



Overview

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- Conclusions and Recommendations



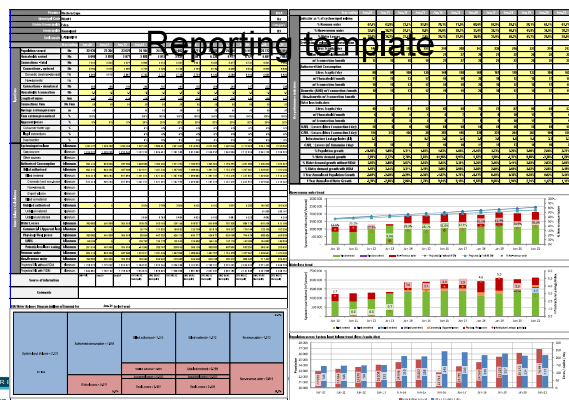
Objectives of the study

- Assess the status of water losses in South Africa, to strengthen the efforts of the WSAs in managing NRW, and to amplify the need for an effective regulatory and enforcement environment.
- Report on System Input Volume (SIV), NRW, water loss and efficiency trends using 2012/13 to 2022/23 annual municipal data (i.e., 10 financial years).
- Assess municipal water loss and water use efficiency against regulatory compliance requirements and best management practices.

Methodology



Reporting template



IWA water balance

System input volume (Water security and efficiency)	Authorised Consumption (All water use and wastage after connection on user side)	Billed authorised	Billed metered	Revenue water (Includes free basic water)
			Billed unmetered	
			Unbilled metered	
			Unbilled unmetered	
Water Losses (All losses before the connection on municipal side) (Environmentally and financially unattractive)	Water Losses	Commercial / Apparent losses	Unauthorised consumption	Non-Revenue water (Financial sustainability of the WSA and promotion of water use efficiency)
			Meter inaccuracies	
			Transfer errors	
			Leakage on distribution pipes Leakage & overflows on storage tanks Leakage on connection pipes up to point of connection	
Physical / Real losses	Physical / Real losses	Physical / Real losses	Leakage on distribution pipes Leakage & overflows on storage tanks Leakage on connection pipes up to point of connection	Non-Revenue water (Financial sustainability of the WSA and promotion of water use efficiency)
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Municipal categories

Category	Number	Short description	Long Description
A	8	Metros	Metropolitan municipalities
B1	19	Secondary cities	Secondary cities, local municipalities with the largest budgets
B2	27	Large cities	Municipalities with a large town as core
B3	110	Small towns	Municipalities with relatively small population and significant proportion of urban population but with no large town as core
B4	70	Mostly rural	Municipalities which are mainly rural with, at most, one or two small towns in their area

Data summary

- 88 WSAs submitted water information.
- Data were classified as follows:
 - High confidence level: Data sets are submitted on a regular basis, show trends and are credible.
 - Medium confidence level: One or more data sets were submitted in the past three years and seem credible.
 - Low confidence level: None or one data set was submitted in the past three years, and the data sets submitted are questionable, with considerable gaps and/or inaccuracies.

Data summary...

- **The 3 Regions with the highest water use**, namely, Western Cape, Gauteng, and KwaZulu-Natal, also provide the most credible information. These three Regions represent 65.7% of the water use and 61.1% of the population served.
- **Category A** - Metropolitan municipalities continue to report consistently and most can provide a water balance monthly. This is encouraging considering that metropolitan municipalities represent 53.3% of the total water use and 47.3% of the population served.
- **Category B1 and B2** - Most secondary cities and large municipalities can provide a water balance regularly, although there is considerable room for improvement in some Regions. The secondary cities and large municipalities represent 21.4% of the total water use and 20.8% of the population served. These municipalities are of economic significance and should have the necessary budgets and resources to implement WC/WDM.
- **Category C2, B3 and B4** - Only 53% of the small and rural municipalities can provide an accurate water balance regularly. Reasons for this include difficulty measuring the supply due to the substantial number of boreholes, and large indigent consumer bases.

Estimated water balances

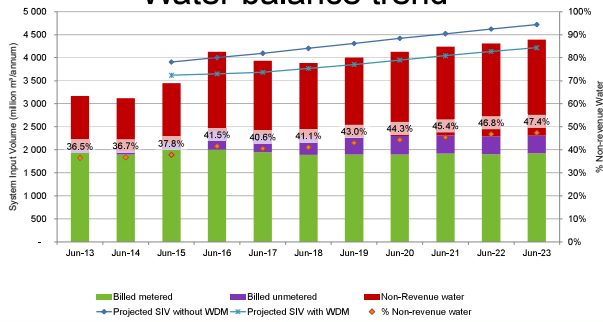
- Prior to 2016, the sample size for the various categories were extrapolated based on the population served.
- Provided crude results and was highly influenced by the category B3 and B4 municipalities
- Replaced with an estimated water balance for each municipality (Bottom-up approach)
- Factors taken into consideration include previous submissions, all town and recon strategies, area knowledge, level of service, etc.
- Estimated water balance calculations still require further refinement and improvement

Results

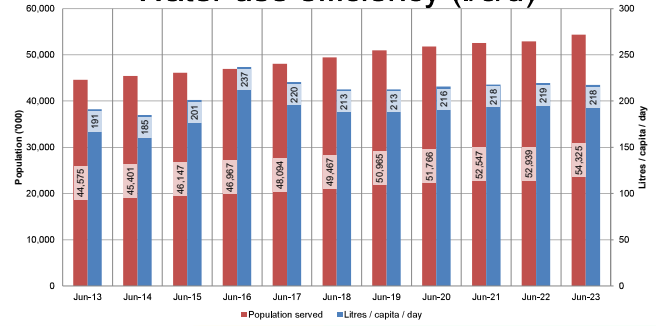
National water balance 2022/23 (billion m³/annum)

				52.6%
	Authorised consumption = 2.80	Billed authorised = 2.31	Billed metered = 1.93	Revenue water = 2.31
	127.16%			
System Input Volume = 4.33			Billed unmetered = 0.38 Unbilled metered = 0.87	
215.16%		Unbilled authorised = 0.29	Unbilled unmetered = 0.22	
		Apparent losses = 0.38	Apparent losses = 0.38	
	Water losses = 1.79	32.1%		Non-revenue water = 2.08
	40.8%	Real Losses = 1.41	Real Losses = 1.41	
		ILI = 7.0	15.8 m ³ /km ² /day	47.4%

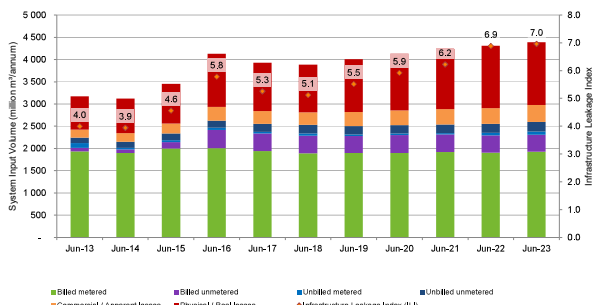
Water balance trend



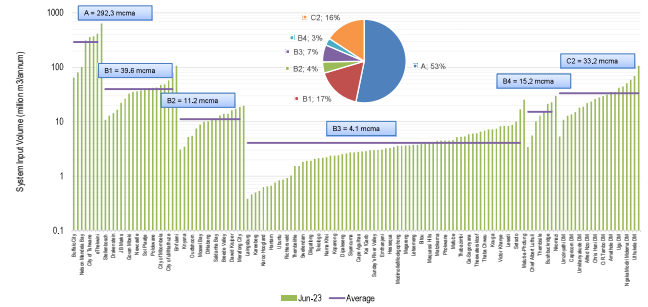
Water use efficiency (l/c/d)



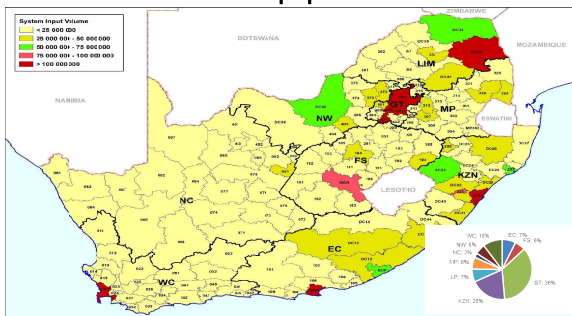
Water loss trend



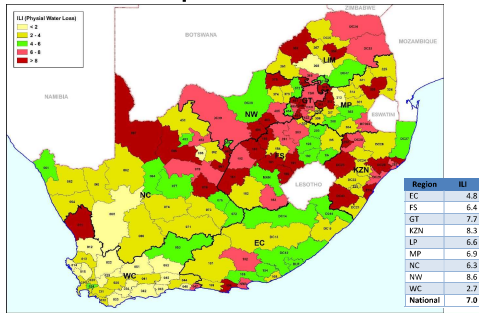
SIV per category



SIV map per WSA



ILI per WSA



Regional water balances

Region	SIV (m³/annum)	RW (m³/annum)	NRW (m³/annum)	Physical Losses (m³/annum)	%NRW	l/c/d	ILI
EC	322 340 566	160 335 729	162 004 837	103 791 553	50.3%	183	5.1
FS	247 977 565	117 228 256	130 749 310	95 657 659	52.7%	216	5.4
GT	1 569 696 786	902 178 874	667 517 912	392 631 526	42.5%	266	7.7
KZN	858 026 407	371 100 538	486 925 869	315 842 993	56.7%	229	8.9
LP	305 413 154	134 471 525	170 941 629	135 286 078	56.0%	204	6.8
MP	283 727 455	130 423 536	153 303 919	103 177 963	54.0%	186	5.4
NC	107 474 516	48 072 109	59 402 407	47 342 117	55.3%	247	8.3
NW	240 023 761	119 006 246	121 017 515	91 132 465	50.4%	174	6.1
WC	454 628 348	327 938 793	126 689 555	96 152 929	27.9%	162	3.8
National	4 389 308 559	2 310 755 606	2 078 552 953	1 414 287 281	47.4%	218	7.0

Encouraging to note that GT, KZN and WC account for 65.7% of the water use and 61.1% of the population served and are also the Regions with the best monitoring

Financial analysis

National financial balance

				52.6%
	Authorised consumption = 2599,360	Billed authorised = 2310,756	Billed metered = 1926,568	Revenue water = 2310,756
				@ R 18.95 = R 44 billion
			Billed unmetered = 384,188	
			Unbilled unmetered = 70,116	
			Unbilled authorised = 288,800	
			Unbilled unmetered = 218,450	
		Apparent losses = 375,661	Apparent losses = 375,661	
		Water losses = 1789,548	Real Losses = 1414,287	Non-revenue water = 2078,553
				@ R 18.07 = R 28 billion
				47.4%

Potential financial benefit (R million)

	Percentage increase in billed consumption @ R 18.95 / l									
	0%	2%	4%	6%	8%	10%	12%	14%	16%	
Percentage reduction in system input volume @ R13.97 / l	0%	R 0	R 881	R 1 762	R 2 644	R 3 525	R 4 406	R 5 287	R 6 169	R 7 050
	2%	R 1 160	R 2 041	R 2 922	R 3 804	R 4 685	R 5 566	R 6 447	R 7 329	R 8 210
	4%	R 2 320	R 3 201	R 4 082	R 4 963	R 5 845	R 6 726	R 7 607	R 8 488	R 9 370
	6%	R 3 480	R 4 361	R 5 242	R 6 123	R 7 005	R 7 886	R 8 767	R 9 648	R 10 529
	8%	R 4 639	R 5 521	R 6 402	R 7 283	R 8 164	R 9 045	R 9 927	R 10 808	R 11 689
	10%	R 5 799	R 6 681	R 7 562	R 8 443	R 9 324	R 10 206	R 11 087	R 11 968	R 12 849
	12%	R 6 959	R 7 840	R 8 722	R 9 603	R 10 484	R 11 365	R 12 247	R 13 128	R 14 009
	14%	R 8 119	R 9 000	R 9 882	R 10 763	R 11 644	R 12 525	R 13 406	R 14 288	R 15 169
	16%	R 9 279	R 10 160	R 11 041	R 11 923	R 12 804	R 13 685	R 14 566	R 15 448	R 16 329

10% SIV reduction + 10% revenue increase
= R 10 billion/annum benefit

Recommendations

- Municipalities should increase their efforts to reduce NRW and the negative impact it has on their ability to generate own income and operate a viable water business
- Ongoing monitoring and reporting of municipal NRW and water loss performance by DWS against determined targets and baselines are critical
- Municipalities must be reminded of their responsibilities in terms of the Water Services Act and actively participate, budget through the IDP process and implement the results from the reconciliation strategies.
- Metropolitan municipalities and secondary cities account for 70% of the water supply to 64% of the population and should be a focus area. Municipalities should, through on-going awareness programmes, encourage the consumer to appreciate the value of water and enforce the user pays principle.
- Municipalities should resolve metering and billing issues to increase payment levels, encourage consumer fixing of leaks, and prosecution of illegal water connections and reduce theft of water.
- Municipal asset management needs to be improved to ensure greater sustainability of water supply services.
- Closer involvement and collaboration with National Treasury is critical to ensure issues related to funding of WCWDM programmes, metering and billing issues are resolved with municipal finance departments.

Recommendations

- Municipalities should resolve intermittent supply as it is a prerequisite for an effective WC/WDM programme. Intermittent supply is ineffective (consumers adapt), corrupts meter readings and billing data, expensive to operate, damage pipe seals with subsequent increased leakage and is disruptive.
- The No Drop incentive-based regulation programme is rolled-out with the other Drop programmes to elevate WC/WDM regulation in the municipal environment. The Department will strengthen and enforce its regulatory mandate to penalise municipalities that do not comply.
- The recommendations of the Third Edition of the National Water Resource Strategy must be implemented which calls for greater emphasis on meeting specific targets to reduce water loss.
- The recommendations of South Africa's National Development Plan (Vision for 2030)(NPC, 2013) must be implemented.
- The recommendations of the National Water and Sanitation Master Plan (DWS, 2018) should be implemented as a matter of urgency.
- Every citizen has a right to, amongst other things, sufficient food, and water, placing water at the forefront of human development and therefore emphasizing the importance of its management and beneficial use. This human right comes with a responsibility and every citizen must use water sparingly, pay for water services, fix household leaks, report municipal leaks, and promote water use efficiency at home, work, and public facilities.

THANK YOU