8 670	8 735	8 787	8 170	
	Connections - Unmetered	13 292	13 358	13 429	13 536	13 608	12 653	
	Length of mains (km)	437	440	442	445	448	416	
	System input volume	kl/annum	490 937					
	Billed metered consumption	kl/annum	221 817					
	Billed unmetered consumption	kl/annum	0					
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	221 817	0	0	0	0	0
	Non-Revenue water	kl/annum	269 120	0	0	0	0	0
	Water Losses	kl/annum	269 120	0	0	0	0	0
	% Non-revenue water		54.8%	No data	No data	No data	No data	No data
	% Water Losses		54.8%	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		8	No data	No data	No data	No data	No data
	Input: m ³ / household / month		1	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		3	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		0	No data	No data	No data	No data	No data
	% Population growth			0.52%	0.60%	0.75%	0.59%	-7.02%
	% Water demand growth							
Source of information		DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



Comments

National Non-Revenue Water Assessment

Limpopo Province

July 2011



Introductory notes

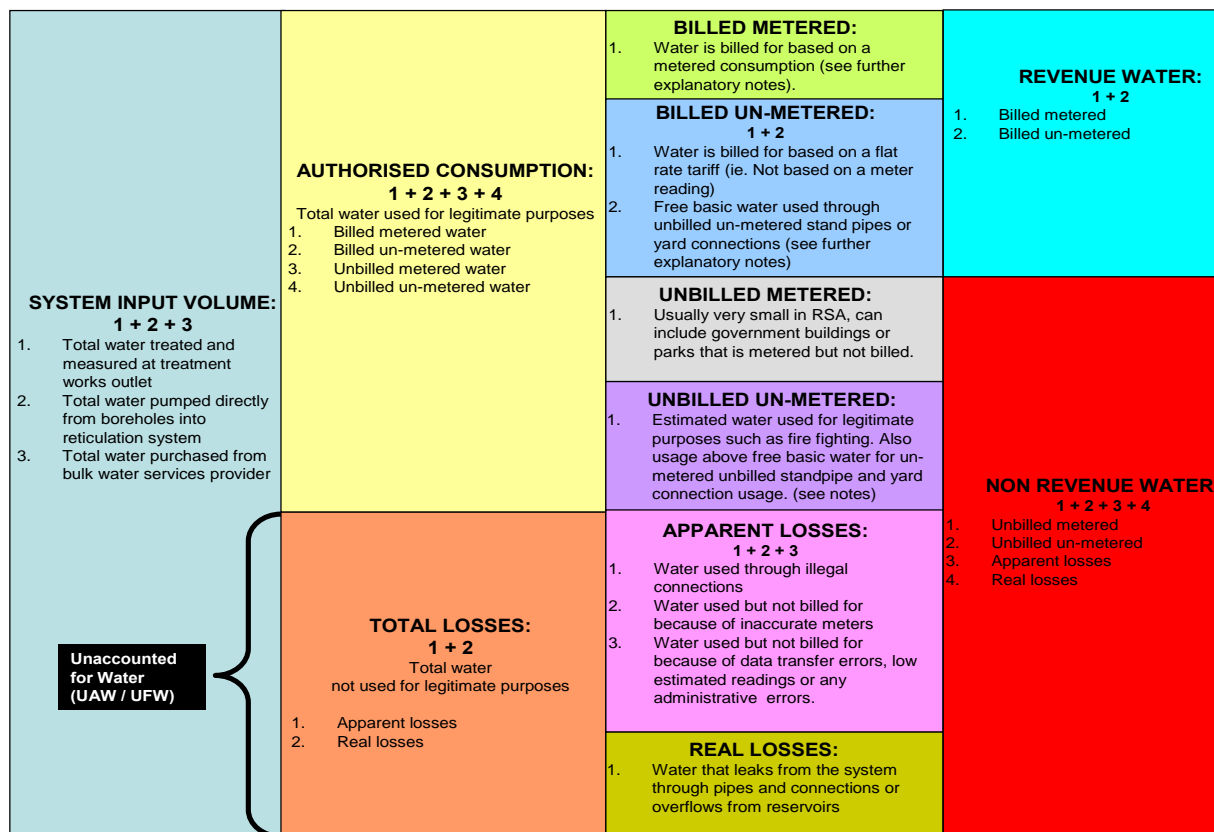
Terminology

Acronym	Description	Link
DWA	Department of Water Affairs	http://www.dwa.gov.za
WS RPMS	Water Services : Regulatory Performance Measurement System	http://www.dwa.gov.za/dir_ws/rpms/
WS NIS	Water Services : National Information System	http://www.dwa.gov.za/dir_ws/wsis/
FBS	Water Services : Free Basic Water Project	http://www.dwa.gov.za/dir_ws/fbw/
NRW	Non-revenue water. Volume of water for which no revenue is received (preferred term)	
UAW or UFW	Unaccounted-for water. Volume of water lost due to physical and apparent losses (not preferred term)	
StatsSA NEC	Statistics South Africa : Non-Financial Census of Municipalities P9115	http://www.statssa.gov.za/

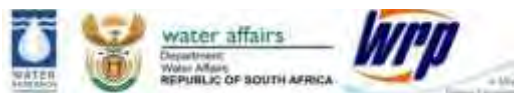
Information sources

Item	Source	Calculation
Population	DWA WS NIS or municipality	
Households	DWA WS NIS or municipality	
Connections - metered	Extrapolated 2007 DWA - WS FBW serviced above RDP or municipality	
Connections - Unmetered	Extrapolated 2007 DWA - WS FBW serviced at RDP or municipality	
Length of mains (km)	Actual value or calculated at average of 50 connections / km of mains	# connections ÷ 50
(A) System input volume	Total volume of potable water supplied by the municipality in k/annum	
(B) Billed metered consumption	Total volume of water metered and billed by the municipality in k/annum	
(C) Billed unmetered consumption	Total volume of water unmetered and billed by the municipality in k/annum	
Underlined values	Calculated values using trends or averages	

Standard IWA Water Balance



National NRW Assessment

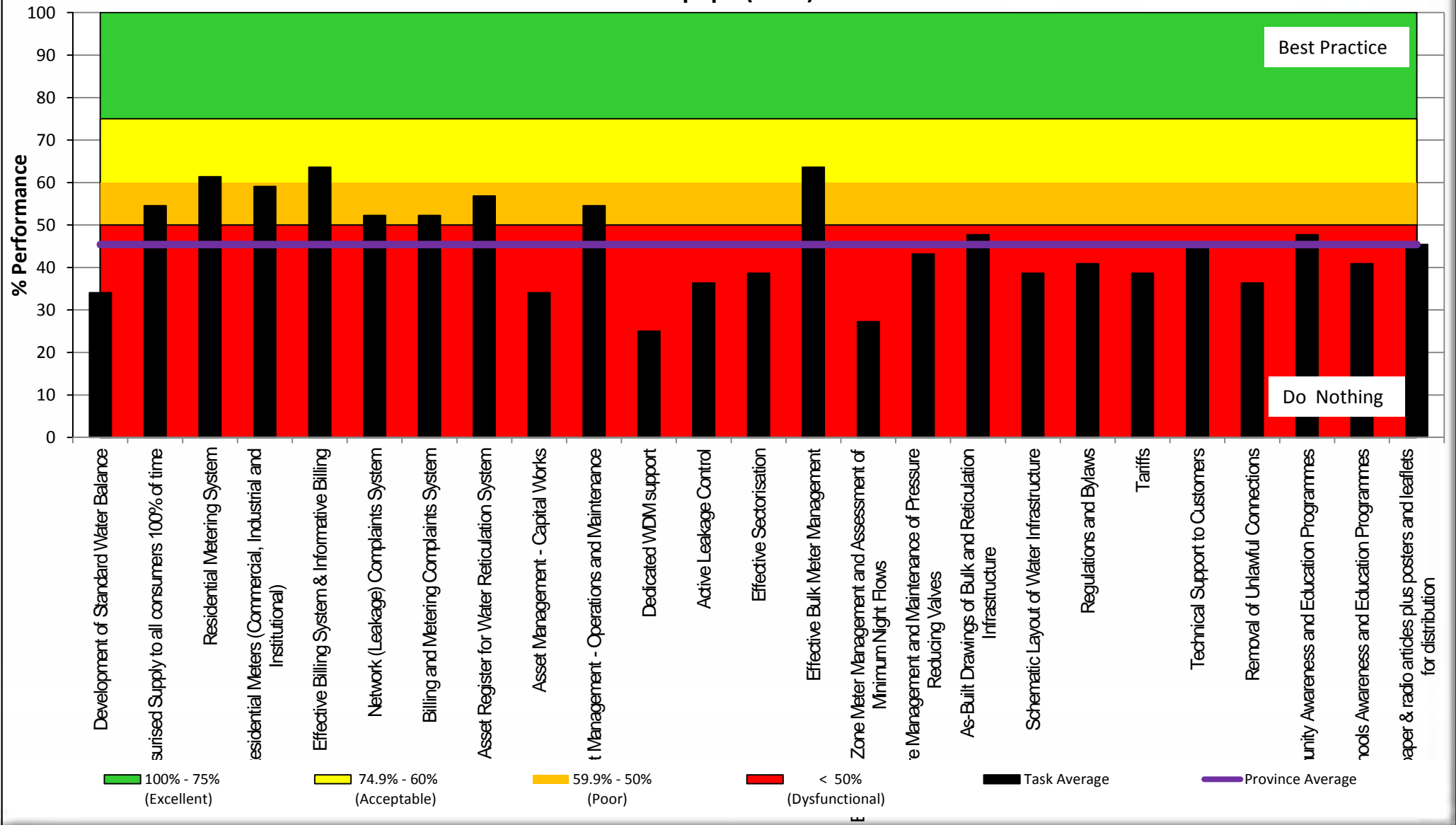


Province Limpopo					
No	Municipal Code	District Municipality	Municipality	Category	WSA
1	DC33	Mopani	Mopani-DM	C2	Yes
2	LIM331	Mopani	Greater-Giyani	B4	No
3	LIM332	Mopani	Greater-Letaba	B4	No
4	LIM333	Mopani	Greater-Tzaneen	B4	No
5	LIM334	Mopani	Ba-Phalaborwa	B3	No
6	LIM335	Mopani	Maruleng	B4	No
7	DC34	Vhembe	Vhembe-DM	C2	Yes
8	LIM341	Vhembe	Musina	B3	No
9	LIM342	Vhembe	Mutale	B4	No
10	LIM343	Vhembe	Tbulamela	B4	No
11	LIM344	Vhembe	Makhadzi	B4	No
12	DC35	Capricorn	Capricorn-DM	C2	Yes
13	LIM351	Capricorn	Bloubaerg	B4	No
14	LIM352	Capricorn	Aganang	B4	No
15	LIM353	Capricorn	Melmsig	B4	Yes
16	LIM354	Capricorn	Polokwane	B1	Yes
17	LIM355	Capricorn	Lepelle-Nkumpi	B4	No
18	DC36	Waterberg	Waterberg-DM	C1	No
19	LIM361	Waterberg	Tlhabazimbe	B3	Yes
20	LIM362	Waterberg	Lephalale	B3	Yes
21	LIM364	Waterberg	Mookgopong	B3	Yes
22	LIM365	Waterberg	Medimole	B3	No
23	LIM366	Waterberg	Bela-Bela	B3	Yes
24	LIM367	Waterberg	Mogalakwena	B2	Yes
25	DC47	Greater Sekhukhune	Greater-Sekhukhune-DM	C2	Yes
26	LIM471	Greater Sekhukhune	Greater-Marble-Hill	B4	No
27	LIM472	Greater Sekhukhune	Elias-Motselele	B4	No
28	LIM473	Greater Sekhukhune	Mkhudutswana	B4	No
29	LIM474	Greater Sekhukhune	Fetakgomo	B4	No
30	LIM475	Greater Sekhukhune	Greater-Tubatse	B4	No

National NRW Assessment

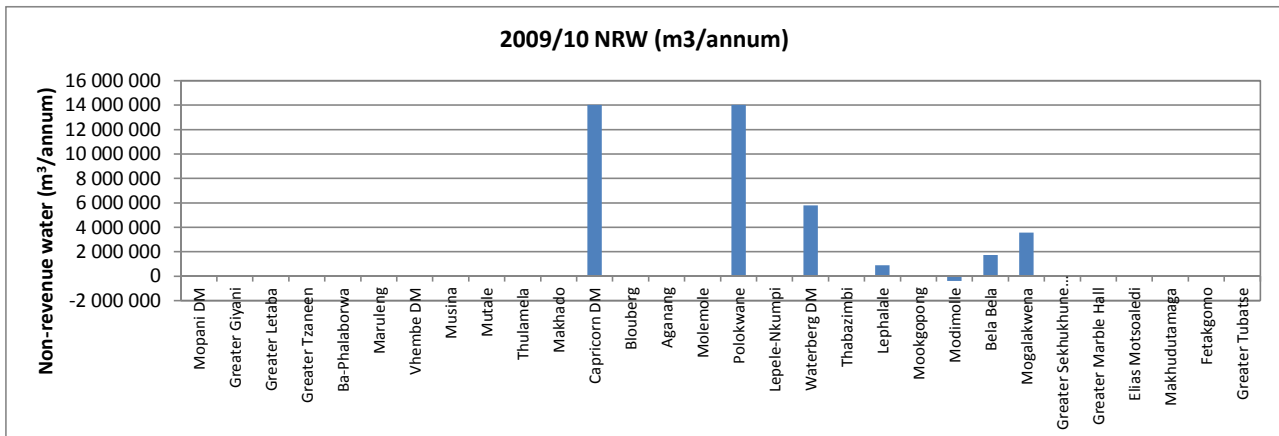
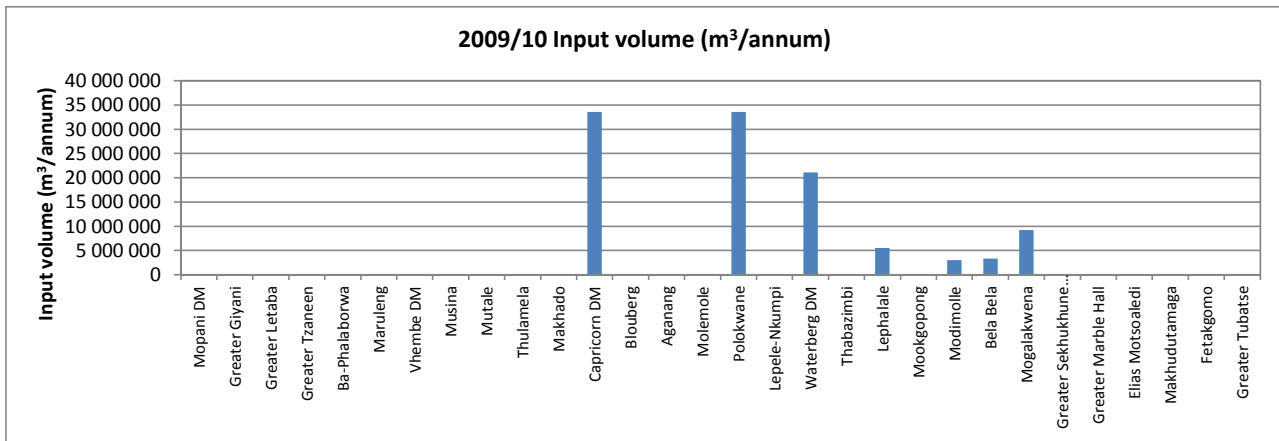
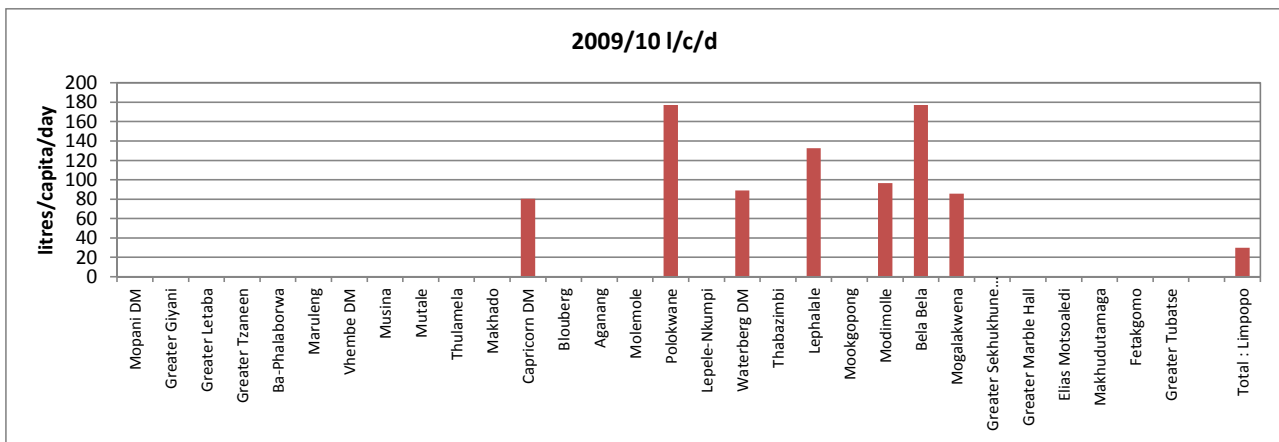
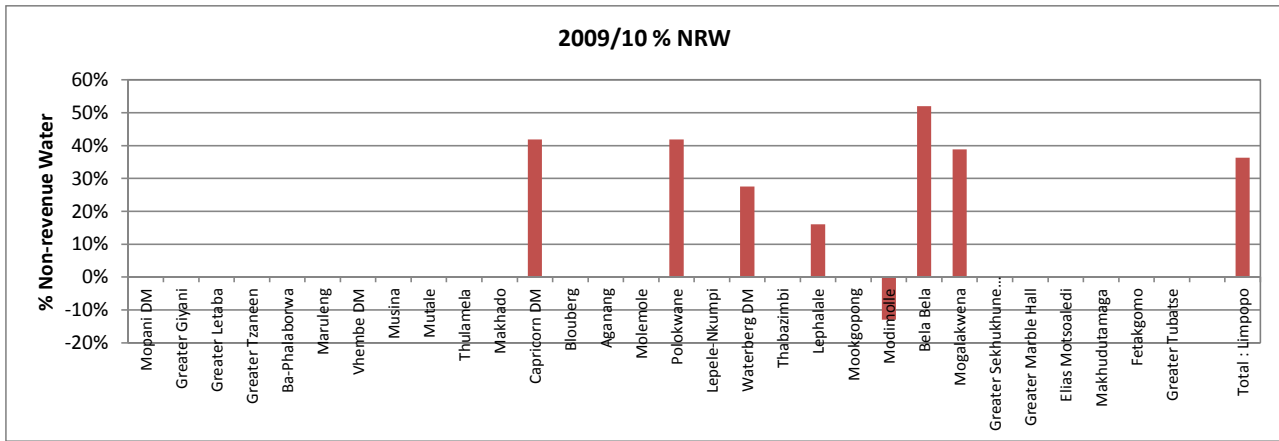


Municipal Scorecard for Assessing the Potential for WC/WDM in Municipalities Limpopo (2010)

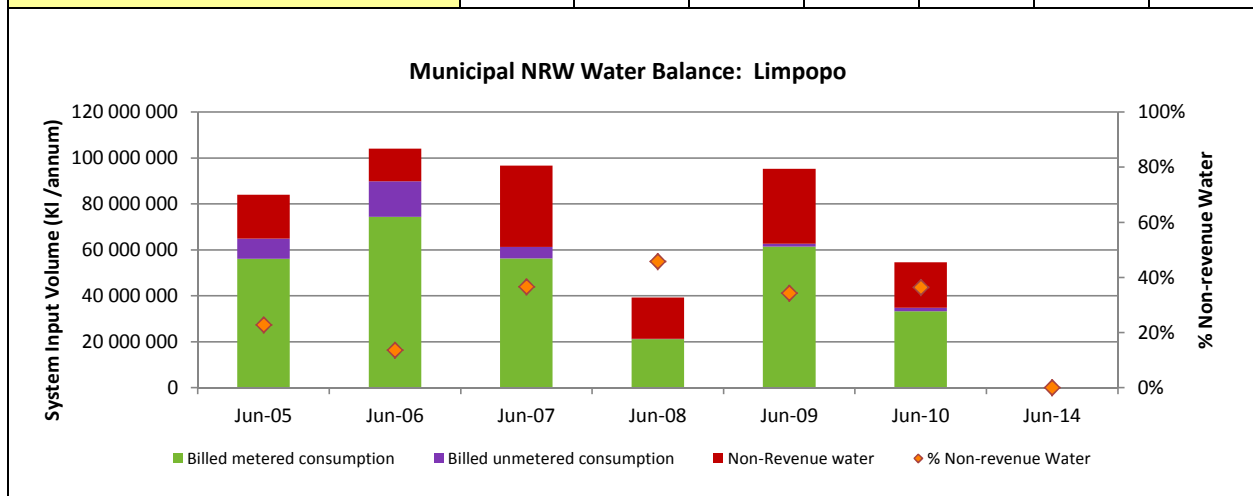


Score	Criteria	# of Records	Comments	Distribution
Record Keeping 26				
1	No records	8	Good records keeping is the first step towards water management and reducing water losses	<ul style="list-style-type: none"> No records Poor records Erratic / worthless records Records with gaps or questions Good records no gaps or questions
2	Poor records	4		
3	Erratic / worthless records	8		
4	Records with gaps or questions	4		
5	Good records no gaps or questions	2		
% NRW 26				
0	No records	19	% Non-revenue water (volume of water for which no income is received). Current estimated national average $\pm 35\%$	<ul style="list-style-type: none"> No records >50% >40% \leq50% >30% \leq40% >20% \leq30% \leq20%
1	>50%	1		
2	>40% \leq 50%	2		
3	>30% \leq 40%	1		
4	>20% \leq 30%	1		
5	\leq 20%	2		
litres / capita / day 26				
0	No records	19	Average litres / capita / day based on system input volume. Expected average around 200l/c/d.	<ul style="list-style-type: none"> No records >400 >300 and \leq400 >200 and \leq300 >100 and \leq200 \leq100
1	>400	0		
2	>300 and \leq 400	0		
3	>200 and \leq 300	0		
4	>100 and \leq 200	3		
5	\leq 100	4		
NRW Activity 26				
1	No activity	13	Based on local knowledge, scorecard, available records.	<ul style="list-style-type: none"> No activity Very limited activity Some activity, part of O&M Small scale active programme Large scale active programme
2	Very limited activity	10		
3	Some activity, part of O&M	3		
4	Small scale active programme	0		
5	Large scale active programme	0		
Potential NRW Impact 26				
1	\leq 50,000	2	Potential impact of intervention based on population. High population = high consumption = higher potential saving.	<ul style="list-style-type: none"> \leq50,000 >50,000 \leq100,000 >100,000 \leq200,000 >200,000 \leq500,000 >500,000
2	>50,000 \leq 100,000	5		
3	>100,000 \leq 200,000	6		
4	>200,000 \leq 500,000	6		
5	>500,000	7		

Key Performance Indicators

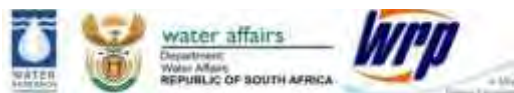


Province		Limpopo						WSA	
Municipal Code									
District Municipality								Category	
Municipality									
Settlements								Target Jun-14	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10		
Input Data	Population	5 262 160	5 291 458	5 323 185	5 363 093	5 395 267	5 016 092	0	
	Households	1 235 847	1 242 909	1 250 308	1 259 743	1 267 240	1 177 831	0	
	Connections - metered	537 380	540 472	543 676	549 044	552 422	597 671	0	
	Connections - Unmetered	288 368	289 710	291 501	293 790	295 612	349 063	0	
	Length of mains (km)	16 280	16 387	16 503	16 655	16 754	529 219	0	
	System input volume	kl/annum	83 948 779	104 082 376	96 680 467	39 276 093	95 275 734	54 627 267	0
	Billed metered consumption	kl/annum	56 061 142	74 389 912	56 280 915	21 081 491	61 449 886	33 318 512	0
	Billed unmetered consumption	kl/annum	8 797 380	15 488 623	5 030 087	235 974	1 182 038	1 473 300	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	64 858 522	89 878 535	61 311 002	21 317 465	62 631 924	34 791 812	0
	Non-Revenue water	kl/annum	19 090 257	14 203 841	35 369 465	17 958 628	32 643 810	19 835 455	0
	Water Losses	kl/annum	19 090 257	14 203 841	35 369 465	17 958 628	32 643 810	19 835 455	0
	% Non-revenue water		22.7%	13.6%	36.6%	45.7%	34.3%	36.3%	No data
	% Water Losses		22.7%	13.6%	36.6%	45.7%	34.3%	36.3%	No data
Key performance indicators	Input : Litres / capita / day		44	54	50	20	48	30	No data
	Input: m ³ / household / month		6	7	6	3	6	4	No data
	Billed : Litres / capita / day		34	47	32	11	32	19	No data
	Billed : m ³ / household / month		4	6	4	1	4	2	No data
	% Population growth			0.56%	0.60%	0.75%	0.60%	-7.03%	
	% Water demand growth			23.98%	-7.11%	-59.38%	142.58%	-42.66%	
Source of information									

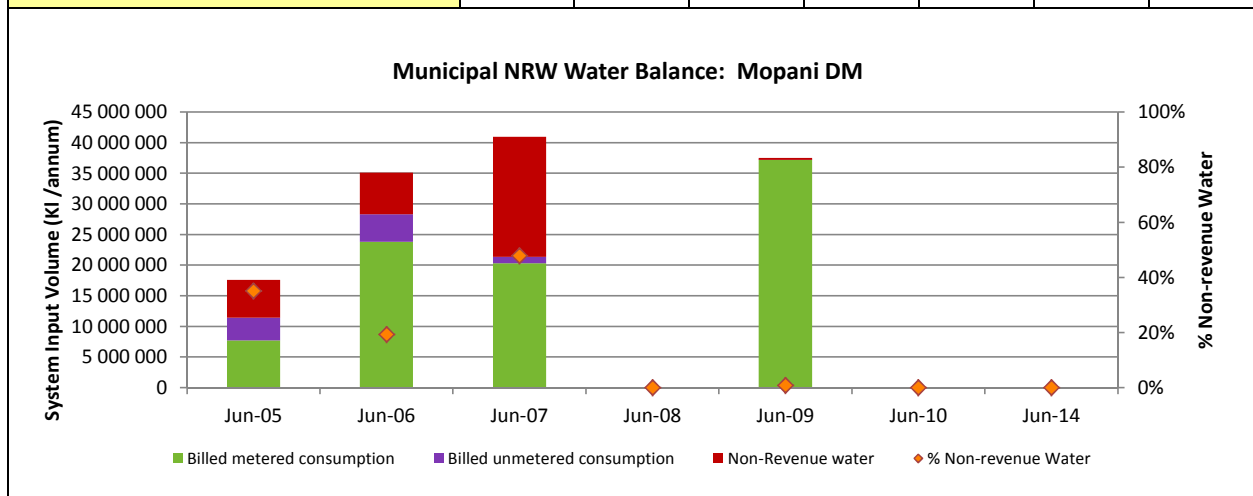


Comments

National NRW Assessment



Province		Limpopo						WSA	
Municipal Code		DC33						Yes	
District Municipality		Mopani						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	1 115 627	1 123 018	1 129 751	1 138 225	1 145 059	1 062 148	0	
	Households	263 749	265 497	267 088	269 096	270 703	251 195	0	
	Connections - metered	144 339	145 297	146 169	147 265	148 149	137 977	0	
	Connections - Unmetered	67 574	68 023	68 430	68 944	69 356	64 091	0	
	Length of mains (km)	4 238	4 266	4 292	4 324	4 350	4 041	0	
	System input volume	kl/annum	17 579 095	35 093 803	40 962 800	0	37 534 012	0	0
	Billed metered consumption	kl/annum	7 723 084	23 789 177	20 322 055	0	37 204 005	0	0
	Billed unmetered consumption	kl/annum	3 690 576	4 544 112	1 042 084	0	10 800	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	11 413 660	28 333 289	21 364 139	0	37 214 805	0	0
	Non-Revenue water	kl/annum	6 165 435	6 760 514	19 598 661	0	319 207	0	0
	Water Losses	kl/annum	6 165 435	6 760 514	19 598 661	0	319 207	0	0
	% Non-revenue water		35.1%	19.3%	47.8%	No data	0.9%	No data	No data
	% Water Losses		35.1%	19.3%	47.8%	No data	0.9%	No data	No data
Key performance indicators	Input : Litres / capita / day		43	86	99	No data	90	No data	No data
	Input: m³ / household / month		6	11	13	No data	12	No data	No data
	Billed : Litres / capita / day		28	69	52	No data	89	No data	No data
	Billed : m³ / household / month		4	9	7	No data	11	No data	No data
	% Population growth			0.66%	0.60%	0.75%	0.60%	-7.24%	
	% Water demand growth			99.63%	16.72%		#DIV/0!		
Source of information									

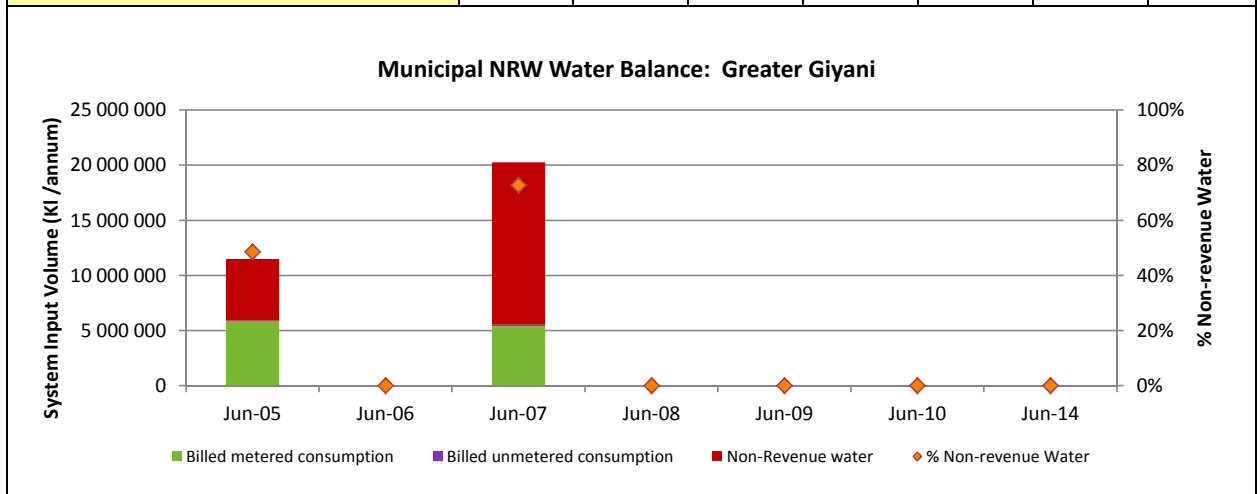


Comments

National NRW Assessment

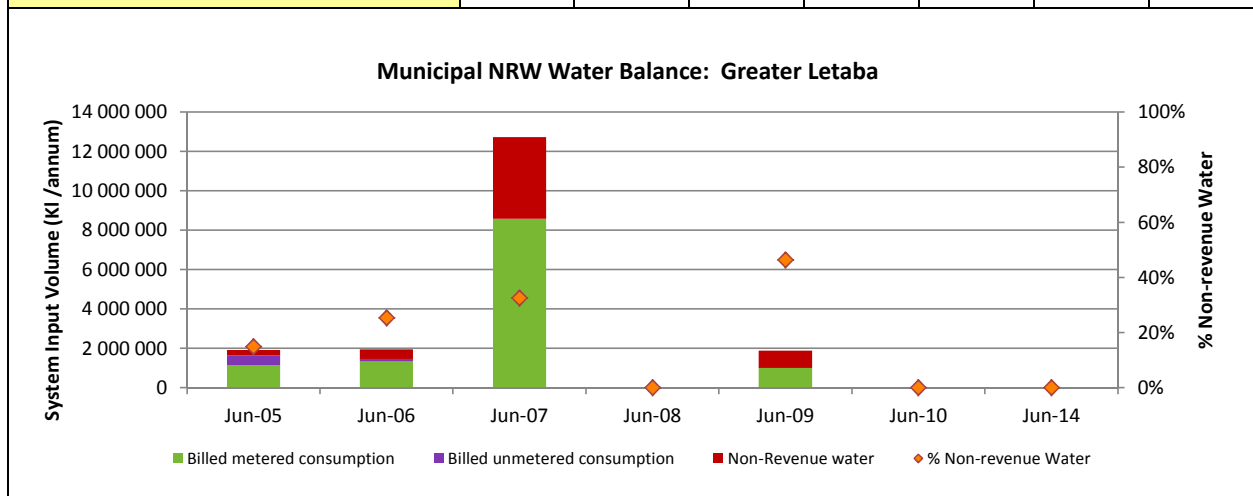


Province		Limpopo						WSA
Municipal Code		LIM331						No
District Municipality		Mopani						Category
Municipality		Greater Giyani						B4
Settlements		GIYANI						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	252 267	253 926	255 450	257 365	258 910	237 692	
	Households	58 318	58 701	59 056	59 495	59 852	54 947	
	Connections - metered	33 967	34 190	34 395	34 653	34 864	32 004	
	Connections - Unmetered	40 093	40 160	40 224	10 297	40 359	9 540	
	Length of mains (km)	884	887	892	899	904	830	
	System input volume	kl/annum	11 481 129		20 268 000			
	Billed metered consumption	kl/annum	5 830 780		5 400 000			
	Billed unmetered consumption	kl/annum	78 696		138 546			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	5 909 476	0	5 538 546	0	0	0
	Non-Revenue water	kl/annum	5 571 653	0	14 729 454	0	0	0
	Water Losses	kl/annum	5 571 653	0	14 729 454	0	0	0
	% Non-revenue water		48.5%	No data	72.7%	No data	No data	No data
	% Water Losses		48.5%	No data	72.7%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		125	No data	217	No data	No data	No data
	Input: m ³ / household / month		16	No data	29	No data	No data	No data
	Billed : Litres / capita / day		64	No data	59	No data	No data	No data
	Billed : m ³ / household / month		8	No data	8	No data	No data	No data
	% Population growth			0.66%	0.60%	0.75%	0.60%	-8.20%
	% Water demand growth				#DIV/0!			
Source of information		DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	



Comments
 Input volume cannot double in 2 years?

Province		Limpopo						WSA
Municipal Code		LIM332						No
District Municipality		Mopani						Category
Municipality		Greater Letaba						B4
Settlements		SEKGOPO, DUIWELSKLOOF						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	240 345	241 914	243 363	245 192	246 664	225 681	
	Households	56 954	57 324	57 665	58 095	58 442	53 468	
	Connections - metered	23 638	23 793	23 935	24 115	24 260	22 196	
	Connections - Unmetered	22 000	22 143	22 275	22 441	22 575	20 654	
	Length of mains (km)	943	949	924	931	937	857	
	System input volume	kl/annum	1 915 930	1 942 982	12 733 408		1 882 332	
	Billed metered consumption	kl/annum	1 125 782	1 331 249	8 585 396		998 170	
	Billed unmetered consumption	kl/annum	504 000	120 000	0		10 800	
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 629 782	1 451 249	8 585 396	0	1 008 970	0
	Non-Revenue water	kl/annum	286 148	491 733	4 148 012	0	873 362	0
	Water Losses	kl/annum	286 148	491 733	4 148 012	0	873 362	0
	% Non-revenue water		14.9%	25.3%	32.6%	No data	46.4%	No data
	% Water Losses		14.9%	25.3%	32.6%	No data	46.4%	No data
Key performance indicators	Input : Litres / capita / day		22	22	143	No data	21	No data
	Input: m ³ / household / month		3	3	18	No data	3	No data
	Billed : Litres / capita / day		19	16	97	No data	11	No data
	Billed : m ³ / household / month		2	2	12	No data	1	No data
	% Population growth			0.65%	0.60%	0.75%	0.60%	-8.51%
	% Water demand growth			1.41%	555.35%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	



Comments
 Input volume for 2005, 2006, 2009 seem unrealistically low?

Province		Limpopo						WSA
Municipal Code		LIM333						No
District Municipality		Mopani						Category
Municipality		Greater Tzaneen						B4
Settlements		DAN, TZANEEN, NKOWANKOWA						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	388 340	390 887	393 230	396 177	398 557	370 789	
	Households	93 324	93 939	94 502	95 221	95 790	89 118	
	Connections - metered	41 969	42 244	42 498	42 816	43 073	40 072	
	Connections - Unmetered	24 768	24 934	25 080	25 271	25 422	23 654	
	Length of mains (km)	1 335	1 344	1 352	1 362	1 370	1 274	
	System input volume	kl/annum	854 266	9 064 133	5 540 963		4 450 835	
	Billed metered consumption	kl/annum	298 706	8 218 421	5 172 762		6 588 561	
	Billed unmetered consumption	kl/annum	43 560	845 712	202 618			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	342 266	9 064 133	5 375 380	0	6 588 561	0
	Non-Revenue water	kl/annum	512 000	0	165 583	0	-2 137 726	0
	Water Losses	kl/annum	512 000	0	165 583	0	-2 137 726	0
	% Non-revenue water		59.9%	Check data	3.0%	No data	Check data	No data
	% Water Losses		59.9%	No data	3.0%	No data	Check data	No data
Key performance indicators	Input : Litres / capita / day		6	64	39	No data	31	No data
	Input: m ³ / household / month		1	8	5	No data	4	No data
	Billed : Litres / capita / day		2	64	37	No data	45	No data
	Billed : m ³ / household / month		0	8	5	No data	6	No data
	% Population growth			0.66%	0.60%	0.75%	0.60%	-6.97%
	% Water demand growth			961.04%	-38.87%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

Municipal NRW Water Balance: Greater Tzaneen

Comments	
Input volume fluctuating?	

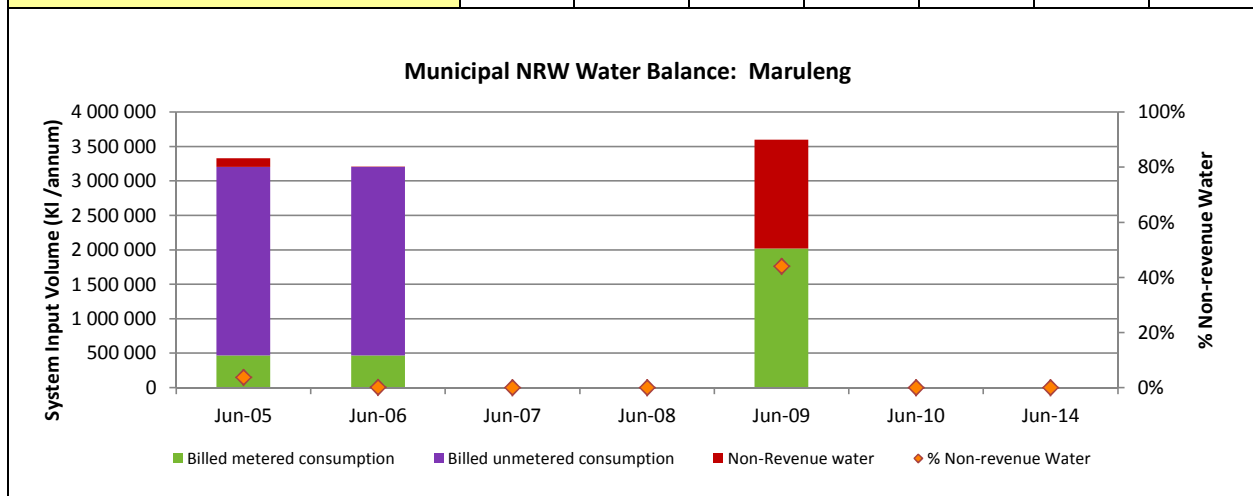
Province		Limpopo						WSA	
Municipal Code		LIM334						No	
District Municipality		Mopani						Category	
Municipality		Ba-Phalaborwa						B3	
Settlements		LULEKANI, NAMAKGALE, PHALABORWA						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	138 317	139 225	140 061	141 114	141 962	137 283		
	Households	34 109	34 332	34 537	34 799	35 005	33 851		
	Connections - metered	30 580	30 780	30 965	31 198	31 385	30 354		
	Connections - Unmetered	3 734	3 759	3 784	3 810	3 833	3 706		
	Length of mains (km)	686	694	695	700	704	684		
	System input volume	kl/annum	0	20 877 272	2 420 429		27 600 000		
	Billed metered consumption	kl/annum	0	13 771 691	1 163 897		27 600 000		
	Billed unmetered consumption	kl/annum	328 320	842 400	700 920				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	328 320	14 614 091	1 864 817	0	27 600 000	0	
	Non-Revenue water	kl/annum	-328 320	6 263 181	555 612	0	0	0	
	Water Losses	kl/annum	-328 320	6 263 181	555 612	0	0	0	
	% Non-revenue water		No data	30.0%	23.0%	No data	Check data	No data	No data
	% Water Losses		No data	30.0%	23.0%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	411	47	No data	533	No data	No data
	Input: m³ / household / month		No data	51	6	No data	66	No data	No data
	Billed : Litres / capita / day		7	288	36	No data	533	No data	No data
	Billed : m³ / household / month		1	35	4	No data	66	No data	No data
	% Population growth			0.66%	0.60%	0.75%	0.60%	-3.30%	
	% Water demand growth			#DIV/0!	-88.41%		#DIV/0!		
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		

Municipal NRW Water Balance: Ba-Phalaborwa

Year	Billed metered consumption	Billed unmetered consumption	Non-Revenue water
Jun-05	0	0	0
Jun-06	13 771 691	328 320	328 320
Jun-07	1 163 897	700 920	0
Jun-09	0	0	27 600 000
Jun-10	0	0	0
Jun-14	0	0	0

Comments
 Only data for 2006 looks realistic

Province		Limpopo						WSA
Municipal Code		LIM335						No
District Municipality		Mopani						Category
Municipality		Maruleng						B4
Settlements		Hoedspruit						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	96 358	97 066	97 647	98 377	98 966	90 703	
	Households	21 044	21 201	21 328	21 486	21 614	19 811	
	Connections - metered	14 186	14 290	14 376	14 483	14 570	13 353	
	Connections - Unmetered	6 978	7 030	7 073	7 125	7 167	6 570	
	Length of mains (km)	423	426	429	432	435	398	
	System input volume	kl/annum	3 327 770	3 209 416			3 600 845	
	Billed metered consumption	kl/annum	467 816	467 816			2 017 274	
	Billed unmetered consumption	kl/annum	2 736 000	2 736 000				
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	3 203 816	3 203 816	0	0	2 017 274	0
	Non-Revenue water	kl/annum	123 954	5 600	0	0	1 583 571	0
	Water Losses	kl/annum	123 954	5 600	0	0	1 583 571	0
	% Non-revenue water		3.7%	0.2%	No data	No data	44.0%	No data
	% Water Losses		3.7%	0.2%	No data	No data	44.0%	No data
Key performance indicators	Input : Litres / capita / day		95	91	No data	No data	100	No data
	Input: m ³ / household / month		13	13	No data	No data	14	No data
	Billed : Litres / capita / day		91	90	No data	No data	56	No data
	Billed : m ³ / household / month		13	13	No data	No data	8	No data
	% Population growth			0.73%	0.60%	0.75%	0.60%	-8.35%
	% Water demand growth			-3.56%			#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

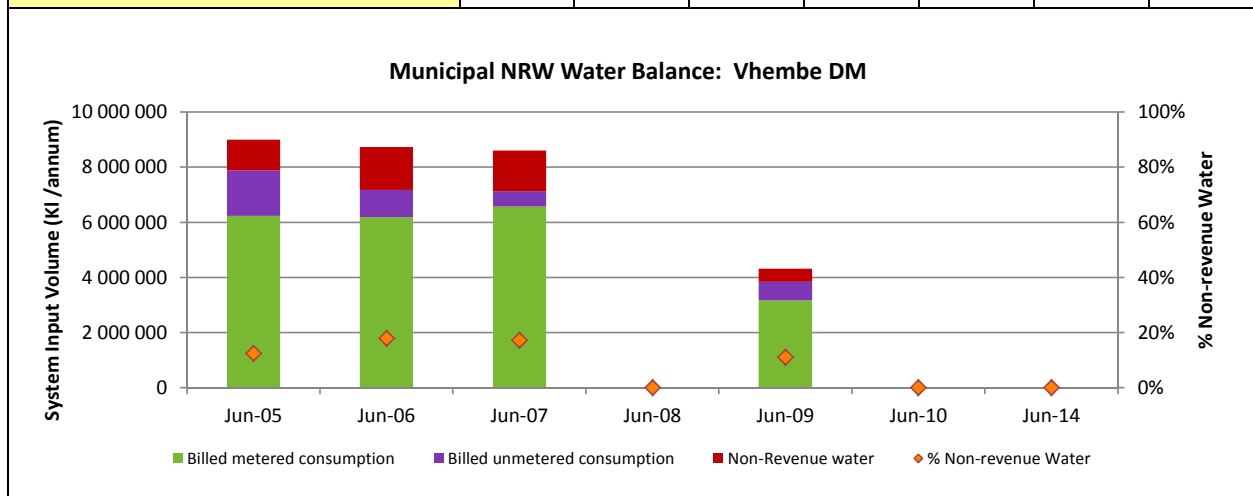


Comments
Only data for 2009 looks realistic

National NRW Assessment



Province		Limpopo						WSA	
Municipal Code		DC34						Yes	
District Municipality		Capricorn						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	1 261 526	1 272 395	1 280 023	1 289 612	1 297 349	1 203 291	0	
	Households	292 169	294 701	296 457	298 679	300 463	278 936	0	
	Connections - metered	149 101	150 386	151 287	152 421	153 335	142 704	0	
	Connections - Unmetered	83 158	83 877	84 375	85 009	85 515	79 208	0	
	Length of mains (km)	4 645	4 685	4 713	4 749	4 777	4 438	0	
	System input volume	kl/annum	8 999 243	8 733 455	8 600 977	0	4 319 860	0	0
	Billed metered consumption	kl/annum	6 234 339	6 184 081	6 565 174	0	3 168 682	0	0
	Billed unmetered consumption	kl/annum	1 649 304	986 976	559 195	0	675 231	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	7 883 643	7 171 057	7 124 369	0	3 843 913	0	0
	Non-Revenue water	kl/annum	1 115 600	1 562 398	1 476 608	0	475 947	0	0
	Water Losses	kl/annum	1 115 600	1 562 398	1 476 608	0	475 947	0	0
	% Non-revenue water		12.4%	17.9%	17.2%	No data	11.0%	No data	No data
	% Water Losses		12.4%	17.9%	17.2%	No data	11.0%	No data	No data
Key performance indicators	Input : Litres / capita / day		20	19	18	No data	9	No data	No data
	Input: m ³ / household / month		3	2	2	No data	1	No data	No data
	Billed : Litres / capita / day		17	15	15	No data	8	No data	No data
	Billed : m ³ / household / month		2	2	2	No data	1	No data	No data
	% Population growth			0.86%	0.60%	0.75%	0.60%	-7.25%	
	% Water demand growth			-2.95%	-1.52%		#DIV/0!		
Source of information									



Comments

Province		Limpopo						WSA
Municipal Code		LIM341						No
District Municipality		Vhembe						Category
Municipality		Musina						B3
Settlements		NANCEFIELD, MESSINA						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	41 389	41 745	41 997	42 314	42 568	43 003	
	Households	12 791	12 901	12 977	13 076	13 153	13 287	
	Connections - metered	10 574	10 662	10 726	10 807	10 872	10 983	
	Connections - Unmetered	2 296	2 346	2 329	2 347	2 364	2 385	
	Length of mains (km)	257	260	264	263	265	267	
	System input volume	kl/annum	2 540 000	4 361 429	4 131 216		4 319 860	
	Billed metered consumption	kl/annum	1 708 568	3 187 681	3 508 846		3 468 682	
	Billed unmetered consumption	kl/annum	158 544	518 976	71 539		675 231	
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 867 112	3 706 657	3 580 385	0	3 843 913	0
	Non-Revenue water	kl/annum	672 888	654 772	550 831	0	475 947	0
	Water Losses	kl/annum	672 888	654 772	550 831	0	475 947	0
	% Non-revenue water		26.5%	15.0%	13.3%	No data	11.0%	No data
	% Water Losses		26.5%	15.0%	13.3%	No data	11.0%	No data
Key performance indicators	Input : Litres / capita / day		168	286	270	No data	278	No data
	Input: m³ / household / month		17	28	27	No data	27	No data
	Billed : Litres / capita / day		124	243	234	No data	247	No data
	Billed : m³ / household / month		12	24	23	No data	24	No data
	% Population growth			0.86%	0.60%	0.75%	0.60%	1.02%
	% Water demand growth			71.71%	-5.28%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

Municipal NRW Water Balance: Musina

Year	Billed metered consumption (kl)	Billed unmetered consumption (kl)	Non-Revenue water (kl)	% Non-revenue Water
Jun-05	1 708 568	158 544	2 540 000 - 1 708 568 - 158 544 = 672 888	26.5%
Jun-06	3 187 681	518 976	4 361 429 - 3 187 681 - 518 976 = 654 772	15.0%
Jun-07	3 508 846	71 539	4 131 216 - 3 508 846 - 71 539 = 550 831	13.3%
Jun-08			0	No data
Jun-09	3 468 682	675 231	4 319 860 - 3 468 682 - 675 231 = 175 947	11.0%
Jun-10			0	No data
Jun-14			0	No data

Comments
 Input volume for 2005 seems incorrect?

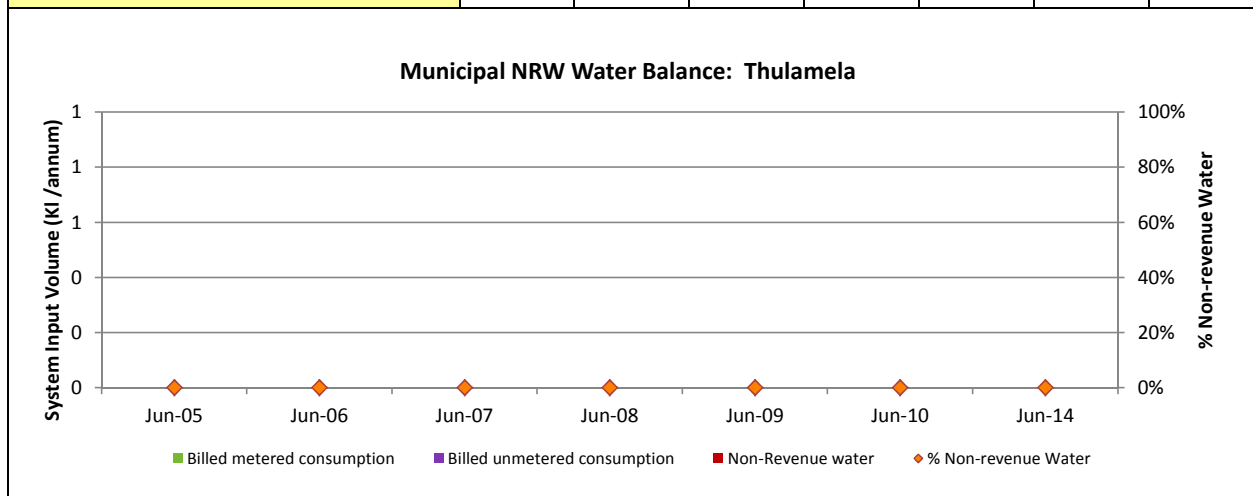
Province		Limpopo						WSA	
Municipal Code		LIM342						No	
District Municipality		Vhembe						Category	
Municipality		Mutale						B4	
Settlements		Mutale-Masisi						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	88 733	89 503	90 038	90 710	91 249	82 954		
	Households	20 328	20 500	20 612	20 775	20 890	18 989		
	Connections - metered	40 173	40 262	40 323	40 400	40 462	39 511		
	Connections - Unmetered	40 273	40 360	40 447	40 499	40 557	39 596		
	Length of mains (km)	409	412	415	418	420	382		
	System input volume	kl/annum	2 699 664						
	Billed metered consumption	kl/annum	1 671 840						
	Billed unmetered consumption	kl/annum	1 003 104						
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 674 944	0	0	0	0	0	
	Non-Revenue water	kl/annum	24 720	0	0	0	0	0	
	Water Losses	kl/annum	24 720	0	0	0	0	0	
	% Non-revenue water		0.9%	No data	No data	No data	No data	No data	No data
	% Water Losses		0.9%	No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		83	No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		11	No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		83	No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		11	No data	No data	No data	No data	No data	No data
	% Population growth			0.87%	0.60%	0.75%	0.59%	-9.09%	
	% Water demand growth								
Source of information		DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		

Municipal NRW Water Balance: Mutale

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	1 671 840	1 003 104	24 720	0.9%
Jun-06			0	
Jun-07			0	
Jun-08			0	
Jun-09			0	
Jun-10			0	
Jun-14			0	

Comments

Province		Limpopo						WSA
Municipal Code		LIM343						No
District Municipality		Vhembe						Category
Municipality		Thulamela						B4
Settlements		MAKWARELA, SHAYANDIMA, THOHOYANDOU						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	609 763	615 020	618 707	623 346	627 094	583 067	
	Households	138 641	139 844	140 687	141 729	142 584	132 568	
	Connections - metered	67 777	68 362	68 774	69 287	69 704	64 810	
	Connections - Unmetered	39 376	39 748	39 957	40 253	40 496	37 654	
	Length of mains (km)	2 143	2 162	2 175	2 191	2 204	2 049	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.86%	0.60%	0.75%	0.60%	-7.02%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



Comments

Province		Limpopo						WSA
Municipal Code		LIM344						No
District Municipality		Vhembe						Category
Municipality		Makhado						B4
Settlements		TSHAKHUMA, LOUIS TRICHARDT						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	521 641	526 127	529 281	533 242	536 438	494 267	
	Households	120 409	121 456	122 181	123 099	123 836	114 092	
	Connections - metered	60 580	61 104	61 467	61 927	62 298	57 404	
	Connections - Unmetered	31 243	31 484	31 672	31 910	32 104	29 575	
	Length of mains (km)	1 836	1 852	1 863	1 877	1 888	1 740	
	System input volume	kl/annum	3 759 579	4 372 026	4 469 761			
	Billed metered consumption	kl/annum	2 853 931	2 996 400	3 056 328			
	Billed unmetered consumption	kl/annum	487 656	468 000	487 656			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	3 341 587	3 464 400	3 543 984	0	0	0
	Non-Revenue water	kl/annum	417 992	907 626	925 777	0	0	0
	Water Losses	kl/annum	417 992	907 626	925 777	0	0	0
	% Non-revenue water		11.1%	20.8%	20.7%	No data	No data	No data
	% Water Losses		11.1%	20.8%	20.7%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		20	23	23	No data	No data	No data
	Input: m ³ / household / month		3	3	3	No data	No data	No data
	Billed : Litres / capita / day		18	18	18	No data	No data	No data
	Billed : m ³ / household / month		2	2	2	No data	No data	No data
	% Population growth			0.86%	0.60%	0.75%	0.60%	-7.86%
	% Water demand growth			16.29%	2.24%			
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	

Municipal NRW Water Balance: Makhado

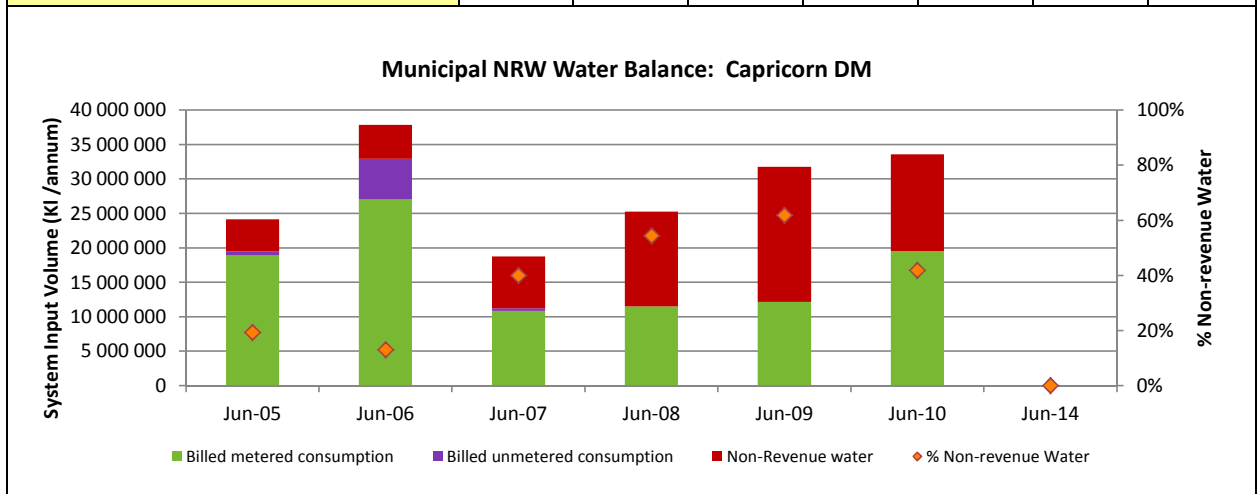
Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	2 853 931	487 656	417 992	11.1%
Jun-06	2 996 400	468 000	907 626	20.8%
Jun-07	3 056 328	487 656	925 777	20.7%
Jun-08			0	No data
Jun-09			0	No data
Jun-10			0	No data
Jun-14			0	No data

Comments

National NRW Assessment

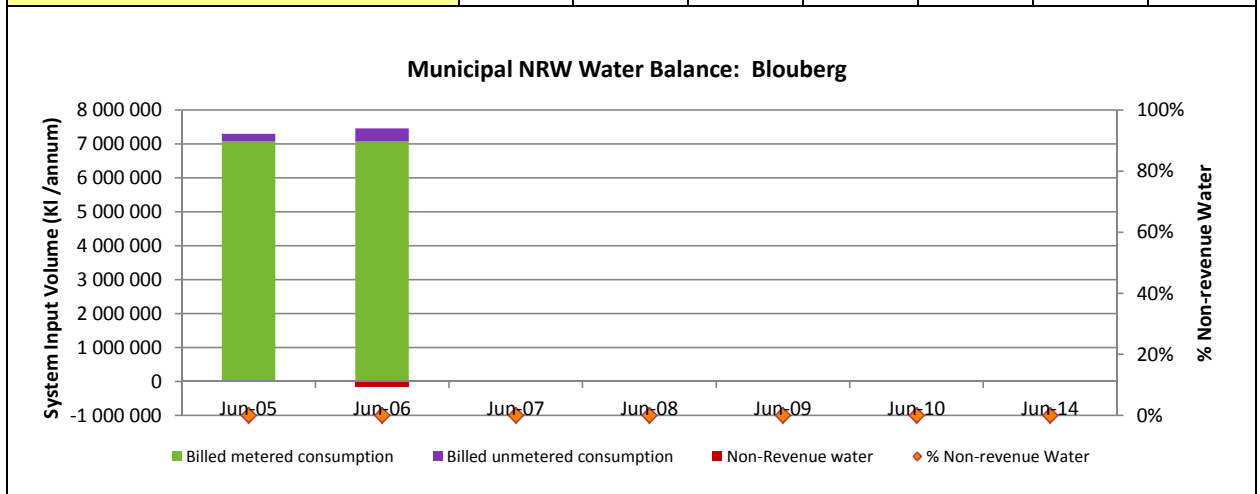


Province		Limpopo						WSA	
Municipal Code		DC35						Yes	
District Municipality		Capricorn						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	1 214 470	1 217 298	1 224 591	1 233 760	1 241 154	1 144 529	0	
	Households	298 568	299 265	301 034	303 319	305 114	281 501	0	
	Connections - metered	82 676	82 869	83 365	83 989	84 492	151 209	0	
	Connections - Unmetered	41 650	41 745	41 992	42 311	42 560	95 219	0	
	Length of mains (km)	2 487	2 492	2 507	2 526	2 541	3 684	0	
	System input volume	kl/annum	24 142 248	37 869 537	18 728 695	25 251 093	31 773 490	33 555 165	0
	Billed metered consumption	kl/annum	18 886 896	27 016 365	10 875 001	11 508 689	12 142 377	19 523 972	0
	Billed unmetered consumption	kl/annum	589 104	5 908 704	360 000	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	19 476 000	32 925 069	11 235 001	11 508 689	12 142 377	19 523 972	0
	Non-Revenue water	kl/annum	4 666 248	4 944 468	7 493 694	13 742 404	19 631 113	14 031 193	0
	Water Losses	kl/annum	4 666 248	4 944 468	7 493 694	13 742 404	19 631 113	14 031 193	0
	% Non-revenue water		19.3%	13.1%	40.0%	54.4%	61.8%	41.8%	No data
	% Water Losses		19.3%	13.1%	40.0%	54.4%	61.8%	41.8%	No data
Key performance indicators	Input : Litres / capita / day		54	85	42	56	70	80	No data
	Input: m³ / household / month		7	11	5	7	9	10	No data
	Billed : Litres / capita / day		44	74	25	26	27	47	No data
	Billed : m³ / household / month		5	9	3	3	3	6	No data
	% Population growth			0.23%	0.60%	0.75%	0.60%	-7.79%	
	% Water demand growth			56.86%	-50.54%	34.83%	25.83%	5.61%	
Source of information									



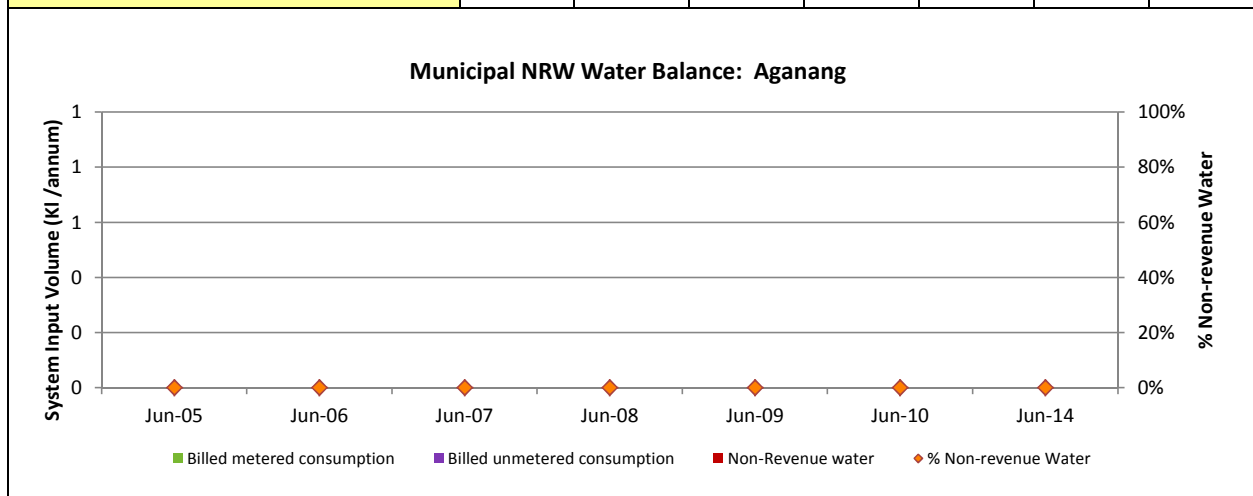
Comments

Province		Limpopo						WSA
Municipal Code		LIM351						No
District Municipality		Capricorn						Category
Municipality		Blouberg						B4
Settlements		Bochum/My Darling						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	167 221	167 606	168 616	169 883	170 907	155 420	
	Households	36 947	37 027	37 248	37 536	37 757	34 333	
	Connections - metered	48 464	48 507	48 648	48 758	48 874	47 164	
	Connections - Unmetered	42 480	42 206	42 279	42 374	42 447	41 348	
	Length of mains (km)	643	644	648	623	626	570	
	System input volume	kl/annum	7 300 000	7 300 000				
	Billed metered consumption	kl/annum	7 070 896	7 070 896				
	Billed unmetered consumption	kl/annum	229 104	384 000				
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	7 300 000	7 454 896	0	0	0	0
	Non-Revenue water	kl/annum	0	-154 896	0	0	0	0
	Water Losses	kl/annum	0	-154 896	0	0	0	0
	% Non-revenue water		Check data	Check data	No data	No data	No data	No data
	% Water Losses		No data	Check data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		120	119	No data	No data	No data	No data
	Input: m ³ / household / month		16	16	No data	No data	No data	No data
	Billed : Litres / capita / day		120	122	No data	No data	No data	No data
	Billed : m ³ / household / month		16	17	No data	No data	No data	No data
	% Population growth			0.23%	0.60%	0.75%	0.60%	-9.06%
	% Water demand growth			0.00%				
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



Comments

Province		Limpopo						WSA
Municipal Code		LIM352						No
District Municipality		Capricorn						Category
Municipality		Aganang						B4
Settlements		Moletji/Matlala						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	153 032	153 387	154 302	155 450	156 378	142 161	
	Households	34 967	35 048	35 253	35 518	35 725	32 481	
	Connections - metered	17 927	17 968	18 076	18 210	18 319	16 653	
	Connections - Unmetered	12 303	12 332	12 404	12 497	12 570	11 428	
	Length of mains (km)	605	606	610	614	618	562	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.23%	0.60%	0.74%	0.60%	-9.09%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



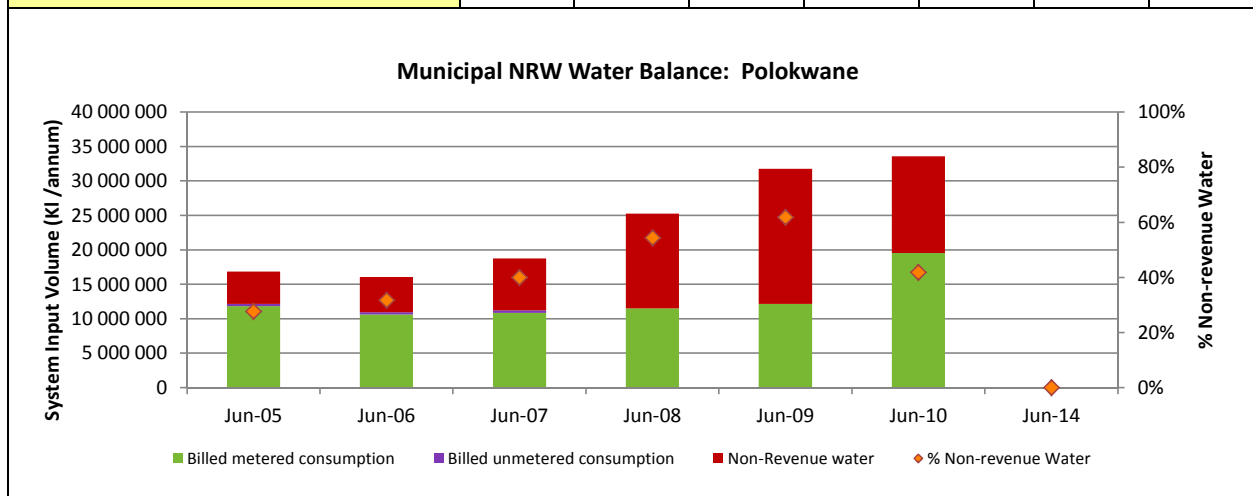
Comments

Province		Limpopo						WSA
Municipal Code		LIM353						No
District Municipality		Capricorn						Category
Municipality		Molemole						B4
Settlements		MPHAKANE, RAMAKGOPA, DENDRONDIKGALE						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	113 426	113 694	114 376	115 233	115 923	105 578	
	Households	30 342	30 411	30 591	30 823	31 008	28 243	
	Connections - metered	20 974	21 023	21 150	21 308	21 436	19 523	
	Connections - Unmetered	5 063	5 074	5 404	5 143	5 174	4 743	
	Length of mains (km)	524	522	525	529	532	485	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.24%	0.60%	0.75%	0.60%	-8.92%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	

Municipal NRW Water Balance: Molemole

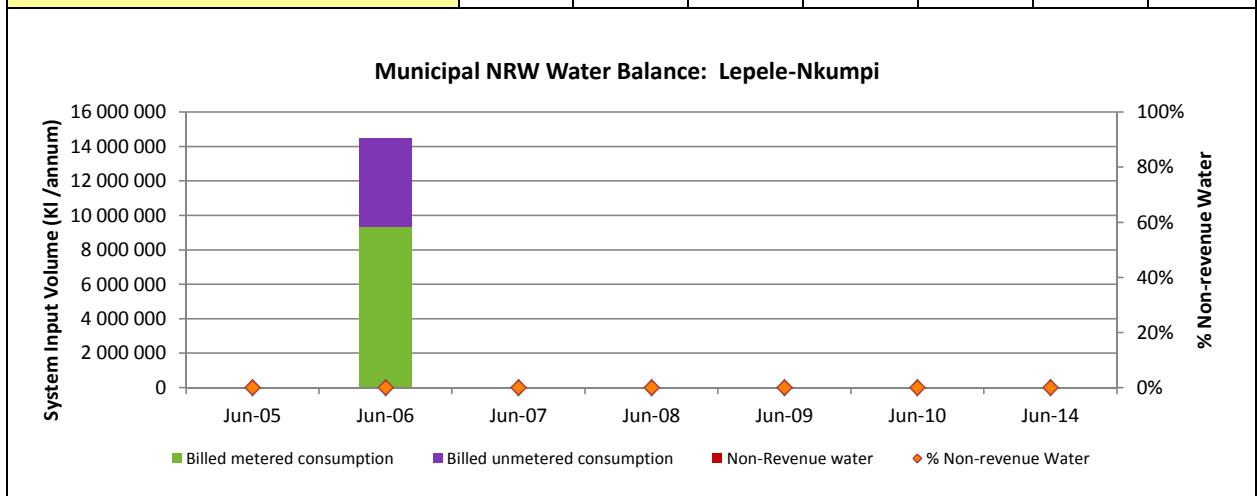
Comments	

Province		Limpopo						WSA	
Municipal Code		LIM354						Yes	
District Municipality		Capricorn						Category	
Municipality		Polokwane						B1	
Settlements		DIKGALE, POLOKWANE, PERSKEBULT						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	544 548	545 816	549 087	553 203	556 524	518 674		
	Households	140 564	140 899	141 733	142 807	143 655	133 889		
	Connections - metered						74 012		
	Connections - Unmetered						56 349		
	Length of mains (km)						1 363		
	System input volume	kl/annum	16 842 248	16 064 072	18 728 695	25 251 093	31 773 490	33 555 165	
	Billed metered consumption	kl/annum	11 816 000	10 604 708	10 875 001	11 508 689	12 142 377	19 523 972	
	Billed unmetered consumption	kl/annum	360 000	360 000	360 000		0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	12 176 000	10 964 708	11 235 001	11 508 689	12 142 377	19 523 972	0
	Non-Revenue water	kl/annum	4 666 248	5 099 364	7 493 694	13 742 404	19 631 113	14 031 193	0
	Water Losses	kl/annum	4 666 248	5 099 364	7 493 694	13 742 404	19 631 113	14 031 193	0
	% Non-revenue water		27.7%	31.7%	40.0%	54.4%	61.8%	41.8%	No data
	% Water Losses		27.7%	31.7%	40.0%	54.4%	61.8%	41.8%	No data
Key performance indicators	Input : Litres / capita / day		85	81	93	125	156	177	No data
	Input: m ³ / household / month		10	10	11	15	18	21	No data
	Billed : Litres / capita / day		61	55	56	57	60	103	No data
	Billed : m ³ / household / month		7	6	7	7	7	12	No data
	% Population growth			0.23%	0.60%	0.75%	0.60%	-6.80%	
	% Water demand growth			-4.62%	16.59%	34.83%	25.83%	5.61%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		



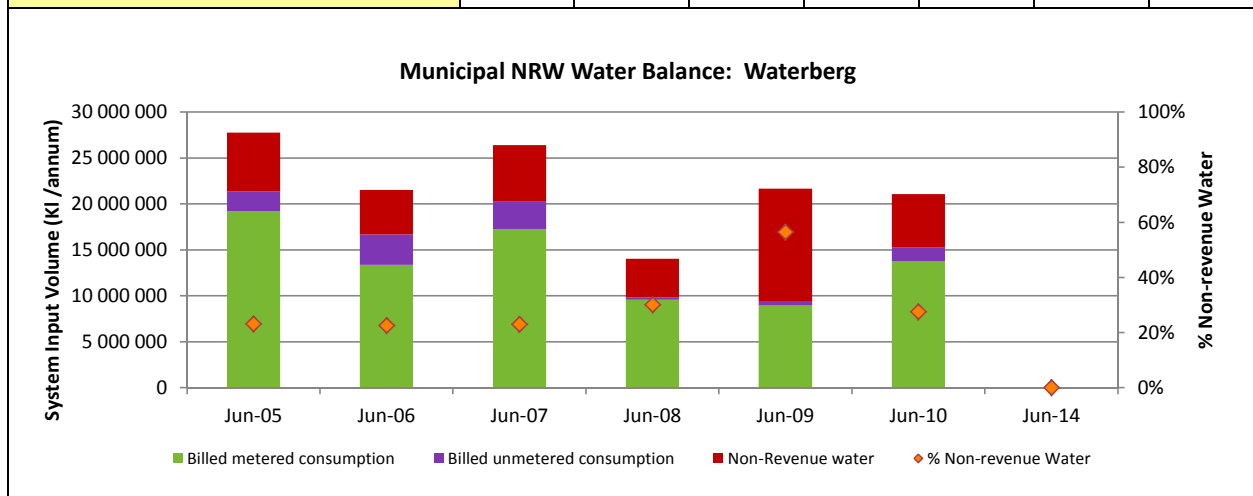
Comments

Province		Limpopo						WSA
Municipal Code		LIM355						No
District Municipality		Capricorn						Category
Municipality		Lepele-Nkumpi						B4
Settlements		LEBOWAKGOMO, MOGOTO, SELETENG						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	236 243	236 795	238 210	239 991	241 422	222 696	
	Households	55 748	55 880	56 209	56 635	56 969	52 555	
	Connections - metered	25 344	25 374	25 522	25 713	25 866	23 860	
	Connections - Unmetered	42 404	42 133	42 205	42 297	42 370	44 444	
	Length of mains (km)	748	750	755	760	765	705	
	System input volume	kl/annum		14 505 465				
	Billed metered consumption	kl/annum		9 340 761				
	Billed unmetered consumption	kl/annum		5 164 704				
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	14 505 465	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	Check data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	168	No data	No data	No data	No data
	Input: m ³ / household / month		No data	22	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	168	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	22	No data	No data	No data	No data
	% Population growth			0.23%	0.60%	0.75%	0.60%	-7.76%
	% Water demand growth			#DIV/0!				
Source of information		DWA NIS	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



Comments

Province		Limpopo						WSA	
Municipal Code		DC36						No	
District Municipality		Waterberg						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	653 315	661 586	665 553	670 547	674 571	648 401	0	
	Households	165 834	167 932	168 942	170 200	171 222	163 267	0	
	Connections - metered	66 597	67 259	67 626	69 425	69 926	75 833	0	
	Connections - Unmetered	7 814	7 897	8 019	8 155	8 286	28 122	0	
	Length of mains (km)	1 253	1 287	1 313	1 350	1 357	513 608	0	
	System input volume	kl/annum	27 764 494	21 530 413	26 390 800	14 025 000	21 648 372	21 072 102	0
	Billed metered consumption	kl/annum	19 224 707	13 380 591	17 241 091	9 572 802	8 934 822	13 794 540	0
	Billed unmetered consumption	kl/annum	2 110 164	3 290 599	3 068 808	235 974	496 007	1 473 300	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	21 334 871	16 671 190	20 309 899	9 808 776	9 430 829	15 267 840	0
	Non-Revenue water	kl/annum	6 429 623	4 859 223	6 080 901	4 216 224	12 217 543	5 804 262	0
	Water Losses	kl/annum	6 429 623	4 859 223	6 080 901	4 216 224	12 217 543	5 804 262	0
	% Non-revenue water		23.2%	22.6%	23.0%	30.1%	56.4%	27.5%	No data
	% Water Losses		23.2%	22.6%	23.0%	30.1%	56.4%	27.5%	No data
Key performance indicators	Input : Litres / capita / day		116	89	109	57	88	89	No data
	Input: m ³ / household / month		14	11	13	7	11	11	No data
	Billed : Litres / capita / day		89	69	84	40	38	65	No data
	Billed : m ³ / household / month		11	8	10	5	5	8	No data
	% Population growth			1.27%	0.60%	0.75%	0.60%	-3.88%	
	% Water demand growth			-22.45%	22.57%	-46.86%	54.36%	-2.66%	
Source of information									



Comments

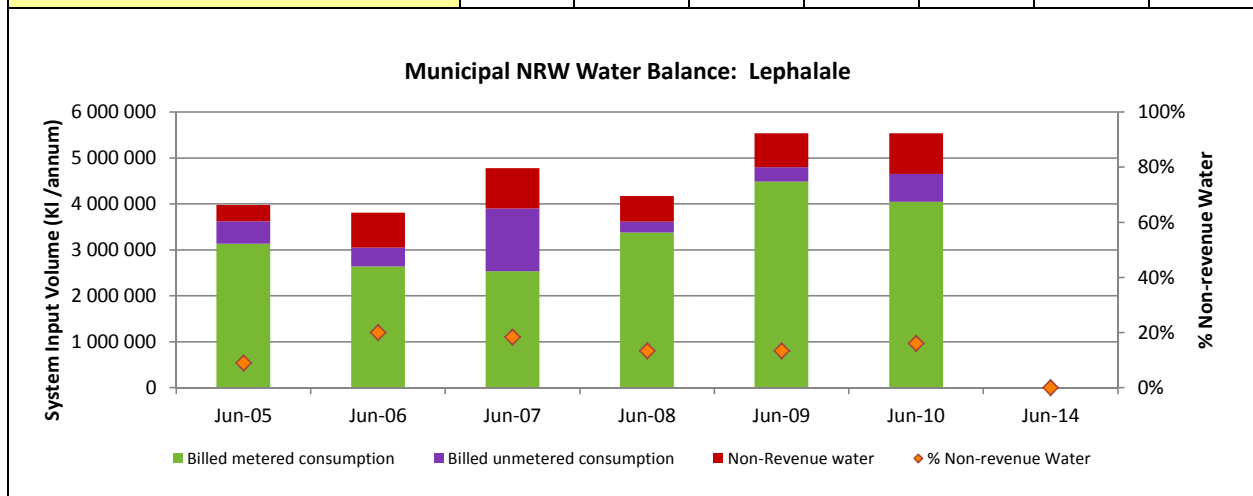
Province		Limpopo						WSA
Municipal Code		LIM361						Yes
District Municipality		Waterberg						Category
Municipality		Thabazimbi						B3
Settlements		THABAZIMBI						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	67 253	68 106	68 515	69 030	69 444	64 184	
	Households	22 392	22 674	22 810	22 983	23 121	21 371	
	Connections - metered	15 958	16 164	16 258	16 380	16 478	15 230	
	Connections - Unmetered	3 450	3 490	3 209	3 233	3 252	3 006	
	Length of mains (km)	382	387	389	392	395	365	
	System input volume	kl/annum	8 396 229	4 182 041	4 878 712		4 993 924	
	Billed metered consumption	kl/annum	5 079 819	573 700	4 694 968			
	Billed unmetered consumption	kl/annum	128 592	0	183 744			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	5 208 411	573 700	4 878 712	0	0	0
	Non-Revenue water	kl/annum	3 187 818	3 608 341	0	0	4 993 924	0
	Water Losses	kl/annum	3 187 818	3 608 341	0	0	4 993 924	0
	% Non-revenue water		38.0%	86.3%	Check data	No data	No data	No data
	% Water Losses		38.0%	86.3%	No data	No data	100.0%	No data
Key performance indicators	Input : Litres / capita / day		342	168	195	No data	197	No data
	Input: m ³ / household / month		31	15	18	No data	18	No data
	Billed : Litres / capita / day		212	23	195	No data	No data	No data
	Billed : m ³ / household / month		19	2	18	No data	No data	No data
	% Population growth			1.27%	0.60%	0.75%	0.60%	-7.57%
	% Water demand growth			-50.19%	16.66%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

Municipal NRW Water Balance: Thabazimbi

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	5 079 819	128 592	3 187 818	38.0%
Jun-06	573 700	0	3 608 341	86.3%
Jun-07	4 694 968	183 744	0	Check data
Jun-08	0	0	0	No data
Jun-09	0	0	4 993 924	No data
Jun-10	0	0	4 993 924	100.0%
Jun-14	0	0	0	No data

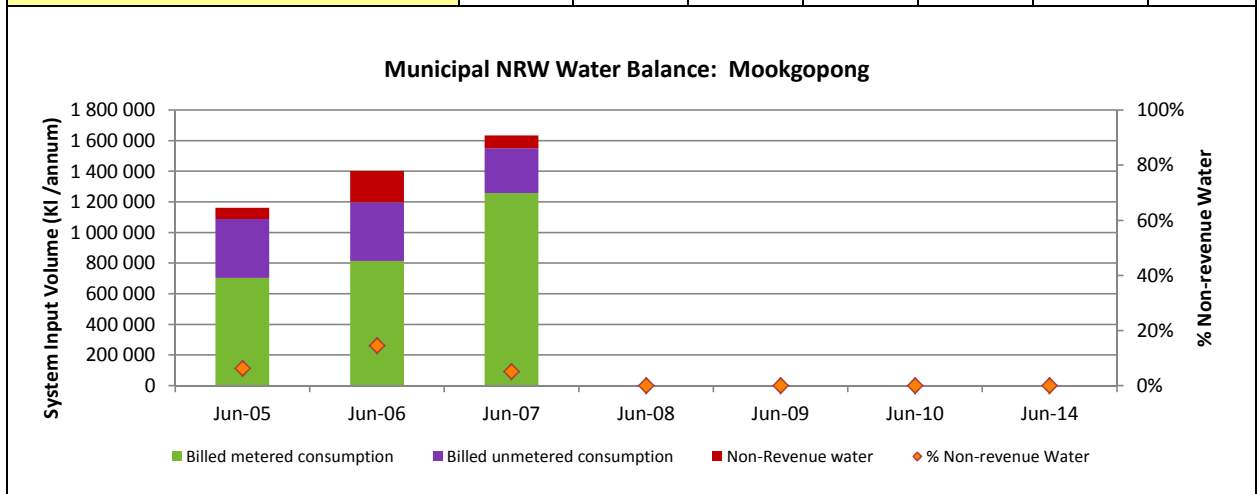
Comments

Province		Limpopo						WSA	
Municipal Code		LIM362						Yes	
District Municipality		Waterberg						Category	
Municipality		Lephalale						B3	
Settlements		ELLISRAS						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	101 453	102 736	103 349	104 120	104 745	114 595		
	Households	25 928	26 256	26 410	26 610	26 767	27 950		
	Connections - metered						8 020		
	Connections - Unmetered						19 930		
	Length of mains (km)						512 297		
	System input volume	kl/annum	3 978 000	3 808 840	4 780 000	4 170 000	5 540 000	5 540 000	
	Billed metered consumption	kl/annum	3 134 400	2 636 000	2 535 000	3 377 700	4 487 400	4 044 200	
	Billed unmetered consumption	kl/annum	486 900	411 072	1 365 000	235 974	310 698	608 000	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	3 621 300	3 047 072	3 900 000	3 613 674	4 798 098	4 652 200	0
	Non-Revenue water	kl/annum	356 700	761 768	880 000	556 326	741 902	887 800	0
	Water Losses	kl/annum	356 700	761 768	880 000	556 326	741 902	887 800	0
	% Non-revenue water		9.0%	20.0%	18.4%	13.3%	13.4%	16.0%	No data
	% Water Losses		9.0%	20.0%	18.4%	13.3%	13.4%	16.0%	No data
Key performance indicators	Input : Litres / capita / day		107	102	127	110	145	132	No data
	Input: m ³ / household / month		13	12	15	13	17	17	No data
	Billed : Litres / capita / day		98	81	103	95	125	111	No data
	Billed : m ³ / household / month		12	10	12	11	15	14	No data
	% Population growth			1.26%	0.60%	0.75%	0.60%	9.40%	
	% Water demand growth			-4.25%	25.50%	-12.76%	32.85%	0.00%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC			



Comments

Province		Limpopo						WSA
Municipal Code		LIM364						Yes
District Municipality		Waterberg						Category
Municipality		Mookgopong						B3
Settlements		NABOOMSPRUIT						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	36 569	37 032	37 255	37 535	37 760	38 410	
	Households	8 710	8 821	8 874	8 940	8 994	9 149	
	Connections - metered	7 064	7 154	7 197	7 251	7 294	7 420	
	Connections - Unmetered	738	747	754	757	762	775	
	Length of mains (km)	456	458	459	460	464	464	
	System input volume	kl/annum	1 160 641	1 401 625	1 633 332			
	Billed metered consumption	kl/annum	704 439	813 625	1 257 330			
	Billed unmetered consumption	kl/annum	383 832	383 832	293 112			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 088 271	1 197 457	1 550 442	0	0	0
	Non-Revenue water	kl/annum	72 370	204 168	82 890	0	0	0
	Water Losses	kl/annum	72 370	204 168	82 890	0	0	0
	% Non-revenue water		6.2%	14.6%	5.1%	No data	No data	No data
	% Water Losses		6.2%	14.6%	5.1%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		87	104	120	No data	No data	No data
	Input: m ³ / household / month		11	13	15	No data	No data	No data
	Billed : Litres / capita / day		82	89	114	No data	No data	No data
	Billed : m ³ / household / month		10	11	15	No data	No data	No data
	% Population growth			1.27%	0.60%	0.75%	0.60%	1.72%
	% Water demand growth			20.76%	16.53%			
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	



Comments

Province		Limpopo						WSA	
Municipal Code		LIM365						Yes	
District Municipality		Waterberg						Category	
Municipality		Modimolle						B3	
Settlements		NYLSTROOM						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	80 940	81 964	82 456	83 075	83 573	85 010		
	Households	20 473	20 732	20 856	21 014	21 140	21 503		
	Connections - metered	15 376	15 574	15 664	15 782	15 877	16 150		
	Connections - Unmetered	2 328	2 358	2 372	2 390	2 404	2 446		
	Length of mains (km)	354	359	361	363	366	372		
	System input volume	kl/annum	2 755 000	2 755 000	2 755 000		3 190 224	3 000 000	
	Billed metered consumption	kl/annum	2 265 440	2 265 440	2 265 440			2 700 000	
	Billed unmetered consumption	kl/annum	484 560	484 560	484 560			690 000	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 750 000	2 750 000	2 750 000	0	0	3 390 000	0
	Non-Revenue water	kl/annum	5 000	5 000	5 000	0	3 190 224	-390 000	0
	Water Losses	kl/annum	5 000	5 000	5 000	0	3 190 224	-390 000	0
	% Non-revenue water		0.2%	0.2%	0.2%	No data	No data	Check data	No data
	% Water Losses		0.2%	0.2%	0.2%	No data	100.0%	Check data	No data
Key performance indicators	Input : Litres / capita / day		93	92	92	No data	105	97	No data
	Input: m ³ / household / month		11	11	11	No data	13	12	No data
	Billed : Litres / capita / day		93	92	91	No data	No data	109	No data
	Billed : m ³ / household / month		11	11	11	No data	No data	13	No data
	% Population growth			1.27%	0.60%	0.75%	0.60%	1.72%	
	% Water demand growth			0.00%	0.00%		#DIV/0!	-5.96%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS RPMS		

Municipal NRW Water Balance: Modimolle

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	2 265 440	484 560	0	0.2%
Jun-06	2 265 440	484 560	0	0.2%
Jun-07	2 265 440	484 560	0	0.2%
Jun-08	2 265 440	484 560	0	0.2%
Jun-09	0	0	3 190 224	100.0%
Jun-10	2 700 000	690 000	0	-5.96%
Jun-14	2 700 000	690 000	0	-5.96%

Comments

Province		Limpopo						WSA	
Municipal Code		LIM366						Yes	
District Municipality		Waterberg						Category	
Municipality		Bela Bela						B3	
Settlements		WARMBAD						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	54 884	55 579	55 913	56 333	56 671	51 547		
	Households	13 642	13 814	13 897	14 002	14 086	12 812		
	Connections - metered	13 718	13 892	13 975	14 080	14 164	12 884		
	Connections - Unmetered	6	6	6	6	6	5		
	Length of mains (km)	274	278	280	282	283	258		
	System input volume	kl/annum	3 493 600	3 103 942	3 242 174			3 330 000	
	Billed metered consumption	kl/annum	2 882 176	3 288 056	2 298 149			1 600 000	
	Billed unmetered consumption	kl/annum	611 424	864 000	22 392				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	3 493 600	4 152 056	2 320 541	0	0	1 600 000	0
	Non-Revenue water	kl/annum	0	-1 048 114	921 633	0	0	1 730 000	0
	Water Losses	kl/annum	0	-1 048 114	921 633	0	0	1 730 000	0
	% Non-revenue water		Check data	Check data	28.4%	No data	No data	52.0%	No data
	% Water Losses		No data	Check data	28.4%	No data	No data	52.0%	No data
Key performance indicators	Input : Litres / capita / day		174	153	159	No data	No data	177	No data
	Input: m ³ / household / month		21	19	19	No data	No data	22	No data
	Billed : Litres / capita / day		174	205	114	No data	No data	85	No data
	Billed : m ³ / household / month		21	25	14	No data	No data	10	No data
	% Population growth			1.27%	0.60%	0.75%	0.60%	-9.04%	
	% Water demand growth			-11.15%	4.45%			#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS RPMS		

Municipal NRW Water Balance: Bela Bela

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	2 882 176	611 424	0	0%
Jun-06	3 288 056	864 000	-1 048 114	28.4%
Jun-07	2 298 149	22 392	921 633	28.4%
Jun-08			0	No data
Jun-09			0	No data
Jun-10	1 600 000	0	1 730 000	52.0%
Jun-14				#DIV/0!

Comments

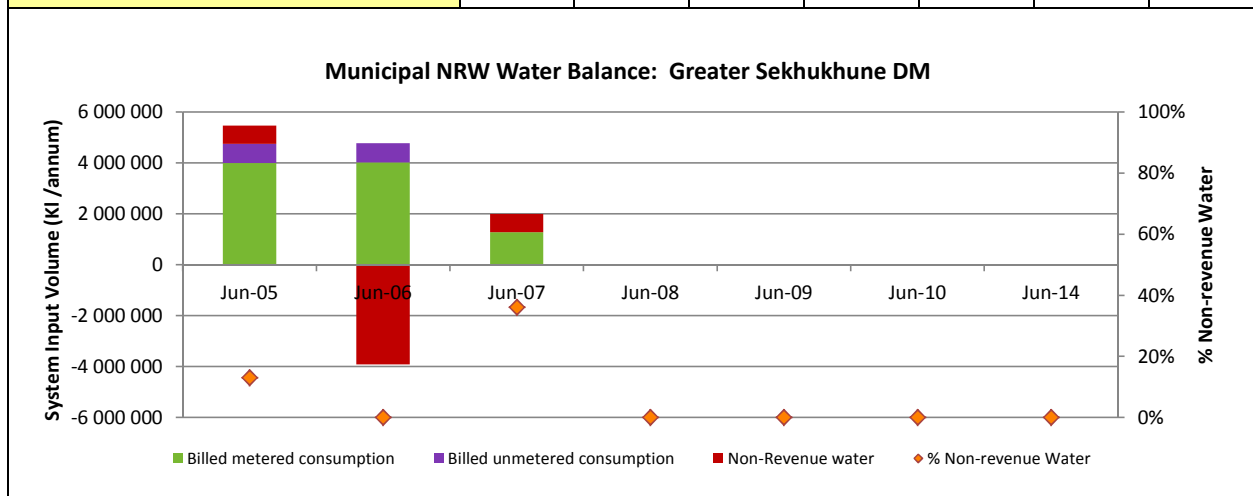
Province		Limpopo						WSA	
Municipal Code		LIM367						Yes	
District Municipality		Waterberg						Category	
Municipality		Mogalakwena						B2	
Settlements		LEKALAKALA, MAKHWELEENG, POTGITERSRUS						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	312 216	316 169	318 065	320 454	322 378	294 655		
	Households	74 689	75 635	76 095	76 651	77 114	70 482		
	Connections - metered	14 480	14 482	14 532	15 932	16 112	16 129		
	Connections - Unmetered	1 592	1 597	1 681	1 769	1 862	1 960		
	Length of mains (km)	86	105	124	152	152	152		
	System input volume	kl/annum	7 981 024	6 278 965	9 101 582	9 855 000	7 924 224	9 202 102	
	Billed metered consumption	kl/annum	5 158 433	3 803 770	4 190 204	6 195 102	4 447 422	5 450 340	
	Billed unmetered consumption	kl/annum	14 856	1 147 135	720 000	0	185 309	175 300	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	5 173 289	4 950 905	4 910 204	6 195 102	4 632 731	5 625 640	0
	Non-Revenue water	kl/annum	2 807 735	1 328 060	4 191 378	3 659 898	3 291 493	3 576 462	0
	Water Losses	kl/annum	2 807 735	1 328 060	4 191 378	3 659 898	3 291 493	3 576 462	0
	% Non-revenue water		35.2%	21.2%	46.1%	37.1%	41.5%	38.9%	No data
	% Water Losses		35.2%	21.2%	46.1%	37.1%	41.5%	38.9%	No data
Key performance indicators	Input : Litres / capita / day		70	54	78	84	67	86	No data
	Input: m ³ / household / month		9	7	10	11	9	11	No data
	Billed : Litres / capita / day		45	43	42	53	39	52	No data
	Billed : m ³ / household / month		6	5	5	7	5	7	No data
	% Population growth			1.27%	0.60%	0.75%	0.60%	-8.60%	
	% Water demand growth			-21.33%	44.95%	8.28%	-19.59%	16.13%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		

Municipal NRW Water Balance: Mogalakwena

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	4,500,000	1,000,000	2,480,000	35.2%
Jun-06	3,000,000	1,000,000	2,278,000	21.2%
Jun-07	4,200,000	500,000	5,491,000	46.1%
Jun-08	6,200,000	0	2,955,000	37.1%
Jun-09	4,500,000	0	3,355,000	41.5%
Jun-10	5,000,000	0	2,924,000	38.9%
Jun-14	0	0	0	No data

Comments

Province		Limpopo						WSA	
Municipal Code		DC47						Yes	
District Municipality		Greater Sekhukhune						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	1 017 222	1 017 161	1 023 267	1 030 949	1 037 134	957 723	0	
	Households	215 527	215 514	216 787	218 449	219 738	202 932	0	
	Connections - metered	94 667	94 661	95 229	95 944	96 520	89 949	0	
	Connections - Unmetered	88 172	88 167	88 685	89 371	89 895	82 424	0	
	Length of mains (km)	3 657	3 657	3 678	3 706	3 728	3 447	0	
	System input volume	kl/annum	5 463 699	855 168	1 997 195	0	0	0	0
	Billed metered consumption	kl/annum	3 992 116	4 019 698	1 277 594	0	0	0	0
	Billed unmetered consumption	kl/annum	758 232	758 232	0	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	4 750 348	4 777 930	1 277 594	0	0	0	0
	Non-Revenue water	kl/annum	713 351	-3 922 762	719 601	0	0	0	0
	Water Losses	kl/annum	713 351	-3 922 762	719 601	0	0	0	0
	% Non-revenue water		13.1%	Check data	36.0%	No data	No data	No data	No data
	% Water Losses		13.1%	Check data	36.0%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		15	2	5	No data	No data	No data	No data
	Input: m ³ / household / month		2	0	1	No data	No data	No data	No data
	Billed : Litres / capita / day		13	13	3	No data	No data	No data	No data
	Billed : m ³ / household / month		2	2	0	No data	No data	No data	No data
	% Population growth			-0.01%	0.60%	0.75%	0.60%	-7.66%	
	% Water demand growth			-84.35%	133.54%				
Source of information									



Comments

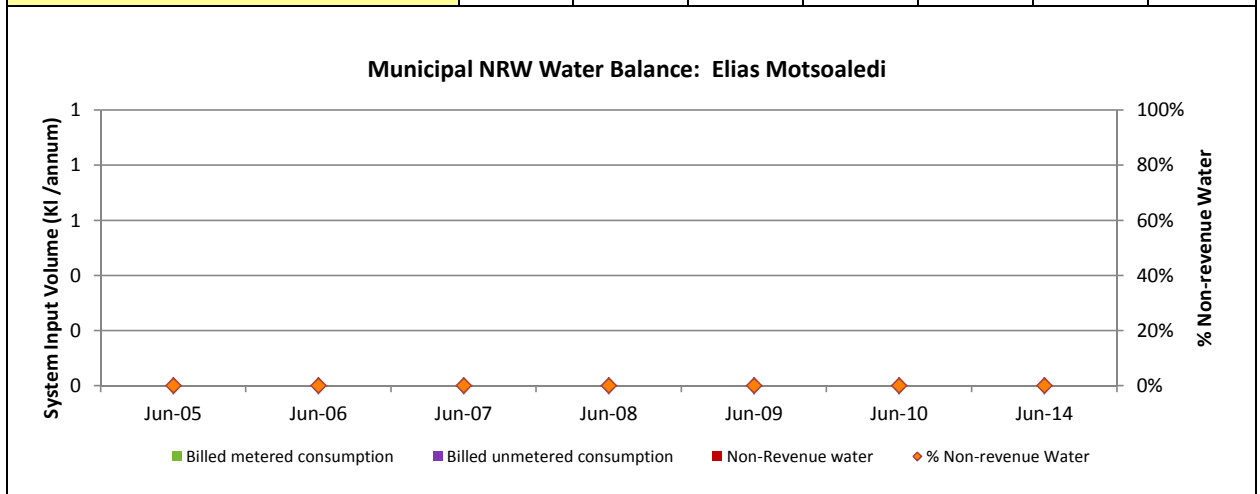
Province		Limpopo						WSA	
Municipal Code		LIM471						No	
District Municipality		Greater Sekhukhune						Category	
Municipality		Greater Marble Hall						B4	
Settlements		Marble Hall						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	126 865	126 857	127 619	128 578	129 353	121 647		
	Households	26 582	26 580	26 741	26 937	27 101	25 483		
	Connections - metered	21 737	21 736	21 867	22 031	22 164	20 843		
	Connections - Unmetered	4 824	4 820	4 849	4 885	4 915	4 624		
	Length of mains (km)	534	534	534	538	542	509		
	System input volume	kl/annum	835 445	855 168	1 193 874				
	Billed metered consumption	kl/annum	827 586	855 168	1 193 874				
	Billed unmetered consumption	kl/annum	0	0	0				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	827 586	855 168	1 193 874	0	0	0	0
	Non-Revenue water	kl/annum	7 859	0	0	0	0	0	0
	Water Losses	kl/annum	7 859	0	0	0	0	0	0
	% Non-revenue water		0.9%	Check data	Check data	No data	No data	No data	No data
	% Water Losses		0.9%	No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		18	18	26	No data	No data	No data	No data
	Input: m ³ / household / month		3	3	4	No data	No data	No data	No data
	Billed : Litres / capita / day		18	18	26	No data	No data	No data	No data
	Billed : m ³ / household / month		3	3	4	No data	No data	No data	No data
	% Population growth			-0.01%	0.60%	0.75%	0.60%	-5.96%	
	% Water demand growth			2.36%	39.61%				
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS		

Municipal NRW Water Balance: Greater Marble Hall

Year	Billed metered consumption (Kl/annum)	Billed unmetered consumption (Kl/annum)	Non-Revenue water (Kl/annum)	% Non-revenue Water
Jun-05	827 586	0	7 859	0.9%
Jun-06	855 168	0	0	0%
Jun-07	1 193 874	0	0	0%
Jun-08				
Jun-09				
Jun-10				
Jun-14				

Comments

Province		Limpopo						WSA
Municipal Code		LIM472						No
District Municipality		Greater Sekhukhune						Category
Municipality		Elias Motsoaledi						B4
Settlements		GAMALAKHE, GCILIMA, PORT SHEPSTONE,						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	229 098	229 080	230 454	232 182	233 573	223 013	
	Households	49 341	49 337	49 631	50 004	50 303	48 022	
	Connections - metered	32 173	32 170	32 363	32 606	32 804	31 318	
	Connections - Unmetered	41 446	41 445	41 543	11 600	41 669	41 140	
	Length of mains (km)	872	872	878	884	889	849	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			-0.01%	0.60%	0.75%	0.60%	-4.52%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



Comments

Province		Limpopo						WSA
Municipal Code		LIM473						No
District Municipality		Greater Sekhukhune						Category
Municipality		Makhuduthamaga						B4
Settlements		JANE FURSE, PHOKWANE, NGWARTSI						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	278 547	278 533	280 204	282 305	283 997	258 179	
	Households	59 076	59 073	59 418	59 879	60 229	54 757	
	Connections - metered	13 975	13 975	14 059	14 164	14 249	12 954	
	Connections - Unmetered	30 659	30 658	30 837	31 076	31 258	28 448	
	Length of mains (km)	893	893	898	905	910	827	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			-0.01%	0.60%	0.75%	0.60%	-9.09%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	

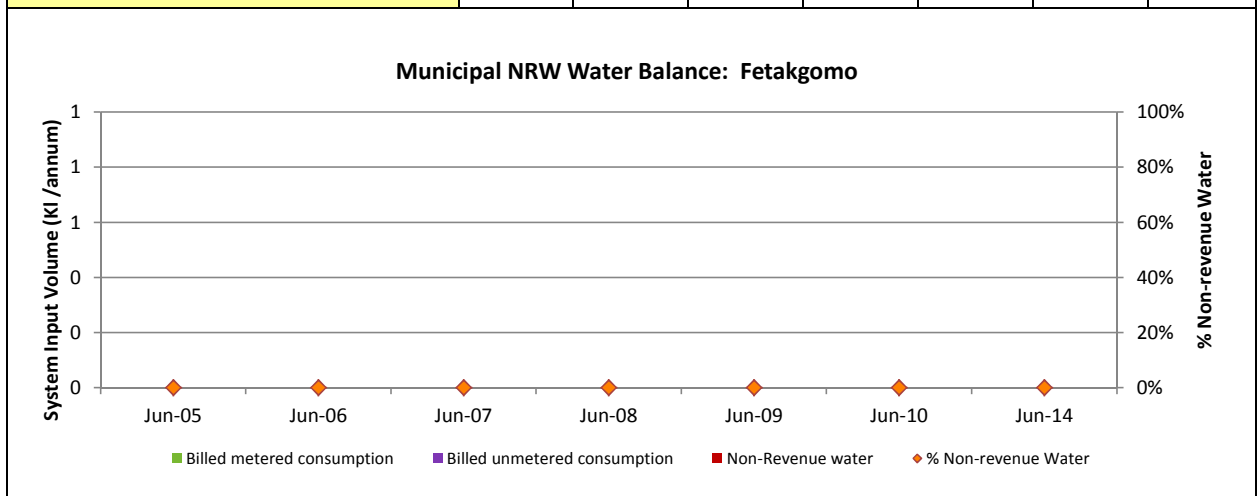
Municipal NRW Water Balance: Makhuduthamaga

Comments	

National NRW Assessment



Province		Limpopo						WSA
Municipal Code		LIM474						No
District Municipality		Greater Sekhukhune						Category
Municipality		Fetakgomo						B4
Settlements		Fetakgomo						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	97 401	97 395	97 979	98 714	99 303	90 270	
	Households	20 890	20 888	21 007	21 174	21 295	19 361	
	Connections - metered	7 543	7 542	7 557	7 614	7 659	6 963	
	Connections - Unmetered	43 503	43 502	43 579	43 687	43 765	42 545	
	Length of mains (km)	420	420	423	426	428	390	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			-0.01%	0.60%	0.75%	0.60%	-9.10%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



Comments

Province		Limpopo						WSA
Municipal Code		LIM475						No
District Municipality		Greater Sekhukhune						Category
Municipality		Greater Tubatse						B4
Settlements		Burgersfort/Ohriestad/Eastern Tubatse						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	285 311	285 296	287 011	289 170	290 908	264 614	
	Households	59 638	59 636	59 990	60 455	60 810	55 309	
	Connections - metered	19 268	19 267	19 383	19 529	19 646	17 874	
	Connections - Unmetered	27 743	27 742	27 907	28 123	28 288	25 729	
	Length of mains (km)	940	940	946	953	959	872	
	System input volume	kl/annum	4 628 254	0	803 321			
	Billed metered consumption	kl/annum	3 164 530	3 164 530	83 720			
	Billed unmetered consumption	kl/annum	758 232	758 232	0			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	3 922 762	3 922 762	83 720	0	0	0
	Non-Revenue water	kl/annum	705 492	-3 922 762	719 601	0	0	0
	Water Losses	kl/annum	705 492	-3 922 762	719 601	0	0	0
	% Non-revenue water		15.2%	No data	89.6%	No data	No data	No data
	% Water Losses		15.2%	No data	89.6%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		44	No data	8	No data	No data	No data
	Input: m ³ / household / month		6	No data	1	No data	No data	No data
	Billed : Litres / capita / day		38	38	1	No data	No data	No data
	Billed : m ³ / household / month		5	5	0	No data	No data	No data
	% Population growth			-0.01%	0.60%	0.75%	0.60%	-9.04%
	% Water demand growth				#DIV/0!			
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	

Municipal NRW Water Balance: Greater Tubatse

Legend: Billed metered consumption (green), Billed unmetered consumption (purple), Non-Revenue water (red), % Non-revenue Water (red diamond)

Comments	

National Non-Revenue Water Assessment

Mpumalanga Province

July 2011



Introductory notes

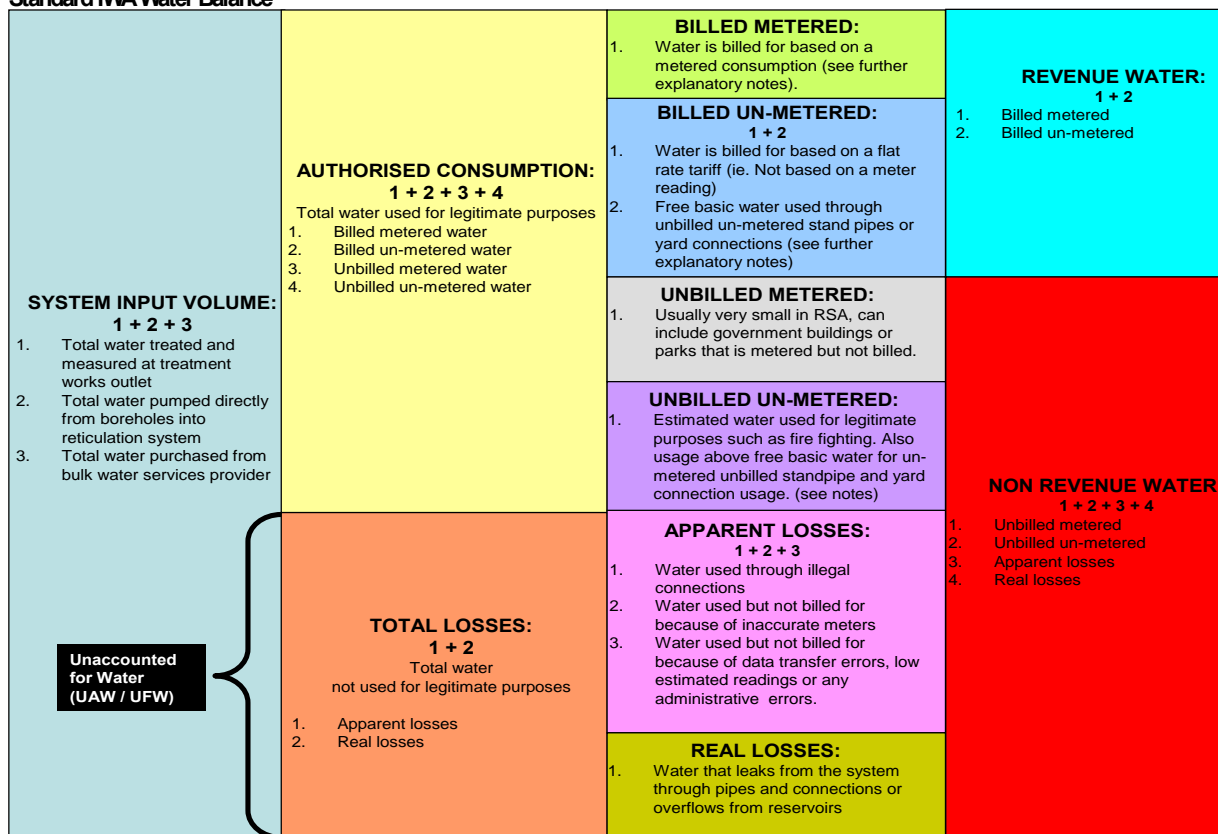
Terminology

Acronym	Description	Link
DWA	Department of Water Affairs	http://www.dwa.gov.za
WS RPMS	Water Services : Regulatory Performance Measurement System	http://www.dwa.gov.za/dir_ws/rpm/
WS NIS	Water Services : National Information System	http://www.dwa.gov.za/dir_ws/wsis/
FBS	Water Services : Free Basic Water Project	http://www.dwaf.gov.za/dir_ws/fbw/
NRW	Non-revenue water. Volume of water for which no revenue is received (preferred term)	
UAW or UFW	Unaccounted-for water. Volume of water lost due to physical and apparent losses (not preferred term)	
StatsSA NEC	Statistics South Africa : Non-Financial Census of Municipalities P9115	http://www.statssa.gov.za/

Information sources

Item	Source	Calculation
Population	DWA WS NIS or municipality	
Households	DWA WS NIS or municipality	
Connections - metered	Extrapolated 2007 DWA - WS FBW serviced above RDP or municipality	
Connections - Unmetered	Extrapolated 2007 DWA - WS FBW serviced at RDP or municipality	
Length of mains (km)	Actual value or calculated at average of 50 connections / km of mains	# connections ÷ 50
(A) System input volume	Total volume of potable water supplied by the municipality in k/annum	
(B) Billed metered consumption	Total volume of water metered and billed by the municipality in k/annum	
(C) Billed unmetered consumption	Total volume of water unmetered and billed by the municipality in k/annum	
Underlined values	Calculated values using trends or averages	

Standard IWA Water Balance

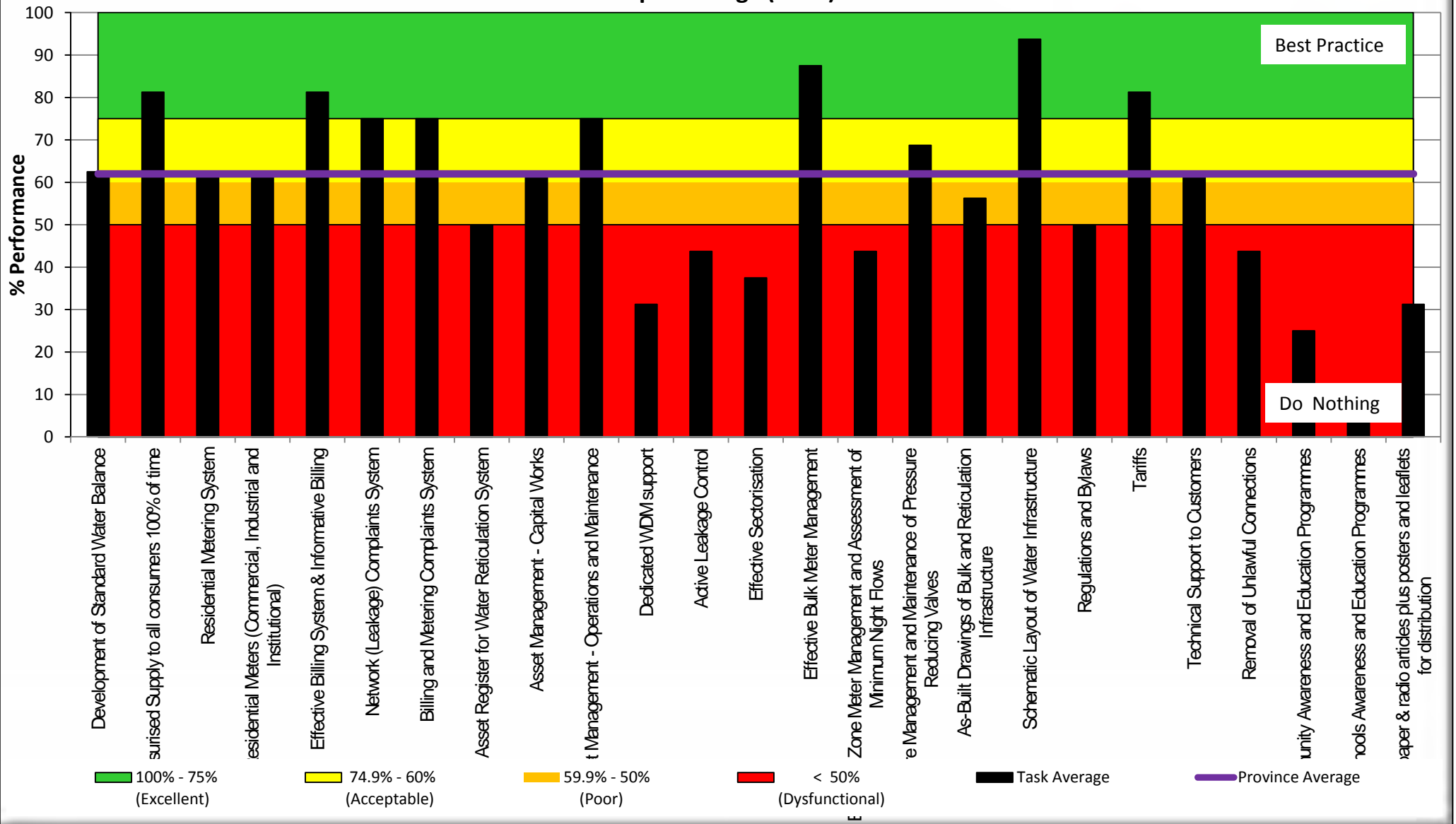


Province Mpumalanga					
No	Municipal Code	District Municipality	Municipality	Category	WSA
1	DC30	Gert Sibande	Gert Sibande DM	C1	No
2	MP301	Gert Sibande	Albert Luthuli	B4	Yes
3	MP302	Gert Sibande	Msukaligwa	B2	Yes
4	MP303	Gert Sibande	Mkhondo	B3	Yes
5	MP304	Gert Sibande	Pixley Ka Seme		Yes
6	MP305	Gert Sibande	Local Municipality of Lekwa	B3	Yes
7	MP306	Gert Sibande	Dipaleseng	B3	Yes
8	MP307	Gert Sibande	Govan Mbeki	B1	Yes
9	DC31	Nkangala	Nkangala DM	C1	No
10	MP311	Nkangala	Dalmas	B3	Yes
11	MP312	Nkangala	Emalahleni	B1	Yes
12	MP313	Nkangala	Steve Tshwete	B1	Yes
13	MP314	Nkangala	Emakhazeni	B2	Yes
14	MP315	Nkangala	Thembisile	B4	Yes
15	MP316	Nkangala	Dr. J.S. Moroka	B4	Yes
16	DC32	Ehlanzeni	Ehlanzeni DM	C1	No
17	MP321	Ehlanzeni	Thabo Chweu	B3	Yes
18	MP322	Ehlanzeni	Mbombela	B1	Yes
19	MP323	Ehlanzeni	Unjini	B3	Yes
20	MP324	Ehlanzeni	Nkomazi	B4	Yes
21	MP325	Ehlanzeni	Bushbuckridge	B4	Yes

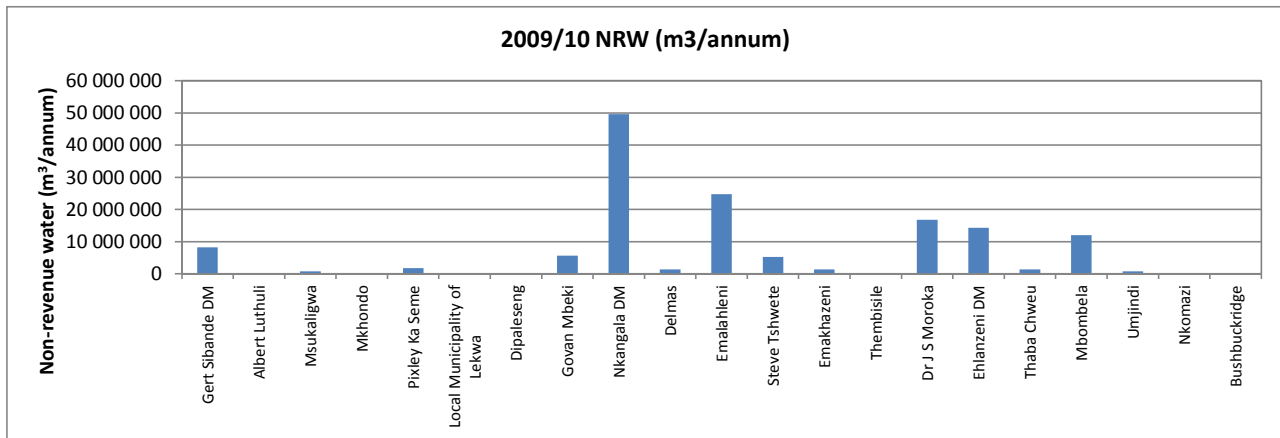
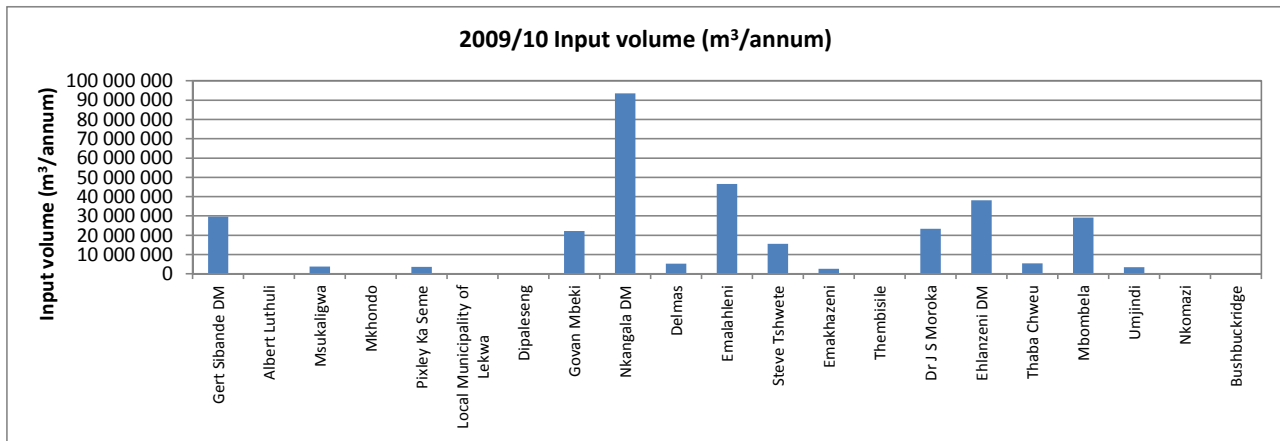
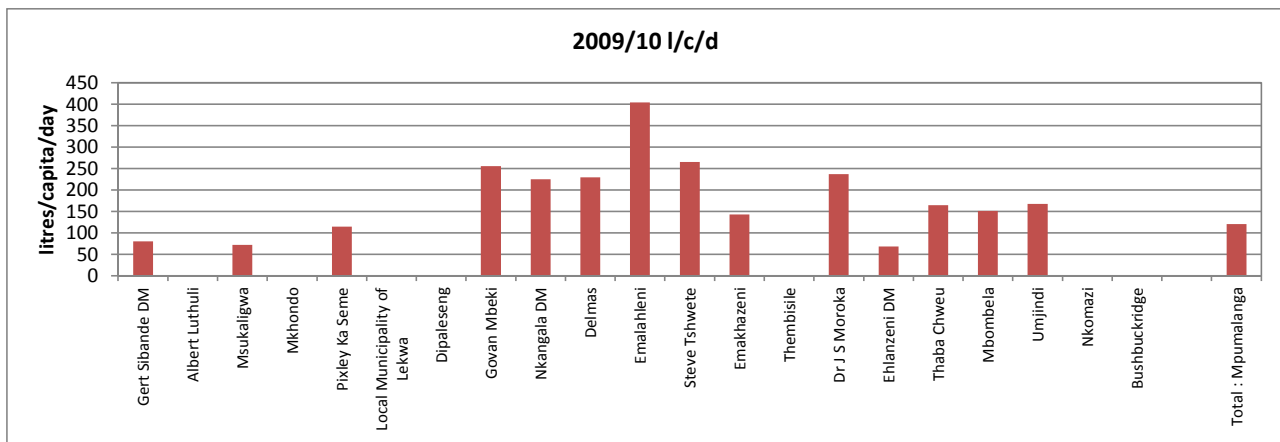
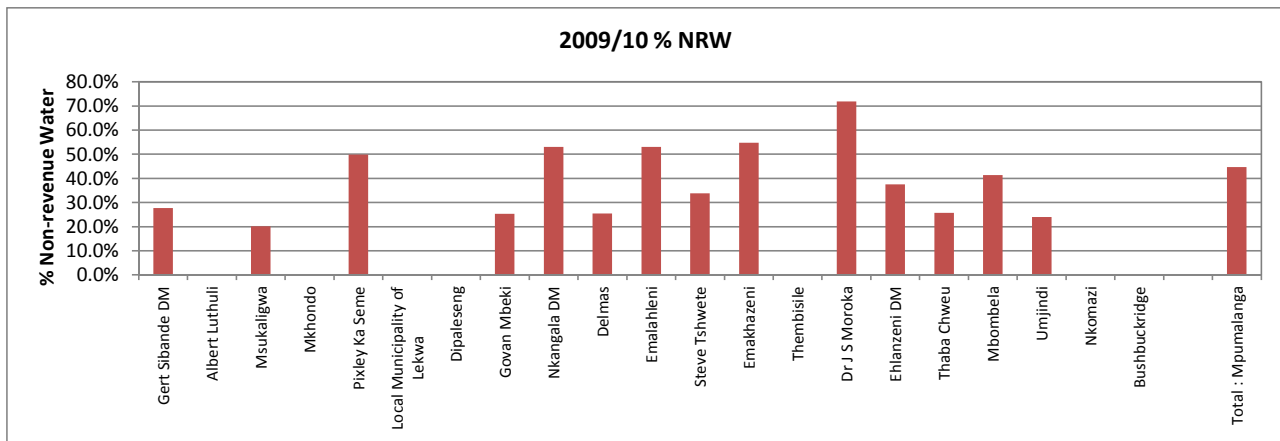
National NRW Assessment



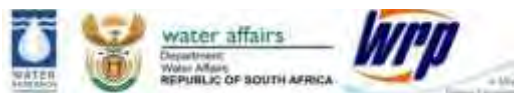
Municipal Scorecard for Assessing the Potential for WC/WDM in Municipalities Mpumalanga (2010)



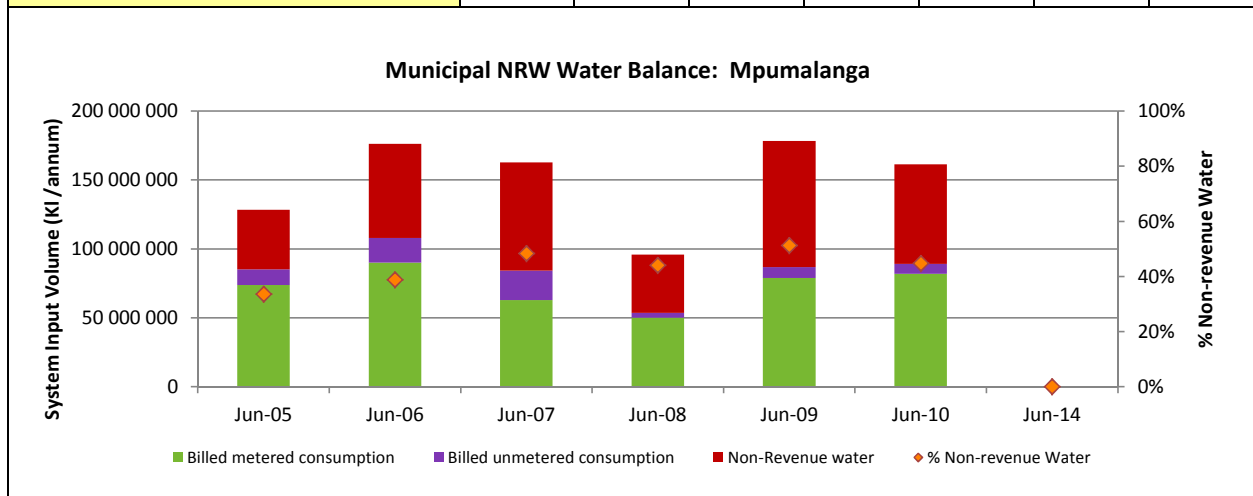
Key Performance Indicators



National NRW Assessment



Province		Mpumalanga						WSA	
Municipal Code									
District Municipality								Category	
Municipality									
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	3 584 604	3 611 892	3 633 563	3 683 233	3 705 343	3 664 724	0	
	Households	878 366	885 046	890 357	902 515	907 933	898 804	0	
	Connections - metered	571 936	578 094	583 366	593 387	597 651	584 358	0	
	Connections - Unmetered	171 322	172 321	182 681	186 041	179 912	177 723	0	
	Length of mains (km)	14 450	14 560	14 654	14 915	14 024	13 598	0	
	System input volume	kl/annum	128 312 883	176 322 487	162 834 880	95 769 754	178 275 658	161 376 100	0
	Billed metered consumption	kl/annum	73 807 249	90 042 311	62 816 781	50 140 384	78 785 551	81 800 695	0
	Billed unmetered consumption	kl/annum	11 408 075	17 861 321	21 369 363	3 495 556	8 051 644	7 414 357	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	85 215 324	107 903 632	84 186 144	53 635 940	86 837 195	89 215 052	0
	Non-Revenue water	kl/annum	43 097 559	68 418 855	78 648 736	42 133 814	91 438 463	72 161 048	0
	Water Losses	kl/annum	43 097 559	68 418 855	78 648 736	42 133 814	91 438 463	72 161 048	0
	% Non-revenue water		33.6%	38.8%	48.3%	44.0%	51.3%	44.7%	No data
	% Water Losses		33.6%	38.8%	48.3%	44.0%	51.3%	44.7%	No data
Key performance indicators	Input : Litres / capita / day		98	134	123	71	132	121	No data
	Input: m ³ / household / month		12	17	15	9	16	15	No data
	Billed : Litres / capita / day		65	82	63	40	64	67	No data
	Billed : m ³ / household / month		8	10	8	5	8	8	No data
	% Population growth			0.76%	0.60%	1.37%	0.60%	-1.10%	
	% Water demand growth			37.42%	-7.65%	-41.19%	86.15%	-9.48%	
Source of information									

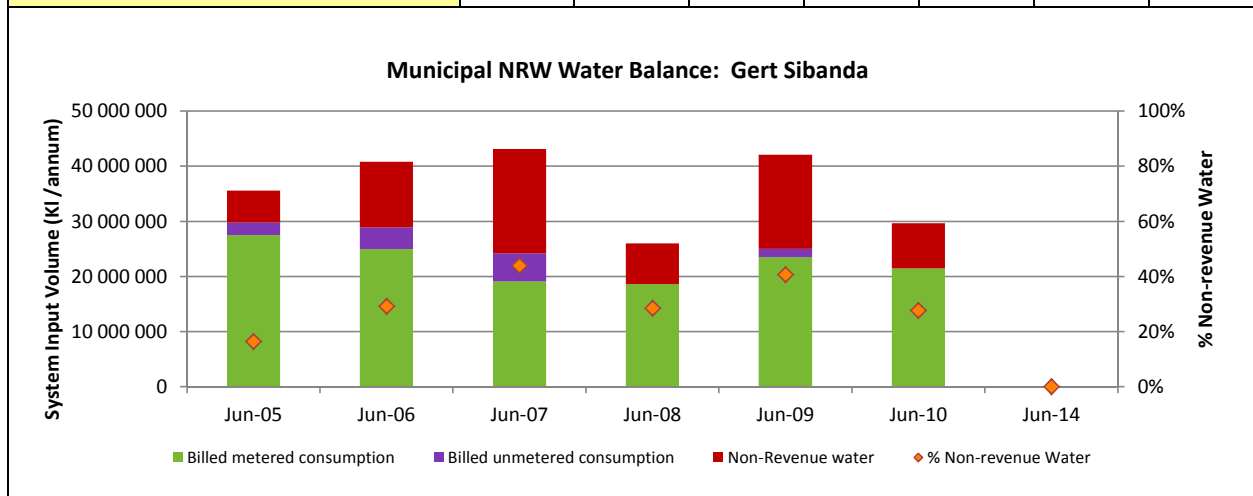


Comments

National NRW Assessment

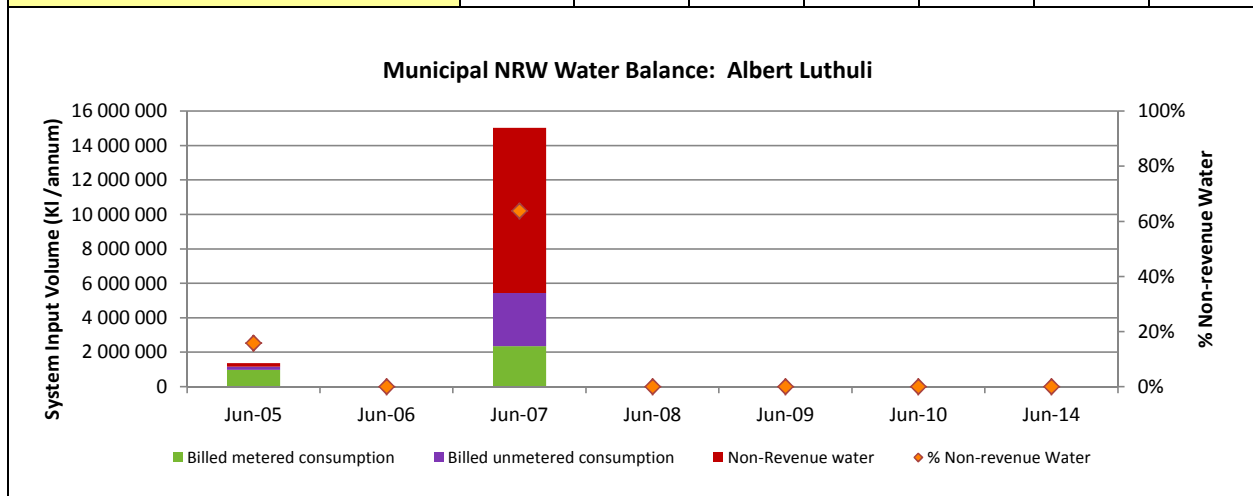


Province		Mpumalanga						WSA	
Municipal Code		DC30						Yes	
District Municipality		Gert Sibande						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	974 563	979 750	985 632	999 107	1 005 103	1 006 160	0	
	Households	240 203	241 480	242 928	246 258	247 736	247 760	0	
	Connections - metered	182 165	183 135	184 234	186 753	187 874	175 717	0	
	Connections - Unmetered	41 586	41 807	42 058	42 634	42 890	39 255	0	
	Length of mains (km)	4 475	4 499	4 526	4 588	4 615	4 314	0	
	System input volume	kl/annum	35 577 784	40 810 853	43 117 464	25 993 987	42 110 191	29 676 453	0
	Billed metered consumption	kl/annum	27 530 444	24 941 826	19 092 542	18 592 173	23 509 954	21 460 297	0
	Billed unmetered consumption	kl/annum	2 213 705	3 959 827	5 088 816	0	1 493 000	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	29 744 149	28 901 653	24 181 358	18 592 173	25 002 954	21 460 297	0
	Non-Revenue water	kl/annum	5 833 635	11 909 200	18 936 106	7 401 814	17 107 237	8 216 156	0
	Water Losses	kl/annum	5 833 635	11 909 200	18 936 106	7 401 814	17 107 237	8 216 156	0
	% Non-revenue water		16.4%	29.2%	43.9%	28.5%	40.6%	27.7%	No data
	% Water Losses		16.4%	29.2%	43.9%	28.5%	40.6%	27.7%	No data
Key performance indicators	Input : Litres / capita / day		100	114	120	71	115	81	No data
	Input: m³ / household / month		12	14	15	9	14	10	No data
	Billed : Litres / capita / day		84	81	67	51	68	58	No data
	Billed : m³ / household / month		10	10	8	6	8	7	No data
	% Population growth			0.53%	0.60%	1.37%	0.60%	0.11%	
	% Water demand growth			14.71%	5.65%	-39.71%	62.00%	-29.53%	
Source of information									



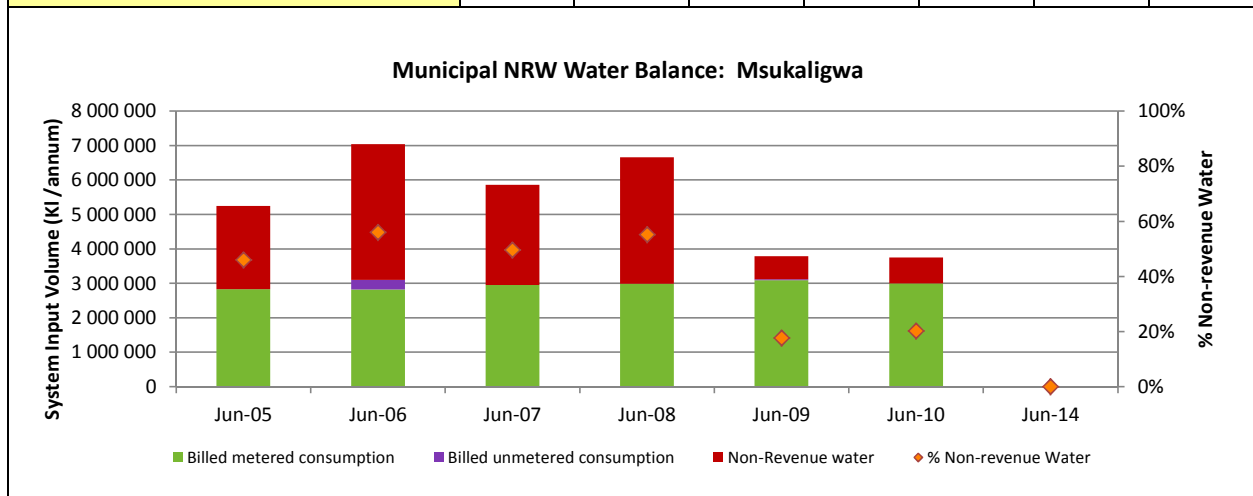
Comments

Province		Mpumalanga						WSA
Municipal Code		MP301						Yes
District Municipality		Gert Sibande						Category
Municipality		Albert Luthuli						B4
Settlements		DIEPDAL, ELUKWATINI, FERNIE, GLENMORE, NHLAZATHSE						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	199 595	200 658	201 861	204 621	205 851	212 137	
	Households	44 237	44 471	44 740	45 348	45 622	47 012	
	Connections - metered	28 025	28 175	28 343	28 731	28 904	29 786	
	Connections - Unmetered	40 987	41 045	41 412	11 263	41 334	41 676	
	Length of mains (km)	780	784	789	800	805	829	
	System input volume	kl/annum	1 374 311		15 033 139			
	Billed metered consumption	kl/annum	973 507		2 345 328			
	Billed unmetered consumption	kl/annum	183 096		3 092 832			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 156 603	0	5 438 160	0	0	0
	Non-Revenue water	kl/annum	217 708	0	9 594 979	0	0	0
	Water Losses	kl/annum	217 708	0	9 594 979	0	0	0
	% Non-revenue water		15.8%	No data	63.8%	No data	No data	No data
	% Water Losses		15.8%	No data	63.8%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		19	No data	204	No data	No data	No data
	Input: m³ / household / month		3	No data	28	No data	No data	No data
	Billed : Litres / capita / day		16	No data	74	No data	No data	No data
	Billed : m³ / household / month		2	No data	10	No data	No data	No data
	% Population growth			0.53%	0.60%	1.37%	0.60%	3.05%
	% Water demand growth				#DIV/0!			
Source of information		DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	



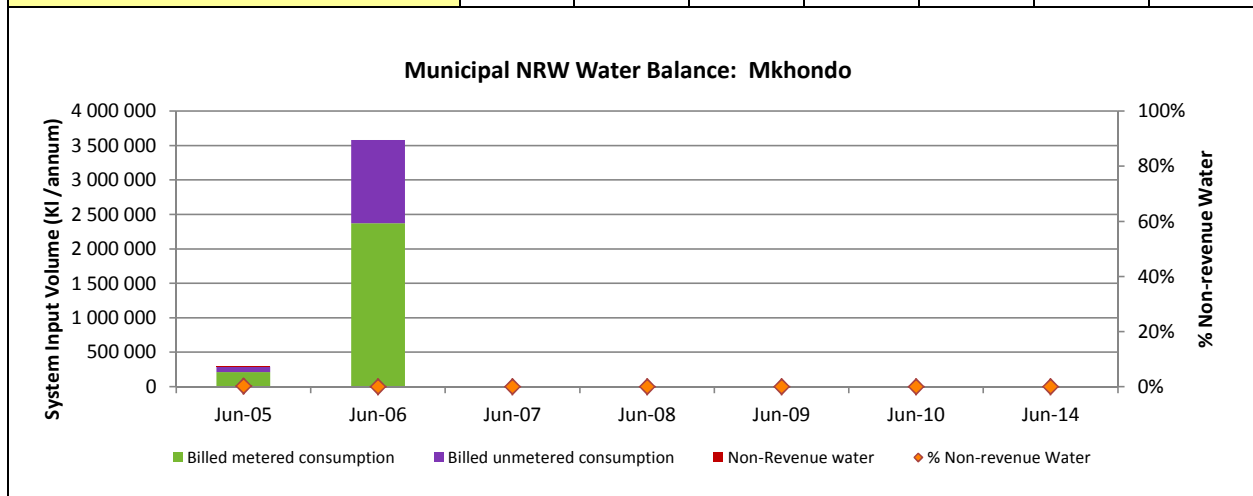
Comments

Province		Mpumalanga						WSA	
Municipal Code		PMP302						Yes	
District Municipality		Gert Sibande						Category	
Municipality		Msukaligwa						B2	
Settlements		ERMELO, KWAZANELE, WESSELTON						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	136 273	136 998	137 822	139 707	140 546	142 673		
	Households	34 020	34 201	34 404	34 876	35 085	35 618		
	Connections - metered	30 637	30 800	30 985	31 409	31 598	19 963		
	Connections - Unmetered	3 586	3 605	3 626	3 676	3 698	0		
	Length of mains (km)	684	688	692	702	706	413		
	System input volume	kl/annum	5 248 934	7 039 822	5 855 804	6 655 888	3 783 487	3 751 034	
	Billed metered consumption	kl/annum	2 834 345	2 823 758	2 951 122	2 986 679	3 086 015	2 993 141	
	Billed unmetered consumption	kl/annum	0	273 600	0		29 000	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 834 345	3 097 358	2 951 122	2 986 679	3 115 015	2 993 141	0
	Non-Revenue water	kl/annum	2 414 589	3 942 464	2 904 682	3 669 209	668 472	757 893	0
	Water Losses	kl/annum	2 414 589	3 942 464	2 904 682	3 669 209	668 472	757 893	0
	% Non-revenue water		46.0%	56.0%	49.6%	55.1%	17.7%	20.2%	No data
	% Water Losses		46.0%	56.0%	49.6%	55.1%	17.7%	20.2%	No data
Key performance indicators	Input : Litres / capita / day		106	141	116	131	74	72	No data
	Input: m³ / household / month		13	17	14	16	9	9	No data
	Billed : Litres / capita / day		57	62	59	59	61	57	No data
	Billed : m³ / household / month		7	8	7	7	7	7	No data
	% Population growth			0.53%	0.60%	1.37%	0.60%	1.51%	
	% Water demand growth			34.12%	-16.82%	13.66%	-43.16%	-0.86%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		



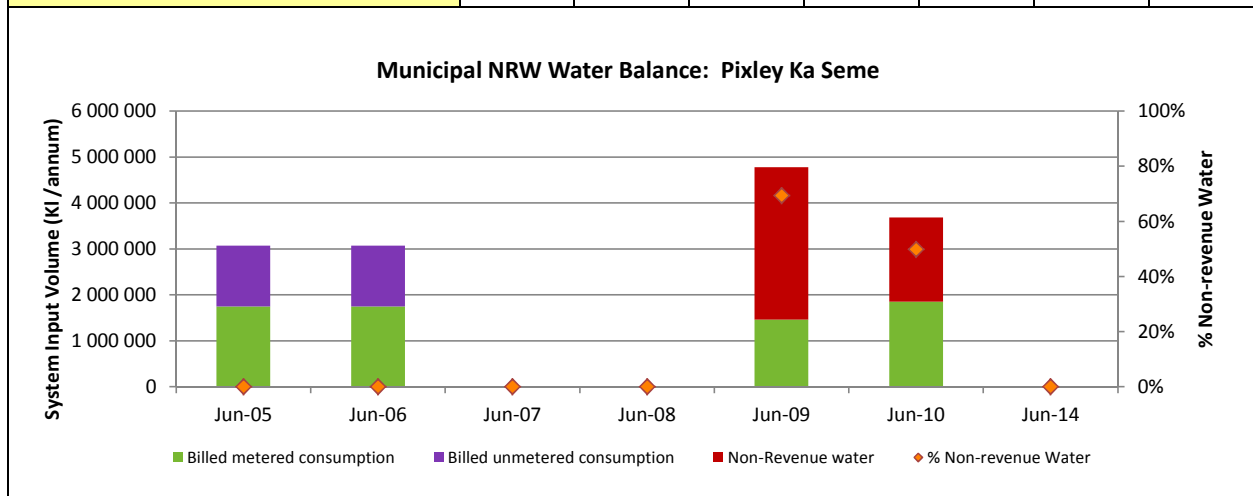
Comments

Province		Mpumalanga						WSA	
Municipal Code		MP303						Yes	
District Municipality		Gert Sibande						Category	
Municipality		Mkhondo						B3	
Settlements		DRIEFONTEIN, ETHANDAKUKHANYA, PIET RETIEF						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	161 620	162 481	163 456	165 689	166 683	163 921		
	Households	33 085	33 261	33 460	33 921	34 124	33 561		
	Connections - metered	47 866	47 960	48 068	48 315	48 425	48 420		
	Connections - Unmetered	5 457	5 486	5 549	5 595	5 628	5 536		
	Length of mains (km)	466	469	472	478	484	473		
	System input volume	kl/annum	289 214	3 578 720					
	Billed metered consumption	kl/annum	214 000	2 372 000					
	Billed unmetered consumption	kl/annum	74 502	1 206 720					
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	288 502	3 578 720	0	0	0	0	
	Non-Revenue water	kl/annum	712	0	0	0	0	0	
	Water Losses	kl/annum	712	0	0	0	0	0	
	% Non-revenue water		0.2%	Check data	No data	No data	No data	No data	No data
	% Water Losses		0.2%	No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		5	60	No data	No data	No data	No data	
	Input: m ³ / household / month		1	9	No data	No data	No data	No data	
	Billed : Litres / capita / day		5	60	No data	No data	No data	No data	
	Billed : m ³ / household / month		1	9	No data	No data	No data	No data	
	% Population growth			0.53%	0.60%	1.37%	0.60%	-1.66%	
	% Water demand growth			1137.40%					
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



Comments

Province		Mpumalanga						WSA	
Municipal Code		MP304						Yes	
District Municipality		Gert Sibande						Category	
Municipality		Pixley Ka Seme							
Settlements		DAGGAKRAAL, VUKUZAKHE, VOLKSRUST						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	87 666	88 133	88 663	89 876	90 416	87 810		
	Households	20 522	20 632	20 756	21 040	21 167	20 558		
	Connections - metered	15 618	15 704	15 796	16 012	16 108	15 644		
	Connections - Unmetered	2 832	2 847	2 864	2 903	2 924	2 836		
	Length of mains (km)	369	374	373	378	384	370		
	System input volume	kl/annum	3 067 700	3 067 700			4 780 000	3 685 000	
	Billed metered consumption	kl/annum	1 745 996	1 745 996			1 464 000	1 850 000	
	Billed unmetered consumption	kl/annum	1 321 704	1 321 704					
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	3 067 700	3 067 700	0	0	1 464 000	1 850 000	0
	Non-Revenue water	kl/annum	0	0	0	0	3 316 000	1 835 000	0
	Water Losses	kl/annum	0	0	0	0	3 316 000	1 835 000	0
	% Non-revenue water		Check data	Check data	No data	No data	69.4%	49.8%	No data
	% Water Losses		No data	No data	No data	No data	69.4%	49.8%	No data
Key performance indicators	Input : Litres / capita / day		96	95	No data	No data	145	115	No data
	Input: m ³ / household / month		12	12	No data	No data	19	15	No data
	Billed : Litres / capita / day		96	95	No data	No data	44	58	No data
	Billed : m ³ / household / month		12	12	No data	No data	6	7	No data
	% Population growth			0.53%	0.60%	1.37%	0.60%	-2.88%	
	% Water demand growth			0.00%			#DIV/0!	-22.91%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS RPMS	DWA NIS RPMS		



Comments

Province		Mpumalanga						WSA
Municipal Code		MP305						Yes
District Municipality		Gert Sibande						Category
Municipality		Lekwa						B3
Settlements		SAKHILE, STANDERTON						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	112 012	112 608	113 285	114 834	115 522	118 364	
	Households	28 700	28 852	29 026	29 424	29 601	30 330	
	Connections - metered	22 597	22 747	22 854	23 166	23 305	23 878	
	Connections - Unmetered	6 404	6 133	6 470	6 255	6 293	6 448	
	Length of mains (km)	574	577	580	588	592	607	
	System input volume	kl/annum	5 797 739	7 300 000	2 518 152		7 300 000	
	Billed metered consumption	kl/annum	5 287 956	5 287 956	522 168			
	Billed unmetered consumption	kl/annum	509 803	509 803	1 995 984			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	5 797 759	5 797 759	2 518 152	0	0	0
	Non-Revenue water	kl/annum	-20	1 502 241	0	0	7 300 000	0
	Water Losses	kl/annum	-20	1 502 241	0	0	7 300 000	0
	% Non-revenue water		Check data	20.6%	Check data	No data	No data	No data
	% Water Losses		Check data	20.6%	No data	No data	100.0%	No data
Key performance indicators	Input : Litres / capita / day		142	178	61	No data	173	No data
	Input: m ³ / household / month		17	21	7	No data	21	No data
	Billed : Litres / capita / day		142	141	61	No data	No data	No data
	Billed : m ³ / household / month		17	17	7	No data	No data	No data
	% Population growth			0.53%	0.60%	1.37%	0.60%	2.46%
	% Water demand growth			25.91%	-65.50%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

Municipal NRW Water Balance: Lekwa

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	5 287 956	509 803	0	0%
Jun-06	5 287 956	509 803	1 502 241	20.6%
Jun-07	522 168	1 995 984	0	0%
Jun-08	0	0	0	0%
Jun-09	0	0	7 300 000	100.0%
Jun-10	0	0	0	0%
Jun-14	0	0	0	0%

Comments

Province		Mpumalanga						WSA
Municipal Code		MP306						Yes
District Municipality		Gert Sibande						Category
Municipality		Dipaleseng						B3
Settlements		SIYATHEMBA, MDUTJANA						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	40 688	40 905	41 150	41 712	41 962	43 298	
	Households	10 472	10 527	10 590	10 735	10 800	11 144	
	Connections - metered	9 300	9 350	9 406	9 534	9 594	9 897	
	Connections - Unmetered	1 160	1 166	1 473	1 189	1 196	1 234	
	Length of mains (km)	209	210	212	214	216	223	
	System input volume	kl/annum	2 100 180	1 594 800			5 540 000	
	Billed metered consumption	kl/annum	834 150	397 000			2 653 000	
	Billed unmetered consumption	kl/annum	124 600	648 000			1 464 000	
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	958 750	1 045 000	0	0	4 117 000	0
	Non-Revenue water	kl/annum	1 141 430	549 800	0	0	1 423 000	0
	Water Losses	kl/annum	1 141 430	549 800	0	0	1 423 000	0
	% Non-revenue water		54.3%	34.5%	No data	No data	25.7%	No data
	% Water Losses		54.3%	34.5%	No data	No data	25.7%	No data
Key performance indicators	Input : Litres / capita / day		141	107	No data	No data	362	No data
	Input: m ³ / household / month		17	13	No data	No data	43	No data
	Billed : Litres / capita / day		65	70	No data	No data	269	No data
	Billed : m ³ / household / month		8	8	No data	No data	32	No data
	% Population growth			0.53%	0.60%	1.37%	0.60%	3.18%
	% Water demand growth			-24.06%			#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS RPMS	DWA NIS	

Municipal NRW Water Balance: Dipaleseng

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	834 150	124 600	1 141 430	54.3%
Jun-06	397 000	648 000	549 800	34.5%
Jun-07			0	No data
Jun-08			0	No data
Jun-09	2 653 000	1 464 000	4 117 000	25.7%
Jun-10			0	No data
Jun-14			0	No data

Comments

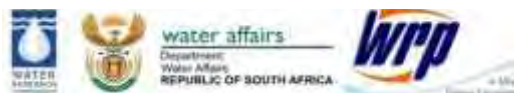
Province		Mpumalanga						WSA	
Municipal Code		MP307						Yes	
District Municipality		Gert Sibande						Category	
Municipality		Govan Mbeki						B1	
Settlements		BETHAL NU, EMBALENHLE, LEANDRA, SECUNDA						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	236 709	237 967	239 395	242 668	244 123	237 957		
	Households	69 167	69 536	69 952	70 914	71 337	69 537		
	Connections - metered	58 123	58 432	58 782	59 586	59 943	58 429		
	Connections - Unmetered	41 463	41 525	41 594	11 753	41 823	41 525		
	Length of mains (km)	1 392	1 399	1 408	1 427	1 435	1 399		
	System input volume	kl/annum	17 699 706	18 229 811	19 710 369	19 338 099	20 706 704	22 240 419	
	Billed metered consumption	kl/annum	15 640 490	12 315 116	13 273 924	15 605 494	16 306 939	16 617 156	
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	15 640 490	12 315 116	13 273 924	15 605 494	16 306 939	16 617 156	0
	Non-Revenue water	kl/annum	2 059 216	5 914 695	6 436 445	3 732 605	4 399 765	5 623 263	0
	Water Losses	kl/annum	2 059 216	5 914 695	6 436 445	3 732 605	4 399 765	5 623 263	0
	% Non-revenue water		11.6%	32.4%	32.7%	19.3%	21.2%	25.3%	No data
	% Water Losses		11.6%	32.4%	32.7%	19.3%	21.2%	25.3%	No data
Key performance indicators	Input : Litres / capita / day		205	210	226	218	232	256	No data
	Input: m³ / household / month		21	22	23	23	24	27	No data
	Billed : Litres / capita / day		181	142	152	176	183	191	No data
	Billed : m³ / household / month		19	15	16	18	19	20	No data
	% Population growth			0.53%	0.60%	1.37%	0.60%	-2.53%	
	% Water demand growth			2.99%	8.12%	-1.89%	7.08%	7.41%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC		

Municipal NRW Water Balance: Govan Mbeki

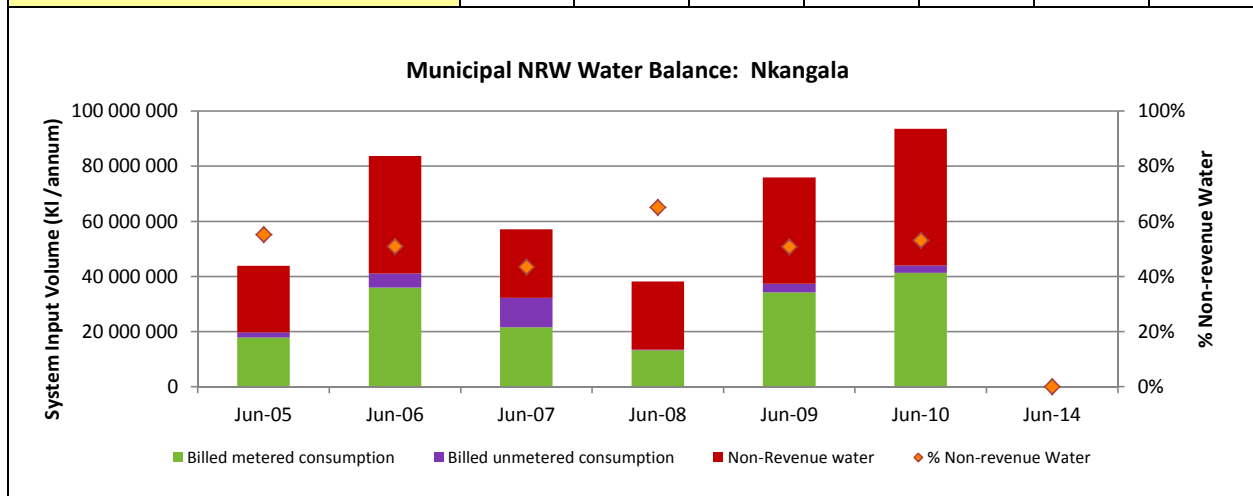
Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	15 640 490	0	2 059 216	11.6%
Jun-06	12 315 116	0	5 914 695	32.4%
Jun-07	13 273 924	0	6 436 445	32.7%
Jun-08	15 605 494	0	3 732 605	19.3%
Jun-09	16 306 939	0	4 399 765	21.2%
Jun-10	16 617 156	0	5 623 263	25.3%
Jun-14				

Comments	

National NRW Assessment



Province		Mpumalanga						WSA	
Municipal Code		DC31						Yes	
District Municipality		Nkangala						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	1 072 694	1 080 539	1 087 019	1 101 874	1 108 491	1 137 416	0	
	Households	272 056	274 051	275 690	279 455	281 133	288 304	0	
	Connections - metered	227 911	229 577	230 954	234 110	235 516	241 455	0	
	Connections - Unmetered	33 250	33 494	33 694	34 154	34 359	35 226	0	
	Length of mains (km)	5 223	5 261	5 293	5 365	4 608	4 584	0	
	System input volume	kl/annum	43 820 379	83 740 614	57 090 312	38 208 285	75 871 645	93 565 714	0
	Billed metered consumption	kl/annum	17 800 780	35 914 560	21 549 620	13 151 598	34 181 379	41 314 653	0
	Billed unmetered consumption	kl/annum	1 856 342	5 200 765	10 746 425	220 605	3 185 444	2 621 360	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	19 657 122	41 115 325	32 296 045	13 372 203	37 366 823	43 936 013	0
	Non-Revenue water	kl/annum	24 163 257	42 625 289	24 794 267	24 836 082	38 504 822	49 629 701	0
	Water Losses	kl/annum	24 163 257	42 625 289	24 794 267	24 836 082	38 504 822	49 629 701	0
	% Non-revenue water		55.1%	50.9%	43.4%	65.0%	50.7%	53.0%	No data
	% Water Losses		55.1%	50.9%	43.4%	65.0%	50.7%	53.0%	No data
Key performance indicators	Input : Litres / capita / day		112	212	144	95	188	225	No data
	Input: m³ / household / month		13	25	17	11	22	27	No data
	Billed : Litres / capita / day		50	104	81	33	92	106	No data
	Billed : m³ / household / month		6	13	10	4	11	13	No data
	% Population growth			0.73%	0.60%	1.37%	0.60%	2.61%	
	% Water demand growth			91.10%	-31.82%	-33.07%	98.57%	23.32%	
Source of information									



Comments

National NRW Assessment



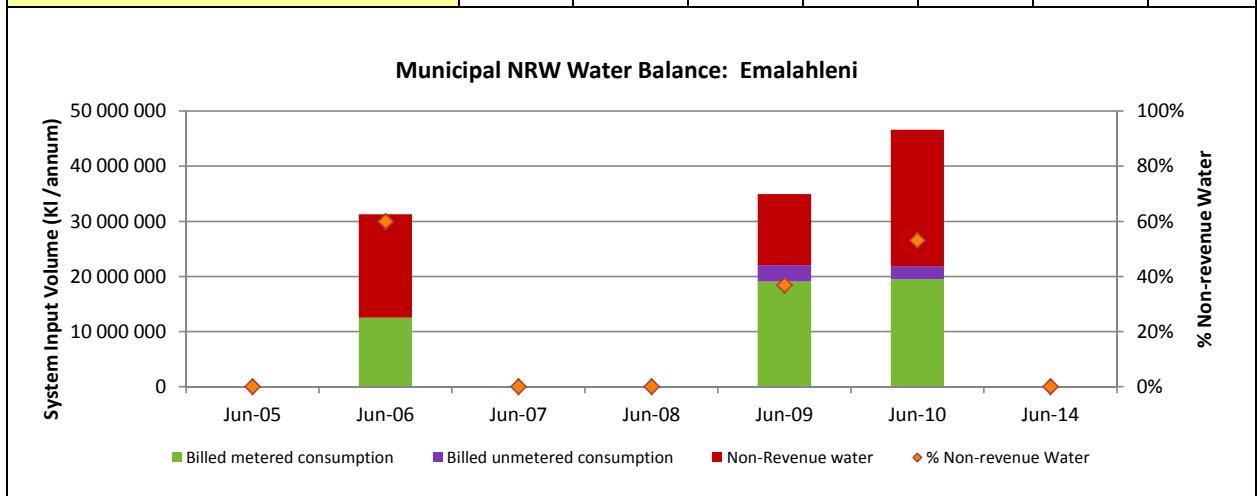
Province		Mpumalanga						WSA	
Municipal Code		MP311						Yes	
District Municipality		Nkangala						Category	
Municipality		Victor Khanye						B3	
Settlements		BOTLENG, DELPARK, ELOFF, SUNDRA, DELMAS						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	59 995	60 434	60 795	61 625	61 996	63 805		
	Households	15 012	15 123	15 215	15 419	15 513	15 966		
	Connections - metered	42 944	43 036	43 444	43 293	43 373	43 763		
	Connections - Unmetered	1 945	1 929	1 944	1 967	1 979	2 037		
	Length of mains (km)	297	299	304	305	307	346		
	System input volume	kl/annum	4 229 573	4 784 728	10 529 298			5 343 283	
	Billed metered consumption	kl/annum	3 037 215	3 870 111	4 518 522			3 983 346	
	Billed unmetered consumption	kl/annum	539 045	44 057	529 605				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	3 576 260	3 914 168	5 048 127	0	0	3 983 346	0
	Non-Revenue water	kl/annum	653 313	870 560	5 481 171	0	0	1 359 937	0
	Water Losses	kl/annum	653 313	870 560	5 481 171	0	0	1 359 937	0
	% Non-revenue water		15.4%	18.2%	52.1%	No data	No data	25.5%	No data
	% Water Losses		15.4%	18.2%	52.1%	No data	No data	25.5%	No data
Key performance indicators	Input : Litres / capita / day		193	217	475	No data	No data	229	No data
	Input: m ³ / household / month		23	26	58	No data	No data	28	No data
	Billed : Litres / capita / day		163	177	227	No data	No data	171	No data
	Billed : m ³ / household / month		20	22	28	No data	No data	21	No data
	% Population growth			0.73%	0.60%	1.37%	0.60%	2.92%	
	% Water demand growth			13.13%	120.06%			#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS		

Municipal NRW Water Balance: Delmas

Year	Billed metered consumption (kl)	Billed unmetered consumption (kl)	Non-Revenue water (kl)	% Non-revenue Water
Jun-05	3,037,215	539,045	429,818	15.4%
Jun-06	3,870,111	44,057	484,560	18.2%
Jun-07	4,518,522	529,605	5,048,127	52.1%
Jun-08			0	No data
Jun-09			0	No data
Jun-10	3,983,346		1,359,937	25.5%
Jun-14			0	No data

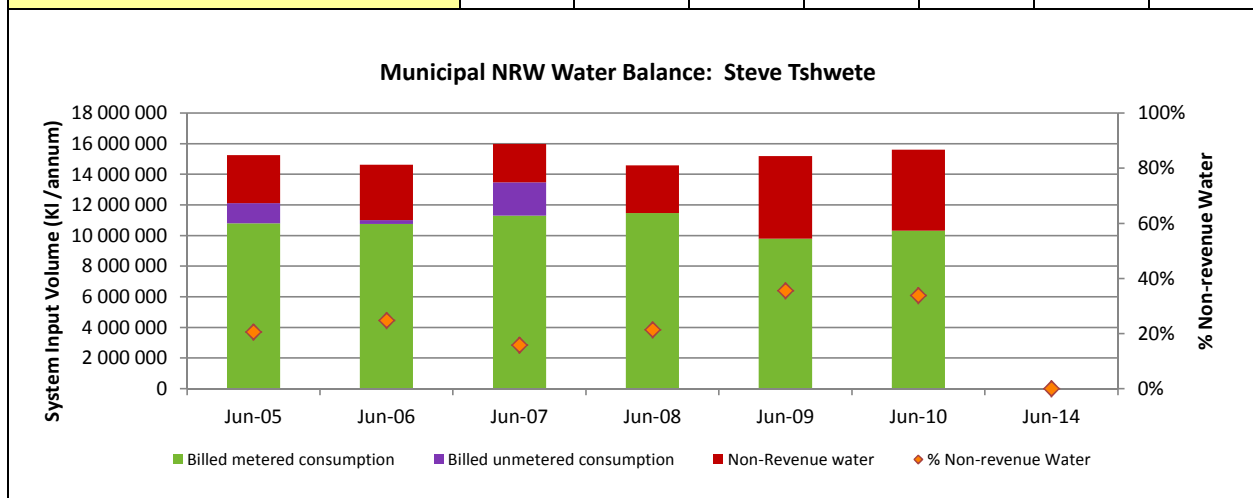
Comments	

Province		Mpumalanga						WSA	
Municipal Code		MP312						Yes	
District Municipality		Nkangala						Category	
Municipality		Emalaheni						B1	
Settlements		KWAGUGA, LYNMILLE, WITBANK						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	300 991	303 190	305 007	309 169	311 025	315 931		
	Households	85 643	86 267	86 783	87 972	88 498	89 895		
	Connections - metered	75 058	75 606	76 059	77 097	77 560	78 783		
	Connections - Unmetered	40 829	40 907	40 973	11 123	41 190	41 366		
	Length of mains (km)	1 748	1 730	1 744	1 764	1 775	1 803		
	System input volume	kl/annum		31 308 034			34 925 000	46 620 000	
	Billed metered consumption	kl/annum		12 544 070			19 067 000	19 510 000	
	Billed unmetered consumption	kl/annum		0			3 004 000	2 370 000	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	12 544 070	0	0	22 071 000	21 880 000	0
	Non-Revenue water	kl/annum	0	18 763 964	0	0	12 854 000	24 740 000	0
	Water Losses	kl/annum	0	18 763 964	0	0	12 854 000	24 740 000	0
	% Non-revenue water		No data	59.9%	No data	No data	36.8%	53.1%	No data
	% Water Losses		No data	59.9%	No data	No data	36.8%	53.1%	No data
Key performance indicators	Input : Litres / capita / day		No data	283	No data	No data	308	404	No data
	Input: m ³ / household / month		No data	30	No data	No data	33	43	No data
	Billed : Litres / capita / day		No data	113	No data	No data	194	190	No data
	Billed : m ³ / household / month		No data	12	No data	No data	21	20	No data
	% Population growth			0.73%	0.60%	1.36%	0.60%	1.58%	
	% Water demand growth			#DIV/0!			#DIV/0!	33.49%	
Source of information		DWA NIS	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS RPMS	DWA NIS RPMS		



Comments

Province		Mpumalanga						WSA	
Municipal Code		MP313						Yes	
District Municipality		Nkangala						Category	
Municipality		Steve Tshwete						B1	
Settlements		KWAZAMOKHULE, MIDDLEBURG, MHLUZI						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	152 359	153 472	154 393	156 503	157 443	161 199		
	Households	40 575	40 872	41 116	41 677	41 927	42 927		
	Connections - metered	34 466	34 717	34 926	35 403	35 616	36 465		
	Connections - Unmetered	5 441	5 484	5 514	5 589	5 623	5 757		
	Length of mains (km)	798	804	809	820	825	717		
	System input volume	kl/annum	15 258 446	14 627 492	15 989 056	14 577 468	15 198 044	15 602 431	
	Billed metered consumption	kl/annum	10 796 205	10 755 840	11 299 605	11 460 590	9 790 515	10 325 501	
	Billed unmetered consumption	kl/annum	1 317 297	245 887	2 168 950	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	12 113 502	11 001 727	13 468 555	11 460 590	9 790 515	10 325 501	0
	Non-Revenue water	kl/annum	3 144 944	3 625 765	2 520 501	3 116 878	5 407 529	5 276 930	0
	Water Losses	kl/annum	3 144 944	3 625 765	2 520 501	3 116 878	5 407 529	5 276 930	0
	% Non-revenue water		20.6%	24.8%	15.8%	21.4%	35.6%	33.8%	No data
	% Water Losses		20.6%	24.8%	15.8%	21.4%	35.6%	33.8%	No data
Key performance indicators	Input : Litres / capita / day		274	261	284	255	264	265	No data
	Input: m ³ / household / month		31	30	32	29	30	30	No data
	Billed : Litres / capita / day		218	196	239	201	170	175	No data
	Billed : m ³ / household / month		25	22	27	23	19	20	No data
	% Population growth			0.73%	0.60%	1.37%	0.60%	2.39%	
	% Water demand growth			-4.14%	9.31%	-8.83%	4.26%	2.66%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		



Comments

Province		Mpumalanga						WSA	
Municipal Code		MP314						Yes	
District Municipality		Nkangala						Category	
Municipality		Emakhazeni						B2	
Settlements		DIKGALE, POLOKWANE, PERSKEBULT						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	46 770	47 114	47 396	48 043	48 331	49 753		
	Households	11 092	11 172	11 240	11 391	11 459	11 796		
	Connections - metered	9 974	10 044	10 104	10 242	10 303	10 607		
	Connections - Unmetered	1 113	1 124	1 128	1 143	1 150	1 184		
	Length of mains (km)	222	223	225	228	229	236		
	System input volume	kl/annum		2 801 667	4 668 963		3 212 601	2 600 000	
	Billed metered consumption	kl/annum		2 029 827	3 897 093		1 604 200	1 160 000	
	Billed unmetered consumption	kl/annum		771 840	771 870			15 000	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	2 801 667	4 668 963	0	1 604 200	1 175 000	0
	Non-Revenue water	kl/annum	0	0	0	0	1 608 401	1 425 000	0
	Water Losses	kl/annum	0	0	0	0	1 608 401	1 425 000	0
	% Non-revenue water		No data	Check data	Check data	No data	50.1%	54.8%	No data
	% Water Losses		No data	No data	No data	No data	50.1%	54.8%	No data
Key performance indicators	Input : Litres / capita / day		No data	163	270	No data	182	143	No data
	Input: m³ / household / month		No data	21	35	No data	23	18	No data
	Billed : Litres / capita / day		No data	163	270	No data	91	65	No data
	Billed : m³ / household / month		No data	21	35	No data	12	8	No data
	% Population growth			0.74%	0.60%	1.37%	0.60%	2.94%	
	% Water demand growth			#DIV/0!	66.65%		#DIV/0!	-19.07%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS RPMS		

Municipal NRW Water Balance: Emakhazeni

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	0	0	0	0%
Jun-06	2 029 827	771 840	0	0%
Jun-07	3 897 093	771 870	0	0%
Jun-08	0	0	0	0%
Jun-09	1 604 200	0	1 608 401	50.1%
Jun-10	1 160 000	0	1 425 000	54.8%
Jun-14	0	0	0	0%

Comments	

Province		Mpumalanga						WSA	
Municipal Code		MP315						Yes	
District Municipality		Nkangala						Category	
Municipality		Thembisile						B4	
Settlements		BOEKENHOUTHOEK, KWAMHLANGA, KWAGGAFONTEIN, MOLOTO, TWEEFONTEIN						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	258 902	260 796	262 364	265 956	267 554	276 160		
	Households	61 121	61 571	61 939	62 786	63 165	65 198		
	Connections - metered	54 573	54 972	55 303	56 060	56 397	58 214		
	Connections - Unmetered	5 754	5 794	5 828	5 908	5 944	6 135		
	Length of mains (km)	1 206	1 215	1 223	1 239	1 247	1 287		
	System input volume	kl/annum	0	8 251 333	5 462 995	5 000 000	636 000		
	Billed metered consumption	kl/annum	0	4 190 688	0				
	Billed unmetered consumption	kl/annum	0	4 060 645	7 224 000				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	8 251 333	7 224 000	0	0	0	
	Non-Revenue water	kl/annum	0	0	-1 761 005	5 000 000	636 000	0	
	Water Losses	kl/annum	0	0	-1 761 005	5 000 000	636 000	0	
	% Non-revenue water		No data	Check data	Check data	No data	No data	No data	No data
	% Water Losses		No data	No data	Check data	100.0%	100.0%	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	87	57	52	7	No data	No data
	Input: m ³ / household / month		No data	11	7	7	1	No data	No data
	Billed : Litres / capita / day		No data	87	75	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	11	10	No data	No data	No data	No data
	% Population growth			0.73%	0.60%	1.37%	0.60%	3.22%	
	% Water demand growth			#DIV/0!	-33.79%	-8.48%	-87.28%		
Source of information		DWA NIS	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		

Municipal NRW Water Balance: Thembisile

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	0	0	0	0%
Jun-06	4 190 688	4 060 645	0	0%
Jun-07	0	7 224 000	-1 761 005	0%
Jun-08	0	0	5 000 000	100.0%
Jun-09	0	0	636 000	100.0%
Jun-10	0	0	0	0%
Jun-14	0	0	0	0%

Comments

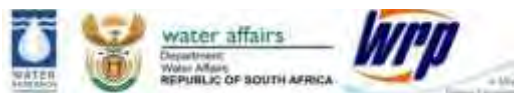
Province		Mpumalanga						WSA	
Municipal Code		MP316						Yes	
District Municipality		Nkangala						Category	
Municipality		Dr JS Moroka						B4	
Settlements		KAMEELRIVIER, SIYABUSWA, VAALBANK						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	253 677	255 533	257 064	260 578	262 142	270 568		
	Households	58 613	59 046	59 397	60 210	60 571	62 522		
	Connections - metered	40 902	41 202	41 448	42 015	42 267	43 626		
	Connections - Unmetered	8 204	8 264	8 340	8 424	8 475	8 747		
	Length of mains (km)	982	989	995	1 009	225	225		
	System input volume	kl/annum	24 332 360	21 967 360	20 440 000	18 630 817	21 900 000	23 400 000	
	Billed metered consumption	kl/annum	3 967 360	2 524 024	1 834 400	1 691 008	3 719 664	6 335 806	
	Billed unmetered consumption	kl/annum	0	78 336	52 000	220 605	181 444	236 360	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	3 967 360	2 602 360	1 886 400	1 911 613	3 901 108	6 572 166	0
	Non-Revenue water	kl/annum	20 365 000	19 365 000	18 553 600	16 719 204	17 998 892	16 827 834	0
	Water Losses	kl/annum	20 365 000	19 365 000	18 553 600	16 719 204	17 998 892	16 827 834	0
	% Non-revenue water		83.7%	88.2%	90.8%	89.7%	82.2%	71.9%	No data
	% Water Losses		83.7%	88.2%	90.8%	89.7%	82.2%	71.9%	No data
Key performance indicators	Input : Litres / capita / day		263	236	218	196	229	237	No data
	Input: m³ / household / month		35	31	29	26	30	31	No data
	Billed : Litres / capita / day		43	28	20	20	41	67	No data
	Billed : m³ / household / month		6	4	3	3	5	9	No data
	% Population growth			0.73%	0.60%	1.37%	0.60%	3.21%	
	% Water demand growth			-9.72%	-6.95%	-8.85%	17.55%	6.85%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS		

Municipal NRW Water Balance: Dr JS Moroka

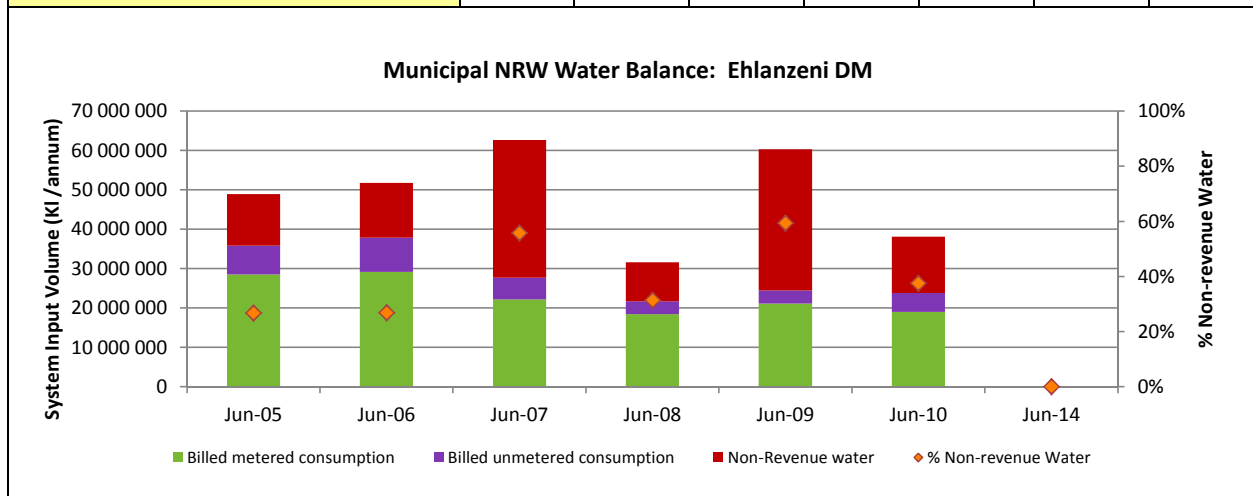
Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	3 967 360	0	20 365 000	83.7%
Jun-06	2 524 024	78 336	19 365 000	88.2%
Jun-07	1 834 400	52 000	18 553 600	90.8%
Jun-08	1 691 008	220 605	16 719 204	89.7%
Jun-09	3 719 664	181 444	17 998 892	82.2%
Jun-10	6 335 806	236 360	16 827 834	71.9%

Comments

National NRW Assessment



Province		Mpumalanga						WSA	
Municipal Code		DC32						Yes	
District Municipality		Ehlanzeni						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	1 537 347	1 551 603	1 560 912	1 582 252	1 591 749	1 521 148	0	
	Households	366 107	369 515	371 739	376 802	379 064	362 740	0	
	Connections - metered	161 860	165 382	168 178	172 524	174 262	167 186	0	
	Connections - Unmetered	96 487	97 021	106 929	109 253	102 663	103 243	0	
	Length of mains (km)	4 752	4 799	4 835	4 962	4 801	4 701	0	
	System input volume	kl/annum	48 914 720	51 771 020	62 627 104	31 567 482	60 293 822	38 133 933	0
	Billed metered consumption	kl/annum	28 476 025	29 185 925	22 174 619	18 396 613	21 094 218	19 025 745	0
	Billed unmetered consumption	kl/annum	7 338 028	8 700 729	5 534 122	3 274 951	3 373 200	4 792 997	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	35 814 053	37 886 654	27 708 741	21 671 564	24 467 418	23 818 742	0
	Non-Revenue water	kl/annum	13 100 667	13 884 366	34 918 363	9 895 918	35 826 404	14 315 191	0
	Water Losses	kl/annum	13 100 667	13 884 366	34 918 363	9 895 918	35 826 404	14 315 191	0
	% Non-revenue water		26.8%	26.8%	55.8%	31.3%	59.4%	37.5%	No data
	% Water Losses		26.8%	26.8%	55.8%	31.3%	59.4%	37.5%	No data
Key performance indicators	Input : Litres / capita / day		87	91	110	55	104	69	No data
	Input: m³ / household / month		11	12	14	7	13	9	No data
	Billed : Litres / capita / day		64	67	49	38	42	43	No data
	Billed : m³ / household / month		8	9	6	5	5	5	No data
	% Population growth			0.93%	0.60%	1.37%	0.60%	-4.44%	
	% Water demand growth			5.84%	20.97%	-49.59%	91.00%	-36.75%	
Source of information									



Comments

Province		Mpumalanga						WSA	
Municipal Code		MP321						Yes	
District Municipality		Ehlanzeni						Category	
Municipality		Thaba Chweu						B3	
Settlements		HENDRIKSDAL, MASHISHING, MATIBIDI, SABIE						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	90 584	91 512	92 061	93 320	93 879	91 924		
	Households	24 903	25 160	25 312	25 654	25 807	25 256		
	Connections - metered	20 809	21 023	21 449	21 438	21 566	21 417		
	Connections - Unmetered	4 242	4 286	4 342	4 370	4 396	4 302		
	Length of mains (km)	504	506	509	516	519	508		
	System input volume	kl/annum	8 536 165	8 536 165	8 960 000		4 826 742	5 540 000	
	Billed metered consumption	kl/annum	4 644 181	4 644 181	4 274 410		4 826 742	2 653 000	
	Billed unmetered consumption	kl/annum	479 845	479 845	2 495 590			1 464 000	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	5 124 026	5 124 026	6 770 000	0	4 826 742	4 117 000	0
	Non-Revenue water	kl/annum	3 412 139	3 412 139	2 190 000	0	0	1 423 000	0
	Water Losses	kl/annum	3 412 139	3 412 139	2 190 000	0	0	1 423 000	0
	% Non-revenue water		40.0%	40.0%	24.4%	No data	Check data	25.7%	No data
	% Water Losses		40.0%	40.0%	24.4%	No data	No data	25.7%	No data
Key performance indicators	Input : Litres / capita / day		258	256	267	No data	141	165	No data
	Input: m ³ / household / month		29	28	29	No data	16	18	No data
	Billed : Litres / capita / day		155	153	201	No data	141	123	No data
	Billed : m ³ / household / month		17	17	22	No data	16	14	No data
	% Population growth			1.02%	0.60%	1.37%	0.60%	-2.08%	
	% Water demand growth			0.00%	4.97%		#DIV/0!	14.78%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS RPMS		

Municipal NRW Water Balance: Thaba Chweu

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	4 644 181	479 845	3 412 139	40.0%
Jun-06	4 644 181	479 845	3 412 139	40.0%
Jun-07	4 274 410	2 495 590	2 190 000	24.4%
Jun-08			0	No data
Jun-09	4 826 742		0	0%
Jun-10	2 653 000	1 464 000	1 423 000	25.7%
Jun-14				No data

Comments

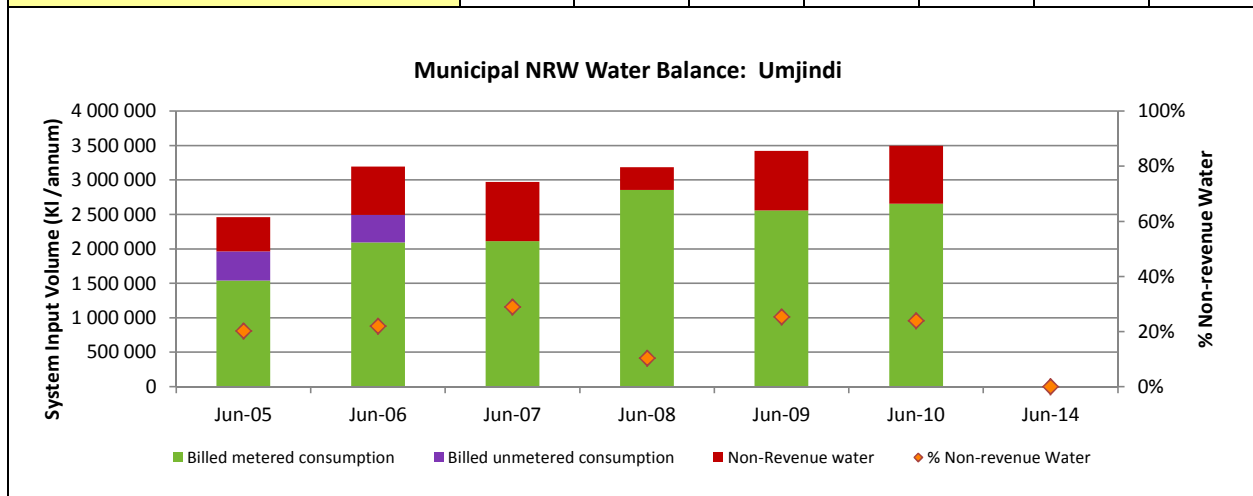
Province		Mpumalanga						WSA	
Municipal Code		MP322						Yes	
District Municipality		Ehlanzeni						Category	
Municipality		Mbombela (Silulumanzi Concession Area Only)						B1	
Settlements		DAANTJIE, KANYAMAZANE, LUNDI, ZWELITSHA, MSOGWABA, NELSPRUIT						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	512 418	517 661	520 766	527 884	531 053	527 056		
	Households	126 690	127 987	128 754	130 511	131 291	130 306		
	Connections - metered	28 992	31 300	33 291	35 793	39 440	39 775		
	Connections - Unmetered	28 758	28 700	38 196	39 585	35 123	40 101		
	Length of mains (km)	740	751	762	834	989	1 005		
	System input volume	kl/annum	22 381 777	23 757 308	25 307 348	28 382 422	27 894 313	29 099 341	
	Billed metered consumption	kl/annum	10 761 891	11 663 659	13 732 258	15 540 400	13 710 700	13 715 396	
	Billed unmetered consumption	kl/annum	1 684 983	3 069 830	3 038 532	3 274 951	3 373 200	3 328 997	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	12 446 874	14 733 489	16 770 790	18 815 351	17 083 900	17 044 393	0
	Non-Revenue water	kl/annum	9 934 903	9 023 819	8 536 558	9 567 071	10 810 413	12 054 948	0
	Water Losses	kl/annum	9 934 903	9 023 819	8 536 558	9 567 071	10 810 413	12 054 948	0
	% Non-revenue water		44.4%	38.0%	33.7%	33.7%	38.8%	41.4%	No data
	% Water Losses		44.4%	38.0%	33.7%	33.7%	38.8%	41.4%	No data
Key performance indicators	Input : Litres / capita / day		120	126	133	147	144	151	No data
	Input: m ³ / household / month		15	15	16	18	18	19	No data
	Billed : Litres / capita / day		67	78	88	98	88	89	No data
	Billed : m ³ / household / month		8	10	11	12	11	11	No data
	% Population growth			1.02%	0.60%	1.37%	0.60%	-0.75%	
	% Water demand growth			6.15%	6.52%	12.15%	-1.72%	4.32%	
Source of information		Sembcorp Silulumanzi	Sembcorp Silulumanzi	Sembcorp Silulumanzi	Sembcorp Silulumanzi	Sembcorp Silulumanzi	Sembcorp Silulumanzi		

Municipal NRW Water Balance: Mbombela

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	10 761 891	1 684 983	9 934 903	44.4%
Jun-06	11 663 659	3 069 830	9 023 819	38.0%
Jun-07	13 732 258	3 038 532	8 536 558	33.7%
Jun-08	15 540 400	3 274 951	9 567 071	33.7%
Jun-09	13 710 700	3 373 200	10 810 413	38.8%
Jun-10	13 715 396	3 328 997	12 054 948	41.4%

Comments

Province		Mpumalanga						WSA	
Municipal Code		MP323						Yes	
District Municipality		Ehlanzeni						Category	
Municipality		Umjindi						B3	
Settlements		BARBERTON, EMJINDIN						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	57 862	58 455	58 806	59 609	59 968	56 963		
	Households	16 350	16 516	16 615	16 842	16 944	16 094		
	Connections - metered	43 989	44 432	44 247	44 411	11 768	11 768		
	Connections - Unmetered	2 458	2 483	2 498	2 532	0	0		
	Length of mains (km)	329	332	334	339		120		
	System input volume	kl/annum	2 460 000	3 194 725	2 973 000	3 185 060	3 423 250	3 494 592	
	Billed metered consumption	kl/annum	1 541 531	2 095 707	2 113 000	2 856 213	2 556 776	2 657 349	
	Billed unmetered consumption	kl/annum	421 200	399 054	0	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 962 731	2 494 761	2 113 000	2 856 213	2 556 776	2 657 349	0
	Non-Revenue water	kl/annum	497 269	699 964	860 000	328 847	866 474	837 243	0
	Water Losses	kl/annum	497 269	699 964	860 000	328 847	866 474	837 243	0
	% Non-revenue water		20.2%	21.9%	28.9%	10.3%	25.3%	24.0%	No data
	% Water Losses		20.2%	21.9%	28.9%	10.3%	25.3%	24.0%	No data
Key performance indicators	Input : Litres / capita / day		116	150	139	146	156	168	No data
	Input: m ³ / household / month		13	16	15	16	17	18	No data
	Billed : Litres / capita / day		93	117	98	131	117	128	No data
	Billed : m ³ / household / month		10	13	11	14	13	14	No data
	% Population growth			1.02%	0.60%	1.37%	0.60%	-5.01%	
	% Water demand growth			29.87%	-6.94%	7.13%	7.48%	2.08%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS		



Comments

Province		Mpumalanga						WSA
Municipal Code		MP324						Yes
District Municipality		Ehlanzeni						Category
Municipality		Nkomazi						B4
Settlements		JEPPE'S REEF, SKOONPLAAS, STEENBOK, KAMAQHEKEZA, NKOMAZI						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	366 275	370 023	372 244	377 333	379 599	351 786	
	Households	82 533	83 378	83 880	85 022	85 533	79 264	
	Connections - metered	47 646	48 133	48 422	49 084	49 379	45 764	
	Connections - Unmetered	26 665	26 938	27 400	27 469	27 634	25 609	
	Length of mains (km)	1 486	1 504	1 540	1 534	1 540	1 427	
	System input volume	kl/annum	2 014 658	2 760 702	2 815 916			
	Billed metered consumption	kl/annum	2 760 702	2 014 658	2 054 951			
	Billed unmetered consumption	kl/annum	0	0	0			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	2 760 702	2 014 658	2 054 951	0	0	0
	Non-Revenue water	kl/annum	-746 044	746 044	760 965	0	0	0
	Water Losses	kl/annum	-746 044	746 044	760 965	0	0	0
	% Non-revenue water		Check data	27.0%	27.0%	No data	No data	No data
	% Water Losses		Check data	27.0%	27.0%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		15	20	21	No data	No data	No data
	Input: m³ / household / month		2	3	3	No data	No data	No data
	Billed : Litres / capita / day		21	15	15	No data	No data	No data
	Billed : m³ / household / month		3	2	2	No data	No data	No data
	% Population growth			1.02%	0.60%	1.37%	0.60%	-7.33%
	% Water demand growth			37.03%	2.00%			
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS	

Municipal NRW Water Balance: Nkomazi

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	2 760 702	0	-746 044	27.0%
Jun-06	2 014 658	0	746 044	27.0%
Jun-07	2 054 951	0	760 965	27.0%
Jun-08	0	0	0	No data
Jun-09	0	0	0	No data
Jun-10	0	0	0	No data
Jun-14	0	0	0	No data

Comments

Province		Mpumalanga						WSA
Municipal Code		MP325						Yes
District Municipality		Ehlanzeni						Category
Municipality		Bushbuckridge						B4
Settlements		ALEXANDRIA, CASTEEL, MARITE, MAVILJAN, MKHULU						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	510 208	513 952	517 035	524 106	527 250	493 419	
	Households	115 631	116 474	117 178	118 773	119 489	111 820	
	Connections - metered	50 424	50 794	51 099	51 798	52 109	48 765	
	Connections - Unmetered	34 363	34 644	34 823	35 297	35 540	33 234	
	Length of mains (km)	1 696	1 708	1 718	1 742	1 752	1 640	
	System input volume	kl/annum	13 522 120	13 522 120	22 570 840		24 149 517	
	Billed metered consumption	kl/annum	8 767 720	8 767 720	0			
	Billed unmetered consumption	kl/annum	4 752 000	4 752 000	0			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	13 519 720	13 519 720	0	0	0	0
	Non-Revenue water	kl/annum	2 400	2 400	22 570 840	0	24 149 517	0
	Water Losses	kl/annum	2 400	2 400	22 570 840	0	24 149 517	0
	% Non-revenue water		0.0%	0.0%	No data	No data	No data	No data
	% Water Losses		0.0%	0.0%	100.0%	No data	100.0%	No data
Key performance indicators	Input : Litres / capita / day		73	72	120	No data	125	No data
	Input: m ³ / household / month		10	10	16	No data	17	No data
	Billed : Litres / capita / day		73	72	No data	No data	No data	No data
	Billed : m ³ / household / month		10	10	No data	No data	No data	No data
	% Population growth			0.73%	0.60%	1.37%	0.60%	-6.42%
	% Water demand growth			0.00%	66.92%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS	

Municipal NRW Water Balance: Bushbuckridge

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	8 767 720	4 752 000	0	0%
Jun-06	8 767 720	4 752 000	0	0%
Jun-07	0	0	22 570 840	100%
Jun-08	0	0	0	0%
Jun-09	0	0	24 149 517	100%
Jun-10	0	0	0	0%
Jun-14	0	0	0	0%

Comments	

National Non-Revenue Water Assessment

North West Province

July 2011



Introductory notes

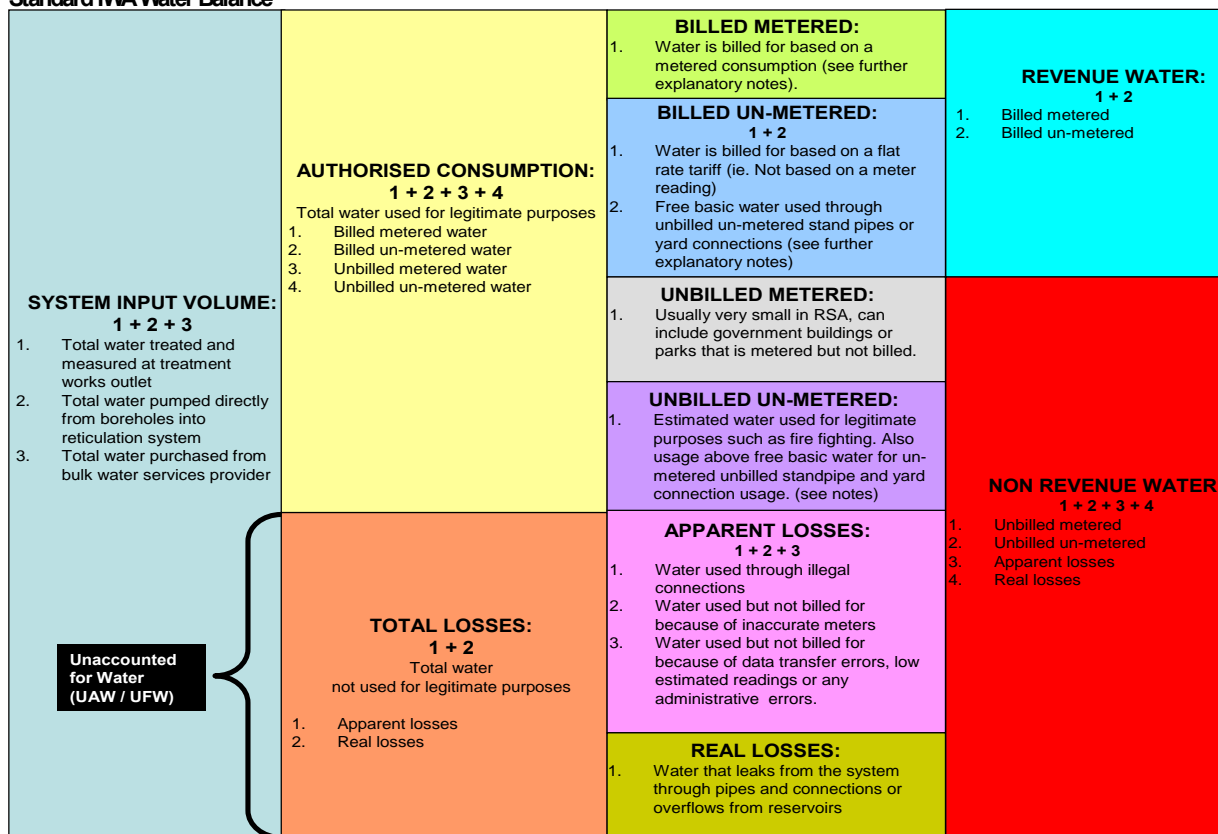
Terminology

Acronym	Description	Link
DWA	Department of Water Affairs	http://www.dwa.gov.za
WS RPMS	Water Services : Regulatory Performance Measurement System	http://www.dwa.gov.za/dir_ws/rpms/
WS NIS	Water Services : National Information System	http://www.dwa.gov.za/dir_ws/wsis/
FBS	Water Services : Free Basic Water Project	http://www.dwa.gov.za/dir_ws/fbw/
NRW	Non-revenue water. Volume of water for which no revenue is received (preferred term)	
UAW or UFW	Unaccounted-for water. Volume of water lost due to physical and apparent losses (not preferred term)	
StatsSA NEC	Statistics South Africa : Non-Financial Census of Municipalities P9115	http://www.statssa.gov.za/

Information sources

Item	Source	Calculation
Population	DWA WS NIS or municipality	
Households	DWA WS NIS or municipality	
Connections - metered	Extrapolated 2007 DWA - WS FBW serviced above RDP or municipality	
Connections - Unmetered	Extrapolated 2007 DWA - WS FBW serviced at RDP or municipality	
Length of mains (km)	Actual value or calculated at average of 50 connections / km of mains	# connections ÷ 50
(A) System input volume	Total volume of potable water supplied by the municipality in k/annum	
(B) Billed metered consumption	Total volume of water metered and billed by the municipality in k/annum	
(C) Billed unmetered consumption	Total volume of water unmetered and billed by the municipality in k/annum	
Underlined values	Calculated values using trends or averages	

Standard IWA Water Balance



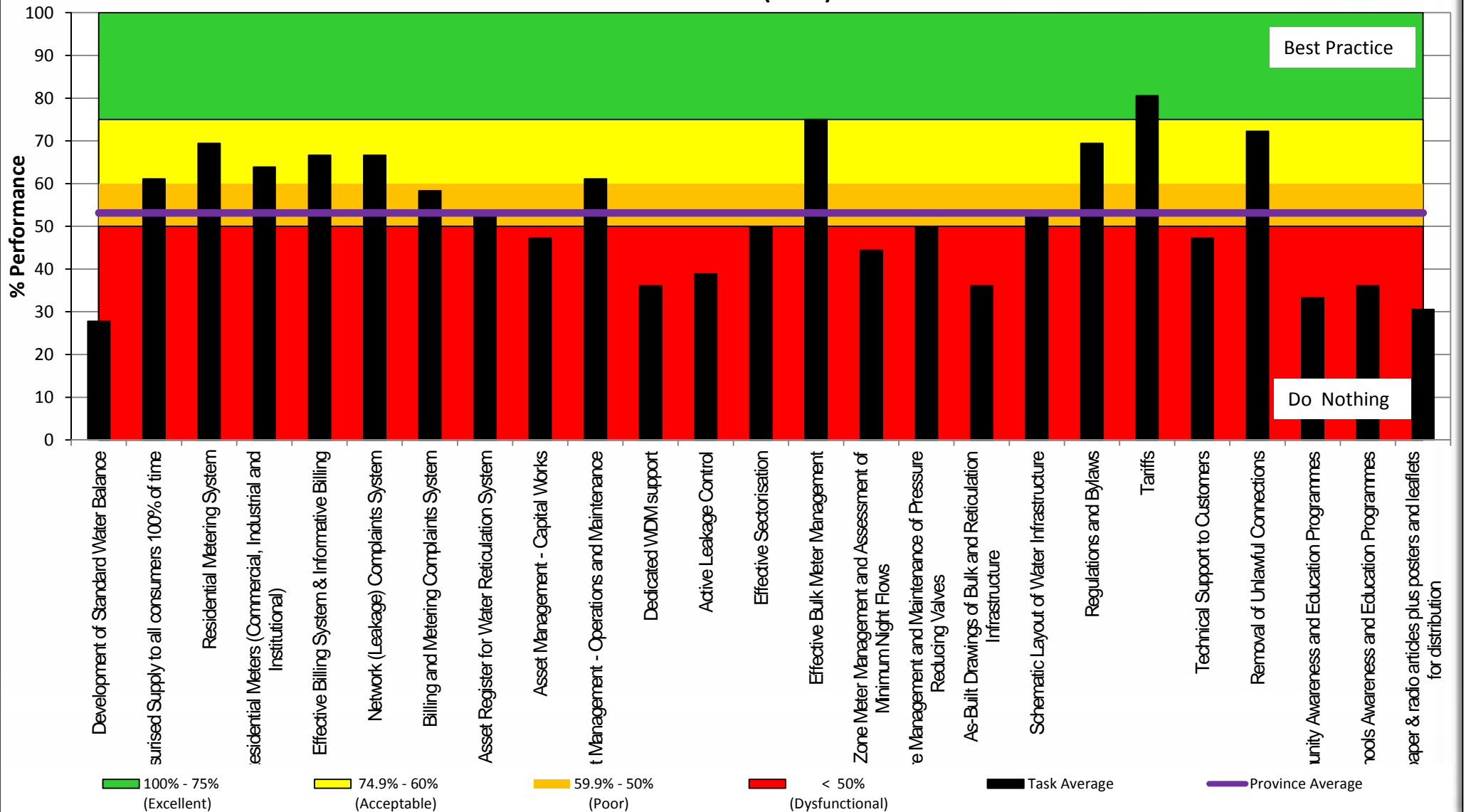
National NRW Assessment



Province		North West			
No	Municipal Code	District Municipality	Municipality	Category	WSA
1	DC37	Bojanala Platinum	Bojanala Platinum DM	C1	No
2	NW371	Bojanala Platinum	Moretele	B4	Yes
3	NW372	Bojanala Platinum	Madibeng	B1	Yes
4	NW373	Bojanala Platinum	Rustenburg	B1	Yes
5	NW374	Bojanala Platinum	Kgatlengrivier	B3	Yes
6	NW375	Bojanala Platinum	Moses Kotane	B4	Yes
7	DC38	Ngaka Modiri Molema	Ngaka Modiri Molema DM	C2	Yes
8	NW381	Ngaka Modiri Molema	Ratlou	B4	No
9	NW382	Ngaka Modiri Molema	Tswaing	B3	No
10	NW383	Ngaka Modiri Molema	Mafikeng	B2	No
11	NW384	Ngaka Modiri Molema	Ditsobotla	B3	No
12	NW385	Ngaka Modiri Molema	Ramotshere Moema	B3	No
13	DC39	Dr Ruth Segomotsi Mompati	Dr Ruth Segomotsi Mompati DM	C2	Yes
14	NW391	Dr Ruth Segomotsi Mompati	Kagisane	B4	No
15	NW392	Dr Ruth Segomotsi Mompati	Naledi	B3	No
16	NW393	Dr Ruth Segomotsi Mompati	Mamusa	B3	No
17	NW394	Dr Ruth Segomotsi Mompati	Greater Taung	B4	No
18	NW395	Dr Ruth Segomotsi Mompati	Molepe	B3	No
19	NW396	Dr Ruth Segomotsi Mompati	Lekwa-Tsemane	B3	No
20	DC40	Dr Kenneth Kaunda	Dr Kenneth Kaunda DM	C1	No
21	NW401	Dr Kenneth Kaunda	Ventersdorp	B3	Yes
22	NW402	Dr Kenneth Kaunda	Tlokwe	B1	Yes
23	NW403	Dr Kenneth Kaunda	City of Mafesana Municipality	B1	Yes
24	NW404	Dr Kenneth Kaunda	Maguassi Hills	B3	Yes

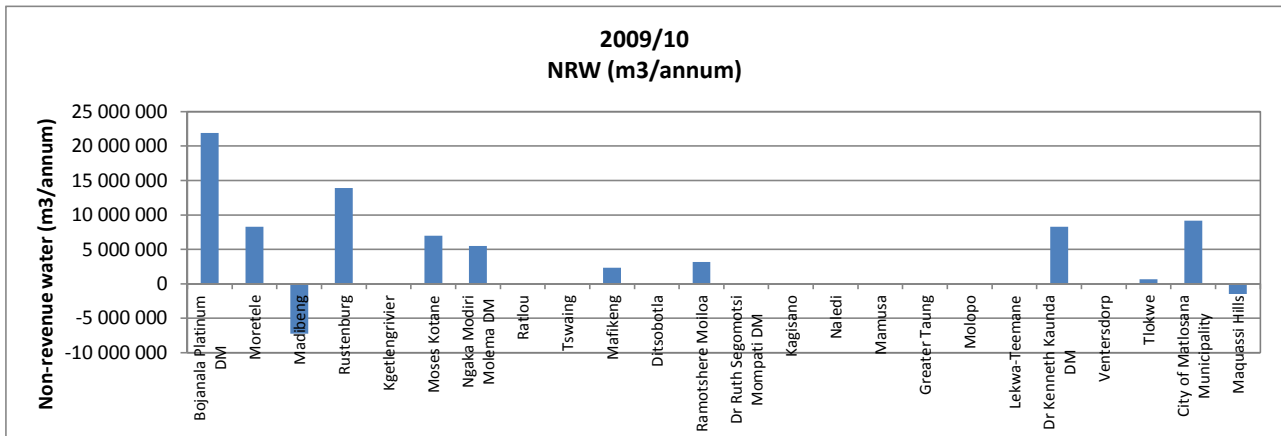
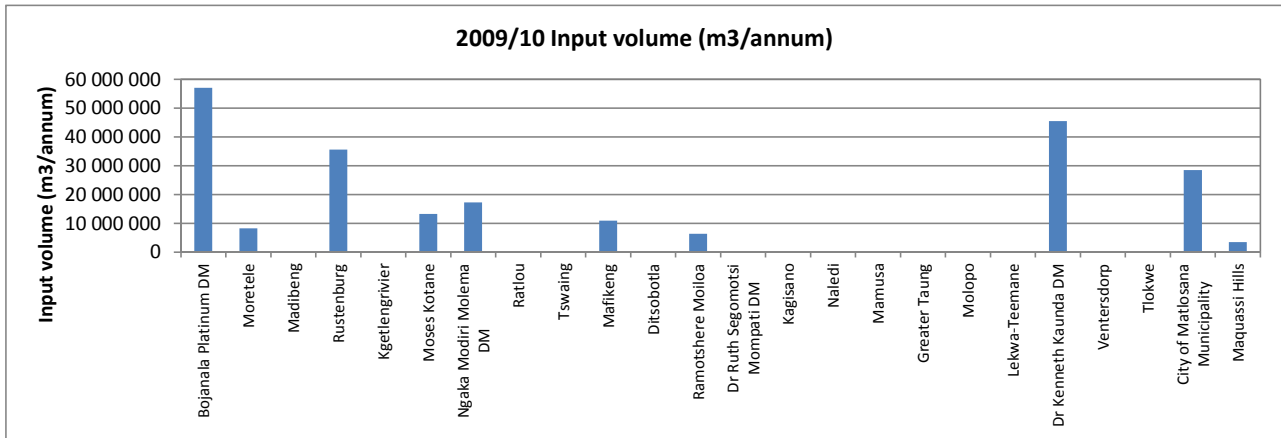
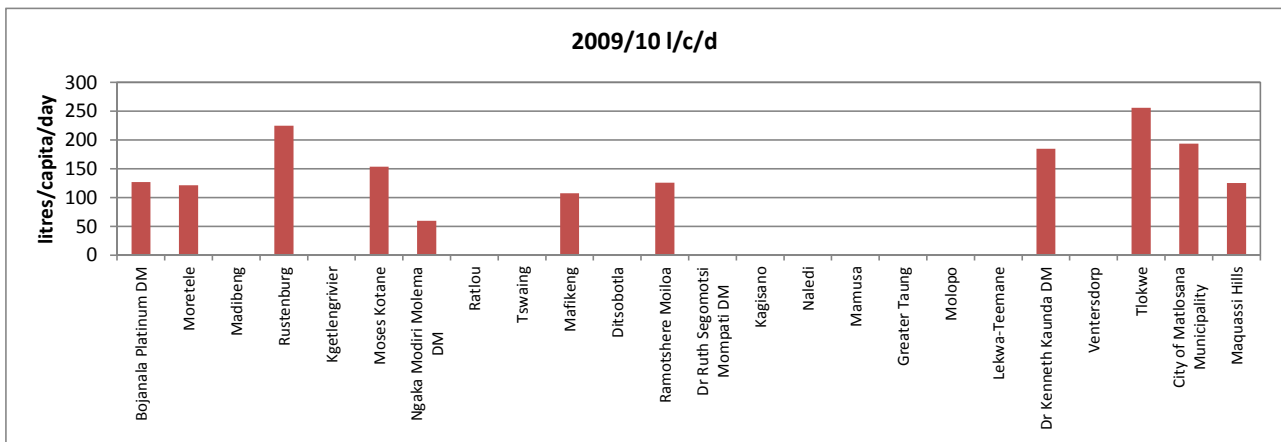
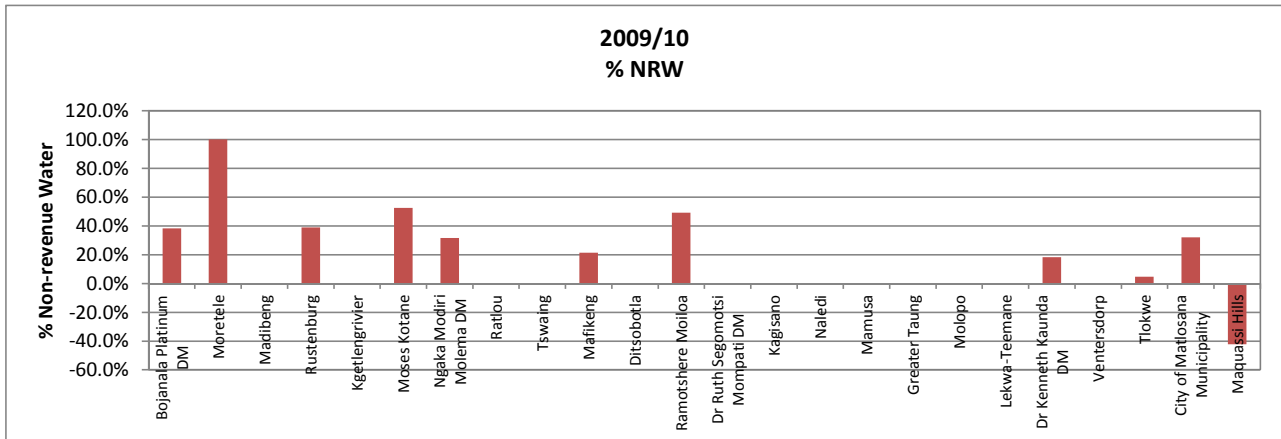
National NRW Assessment

Municipal Scorecard for Assessing the Potential for WC/WDM in Municipalities North West (2010)

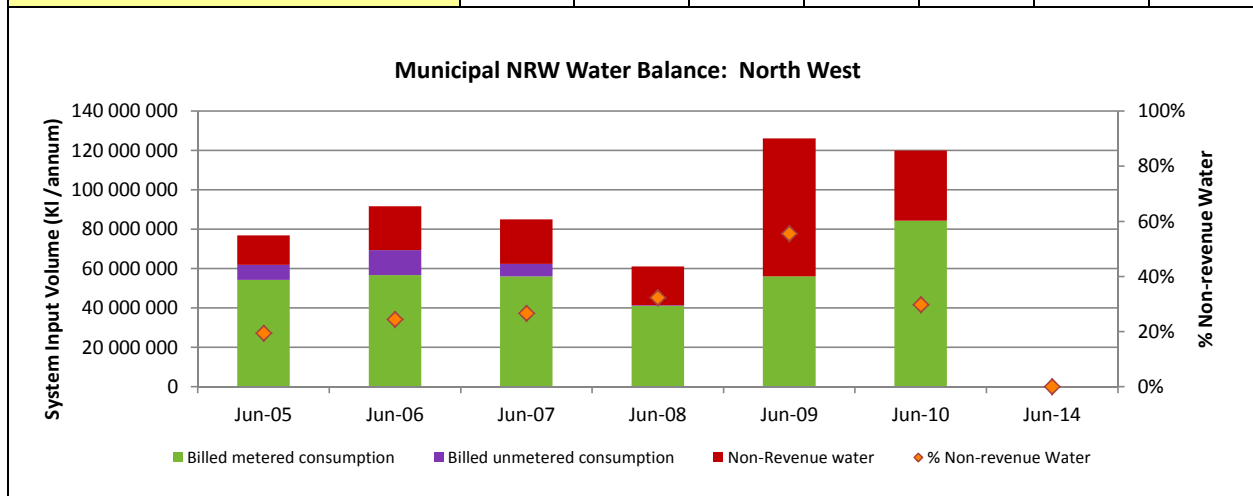


Score	Criteria	# of Records	Comments	Distribution
Record Keeping 22				
1	No records	3	Good records keeping is the first step towards water management and reducing water losses	
2	Poor records	2		
3	Erratic / worthless records	10		
4	Records with gaps or questions	4		
5	Good records no gaps or questions	3		
% NRW 24				
0	No records	13	% Non-revenue water (volume of water for which no income is received). Current estimated national average $\pm 35\%$	
1	>50%	2		
2	>40% <=50%	1		
3	>30% <=40%	4		
4	>20% <=30%	1		
5	<=20%	3		
litres / capita / day 24				
0	No records	13	Average litres / capita / day based on system input volume. Expected average around 200l/c/d.	
1	>400	0		
2	>300 and <=400	0		
3	>200 and <=300	2		
4	>100 and <=200	8		
5	<=100	1		
NRW Activity 24				
1	No activity	6	Based on local knowledge, scorecard, available records.	
2	Very limited activity	12		
3	Some activity, part of O&M	6		
4	Small scale active programme	0		
5	Large scale active programme	0		
Potential NRW Impact 24				
1	<=50.000	5	Potential impact of intervention based on population. High population = high consumption = higher potential saving.	
2	>50.000 <=100.000	3		
3	>100.000 <=200.000	7		
4	>200.000 <=500.000	6		
5	>500.000	3		

Key Performance Indicators

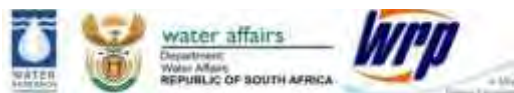


Province		North West						WSA	
Municipal Code									
District Municipality								Category	
Municipality									
Settlements								Target Jun-14	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10		
Input Data	Population	3 155 996	3 178 030	3 197 091	3 210 036	3 229 606	3 136 275	0	
	Households	845 211	851 320	856 394	859 720	865 088	841 288	0	
	Connections - metered	517 632	521 802	524 933	527 083	530 281	522 841	0	
	Connections - Unmetered	182 437	183 661	184 751	185 479	186 623	178 502	0	
	Length of mains (km)	14 001	14 109	14 194	14 242	14 338	14 027	0	
	System input volume	kl/annum	76 851 824	91 664 184	85 029 856	61 052 627	126 059 189	119 936 392	0
	Billed metered consumption	kl/annum	54 283 752	56 755 964	56 083 352	41 089 031	56 065 270	84 268 291	0
	Billed unmetered consumption	kl/annum	7 628 410	12 585 376	6 304 014	272 544	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	61 912 162	69 341 340	62 387 366	41 361 575	56 065 270	84 268 291	0
	Non-Revenue water	kl/annum	14 939 662	22 322 844	22 642 490	19 691 052	69 993 919	35 668 101	0
	Water Losses	kl/annum	14 939 662	22 322 844	22 642 490	19 691 052	69 993 919	35 668 101	0
	% Non-revenue water		19.4%	24.4%	26.6%	32.3%	55.5%	29.7%	No data
	% Water Losses		19.4%	24.4%	26.6%	32.3%	55.5%	29.7%	No data
Key performance indicators	Input : Litres / capita / day		67	79	73	52	107	105	No data
	Input: m³ / household / month		8	9	8	6	12	12	No data
	Billed : Litres / capita / day		54	60	53	35	48	74	No data
	Billed : m³ / household / month		6	7	6	4	5	8	No data
	% Population growth			0.70%	0.60%	0.40%	0.61%	-2.89%	
	% Water demand growth			19.27%	-7.24%	-28.20%	106.48%	-4.86%	
Source of information									

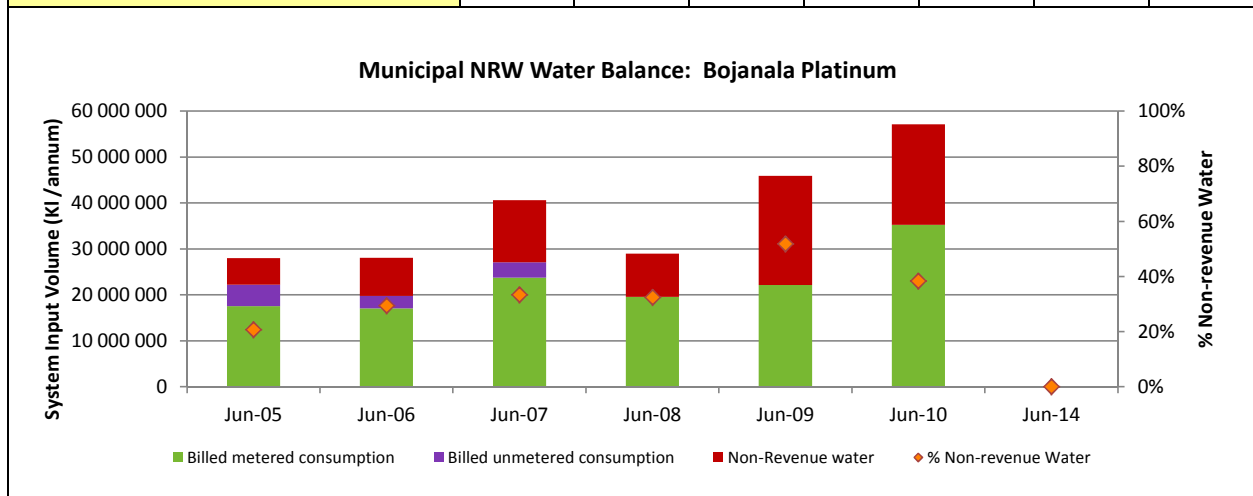


Comments

National NRW Assessment



Province		North West						WSA	
Municipal Code		DC37						No	
District Municipality		Bojanala Platinum						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	1 257 127	1 270 363	1 277 992	1 282 991	1 291 026	1 234 265	0	
	Households	360 939	364 744	366 929	368 208	370 658	355 032	0	
	Connections - metered	242 402	244 945	246 415	247 405	248 927	240 172	0	
	Connections - Unmetered	79 088	79 930	80 408	80 698	81 224	77 391	0	
	Length of mains (km)	6 430	6 497	6 536	6 562	6 603	6 351	0	
	System input volume	kl/annum	27 968 822	28 030 513	40 603 676	28 965 414	45 895 323	57 121 439	0
	Billed metered consumption	kl/annum	17 567 793	17 020 089	23 738 796	19 571 958	22 139 591	35 237 394	0
	Billed unmetered consumption	kl/annum	4 613 968	2 754 100	3 316 433	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	22 181 761	19 774 189	27 055 229	19 571 958	22 139 591	35 237 394	0
	Non-Revenue water	kl/annum	5 787 061	8 256 324	13 548 447	9 393 456	23 755 732	21 884 045	0
	Water Losses	kl/annum	5 787 061	8 256 324	13 548 447	9 393 456	23 755 732	21 884 045	0
	% Non-revenue water		20.7%	29.5%	33.4%	32.4%	51.8%	38.3%	No data
	% Water Losses		20.7%	29.5%	33.4%	32.4%	51.8%	38.3%	No data
Key performance indicators	Input : Litres / capita / day		61	60	87	62	97	127	No data
	Input: m³ / household / month		6	6	9	7	10	13	No data
	Billed : Litres / capita / day		48	43	58	42	47	78	No data
	Billed : m³ / household / month		5	5	6	4	5	8	No data
	% Population growth			1.05%	0.60%	0.39%	0.63%	-4.40%	
	% Water demand growth			0.22%	44.86%	-28.66%	58.45%	24.46%	
Source of information									



Comments

Province		North West						WSA	
Municipal Code		NW371						Yes	
District Municipality		Bojanala Platinum						Category	
Municipality		Moretele						B4	
Settlements		BEZUIDENHOUTSKRAAL, MAKAPNSTAD, MATHIBESTAD, MOGOGELO						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	196 393	198 555	199 749	200 586	201 793	186 341		
	Households	50 240	50 802	51 104	51 315	51 619	47 666		
	Connections - metered	20 950	21 480	21 308	21 397	21 526	19 877		
	Connections - Unmetered	22 225	22 474	22 608	22 701	22 835	21 087		
	Length of mains (km)	864	873	878	882	887	849		
	System input volume	kl/annum	0	0	270 043			8 260 000	
	Billed metered consumption	kl/annum	0	12 043	12 043				
	Billed unmetered consumption	kl/annum	3 096 576	1 333 080	258 000				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	3 096 576	1 345 123	270 043	0	0	0	
	Non-Revenue water	kl/annum	-3 096 576	-1 345 123	0	0	0	8 260 000	
	Water Losses	kl/annum	-3 096 576	-1 345 123	0	0	0	8 260 000	
	% Non-revenue water		No data	No data	Check data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	100.0%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	4	No data	No data	121	No data
	Input: m ³ / household / month		No data	No data	0	No data	No data	14	No data
	Billed : Litres / capita / day		43	19	4	No data	No data	No data	No data
	Billed : m ³ / household / month		5	2	0	No data	No data	No data	No data
	% Population growth			1.10%	0.60%	0.42%	0.60%	-7.66%	
	% Water demand growth				#DIV/0!			#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS		

Municipal NRW Water Balance: Moretele

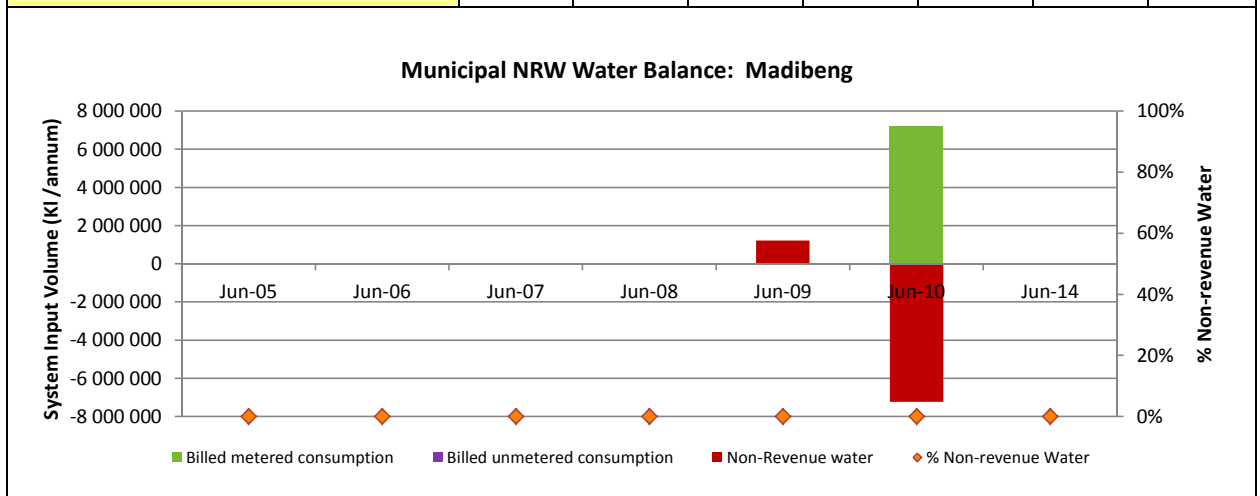
Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	0	3 096 576	-3 096 576	0%
Jun-06	0	1 333 080	-1 333 080	0%
Jun-07	0	258 000	0	0%
Jun-08	0	0	0	0%
Jun-09	0	0	0	0%
Jun-10	0	0	8 260 000	100%
Jun-14	0	0	0	0%

Comments

National NRW Assessment



Province		North West						WSA
Municipal Code		NW372						Yes
District Municipality		Bojanala Platinum						Category
Municipality		Madibeng						
Settlements		Brits						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	345 646	349 253	351 345	352 803	354 920	336 424	
	Households	98 943	99 974	100 574	100 983	101 589	96 288	
	Connections - metered	77 416	78 224	78 692	79 019	79 493	75 354	
	Connections - Unmetered	46 850	47 025	47 427	17 197	47 300	46 397	
	Length of mains (km)	1 885	1 905	1 946	1 924	1 936	1 835	
	System input volume	kl/annum					1 225 200	
	Billed metered consumption	kl/annum						7 230 000
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	7 230 000	0
	Non-Revenue water	kl/annum	0	0	0	0	1 225 200	-7 230 000
	Water Losses	kl/annum	0	0	0	0	1 225 200	-7 230 000
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	100.0%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	9	No data
	Input: m³ / household / month		No data	No data	No data	No data	1	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	59	No data
	Billed : m³ / household / month		No data	No data	No data	No data	6	No data
	% Population growth			1.04%	0.60%	0.41%	0.60%	-5.21%
	% Water demand growth						#DIV/0!	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS StatsSA NFC	DWA NIS RPMS	



Comments

Province		North West						WSA	
Municipal Code		NW373						Yes	
District Municipality		Bojanala Platinum						Category	
Municipality		Rustenburg						B1	
Settlements		BETHANIE, RUSTENBURG, BOITEKONG, MARIKANA, THLABANE						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	426 535	430 988	433 578	435 386	437 999	433 701		
	Households	132 007	133 386	134 185	134 753	135 560	134 239		
	Connections - metered	406 526	407 639	408 285	408 737	409 390	408 346		
	Connections - Unmetered	26 224	26 497	26 656	26 769	26 929	26 667		
	Length of mains (km)	2 655	2 683	2 699	2 740	2 726	2 700		
	System input volume	kl/annum	26 572 897	26 028 358	26 028 358	28 965 414	33 370 837	35 581 439	
	Billed metered consumption	kl/annum	16 653 672	16 166 633	16 166 633	19 571 958	21 544 401	21 697 394	
	Billed unmetered consumption	kl/annum	1 338 976	1 367 313	1 367 313				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	17 992 648	17 533 946	17 533 946	19 571 958	21 544 401	21 697 394	0
	Non-Revenue water	kl/annum	8 580 249	8 494 412	8 494 412	9 393 456	11 826 436	13 884 045	0
	Water Losses	kl/annum	8 580 249	8 494 412	8 494 412	9 393 456	11 826 436	13 884 045	0
	% Non-revenue water		32.3%	32.6%	32.6%	32.4%	35.4%	39.0%	No data
	% Water Losses		32.3%	32.6%	32.6%	32.4%	35.4%	39.0%	No data
Key performance indicators	Input : Litres / capita / day		171	165	164	182	209	225	No data
	Input: m ³ / household / month		17	16	16	18	21	22	No data
	Billed : Litres / capita / day		116	111	111	123	135	137	No data
	Billed : m ³ / household / month		11	11	11	12	13	13	No data
	% Population growth			1.04%	0.60%	0.42%	0.60%	-0.98%	
	% Water demand growth			-2.05%	0.00%	11.28%	15.21%	6.62%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS Municipality	DWA NIS RPMS		

Municipal NRW Water Balance: Rustenburg

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	16 653 672	1 338 976	8 580 249	32.3%
Jun-06	16 166 633	1 367 313	8 494 412	32.6%
Jun-07	16 166 633	1 367 313	8 494 412	32.6%
Jun-08	19 571 958		9 393 456	32.4%
Jun-09	21 544 401		11 826 436	35.4%
Jun-10	21 697 394		13 884 045	39.0%
Jun-14				

Comments

Province		North West						WSA
Municipal Code		NW374						Yes
District Municipality		Bojanala Platinum						Category
Municipality		Kgetlengrivier						B3
Settlements		KOSTER, SWARTRUGGENS						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	38 964	39 371	39 606	39 770	40 008	41 083	
	Households	11 402	11 521	11 590	11 637	11 707	12 021	
	Connections - metered	9 935	10 039	10 099	10 141	10 202	10 476	
	Connections - Unmetered	1 533	1 549	1 559	1 565	1 574	1 617	
	Length of mains (km)	229	232	233	234	236	242	
	System input volume	kl/annum	1 395 925	2 002 155	2 206 275			
	Billed metered consumption	kl/annum	914 121	841 413	895 120		595 190	
	Billed unmetered consumption	kl/annum	178 416	53 707	204 120			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 092 537	895 120	1 099 240	0	595 190	0
	Non-Revenue water	kl/annum	303 388	1 107 035	1 107 035	0	-595 190	0
	Water Losses	kl/annum	303 388	1 107 035	1 107 035	0	-595 190	0
	% Non-revenue water		21.7%	55.3%	50.2%	No data	No data	No data
	% Water Losses		21.7%	55.3%	50.2%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		98	139	153	No data	No data	No data
	Input: m ³ / household / month		10	14	16	No data	No data	No data
	Billed : Litres / capita / day		77	62	76	No data	41	No data
	Billed : m ³ / household / month		8	6	8	No data	4	No data
	% Population growth			1.04%	0.60%	0.41%	0.60%	2.69%
	% Water demand growth			43.43%	10.20%			
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

Municipal NRW Water Balance: Kgetlengrivier

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	914 121	178 416	303 388	21.7%
Jun-06	841 413	53 707	1 107 035	55.3%
Jun-07	895 120	204 120	1 107 035	50.2%
Jun-08			0	No data
Jun-09	595 190		0	No data
Jun-10			0	No data
Jun-14			0	No data

Comments

Province		North West						WSA	
Municipal Code		NW375						Yes	
District Municipality		Bojanala Platinum						Category	
Municipality		Moses Kotane						B4	
Settlements		Mogwase						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	249 589	252 196	253 714	254 446	256 306	236 716		
	Households	68 347	69 061	69 476	69 520	70 183	64 818		
	Connections - metered	27 574	27 862	28 030	28 111	28 316	26 152		
	Connections - Unmetered	12 256	12 384	12 458	12 466	12 585	11 623		
	Length of mains (km)	797	805	810	812	818	756		
	System input volume	kl/annum			12 099 000		11 299 286	13 280 000	
	Billed metered consumption	kl/annum			6 665 000			6 310 000	
	Billed unmetered consumption	kl/annum			1 487 000			0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	0	8 152 000	0	0	6 310 000	0
	Non-Revenue water	kl/annum	0	0	3 947 000	0	11 299 286	6 970 000	0
	Water Losses	kl/annum	0	0	3 947 000	0	11 299 286	6 970 000	0
	% Non-revenue water		No data	No data	32.6%	No data	No data	52.5%	No data
	% Water Losses		No data	No data	32.6%	No data	100.0%	52.5%	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	131	No data	121	154	No data
	Input: m³ / household / month		No data	No data	15	No data	13	17	No data
	Billed : Litres / capita / day		No data	No data	88	No data	No data	73	No data
	Billed : m³ / household / month		No data	No data	10	No data	No data	8	No data
	% Population growth			1.04%	0.60%	0.29%	0.73%	-7.64%	
	% Water demand growth				#DIV/0!		#DIV/0!	17.53%	
Source of information		DWA NIS	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS RPMS		

Municipal NRW Water Balance: Moses Kotane

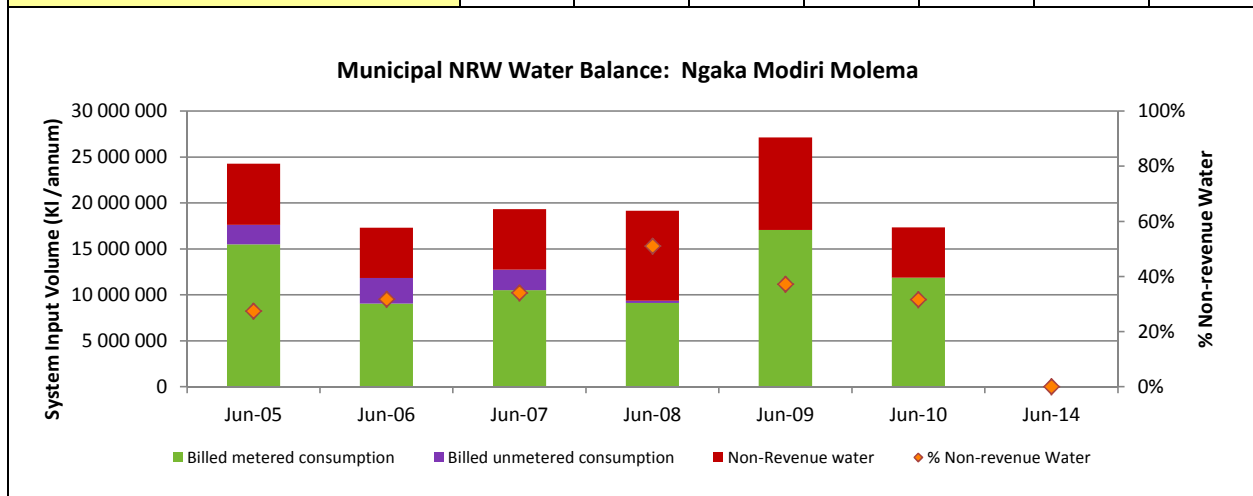
Year	Billed metered consumption	Billed unmetered consumption	Non-Revenue water	% Non-revenue Water
Jun-05	0	0	0	0%
Jun-06	0	0	0	0%
Jun-07	6 665 000	1 487 000	3 947 000	32.6%
Jun-08	0	0	0	0%
Jun-09	0	0	11 299 286	100.0%
Jun-10	6 310 000	0	6 970 000	52.5%
Jun-14	0	0	0	0%

Comments

National NRW Assessment

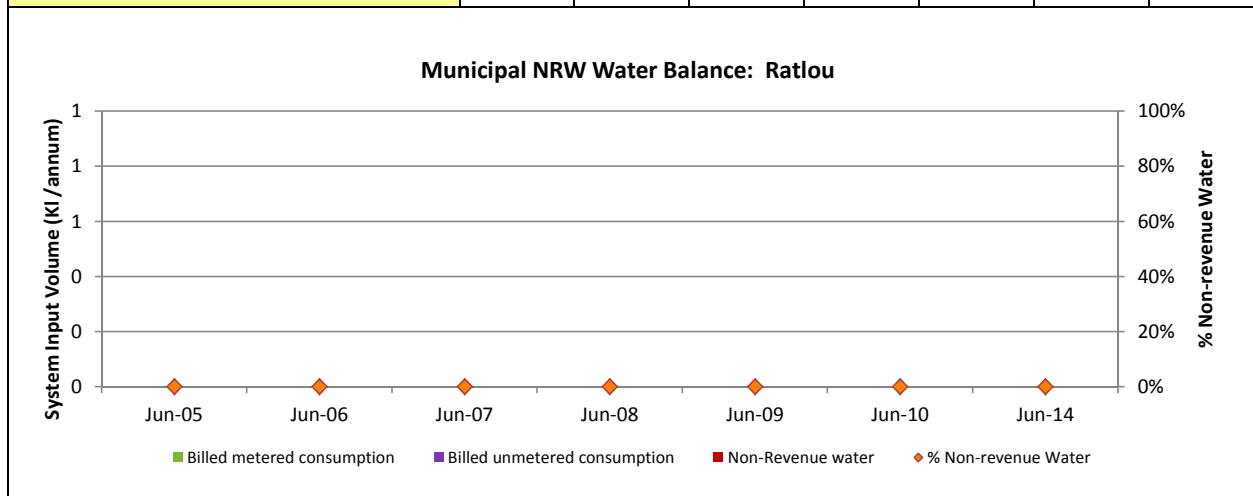


Province		North West						WSA	
Municipal Code		DC38						Yes	
District Municipality		Ngaka Modiri Molema						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	813 684	815 342	820 234	823 634	828 567	793 580	0	
	Households	201 357	201 775	202 974	203 823	205 032	196 655	0	
	Connections - metered	76 214	76 370	76 828	77 147	77 609	75 079	0	
	Connections - Unmetered	55 115	55 229	55 555	55 789	56 119	53 177	0	
	Length of mains (km)	2 627	2 632	2 648	2 659	2 675	2 565	0	
	System input volume	kl/annum	24 273 064	17 321 522	19 315 199	19 137 331	27 122 150	17 339 376	0
	Billed metered consumption	kl/annum	15 489 860	9 054 176	10 525 660	9 101 911	17 044 145	11 851 892	0
	Billed unmetered consumption	kl/annum	2 134 084	2 777 580	2 207 751	272 544	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	17 623 944	11 831 756	12 733 411	9 374 456	17 044 145	11 851 892	0
	Non-Revenue water	kl/annum	6 649 120	5 489 766	6 581 788	9 762 876	10 078 005	5 487 484	0
	Water Losses	kl/annum	6 649 120	5 489 766	6 581 788	9 762 876	10 078 005	5 487 484	0
	% Non-revenue water		27.4%	31.7%	34.1%	51.0%	37.2%	31.6%	No data
	% Water Losses		27.4%	31.7%	34.1%	51.0%	37.2%	31.6%	No data
Key performance indicators	Input : Litres / capita / day		82	58	65	64	90	60	No data
	Input: m³ / household / month		10	7	8	8	11	7	No data
	Billed : Litres / capita / day		59	40	43	31	56	41	No data
	Billed : m³ / household / month		7	5	5	4	7	5	No data
	% Population growth			0.20%	0.60%	0.41%	0.60%	-4.22%	
	% Water demand growth			-28.64%	11.51%	-0.92%	41.72%	-36.07%	
Source of information									



Comments

Province		North West						WSA
Municipal Code		NW381						No
District Municipality		Ngaka Modiri Molema						Category
Municipality		Ratlou						B4
Settlements		MOTSITILENE, SETLAGOLE						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	111 242	111 468	112 139	112 601	113 276	104 586	
	Households	25 190	25 241	25 390	25 495	25 645	23 676	
	Connections - metered	4 200	4 208	4 234	4 251	4 276	3 948	
	Connections - Unmetered	17 117	17 151	17 253	17 324	17 426	16 088	
	Length of mains (km)	426	427	430	432	434	401	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.20%	0.60%	0.41%	0.60%	-7.67%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



Comments

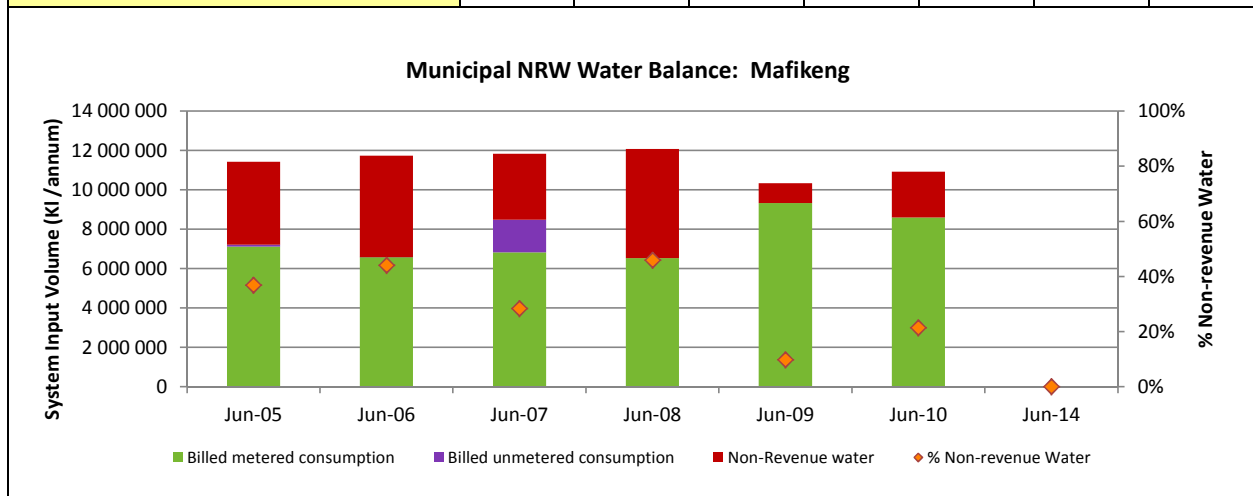
Province		North West						WSA
Municipal Code		NW382						No
District Municipality		Ngaka Modiri Molema						Category
Municipality		Tswaing						B3
Settlements		Khibitswane, Marotse, Delareyville						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	121 743	121 991	122 720	123 226	123 960	115 573	
	Households	28 150	28 205	28 372	28 492	28 661	26 718	
	Connections - metered	3 494	3 204	3 220	3 233	3 252	3 032	
	Connections - Unmetered	4 704	4 740	4 738	4 758	4 786	4 462	
	Length of mains (km)	458	458	459	460	464	450	
	System input volume	kl/annum	2 770 680	2 770 680	886 924		12 928 846	
	Billed metered consumption	kl/annum	770 680	0	802 495		4 415 313	
	Billed unmetered consumption	kl/annum	1 130 760	2 520 000	84 429			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 901 440	2 520 000	886 924	0	4 415 313	0
	Non-Revenue water	kl/annum	869 240	250 680	0	0	8 513 533	0
	Water Losses	kl/annum	869 240	250 680	0	0	8 513 533	0
	% Non-revenue water		31.4%	9.0%	Check data	No data	65.8%	No data
	% Water Losses		31.4%	9.0%	No data	No data	65.8%	No data
Key performance indicators	Input : Litres / capita / day		62	62	20	No data	286	No data
	Input: m ³ / household / month		8	8	3	No data	38	No data
	Billed : Litres / capita / day		43	57	20	No data	98	No data
	Billed : m ³ / household / month		6	7	3	No data	13	No data
	% Population growth			0.20%	0.60%	0.41%	0.60%	-6.77%
	% Water demand growth			0.00%	-67.99%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

Municipal NRW Water Balance: Tswaing

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	770 680	1 130 760	0	31.4%
Jun-06	0	2 520 000	0	9.0%
Jun-07	802 495	0	0	Check data
Jun-08	0	0	0	No data
Jun-09	4 415 313	0	8 513 533	65.8%
Jun-10	0	0	0	No data
Jun-14	0	0	0	No data

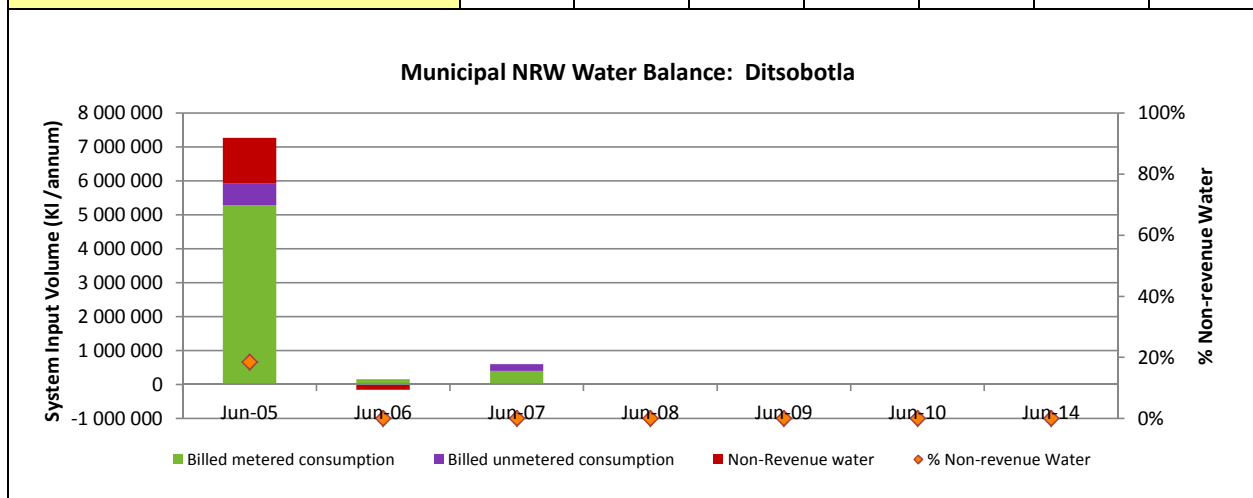
Comments	

Province		North West						WSA	
Municipal Code		NW383						No	
District Municipality		Ngaka Modiri Molema						Category	
Municipality		Mafikeng						B2	
Settlements		Mafikeng						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	276 735	277 302	278 966	280 125	281 807	278 351		
	Households	72 394	72 552	72 989	73 284	73 721	72 823		
	Connections - metered	27 774	27 828	27 995	28 111	28 280	27 933		
	Connections - Unmetered	42 345	42 344	42 446	42 466	42 540	42 388		
	Length of mains (km)	802	803	808	812	816	806		
	System input volume	kl/annum	11 421 996	11 736 842	11 834 186	12 077 096	10 331 971	10 928 634	
	Billed metered consumption	kl/annum	7 116 553	6 571 222	6 817 987	6 536 279	9 326 245	8 588 629	
	Billed unmetered consumption	kl/annum	99 827	1 044	1 656 000				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	7 216 380	6 572 266	8 473 987	6 536 279	9 326 245	8 588 629	0
	Non-Revenue water	kl/annum	4 205 616	5 164 576	3 360 199	5 540 817	1 005 726	2 340 002	0
	Water Losses	kl/annum	4 205 616	5 164 576	3 360 199	5 540 817	1 005 726	2 340 002	0
	% Non-revenue water		36.8%	44.0%	28.4%	45.9%	9.7%	21.4%	No data
	% Water Losses		36.8%	44.0%	28.4%	45.9%	9.7%	21.4%	No data
Key performance indicators	Input : Litres / capita / day		113	116	116	118	100	108	No data
	Input: m³ / household / month		13	13	14	14	12	13	No data
	Billed : Litres / capita / day		71	65	83	64	91	85	No data
	Billed : m³ / household / month		8	8	10	7	11	10	No data
	% Population growth			0.20%	0.60%	0.42%	0.60%	-1.23%	
	% Water demand growth			2.76%	0.83%	2.05%	-14.45%	5.77%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC		



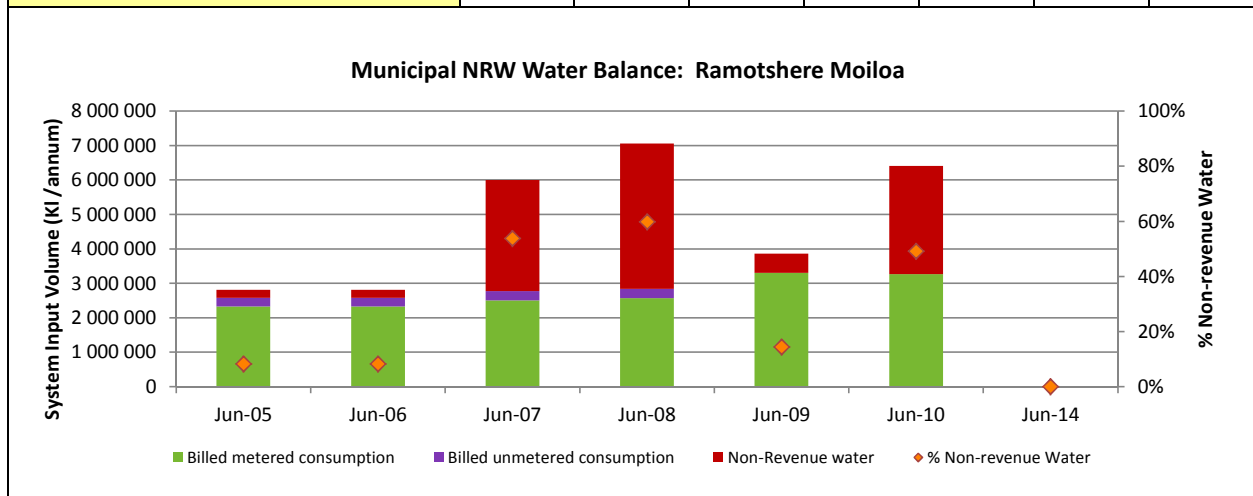
Comments

Province		North West						WSA	
Municipal Code		NW384						No	
District Municipality		Ngaka Modiri Molema						Category	
Municipality		Ditsobotla						B3	
Settlements		BOIKHUTSO, ITOSENG, KGOMOLA, LICHTENBURG						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	157 422	157 745	158 693	159 353	160 308	155 471		
	Households	39 841	39 922	40 159	40 329	40 570	39 351		
	Connections - metered	30 334	30 396	30 579	30 706	30 890	29 958		
	Connections - Unmetered	7 148	7 163	7 205	7 236	7 279	7 064		
	Length of mains (km)	750	754	756	759	763	740		
	System input volume	kl/annum	7 266 388	0	598 681				
	Billed metered consumption	kl/annum	5 277 627	157 954	399 889				
	Billed unmetered consumption	kl/annum	646 961	0	198 792				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	5 924 588	157 954	598 681	0	0	0	0
	Non-Revenue water	kl/annum	1 341 800	-157 954	0	0	0	0	0
	Water Losses	kl/annum	1 341 800	-157 954	0	0	0	0	0
	% Non-revenue water		18.5%	No data	Check data	No data	No data	No data	No data
	% Water Losses		18.5%	No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		126	No data	10	No data	No data	No data	No data
	Input: m ³ / household / month		15	No data	1	No data	No data	No data	No data
	Billed : Litres / capita / day		103	3	10	No data	No data	No data	No data
	Billed : m ³ / household / month		12	0	1	No data	No data	No data	No data
	% Population growth			0.21%	0.60%	0.42%	0.60%	-3.02%	
	% Water demand growth				#DIV/0!				
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS		



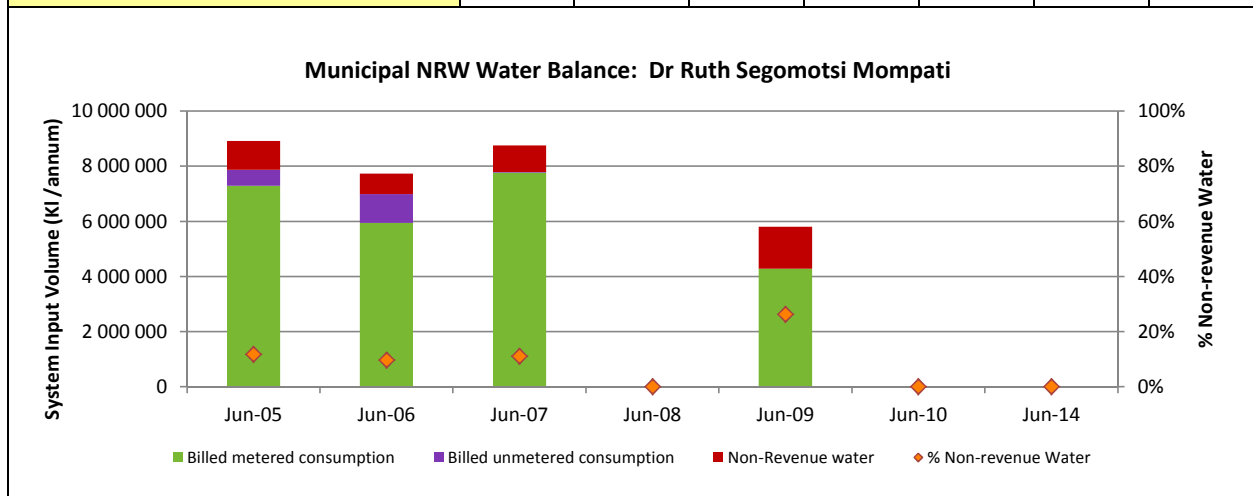
Comments

Province		North West						WSA	
Municipal Code		NW385						No	
District Municipality		Ngaka Modiri Molema						Category	
Municipality		Ramotshere Moiloa						B3	
Settlements		DINOKANA, ZEERUST						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	146 542	146 836	147 716	148 329	149 216	139 599		
	Households	35 782	35 855	36 064	36 223	36 435	34 087		
	Connections - metered	40 745	40 737	40 804	10 846	40 944	40 208		
	Connections - Unmetered	43 834	43 863	43 944	14 005	44 087	43 179		
	Length of mains (km)	494	492	495	497	500	468		
	System input volume	kl/annum	2 814 000	2 814 000	5 995 408	7 060 235	3 861 333	6 410 746	
	Billed metered consumption	kl/annum	2 325 000	2 325 000	2 505 289	2 565 632	3 302 587	3 263 263	
	Billed unmetered consumption	kl/annum	256 536	256 536	268 530	272 544	0		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 581 536	2 581 536	2 773 819	2 838 177	3 302 587	3 263 263	0
	Non-Revenue water	kl/annum	232 464	232 464	3 221 589	4 222 059	558 746	3 147 482	0
	Water Losses	kl/annum	232 464	232 464	3 221 589	4 222 059	558 746	3 147 482	0
	% Non-revenue water		8.3%	8.3%	53.7%	59.8%	14.5%	49.1%	No data
	% Water Losses		8.3%	8.3%	53.7%	59.8%	14.5%	49.1%	No data
Key performance indicators	Input : Litres / capita / day		53	53	111	130	71	126	No data
	Input: m ³ / household / month		7	7	14	16	9	16	No data
	Billed : Litres / capita / day		48	48	51	52	61	64	No data
	Billed : m ³ / household / month		6	6	6	7	8	8	No data
	% Population growth			0.20%	0.60%	0.41%	0.60%	-6.45%	
	% Water demand growth			0.00%	113.06%	17.76%	-45.31%	66.02%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		



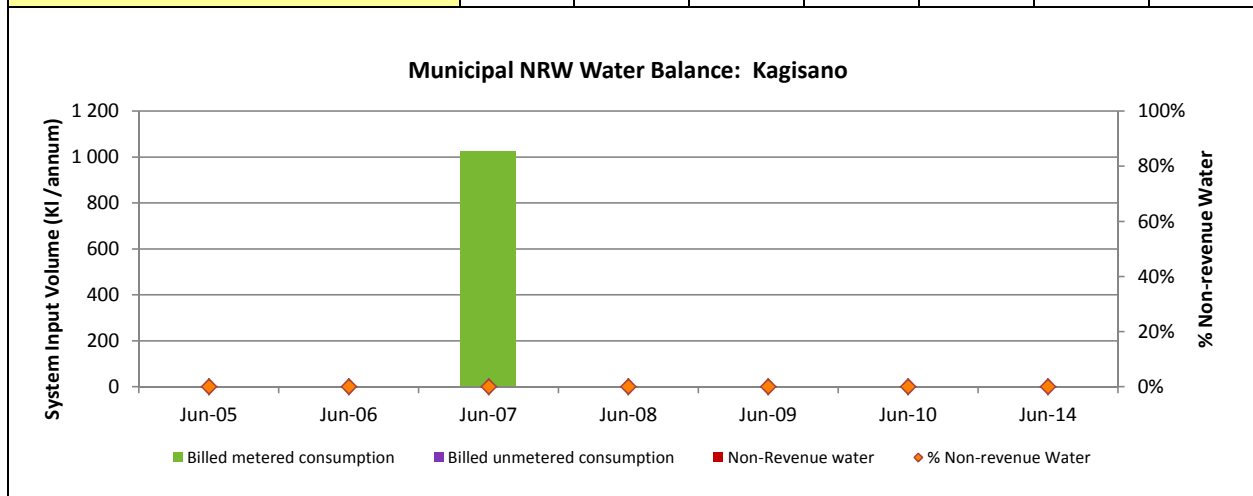
Comments

Province		North West						WSA	
Municipal Code		DC39						Yes	
District Municipality		Dr Ruth Segomotsi Mompati						Category	
Municipality								C2	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	446 948	448 563	451 244	453 094	455 796	434 390	0	
	Households	111 331	111 730	112 383	112 859	113 522	108 395	0	
	Connections - metered	49 905	50 086	50 386	50 597	50 900	49 987	0	
	Connections - Unmetered	29 169	29 272	29 441	29 566	29 738	27 835	0	
	Length of mains (km)	1 581	1 587	1 597	1 603	1 613	1 556	0	
	System input volume	kl/annum	8 919 443	7 732 880	8 755 344	0	5 807 899	0	0
	Billed metered consumption	kl/annum	7 295 601	5 945 655	7 768 729	0	4 281 664	0	0
	Billed unmetered consumption	kl/annum	580 622	1 044 936	18 598	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	7 876 223	6 990 591	7 787 327	0	4 281 664	0	0
	Non-Revenue water	kl/annum	1 043 220	742 289	968 017	0	1 526 235	0	0
	Water Losses	kl/annum	1 043 220	742 289	968 017	0	1 526 235	0	0
	% Non-revenue water		11.7%	9.6%	11.1%	No data	26.3%	No data	No data
	% Water Losses		11.7%	9.6%	11.1%	No data	26.3%	No data	No data
Key performance indicators	Input : Litres / capita / day		55	47	53	No data	35	No data	No data
	Input: m ³ / household / month		7	6	6	No data	4	No data	No data
	Billed : Litres / capita / day		48	43	47	No data	26	No data	No data
	Billed : m ³ / household / month		6	5	6	No data	3	No data	No data
	% Population growth			0.36%	0.60%	0.41%	0.60%	-4.70%	
	% Water demand growth			-13.30%	13.22%		#DIV/0!		
Source of information									



Comments

Province		North West						WSA
Municipal Code		NW391						No
District Municipality		Dr Ruth Segomotsi Mompati						Category
Municipality		Kagisano						B4
Settlements		GANYESA						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	85 550	85 847	86 353	86 682	87 192	80 572	
	Households	21 416	21 489	21 605	21 695	21 812	20 168	
	Connections - metered	2 569	2 578	2 593	2 603	2 618	2 420	
	Connections - Unmetered	8 420	8 449	8 495	8 530	8 576	7 930	
	Length of mains (km)	220	224	222	223	224	207	
	System input volume	kl/annum			1 025			
	Billed metered consumption	kl/annum			1 025			
	Billed unmetered consumption	kl/annum			0			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	1 025	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	Check data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	0	No data	No data	No data
	Input: m ³ / household / month		No data	No data	0	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	0	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	0	No data	No data	No data
	% Population growth			0.35%	0.59%	0.38%	0.59%	-7.59%
	% Water demand growth				#DIV/0!			
Source of information		DWA NIS	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	



Comments

Province		North West						WSA
Municipal Code		NW392						No
District Municipality		Dr Ruth Segomotsi Mompati						Category
Municipality		Naledi						B3
Settlements		HUHUDI, VRYBURG						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	61 168	61 392	61 759	62 015	62 387	64 425	
	Households	16 549	16 610	16 710	16 780	16 881	17 431	
	Connections - metered	15 717	15 775	15 869	15 935	16 034	16 554	
	Connections - Unmetered	540	542	545	517	520	537	
	Length of mains (km)	325	326	328	329	334	342	
	System input volume	kl/annum	4 661 938	4 562 705	4 106 789		1 743 559	
	Billed metered consumption	kl/annum	4 107 267	3 919 591	3 488 267		1 485 575	
	Billed unmetered consumption	kl/annum	0	0	0			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	4 107 267	3 919 591	3 488 267	0	1 485 575	0
	Non-Revenue water	kl/annum	554 671	643 114	618 522	0	257 984	0
	Water Losses	kl/annum	554 671	643 114	618 522	0	257 984	0
	% Non-revenue water		11.9%	14.1%	15.1%	No data	14.8%	No data
	% Water Losses		11.9%	14.1%	15.1%	No data	14.8%	No data
Key performance indicators	Input : Litres / capita / day		209	204	182	No data	77	No data
	Input: m ³ / household / month		23	23	20	No data	9	No data
	Billed : Litres / capita / day		184	175	155	No data	65	No data
	Billed : m ³ / household / month		21	20	17	No data	7	No data
	% Population growth			0.37%	0.60%	0.41%	0.60%	3.27%
	% Water demand growth			-2.13%	-9.99%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

Municipal NRW Water Balance: Naledi

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	4 107 267	0	554 671	11.9%
Jun-06	3 919 591	0	643 114	14.1%
Jun-07	3 488 267	0	618 522	15.1%
Jun-08	0	0	0	No data
Jun-09	1 485 575	0	257 984	14.8%
Jun-10	0	0	0	No data
Jun-14	0	0	0	No data

Comments

Province		North West						WSA	
Municipal Code		NW393						No	
District Municipality		Dr Ruth Segomotsi Mompati						Category	
Municipality		Mamusa						B3	
Settlements		MOSEOHATSHE, SCHWEIZER, RENEKE						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	50 918	51 105	51 413	51 630	51 940	48 437		
	Households	11 668	11 711	11 781	11 832	11 903	11 101		
	Connections - metered	7 920	7 949	7 997	8 031	8 079	7 534		
	Connections - Unmetered	330	332	334	335	337	344		
	Length of mains (km)	465	466	467	467	468	457		
	System input volume	kl/annum	1 087 332	0	1 072 781				
	Billed metered consumption	kl/annum	715 870	0	1 046 401				
	Billed unmetered consumption	kl/annum	242 222	260 136	18 456				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	958 092	260 136	1 064 857	0	0	0	0
	Non-Revenue water	kl/annum	129 240	-260 136	7 924	0	0	0	0
	Water Losses	kl/annum	129 240	-260 136	7 924	0	0	0	0
	% Non-revenue water		11.9%	No data	0.7%	No data	No data	No data	No data
	% Water Losses		11.9%	No data	0.7%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		59	No data	57	No data	No data	No data	No data
	Input: m ³ / household / month		8	No data	8	No data	No data	No data	No data
	Billed : Litres / capita / day		52	14	57	No data	No data	No data	No data
	Billed : m ³ / household / month		7	2	8	No data	No data	No data	No data
	% Population growth			0.37%	0.60%	0.42%	0.60%	-6.74%	
	% Water demand growth				#DIV/0!				
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS		

Municipal NRW Water Balance: Mamusa

Year	Billed metered consumption	Billed unmetered consumption	Non-Revenue water	% Non-revenue Water
Jun-05	715 870	242 222	108 092	11.9%
Jun-06	0	260 136	129 240	No data
Jun-07	1 046 401	18 456	7 924	0.7%
Jun-08	0	0	0	No data
Jun-09	0	0	0	No data
Jun-10	0	0	0	No data
Jun-14	0	0	0	-6.74%

Comments

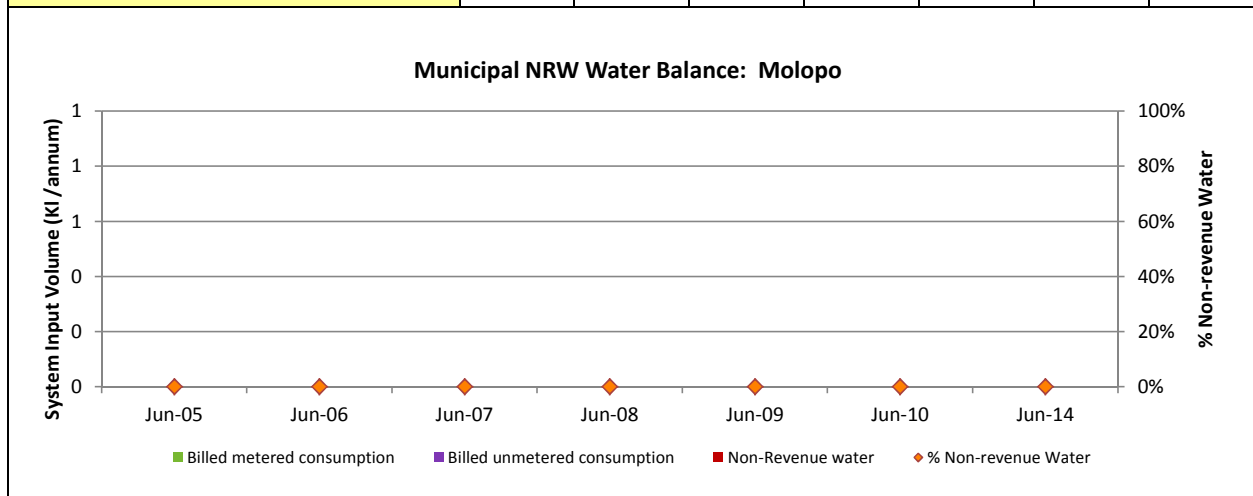
Province		North West						WSA
Municipal Code		NW394						No
District Municipality		Dr Ruth Segomotsi Mompati						Category
Municipality		Greater Taung						B4
Settlements		TAUNG VILLAGE, REVILO						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	191 755	192 455	193 606	194 404	195 563	181 685	
	Households	45 813	45 978	46 251	46 449	46 729	43 411	
	Connections - metered	40 524	40 562	40 625	10 669	40 733	9 974	
	Connections - Unmetered	47 385	47 447	47 554	17 626	47 732	46 473	
	Length of mains (km)	558	560	564	566	569	529	
	System input volume	kl/annum	140	142	142		452 034	
	Billed metered consumption	kl/annum	0	0	0		429 228	
	Billed unmetered consumption	kl/annum	0	0	142			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	142	0	129 228	0
	Non-Revenue water	kl/annum	140	142	0	0	22 806	0
	Water Losses	kl/annum	140	142	0	0	22 806	0
	% Non-revenue water		No data	No data	Check data	No data	15.0%	No data
	% Water Losses		100.0%	100.0%	No data	No data	15.0%	No data
Key performance indicators	Input : Litres / capita / day		0	0	0	No data	2	No data
	Input: m ³ / household / month		0	0	0	No data	0	No data
	Billed : Litres / capita / day		No data	No data	0	No data	2	No data
	Billed : m ³ / household / month		No data	No data	0	No data	0	No data
	% Population growth			0.37%	0.60%	0.41%	0.60%	-7.10%
	% Water demand growth			1.43%	0.00%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

Municipal NRW Water Balance: Greater Taung

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	140	0	0	0%
Jun-06	142	0	0	0%
Jun-07	142	0	0	0%
Jun-08	142	0	0	0%
Jun-09	429 228	142	140	15.0%
Jun-10	452 034	0	0	0%
Jun-14	452 034	0	0	0%

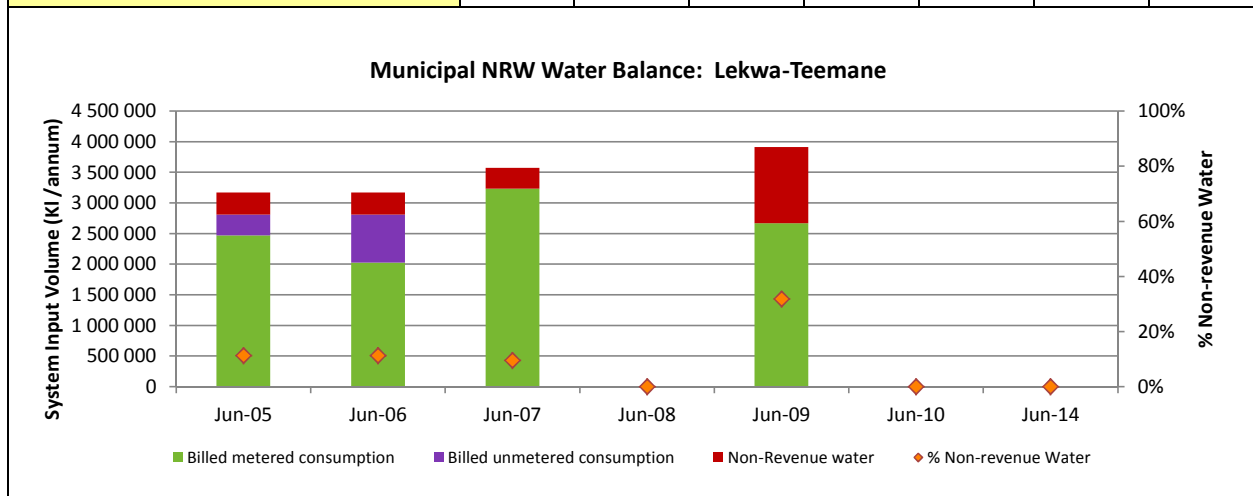
Comments

Province		North West						WSA
Municipal Code		NW395						No
District Municipality		Dr Ruth Segomotsi Mompati						Category
Municipality		Molopo						B3
Settlements		POMFRET						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	12 317	12 358	12 434	12 492	12 568	11 603	
	Households	4 019	4 032	4 054	4 071	4 093	3 781	
	Connections - metered	3 347	3 359	3 379	3 395	3 416	3 453	
	Connections - Unmetered	694	693	697	700	704	650	
	Length of mains (km)	84	84	82	82	82	76	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.33%	0.61%	0.47%	0.61%	-7.68%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



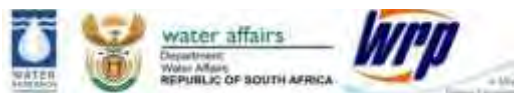
Comments

Province		North West						WSA
Municipal Code		NW396						No
District Municipality		Dr Ruth Segomotsi Mompati						Category
Municipality		Lekwa-Teemane						B3
Settlements		BOTUMELONG, CHRISTIANA						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	45 240	45 406	45 679	45 871	46 146	47 668	
	Households	11 866	11 910	11 982	12 032	12 104	12 503	
	Connections - metered	9 827	9 863	9 922	9 964	10 024	10 354	
	Connections - Unmetered	1 832	1 839	1 850	1 858	1 869	1 934	
	Length of mains (km)	233	234	235	236	238	246	
	System input volume	kl/annum	3 170 033	3 170 033	3 574 607		3 942 306	
	Billed metered consumption	kl/annum	2 472 464	2 026 064	3 233 036		2 666 861	
	Billed unmetered consumption	kl/annum	338 400	784 800	0			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	2 810 864	2 810 864	3 233 036	0	2 666 861	0
	Non-Revenue water	kl/annum	359 169	359 169	341 571	0	1 245 445	0
	Water Losses	kl/annum	359 169	359 169	341 571	0	1 245 445	0
	% Non-revenue water		11.3%	11.3%	9.6%	No data	31.8%	No data
	% Water Losses		11.3%	11.3%	9.6%	No data	31.8%	No data
Key performance indicators	Input : Litres / capita / day		192	191	214	No data	232	No data
	Input: m ³ / household / month		22	22	25	No data	27	No data
	Billed : Litres / capita / day		170	170	194	No data	158	No data
	Billed : m ³ / household / month		20	20	22	No data	18	No data
	% Population growth			0.37%	0.60%	0.42%	0.60%	3.30%
	% Water demand growth			0.00%	12.76%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

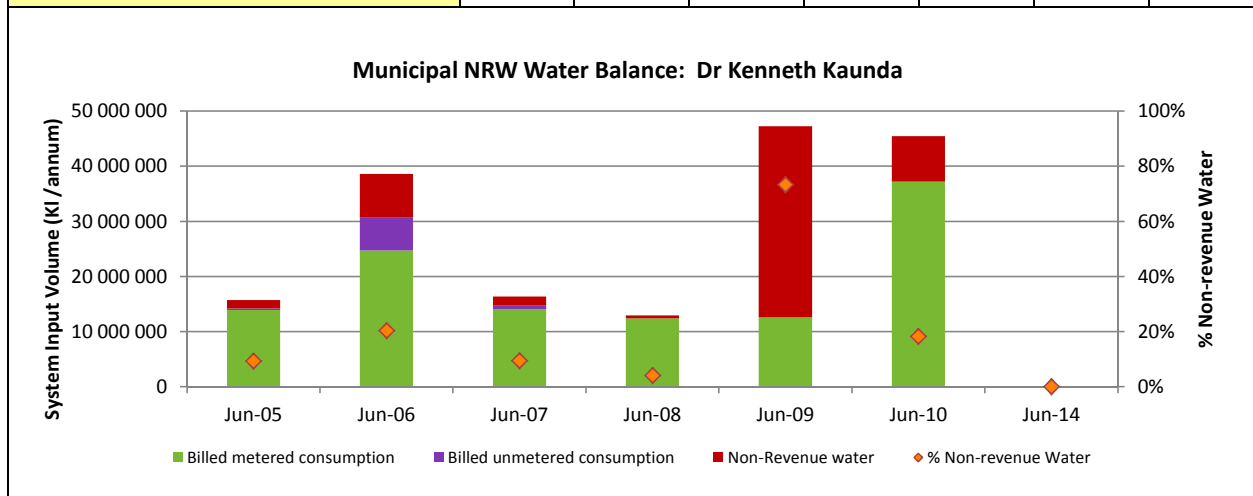


Comments

National NRW Assessment



Province		North West						WSA	
Municipal Code		DC40						No	
District Municipality		Dr Kenneth Kaunda						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	638 237	643 762	647 621	650 317	654 217	674 040	0	
	Households	171 584	173 071	174 108	174 830	175 876	181 206	0	
	Connections - metered	149 111	150 402	151 304	151 934	152 845	157 603	0	
	Connections - Unmetered	19 066	19 231	19 346	19 426	19 542	20 100	0	
	Length of mains (km)	3 364	3 393	3 413	3 418	3 448	3 554	0	
	System input volume	kl/annum	15 690 495	38 579 269	16 355 637	12 949 882	47 233 817	45 475 577	0
	Billed metered consumption	kl/annum	13 930 498	24 736 044	14 050 167	12 415 162	12 599 870	37 179 005	0
	Billed unmetered consumption	kl/annum	299 736	6 008 760	761 232	0	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	14 230 234	30 744 804	14 811 399	12 415 162	12 599 870	37 179 005	0
	Non-Revenue water	kl/annum	1 460 261	7 834 465	1 544 238	534 720	34 633 947	8 296 572	0
	Water Losses	kl/annum	1 460 261	7 834 465	1 544 238	534 720	34 633 947	8 296 572	0
	% Non-revenue water		9.3%	20.3%	9.4%	4.1%	73.3%	18.2%	No data
	% Water Losses		9.3%	20.3%	9.4%	4.1%	73.3%	18.2%	No data
Key performance indicators	Input : Litres / capita / day		67	164	69	55	198	185	No data
	Input: m ³ / household / month		8	19	8	6	22	21	No data
	Billed : Litres / capita / day		61	131	63	52	53	151	No data
	Billed : m ³ / household / month		7	15	7	6	6	17	No data
	% Population growth			0.87%	0.60%	0.42%	0.60%	3.03%	
	% Water demand growth			145.88%	-57.61%	-20.82%	264.74%	-3.72%	
Source of information									



Comments

Province		North West						WSA
Municipal Code		NW401						Yes
District Municipality		Dr Kenneth Kaunda						Category
Municipality		Ventersdorp						B3
Settlements		Ventersdorp						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	47 733	48 144	48 431	48 630	48 921	49 430	
	Households	12 922	13 032	13 110	13 162	13 240	13 378	
	Connections - metered	6 084	6 436	6 473	6 198	6 235	6 300	
	Connections - Unmetered	2 534	2 553	2 568	2 578	2 593	2 620	
	Length of mains (km)	472	474	475	476	477	478	
	System input volume	kl/annum	1 241 142	1 175 921	1 240 672		2 920 000	
	Billed metered consumption	kl/annum	941 406	565 935	566 435			
	Billed unmetered consumption	kl/annum	299 736	461 232	461 232			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 241 142	1 027 167	1 027 667	0	0	0
	Non-Revenue water	kl/annum	0	148 754	213 005	0	2 920 000	0
	Water Losses	kl/annum	0	148 754	213 005	0	2 920 000	0
	% Non-revenue water		Check data	12.6%	17.2%	No data	No data	No data
	% Water Losses		No data	12.6%	17.2%	No data	100.0%	No data
Key performance indicators	Input : Litres / capita / day		71	67	70	No data	164	No data
	Input: m ³ / household / month		8	8	8	No data	18	No data
	Billed : Litres / capita / day		71	58	58	No data	No data	No data
	Billed : m ³ / household / month		8	7	7	No data	No data	No data
	% Population growth			0.86%	0.60%	0.41%	0.60%	1.04%
	% Water demand growth			-5.25%	5.51%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

Municipal NRW Water Balance: Ventersdorp

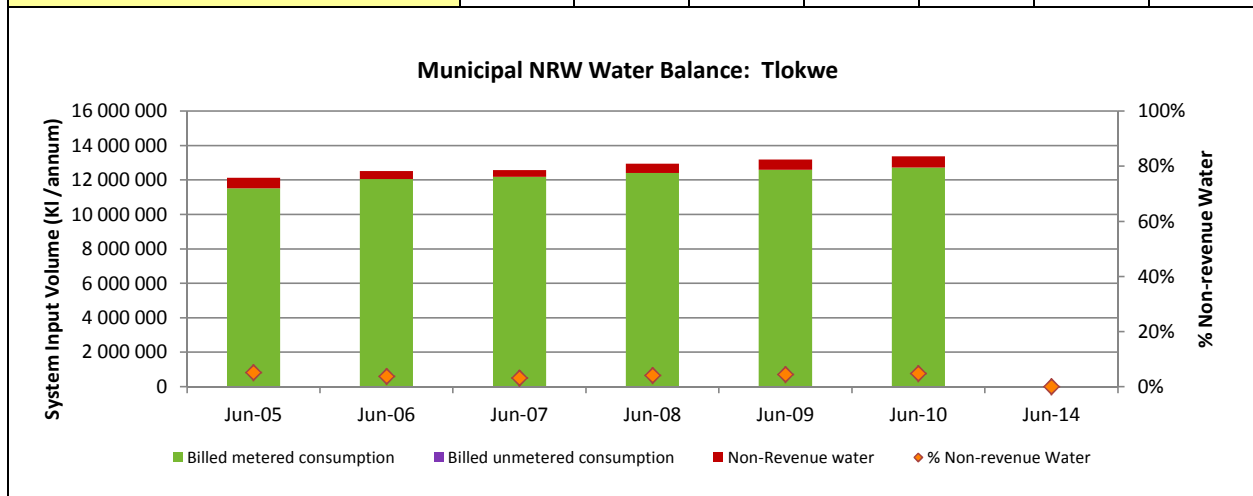
Year	Billed metered consumption	Billed unmetered consumption	Non-Revenue water
Jun-05	941 406	299 736	0
Jun-06	565 935	461 232	148 754
Jun-07	566 435	461 232	213 005
Jun-08	0	0	0
Jun-09	0	0	2 920 000
Jun-10	0	0	0
Jun-14	0	0	0

Comments	

National NRW Assessment



Province		North West						WSA	
Municipal Code		NW402						Yes	
District Municipality		Dr Kenneth Kaunda						Category	
Municipality		Tlokwe						B1	
Settlements		BOSKOP, CACHET, HARTEBESPOORT, NEWMACHAMIE, POTCHIEFSTROOM						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	135 470	136 647	137 468	138 042	138 871	143 201		
	Households	35 506	35 814	36 030	36 180	36 398	37 530		
	Connections - metered	31 818	32 094	32 287	32 422	32 617	33 634		
	Connections - Unmetered	3 902	3 936	3 960	3 976	4 000	4 124		
	Length of mains (km)	714	721	725	728	732	755		
	System input volume	kl/annum	12 125 544	12 521 747	12 574 032	12 949 882	13 182 074	13 365 577	
	Billed metered consumption	kl/annum	11 510 801	12 049 489	12 185 722	12 415 162	12 599 870	12 729 005	
	Billed unmetered consumption	kl/annum					0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	11 510 801	12 049 489	12 185 722	12 415 162	12 599 870	12 729 005	0
	Non-Revenue water	kl/annum	614 743	472 258	388 310	534 720	582 204	636 572	0
	Water Losses	kl/annum	614 743	472 258	388 310	534 720	582 204	636 572	0
	% Non-revenue water		5.1%	3.8%	3.1%	4.1%	4.4%	4.8%	No data
	% Water Losses		5.1%	3.8%	3.1%	4.1%	4.4%	4.8%	No data
Key performance indicators	Input : Litres / capita / day		245	251	251	257	260	256	No data
	Input: m³ / household / month		28	29	29	30	30	30	No data
	Billed : Litres / capita / day		233	242	243	246	249	244	No data
	Billed : m³ / household / month		27	28	28	29	29	28	No data
	% Population growth			0.87%	0.60%	0.42%	0.60%	3.12%	
	% Water demand growth			3.27%	0.42%	2.99%	1.79%	1.39%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS StatsSA NFC	DWA NIS RPMS		



Comments

Province		North West						WSA	
Municipal Code		NW403						Yes	
District Municipality		Dr Kenneth Kaunda						Category	
Municipality		Matlosana						B1	
Settlements		JOUBERTON, KANANA, KLERKSDORP, STILFONTEIN, KHUMA						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	381 312	384 612	386 918	388 530	390 859	403 681		
	Households	104 018	104 921	105 550	105 989	106 624	110 123		
	Connections - metered	96 359	97 193	97 776	98 183	98 772	102 042		
	Connections - Unmetered	8 285	8 357	8 407	8 442	8 493	8 774		
	Length of mains (km)	2 093	2 114	2 124	2 124	2 145	2 216		
	System input volume	kl/annum		22 594 000			28 504 803	28 550 000	
	Billed metered consumption	kl/annum		10 926 248				19 390 000	
	Billed unmetered consumption	kl/annum		5 278 752				0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	0	16 205 000	0	0	0	19 390 000	0
	Non-Revenue water	kl/annum	0	6 389 000	0	0	28 504 803	9 160 000	0
	Water Losses	kl/annum	0	6 389 000	0	0	28 504 803	9 160 000	0
	% Non-revenue water		No data	28.3%	No data	No data	No data	32.1%	No data
	% Water Losses		No data	28.3%	No data	No data	100.0%	32.1%	No data
Key performance indicators	Input : Litres / capita / day		No data	161	No data	No data	200	194	No data
	Input: m ³ / household / month		No data	18	No data	No data	22	22	No data
	Billed : Litres / capita / day		No data	115	No data	No data	No data	132	No data
	Billed : m ³ / household / month		No data	13	No data	No data	No data	15	No data
	% Population growth			0.87%	0.60%	0.42%	0.60%	3.28%	
	% Water demand growth			#DIV/0!			#DIV/0!	0.16%	
Source of information		DWA NIS	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS StatsSA NFC	DWA NIS RPMS		

Municipal NRW Water Balance: Matlosana

Year	Billed metered consumption	Billed unmetered consumption	Non-Revenue water	% Non-revenue Water
Jun-05	0	0	0	0%
Jun-06	10 926 248	5 278 752	6 389 000	28.3%
Jun-07	0	0	0	0%
Jun-08	0	0	0	0%
Jun-09	0	0	28 504 803	100.0%
Jun-10	19 390 000	0	9 160 000	32.1%
Jun-14	0	0	0	0%

Comments

Province		North West						WSA	
Municipal Code		NW404						Yes	
District Municipality		Dr Kenneth Kaunda						Category	
Municipality		Maquassi Hills						B3	
Settlements		KGAKALA, LEBALENG, TSWELELANG, WOLMARANS						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	73 722	74 359	74 804	75 115	75 566	77 728		
	Households	19 138	19 304	19 418	19 499	19 614	20 175		
	Connections - metered	44 850	44 979	45 068	45 131	45 222	45 657		
	Connections - Unmetered	4 348	4 386	4 412	4 430	4 456	4 584		
	Length of mains (km)	384	387	390	391	394	405		
	System input volume	kl/annum	2 323 809	2 287 601	2 540 933		2 626 940	3 560 000	
	Billed metered consumption	kl/annum	1 478 291	1 194 372	1 298 010			5 060 000	
	Billed unmetered consumption	kl/annum	0	268 776	300 000			0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 478 291	1 463 148	1 598 010	0	0	5 060 000	0
	Non-Revenue water	kl/annum	845 518	824 453	942 923	0	2 626 940	-1 500 000	0
	Water Losses	kl/annum	845 518	824 453	942 923	0	2 626 940	-1 500 000	0
	% Non-revenue water		36.4%	36.0%	37.1%	No data	No data	Check data	No data
	% Water Losses		36.4%	36.0%	37.1%	No data	100.0%	Check data	No data
Key performance indicators	Input : Litres / capita / day		86	84	93	No data	95	125	No data
	Input: m ³ / household / month		10	10	11	No data	11	15	No data
	Billed : Litres / capita / day		55	54	59	No data	No data	178	No data
	Billed : m ³ / household / month		6	6	7	No data	No data	21	No data
	% Population growth			0.86%	0.60%	0.42%	0.60%	2.86%	
	% Water demand growth			-1.56%	11.07%		#DIV/0!	35.52%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS RPMS		

Municipal NRW Water Balance: Maquassi Hills

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	1 478 291	0	845 518	36.4%
Jun-06	1 194 372	268 776	824 453	36.0%
Jun-07	1 298 010	300 000	942 923	37.1%
Jun-08	0	0	0	No data
Jun-09	0	0	2 626 940	No data
Jun-10	2 626 940	0	-1 500 000	100.0%
Jun-14	5 060 000	0	-1 500 000	35.52%

Comments

National Non-Revenue Water Assessment

Northern Cape Province

July 2011



Introductory notes

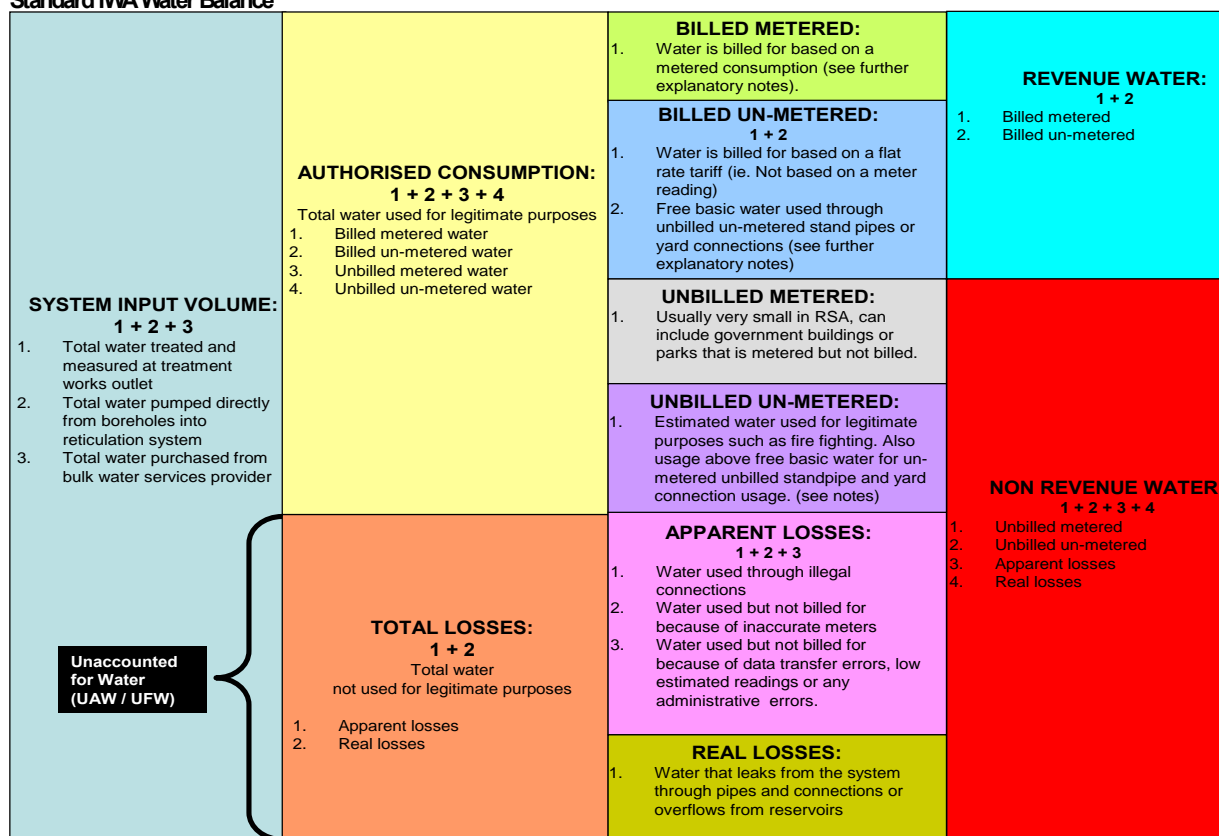
Terminology

Acronym	Description	Link
DWA	Department of Water Affairs	http://www.dwa.gov.za
WS RPMS	Water Services : Regulatory Performance Measurement System	http://www.dwa.gov.za/dir_ws/rpms/
WS NIS	Water Services : National Information System	http://www.dwa.gov.za/dir_ws/wsis/
FBS	Water Services : Free Basic Water Project	http://www.dwaf.gov.za/dir_ws/fbw/
NRW	Non-revenue water. Volume of water for which no revenue is received (preferred term)	
UAW or UFW	Unaccounted-for water. Volume of water lost due to physical and apparent losses (not preferred term)	
StatsSA NEC	Statistics South Africa : Non-Financial Census of Municipalities P9115	http://www.statssa.gov.za/

Information sources

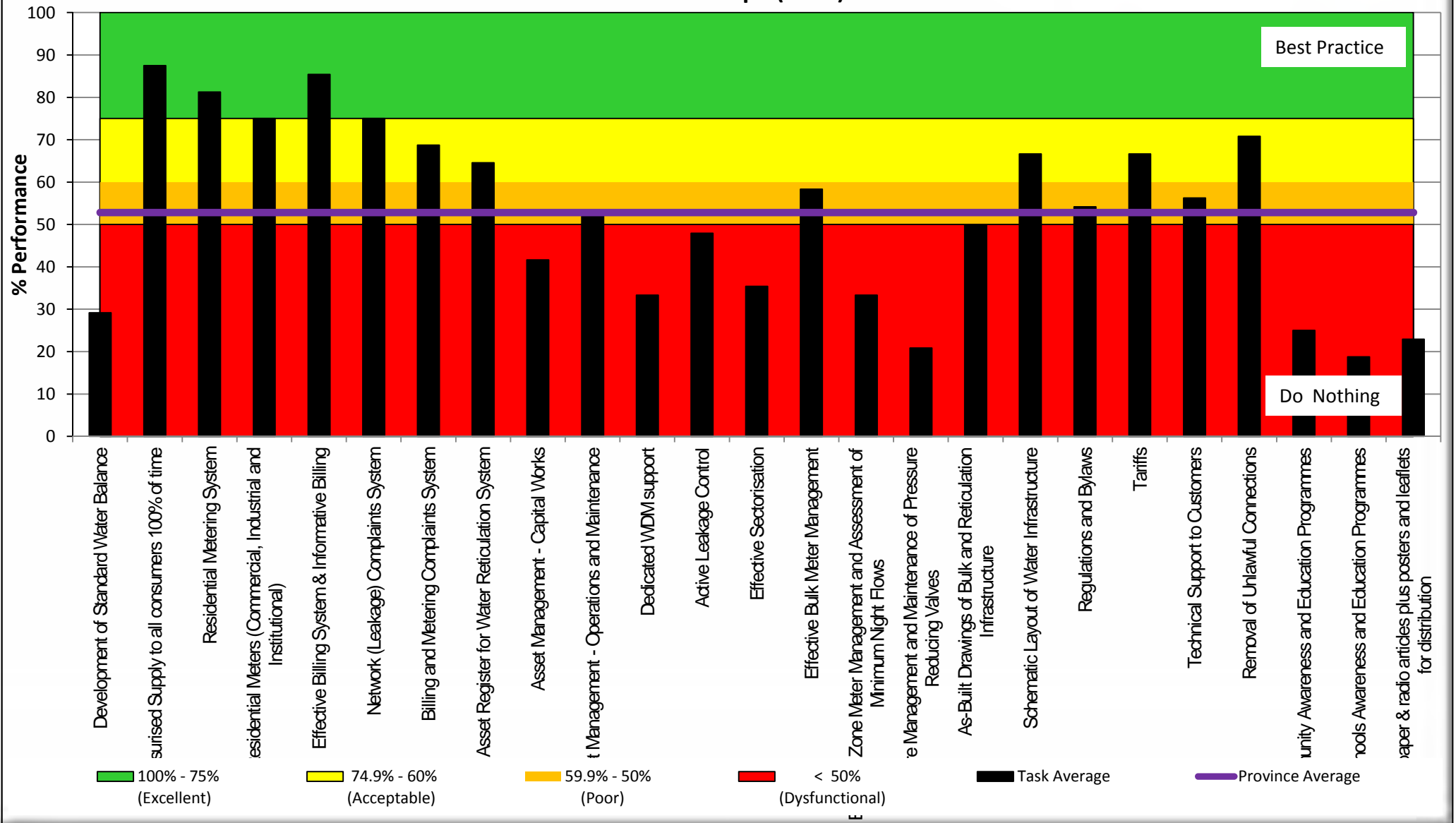
Item	Source	Calculation
Population	DWA WS NIS or municipality	
Households	DWA WS NIS or municipality	
Connections - metered	Extrapolated 2007 DWA - WS FBW serviced above RDP or municipality	
Connections - Unmetered	Extrapolated 2007 DWA - WS FBW serviced at RDP or municipality	
Length of mains (km)	Actual value or calculated at average of 50 connections / km of mains	# connections ÷ 50
(A) System input volume	Total volume of potable water supplied by the municipality in k/annum	
(B) Billed metered consumption	Total volume of water metered and billed by the municipality in k/annum	
(C) Billed unmetered consumption	Total volume of water unmetered and billed by the municipality in k/annum	
Underlined values	Calculated values using trends or averages	

Standard IWA Water Balance



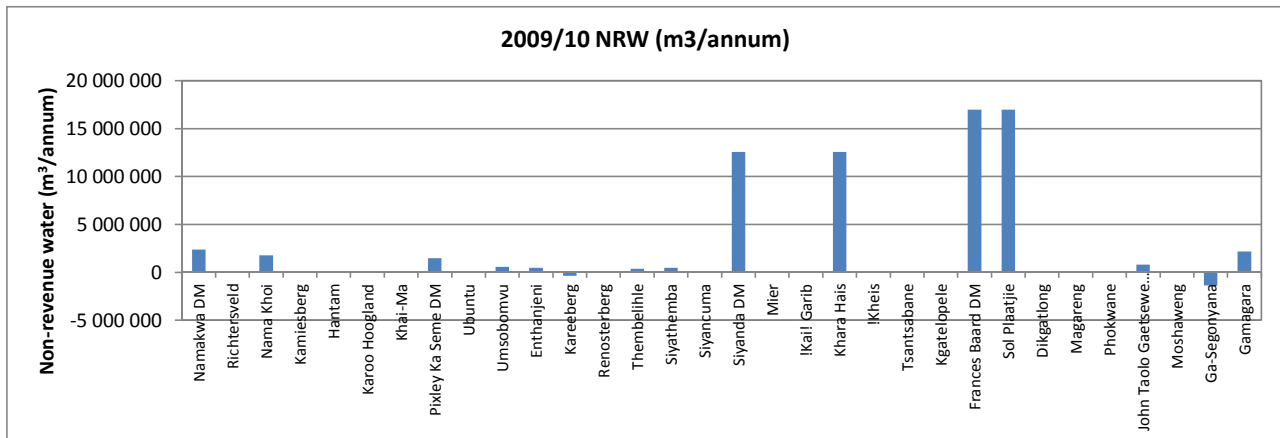
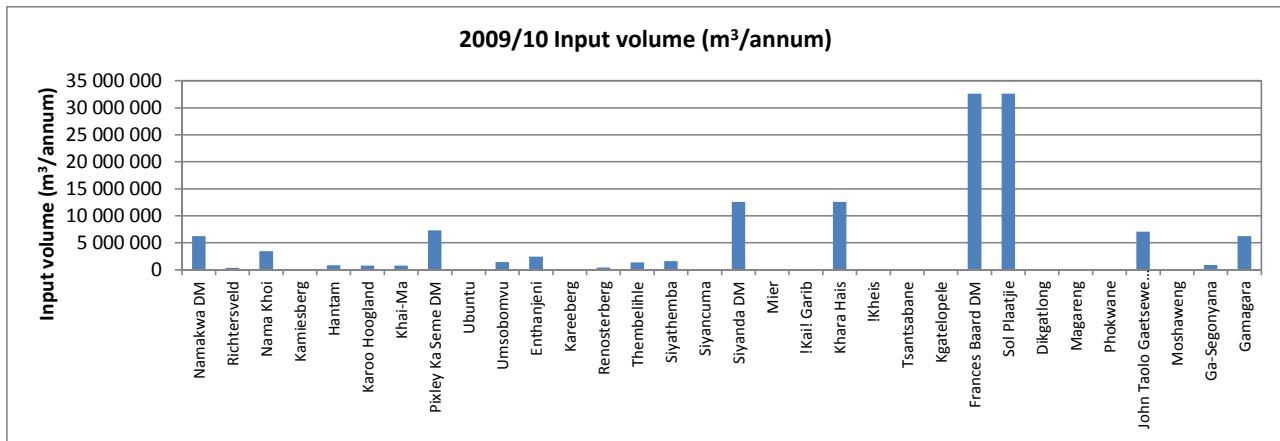
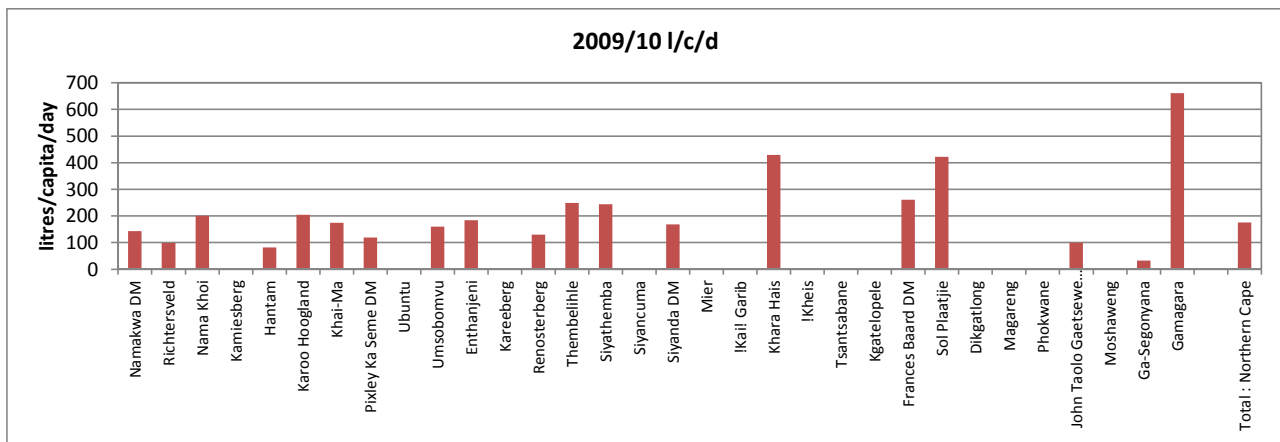
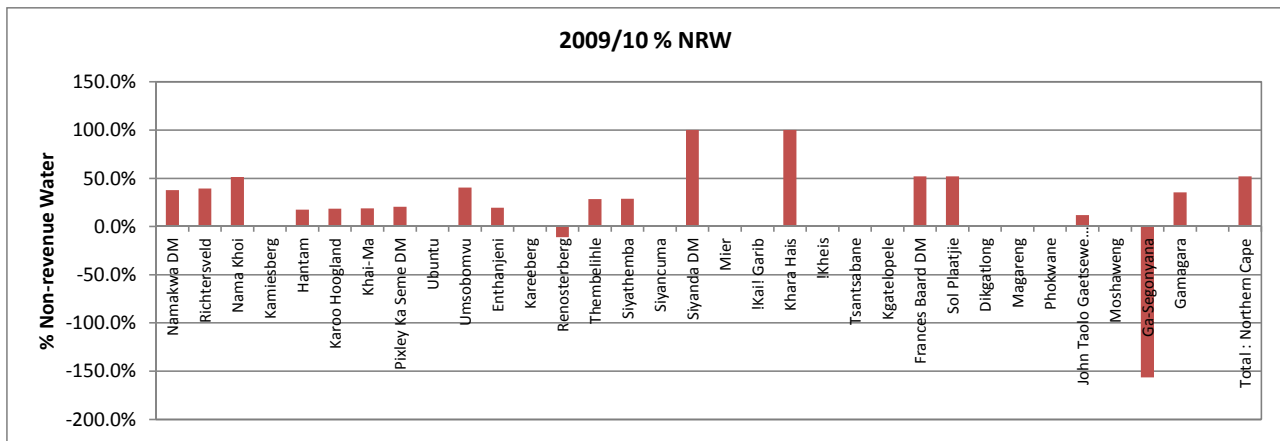
Province Northern Cape					
No	Municipal Code	District Municipality	Municipality	Category	WSA
1	DC6	Namakwa	Namakwa-DM	C1	Yes
2	NC061	Namakwa	Richtersveld	B3	Yes
3	NC062	Namakwa	Nama-Khoi	B3	Yes
4	NC064	Namakwa	Kamiesberg	B3	Yes
5	NC065	Namakwa	Hantam	B3	Yes
6	NC066	Namakwa	Karoo-Hogland	B3	Yes
7	NC067	Namakwa	Khai-Ma	B3	Yes
8	DC7	Pixley Ka Seme	Pixley Ka Seme-DM	C1	Yes
9	NC071	Pixley Ka Seme	Libuntu	B3	Yes
10	NC072	Pixley Ka Seme	Umsobomvu	B3	Yes
11	NC073	Pixley Ka Seme	Entbanjani	B3	Yes
12	NC074	Pixley Ka Seme	Kareeberg	B3	Yes
13	NC075	Pixley Ka Seme	Renosterberg	B3	Yes
14	NC076	Pixley Ka Seme	Therobehle	B3	Yes
15	NC077	Pixley Ka Seme	Siyathamba	B3	Yes
16	NC078	Pixley Ka Seme	Siyancum	B3	Yes
17	DC8	Siyanda	Siyanda-DM	C1	Yes
18	NC081	Siyanda	Mer	B3	Yes
19	NC082	Siyanda	IKgal-Garib	B3	Yes
20	NC083	Siyanda	Khara-Hais	B2	Yes
21	NC084	Siyanda	IKheis	B3	Yes
22	NC085	Siyanda	Tsantsabane	B3	Yes
23	NC086	Siyanda	Kgatelopele	B3	Yes
24	DC9	Frances Baard	Frances Baard-DM	C1	Yes
25	NC091	Frances Baard	Sol-Plaatjies	B1	Yes
26	NC092	Frances Baard	Dikgatlong	B3	Yes
27	NC093	Frances Baard	Magareng	B3	Yes
28	NC094	Frances Baard	Phokwane	B3	Yes
29	DC45	Kgalagadi	John-Taolo-Gaotsawe-DM	C1	Yes
30	NC451	Kgalagadi	Moshaweng	B4	Yes
31	NC452	Kgalagadi	Ga-Segonyana	B3	Yes
32	NC453	Kgalagadi	Gamagara	B3	Yes

Municipal Scorecard for Assessing the Potential for WC/WDM in Municipalities Northern Cape (2010)

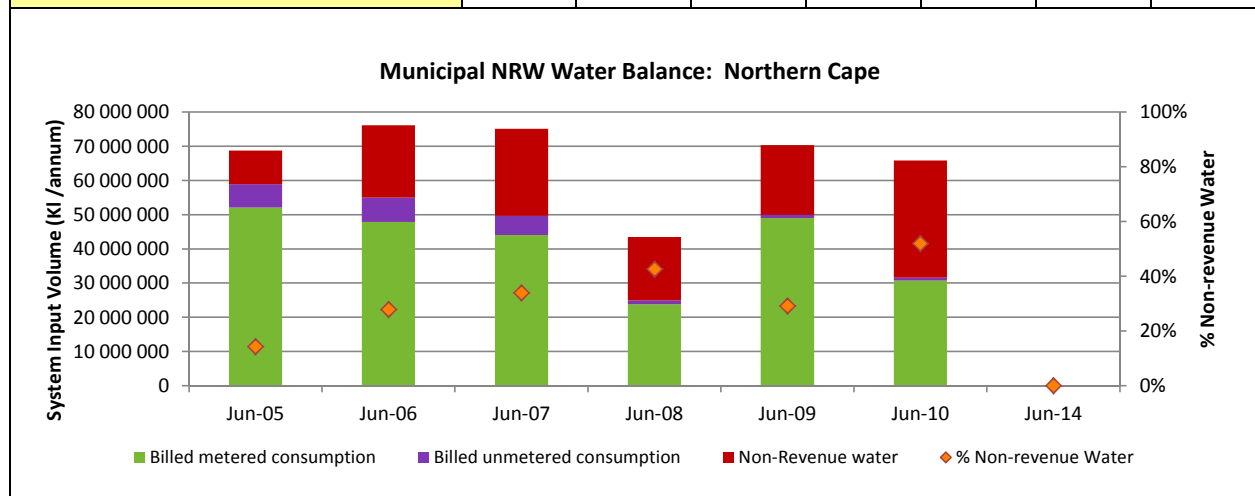


Score	Criteria	# of Records	Comments	Distribution
Record Keeping 32				
1	No records	2	Good records keeping is the first step towards water management and reducing water losses	<ul style="list-style-type: none"> No records Poor records Erratic / worthless records Records with gaps or questions Good records no gaps or questions
2	Poor records	5		
3	Erratic / worthless records	12		
4	Records with gaps or questions	12		
5	Good records no gaps or questions	1		
% NRW 32				
0	No records	13	% Non-revenue water (volume of water for which no income is received). Current estimated national average $\pm 35\%$	<ul style="list-style-type: none"> No records >50% >40% <=50% >30% <=40% >20% <=30% <=20%
1	>50%	5		
2	>40% <=50%	1		
3	>30% <=40%	3		
4	>20% <=30%	3		
5	<=20%	7		
litres / capita / day 32				
0	No records	13	Average litres / capita / day based on system input volume. Expected average around 200/c/d.	<ul style="list-style-type: none"> No records >400 >300 and <=400 >200 and <=300 >100 and <=200 <=100
1	>400	3		
2	>300 and <=400	0		
3	>200 and <=300	5		
4	>100 and <=200	7		
5	<=100	4		
NRW Activity 32				
1	No activity	5	Based on local knowledge, scorecard, available records.	<ul style="list-style-type: none"> No activity Very limited activity Some activity, part of O&M Small scale active programme Large scale active programme
2	Very limited activity	13		
3	Some activity, part of O&M	14		
4	Small scale active programme	0		
5	Large scale active programme	0		
Potential NRW Impact 32				
1	<=50 000	21	Potential impact of intervention based on population. High population = high consumption = higher potential saving.	<ul style="list-style-type: none"> <=50 000 >50 000 <=100 000 >100 000 <=200 000 >200 000 <=500 000 >500 000
2	>50 000 <=100 000	5		
3	>100 000 <=200 000	3		
4	>200 000 <=500 000	3		
5	>500 000	0		

Key Performance Indicators

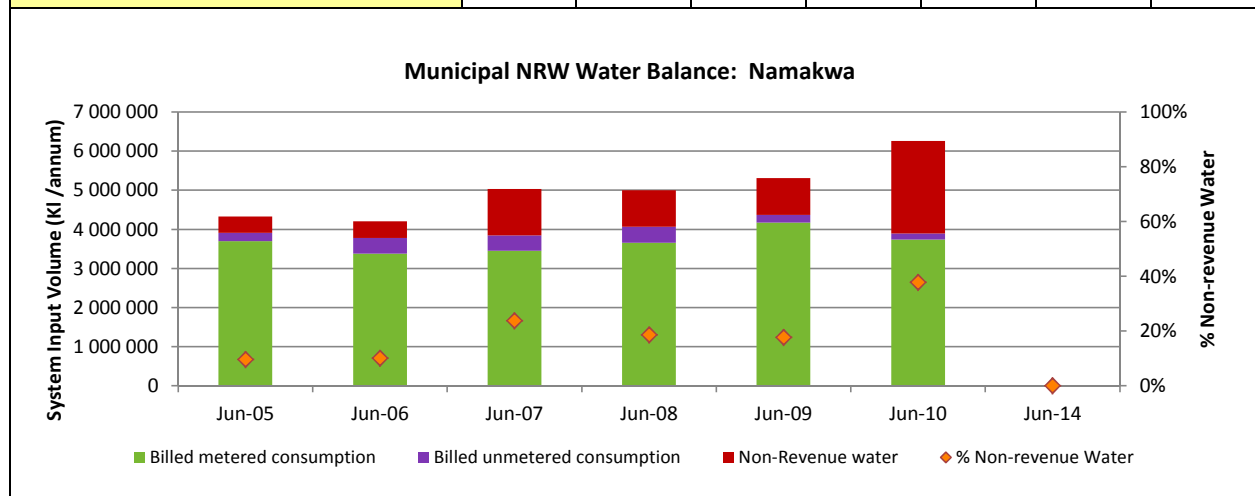


Province		Northern Cape						WSA	
Municipal Code									
Municipality								Category	
Municipality									
Settlements								Target Jun-14	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10		
Input Data	Population	977 048	983 348	989 260	1 000 297	1 006 314	1 029 253	0	
	Households	251 322	252 924	254 405	257 279	258 782	264 192	0	
	Connections - metered	80 549	86 311	81 982	167 332	84 043	102 027	0	
	Connections - Unmetered	3 892	3 936	3 962	30 752	4 065	5 971	0	
	Length of mains (km)	1 658	1 818	1 727	1 706	1 725	2 330	0	
	System input volume	kl/annum	68 718 883	76 106 656	75 115 681	43 436 640	70 365 027	65 831 978	0
	Billed metered consumption	kl/annum	52 095 090	47 899 628	44 052 990	23 793 120	48 961 380	30 738 261	0
	Billed unmetered consumption	kl/annum	6 825 509	7 051 249	5 573 769	1 151 709	938 770	861 212	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	58 920 599	54 950 877	49 626 759	24 944 829	49 900 150	31 599 473	0
	Non-Revenue water	kl/annum	9 798 285	21 155 779	25 488 922	18 491 811	20 464 877	34 232 505	0
	Water Losses	kl/annum	9 798 285	21 155 779	25 488 922	18 491 811	20 464 877	34 232 505	0
	% Non-revenue water		14.3%	27.8%	33.9%	42.6%	29.1%	52.0%	No data
	% Water Losses		14.3%	27.8%	33.9%	42.6%	29.1%	52.0%	No data
Key performance indicators	Input : Litres / capita / day		193	212	208	119	192	175	No data
	Input: m³ / household / month		23	25	25	14	23	21	No data
	Billed : Litres / capita / day		165	153	137	68	136	84	No data
	Billed : m³ / household / month		20	18	16	8	16	10	No data
	% Population growth			0.64%	0.60%	1.12%	0.60%	2.28%	
	% Water demand growth			10.75%	-1.30%	-42.17%	61.99%	-6.44%	
Source of information									



Comments

Province		Northern Cape						WSA	
Municipal Code		DC06						No	
Municipality		Namakwa						Category	
Municipality								C1	
Settlements								Target Jun-14	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10		
Input Data	Population	106 166	106 618	107 258	108 451	109 101	119 660	0	
	Households	28 479	28 601	28 776	29 085	29 263	31 199	0	
	Connections - metered	27 086	27 201	27 365	27 669	27 835	29 930	0	
	Connections - Unmetered	1 132	1 136	1 143	1 155	1 162	959	0	
	Length of mains (km)	564	567	570	576	580	628	0	
	System input volume	kl/annum	4 323 983	4 206 485	5 034 818	4 996 223	5 309 216	6 260 177	0
	Billed metered consumption	kl/annum	3 695 352	3 381 130	3 451 720	3 658 286	4 169 945	3 738 339	0
	Billed unmetered consumption	kl/annum	215 199	399 934	389 598	406 523	199 510	156 927	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	3 910 551	3 781 064	3 841 318	4 064 809	4 369 455	3 895 266	0
	Non-Revenue water	kl/annum	413 432	425 421	1 193 500	931 414	939 761	2 364 911	0
	Water Losses	kl/annum	413 432	425 421	1 193 500	931 414	939 761	2 364 911	0
	% Non-revenue water		9.6%	10.1%	23.7%	18.6%	17.7%	37.8%	No data
	% Water Losses		9.6%	10.1%	23.7%	18.6%	17.7%	37.8%	No data
Key performance indicators	Input : Litres / capita / day		112	108	129	126	133	143	No data
	Input: m ³ / household / month		13	12	15	14	15	17	No data
	Billed : Litres / capita / day		101	97	98	103	110	89	No data
	Billed : m ³ / household / month		11	11	11	12	12	10	No data
	% Population growth			0.43%	0.60%	1.11%	0.60%	9.68%	
	% Water demand growth			-2.72%	19.69%	-0.77%	6.26%	17.91%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



Comments

Province		Northern Cape						WSA	
Municipal Code		NC061						Yes	
Municipality		Namakwa						Category	
Municipality		Richtersveld						B3	
Settlements		Port Nolloth						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	9 552	9 595	9 652	9 757	9 815	10 155		
	Households	2 578	2 590	2 606	2 635	2 651	2 744		
	Connections - metered	2 552	2 564	2 579	2 607	2 622	2 713		
	Connections - Unmetered	42	42	43	43	43	45		
	Length of mains (km)	52	52	52	53	53	55		
	System input volume	kl/annum	617 156	415 720	337 630	601 000	510 848	364 443	
	Billed metered consumption	kl/annum	535 261	220 000	159 441	455 558	189 408	220 606	
	Billed unmetered consumption	kl/annum	13 428	59 000	102 622	0	42 912	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	548 689	279 000	262 063	455 558	232 320	220 606	0
	Non-Revenue water	kl/annum	68 467	136 720	75 567	145 442	278 528	143 837	0
	Water Losses	kl/annum	68 467	136 720	75 567	145 442	278 528	143 837	0
	% Non-revenue water		11.1%	32.9%	22.4%	24.2%	54.5%	39.5%	No data
	% Water Losses		11.1%	32.9%	22.4%	24.2%	54.5%	39.5%	No data
Key performance indicators	Input : Litres / capita / day		177	119	96	169	143	98	No data
	Input: m ³ / household / month		20	13	11	19	16	11	No data
	Billed : Litres / capita / day		157	80	74	128	65	60	No data
	Billed : m ³ / household / month		18	9	8	14	7	7	No data
	% Population growth			0.45%	0.59%	1.09%	0.59%	3.46%	
	% Water demand growth			-32.64%	-18.78%	78.01%	-15.00%	-28.66%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS All town	DWA NIS StatsSA NFC	DWA NIS RPMS		

Municipal NRW Water Balance: Richtersveld

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	535 261	13 428	68 467	11.1%
Jun-06	220 000	59 000	136 720	32.9%
Jun-07	159 441	102 622	75 567	22.4%
Jun-08	455 558	0	145 442	24.2%
Jun-09	189 408	0	278 528	54.5%
Jun-10	220 606	0	143 837	39.5%
Jun-14				

Comments

Province		Northern Cape						WSA	
Municipal Code		NC062						Yes	
Municipality		Nama Khoi						Category	
Municipality		Nama Khoi						B3	
Settlements		Springbok						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	44 486	44 674	44 943	45 446	45 718	47 296		
	Households	11 384	11 434	11 505	11 629	11 701	12 105		
	Connections - metered	41 165	41 212	41 280	41 406	41 474	41 870		
	Connections - Unmetered	286	287	289	292	294	304		
	Length of mains (km)	229	230	231	234	235	243		
	System input volume	kl/annum	1 852 931	1 852 931	2 125 095	2 216 489	2 237 819	3 469 823	
	Billed metered consumption	kl/annum	1 749 273	1 741 757	1 668 208	1 638 570	1 764 611	1 690 736	
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 749 273	1 741 757	1 668 208	1 638 570	1 764 611	1 690 736	0
	Non-Revenue water	kl/annum	103 658	111 174	456 887	577 619	473 208	1 779 087	0
	Water Losses	kl/annum	103 658	111 174	456 887	577 619	473 208	1 779 087	0
	% Non-revenue water		5.6%	6.0%	21.5%	26.1%	21.1%	51.3%	No data
	% Water Losses		5.6%	6.0%	21.5%	26.1%	21.1%	51.3%	No data
Key performance indicators	Input : Litres / capita / day		114	114	130	134	134	201	No data
	Input: m ³ / household / month		14	14	15	16	16	24	No data
	Billed : Litres / capita / day		108	107	102	99	106	98	No data
	Billed : m ³ / household / month		13	13	12	12	13	12	No data
	% Population growth			0.42%	0.60%	1.12%	0.60%	3.45%	
	% Water demand growth			0.00%	14.69%	4.29%	0.98%	55.05%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS Estimated	DWA NIS StatsSA NFC	DWA NIS Municipality		

Municipal NRW Water Balance: Nama Khoi

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	1 749 273	0	103 658	5.6%
Jun-06	1 741 757	0	111 174	6.0%
Jun-07	1 668 208	0	456 887	21.5%
Jun-08	1 638 570	0	577 619	26.1%
Jun-09	1 764 611	0	473 208	21.1%
Jun-10	1 690 736	0	1 779 087	51.3%
Jun-14	1 690 736	0	1 779 087	51.3%

Comments	

Province		Northern Cape						WSA
Municipal Code		NC064						Yes
District Municipality		Namakwa						Category
Municipality		Kamiesberg						B3
Settlements		Garies						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	10 604	10 645	10 709	10 825	10 890	11 267	
	Households	2 928	2 938	2 958	2 982	3 002	3 107	
	Connections - metered	2 626	2 636	2 652	2 681	2 697	2 790	
	Connections - Unmetered	343	344	346	319	324	332	
	Length of mains (km)	59	59	59	60	60	62	
	System input volume	kl/annum	0	42 677	390 312		450 000	
	Billed metered consumption	kl/annum	0	2 357	0		450 000	
	Billed unmetered consumption	kl/annum	68 400	40 320	0			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	68 400	42 677	0	0	450 000	0
	Non-Revenue water	kl/annum	-68 400	0	390 312	0	0	0
	Water Losses	kl/annum	-68 400	0	390 312	0	0	0
	% Non-revenue water		No data	Check data	No data	No data	Check data	No data
	% Water Losses		No data	No data	100.0%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	11	100	No data	113	No data
	Input: m³ / household / month		No data	1	11	No data	12	No data
	Billed : Litres / capita / day		18	11	No data	No data	113	No data
	Billed : m³ / household / month		2	1	No data	No data	12	No data
	% Population growth			0.39%	0.60%	1.08%	0.60%	3.46%
	% Water demand growth			#DIV/0!	814.57%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS	

Municipal NRW Water Balance: Kamiesberg

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	0	68 400	68 400	100%
Jun-06	0	40 320	40 320	100%
Jun-07	42 677	0	0	0%
Jun-08	390 312	0	0	0%
Jun-09	450 000	0	0	0%
Jun-10	450 000	0	0	0%
Jun-14	450 000	0	0	0%

Comments	

Province		Northern Cape						WSA	
Municipal Code		NC065						Yes	
Municipality		Namakwa						Category	
Municipality		Hantam						B3	
Settlements		CALVINA						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	19 754	19 839	19 957	20 180	20 301	27 792		
	Households	5 657	5 681	5 715	5 778	5 814	6 940		
	Connections - metered	5 464	5 485	5 547	5 579	5 642	6 940		
	Connections - Unmetered	229	230	234	234	235	0		
	Length of mains (km)	444	444	445	446	447	149		
	System input volume	kl/annum	564 714	708 914	708 914	679 000	630 215	831 408	
	Billed metered consumption	kl/annum	464 489	663 576	663 576	629 751	595 926	685 613	
	Billed unmetered consumption	kl/annum	23 669	45 534	0		8 598	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	488 158	709 110	663 576	629 751	604 524	685 613	0
	Non-Revenue water	kl/annum	76 556	-196	45 338	49 249	25 691	145 795	0
	Water Losses	kl/annum	76 556	-196	45 338	49 249	25 691	145 795	0
	% Non-revenue water		13.6%	Check data	6.4%	7.3%	4.1%	17.5%	No data
	% Water Losses		13.6%	Check data	6.4%	7.3%	4.1%	17.5%	No data
Key performance indicators	Input : Litres / capita / day		78	98	97	92	85	82	No data
	Input: m ³ / household / month		8	10	10	10	9	10	No data
	Billed : Litres / capita / day		68	98	91	85	82	68	No data
	Billed : m ³ / household / month		7	10	10	9	9	8	No data
	% Population growth			0.43%	0.59%	1.12%	0.60%	36.90%	
	% Water demand growth			25.54%	0.00%	-4.22%	-7.18%	31.92%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS All Town	DWA NIS StatsSA NFC	DWA NIS Municipality		

Municipal NRW Water Balance: Hantam

The chart displays the water balance components for Hantam from 2005 to 2010, with a target for 2014. The left y-axis represents System Input Volume in kl/annum (0 to 1,000,000), and the right y-axis represents % Non-revenue Water (0% to 100%). The x-axis shows years from Jun-05 to Jun-14. The bars are stacked with Billed metered consumption (green), Billed unmetered consumption (purple), and Non-Revenue water (red). Diamonds on the x-axis indicate the % Non-revenue Water for each year.

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	464,489	23,669	76,556	13.6%
Jun-06	663,576	0	-196	0.00%
Jun-07	663,576	0	45,338	6.4%
Jun-08	629,751	0	49,249	7.3%
Jun-09	595,926	0	25,691	4.1%
Jun-10	685,613	0	145,795	17.5%
Jun-14	685,613	0	145,795	17.5%

Comments	

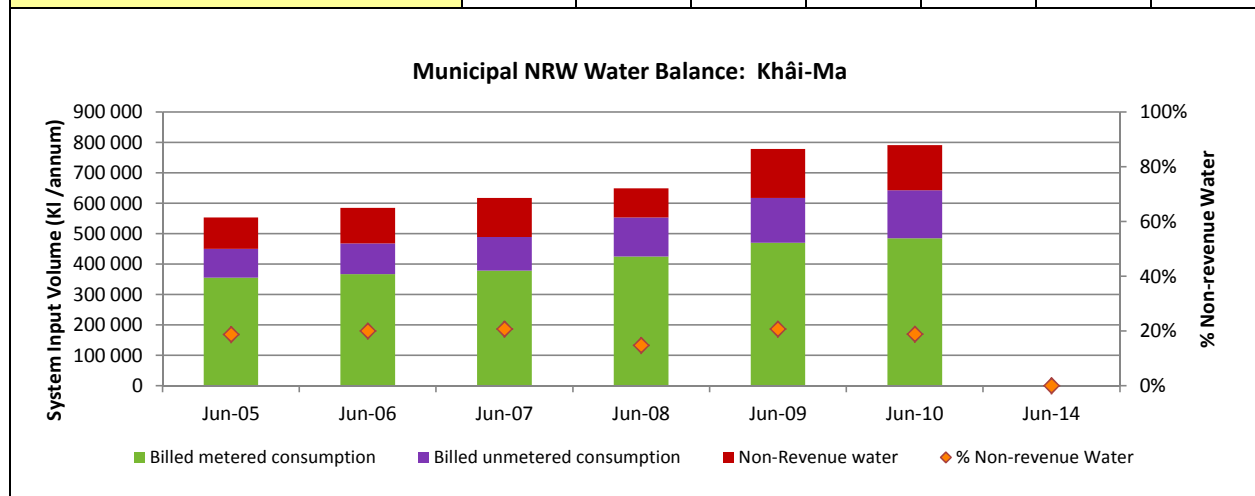
Province		Northern Cape						WSA	
Municipal Code		NC066						Yes	
District Municipality		Namakwa						Category	
Municipality		Karoo Hoogland						B3	
Settlements		Fraserburg						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	10 112	10 157	10 218	10 332	10 394	10 753		
	Households	2 973	2 986	3 003	3 036	3 053	3 158		
	Connections - metered	2 355	2 365	2 379	2 406	2 420	2 504		
	Connections - Unmetered	239	240	244	244	245	254		
	Length of mains (km)	52	52	52	53	53	55		
	System input volume	kl/annum	736 182	601 243	855 867	850 946	701 334	803 102	
	Billed metered consumption	kl/annum	591 329	386 440	581 495	509 907	700 000	656 049	
	Billed unmetered consumption	kl/annum	15 040	154 080	176 976	277 523			
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	606 369	540 520	758 471	787 430	700 000	656 049	0
	Non-Revenue water	kl/annum	129 813	60 723	97 396	63 516	1 334	147 053	0
	Water Losses	kl/annum	129 813	60 723	97 396	63 516	1 334	147 053	0
	% Non-revenue water		17.6%	10.1%	11.4%	7.5%	0.2%	18.3%	No data
	% Water Losses		17.6%	10.1%	11.4%	7.5%	0.2%	18.3%	No data
Key performance indicators	Input : Litres / capita / day		199	162	229	226	185	205	No data
	Input: m ³ / household / month		21	17	24	23	19	21	No data
	Billed : Litres / capita / day		164	146	203	209	185	167	No data
	Billed : m ³ / household / month		17	15	21	22	19	17	No data
	% Population growth			0.45%	0.60%	1.12%	0.60%	3.45%	
	% Water demand growth			-18.33%	42.35%	-0.57%	-17.58%	14.51%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		

Municipal NRW Water Balance: Karoo Hoogland

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	591 329	15 040	129 813	17.6%
Jun-06	386 440	154 080	60 723	10.1%
Jun-07	581 495	176 976	97 396	11.4%
Jun-08	509 907		63 516	7.5%
Jun-09	700 000		1 334	0.2%
Jun-10	656 049		147 053	18.3%
Jun-14				

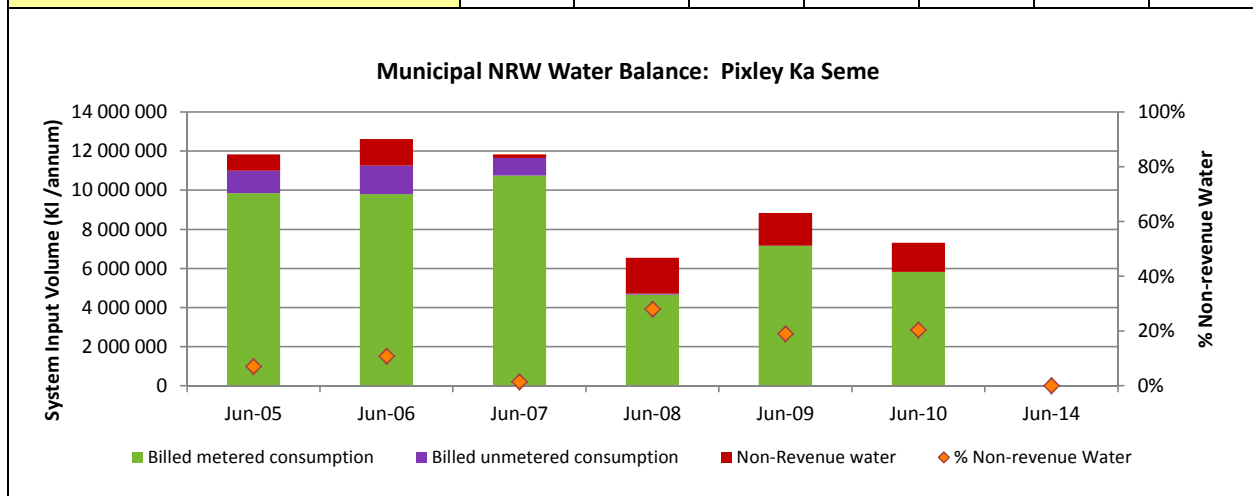
Comments

Province		Northern Cape						WSA	
Municipal Code		NC067						Yes	
Municipality		Namakwa						Category	
Municipality		Khâi-Ma						B3	
Settlements		Pofadder						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	11 658	11 708	11 779	11 911	11 983	12 397		
	Households	2 959	2 972	2 989	3 025	3 042	3 145		
	Connections - metered	2 926	2 939	2 957	2 990	3 008	3 112		
	Connections - Unmetered	22	23	23	23	23	24		
	Length of mains (km)	59	59	60	60	64	63		
	System input volume	kl/annum	553 000	585 000	617 000	649 088	779 000	791 404	
	Billed metered consumption	kl/annum	355 000	367 000	379 000	424 500	470 000	485 335	
	Billed unmetered consumption	kl/annum	94 662	101 000	110 000	129 000	148 000	156 927	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	449 662	468 000	489 000	553 500	618 000	642 262	0
	Non-Revenue water	kl/annum	103 338	117 000	128 000	95 588	161 000	149 140	0
	Water Losses	kl/annum	103 338	117 000	128 000	95 588	161 000	149 140	0
	% Non-revenue water		18.7%	20.0%	20.7%	14.7%	20.7%	18.8%	No data
	% Water Losses		18.7%	20.0%	20.7%	14.7%	20.7%	18.8%	No data
Key performance indicators	Input : Litres / capita / day		130	137	144	149	178	175	No data
	Input: m ³ / household / month		16	16	17	18	21	21	No data
	Billed : Litres / capita / day		106	110	114	127	141	142	No data
	Billed : m ³ / household / month		13	13	14	15	17	17	No data
	% Population growth			0.43%	0.61%	1.12%	0.60%	3.45%	
	% Water demand growth			5.79%	5.47%	5.20%	20.01%	1.59%	
Source of information		DWA NIS	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		



Comments

Province		Northern Cape						WSA	
Municipal Code		DC07						No	
Municipality		Pixley Ka Seme						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	157 894	158 457	159 409	161 187	162 155	167 758	0	
	Households	41 127	41 271	41 521	41 984	42 235	43 693	0	
	Connections - metered	13 028	13 188	13 329	20 124	13 730	20 028	0	
	Connections - Unmetered	560	568	572	1 945	592	924	0	
	Length of mains (km)	236	236	284	244	248	598	0	
	System input volume	kl/annum	11 835 077	12 621 561	11 826 377	6 539 787	8 834 560	7 313 606	0
	Billed metered consumption	kl/annum	9 848 743	9 805 942	10 745 467	4 662 942	7 150 562	5 821 019	0
	Billed unmetered consumption	kl/annum	1 154 602	1 453 390	910 744	47 874	10 000	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	11 003 345	11 259 332	11 656 211	4 710 816	7 160 562	5 821 019	0
	Non-Revenue water	kl/annum	831 733	1 362 229	170 166	1 828 971	1 673 998	1 492 587	0
	Water Losses	kl/annum	831 733	1 362 229	170 166	1 828 971	1 673 998	1 492 587	0
	% Non-revenue water		7.0%	10.8%	1.4%	28.0%	18.9%	20.4%	No data
	% Water Losses		7.0%	10.8%	1.4%	28.0%	18.9%	20.4%	No data
Key performance indicators	Input : Litres / capita / day		205	218	203	111	149	119	No data
	Input: m ³ / household / month		24	25	24	13	17	14	No data
	Billed : Litres / capita / day		191	195	200	80	121	95	No data
	Billed : m ³ / household / month		22	23	23	9	14	11	No data
	% Population growth			0.36%	0.60%	1.12%	0.60%	3.46%	
	% Water demand growth			6.65%	-6.30%	-44.70%	35.09%	-17.22%	
Source of information									



Comments

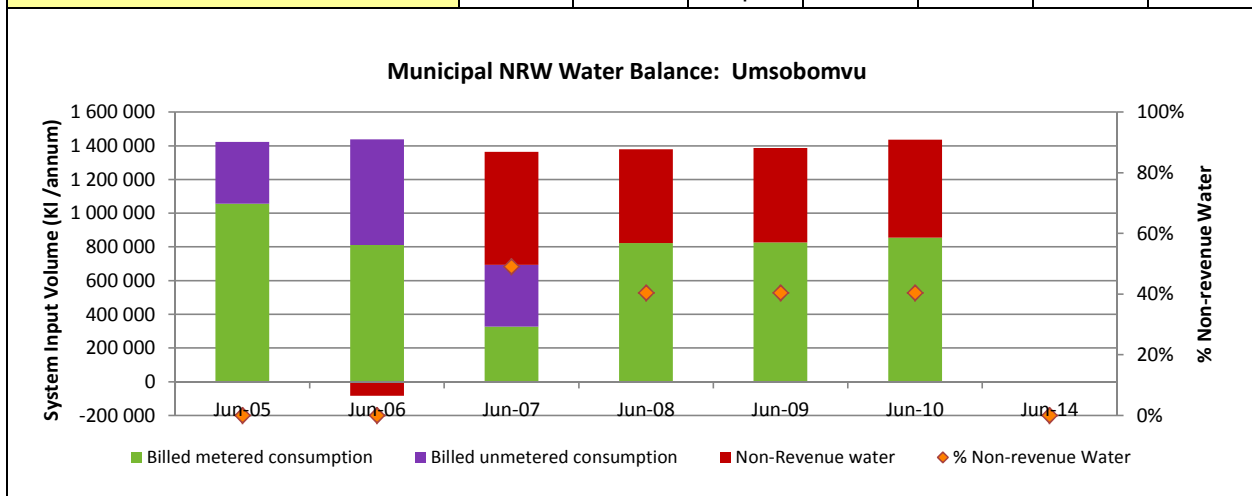
Province		Northern Cape						WSA
Municipal Code		NC071						Yes
Municipality		Pixley Ka Seme						Category
Municipality		Ubuntu						B3
Settlements		Victoria West						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	15 608	15 663	15 757	15 932	16 029	16 584	
	Households	4 161	4 176	4 201	4 249	4 273	4 421	
	Connections - metered	0	0	0		0	0	
	Connections - Unmetered	0	0	0		0	0	
	Length of mains (km)	0	0	0	0	0	0	
	System input volume	kl/annum	579 435	470 376	361 317		547 486	
	Billed metered consumption	kl/annum	425 962	342 504	2 410 478		570 494	
	Billed unmetered consumption	kl/annum	127 872	127 872	90 432			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	553 834	470 376	2 500 910	0	570 494	0
	Non-Revenue water	kl/annum	25 601	0	-2 139 593	0	-23 008	0
	Water Losses	kl/annum	25 601	0	-2 139 593	0	-23 008	0
	% Non-revenue water		4.4%	Check data	Check data	No data	Check data	No data
	% Water Losses		4.4%	No data	Check data	No data	Check data	No data
Key performance indicators	Input : Litres / capita / day		102	82	63	No data	94	No data
	Input: m³ / household / month		12	9	7	No data	11	No data
	Billed : Litres / capita / day		97	82	435	No data	98	No data
	Billed : m³ / household / month		11	9	50	No data	11	No data
	% Population growth			0.35%	0.60%	1.11%	0.61%	3.46%
	% Water demand growth			-18.82%	-23.19%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

Municipal NRW Water Balance: Ubuntu

Year	Billed metered consumption (Kl/annum)	Billed unmetered consumption (Kl/annum)	Non-Revenue water (Kl/annum)	% Non-revenue Water
Jun-05	425 962	127 872	0	0%
Jun-06	342 504	127 872	0	0%
Jun-07	2 410 478	90 432	-2 139 593	0%
Jun-08	0	0	0	0%
Jun-09	570 494	0	0	0%
Jun-10	0	0	0	0%
Jun-14	0	0	0	0%

Comments	

Province		Northern Cape						WSA	
Municipal Code		NC072						Yes	
Municipality		Pixley Ka Seme						Category	
Municipality		Umsobomvu						B3	
Settlements		COLESBERG						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	23 060	23 143	23 282	23 542	23 684	24 502		
	Households	5 988	6 009	6 045	6 113	6 150	6 363		
	Connections - metered						6 043		
	Connections - Unmetered						320		
	Length of mains (km)						72		
	System input volume	kl/annum	1 423 047	1 355 774	1 363 917	1 379 149	1 387 468	1 435 388	
	Billed metered consumption	kl/annum	1 056 423	812 007	326 802	821 818	826 775	855 330	
	Billed unmetered consumption	kl/annum	366 624	626 160	367 632			0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 423 047	1 438 167	694 434	821 818	826 775	855 330	0
	Non-Revenue water	kl/annum	0	-82 393	669 483	557 331	560 693	580 058	0
	Water Losses	kl/annum	0	-82 393	669 483	557 331	560 693	580 058	0
	% Non-revenue water		Check data	Check data	49.1%	40.4%	40.4%	40.4%	No data
	% Water Losses		No data	Check data	49.1%	40.4%	40.4%	40.4%	No data
Key performance indicators	Input : Litres / capita / day		169	160	160	160	161	160	No data
	Input: m ³ / household / month		20	19	19	19	19	19	No data
	Billed : Litres / capita / day		169	170	82	96	96	96	No data
	Billed : m ³ / household / month		20	20	10	11	11	11	No data
	% Population growth			0.36%	0.60%	1.12%	0.60%	3.45%	
	% Water demand growth			-4.73%	0.60%	1.12%	0.60%	3.45%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS WDM report	DWA NIS	DWA NIS RPMS	DWA NIS		



Comments

Province		Northern Cape						WSA	
Municipal Code		NC073						Yes	
Municipality		Pixley Ka Seme						Category	
Municipality		Enthanjeni						B3	
Settlements		De Aar, Hanover, Britstown						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	34 518	34 640	34 848	35 237	35 448	36 672		
	Households	8 793	8 824	8 878	8 976	9 031	9 344		
	Connections - metered								
	Connections - Unmetered								
	Length of mains (km)						274		
	System input volume	kl/annum	2 452 464	2 418 483	2 569 958	2 390 985	2 601 608	2 463 465	
	Billed metered consumption	kl/annum	1 500 499	1 624 772	1 680 894	1 814 407	2 097 709	1 982 352	
	Billed unmetered consumption	kl/annum	445 680	196 980	278 280				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 616 179	1 821 752	1 959 174	1 814 407	2 097 709	1 982 352	0
	Non-Revenue water	kl/annum	836 286	596 731	610 784	576 578	503 899	481 113	0
	Water Losses	kl/annum	836 286	596 731	610 784	576 578	503 899	481 113	0
	% Non-revenue water		34.1%	24.7%	23.8%	24.1%	19.4%	19.5%	No data
	% Water Losses		34.1%	24.7%	23.8%	24.1%	19.4%	19.5%	No data
Key performance indicators	Input : Litres / capita / day		195	191	202	186	201	184	No data
	Input: m ³ / household / month		23	23	24	22	24	22	No data
	Billed : Litres / capita / day		128	144	154	141	162	148	No data
	Billed : m ³ / household / month		15	17	18	17	19	18	No data
	% Population growth			0.35%	0.60%	1.12%	0.60%	3.45%	
	% Water demand growth			-1.39%	6.26%	-6.96%	8.81%	-5.31%	
Source of information		DWA NIS	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS Municipality	DWA NIS StatsSA NFC	DWA NIS Municipality		

Municipal NRW Water Balance: Enthanjeni

The chart displays the water balance components for Enthanjeni from 2005 to 2010, with a target for 2014. The left Y-axis represents System Input Volume in kl/annum (0 to 3,000,000), and the right Y-axis represents % Non-revenue Water (0% to 100%). The X-axis shows the years Jun-05, Jun-06, Jun-07, Jun-08, Jun-09, Jun-10, and Jun-14. The stacked bars show billed metered consumption (green), billed unmetered consumption (purple), and non-revenue water (red). The % Non-revenue Water is indicated by a line with diamonds, showing a significant drop to 0% for Jun-14.

Comments	

Province		Northern Cape						WSA	
Municipal Code		NC074						Yes	
Municipality		Pixley Ka Seme						Category	
Municipality		Kareeberg						B3	
Settlements		Camarvon						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	9 030	9 062	9 117	9 220	9 275	9 596		
	Households	2 390	2 398	2 412	2 440	2 454	2 539		
	Connections - metered	1 880	1 868	1 941	1 949	1 954	1 953		
	Connections - Unmetered								
	Length of mains (km)			44					
	System input volume	kl/annum	0	308 000	333 000		338 386		
	Billed metered consumption	kl/annum	335 743	307 716	333 092	321 067	338 396	366 913	
	Billed unmetered consumption	kl/annum	142 000	88 000	88 000				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	477 743	395 716	421 092	321 067	338 396	366 913	0
	Non-Revenue water	kl/annum	-477 743	-87 716	-88 092	-321 067	-10	-366 913	0
	Water Losses	kl/annum	-477 743	-87 716	-88 092	-321 067	-10	-366 913	0
	% Non-revenue water		No data	Check data	Check data	No data	Check data	No data	No data
	% Water Losses		No data	Check data	Check data	No data	Check data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	93	100	No data	100	No data	No data
	Input: m³ / household / month		No data	11	12	No data	11	No data	No data
	Billed : Litres / capita / day		145	120	127	95	100	105	No data
	Billed : m³ / household / month		17	14	15	11	11	12	No data
	% Population growth			0.35%	0.61%	1.13%	0.60%	3.46%	
	% Water demand growth			#DIV/0!	8.12%		#DIV/0!		
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS WDM report	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		

Municipal NRW Water Balance: Kareeberg

The chart displays the water balance components for Kareeberg from 2005 to 2010. The left Y-axis represents System Input Volume in kl/annum, ranging from -600,000 to 600,000. The right Y-axis represents % Non-revenue Water, ranging from 0% to 100%. The X-axis shows the years Jun-05, Jun-06, Jun-07, Jun-08, Jun-09, Jun-10, and Jun-14. The bars are stacked with billed metered consumption (green), billed unmetered consumption (purple), and non-revenue water (red). The % Non-revenue Water is shown as diamonds on the right axis, with values of approximately 20% for Jun-05, Jun-06, Jun-07, Jun-08, Jun-09, and Jun-10.

Comments	
NRW cannot be zero?	

Province		Northern Cape						WSA	
Municipal Code		NC075						Yes	
Municipality		Pixley Ka Seme						Category	
Municipality		Renosterberg						B3	
Settlements		Phillipstown						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	8 905	8 937	8 991	9 091	9 146	9 462		
	Households	2 523	2 531	2 546	2 575	2 590	2 679		
	Connections - metered	2 787	2 830	2 847	2 402	2 944	3 008		
	Connections - Unmetered	140	142	143	188	148	151		
	Length of mains (km)	59	59	60	61	62	63		
	System input volume	kl/annum	974 028	1 398 178	713 508			450 000	
	Billed metered consumption	kl/annum	1 197 048	1 197 048	710 637			500 000	
	Billed unmetered consumption	kl/annum	13 482	13 482	0				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 210 530	1 210 530	710 637	0	0	500 000	0
	Non-Revenue water	kl/annum	-236 502	187 648	2 871	0	0	-50 000	0
	Water Losses	kl/annum	-236 502	187 648	2 871	0	0	-50 000	0
	% Non-revenue water		Check data	13.4%	0.4%	No data	No data	Check data	No data
	% Water Losses		Check data	13.4%	0.4%	No data	No data	Check data	No data
Key performance indicators	Input : Litres / capita / day		300	429	217	No data	No data	130	No data
	Input: m ³ / household / month		32	46	23	No data	No data	14	No data
	Billed : Litres / capita / day		372	371	217	No data	No data	145	No data
	Billed : m ³ / household / month		40	40	23	No data	No data	16	No data
	% Population growth			0.36%	0.60%	1.11%	0.60%	3.46%	
	% Water demand growth			43.55%	-48.97%			#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS		

Municipal NRW Water Balance: Renosterberg

Year	Billed metered consumption (Kl/annum)	Billed unmetered consumption (Kl/annum)	Non-Revenue water (Kl/annum)	% Non-revenue Water
Jun-05	1 197 048	13 482	-236 502	13.4%
Jun-06	1 197 048	13 482	187 648	0.4%
Jun-07	710 637	0	2 871	No data
Jun-08	710 637	0	0	No data
Jun-09	710 637	0	0	No data
Jun-10	450 000	0	-50 000	3.46%
Jun-14	450 000	0	-50 000	#DIV/0!

Comments

Province		Northern Cape						WSA	
Municipal Code		NC076						Yes	
Municipality		Pixley Ka Seme						Category	
Municipality		Thembelihle						B3	
Settlements		Hopetown						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	13 987	14 038	14 123	14 281	14 367	14 863		
	Households	3 592	3 605	3 627	3 667	3 689	3 815		
	Connections - metered	2 787	2 830	2 847	3 042	2 944	3 008		
	Connections - Unmetered	140	142	143	441	148	151		
	Length of mains (km)	59	59	60	61	62	63		
	System input volume	kl/annum	1 029 526	1 254 886	1 029 526	1 404 646	1 416 000	1 353 678	
	Billed metered consumption	kl/annum	445 175	658 583	400 351	456 484	1 130 000	968 288	
	Billed unmetered consumption	kl/annum	213 408	225 360	86 400	47 874	10 000		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	658 583	883 943	486 751	504 358	1 140 000	968 288	0
	Non-Revenue water	kl/annum	370 943	370 943	542 775	600 288	276 000	385 390	0
	Water Losses	kl/annum	370 943	370 943	542 775	600 288	276 000	385 390	0
	% Non-revenue water		36.0%	29.6%	52.7%	54.3%	19.5%	28.5%	No data
	% Water Losses		36.0%	29.6%	52.7%	54.3%	19.5%	28.5%	No data
Key performance indicators	Input : Litres / capita / day		202	245	200	212	270	250	No data
	Input: m³ / household / month		24	29	24	25	32	30	No data
	Billed : Litres / capita / day		129	173	94	97	217	178	No data
	Billed : m³ / household / month		15	20	11	11	26	21	No data
	% Population growth			0.36%	0.61%	1.12%	0.60%	3.45%	
	% Water demand growth			21.89%	-17.96%	7.30%	28.19%	-4.40%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		

Municipal NRW Water Balance: Thembelihle

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	445 175	213 408	351 043	36.0%
Jun-06	658 583	225 360	370 943	29.6%
Jun-07	400 351	86 400	542 775	52.7%
Jun-08	456 484	47 874	600 288	54.3%
Jun-09	1 130 000	10 000	276 000	19.5%
Jun-10	968 288		385 390	28.5%
Jun-14				

Comments

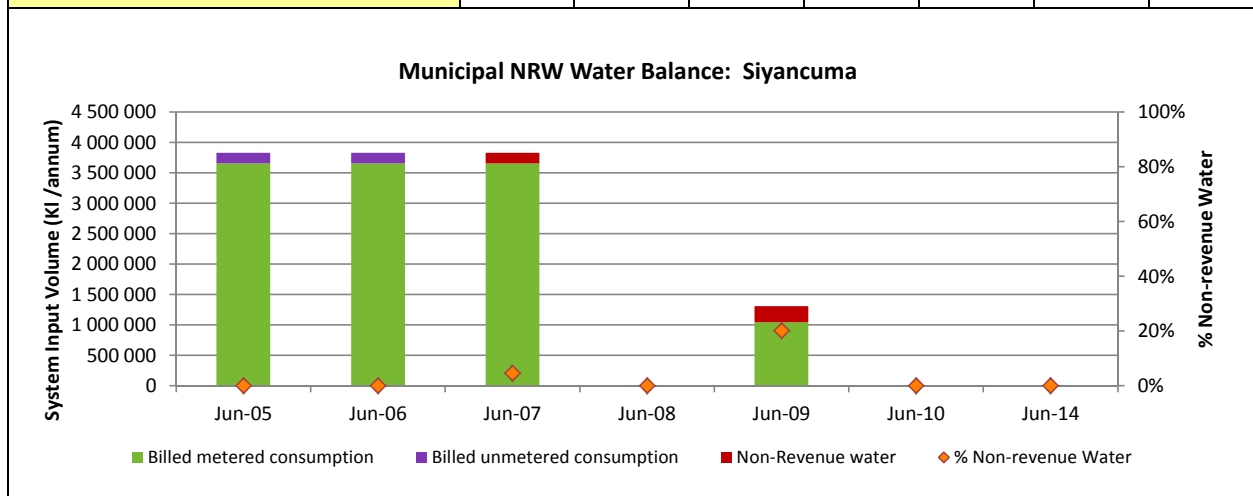
Province		Northern Cape						WSA	
Municipal Code		NC077						Yes	
Municipality		Pixley Ka Seme						Category	
Municipality		Siyathemba						B3	
Settlements		PRIESKA						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	16 984	17 045	17 148	17 339	17 443	18 046		
	Households	4 174	4 188	4 213	4 261	4 286	4 434		
	Connections - metered	2 787	2 830	2 847	4 112	2 944	3 008		
	Connections - Unmetered	140	142	143	175	148	151		
	Length of mains (km)	59	59	60	61	62	63		
	System input volume	kl/annum	1 547 038	1 586 325	1 625 612	1 665 007	1 235 000	1 611 075	
	Billed metered consumption	kl/annum	1 233 890	1 209 309	1 229 210	1 249 166	1 142 000	1 148 136	
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 233 890	1 209 309	1 229 210	1 249 166	1 142 000	1 148 136	0
	Non-Revenue water	kl/annum	313 148	377 016	396 402	415 841	93 000	462 939	0
	Water Losses	kl/annum	313 148	377 016	396 402	415 841	93 000	462 939	0
	% Non-revenue water		20.2%	23.8%	24.4%	25.0%	7.5%	28.7%	No data
	% Water Losses		20.2%	23.8%	24.4%	25.0%	7.5%	28.7%	No data
Key performance indicators	Input : Litres / capita / day		250	255	260	263	194	245	No data
	Input: m³ / household / month		31	32	32	33	24	30	No data
	Billed : Litres / capita / day		199	194	196	197	179	174	No data
	Billed : m³ / household / month		25	24	24	24	22	22	No data
	% Population growth			0.36%	0.60%	1.11%	0.60%	3.46%	
	% Water demand growth			2.54%	2.48%	2.42%	-25.83%	30.45%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS		

Municipal NRW Water Balance: Siyathemba

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	1 233 890	0	313 148	20.2%
Jun-06	1 209 309	0	377 016	23.8%
Jun-07	1 229 210	0	396 402	24.4%
Jun-08	1 249 166	0	415 841	25.0%
Jun-09	1 142 000	0	93 000	7.5%
Jun-10	1 148 136	0	462 939	28.7%
Jun-14	1 611 075	0	0	No data

Comments	

Province		Northern Cape						WSA
Municipal Code		NC078						Yes
Municipality		Pixley Ka Seme						Category
Municipality		Siyancuma						B3
Settlements		DOUGLAS, GRIEKWASTAD						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	35 802	35 929	36 143	36 545	36 763	38 033	
	Households	9 506	9 540	9 599	9 703	9 762	10 098	
	Connections - metered	2 787	2 830	2 847	8 619	2 944	3 008	
	Connections - Unmetered	140	142	143	1 141	148	151	
	Length of mains (km)	59	59	60	61	62	63	
	System input volume	kl/annum	3 829 539	3 829 539	3 829 539		1 308 612	
	Billed metered consumption	kl/annum	3 654 003	3 654 003	3 654 003		1 045 188	
	Billed unmetered consumption	kl/annum	175 536	175 536	0			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	3 829 539	3 829 539	3 654 003	0	1 045 188	0
	Non-Revenue water	kl/annum	0	0	175 536	0	263 424	0
	Water Losses	kl/annum	0	0	175 536	0	263 424	0
	% Non-revenue water		Check data	Check data	4.6%	No data	20.1%	No data
	% Water Losses		No data	No data	4.6%	No data	20.1%	No data
Key performance indicators	Input : Litres / capita / day		293	292	290	No data	98	No data
	Input: m³ / household / month		34	33	33	No data	11	No data
	Billed : Litres / capita / day		293	292	277	No data	78	No data
	Billed : m³ / household / month		34	33	32	No data	9	No data
	% Population growth			0.35%	0.60%	1.11%	0.60%	3.45%
	% Water demand growth			0.00%	0.00%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	



Comments
 Consistent data for 2005 to 2007? Input volume for 2009 low?

Province		Northern Cape						WSA	
Municipal Code		DC08						No	
Municipality		Siyanda						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	190 556	193 253	194 410	196 575	197 757	204 587	0	
	Households	46 411	47 070	47 354	47 875	48 162	49 830	0	
	Connections - metered	26 500	26 892	27 054	42 929	27 759	28 529	0	
	Connections - Unmetered	1 501	1 522	1 532	3 734	1 571	1 615	0	
	Length of mains (km)	562	566	573	581	587	602	0	
	System input volume	kl/annum	21 252 202	20 697 564	18 467 350	0	16 762 270	12 570 000	0
	Billed metered consumption	kl/annum	13 573 332	14 943 986	14 718 686	0	16 160 000	0	0
	Billed unmetered consumption	kl/annum	2 458 132	1 823 066	1 061 136	0	19 000	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	16 031 464	16 767 052	15 779 822	0	16 179 000	0	0
	Non-Revenue water	kl/annum	5 220 738	3 930 512	2 687 528	0	583 270	12 570 000	0
	Water Losses	kl/annum	5 220 738	3 930 512	2 687 528	0	583 270	12 570 000	0
	% Non-revenue water		24.6%	19.0%	14.6%	No data	3.5%	No data	No data
	% Water Losses		24.6%	19.0%	14.6%	No data	3.5%	100.0%	No data
Key performance indicators	Input : Litres / capita / day		306	293	260	No data	232	168	No data
	Input: m³ / household / month		38	37	32	No data	29	21	No data
	Billed : Litres / capita / day		230	238	222	No data	224	No data	No data
	Billed : m³ / household / month		29	30	28	No data	28	No data	No data
	% Population growth			1.42%	0.60%	1.11%	0.60%	3.45%	
	% Water demand growth			-2.61%	-10.78%		#DIV/0!	-25.01%	
Source of information									

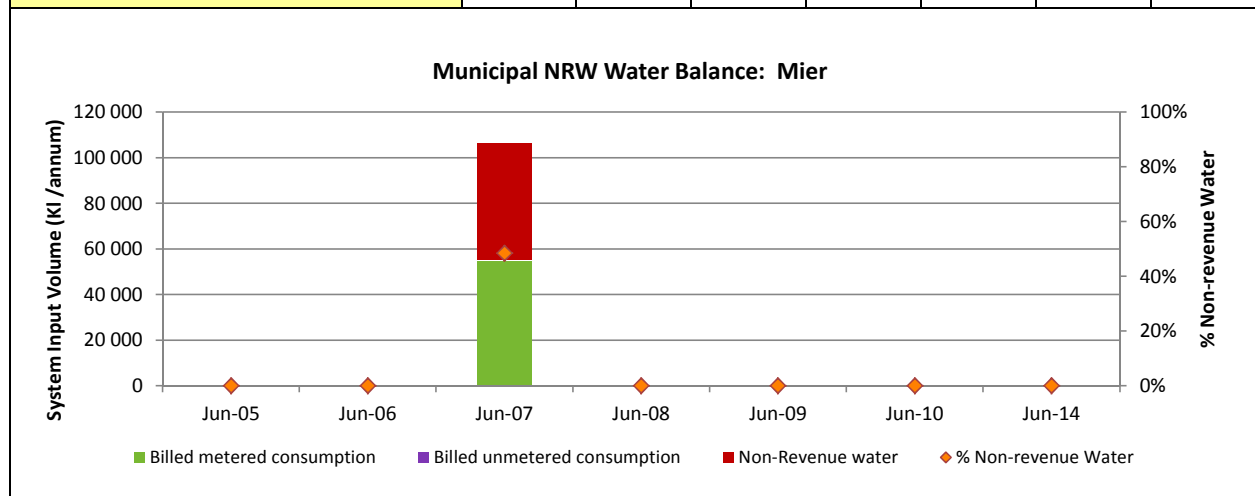
Municipal NRW Water Balance: Siyanda

The chart displays two data series: System Input Volume (kl/annum) on the left Y-axis (0 to 25,000,000) and % Non-revenue Water on the right Y-axis (0% to 100%). The X-axis shows years from Jun-05 to Jun-14. The bars are stacked with Billed metered consumption (green), Billed unmetered consumption (purple), and Non-Revenue water (red). The % Non-revenue Water is indicated by orange diamonds.

Year	Billed metered consumption	Billed unmetered consumption	Non-Revenue water	% Non-revenue Water
Jun-05	13 573 332	2 458 132	5 220 738	24.6%
Jun-06	14 943 986	1 823 066	3 930 512	19.0%
Jun-07	14 718 686	1 061 136	2 687 528	14.6%
Jun-08	0	0	0	No data
Jun-09	16 160 000	19 000	583 270	3.5%
Jun-10	16 160 000	19 000	583 270	3.5%
Jun-14	12 570 000	0	0	No data

Comments

Province		Northern Cape						WSA
Municipal Code		NC081						Yes
Municipality		Siyanda						Category
Municipality		Mier						B3
Settlements		Mier						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	6 894	6 992	7 033	7 109	7 153	7 400	
	Households	1 654	1 678	1 688	1 703	1 713	1 775	
	Connections - metered	2 787	2 830	2 847	1 565	2 944	3 008	
	Connections - Unmetered	140	142	143	149	148	151	
	Length of mains (km)	59	59	60	61	62	63	
	System input volume	kl/annum			106 236			
	Billed metered consumption	kl/annum			54 756			
	Billed unmetered consumption	kl/annum			0			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	54 756	0	0	0
	Non-Revenue water	kl/annum	0	0	51 480	0	0	0
	Water Losses	kl/annum	0	0	51 480	0	0	0
	% Non-revenue water		No data	No data	48.5%	No data	No data	No data
	% Water Losses		No data	No data	48.5%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	41	No data	No data	No data
	Input: m³ / household / month		No data	No data	5	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	21	No data	No data	No data
	Billed : m³ / household / month		No data	No data	3	No data	No data	No data
	% Population growth			1.42%	0.59%	1.08%	0.62%	3.45%
	% Water demand growth				#DIV/0!			
Source of information		DWA NIS	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	



Comments

Province		Northern Cape						WSA
Municipal Code		NC082						Yes
Municipality		Siyanda						Category
Municipality		!Kai! Garib						B3
Settlements		Keimoes						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	54 857	55 634	55 966	56 588	56 927	58 893	
	Households	13 389	13 578	13 659	13 810	13 891	14 372	
	Connections - metered	12 565	12 742	12 819	12 961	13 039	13 489	
	Connections - Unmetered	804	842	847	826	834	860	
	Length of mains (km)	267	271	273	276	277	287	
	System input volume	kl/annum	3 170 000	1 590 628			1 800 000	
	Billed metered consumption	kl/annum	1 248 242	1 248 242			1 610 000	
	Billed unmetered consumption	kl/annum	183 024	183 024				
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 431 266	1 431 266	0	0	1 610 000	0
	Non-Revenue water	kl/annum	1 738 734	159 362	0	0	190 000	0
	Water Losses	kl/annum	1 738 734	159 362	0	0	190 000	0
	% Non-revenue water		54.8%	10.0%	No data	No data	10.6%	No data
	% Water Losses		54.8%	10.0%	No data	No data	10.6%	No data
Key performance indicators	Input : Litres / capita / day		158	78	No data	No data	87	No data
	Input: m ³ / household / month		20	10	No data	No data	11	No data
	Billed : Litres / capita / day		71	70	No data	No data	77	No data
	Billed : m ³ / household / month		9	9	No data	No data	10	No data
	% Population growth			1.42%	0.60%	1.11%	0.60%	3.45%
	% Water demand growth			-49.82%			#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS RPMS	DWA NIS	

Municipal NRW Water Balance: !Kai! Garib

The chart displays two data series: System Input Volume (kl/annum) on the left Y-axis (0 to 3,500,000) and % Non-revenue Water on the right Y-axis (0% to 100%). The X-axis shows years from Jun-05 to Jun-14. The input volume is represented by stacked bars: Billed metered consumption (green), Billed unmetered consumption (purple), and Non-Revenue water (red). The percentage of non-revenue water is shown as orange diamonds. Data points are available for Jun-05, Jun-06, Jun-09, Jun-10, and Jun-14.

Year	Billed metered consumption	Billed unmetered consumption	Non-Revenue water	% Non-revenue Water
Jun-05	1,248,242	183,024	1,738,734	54.8%
Jun-06	1,248,242	183,024	159,362	10.0%
Jun-07			0	No data
Jun-08			0	No data
Jun-09	1,610,000		190,000	10.6%
Jun-10			0	No data
Jun-14			0	No data

Comments	

Province		Northern Cape						WSA	
Municipal Code		NC083						Yes	
Municipality		Siyanda						Category	
Municipality		//Khara Hais						B2	
Settlements		UPINGTON						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	74 742	75 799	76 255	77 106	77 570	80 248		
	Households	17 791	18 044	18 153	18 354	18 464	19 103		
	Connections - metered	2 787	2 830	2 847	15 830	2 944	3 008		
	Connections - Unmetered	140	142	143	1 651	148	151		
	Length of mains (km)	59	59	60	61	62	63		
	System input volume	kl/annum	16 428 734	15 620 100	15 111 466		14 392 030	12 570 000	
	Billed metered consumption	kl/annum	9 595 687	10 922 999	12 250 311		13 440 000		
	Billed unmetered consumption	kl/annum	1 736 044	1 106 522	477 000				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	11 331 731	12 029 521	12 727 311	0	13 440 000	0	0
	Non-Revenue water	kl/annum	4 797 003	3 590 579	2 384 155	0	952 030	12 570 000	0
	Water Losses	kl/annum	4 797 003	3 590 579	2 384 155	0	952 030	12 570 000	0
	% Non-revenue water		29.7%	23.0%	15.8%	No data	6.6%	No data	No data
	% Water Losses		29.7%	23.0%	15.8%	No data	6.6%	100.0%	No data
Key performance indicators	Input : Litres / capita / day		591	565	543	No data	508	429	No data
	Input: m ³ / household / month		76	72	69	No data	65	55	No data
	Billed : Litres / capita / day		415	435	457	No data	475	No data	No data
	Billed : m ³ / household / month		53	56	58	No data	61	No data	No data
	% Population growth			1.41%	0.60%	1.12%	0.60%	3.45%	
	% Water demand growth			-3.15%	-3.26%		#DIV/0!	-12.66%	
Source of information		DWA NIS	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		

Municipal NRW Water Balance: Khara Hais

The chart displays two metrics over time: System Input Volume (kl/annum) on the left Y-axis (0 to 18,000,000) and % Non-revenue Water on the right Y-axis (0% to 100%). The X-axis shows years from Jun-05 to Jun-14. The bars are stacked with Billed metered consumption (green), Billed unmetered consumption (purple), and Non-Revenue water (red). A red diamond marker indicates the % Non-revenue Water for each year.

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	9,595,687	1,736,044	4,797,003	29.7%
Jun-06	10,922,999	1,106,522	3,590,579	23.0%
Jun-07	12,250,311	477,000	2,384,155	15.8%
Jun-08			0	No data
Jun-09	13,440,000		952,030	6.6%
Jun-10			12,570,000	100.0%
Jun-14				No data

Comments

Province		Northern Cape						WSA	
Municipal Code		NC084						Yes	
Municipality		Siyanda						Category	
Municipality		!Kheis						B3	
Settlements		Groblershoop						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	16 266	16 497	16 596	16 782	16 884	17 468		
	Households	4 148	4 208	4 234	4 281	4 308	4 457		
	Connections - metered	2 787	2 830	2 847	3 437	2 944	3 008		
	Connections - Unmetered	140	142	143	606	148	151		
	Length of mains (km)	59	59	60	61	62	63		
	System input volume	kl/annum	9 263	300 107	300 107				
	Billed metered consumption	kl/annum	369 478	233 476	233 476				
	Billed unmetered consumption	kl/annum	95 328	95 328	95 328				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	464 806	328 804	328 804	0	0	0	0
	Non-Revenue water	kl/annum	-455 543	-28 697	-28 697	0	0	0	0
	Water Losses	kl/annum	-455 543	-28 697	-28 697	0	0	0	0
	% Non-revenue water		Check data	Check data	Check data	No data	No data	No data	No data
	% Water Losses		Check data	Check data	Check data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		2	50	50	No data	No data	No data	No data
	Input: m ³ / household / month		0	6	6	No data	No data	No data	No data
	Billed : Litres / capita / day		78	55	54	No data	No data	No data	No data
	Billed : m ³ / household / month		9	7	6	No data	No data	No data	No data
	% Population growth			1.42%	0.60%	1.12%	0.61%	3.46%	
	% Water demand growth			3139.85%	0.00%				
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS		

Municipal NRW Water Balance: !Kheis

Year	Billed metered consumption (Kl/annum)	Billed unmetered consumption (Kl/annum)	Non-Revenue water (Kl/annum)	% Non-revenue Water
Jun-05	369 478	95 328	-455 543	~40%
Jun-06	233 476	95 328	-28 697	~40%
Jun-07	233 476	95 328	-28 697	~40%
Jun-08	0	0	0	0%
Jun-09	0	0	0	0%
Jun-10	0	0	0	0%
Jun-14	0	0	0	0%

Comments

Province		Northern Cape						WSA
Municipal Code		NC085						Yes
Municipality		Siyanda						Category
Municipality		Tsantsabane						B3
Settlements		POSTMASBURG						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	22 781	23 103	23 241	23 500	23 641	24 458	
	Households	5 566	5 644	5 678	5 742	5 777	5 976	
	Connections - metered	2 787	2 830	2 847	5 306	2 944	3 008	
	Connections - Unmetered	140	142	143	323	148	151	
	Length of mains (km)	59	59	60	61	62	63	
	System input volume	kl/annum	414 710	1 666 729	1 277 541		570 240	
	Billed metered consumption	kl/annum	1 336 581	1 346 125	970 155			
	Billed unmetered consumption	kl/annum	235 080	229 536	307 296			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 571 661	1 575 661	1 277 451	0	0	0
	Non-Revenue water	kl/annum	-1 156 951	91 068	90	0	570 240	0
	Water Losses	kl/annum	-1 156 951	91 068	90	0	570 240	0
	% Non-revenue water		Check data	5.5%	0.0%	No data	No data	No data
	% Water Losses		Check data	5.5%	0.0%	No data	100.0%	No data
Key performance indicators	Input : Litres / capita / day		50	198	151	No data	66	No data
	Input: m ³ / household / month		6	25	19	No data	8	No data
	Billed : Litres / capita / day		189	187	151	No data	No data	No data
	Billed : m ³ / household / month		24	23	19	No data	No data	No data
	% Population growth			1.41%	0.60%	1.11%	0.60%	3.46%
	% Water demand growth			301.90%	-23.35%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

Municipal NRW Water Balance: Tsantsabane

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	1 336 581	235 080	-1 156 951	~45%
Jun-06	1 346 125	229 536	91 068	~5%
Jun-07	970 155	307 296	90	~5%
Jun-08			0	~5%
Jun-09			570 240	~5%
Jun-10			0	~5%
Jun-14			0	~5%

Comments	

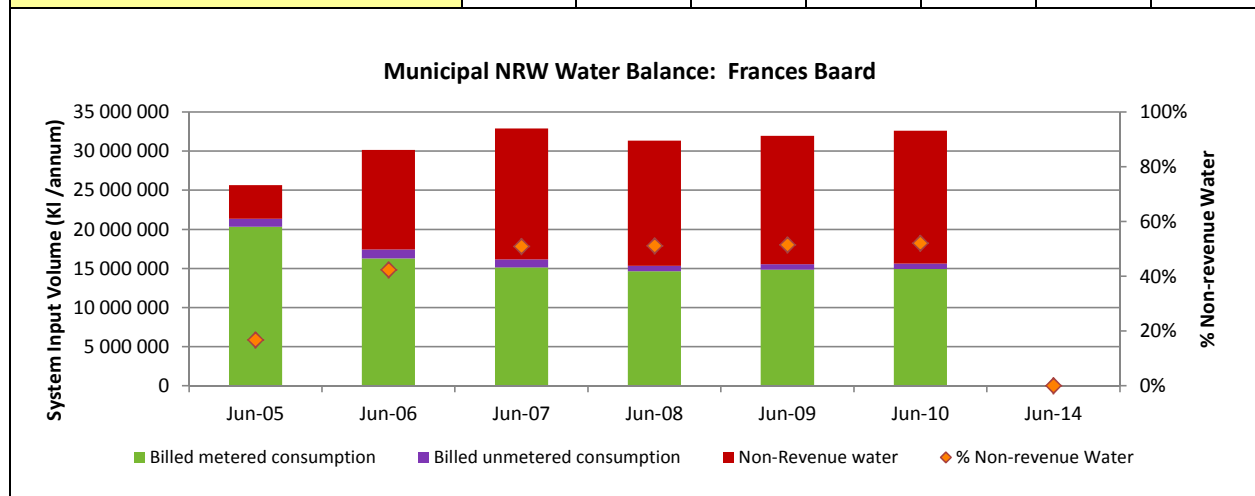
Province		Northern Cape						WSA
Municipal Code		NC086						Yes
Municipality		Siyanda						Category
Municipality		Kgatelopele						B3
Settlements		Danielskuil						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	15 016	15 228	15 319	15 490	15 582	16 120	
	Households	3 863	3 918	3 942	3 985	4 009	4 147	
	Connections - metered	2 787	2 830	2 847	3 830	2 944	3 008	
	Connections - Unmetered	140	142	143	179	148	151	
	Length of mains (km)	59	59	60	61	62	63	
	System input volume	kl/annum	1 529 495	1 520 000	1 672 000			
	Billed metered consumption	kl/annum	1 023 344	1 193 144	1 209 988		1 110 000	
	Billed unmetered consumption	kl/annum	208 656	208 656	181 512		19 000	
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 232 000	1 401 800	1 391 500	0	1 129 000	0
	Non-Revenue water	kl/annum	297 495	118 200	280 500	0	-1 129 000	0
	Water Losses	kl/annum	297 495	118 200	280 500	0	-1 129 000	0
	% Non-revenue water		19.5%	7.8%	16.8%	No data	No data	No data
	% Water Losses		19.5%	7.8%	16.8%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		279	273	299	No data	No data	No data
	Input: m³ / household / month		33	32	35	No data	No data	No data
	Billed : Litres / capita / day		225	252	249	No data	199	No data
	Billed : m³ / household / month		27	30	29	No data	23	No data
	% Population growth			1.41%	0.60%	1.12%	0.59%	3.45%
	% Water demand growth			-0.62%	10.00%			
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS RPMS	DWA NIS	

Municipal NRW Water Balance: Kgatelopele

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	1 023 344	208 656	297 495	19.5%
Jun-06	1 193 144	208 656	118 200	7.8%
Jun-07	1 209 988	181 512	280 500	16.8%
Jun-08			0	No data
Jun-09	1 110 000	19 000	-1 129 000	No data
Jun-10			0	No data
Jun-14			0	No data

Comments

Province		Northern Cape						WSA	
Municipal Code		DC09						No	
Municipality		Frances Baard						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	321 821	323 885	325 828	329 460	331 433	342 883	0	
	Households	86 805	87 362	87 885	88 866	89 398	92 485	0	
	Connections - metered	8 361	13 369	8 541	64 885	8 832	9 024	0	
	Connections - Unmetered	420	426	429	4 365	444	453	0	
	Length of mains (km)	177	331	180	183	186	189	0	
	System input volume	kl/annum	25 654 065	30 168 223	32 904 663	31 336 039	31 962 760	32 602 015	0
	Billed metered consumption	kl/annum	20 348 270	16 281 542	15 137 117	14 626 443	14 830 708	14 920 435	0
	Billed unmetered consumption	kl/annum	1 013 976	1 123 256	1 004 692	697 312	697 312	704 285	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	21 362 246	17 404 798	16 141 809	15 323 755	15 528 020	15 624 720	0
	Non-Revenue water	kl/annum	4 291 819	12 763 425	16 762 854	16 012 284	16 434 740	16 977 295	0
	Water Losses	kl/annum	4 291 819	12 763 425	16 762 854	16 012 284	16 434 740	16 977 295	0
	% Non-revenue water		16.7%	42.3%	50.9%	51.1%	51.4%	52.1%	No data
	% Water Losses		16.7%	42.3%	50.9%	51.1%	51.4%	52.1%	No data
Key performance indicators	Input : Litres / capita / day		218	255	277	261	264	260	No data
	Input: m³ / household / month		25	29	31	29	30	29	No data
	Billed : Litres / capita / day		182	147	136	127	128	125	No data
	Billed : m³ / household / month		21	17	15	14	14	14	No data
	% Population growth			0.64%	0.60%	1.11%	0.60%	3.45%	
	% Water demand growth			17.60%	9.07%	-4.77%	2.00%	2.00%	
Source of information									



Comments

Province		Northern Cape						WSA	
Municipal Code		NC091						Yes	
Municipality		Frances Baard						Category	
Municipality		Sol Plaatjie						B1	
Settlements		KIMBERLEY						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	198 813	200 088	201 289	203 535	204 756	211 828		
	Households	52 020	52 355	52 668	53 256	53 576	55 426		
	Connections - metered	2 787	2 830	2 847	50 484	2 944	3 008		
	Connections - Unmetered	140	142	143	2 962	148	151		
	Length of mains (km)	59	59	60	61	62	63		
	System input volume	kl/annum	24 306 806	26 175 663	30 721 607	31 336 039	31 962 760	32 602 015	
	Billed metered consumption	kl/annum	19 996 017	13 929 946	13 929 946	14 626 443	14 830 708	14 920 435	
	Billed unmetered consumption	kl/annum	617 040	690 408	690 408	697 312	697 312	704 285	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	20 613 057	14 620 354	14 620 354	15 323 755	15 528 020	15 624 720	0
	Non-Revenue water	kl/annum	3 693 749	11 555 309	16 101 253	16 012 284	16 434 740	16 977 295	0
	Water Losses	kl/annum	3 693 749	11 555 309	16 101 253	16 012 284	16 434 740	16 977 295	0
	% Non-revenue water		15.2%	44.1%	52.4%	51.1%	51.4%	52.1%	No data
	% Water Losses		15.2%	44.1%	52.4%	51.1%	51.4%	52.1%	No data
Key performance indicators	Input : Litres / capita / day		335	358	418	422	428	422	No data
	Input: m³ / household / month		39	42	49	49	50	49	No data
	Billed : Litres / capita / day		284	200	199	206	208	202	No data
	Billed : m³ / household / month		33	23	23	24	24	23	No data
	% Population growth			0.64%	0.60%	1.12%	0.60%	3.45%	
	% Water demand growth			7.69%	17.37%	2.00%	2.00%	2.00%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality		

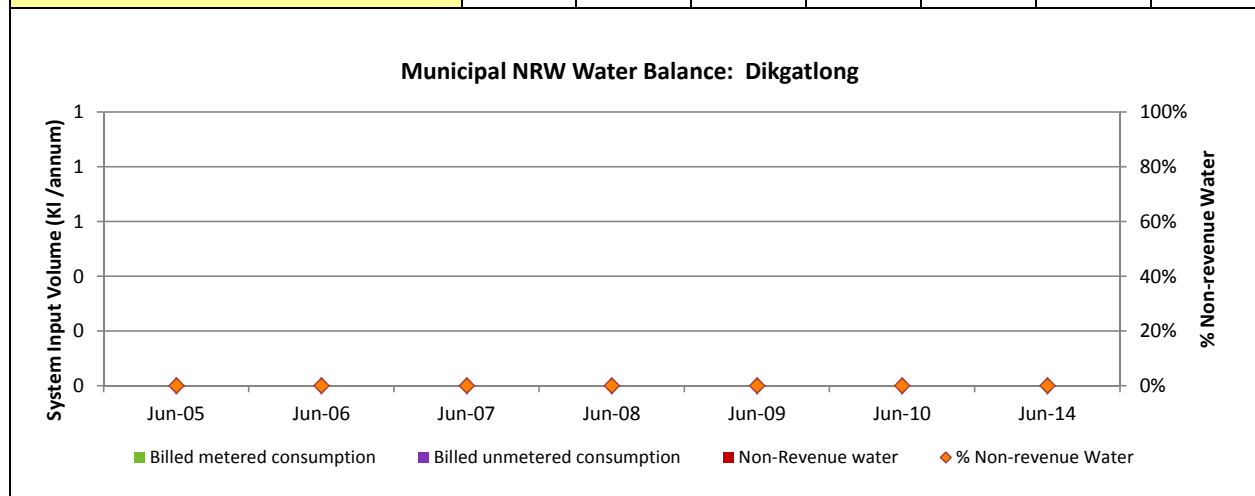
Municipal NRW Water Balance: Sol Plaatjie

The chart displays the following data points (approximate values):

Year	Billed metered consumption (kl)	Billed unmetered consumption (kl)	Non-Revenue water (kl)	% Non-revenue Water
Jun-05	19,996,017	617,040	3,693,749	15.2%
Jun-06	13,929,946	690,408	11,555,309	44.1%
Jun-07	13,929,946	690,408	16,101,253	52.4%
Jun-08	14,626,443	697,312	16,012,284	51.1%
Jun-09	14,830,708	697,312	16,434,740	51.4%
Jun-10	14,920,435	704,285	16,977,295	52.1%

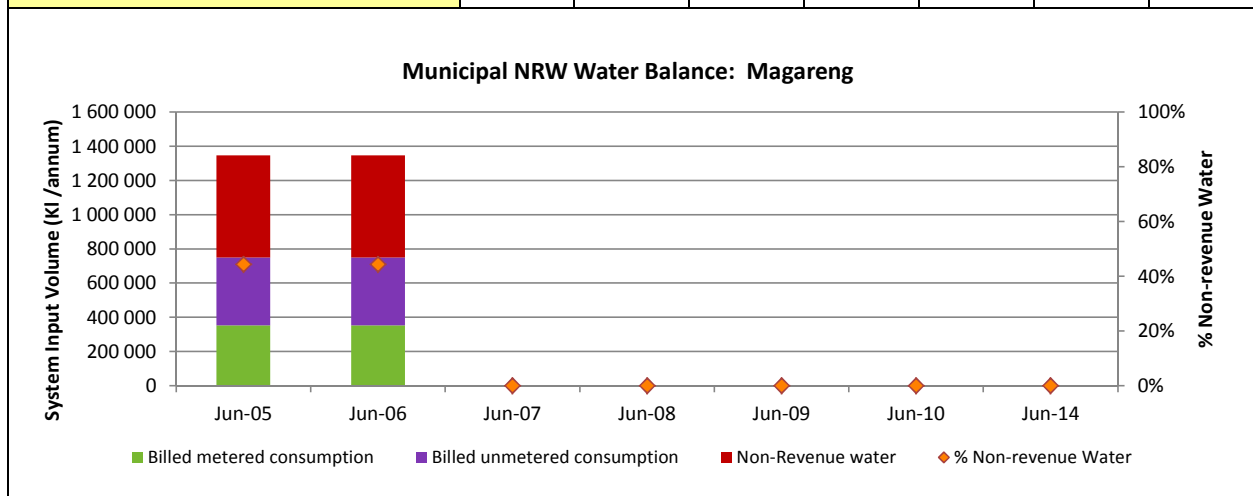
Comments

Province		Northern Cape						WSA
Municipal Code		NC092						Yes
Municipality		Frances Baard						Category
Municipality		Dikgatlong						B3
Settlements		BARKLY WEST, DE AAR						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	35 161	35 387	35 599	35 995	36 210	37 463	
	Households	9 753	9 816	9 875	9 986	10 046	10 392	
	Connections - metered	2 787	2 830	2 847	8 935	2 944	3 008	
	Connections - Unmetered	140	142	143	1 102	148	151	
	Length of mains (km)	59	59	60	61	62	63	
	System input volume	kl/annum						
	Billed metered consumption	kl/annum						
	Billed unmetered consumption	kl/annum						
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	0	0	0	0	0
	Non-Revenue water	kl/annum	0	0	0	0	0	0
	Water Losses	kl/annum	0	0	0	0	0	0
	% Non-revenue water		No data	No data	No data	No data	No data	No data
	% Water Losses		No data	No data	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Input: m ³ / household / month		No data	No data	No data	No data	No data	No data
	Billed : Litres / capita / day		No data	No data	No data	No data	No data	No data
	Billed : m ³ / household / month		No data	No data	No data	No data	No data	No data
	% Population growth			0.64%	0.60%	1.11%	0.60%	3.46%
	% Water demand growth							
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



Comments

Province		Northern Cape						WSA
Municipal Code		NC093						Yes
Municipality		Frances Baard						Category
Municipality		Magareng						B3
Settlements		WARRENTON						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	21 366	21 503	21 631	21 871	22 001	22 761	
	Households	5 909	5 946	5 981	6 047	6 082	6 293	
	Connections - metered	2 787	2 830	2 847	5 466	2 944	3 008	
	Connections - Unmetered	140	142	143	301	148	151	
	Length of mains (km)	59	59	60	61	62	63	
	System input volume	kl/annum	1 347 259	1 347 259				
	Billed metered consumption	kl/annum	352 253	352 253				
	Billed unmetered consumption	kl/annum	396 936	396 936				
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	749 189	749 189	0	0	0	0
	Non-Revenue water	kl/annum	598 070	598 070	0	0	0	0
	Water Losses	kl/annum	598 070	598 070	0	0	0	0
	% Non-revenue water		44.4%	44.4%	No data	No data	No data	No data
	% Water Losses		44.4%	44.4%	No data	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		173	172	No data	No data	No data	No data
	Input: m ³ / household / month		19	19	No data	No data	No data	No data
	Billed : Litres / capita / day		96	95	No data	No data	No data	No data
	Billed : m ³ / household / month		11	10	No data	No data	No data	No data
	% Population growth			0.64%	0.60%	1.11%	0.59%	3.45%
	% Water demand growth			0.00%				
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	DWA NIS	



Comments

Province		Northern Cape						WSA
Municipal Code		NC094						Yes
Municipality		Frances Baard						Category
Municipality		Phokwane						B3
Settlements		HARTSWATER, JAN KEMPDORP						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	66 481	66 907	67 309	68 059	68 466	70 831	
	Households	19 123	19 245	19 361	19 577	19 694	20 374	
	Connections - metered		4 879					
	Connections - Unmetered							
	Length of mains (km)		154					
	System input volume	kl/annum		2 645 304	2 183 056			
	Billed metered consumption	kl/annum		1 999 343	1 207 171			
	Billed unmetered consumption	kl/annum		35 912	314 284			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	0	2 035 255	1 521 455	0	0	0
	Non-Revenue water	kl/annum	0	610 046	661 601	0	0	0
	Water Losses	kl/annum	0	610 046	661 601	0	0	0
	% Non-revenue water		No data	23.1%	30.3%	No data	No data	No data
	% Water Losses		No data	23.1%	30.3%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	108	89	No data	No data	No data
	Input: m ³ / household / month		No data	11	9	No data	No data	No data
	Billed : Litres / capita / day		No data	83	62	No data	No data	No data
	Billed : m ³ / household / month		No data	9	7	No data	No data	No data
	% Population growth			0.64%	0.60%	1.11%	0.60%	3.45%
	% Water demand growth			#DIV/0!	-17.47%			
Source of information		DWA NIS	DWA NIS WDM report	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	

Municipal NRW Water Balance: Phokwane

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	0	0	0	0%
Jun-06	2 035 255	0	610 046	23.1%
Jun-07	1 207 171	314 284	661 601	30.3%
Jun-08	0	0	0	No data
Jun-09	0	0	0	No data
Jun-10	0	0	0	No data
Jun-14	0	0	0	No data

Comments

Province		Northern Cape						WSA	
Municipal Code		DC45						No	
Municipality		John Taolo Gaetsewe						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	200 611	201 135	202 355	204 624	205 868	194 365	0	
	Households	48 500	48 620	48 869	49 469	49 724	46 985	0	
	Connections - metered	5 574	5 660	5 694	11 725	5 888	14 516	0	
	Connections - Unmetered	280	284	286	19 553	296	2 021	0	
	Length of mains (km)	118	118	120	122	124	314	0	
	System input volume	kl/annum	5 653 556	8 412 823	6 882 473	564 591	7 496 221	7 086 180	0
	Billed metered consumption	kl/annum	4 629 393	3 487 028	0	845 449	6 650 165	6 258 468	0
	Billed unmetered consumption	kl/annum	1 983 600	2 251 603	2 207 599	0	12 948	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	6 612 993	5 738 631	2 207 599	845 449	6 663 113	6 258 468	0
	Non-Revenue water	kl/annum	-959 437	2 674 192	4 674 874	-280 858	833 108	827 712	0
	Water Losses	kl/annum	-959 437	2 674 192	4 674 874	-280 858	833 108	827 712	0
	% Non-revenue water		Check data	31.8%	67.9%	Check data	11.1%	11.7%	No data
	% Water Losses		Check data	31.8%	67.9%	Check data	11.1%	11.7%	No data
Key performance indicators	Input : Litres / capita / day		77	115	93	8	100	100	No data
	Input: m³ / household / month		10	14	12	1	13	13	No data
	Billed : Litres / capita / day		90	78	30	11	89	88	No data
	Billed : m³ / household / month		11	10	4	1	11	11	No data
	% Population growth			0.26%	0.61%	1.12%	0.61%	-5.59%	
	% Water demand growth			48.81%	-18.19%	-91.80%	1227.73%	-5.47%	
Source of information									

Municipal NRW Water Balance: Ga-Segonyana

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	4 629 393	1 983 600	-959 437	11.1%
Jun-06	3 487 028	2 251 603	2 674 192	11.7%
Jun-07	0	2 207 599	4 674 874	67.9%
Jun-08	564 591	0	-280 858	11.1%
Jun-09	6 650 165	0	833 108	11.7%
Jun-10	6 258 468	0	827 712	11.7%
Jun-14	6 258 468	0	827 712	11.7%

Comments	

Province		Northern Cape						WSA
Municipal Code		NC451						Yes
Municipality		John Taolo Gaetsewe						Category
Municipality		Moshaweng						B3
Settlements		Kgalagadi						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	101 480	101 687	102 309	103 460	104 096	96 243	
	Households	23 365	23 411	23 511	23 819	23 922	22 123	
	Connections - metered	2 787	2 830	2 847	3 857	2 944	3 008	
	Connections - Unmetered	140	142	143	13 073	148	151	
	Length of mains (km)	59	59	60	61	62	63	
	System input volume	kl/annum	0	2 146 600	2 146 600			
	Billed metered consumption	kl/annum	4 018	0	0			
	Billed unmetered consumption	kl/annum	1 550 808	1 625 256	1 625 256			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	1 554 826	1 625 256	1 625 256	0	0	0
	Non-Revenue water	kl/annum	-1 554 826	521 344	521 344	0	0	0
	Water Losses	kl/annum	-1 554 826	521 344	521 344	0	0	0
	% Non-revenue water		No data	24.3%	24.3%	No data	No data	No data
	% Water Losses		No data	24.3%	24.3%	No data	No data	No data
Key performance indicators	Input : Litres / capita / day		No data	58	57	No data	No data	No data
	Input: m ³ / household / month		No data	8	8	No data	No data	No data
	Billed : Litres / capita / day		42	44	44	No data	No data	No data
	Billed : m ³ / household / month		6	6	6	No data	No data	No data
	% Population growth			0.20%	0.61%	1.13%	0.61%	-7.54%
	% Water demand growth			#DIV/0!	0.00%			
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS	DWA NIS	

Municipal NRW Water Balance: Moshaweng

Comments	

Province		Northern Cape						WSA	
Municipal Code		NC452						Yes	
Municipality		John Taolo Gaetsewe						Category	
Municipality		Ga-Segonyana						B3	
Settlements		Kuruman						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	74 951	75 120	75 572	76 417	76 877	72 367		
	Households	19 201	19 240	19 353	19 577	19 693	18 541		
	Connections - metered	2 787	2 830	2 847	7 868	2 944	3 008		
	Connections - Unmetered	140	142	143	6 480	148	151		
	Length of mains (km)	59	59	60	61	62	63		
	System input volume	kl/annum	2 416 223	2 916 040	513 040	564 591	2 430 000	871 615	
	Billed metered consumption	kl/annum	2 385 632	888 380	0	845 449	2 187 954	2 236 143	
	Billed unmetered consumption	kl/annum	29 592	147 542	42 343				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 415 224	1 035 922	42 343	845 449	2 187 954	2 236 143	0
	Non-Revenue water	kl/annum	999	1 880 118	470 697	-280 858	242 046	-1 364 528	0
	Water Losses	kl/annum	999	1 880 118	470 697	-280 858	242 046	-1 364 528	0
	% Non-revenue water		0.0%	64.5%	91.7%	Check data	10.0%	Check data	No data
	% Water Losses		0.0%	64.5%	91.7%	Check data	10.0%	Check data	No data
Key performance indicators	Input : Litres / capita / day		88	106	19	20	87	33	No data
	Input: m³ / household / month		10	13	2	2	10	4	No data
	Billed : Litres / capita / day		88	38	2	30	78	85	No data
	Billed : m³ / household / month		10	4	0	4	9	10	No data
	% Population growth			0.23%	0.60%	1.12%	0.60%	-5.87%	
	% Water demand growth			20.69%	-82.41%	10.05%	330.40%	-64.13%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS RPMS	DWA NIS StatsSA NFC	DWA NIS RPMS		

Municipal NRW Water Balance: Ga-Segonyana

Year	Billed metered consumption (kl)	Billed unmetered consumption (kl)	Non-Revenue water (kl)	% Non-revenue Water
Jun-05	2 385 632	29 592	0	0%
Jun-06	888 380	147 542	1 880 118	64.5%
Jun-07	0	42 343	470 697	91.7%
Jun-08	845 449	0	-280 858	Check data
Jun-09	2 187 954	0	242 046	10.0%
Jun-10	2 236 143	0	-1 364 528	Check data
Jun-14	0	0	0	No data

Comments

Province		Northern Cape						WSA	
Municipal Code		NC453						Yes	
Municipality		John Taolo Gaetsewe						Category	
Municipality		Gamagara						B4	
Settlements		Kathu						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	24 180	24 328	24 474	24 747	24 895	25 755		
	Households	5 934	5 969	6 005	6 073	6 109	6 321		
	Connections - metered						8 500		
	Connections - Unmetered						1 719		
	Length of mains (km)						188		
	System input volume	kl/annum	3 237 333	3 350 183	4 222 833		5 066 221	6 214 565	
	Billed metered consumption	kl/annum	2 239 743	2 598 648	0		4 462 211	4 022 325	
	Billed unmetered consumption	kl/annum	403 200	478 805	540 000		12 948		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 642 943	3 077 453	540 000	0	4 475 159	4 022 325	0
	Non-Revenue water	kl/annum	594 390	272 730	3 682 833	0	591 062	2 192 240	0
	Water Losses	kl/annum	594 390	272 730	3 682 833	0	591 062	2 192 240	0
	% Non-revenue water		18.4%	8.1%	87.2%	No data	11.7%	35.3%	No data
	% Water Losses		18.4%	8.1%	87.2%	No data	11.7%	35.3%	No data
Key performance indicators	Input : Litres / capita / day		367	377	473	No data	558	661	No data
	Input: m³ / household / month		45	47	59	No data	69	82	No data
	Billed : Litres / capita / day		299	347	60	No data	492	428	No data
	Billed : m³ / household / month		37	43	7	No data	61	53	No data
	% Population growth			0.61%	0.60%	1.12%	0.60%	3.45%	
	% Water demand growth			3.49%	26.05%		#DIV/0!	22.67%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS VGG Study		

Municipal NRW Water Balance: Gamagara

Year	Billed metered consumption (kl)	Billed unmetered consumption (kl)	Non-Revenue water (kl)	% Non-revenue Water
Jun-05	2 239 743	403 200	594 390	18.4%
Jun-06	2 598 648	478 805	272 730	8.1%
Jun-07	0	540 000	3 682 833	87.2%
Jun-08			0	No data
Jun-09	4 462 211	12 948	591 062	11.7%
Jun-10	4 022 325		2 192 240	35.3%
Jun-14			0	No data

Comments

National Non-Revenue Water Assessment

Western Cape Province

July 2011



Introductory notes

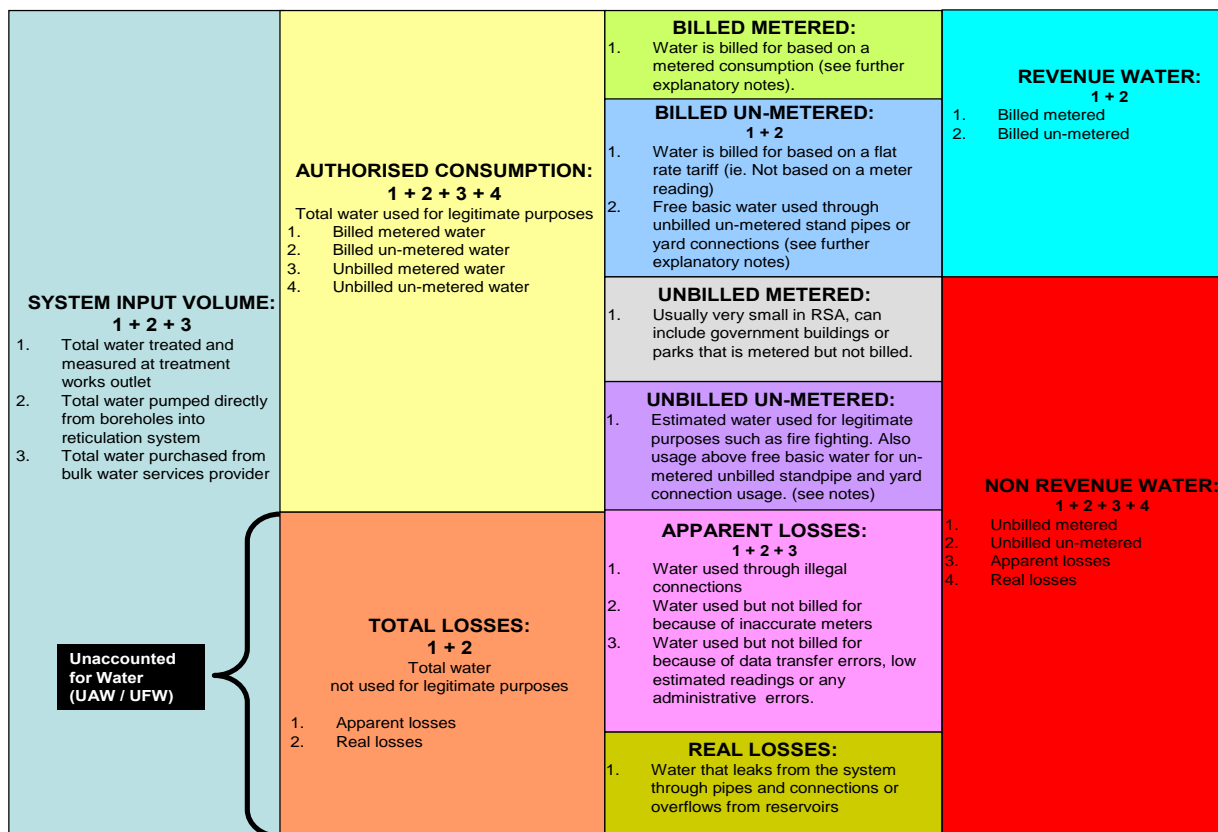
Terminology

Acronym	Description	Link
DWA	Department of Water Affairs	http://www.dwa.gov.za
WS RPMS	Water Services : Regulatory Performance Measurement System	http://www.dwa.gov.za/dir_ws/rpms/
WS NIS	Water Services : National Information System	http://www.dwa.gov.za/dir_ws/wsis/
FBS	Water Services : Free Basic Water Project	http://www.dwa.gov.za/dir_ws/fbw/
NRW	Non-revenue water. Volume of water for which no revenue is received (preferred term)	
UAW or UFW	Unaccounted-for water. Volume of water lost due to physical and apparent losses (not preferred term)	
StatsSA NEC	Statistics South Africa : Non-Financial Census of Municipalities P9115	http://www.statssa.gov.za/

Information sources

Item	Source	Calculation
Population	DWA WS NIS or municipality	
Households	DWA WS NIS or municipality	
Connections - metered	Extrapolated 2007 DWA - WS FBW serviced above RDP or municipality	
Connections - Unmetered	Extrapolated 2007 DWA - WS FBW serviced at RDP or municipality	
Length of mains (km)	Actual value or calculated at average of 50 connections / km of mains	# connections ÷ 50
(A) System input volume	Total volume of potable water supplied by the municipality in k/annum	
(B) Billed metered consumption	Total volume of water metered and billed by the municipality in k/annum	
(C) Billed unmetered consumption	Total volume of water unmetered and billed by the municipality in k/annum	
Underlined values	Calculated values using trends or averages	

Standard IWA Water Balance

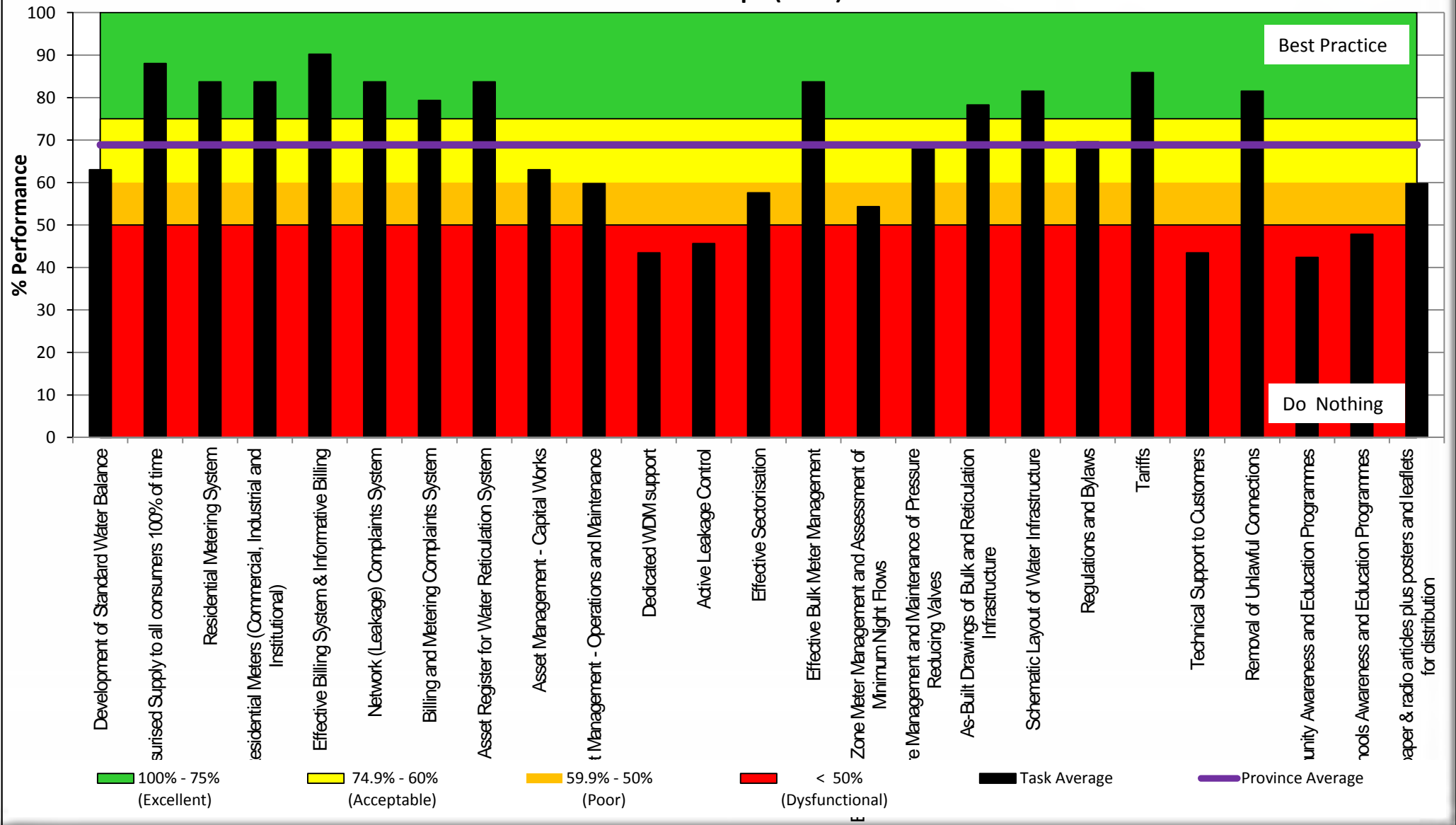


Province: Western Cape					
No	Municipal Code	District Municipality	Municipality	Category	WSA
1	CPT	City of Cape Town Metro	City of Cape Town Metro	A	Yes
2	DC1	West Coast	West Coast DM	C1	Yes
3	WC011	West Coast	Matzikama	B3	Yes
4	WC012	West Coast	Cederberg	B3	Yes
5	WC013	West Coast	Bergriver	B3	Yes
6	WC014	West Coast	Saldanha Bay	B2	Yes
7	WC015	West Coast	Swartland	B3	Yes
8	DC2	Cape Winelands	Cape Winelands DM	C1	Yes
9	WC022	Cape Winelands	Witzenberg	B3	Yes
10	WC023	Cape Winelands	Drakenstein	B1	Yes
11	WC024	Cape Winelands	Stellenbosch	B1	Yes
12	WC025	Cape Winelands	Breda Valley	B2	Yes
13	WC026	Cape Winelands	Breda River/Winelands	B3	Yes
14	DC3	Overberg	Overberg DM	C1	Yes
15	WC031	Overberg	Theewaterskloof	B3	Yes
16	WC032	Overberg	Overstrand	B2	Yes
17	WC033	Overberg	Cape Agulhas	B3	Yes
18	WC034	Overberg	Swellendam	B3	Yes
19	DC4	Eden	Eden DM	C1	Yes
20	WC041	Eden	Kannaland	B3	Yes
21	WC042	Eden	Hessequa	B3	Yes
22	WC043	Eden	Mossel Bay	B2	Yes
23	WC044	Eden	George	B1	Yes
24	WC045	Eden	Quidsboom	B2	Yes
25	WC047	Eden	Bitou	B3	Yes
26	WC048	Eden	Krystna	B2	Yes
27	DC5	Central Karoo	Central Karoo DM	C1	Yes
28	WC051	Central Karoo	Laingsburg	B3	Yes
29	WC052	Central Karoo	Prince Albert	B3	Yes
30	WC053	Central Karoo	Beaufort West	B3	Yes

National NRW Assessment

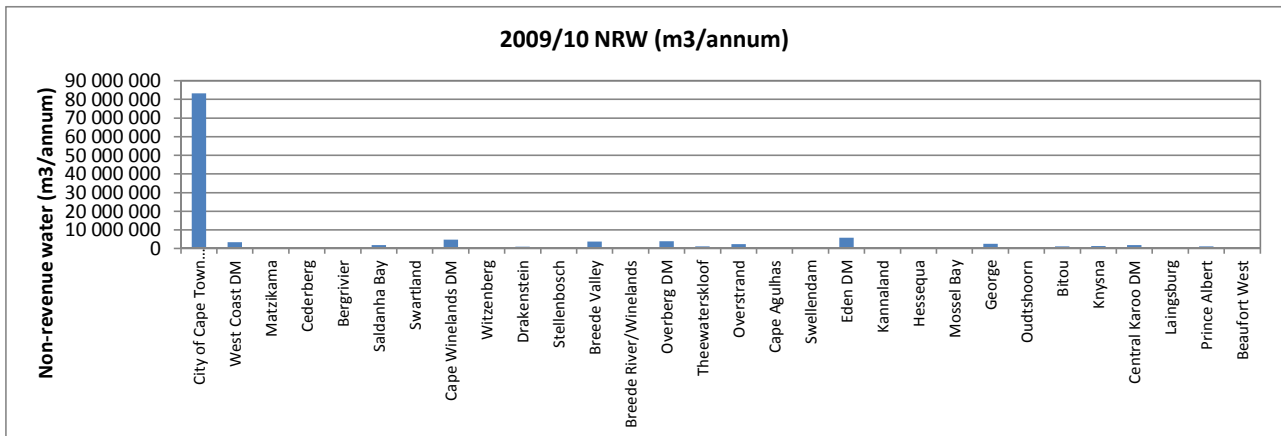
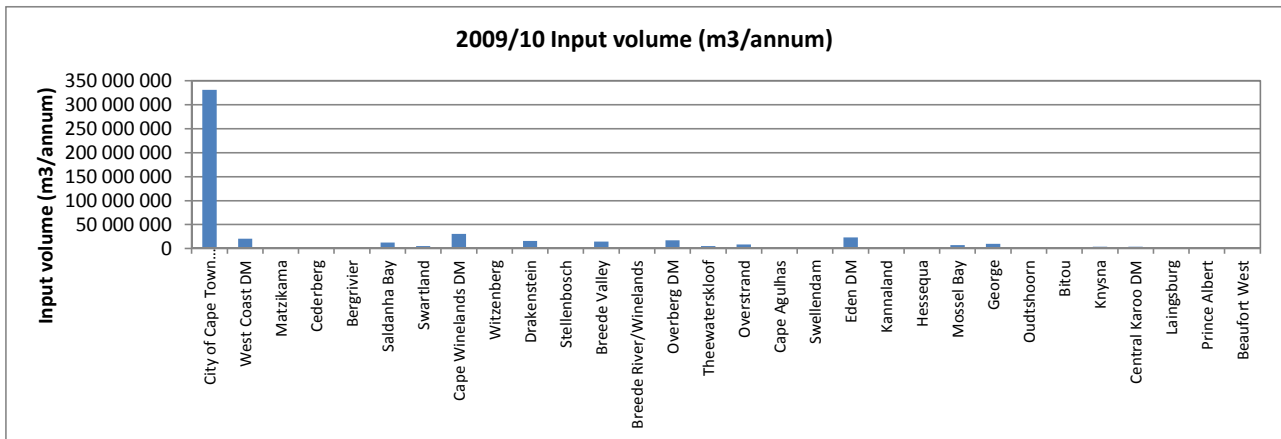
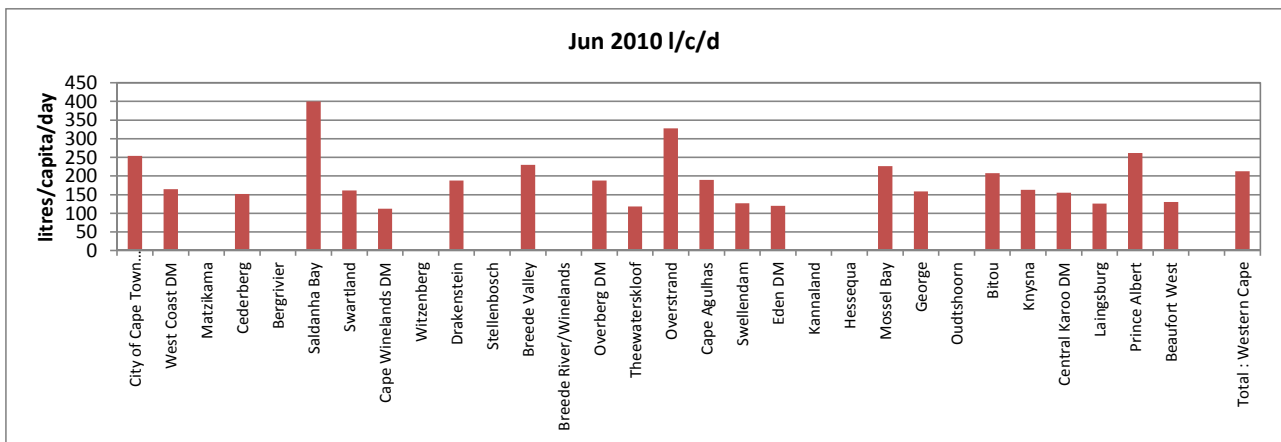
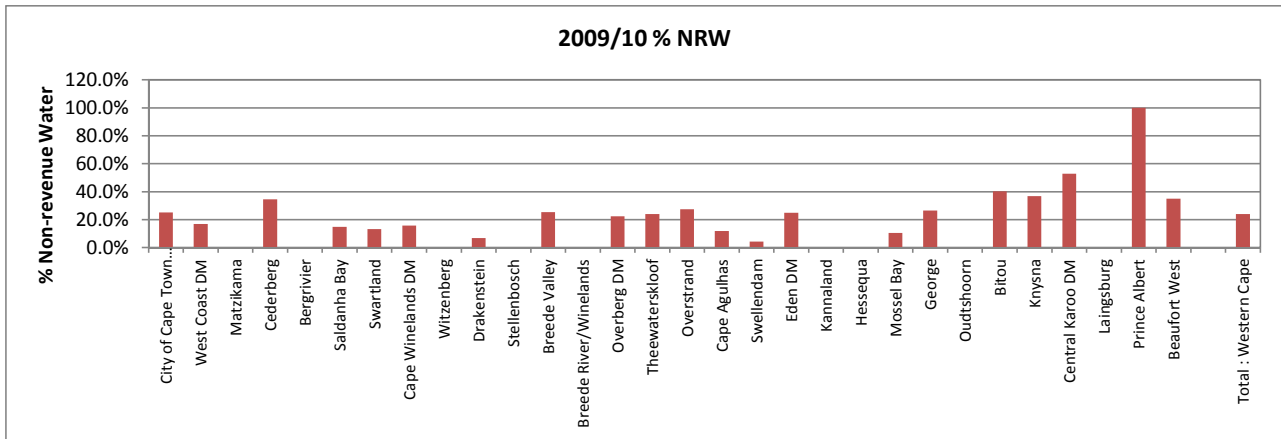


Municipal Scorecard for Assessing the Potential for WC/WDM in Municipalities Western Cape (2010)

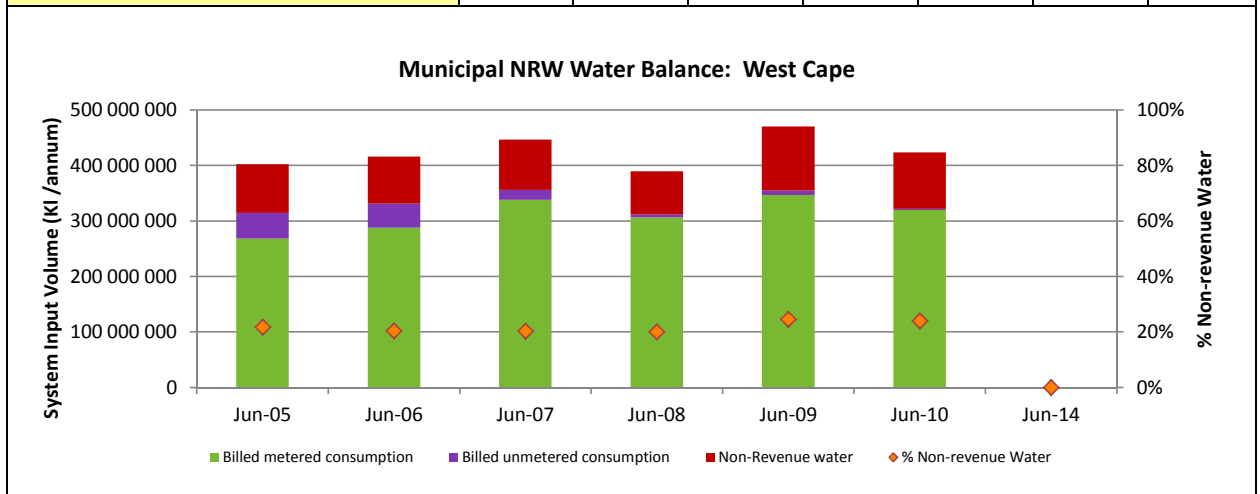


Score	Criteria	# of Records	Comments	Distribution
Record Keeping 26				
1	No records	0	Good records keeping is the first step towards water management and reducing water losses	
2	Poor records	1		
3	Erratic / worthless records	1		
4	Records with gaps or questions	15		
5	Good records no gaps or questions	9		
% NRW 26				
0	No records	8	% Non-revenue water (volume of water for which no income is received). Current estimated national average $\pm 35\%$	
1	>50%	0		
2	>40% <=50%	1		
3	>30% <=40%	2		
4	>20% <=30%	7		
5	<=20%	8		
litres / capita / day 26				
0	No records	8	Average litres / capita / day based on system input volume. Expected average around 200l/c/d.	
1	>400	0		
2	>300 and <=400	2		
3	>200 and <=300	4		
4	>100 and <=200	12		
5	<=100	0		
NRW Activity 26				
1	No activity	1	Based on local knowledge, scorecard, available records.	
2	Very limited activity	0		
3	Some activity, part of O&M	13		
4	Small scale active programme	9		
5	Large scale active programme	3		
Potential NRW Impact 26				
1	<=50,000	5	Potential impact of intervention based on population. High population = high consumption = higher potential saving.	
2	>50,000 <=100,000	10		
3	>100,000 <=200,000	5		
4	>200,000 <=500,000	3		
5	>500,000	3		

Key Performance Indicators



Province		Western Cape						WSA	
Municipal Code									
District Municipality								Category	
Municipality									
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	4 883 133	4 995 762	5 025 745	5 166 455	5 197 447	5 458 337	0	
	Households	1 331 538	1 362 319	1 370 475	1 408 865	1 417 307	1 406 093	0	
	Connections - metered	243 227	248 587	261 120	267 619	311 201	1 345 594	0	
	Connections - Unmetered	15 864	16 216	16 312	16 770	16 870	317 213	0	
	Length of mains (km)	5 182	5 296	5 451	6 599	7 015	673 778	0	
	System input volume	kl/annum	402 109 370	416 270 415	446 469 624	389 543 562	470 475 734	423 415 843	0
	Billed metered consumption	kl/annum	268 651 842	287 799 196	338 174 215	306 780 081	346 972 081	319 584 943	0
	Billed unmetered consumption	kl/annum	45 662 323	43 501 015	17 830 542	4 700 417	7 880 493	2 525 132	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	314 314 165	331 300 211	356 004 757	311 480 498	354 852 574	322 110 075	0
	Non-Revenue water	kl/annum	87 795 205	84 970 204	90 464 867	78 063 064	115 623 160	101 305 768	0
	Water Losses	kl/annum	87 795 205	84 970 204	90 464 867	78 063 064	115 623 160	101 305 768	0
	% Non-revenue water		21.8%	20.4%	20.3%	20.0%	24.6%	23.9%	No data
	% Water Losses		21.8%	20.4%	20.3%	20.0%	24.6%	23.9%	No data
Key performance indicators	Input : Litres / capita / day		226	228	243	207	248	213	No data
	Input: m ³ / household / month		25	25	27	23	28	25	No data
	Billed : Litres / capita / day		176	182	194	165	187	162	No data
	Billed : m ³ / household / month		20	20	22	18	21	19	No data
	% Population growth			2.31%	0.60%	2.80%	0.60%	5.02%	
	% Water demand growth			3.52%	7.25%	-12.75%	20.78%	-10.00%	
Source of information		DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS	DWA NIS		



Comments

Province		Western Cape						WSA	
Municipal Code		CPT						Yes	
District Municipality		City of Cape Town						Category	
Municipality		City of Cape Town						A	
Settlements		ATLANTIS, BELHAR, EERSTERIVIER, KHAYELITSHA, PAARL						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	3 169 041	3 241 420	3 260 871	3 352 175	3 372 289	3 572 221		
	Households	873 735	893 691	899 054	924 224	929 768	902 279		
	Connections - metered						604 248		
	Connections - Unmetered						298 031		
	Length of mains (km)						663 983		
	System input volume	kl/annum	282 738 423	294 495 896	308 431 938	315 555 297	325 691 626	331 062 488	
	Billed metered consumption	kl/annum	180 746 365	197 293 056	242 740 152	251 745 818	249 790 408	247 787 926	
	Billed unmetered consumption	kl/annum	35 032 189	31 625 136	4 238 400	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	215 778 554	228 918 192	246 978 552	251 745 818	249 790 408	247 787 926	0
	Non-Revenue water	kl/annum	66 959 869	65 577 704	61 453 386	63 809 479	75 901 218	83 274 562	0
	Water Losses	kl/annum	66 959 869	65 577 704	61 453 386	63 809 479	75 901 218	83 274 562	0
	% Non-revenue water		23.7%	22.3%	19.9%	20.2%	23.3%	25.2%	No data
	% Water Losses		23.7%	22.3%	19.9%	20.2%	23.3%	25.2%	No data
Key performance indicators	Input : Litres / capita / day		244	249	259	258	265	254	No data
	Input: m³ / household / month		27	27	29	28	29	31	No data
	Billed : Litres / capita / day		187	193	208	206	203	190	No data
	Billed : m³ / household / month		21	21	23	23	22	23	No data
	% Population growth			2.28%	0.60%	2.80%	0.60%	5.93%	
	% Water demand growth			4.16%	4.73%	2.31%	3.21%	1.65%	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS Municipality	DWA NIS Municipality	DWA NIS Municipality		

Municipal NRW Water Balance: City of Cape Town

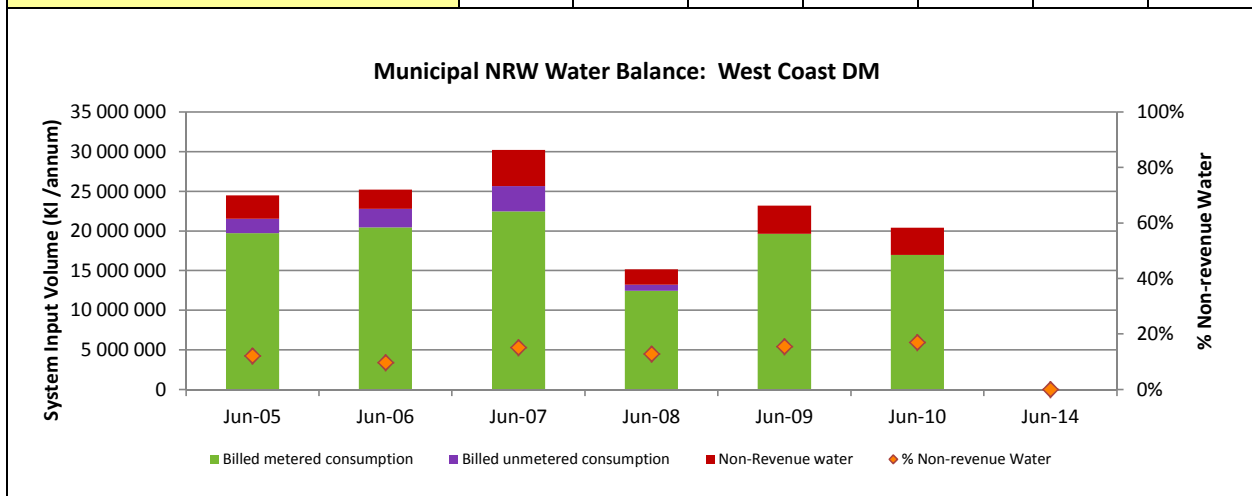
Year	Billed metered consumption	Billed unmetered consumption	Non-Revenue water
Jun-05	180 746 365	35 032 189	66 959 869
Jun-06	197 293 056	31 625 136	65 577 704
Jun-07	242 740 152	4 238 400	61 453 386
Jun-08	251 745 818	0	63 809 479
Jun-09	249 790 408	0	75 901 218
Jun-10	247 787 926	0	83 274 562

Comments

National NRW Assessment



Province		Western Cape						WSA	
Municipal Code		DC01						Yes	
District Municipality		West Coast						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	309 183	317 155	319 059	327 989	329 961	340 379	0	
	Households	84 281	86 454	86 969	89 404	89 939	92 785	0	
	Connections - metered	27 354	28 059	39 270	39 561	46 540	71 016	0	
	Connections - Unmetered	1 505	1 544	1 553	1 597	1 606	1 650	0	
	Length of mains (km)	577	592	596	612	995	1 871	0	
	System input volume	kl/annum	24 488 299	25 229 983	30 205 861	15 143 029	23 200 647	20 417 029	0
	Billed metered consumption	kl/annum	19 728 919	20 464 008	22 452 138	12 467 842	19 626 753	16 962 244	0
	Billed unmetered consumption	kl/annum	1 789 103	2 337 080	3 203 892	741 949	0	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	21 518 022	22 801 088	25 656 030	13 209 791	19 626 753	16 962 244	0
	Non-Revenue water	kl/annum	2 970 277	2 428 895	4 549 831	1 933 239	3 573 894	3 454 785	0
	Water Losses	kl/annum	2 970 277	2 428 895	4 549 831	1 933 239	3 573 894	3 454 785	0
	% Non-revenue water		12.1%	9.6%	15.1%	12.8%	15.4%	16.9%	No data
	% Water Losses		12.1%	9.6%	15.1%	12.8%	15.4%	16.9%	No data
Key performance indicators	Input : Litres / capita / day		217	218	259	126	193	164	No data
	Input: m ³ / household / month		24	24	29	14	21	18	No data
	Billed : Litres / capita / day		191	197	220	110	163	137	No data
	Billed : m ³ / household / month		21	22	25	12	18	15	No data
	% Population growth			2.58%	0.60%	2.80%	0.60%	3.16%	
	% Water demand growth			3.03%	19.72%	-49.87%	53.21%	-12.00%	
Source of information									



Comments

Province		Western Cape						WSA	
Municipal Code		WC011						Yes	
District Municipality		West Coast						Category	
Municipality		Matzikama						B3	
Settlements		VREDENDAL						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	56 187	57 635	57 981	59 606	59 965	62 113		
	Households	16 560	16 986	17 085	17 568	17 672	18 307		
	Connections - metered	15 643	16 045	16 444	16 563	16 663	17 260		
	Connections - Unmetered	1 047	1 074	1 080	1 111	1 148	1 158		
	Length of mains (km)	333	342	344	353	356	368		
	System input volume	kl/annum	4 715 700	4 422 000	7 089 038		5 523 256		
	Billed metered consumption	kl/annum	3 176 000	3 326 000	5 483 680		3 333 018		
	Billed unmetered consumption	kl/annum	503 000	496 000	540 000				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	3 679 000	3 822 000	6 023 680	0	3 333 018	0	
	Non-Revenue water	kl/annum	1 036 700	600 000	1 065 358	0	2 190 238	0	
	Water Losses	kl/annum	1 036 700	600 000	1 065 358	0	2 190 238	0	
	% Non-revenue water		22.0%	13.6%	15.0%	No data	39.7%	No data	No data
	% Water Losses		22.0%	13.6%	15.0%	No data	39.7%	No data	No data
Key performance indicators	Input : Litres / capita / day		230	210	335	No data	252	No data	No data
	Input: m ³ / household / month		24	22	35	No data	26	No data	No data
	Billed : Litres / capita / day		179	182	285	No data	152	No data	No data
	Billed : m ³ / household / month		19	19	29	No data	16	No data	No data
	% Population growth			2.58%	0.60%	2.80%	0.60%	3.58%	
	% Water demand growth			-6.23%	60.31%		#DIV/0!		
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		

Municipal NRW Water Balance: Matzikama

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	3 176 000	503 000	1 036 700	22.0%
Jun-06	3 326 000	496 000	600 000	13.6%
Jun-07	5 483 680	540 000	1 065 358	15.0%
Jun-08	0	0	0	No data
Jun-09	3 333 018	0	2 190 238	39.7%
Jun-10	0	0	0	No data
Jun-14	0	0	0	No data

Comments	

Province		Western Cape						WSA	
Municipal Code		WC012						Yes	
District Municipality		West Coast						Category	
Municipality		Cederberg						B3	
Settlements		Citrusdal						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	43 865	44 998	45 268	46 533	46 814	47 098		
	Households	12 123	12 437	12 510	12 863	12 940	13 018		
	Connections - metered	41 744	42 044	42 446	42 455	42 530	42 606		
	Connections - Unmetered	458	470	473	486	489	492		
	Length of mains (km)	244	250	252	259	260	262		
	System input volume	kl/annum	2 385 640	2 858 000	2 857 880	2 611 029	2 342 596	2 611 029	
	Billed metered consumption	kl/annum	1 763 145	1 439 052	1 300 185	1 711 244	2 342 596	1 711 244	
	Billed unmetered consumption	kl/annum	438 591	793 872	993 384	741 949			
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 201 736	2 232 924	2 293 569	2 453 193	2 342 596	1 711 244	0
	Non-Revenue water	kl/annum	183 904	625 076	564 311	157 836	0	899 785	0
	Water Losses	kl/annum	183 904	625 076	564 311	157 836	0	899 785	0
	% Non-revenue water		7.7%	21.9%	19.7%	6.0%	Check data	34.5%	No data
	% Water Losses		7.7%	21.9%	19.7%	6.0%	No data	34.5%	No data
Key performance indicators	Input : Litres / capita / day		149	174	173	154	137	152	No data
	Input: m ³ / household / month		16	19	19	17	15	17	No data
	Billed : Litres / capita / day		138	136	139	144	137	100	No data
	Billed : m ³ / household / month		15	15	15	16	15	11	No data
	% Population growth			2.58%	0.60%	2.79%	0.60%	0.61%	
	% Water demand growth			19.80%	0.00%	-8.64%	-10.28%	11.46%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS		

Municipal NRW Water Balance: Cederberg

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	1 763 145	438 591	183 904	7.7%
Jun-06	1 439 052	793 872	625 076	21.9%
Jun-07	1 300 185	993 384	564 311	19.7%
Jun-08	1 711 244	741 949	157 836	6.0%
Jun-09	2 342 596	0	0	0%
Jun-10	1 711 244	0	899 785	34.5%
Jun-14	1 711 244	0	0	0%

Comments

Province		Western Cape						WSA
Municipal Code		WC013						Yes
District Municipality		West Coast						Category
Municipality		Bergrivier						B3
Settlements		Velddrif						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	52 318	53 666	53 991	55 505	55 841	57 265	
	Households	13 895	14 256	14 342	14 739	14 827	15 204	
	Connections - metered							
	Connections - Unmetered							
	Length of mains (km)						224	
	System input volume	kl/annum	2 605 443	2 631 237	2 562 307		2 636 795	
	Billed metered consumption	kl/annum	1 939 375	1 822 827	2 098 072		2 501 741	
	Billed unmetered consumption	kl/annum	128 160	203 472	250 308		0	
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	2 067 535	2 026 299	2 348 380	0	2 501 741	0
	Non-Revenue water	kl/annum	537 908	604 938	213 927	0	135 054	0
	Water Losses	kl/annum	537 908	604 938	213 927	0	135 054	0
	% Non-revenue water		20.6%	23.0%	8.3%	No data	5.1%	No data
	% Water Losses		20.6%	23.0%	8.3%	No data	5.1%	No data
Key performance indicators	Input : Litres / capita / day		136	134	130	No data	129	No data
	Input: m ³ / household / month		16	15	15	No data	15	No data
	Billed : Litres / capita / day		108	103	119	No data	123	No data
	Billed : m ³ / household / month		12	12	14	No data	14	No data
	% Population growth			2.58%	0.61%	2.80%	0.61%	2.55%
	% Water demand growth			0.99%	-2.62%		#DIV/0!	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS	

Municipal NRW Water Balance: Bergrivier

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	1 939 375	128 160	537 908	20.6%
Jun-06	1 822 827	203 472	604 938	23.0%
Jun-07	2 098 072	250 308	213 927	8.3%
Jun-08			0	No data
Jun-09	2 501 741	0	135 054	5.1%
Jun-10			0	No data
Jun-14			0	No data

Comments

Province		Western Cape						WSA	
Municipal Code		WC014						Yes	
District Municipality		West Coast						Category	
Municipality		Saldanha Bay						B2	
Settlements		DIAZVILLE, VREDENBURG						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	78 082	80 094	80 574	82 827	83 323	87 066		
	Households	21 759	22 319	22 453	23 081	23 220	24 262		
	Connections - metered						23 237		
	Connections - Unmetered								
	Length of mains (km)						524		
	System input volume	kl/annum	10 883 314	11 025 198	12 624 000	12 532 000	12 440 000	12 697 000	
	Billed metered consumption	kl/annum	9 853 402	10 975 000	10 291 797	10 756 598	11 221 398	10 815 000	
	Billed unmetered consumption	kl/annum	240 912	268 335	283 968		0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	10 094 314	11 243 335	10 575 765	10 756 598	11 221 398	10 815 000	0
	Non-Revenue water	kl/annum	789 000	-218 137	2 048 235	1 775 403	1 218 602	1 882 000	0
	Water Losses	kl/annum	789 000	-218 137	2 048 235	1 775 403	1 218 602	1 882 000	0
	% Non-revenue water		7.2%	Check data	16.2%	14.2%	9.8%	14.8%	No data
	% Water Losses		7.2%	Check data	16.2%	14.2%	9.8%	14.8%	No data
Key performance indicators	Input : Litres / capita / day		382	377	429	415	409	400	No data
	Input: m ³ / household / month		42	41	47	45	45	44	No data
	Billed : Litres / capita / day		354	385	360	356	369	340	No data
	Billed : m ³ / household / month		39	42	39	39	40	37	No data
	% Population growth			2.58%	0.60%	2.80%	0.60%	4.49%	
	% Water demand growth			1.30%	14.50%	-0.73%	-0.73%	2.07%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS Municipality		

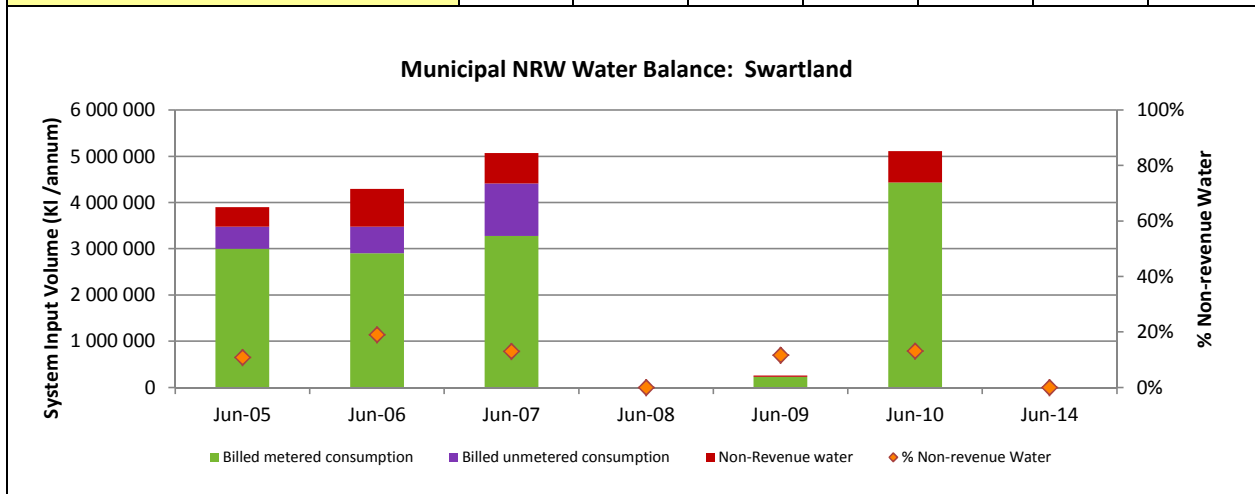
Municipal NRW Water Balance: Saldanha Bay

The chart displays the following data points for System Input Volume (kl/annum) and % Non-revenue Water:

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	9 853 402	240 912	789 000	7.2%
Jun-06	10 975 000	268 335	-218 137	Check data
Jun-07	10 291 797	283 968	2 048 235	16.2%
Jun-08	10 756 598		1 775 403	14.2%
Jun-09	11 221 398	0	1 218 602	9.8%
Jun-10	10 815 000		1 882 000	14.8%
Jun-14				No data

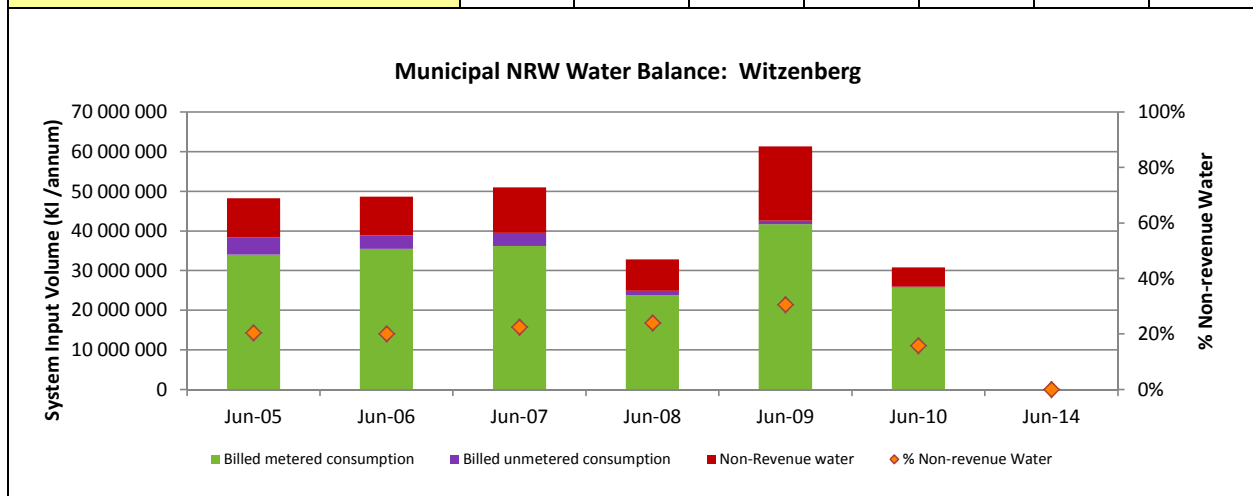
Comments

Province		Western Cape						WSA	
Municipal Code		WC015						Yes	
District Municipality		West Coast						Category	
Municipality		Swartland						B3	
Settlements		MALMESBURY						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	78 731	80 762	81 245	83 518	84 018	86 837		
	Households	19 944	20 456	20 579	21 153	21 280	21 994		
	Connections - metered			11 042	10 543	17 347	17 913		
	Connections - Unmetered			0	0	0	0		
	Length of mains (km)					379	493		
	System input volume	kl/annum	3 898 202	4 293 548	5 072 636		258 000	5 109 000	
	Billed metered consumption	kl/annum	2 996 997	2 901 129	3 278 404		228 000	4 436 000	
	Billed unmetered consumption	kl/annum	478 440	575 401	1 136 232	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	3 475 437	3 476 530	4 414 636	0	228 000	4 436 000	0
	Non-Revenue water	kl/annum	422 765	817 018	658 000	0	30 000	673 000	0
	Water Losses	kl/annum	422 765	817 018	658 000	0	30 000	673 000	0
	% Non-revenue water		10.8%	19.0%	13.0%	No data	11.6%	13.2%	No data
	% Water Losses		10.8%	19.0%	13.0%	No data	11.6%	13.2%	No data
Key performance indicators	Input : Litres / capita / day		136	146	171	No data	8	161	No data
	Input: m ³ / household / month		16	17	21	No data	1	19	No data
	Billed : Litres / capita / day		121	118	149	No data	7	140	No data
	Billed : m ³ / household / month		15	14	18	No data	1	17	No data
	% Population growth			2.58%	0.60%	2.80%	0.60%	3.36%	
	% Water demand growth			10.14%	18.15%		#DIV/0!	1880.23%	
Source of information		DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS StatsSA NFC	DWA NIS	DWA NIS StatsSA NFC	DWA NIS Municipality		



Comments

Province		Western Cape						WSA	
Municipal Code		DC02						Yes	
District Municipality		Cape Winelands						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	681 211	695 067	699 234	718 811	723 114	751 436	0	
	Households	169 477	172 921	173 963	178 836	179 914	186 918	0	
	Connections - metered	121 210	123 675	124 416	127 899	128 665	158 158	0	
	Connections - Unmetered	7 042	7 185	7 229	7 431	7 476	9 384	0	
	Length of mains (km)	2 565	2 617	2 633	2 707	2 723	3 298	0	
	System input volume	kl/annum	48 260 602	48 655 214	50 985 085	32 794 706	61 364 715	30 807 514	0
	Billed metered consumption	kl/annum	34 018 899	35 501 362	36 169 585	23 735 969	41 681 762	25 717 025	0
	Billed unmetered consumption	kl/annum	4 387 248	3 410 663	3 346 620	1 187 082	913 949	223 765	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	38 406 147	38 912 025	39 516 205	24 923 051	42 595 711	25 940 790	0
	Non-Revenue water	kl/annum	9 854 455	9 743 189	11 468 880	7 871 655	18 769 004	4 866 724	0
	Water Losses	kl/annum	9 854 455	9 743 189	11 468 880	7 871 655	18 769 004	4 866 724	0
	% Non-revenue water		20.4%	20.0%	22.5%	24.0%	30.6%	15.8%	No data
	% Water Losses		20.4%	20.0%	22.5%	24.0%	30.6%	15.8%	No data
Key performance indicators	Input : Litres / capita / day		194	192	200	125	232	112	No data
	Input: m ³ / household / month		24	23	24	15	28	14	No data
	Billed : Litres / capita / day		154	153	155	95	161	95	No data
	Billed : m ³ / household / month		19	19	19	12	20	12	No data
	% Population growth			2.03%	0.60%	2.80%	0.60%	3.92%	
	% Water demand growth			0.82%	4.79%	-35.68%	87.12%	-49.80%	
Source of information									



Comments

Province		Western Cape						WSA
Municipal Code		WC022						Yes
District Municipality		Cape Winelands						Category
Municipality		Witzenberg						B3
Settlements		BELLA VISTA, CERES, WOLSELEY						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	92 163	94 039	94 602	97 250	97 835	101 594	
	Households	22 480	22 936	23 075	23 720	23 862	24 779	
	Connections - metered	21 025	21 452	21 584	22 185	22 348	23 176	
	Connections - Unmetered	1 500	1 534	1 540	1 583	1 592	1 654	
	Length of mains (km)	450	460	462	475	478	497	
	System input volume	kl/annum	3 652 445	4 671 402	3 829 562		6 234 396	
	Billed metered consumption	kl/annum	1 435 102	3 854 219	2 958 237		4 691 539	
	Billed unmetered consumption	kl/annum	581 354	702 288	543 811		0	
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	2 016 456	4 556 507	3 502 048	0	4 691 539	0
	Non-Revenue water	kl/annum	1 635 989	114 895	327 514	0	1 542 857	0
	Water Losses	kl/annum	1 635 989	114 895	327 514	0	1 542 857	0
	% Non-revenue water		44.8%	2.5%	8.6%	No data	24.7%	No data
	% Water Losses		44.8%	2.5%	8.6%	No data	24.7%	No data
Key performance indicators	Input : Litres / capita / day		109	136	111	No data	175	No data
	Input: m ³ / household / month		14	17	14	No data	22	No data
	Billed : Litres / capita / day		60	133	101	No data	131	No data
	Billed : m ³ / household / month		7	17	13	No data	16	No data
	% Population growth			2.04%	0.60%	2.80%	0.60%	3.84%
	% Water demand growth			27.90%	-18.02%		#DIV/0!	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS	

Municipal NRW Water Balance: Witzenberg

Year	Billed metered consumption	Billed unmetered consumption	Non-Revenue water
Jun-05	1 435 102	581 354	1 635 989
Jun-06	3 854 219	702 288	114 895
Jun-07	2 958 237	543 811	327 514
Jun-08			0
Jun-09	4 691 539	0	1 542 857
Jun-10			0
Jun-14			0

Comments

Province		Western Cape						WSA	
Municipal Code		WC023						Yes	
District Municipality		Cape Winelands						Category	
Municipality		Drakenstein						B1	
Settlements		MBEKWEN, PAARL, WELLINGTON						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	209 651	213 914	215 197	221 222	222 548	232 469		
	Households	50 270	51 292	51 601	53 044	53 364	55 745		
	Connections - metered	46 582	47 529	47 814	49 153	49 448	51 652		
	Connections - Unmetered	2 140	2 183	2 497	2 258	2 272	2 373		
	Length of mains (km)	974	994	1 000	1 028	1 034	1 080		
	System input volume	kl/annum	14 322 861	16 617 409	15 473 966	16 624 094	16 714 593	15 975 000	
	Billed metered consumption	kl/annum	9 928 824	12 283 938	14 433 204	13 973 743	13 514 281	14 852 000	
	Billed unmetered consumption	kl/annum	1 935 360	218 208	227 784		284 343	32 000	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	11 864 184	12 502 146	14 660 988	13 973 743	13 798 624	14 884 000	0
	Non-Revenue water	kl/annum	2 458 677	4 115 263	812 978	2 650 351	2 915 969	1 091 000	0
	Water Losses	kl/annum	2 458 677	4 115 263	812 978	2 650 351	2 915 969	1 091 000	0
	% Non-revenue water		17.2%	24.8%	5.3%	15.9%	17.4%	6.8%	No data
	% Water Losses		17.2%	24.8%	5.3%	15.9%	17.4%	6.8%	No data
Key performance indicators	Input : Litres / capita / day		187	213	197	206	206	188	No data
	Input: m ³ / household / month		24	27	25	26	26	24	No data
	Billed : Litres / capita / day		155	160	187	173	170	175	No data
	Billed : m ³ / household / month		20	20	24	22	22	22	No data
	% Population growth			2.03%	0.60%	2.80%	0.60%	4.46%	
	% Water demand growth			16.02%	-6.88%	7.43%	0.54%	-4.42%	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS Municipality		

Municipal NRW Water Balance: Drakenstein

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	9 928 824	1 935 360	2 458 677	17.2%
Jun-06	12 283 938	218 208	4 115 263	24.8%
Jun-07	14 433 204	227 784	812 978	5.3%
Jun-08	13 973 743		2 650 351	15.9%
Jun-09	13 514 281	284 343	2 915 969	17.4%
Jun-10	14 852 000		1 091 000	6.8%
Jun-14				

Comments

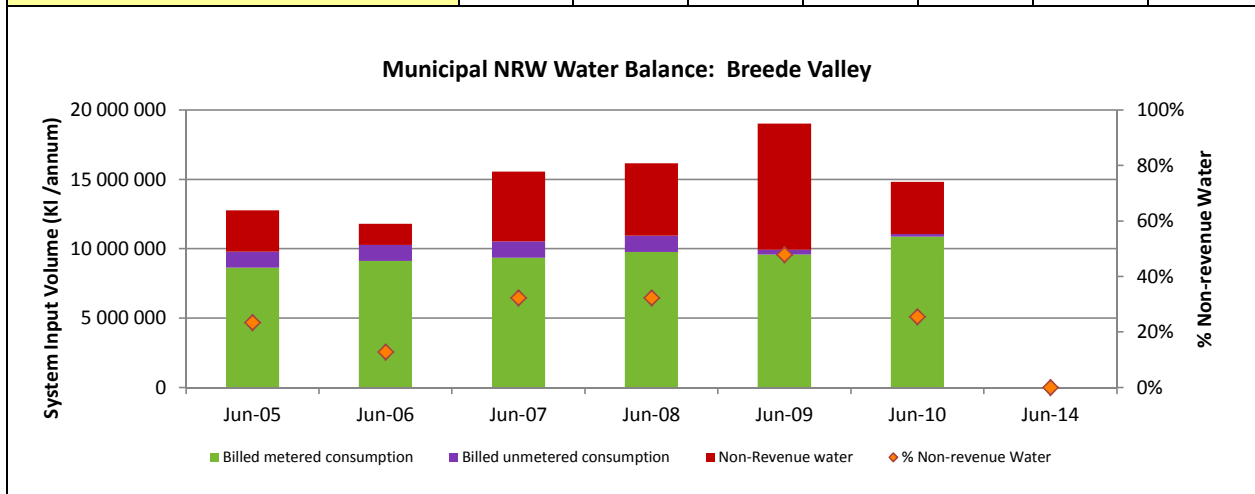
Province		Western Cape						WSA
Municipal Code		WC024						Yes
District Municipality		Cape Winelands						Category
Municipality		Stellenbosch						B1
Settlements		CLOETESVILLE, STELLENBOSCH, GROENDAL, KAYA MANDI						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	129 213	131 842	132 633	136 347	137 163	142 030	
	Households	33 124	33 799	34 002	34 954	35 165	36 412	
	Connections - metered	29 924	30 533	30 716	31 576	31 765	32 892	
	Connections - Unmetered	2 519	2 570	2 586	2 658	2 674	2 769	
	Length of mains (km)	649	662	666	685	689	713	
	System input volume	kl/annum	11 931 000	9 608 843	9 571 524		12 335 345	
	Billed metered consumption	kl/annum	9 890 000	5 418 214	4 898 480		9 866 904	
	Billed unmetered consumption	kl/annum	0	604 728	642 456		0	
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	9 890 000	6 022 942	5 540 936	0	9 866 904	0
	Non-Revenue water	kl/annum	2 041 000	3 585 901	4 030 588	0	2 468 441	0
	Water Losses	kl/annum	2 041 000	3 585 901	4 030 588	0	2 468 441	0
	% Non-revenue water		17.1%	37.3%	42.1%	No data	20.0%	No data
	% Water Losses		17.1%	37.3%	42.1%	No data	20.0%	No data
Key performance indicators	Input : Litres / capita / day		253	200	198	No data	246	No data
	Input: m ³ / household / month		30	24	23	No data	29	No data
	Billed : Litres / capita / day		210	125	114	No data	197	No data
	Billed : m ³ / household / month		25	15	14	No data	23	No data
	% Population growth			2.03%	0.60%	2.80%	0.60%	3.55%
	% Water demand growth			-19.46%	-0.39%		#DIV/0!	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS	

Municipal NRW Water Balance: Stellenbosch

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	9 890 000	0	2 041 000	17.1%
Jun-06	5 418 214	604 728	3 585 901	37.3%
Jun-07	4 898 480	642 456	4 030 588	42.1%
Jun-08	0	0	0	No data
Jun-09	9 866 904	0	2 468 441	20.0%
Jun-10	0	0	0	No data
Jun-14	0	0	0	No data

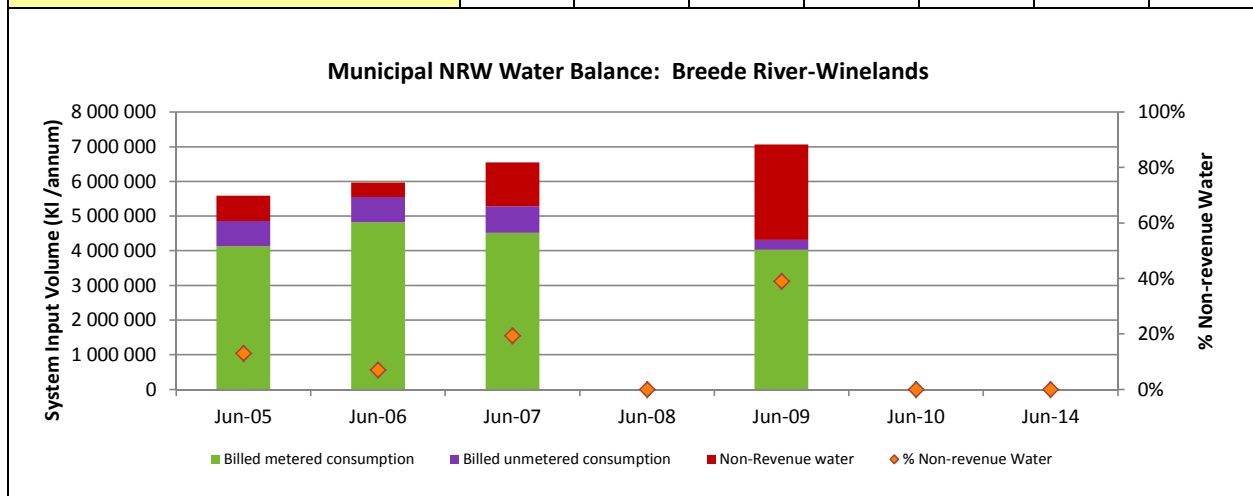
Comments

Province		Western Cape						WSA	
Municipal Code		WC025						Yes	
District Municipality		Cape Winelands						Category	
Municipality		Breede Valley						B2	
Settlements		DE DOORNS, WORCESTER, ZWELTEMBA						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	159 844	163 097	164 076	168 671	169 678	176 795		
	Households	39 189	39 984	40 224	41 354	41 602	43 343		
	Connections - metered						24 607		
	Connections - Unmetered						1 625		
	Length of mains (km)						472		
	System input volume	kl/annum	12 771 000	11 788 000	15 563 590	16 470 612	19 012 041	14 832 514	
	Billed metered consumption	kl/annum	8 640 000	9 123 011	9 360 177	9 762 226	9 585 519	10 865 025	
	Billed unmetered consumption	kl/annum	1 140 000	1 152 838	1 172 069	1 487 082	336 032	191 765	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	9 780 000	10 275 849	10 532 246	10 949 308	9 921 551	11 056 790	0
	Non-Revenue water	kl/annum	2 991 000	1 512 151	5 031 344	5 221 304	9 090 490	3 775 724	0
	Water Losses	kl/annum	2 991 000	1 512 151	5 031 344	5 221 304	9 090 490	3 775 724	0
	% Non-revenue water		23.4%	12.8%	32.3%	32.3%	47.8%	25.5%	No data
	% Water Losses		23.4%	12.8%	32.3%	32.3%	47.8%	25.5%	No data
Key performance indicators	Input : Litres / capita / day		219	198	260	263	307	230	No data
	Input: m ³ / household / month		27	25	32	33	38	29	No data
	Billed : Litres / capita / day		168	173	176	178	160	171	No data
	Billed : m ³ / household / month		21	21	22	22	20	21	No data
	% Population growth			2.04%	0.60%	2.80%	0.60%	4.19%	
	% Water demand growth			-7.70%	32.03%	3.90%	17.57%	-21.98%	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS		



Comments

Province		Western Cape						WSA
Municipal Code		WC026						Yes
District Municipality		Cape Winelands						Category
Municipality		Breede River-Winelands						B3
Settlements		ASHBURY, MONTAGU, ROBERTSON						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	90 340	92 175	92 726	95 321	95 890	98 548	
	Households	24 414	24 910	25 061	25 764	25 921	26 639	
	Connections - metered	23 679	24 160	24 305	24 985	25 134	25 834	
	Connections - Unmetered	883	904	907	932	938	964	
	Length of mains (km)	494	504	504	518	524	536	
	System input volume	kl/annum	5 583 296	5 969 560	6 546 443		7 068 340	
	Billed metered consumption	kl/annum	4 124 973	4 821 980	4 519 487		4 023 519	
	Billed unmetered consumption	kl/annum	730 534	732 601	760 500		293 574	
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	4 855 507	5 554 581	5 279 987	0	4 317 093	0
	Non-Revenue water	kl/annum	727 789	414 979	1 266 456	0	2 751 247	0
	Water Losses	kl/annum	727 789	414 979	1 266 456	0	2 751 247	0
	% Non-revenue water		13.0%	7.0%	19.3%	No data	38.9%	No data
	% Water Losses		13.0%	7.0%	19.3%	No data	38.9%	No data
Key performance indicators	Input : Litres / capita / day		169	177	193	No data	202	No data
	Input: m ³ / household / month		19	20	22	No data	23	No data
	Billed : Litres / capita / day		147	165	156	No data	123	No data
	Billed : m ³ / household / month		17	19	18	No data	14	No data
	% Population growth			2.03%	0.60%	2.80%	0.60%	2.77%
	% Water demand growth			6.92%	9.66%		#DIV/0!	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS	



Comments

Province		Western Cape						WSA	
Municipal Code		DC03						Yes	
District Municipality		Overberg						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	228 445	235 384	236 800	243 433	244 893	253 494	0	
	Households	66 935	68 972	69 386	71 328	71 753	74 325	0	
	Connections - metered	0	0	0	0	25 989	64 047	0	
	Connections - Unmetered	0	0	0	0	0	0	0	
	Length of mains (km)	0	0	123	810	812	1 341	0	
	System input volume	kl/annum	14 154 476	13 050 111	15 878 267	11 916 331	17 682 708	17 395 567	0
	Billed metered consumption	kl/annum	9 491 655	8 486 592	8 346 483	8 962 064	9 301 096	13 071 932	0
	Billed unmetered consumption	kl/annum	1 741 138	1 770 314	1 134 595	411 816	894 317	432 340	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	11 232 793	10 256 906	9 481 078	9 373 880	10 195 413	13 504 272	0
	Non-Revenue water	kl/annum	2 921 683	2 793 205	6 397 189	2 542 451	7 487 295	3 891 295	0
	Water Losses	kl/annum	2 921 683	2 793 205	6 397 189	2 542 451	7 487 295	3 891 295	0
	% Non-revenue water		20.6%	21.4%	40.3%	21.3%	42.3%	22.4%	No data
	% Water Losses		20.6%	21.4%	40.3%	21.3%	42.3%	22.4%	No data
Key performance indicators	Input : Litres / capita / day		170	152	184	134	198	188	No data
	Input: m ³ / household / month		18	16	19	14	21	20	No data
	Billed : Litres / capita / day		135	119	110	105	114	146	No data
	Billed : m ³ / household / month		14	12	11	11	12	15	No data
	% Population growth			3.04%	0.60%	2.80%	0.60%	3.51%	
	% Water demand growth			-7.80%	21.67%	-24.95%	48.39%	-1.62%	
Source of information									

Municipal NRW Water Balance: Overberg DM

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	9 491 655	1 741 138	2 921 683	20.6%
Jun-06	8 486 592	1 770 314	2 793 205	21.4%
Jun-07	8 346 483	1 134 595	6 397 189	40.3%
Jun-08	8 962 064	411 816	2 542 451	21.3%
Jun-09	9 301 096	894 317	7 487 295	42.3%
Jun-10	13 071 932	432 340	3 891 295	22.4%
Jun-14				

Comments

Province		Western Cape						WSA	
Municipal Code		WC031						Yes	
District Municipality		Overberg						Category	
Municipality		Theewaterskloof						B3	
Settlements		BERGSIG, CALEDON, GRABOUW						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	104 164	107 330	107 974	110 997	111 662	115 549		
	Households	27 032	27 850	28 019	28 801	28 973	29 980		
	Connections - metered						29 980		
	Connections - Unmetered						0		
	Length of mains (km)						282		
	System input volume	kl/annum	4 002 913	2 192 191	4 203 893		5 010 298	4 983 352	
	Billed metered consumption	kl/annum	3 125 354	1 154 703	0			3 790 089	
	Billed unmetered consumption	kl/annum	876 528	816 552	0			0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	4 001 882	1 971 255	0	0	0	3 790 089	0
	Non-Revenue water	kl/annum	1 031	220 936	4 203 893	0	5 010 298	1 193 263	0
	Water Losses	kl/annum	1 031	220 936	4 203 893	0	5 010 298	1 193 263	0
	% Non-revenue water		0.0%	10.1%	No data	No data	No data	23.9%	No data
	% Water Losses		0.0%	10.1%	100.0%	No data	100.0%	23.9%	No data
Key performance indicators	Input : Litres / capita / day		105	56	107	No data	123	118	No data
	Input: m ³ / household / month		12	7	13	No data	14	14	No data
	Billed : Litres / capita / day		105	50	No data	No data	No data	90	No data
	Billed : m ³ / household / month		12	6	No data	No data	No data	11	No data
	% Population growth			3.04%	0.60%	2.80%	0.60%	3.48%	
	% Water demand growth			-45.24%	91.77%		#DIV/0!	-0.54%	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS		

Municipal NRW Water Balance: Theewaterskloof

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	3 125 354	876 528	0	0%
Jun-06	1 154 703	816 552	220 936	10.1%
Jun-07	0	0	4 203 893	100.0%
Jun-08	0	0	0	#DIV/0!
Jun-09	0	0	5 010 298	100.0%
Jun-10	3 790 089	0	1 193 263	23.9%
Jun-14	3 790 089	0	0	23.9%

Comments

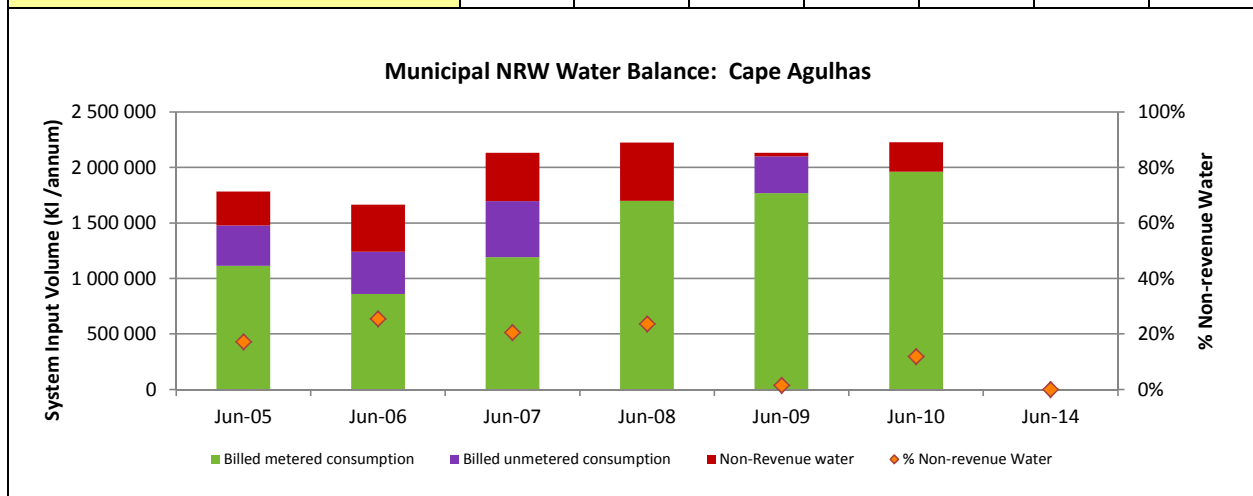
Province		Western Cape						WSA	
Municipal Code		WC032						Yes	
District Municipality		Overberg						Category	
Municipality		Overstrand						B2	
Settlements		HERMANUS						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	64 332	66 285	66 684	68 553	68 965	72 179		
	Households	22 597	23 289	23 429	24 083	24 225	25 353		
	Connections - metered					25 989	26 034		
	Connections - Unmetered								
	Length of mains (km)				687	687	708		
	System input volume	kl/annum	7 049 000	7 832 000	8 068 000	8 210 931	9 054 890	8 628 803	
	Billed metered consumption	kl/annum	4 367 942	5 560 626	6 152 460	6 255 764	6 521 193	6 262 242	
	Billed unmetered consumption	kl/annum	122 720	181 728	220 483	0	148 080	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	4 490 662	5 742 354	6 372 943	6 255 764	6 669 273	6 262 242	0
	Non-Revenue water	kl/annum	2 558 338	2 089 646	1 695 057	1 955 167	2 385 617	2 366 561	0
	Water Losses	kl/annum	2 558 338	2 089 646	1 695 057	1 955 167	2 385 617	2 366 561	0
	% Non-revenue water		36.3%	26.7%	21.0%	23.8%	26.3%	27.4%	No data
	% Water Losses		36.3%	26.7%	21.0%	23.8%	26.3%	27.4%	No data
Key performance indicators	Input : Litres / capita / day		300	324	331	328	360	328	No data
	Input: m ³ / household / month		26	28	29	28	31	28	No data
	Billed : Litres / capita / day		191	237	262	250	265	238	No data
	Billed : m ³ / household / month		17	21	23	22	23	21	No data
	% Population growth			3.04%	0.60%	2.80%	0.60%	4.66%	
	% Water demand growth			11.11%	3.01%	1.77%	10.28%	-4.71%	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS RPMS	DWA NIS		

Municipal NRW Water Balance: Overstrand

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	4,367,942	122,720	2,558,338	36.3%
Jun-06	5,560,626	181,728	2,089,646	26.7%
Jun-07	6,152,460	220,483	1,695,057	21.0%
Jun-08	6,255,764	0	1,955,167	23.8%
Jun-09	6,521,193	0	2,385,617	26.3%
Jun-10	6,262,242	0	2,366,561	27.4%

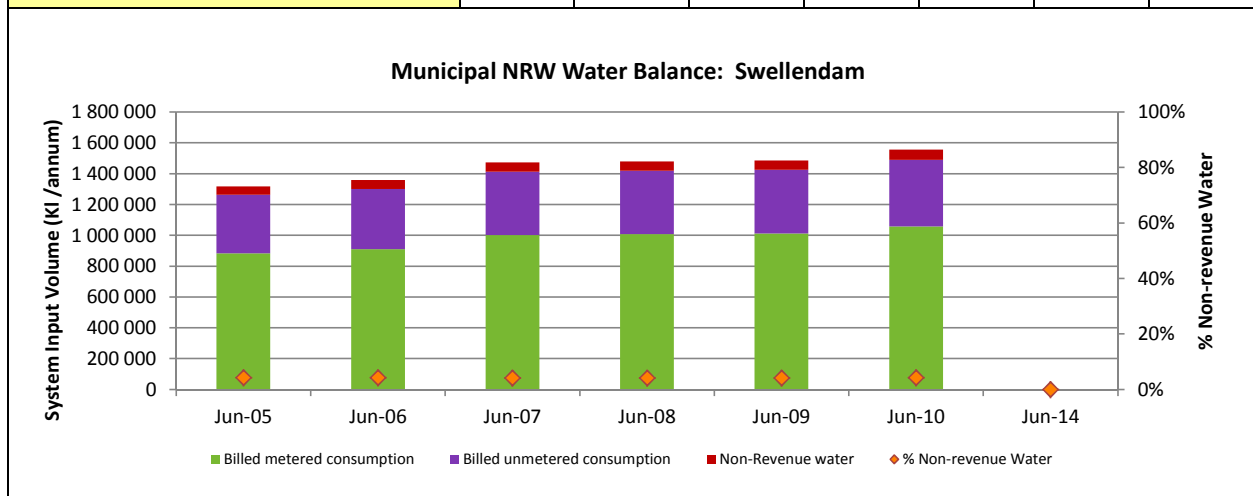
Comments

Province		Western Cape						WSA	
Municipal Code		WC033						Yes	
District Municipality		Overberg						Category	
Municipality		Cape Agulhas						B3	
Settlements		BREDASDORP, CITRUSDAL						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	28 950	29 829	30 010	30 851	31 037	32 186		
	Households	8 604	8 866	8 918	9 170	9 225	9 565		
	Connections - metered						8 033		
	Connections - Unmetered	0	0	0	0	0	0		
	Length of mains (km)						226		
	System input volume	kl/annum	1 784 169	1 666 750	2 134 057	2 226 151	2 131 340	2 227 178	
	Billed metered consumption	kl/annum	1 114 842	860 420	1 191 741	1 699 322	1 768 275	1 962 435	
	Billed unmetered consumption	kl/annum	362 869	381 290	504 216	0	332 520	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 477 711	1 241 710	1 695 957	1 699 322	2 100 795	1 962 435	0
	Non-Revenue water	kl/annum	306 458	425 040	438 100	526 829	30 545	264 743	0
	Water Losses	kl/annum	306 458	425 040	438 100	526 829	30 545	264 743	0
	% Non-revenue water		17.2%	25.5%	20.5%	23.7%	1.4%	11.9%	No data
	% Water Losses		17.2%	25.5%	20.5%	23.7%	1.4%	11.9%	No data
Key performance indicators	Input : Litres / capita / day		169	153	195	198	188	190	No data
	Input: m ³ / household / month		17	16	20	20	19	19	No data
	Billed : Litres / capita / day		140	114	155	151	185	167	No data
	Billed : m ³ / household / month		14	12	16	15	19	17	No data
	% Population growth			3.04%	0.61%	2.80%	0.60%	3.70%	
	% Water demand growth			-6.58%	28.04%	4.32%	-4.26%	4.50%	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS		



Comments

Province		Western Cape						WSA	
Municipal Code		WC034						Yes	
District Municipality		Overberg						Category	
Municipality		Swellendam						B3	
Settlements		RAILTON, SWELLENDAM						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	30 999	31 940	32 132	33 032	33 229	33 580		
	Households	8 702	8 967	9 020	9 274	9 330	9 427		
	Connections - metered								
	Connections - Unmetered								
	Length of mains (km)			123	123	125	125		
	System input volume	kl/annum	1 318 394	1 359 170	1 472 317	1 479 249	1 486 180	1 556 234	
	Billed metered consumption	kl/annum	883 517	910 843	1 002 282	1 006 978	1 011 628	1 057 166	
	Billed unmetered consumption	kl/annum	379 021	390 744	409 896	411 816	413 717	432 340	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 262 538	1 301 587	1 412 178	1 418 794	1 425 345	1 489 506	0
	Non-Revenue water	kl/annum	55 856	57 583	60 139	60 455	60 835	66 728	0
	Water Losses	kl/annum	55 856	57 583	60 139	60 455	60 835	66 728	0
	% Non-revenue water		4.2%	4.2%	4.1%	4.1%	4.1%	4.3%	No data
	% Water Losses		4.2%	4.2%	4.1%	4.1%	4.1%	4.3%	No data
Key performance indicators	Input : Litres / capita / day		117	117	126	123	123	127	No data
	Input: m ³ / household / month		13	13	14	13	13	14	No data
	Billed : Litres / capita / day		112	112	120	118	118	122	No data
	Billed : m ³ / household / month		12	12	13	13	13	13	No data
	% Population growth			3.04%	0.60%	2.80%	0.60%	1.06%	
	% Water demand growth			3.09%	8.32%	0.47%	0.47%	4.71%	
Source of information		DWA NIS	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS		



Comments

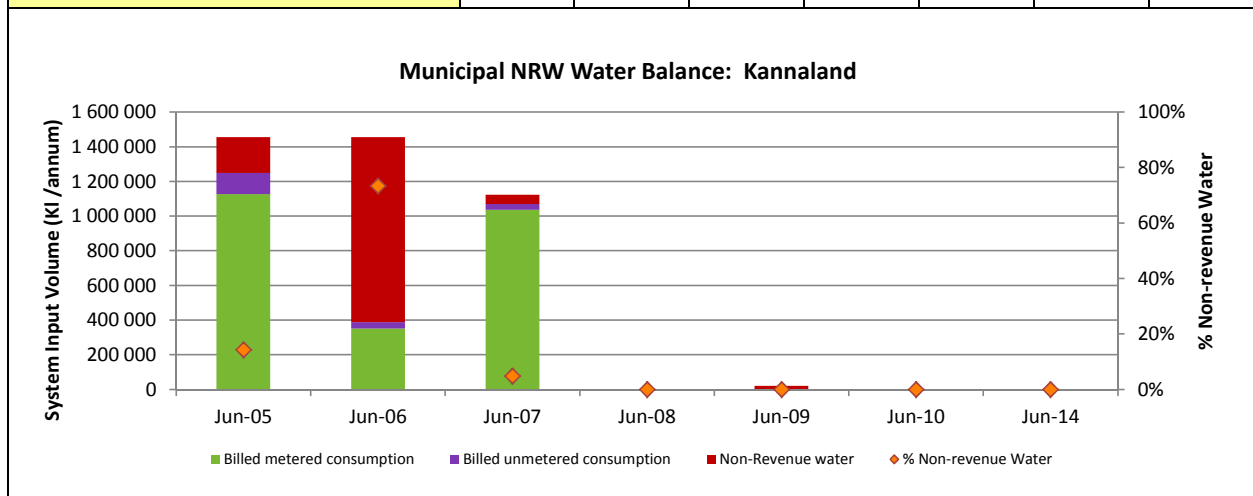
Province		Western Cape						WSA	
Municipal Code		DC04						Yes	
District Municipality		Eden						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	487 974	499 349	502 351	516 416	519 514	533 178	0	
	Households	134 913	138 050	138 863	142 765	143 612	147 479	0	
	Connections - metered	92 564	94 722	95 291	97 958	107 793	445 924	0	
	Connections - Unmetered	7 202	7 370	7 413	7 621	7 666	8 028	0	
	Length of mains (km)	1 995	2 042	2 054	2 424	2 438	3 238	0	
	System input volume	kl/annum	32 080 570	34 461 211	40 577 723	14 134 199	42 189 676	23 383 245	0
	Billed metered consumption	kl/annum	24 352 004	25 784 106	28 161 857	9 868 389	26 211 063	15 695 816	0
	Billed unmetered consumption	kl/annum	2 712 645	4 276 894	5 861 387	2 359 570	5 992 955	1 869 027	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	27 064 649	30 061 000	34 023 244	12 227 959	32 204 018	17 564 843	0
	Non-Revenue water	kl/annum	5 015 921	4 400 211	6 554 479	1 906 240	9 985 658	5 818 402	0
	Water Losses	kl/annum	5 015 921	4 400 211	6 554 479	1 906 240	9 985 658	5 818 402	0
	% Non-revenue water		15.6%	12.8%	16.2%	13.5%	23.7%	24.9%	No data
	% Water Losses		15.6%	12.8%	16.2%	13.5%	23.7%	24.9%	No data
Key performance indicators	Input : Litres / capita / day		180	189	221	75	222	120	No data
	Input: m³ / household / month		20	21	24	8	24	13	No data
	Billed : Litres / capita / day		152	165	186	65	170	90	No data
	Billed : m³ / household / month		17	18	20	7	19	10	No data
	% Population growth			2.33%	0.60%	2.80%	0.60%	2.63%	
	% Water demand growth			7.42%	17.75%	-65.17%	198.49%	-44.58%	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS		

Municipal NRW Water Balance: Eden DM

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	24,352,004	2,712,645	5,015,921	15.6%
Jun-06	25,784,106	4,276,894	4,400,211	12.8%
Jun-07	28,161,857	5,861,387	6,554,479	16.2%
Jun-08	9,868,389	2,359,570	1,906,240	13.5%
Jun-09	26,211,063	5,992,955	9,985,658	23.7%
Jun-10	15,695,816	1,869,027	5,818,402	24.9%
Jun-14				No data

Comments

Province		Western Cape						WSA	
Municipal Code		WC041						Yes	
District Municipality		Eden						Category	
Municipality		Kannaland						B3	
Settlements		Ladismith						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	26 279	26 890	27 054	27 817	27 985	28 118		
	Households	6 986	7 146	7 187	7 393	7 436	7 470		
	Connections - metered	6 415	6 564	6 604	6 790	6 834	6 863		
	Connections - Unmetered	614	625	629	647	654	654		
	Length of mains (km)	144	144	145	149	150	150		
	System input volume	kl/annum	1 455 659	1 455 659	1 123 319		20 387		
	Billed metered consumption	kl/annum	1 126 217	351 674	1 035 592				
	Billed unmetered consumption	kl/annum	122 400	36 468	34 236				
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 248 617	388 142	1 069 828	0	0	0	
	Non-Revenue water	kl/annum	207 042	1 067 517	53 491	0	20 387	0	
	Water Losses	kl/annum	207 042	1 067 517	53 491	0	20 387	0	
	% Non-revenue water		14.2%	73.3%	4.8%	No data	No data	No data	No data
	% Water Losses		14.2%	73.3%	4.8%	No data	100.0%	No data	No data
Key performance indicators	Input : Litres / capita / day		152	148	114	No data	2	No data	No data
	Input: m ³ / household / month		17	17	13	No data	0	No data	No data
	Billed : Litres / capita / day		130	40	108	No data	No data	No data	No data
	Billed : m ³ / household / month		15	5	12	No data	No data	No data	No data
	% Population growth			2.33%	0.61%	2.82%	0.60%	0.48%	
	% Water demand growth			0.00%	-22.83%		#DIV/0!		
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS	DWA NIS		



Comments

Province		Western Cape						WSA
Municipal Code		WC042						Yes
District Municipality		Eden						Category
Municipality		Hessequa						B3
Settlements		RIVERSDALE						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	48 444	49 574	49 869	51 263	51 568	53 418	
	Households	14 420	14 758	14 845	15 260	15 352	15 902	
	Connections - metered	13 905	14 229	14 314	14 714	14 802	15 333	
	Connections - Unmetered	604	645	649	636	640	663	
	Length of mains (km)	290	297	299	307	309	320	
	System input volume	kl/annum	3 560 154	3 684 287	3 797 423		2 730 000	
	Billed metered consumption	kl/annum	2 656 900	2 685 540	3 537 361		1 736 960	
	Billed unmetered consumption	kl/annum	277 200	557 983	0		578 781	
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	2 934 100	3 243 523	3 537 361	0	2 315 741	0
	Non-Revenue water	kl/annum	626 054	440 764	260 062	0	414 259	0
	Water Losses	kl/annum	626 054	440 764	260 062	0	414 259	0
	% Non-revenue water		17.6%	12.0%	6.8%	No data	15.2%	No data
	% Water Losses		17.6%	12.0%	6.8%	No data	15.2%	No data
Key performance indicators	Input : Litres / capita / day		201	204	209	No data	145	No data
	Input: m ³ / household / month		21	21	21	No data	15	No data
	Billed : Litres / capita / day		166	179	194	No data	123	No data
	Billed : m ³ / household / month		17	18	20	No data	13	No data
	% Population growth			2.33%	0.60%	2.80%	0.59%	3.59%
	% Water demand growth			3.49%	3.07%		#DIV/0!	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS	

Municipal NRW Water Balance: Hessequa

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	2 656 900	277 200	626 054	17.6%
Jun-06	2 685 540	557 983	440 764	12.0%
Jun-07	3 537 361	0	260 062	6.8%
Jun-08			0	No data
Jun-09	1 736 960	578 781	414 259	15.2%
Jun-10				No data
Jun-14				No data

Comments

Province		Western Cape						WSA	
Municipal Code		WC043						Yes	
District Municipality		Eden						Category	
Municipality		Mossel Bay						B2	
Settlements		KWANONQABA, MOSSEL BAY						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	79 151	80 999	81 488	83 772	84 275	86 810		
	Households	23 330	23 870	24 013	24 690	24 837	25 582		
	Connections - metered						335 348		
	Connections - Unmetered						200		
	Length of mains (km)						741		
	System input volume	kl/annum	4 842 574	6 890 140	10 438 382	10 703 773	10 630 000	7 182 655	
	Billed metered consumption	kl/annum	3 766 588	6 181 249	7 614 104	7 426 089	8 060 000	5 156 615	
	Billed unmetered consumption	kl/annum	83 754	88 779	1 890 479	2 359 570	1 730 000	1 272 703	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	3 850 342	6 270 028	9 504 583	9 785 659	9 790 000	6 429 318	0
	Non-Revenue water	kl/annum	992 232	620 112	933 799	918 114	840 000	753 337	0
	Water Losses	kl/annum	992 232	620 112	933 799	918 114	840 000	753 337	0
	% Non-revenue water		20.5%	9.0%	8.9%	8.6%	7.9%	10.5%	No data
	% Water Losses		20.5%	9.0%	8.9%	8.6%	7.9%	10.5%	No data
Key performance indicators	Input : Litres / capita / day		168	233	351	350	346	227	No data
	Input: m³ / household / month		17	24	36	36	36	23	No data
	Billed : Litres / capita / day		133	212	320	320	318	203	No data
	Billed : m³ / household / month		14	22	33	33	33	21	No data
	% Population growth			2.33%	0.60%	2.80%	0.60%	3.01%	
	% Water demand growth			42.28%	51.50%	2.54%	-0.69%	-32.43%	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS Municipality	DWA NIS Municipality	DWA NIS RPMS	DWA NIS Municipality		

Municipal NRW Water Balance: Mossel Bay

The chart displays the water balance for Mossel Bay from 2005 to 2010. The left Y-axis represents System Input Volume in kl/annum (0 to 12,000,000), and the right Y-axis represents % Non-revenue Water (0% to 100%). The X-axis shows the years Jun-05, Jun-06, Jun-07, Jun-08, Jun-09, Jun-10, and Jun-14. The bars are stacked with Billed metered consumption (green), Billed unmetered consumption (purple), and Non-Revenue water (red). A diamond marker indicates the % Non-revenue Water for each year.

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	3,766,588	83,754	992,232	20.5%
Jun-06	6,181,249	88,779	620,112	9.0%
Jun-07	7,614,104	1,890,479	933,799	8.9%
Jun-08	7,426,089	2,359,570	918,114	8.6%
Jun-09	8,060,000	1,730,000	840,000	7.9%
Jun-10	5,156,615	1,272,703	753,337	10.5%
Jun-14				No data

Comments
The demand dropped in 2009/10 due to the severe drought in the area.

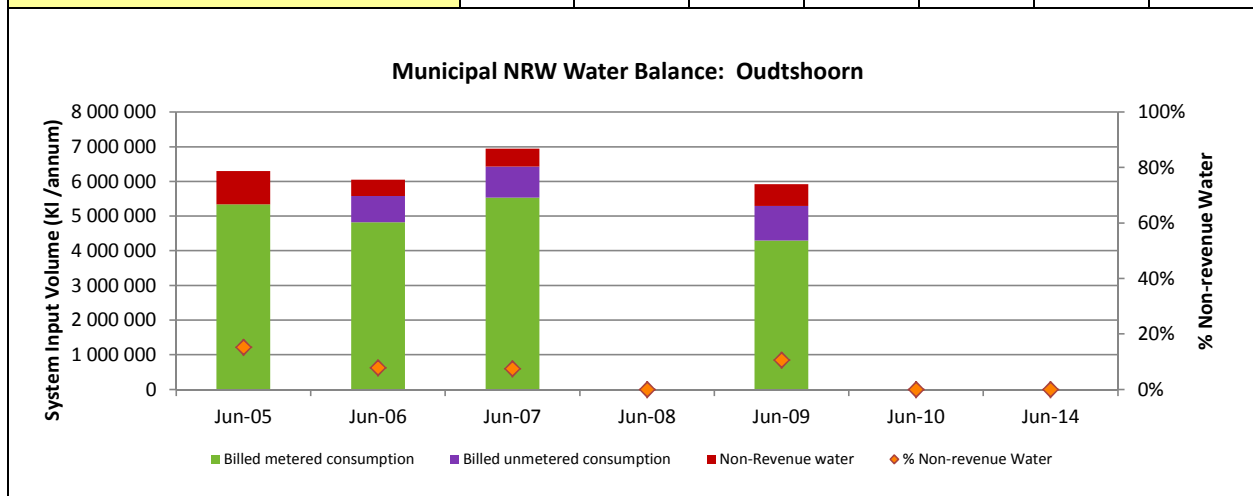
Province		Western Cape						WSA	
Municipal Code		WC044						Yes	
District Municipality		Eden						Category	
Municipality		George						B1	
Settlements		CONILLE, GEORGE, THEMBALETHU						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	151 299	154 828	155 761	160 125	161 088	167 815		
	Households	41 680	42 651	42 905	44 111	44 375	46 229		
	Connections - metered	38 044	38 904	39 436	40 232	40 474	42 164		
	Connections - Unmetered	2 306	2 360	2 374	2 441	2 456	2 558		
	Length of mains (km)	806	825	830	853	859	894		
	System input volume	kl/annum	9 571 290	9 850 717	10 358 000		15 050 000	9 725 100	
	Billed metered consumption	kl/annum	7 453 534	8 073 168	8 152 851		8 368 348	6 548 078	
	Billed unmetered consumption	kl/annum	1 633 680	1 723 752	1 959 192		1 639 014	596 324	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	9 087 214	9 796 920	10 112 043	0	10 007 362	7 144 402	0
	Non-Revenue water	kl/annum	484 076	53 797	245 957	0	5 042 638	2 580 698	0
	Water Losses	kl/annum	484 076	53 797	245 957	0	5 042 638	2 580 698	0
	% Non-revenue water		5.1%	0.5%	2.4%	No data	33.5%	26.5%	No data
	% Water Losses		5.1%	0.5%	2.4%	No data	33.5%	26.5%	No data
Key performance indicators	Input : Litres / capita / day		173	174	182	No data	256	159	No data
	Input: m ³ / household / month		19	19	20	No data	28	18	No data
	Billed : Litres / capita / day		165	173	178	No data	170	117	No data
	Billed : m ³ / household / month		18	19	20	No data	19	13	No data
	% Population growth			2.33%	0.60%	2.80%	0.60%	4.18%	
	% Water demand growth			2.92%	5.15%		#DIV/0!	-35.38%	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS		

Municipal NRW Water Balance: George

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	7 453 534	1 633 680	484 076	5.1%
Jun-06	8 073 168	1 723 752	53 797	0.5%
Jun-07	8 152 851	1 959 192	245 957	2.4%
Jun-08			0	No data
Jun-09	8 368 348	1 639 014	5 042 638	33.5%
Jun-10	6 548 078	596 324	2 580 698	26.5%
Jun-14			0	No data

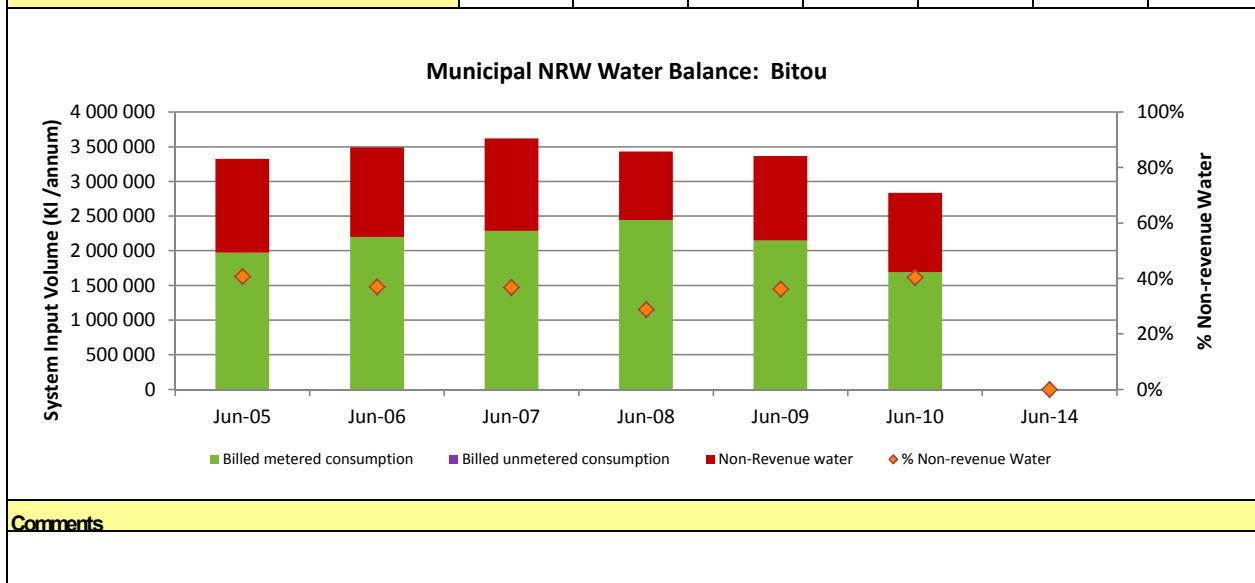
Comments

Province		Western Cape						WSA
Municipal Code		WC045						Yes
District Municipality		Eden						Category
Municipality		Oudtshoorn						B2
Settlements		Oudtshoorn						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	91 777	93 917	94 482	97 122	97 705	98 413	
	Households	20 619	21 102	21 222	21 817	21 940	22 087	
	Connections - metered	19 096	19 544	19 659	20 208	20 329	20 477	
	Connections - Unmetered	1 580	1 647	1 626	1 672	1 684	1 693	
	Length of mains (km)	414	423	426	438	440	443	
	System input volume	kl/annum	6 295 000	6 045 210	6 947 744		5 920 436	
	Billed metered consumption	kl/annum	5 341 000	4 820 369	5 533 710		4 298 746	
	Billed unmetered consumption	kl/annum	0	753 912	897 480		995 160	
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	5 341 000	5 574 281	6 431 190	0	5 293 906	0
	Non-Revenue water	kl/annum	954 000	470 929	516 554	0	626 530	0
	Water Losses	kl/annum	954 000	470 929	516 554	0	626 530	0
	% Non-revenue water		15.2%	7.8%	7.4%	No data	10.6%	No data
	% Water Losses		15.2%	7.8%	7.4%	No data	10.6%	No data
Key performance indicators	Input : Litres / capita / day		188	176	201	No data	166	No data
	Input: m ³ / household / month		25	24	27	No data	22	No data
	Billed : Litres / capita / day		159	163	186	No data	148	No data
	Billed : m ³ / household / month		22	22	25	No data	20	No data
	% Population growth			2.33%	0.60%	2.79%	0.60%	0.72%
	% Water demand growth			-3.97%	14.93%		#DIV/0!	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS	



Comments

Province		Western Cape						WSA	
Municipal Code		WC047						Yes	
District Municipality		Eden						Category	
Municipality		Bitou						B3	
Settlements		Greater Plettenberg Bay, JEFFREY'S BAY, HUMANSDORP						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	34 069	34 859	35 068	36 051	36 268	37 402		
	Households	10 744	10 989	11 050	11 363	11 429	11 790		
	Connections - metered					9 248	9 477		
	Connections - Unmetered					0	0		
	Length of mains (km)				312	314	319		
	System input volume	kl/annum	3 324 348	3 490 566	3 618 805	3 430 426	3 366 312	2 835 490	
	Billed metered consumption	kl/annum	1 970 135	2 200 174	2 288 239	2 442 300	2 147 330	1 691 123	
	Billed unmetered consumption	kl/annum	0	0	0	0	0	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	1 970 135	2 200 174	2 288 239	2 442 300	2 147 330	1 691 123	0
	Non-Revenue water	kl/annum	1 354 213	1 290 392	1 330 566	988 126	1 218 982	1 144 367	0
	Water Losses	kl/annum	1 354 213	1 290 392	1 330 566	988 126	1 218 982	1 144 367	0
	% Non-revenue water		40.7%	37.0%	36.8%	28.8%	36.2%	40.4%	No data
	% Water Losses		40.7%	37.0%	36.8%	28.8%	36.2%	40.4%	No data
Key performance indicators	Input : Litres / capita / day		267	274	283	261	254	208	No data
	Input: m ³ / household / month		26	26	27	25	25	20	No data
	Billed : Litres / capita / day		158	173	179	186	162	124	No data
	Billed : m ³ / household / month		15	17	17	18	16	12	No data
	% Population growth			2.32%	0.60%	2.80%	0.60%	3.13%	
	% Water demand growth			5.00%	3.67%	-5.21%	-1.87%	-15.77%	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS		



Comments

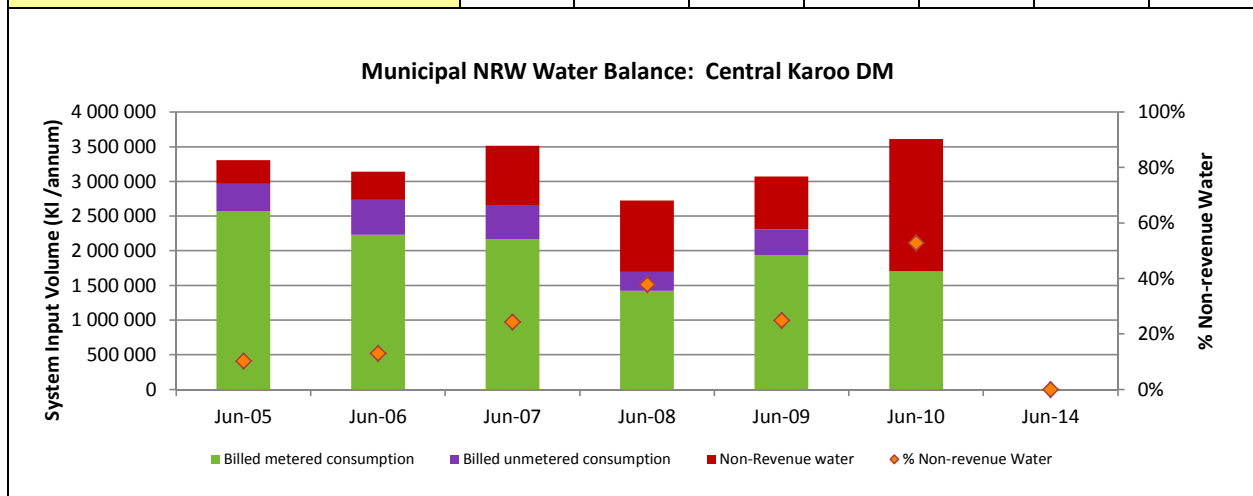
Province		Western Cape						WSA	
Municipal Code		WC048						Yes	
District Municipality		Eden						Category	
Municipality		Knysna						B2	
Settlements		SEDFIELD, KNYSNA						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	56 955	58 282	58 629	60 266	60 625	61 202		
	Households	17 134	17 534	17 641	18 131	18 243	18 419		
	Connections - metered	15 134	15 487	15 579	16 014	16 109	16 263		
	Connections - Unmetered	2 403	2 152	2 465	2 225	2 239	2 260		
	Length of mains (km)	345	353	355	365	367	370		
	System input volume	kl/annum	3 031 545	3 044 632	4 294 050		4 472 541	3 640 000	
	Billed metered consumption	kl/annum	2 037 630	1 471 932	0		1 599 679	2 300 000	
	Billed unmetered consumption	kl/annum	595 611	1 116 000	1 080 000		1 050 000		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 633 241	2 587 932	1 080 000	0	2 649 679	2 300 000	0
	Non-Revenue water	kl/annum	398 304	456 700	3 214 050	0	1 822 862	1 340 000	0
	Water Losses	kl/annum	398 304	456 700	3 214 050	0	1 822 862	1 340 000	0
	% Non-revenue water		13.1%	15.0%	74.8%	No data	40.8%	36.8%	No data
	% Water Losses		13.1%	15.0%	74.8%	No data	40.8%	36.8%	No data
Key performance indicators	Input : Litres / capita / day		146	143	201	No data	202	163	No data
	Input: m ³ / household / month		15	14	20	No data	20	16	No data
	Billed : Litres / capita / day		127	122	50	No data	120	103	No data
	Billed : m ³ / household / month		13	12	5	No data	12	10	No data
	% Population growth			2.33%	0.60%	2.79%	0.60%	0.95%	
	% Water demand growth			0.43%	41.04%		#DIV/0!	-18.61%	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS		

Municipal NRW Water Balance: Knysna

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	2 037 630	595 611	398 304	13.1%
Jun-06	1 471 932	1 116 000	456 700	15.0%
Jun-07	0	1 080 000	3 214 050	74.8%
Jun-08	0	0	0	No data
Jun-09	1 599 679	1 050 000	1 822 862	40.8%
Jun-10	2 300 000	1 340 000	1 340 000	36.8%
Jun-14	2 300 000	1 340 000	1 340 000	No data

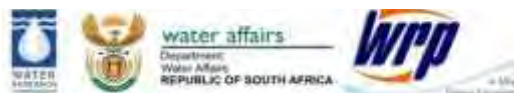
Comments

Province		Western Cape						WSA	
Municipal Code		DC05						Yes	
District Municipality		Central Karoo						Category	
Municipality								C1	
Settlements								Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	59 147	60 051	60 407	62 085	62 451	63 831	0	
	Households	15 391	15 629	15 712	16 168	16 257	16 614	0	
	Connections - metered	4 887	4 961	4 990	5 128	5 158	14 906	0	
	Connections - Unmetered	255	259	260	268	269	272	0	
	Length of mains (km)	103	104	105	108	109	280	0	
	System input volume	kl/annum	3 305 807	3 141 320	3 513 489	2 725 814	3 071 962	3 611 000	0
	Billed metered consumption	kl/annum	2 570 469	2 229 530	2 167 152	1 423 351	1 932 889	1 704 000	0
	Billed unmetered consumption	kl/annum	395 749	504 111	491 788	270 214	375 088	0	0
	Unbilled metered consumption	kl/annum	0	0	0	0	0	0	0
	Unbilled unmetered consumption	kl/annum	0	0	0	0	0	0	0
Water Balance Calculations	Revenue water	kl/annum	2 966 218	2 733 641	2 658 940	1 693 565	2 307 977	1 704 000	0
	Non-Revenue water	kl/annum	339 589	407 679	854 549	1 032 249	763 985	1 907 000	0
	Water Losses	kl/annum	339 589	407 679	854 549	1 032 249	763 985	1 907 000	0
	% Non-revenue water		10.3%	13.0%	24.3%	37.9%	24.9%	52.8%	No data
	% Water Losses		10.3%	13.0%	24.3%	37.9%	24.9%	52.8%	No data
Key performance indicators	Input : Litres / capita / day		153	143	159	120	135	155	No data
	Input: m ³ / household / month		18	17	19	14	16	18	No data
	Billed : Litres / capita / day		137	125	121	75	101	73	No data
	Billed : m ³ / household / month		16	15	14	9	12	9	No data
	% Population growth			1.53%	0.59%	2.78%	0.59%	2.21%	
	% Water demand growth			-4.98%	11.85%	-22.42%	12.70%	17.55%	
Source of information									



Comments

National NRW Assessment



Province		Western Cape						WSA	
Municipal Code		WC051						Yes	
District Municipality		Central Karoo						Category	
Municipality		Laingsburg						B3	
Settlements		Laingsburg						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	7 279	7 387	7 430	7 631	7 676	7 629		
	Households	2 197	2 231	2 240	2 308	2 321	2 307		
	Connections - metered	2 099	2 134	2 143	2 201	2 214	2 200		
	Connections - Unmetered	115	117	117	121	122	124		
	Length of mains (km)	44	45	45	46	47	46		
	System input volume	kl/annum	387 000	378 000	390 750		346 362	350 000	
	Billed metered consumption	kl/annum	314 000	270 072	304 000		360 999	350 000	
	Billed unmetered consumption	kl/annum	0	80 928	45 648		79 272		
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	314 000	351 000	349 648	0	440 271	350 000	0
	Non-Revenue water	kl/annum	73 000	27 000	41 102	0	-93 909	0	0
	Water Losses	kl/annum	73 000	27 000	41 102	0	-93 909	0	0
	% Non-revenue water		18.9%	7.1%	10.5%	No data	Check data	Check data	No data
	% Water Losses		18.9%	7.1%	10.5%	No data	Check data	No data	No data
Key performance indicators	Input : Litres / capita / day		146	140	144	No data	124	126	No data
	Input: m³ / household / month		15	14	15	No data	12	13	No data
	Billed : Litres / capita / day		118	130	129	No data	157	126	No data
	Billed : m³ / household / month		12	13	13	No data	16	13	No data
	% Population growth			1.48%	0.58%	2.71%	0.59%	-0.61%	
	% Water demand growth			-2.33%	3.37%		#DIV/0!	1.05%	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS StatsSA	DWA NIS RPMS		

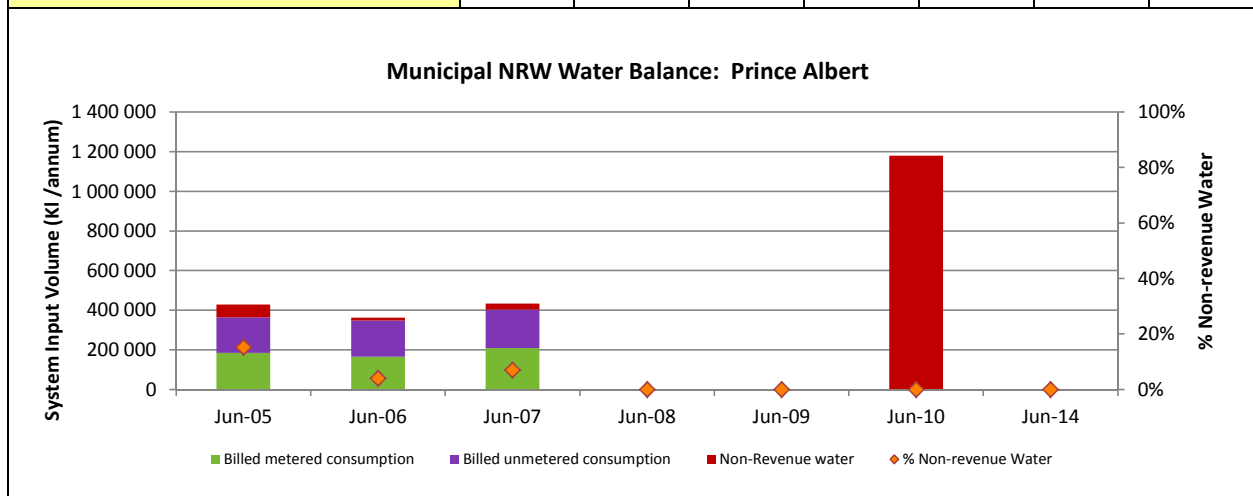
Municipal NRW Water Balance: Laingsburg

The chart displays the water balance for Laingsburg from 2005 to 2014. The left Y-axis represents System Input Volume in kl/annum, ranging from -200,000 to 500,000. The right Y-axis represents the percentage of Non-revenue Water, ranging from 0% to 100%. The X-axis shows the years Jun-05, Jun-06, Jun-07, Jun-08, Jun-09, Jun-10, and Jun-14. The input volume is broken down into billed metered consumption (green), billed unmetered consumption (purple), and non-revenue water (red). The percentage of non-revenue water is indicated by a diamond marker.

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	314,000	0	73,000	18.9%
Jun-06	270,072	80,928	27,000	7.1%
Jun-07	304,000	45,648	41,102	10.5%
Jun-08	0	0	0	No data
Jun-09	360,999	79,272	-93,909	Check data
Jun-10	350,000	0	0	Check data
Jun-14	350,000	0	0	No data

Comments

Province		Western Cape						WSA
Municipal Code		WC052						Yes
District Municipality		Central Karoo						Category
Municipality		Prince Albert						B3
Settlements		Prins Albert						Target
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14
Input Data	Population	11 446	11 622	11 691	12 019	12 089	12 353	
	Households	2 906	2 949	2 965	3 056	3 072	3 140	
	Connections - metered	2 787	2 830	2 847	2 927	2 944	3 008	
	Connections - Unmetered	140	142	143	147	148	154	
	Length of mains (km)	59	59	60	61	62	63	
	System input volume	kl/annum	428 034	362 441	433 416			1 180 000
	Billed metered consumption	kl/annum	185 320	165 029	208 244			
	Billed unmetered consumption	kl/annum	177 877	182 919	194 644			
	Unbilled metered consumption	kl/annum						
	Unbilled unmetered consumption	kl/annum						
Water Balance Calculations	Revenue water	kl/annum	363 197	347 948	402 888	0	0	0
	Non-Revenue water	kl/annum	64 837	14 493	30 528	0	0	1 180 000
	Water Losses	kl/annum	64 837	14 493	30 528	0	0	1 180 000
	% Non-revenue water		15.1%	4.0%	7.0%	No data	No data	No data
	% Water Losses		15.1%	4.0%	7.0%	No data	No data	100.0%
Key performance indicators	Input : Litres / capita / day		102	85	102	No data	No data	262
	Input: m ³ / household / month		12	10	12	No data	No data	31
	Billed : Litres / capita / day		87	82	94	No data	No data	No data
	Billed : m ³ / household / month		10	10	11	No data	No data	No data
	% Population growth			1.54%	0.59%	2.81%	0.58%	2.18%
	% Water demand growth			-15.32%	19.58%			#DIV/0!
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS	DWA NIS RPMS	



Comments

Province		Western Cape						WSA	
Municipal Code		WC053						Yes	
District Municipality		Central Karoo						Category	
Municipality		Beaufort West						B3	
Settlements		BEAUFORT WEST, WELDDRIF						Target	
Year ending		Jun-05	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-14	
Input Data	Population	40 422	41 042	41 286	42 435	42 686	43 849		
	Households	10 288	10 449	10 507	10 804	10 864	11 167		
	Connections - metered						9 697		
	Connections - Unmetered						0		
	Length of mains (km)						170		
	System input volume	kl/annum	2 490 773	2 400 879	2 689 323	2 725 844	2 725 600	2 081 000	
	Billed metered consumption	kl/annum	2 071 149	1 794 429	1 654 908	1 423 351	1 571 890	1 354 000	
	Billed unmetered consumption	kl/annum	217 872	240 264	251 496	270 244	295 816	0	
	Unbilled metered consumption	kl/annum							
	Unbilled unmetered consumption	kl/annum							
Water Balance Calculations	Revenue water	kl/annum	2 289 021	2 034 693	1 906 404	1 693 565	1 867 706	1 354 000	0
	Non-Revenue water	kl/annum	201 752	366 186	782 919	1 032 249	857 894	727 000	0
	Water Losses	kl/annum	201 752	366 186	782 919	1 032 249	857 894	727 000	0
	% Non-revenue water		8.1%	15.3%	29.1%	37.9%	31.5%	34.9%	No data
	% Water Losses		8.1%	15.3%	29.1%	37.9%	31.5%	34.9%	No data
Key performance indicators	Input : Litres / capita / day		169	160	178	176	175	130	No data
	Input: m ³ / household / month		20	19	21	21	21	16	No data
	Billed : Litres / capita / day		155	136	127	109	120	85	No data
	Billed : m ³ / household / month		19	16	15	13	14	10	No data
	% Population growth			1.53%	0.59%	2.78%	0.59%	2.72%	
	% Water demand growth			-3.61%	12.01%	1.36%	-0.01%	-23.65%	
Source of information		DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS StatsSA	DWA NIS	DWA NIS RPMS	DWA NIS Municipality		

Municipal NRW Water Balance: Beaufort West

The chart displays two data series: System Input Volume (kl/annum) on the left Y-axis (0 to 3,000,000) and % Non-revenue Water on the right Y-axis (0% to 100%). The X-axis shows years from Jun-05 to Jun-14. The bars are stacked with Billed metered consumption (green), Billed unmetered consumption (purple), and Non-Revenue water (red). A red diamond marker indicates the % Non-revenue Water for each year.

Year	Billed metered consumption (kl/annum)	Billed unmetered consumption (kl/annum)	Non-Revenue water (kl/annum)	% Non-revenue Water
Jun-05	2,100,000	200,000	100,000	10.5%
Jun-06	1,800,000	150,000	100,000	12.2%
Jun-07	1,600,000	300,000	800,000	33.3%
Jun-08	1,400,000	300,000	1,000,000	42.9%
Jun-09	1,600,000	300,000	800,000	33.3%
Jun-10	1,300,000	100,000	700,000	53.8%
Jun-14	0	0	0	0%

Comments

**APPENDIX C:
WC/WDM SCORE CARD**

Municipal Scorecard for Assessing the Potential for WC/WDM Efforts in Municipalities

August 2010, Version 2.3



water affairs
Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA



Basic Information

Name of Municipality/ Water Service Provider: _____

Additional details (if required): _____ Assessment Year: _____

Contact Details

Scorecard completed by

Name: _____ E-mail: _____

Tel: _____ Fax: _____

Section	Score
1. Development of Standard Water Balance	Score
WSA has developed reliable water balance and results indicate UAW/NRW at less than 20%	4
WSA has developed reliable water balance and results indicate UAW/NRW at 20% to 40%	3
WSA has developed reliable water balance and results indicate UAW/NRW at more than 40%	2
WSA has no water balance but is currently developing one	1
WSA has no water balance	0
2. Pressurised Supply to all consumers 100% of time	Score
WSA maintains a pressurised supply to all areas within the water distribution network all of the time at a minimum of 20m pressure	4
WSA maintains a pressurised supply to all areas within the water distribution network however pressure drops below 10m in certain areas	3
Small isolated sections of the network experience intermittent supply	2
Many sections of the network experience intermittent supply	1
The entire network experiences intermittent supply	0
3. Residential Metering System	Score
More than 98% of all connections are metered and billed.	4
75% and 98% of all connections are metered and billed	3
50 -75% of connections are metered and billed	2
Less than 50% of connections are metered and billed	1
No metering takes place	0
4. Non Residential Meters (Commercial, Industrial and Institutional)	Score
More than 98% of all non-residential connections, including fire supply connections, are metered and billed based on metered use	4
75% to 98% of all non-residential connections, including fire supply connections, are metered and billed based on metered use	3
50 - 75% of non-residential connections, including fire supply connections, are metered and billed based on metered use	2
Less than 50% of non residential connections, including fire supply connections, are metered and billed based on metered use	1
No non-residential metering takes place	0
5. Effective Billing System & Informative Billing	Score
WSA produces informative billing to all customers based on meter readings	4
WSA produces informative billing to most customers based on meter readings	3
WSA produces informative billing to only some customers based on meter readings	2
WSA has an uninformative billing system in place	1
WSA has no billing system in place	0
6. Network (Leakage) Complaints System	Score
Efficient reporting system in place (90% of reported leaks are repaired within 24 hours)	4
Efficient reporting system in place (90% of reported leaks are repaired within 48 hours)	3
Leakage reporting system in place although response times need to be improved	2
Leakage reporting system in place but few if any field response teams available to undertake repairs	1
No leakage reporting system in place and no plans to create one	0
7. Billing and Metering Complaint System	Score
Efficient reporting system for metering and billing problems in place (90% dealt within 14 days)	4
Efficient reporting system for metering and billing problems in place (90% dealt with within one month)	3
Metering and billing problem reporting system in place response times need to be improved	2
Metering and billing problem reporting system in place but very poor response time with many problems never resolved	1
No Metering and billing problem reporting system in place	0

8. Asset Register for water Reticulation System	Score
WSA has a comprehensive and accurate asset register in place which is available digitally	4
WSA has a partially completed accurate asset register in place	3
WSA has a poor asset register in place	2
WSA is in the process of developing an asset register	1
WSA has no asset register in place and no immediate intention of generating one	0

9. Asset Management - Capital Works	Score
2% or more of the value of the water network is invested annually into new capital works related to the existing infrastructure	4
1% - 2% of the value of the water network is invested annually into new capital works related to the existing infrastructure	3
Less than 1% of the value of the water network is invested annually into new capital works related to the existing infrastructure	2
No estimate of asset value of water supply system is available but WSA feels that sufficient budget is spent on new Capital Works	1
No estimate of asset value of water supply system is available and WSA feels that insufficient budget is spent on new Capital Works	0

10. Asset Management - Operations and Maintenance	Score
2% or more of the value of the water network is invested annually into the maintenance of the existing infrastructure	4
1% - 2% of the value of the water network is invested annually into the maintenance of the existing infrastructure	3
Less than 1% of the value of the water network is invested annually into the maintenance of the existing infrastructure	2
No estimate of asset value of water supply system is available but WSA feels that sufficient budget is spent on operations and maintenance	1
No estimate of asset value of water supply system is available but WSA feels that insufficient budget is spent on operations and maintenance	0

11. Dedicated WDM Support	Score
Efficient WDM Section in place with sufficient resources	4
WDM section in place requires some resources and capacity building	3
WDM section in place. Major resources and capacity building required	2
No WDM section currently in place, although it is in process of being created	1
No WDM Section and no intention to create WDM section	0

12. Active Leakage Control	Score
Active leakage detection and repair undertaken continuously with average sweep time of 12 months or less	4
Active leakage detection and repair undertaken continuously with average sweep time of 48 months or less	3
Active leakage detection and repair is undertaken on an add-hoc basis	2
No active leakage is currently undertaken, however, the WSA intends to initiate such measures	1
No active leakage detection is undertaken and the WSA has no intention to conduct such measures	0

13. Effective Sectorisation	Score
Reticulation network has been sectorised and is checked regularly to maintain discrete zones	4
Reticulation network has been sectorised but is not checked regularly to ensure discrete zones	3
Only portions of the reticulation network have been sectorised	2
Few if any zones have been created but plans are in place to sectorise the system	1
No sectorisation has been undertaken and no plans are in place to implement such measures	0

14. Effective Bulk Meter Management	Score
All bulk water sources to the WSA are metered by the WSA using some form of check metering(either permanent or temporary)	4
All bulk water sources to the WSA are metered by the Bulk water supplier or by the WSA	3
Few bulk water meters are operational	2
No Bulk Metering in place, however, WSA has plans to install bulk meters	1
No Bulk metering in place and no plans for such meters have been made	0

15. Effective Zone Meter Management and Assessment of minimum	Score
All inlet points to discrete zones are metered and accurate with Minimum Night Flows logged and analysed on a regular basis	4
All inlet points to discrete zones are metered and accurate but no Minimum Night Flow analyses are undertaken	3
All inlet points to discrete zones are metered but many are broken or considered to be inaccurate	2
Zone inputs are currently not metered although the WSA has planned to install meters on all zone inlets	1
No accurate zone metering is in place and there are no plans to introduce such measures	0

16. Pressure Management and Maintenance of Pressure Reducing Valves	Score
Reticulation is comprehensively sectorised into pressure zones which are all discrete. All PRV's are maintained under maintenance schedule	4
Reticulation is comprehensively sectorised into pressure zones which are all discrete. PRV's are only maintained when problems become apparent	3
Reticulation is sectorised in pressure zones but the zones are not verified and little or no maintenance is undertaken on the PRV's	2
WSA intend to introduce pressure zones and the use of PRV's to manage system pressures	1
No Discrete pressure zones and no PRV maintenance	0

17. As-built Drawings of Bulk and Reticulation Infrastructure	Score
<i>Accurate as-built drawings for all reticulation are available digitally</i>	4
<i>As-built drawings available digitally for the majority of the network and available in hard copy for the remainder of the network</i>	3
<i>A mixture of digital and hard copy as-built drawings available for the majority of the network but many problems are known to exist with the data quality</i>	2
<i>Only some hard copy as-built drawings are available for portions of the network</i>	1
<i>No as-built drawings available</i>	0

18. Schematic Layout of Water Infrastructure	Score
<i>An up-to date and detailed schematic of the whole bulk reticulation network is available</i>	4
<i>A detailed schematic of the bulk reticulation network is available but is known to be outdated and/or inaccurate</i>	3
<i>Only a rough schematic of the bulk reticulation network is available which is known to be inaccurate and/or outdated</i>	2
<i>No schematic of the bulk reticulation is available although the WSA is planning to develop such a schematic</i>	1
<i>No schematic of the bulk reticulation is available and the WSA has no plans to develop such a schematic</i>	0

19. Regulations and By-laws	Score
<i>Regulations and By- laws are in place which address WDM issues and some form of enforcement is undertaken</i>	4
<i>Regulations and By-laws are in place which address WDM issues but are not enforced</i>	3
<i>Regulations and By-laws are in place but do not address WDM issues</i>	2
<i>There are no By-laws in place but SA is intending to introduce such measures</i>	1
<i>There are no By-laws in place and WSA has no plans to introduce them</i>	0

20. Tariffs	Score
<i>WSA has rising block tariffs in place that encourage water use efficiency</i>	4
<i>WSA has rising block tariffs in place but they do not encourage water use efficiency sufficiently</i>	3
<i>WSA has single water tariff in place</i>	2
<i>WSA has a declining block tariff in place</i>	1
<i>WSA does not know what tariff structure is in place</i>	0

21. Technical Support to Customers	Score
<i>The WSA actively engages with customers and offers technical support on WDM to both domestic as well as commercial/industrial customers</i>	4
<i>The WSA offers technical support on WDM to large consumers on a pro-active basis</i>	3
<i>The WSA only offers technical support on WDM on a reactive basis</i>	2
<i>The WSA currently offers no technical support but plans to introduce a support mechanism</i>	1
<i>The WSA has no plans to offer technical support on WDM measures to any customer</i>	0

22. Removal of Unlawful Connections	Score
<i>The WSA actively monitors and removes all unlawful connections</i>	4
<i>The WSA selectively monitors and removes unlawful connections</i>	3
<i>The WSA monitors unlawful connections but has no policy for removal</i>	2
<i>The WSA plans to introduce measures to tackle unlawful connections</i>	1
<i>The WSA has no plans to deal with unlawful connections</i>	0

23. Community Awareness and Education Programmes	Score
<i>WSA is actively involved in conducting workshops on water conservation within the communities with a dedicated team</i>	4
<i>WSA is involved in conducting workshops on water conservation within the communities however no dedicated team exists</i>	3
<i>WSA has very little involvement with workshops on water conservation within the communities</i>	2
<i>WSA currently does not conduct workshops on water conservation within the communities, however these interventions are proposed</i>	1
<i>WSA currently does not conduct workshops on water conservation within the communities</i>	0

24. Schools Awareness and Education Programmes	Score
<i>WSA is actively involved in conducting workshops on water conservation within the schools with a dedicated team</i>	4
<i>WSA is involved in conducting workshops on water conservation within the schools however no dedicated team exists</i>	3
<i>WSA has very little involvement with workshops on water conservation within the schools</i>	2
<i>WSA currently does not conduct workshops on water conservation within the schools, however these interventions are proposed</i>	1
<i>WSA currently does not conduct workshops on water conservation within the schools</i>	0

25. Newspaper & radio articles plus posters and leaflets for distribution	Score
<i>WSA runs regular adds in newspapers and/or radio and has library of posters and leaflets for public distribution</i>	4
<i>WSA runs occasional adds in newspapers and/or radio and has library of posters and leaflets for public distribution</i>	3
<i>WSA has library of posters and leaflets for public distribution but does not advertise in newspapers or radio</i>	2
<i>WSA has some leaflets and/or posters and intends to strengthen its capacity to promote WC/WDM in the community</i>	1
<i>WSA does not advertise in newspapers or radio and has no posters or leaflets on WC/WDM</i>	0

"The purpose of the Municipal Scorecard for the assessment of Water supply systems is to ascertain the Status quo of these systems and evaluate the potential for Water Conservation / Water Demand Management (WC/WDM) measures to be implemented in these systems. The scorecard is designed to enable the Regulator (Department of Water Affairs) to assess the current situation regarding losses and levels of wastage in all water supply systems countrywide. The initiative will provide the mechanism whereby the DWA can identify areas where WC/WDM is not being addressed properly to ensure that appropriate measures are taken to encourage efficient use of water and the elimination of wastage. The scorecard is based on a number of key issues which all water service providers must address as part of normal management. The Scorecard will also identify areas of expertise and best practice which can be used to help other areas which are experiencing problems. The following table provides the items included in the Scorecard."



Name of Municipality/ Water Service Provider: _____

Item No.	Description	Points
1.	Development of Standard Water Balance	
2.	Pressurised supply to all consumers 100% of time	
3.	Residential Metering System	
4.	Non Residential Meters (Commercial, Industrial and Institutional)	
5.	Effective Billing System & Informative Billing	
6.	Network (Leakage) Complaints System	
7.	Billing and Metering Complaints System	
8.	Asset Register of Water Reticulation System	
9.	Asset Management - Capital Works	
10.	Asset Management - Operations and Maintenance	
11.	Dedicated WDM support	
12.	Active Leakage Control	
13.	Effective Sectorisation	
14.	Effective Bulk Meter Management	
15.	Effective Zone Meter Management and Assessment of Minimum Night Flows	
16.	Pressure Management and Maintenance of Pressure Reducing Valves	
17.	As-Built Drawings of Bulk and Reticulation Infrastructure	
18.	Schematic Layout of Water Infrastructure	
19.	Regulations and By-Laws	
20.	Tariffs	
21.	Technical Support to Customers	
22.	Removal of Unlawful Connections	
23.	Community Awareness and Education Programmes	
24.	Schools Awareness and Education Programmes	
25.	Newspaper & radio articles plus posters and leaflets for distribution	

Total: