STATUS OF WATER AND SANITATION IN NORTHERN CAPE

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Date: September 2023

WATER IS LIFE - SANITATION IS DIGNITY

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

2030 NDP

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Provincial Overview…

1 230 000
SMALLEST POPULATION

TOTAL OF
351 000
HOUSEHOLDS

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2 Major water supply systems namely: Vaal and Orange

4 Dams and 3 balancing dam

173 water supply systems

44 Water treatment works

79 waste water treatment works

1488 Municipal boreholes

ORANGE & VAAL

2 PERENNIAL RIVERS

THE NORTHERN CAPE HAVE A TOTAL OF
439 TOWNS

72% (316)
OF THE TOWNS RELY ON GROUNDWATER

26% (114)
OF THE TOWNS RELY ON SURFACE WATER

2% (9)
OF THE TOWNS RELY ON A MIXURE OF BOTH

Northern Cape Households Access to Water

- The National Integrated Water Information System (NIWIS) distinguishes between the provision of piped water inside dwellings, piped water provided inside of yards but not houses and, provision of water to households in other forms, like communal standpipes.
- Approximately **80.13%** of the households in the Northern Cape either have access to piped water supply in their dwellings or in their yard. The remaining **19.87%** (other in the table to follow) are reliant on other water sources including standpipes, springs, boreholes, etc.
- Households not directly connected either via house or yard connections can be upgraded to house or yard connections via the Water Services Infrastructure Grant (WSIG) or the Municipal Infrastructure Grant (MIG).
- Before upgrading can be considered, the local municipality in question must ensure that sufficient bulk water supply and infrastructure is available.
- Additional bulk is funded via WSIG, MIG or the Regional Bulk Infrastructure Grant (RBIG).

Northern Cape Households Access to Water (continued)

ACCESS TO WATER (DWS NIWIS, 2022)

WSA	Total Households	Piped water inside dwelling Households		Piped water inside yard Households		Other (not in dwelling or yard)	
		Households	Percentage	Households	Percentage	Households	Percentage
Dikgatlong	15,735	4,163	26.6%	9,953	63.25%	1,619	10.29%
Magareng	7,394	1,544	20.88%	4,651	62.9%	1,198	16.2%
Phokwane	20,788	7,689	36.99%	9,712	46.72%	3,388	16.3%
Sol Plaatje	76,356	47,711	62.48%	23,263	30.47%	5,381	7.05%
Ga-Segonyana	34,542	4,263	12.34%	9,402	27.22%	20,885	60.46%
Gamagara	16,687	10,079	60.4%	4,932	29.56%	1,680	10.07%
Joe Morolong	25,206	1,015	4.03%	1,371	5.44%	22,807	90.48%
Hantam	7,312	4,963	67.87%	2,022	27.65%	327	4.47%
Kamiesberg	3,507	1,336	38.1%	2,084	59.42%	85	2.42%

Northern Cape Households Access to Water (continued)

WSA	Total Households	Piped water inside dwelling Households		Piped water inside yard Households		Other (not in dwelling or yard)	
		Households	Percentage	Households	Percentage	Households	Percentage
Karoo Hoogland	4,904	3,692	75.29%	1,074	21.9%	138	2.81%
Khai-Ma	4,325	0	0%	0	0%	4,325	100%
Nama Khoi	15,428	12,602	81.68%	2,616	16.96%	213	1.38%
Richtersveld	4,469	3,392	75.9%	853	19.09%	266	5.06%
Emthanjeni	12,655	6,695	52.9%	5,666	44.77%	293	2.32%
Kareeberg	3,891	1,856	47.7%	1,691	43.46%	343	8.82%
Renosterberg	3,787	1,813	47.87%	1,848	48.8%	126	3.33%
Siyancuma	10,793	5,140	47.62%	3,176	29.43%	2,479	22.97%
Siyathemba	7,023	2,910	41.44%	3,978	56.64%	136	1.94%
Thembelihle	5,032	1,989	39.53%	2,487	49.42%	556	11.05%
Ubuntu	6,403	3,017	47.12%	3,074	48.01%	313	4.89%
Umsobomvu	10,157	4,122	40.58%	5,263	51.82%	771	7.59%
!Kheis	4,616	1,018	22.05%	3,043	65.92%	555	12.02%
Dawid Kruiper	30,472	15,585	51.15%	12,608	41.38%	2,279	7.48%
Kai !Garib	24,411	11,549	47.31%	10,179	41.7%	2,679	10.97%
Kgatelopele	6,578	4,377	66.54%	2,066	31.41%	134	2.04%
Tsantsabane	12,542	6,357	50.69%	4,609	36.75%	1,576	12.57%
Northern Cape	**375,013**	**168,877**	**45.03%**	**131,621**	**35.1%**	**74,512**	**19.87%**

Northern Cape Households Access to Sanitation

- The National Integrated Water Information System (NIWIS) distinguishes between the provision of the following sanitation services:
  - Flush Sewerage Systems, which is the flushing of sewerage to treatment works via reticulation
  - Flush Septic Tanks, which is waterborne to a storage tank, which must be emptied via honeysucker by the local municipality.
  - Pit latrines with ventilation, which is a dry, ventilated sanitation system, which must be maintained by the household.
  - Pit latrines without ventilation, which is a dry, unventilated sanitation system, which must also be maintained by the household.
  - Chemical Toilet, which is a dry system that separates solid and liquid waste and treats waste using chemical means.
  - Buckets which is a temporary, dry collection mechanism that must be continually collected by the municipality.
- Pit latrines without ventilation, Buckets and no sanitation services at all, is classified as a backlog.

Northern Cape Households Access to Sanitation (continued)

- **68.6%** of households have access to a flush toilet connected to the sewerage system.
- **3.9%** of households do not have access to sanitation, therefore implying open defecation.
- The remaining **27.5%** utilise some form of on-site sanitation system including pit latrines with ventilation (i.e. VIPs) (11%), chemical toilets (2.3%), pit latrines without ventilation (5.1%), septic tanks (5.9%) and bucket latrines (3.1%).
- Municipalities must elect to deploy a suitable sanitation system dependant on the availability of bulk water and sanitation infrastructure, as well as internal reticulation.
- Upgrading of services can be accessed via the Water Services Infrastructure Grant (WSIG), the Municipal Infrastructure Grant (MIG) and, the Regional Bulk Infrastructure Grant (RBIG).

Northern Cape Households Access to Sanitation (continued)

- The National Sanitation Framework (NSF) should also be taken into account as it constitutes an implementation framework that will guide sanitation project implementation in all settlements.

- The framework will amongst other things
  - provide guidance on appropriate solutions for different spatial patterns (solution for dense urban areas vs sparsely populated areas)
  - indicate that in principle all densely and highly populated areas should be provided with sewered waterborne sanitation.
  - Indicate different forms of on-site sanitation which should be used in sparsely populated areas.

Access to Sanitation (continued)

ACCESS TO SANITATION (DWS NIWIS, 2022)

WSA	Total Households (HH)	% Flush Sewerage System		% Flush Septic Tank		% Pit Latrine with Ventilation		% Chemical Toilet		% Pit Latrine without Ventilation		% Bucket		% Open Defecation	
		HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%
Dikgatlong	15,735	9,158	58.2	4,532	28.8	393	2.5	897	5.7	63	0.4	31	0.2	661	4.2
Magareng	7,394	6,396	86.5	333	4.5	362	4.9	155	2.1	0	0	22	0.3	126	1.7
Phokwane	20,788	15,570	74.9	790	3.8	1,289	6.2	1,996	9.6	166	0.8	0	0	956	4.6
Sol Plaatje	76,356	68,873	90.2	305	0.4	1,069	1.4	1,374	1.8	76	0.1	3,665	4.8	993	1.3
Ga-Segonyana	34,542	7,323	21.2	1,865	5.4	8,566	24.8	0	0	14,197	41.1	138	0.4	2,487	7.2
Gamagara	16,687	14,851	89	551	3.3	133	0.8	17	0.1	0	0	0	0	1,151	6.9
Joe Morolong	25,206	1,084	4.3	328	1.3	17,972	71.3	1,815	7.2	2,042	8.1	353	1.4	1,588	6.3
Hantam	7,312	6,464	88.4	592	8.1	249	3.4	0	0	0	0	0	0	0	0
Kamiesberg	3,507	2,223	63.4	74	2.1	750	21.4	0	0	39	1.1	151	4.3	267	7.6
Karoo Hoogland	4,904	2,099	42.8	1,481	30.2	314	6.4	0	0	461	9.4	397	8.1	152	3.1
Khai-Ma	4,325	3,071	71	852	19.7	385	8.9	0	0	0	0	0	0	17	0.4
Nama Khoi	15,428	12,173	78.9	1,296	8.4	1,173	7.6	0	0	494	3.2	154	1	139	0.9
Richtersveld	4,469	3,870	86.6	170	3.8	380	8.5	40	0.9	0	0	0	0	9	0.2
Emthanjeni	12,655	10,985	86.8	1,291	10.2	190	1.5	38	0.3	0	0	89	0.7	63	0.5
Kareeberg	3,891	3,117	80.1	128	3.3	553	14.2	43	1.1	0	0	12	0.3	39	1
Renosterberg	3,787	3,181	84	382	10.1	0	0	15	0.4	0	0	8	0.2	204	5.4
Siyancuma	10,793	7,641	70.8	324	3	809	7.5	0	0	367	3.4	1,435	13.3	216	2

Access to Sanitation (continued)

ACCESS TO SANITATION (DWS NIWIS, 2022)

WSA	Total Households (HH)	% Flush Sewerage System		% Flush Septic Tank		% Pit Latrine with Ventilation		% Chemical Toilet		% Pit Latrine without Ventilation		% Bucket		% Open Defecation	
		HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%
Siyathemba	7,023	5,583	79.5	365	5.2	253	3.6	351	5	49	0.7	183	2.6	239	3.4
Thembelihle	5,032	3,714	73.8	161	3.2	332	6.6	0	0	206	4.1	70	1.4	548	10.9
Ubuntu	6,403	5,622	87.8	371	5.8	13	0.2	0	0	26	0.4	134	2.1	237	3.7
Umsobomvu	10,157	8,065	79.4	823	8.1	437	4.3	457	4.5	0	0	102	1	274	2.7
!Kheis	4,616	2,086	45.2	277	6	1,509	32.7	0	0	392	8.5	32	0.7	323	7
Dawid Kruiper	30,472	2,064	66.5	2,651	8.7	1,188	3.9	1,067	3.5	274	0.9	3,961	13	1,036	3.4
Kai !Garib	24,411	16,966	69.5	1,636	6.7	2,417	9.9	464	1.9	269	1.1	561	2.3	2,099	8.6
Kgatelopele	6,578	6,032	91.7	533	8.1	20	0.3	0	0	0	0	0	0	0	0
Tsantsabane	12,542	10,736	85.6	201	1.6	426	3.4	13	0.1	0	0	226	1.8	941	7.5
Northern Cape	**375,013**	**257,259**	**68.6**	**22,126**	**5.9**	**41,251**	**11**	**8,625**	**2.3**	**19,126**	**5.1**	**11,625**	**3.1**	**14,626**	**3.9**

Note: All approved sanitation services listed in the Norms & Standards are shaded green, unimproved sanitation services are shaded yellow and unacceptable sanitation services are shaded in red.

BUCKET ERADICATION PROGRAMME

17.5 Observations and Findings: (page 157 of report)

- Delegates noted the continued use of bucket system and expressed the need to remedy this matter.

BEP BACKGROUND

- In 2012, the Department of Human Settlements, established the Bucket Eradication Programme (BEP) as part of an overall fact-finding mission to determine the state of sanitation in South Africa – In so doing, the task team identified communities in some provinces still to be using the bucket system hence the initiation of the programme to eliminate all bucket toilets in **formal areas** in the country;
- In the Northern Cape Province, the programme is at its final stage with **exception of the Campbell 596 buckets project**.

COMPLETED BEP PROJECTS IN NC

LOCAL MUNICIPALITY	PROJECT NAME	TARGET	STATUS
Emthanjeni	Bristown	398	Complete
Dawid Kruiper	Pabalello	594	Complete
	Louisvaleweg	600	Complete
	Dakotaweng	320	Complete
	Kalksloot	120	Complete
	Rosedale	1771	Complete
Nama Khoi	Various Sites	192	Complete
Siyancuma	Griekwastad	475	Complete
	Campbell	596	In progress
	Bongani	440	Complete
	Breipaal	254	Complete
Siyathemba	Marydale	237	Complete
Sol Plaatje	Fraser Moleketi	458	Complete
	Motswedimosa	656	Complete
	Promised Land	784	Completed
	Freedom Park	161	Completed
Tsantsabane	Maranteng	232	Complete
Dawid Kruiper	Rosedale	308	Complete
Dikgatlong	Rietvlei / Freedom Park	50	Complete
	Proteahof / Delpoortshoop	196	Complete
	Koopmansfontein	37	Complete
	Molelwane	85	Complete
	Phomolong	31	Complete
Gasegonyana	Batlharos	498	Completed
Molelwane	Phokwane	85	Completed
Renosterberg	Petrusville	21	Completed
Siyancuma	Griekwastad	47	Completed
Siyancuma	Bongani Reservoir	49	Completed
Siyancuma	Bongani Phomolong	31	Completed
Tembelihle	Hopetown	56	Completed
TOTAL		**1 494**	
GRAND TOTAL		**10 265**	

Summary of New Bucket Toilets in the Northern Cape

Town	Settlement Name	Number of Buckets		TOTAL
		FORMAL	INFORMAL	
Dawid Kruiper	11	5069	-	5 069
Hantam	2	-	335	335
Siyancuma LM	7	673	-	673
Sol Plaatje	5	477	65	542
Ubuntu	3	270	180	450
TOTAL	**28**	**7 085**	**580**	**7 665**

- Campbell still has 596 bucket toilets outstanding from the current BEP project which **excludes** the current Siyancuma LM New Buckets

SUMMARY OF BULK SERVICES COST

DISTRICT	MUNICIPALITY	TOTAL HH	TOTAL EST BEP COST	TOTAL BULK INFRASTRUCTURE COST	TOTAL
Pixley ka Seme	Siyancuma	673	R 22 461 416	R 113 998 214	R 136 459 630
Pixley ka Seme	Ubuntu	330	R 16 372 389	R 62 943 260	R 79 315 649
ZF Mgcawu	Dawid Kruiper	5 069	R 114 583 928	R 336 714 854	R 451 298 782
Frances Baard	Sol Plaatje	542	R 26 890 409	R 122 873 195	R 149 763 603
Total		6 614	R 180 308 142	R 636 529 523	R 816 837 664

SUMMARY OF SHORTFALL

District	Municipality	Total HH	Total est BEP cost	Internal Reticulation shortfall	Total Bulk Infrastructure Cost	Bulk infrastructure shortfall	TOTAL (Shortfall)
Pixley ka Seme	Siyancuma	673	R 22 461 416	R 22 461 416	R 113 998 214	R 39 987 000	R 62 448 416
Pixley ka Seme	Ubuntu	330	R 16 372 389	R 16 372 389	R 62 943 260	R 4 727 000	R 21 099 389
ZF Mgcawu	Dawid Kruiper	5 069	R 114 583 928	R 114 583 928	R 336 714 854	R 142 297 000	R 256 880 928
Frances Baard	Sol Plaatje	542	R 26 890 409	R 26 890 409	R 122 873 195	R 149 763 603	R 149 763 603
Total		6 614	R 180 308 142	R 180 308 142	R 636 529 523	R 336 775 206	R 490 192 336

It should be noted that Human Settlement play a critical role
in regard to allocating funds to the internal reticulation shortfall.
Clear planning / completion timeframes are required from Human Settlement

Buckets post BEP

The bulk infrastructure of the towns where buckets still exist must first be upgraded

Town	Settlement Name	Number of Buckets		TOTAL
		FORMAL	INFORMAL	
Dawid Kruiper	11	5069	-	5 069
Hantam	2	-	335	335
Siyancuma LM	7	673	-	673
Sol Plaatje	5	477	65	542
Ubuntu	3	270	180	450
TOTAL	**28**	**7 085**	**580**	**7 665**

Projects link to BEP:

Project	Municipality	Funder	Project cost	Status
Refurbishment / Upgrading of Douglas WTW	Siyancuma	WSIG	R 96 504 027	Procurement (Phase 1)
Calvinia Bulk water supply	Hantam	RBIG	R 281 442 896	Construction
Upgrading of Douglas WWTW	Siyancuma	MIG	R 39 089 258	Planning
Refurbishment / Upgrading of Upington WWTW	Dawid Kruiper	RBIG	R 309 320 702	Construction
Upgrading of Victoria West WWTW	Ubuntu	WSIG	R 24 927 000	Planning
Upgrading of Gogga bulk Sewer Line	Sol Plaatje	WSIG	R 25 000 000	Completed
Kimberley BWS	Sol Plaatje	BFI / RBIG	R 2,4 Bn	Planning

RBIG & WSIG EXPENDITURE PERFORMANCE

Northern Cape Regional Bulk Infrastructure Grant: 6B per project

Project	Budget	Expenditure 30 June 2023	Available Budget	Expenditure as % of budget	Narratives
	R'000	R'000	R'000	%	
Northern Cape Province					
RS28 Upington Waster water treatment works	34 542	723	33 819	2,09%	Phase 1 completed ,Phase 2 awaiting IRS approval
RS29 Warrenton water treatment works	20 000	1 500	18 500	7,5%	Under construction, Awaiting appointment of Mechanical contractor closing date 15 September 2023
Total Northern Cape Province	**54 542**	**2 223**	**53 819**	**10%**	

Northern Cape Water Services Infrastructure Grant: 6B per project

Project	Available Budget	Expenditure as % of budget	Narratives
	R'000	%	
Northern Cape Province			
Catersridge SPS/OS	17 768	0,00%	Project under construction
Phillipstown CT	9 000	0,00%	Municipality to appoint service providers but awaiting confirmation of their appointment as IA on behalf of DWS
Vredesvallei Waste Water Treatment Works	13 975	0,00%	Municipality to appoint service providers but awaiting confirmation of their appointment as IA on behalf of DWS
Topline Water Services	9 450	0,00%	Project under studies
Douglas Water Treatment Works	13 975	0,00%	Municipality to appoint service providers but awaiting confirmation of their appointment as IA on behalf of DWS
Hondeklipbay Water Services	8 540	0,00%	Project on hold
CVD-Siyancuma LM Sut Wat Supp	-1 641	0,00%	No budget allocation for the current
Windsorton to Holpan BWS	10 000	0,00%	TOR approved by Specifications Committee, awaiting the approved submission from Head office
Total Northern Cape Province	**82 708**	**1,98%**	

Regional Bulk Infrastructure Grant: 5B

Project	Final Budget	Transfers To date	Available Budget	Expenditure as % of budget	Expenditure on transfer
	R'000	R'000	R'000	%	R'000
Northern Cape Province					
NC065 Hantam Local Municipality	110 000	10 000	100 000	13%	1 300
NC091 Sol Plaaitjie Local Municipality	86 000	10 000		29%	2 927
Total: Northern Cape Province	**196 000**	**-**	**196 000**	**0,00%**	

2023/24 FINANCIAL PERFORMANCE Q1

The following challenges are experienced with the implementation of Capital projects in the NC:

1. There are **no direct controls** on the expenditure of 5B grant funding. Funding is transferred on a quarterly advance and the IA's must account prior to the next tranche is released. The **only measure of control** for DWS is withholding of funds and ultimately stopping of funds to non-performing IA's
2. The **procurement delays** experience by IA's on 6B grant funding is similar to DWS experience. Procurement is a lengthy process that can vary between **6 month to 12 months.**
3. **Contract administration within DWS** is a **lengthy process** with MoU taking up to 6 months to be drafted, circulated to all directorates involved, vetted and signed. Namakwa MoU took 12 months for DWS finalisation and is currently with Bloem Water for consideration.

WATER RECONCILIATION STRATEGIES

ACCESS TO WATER (DWS NIWIS, 2022)

Currently approximately **80.13% of the households** in the Northern Cape either have access to **piped water supply in their dwellings or in their yard**. The remaining **19.87%** are reliant on other water sources including standpipes, springs, boreholes, etc.

DWS COMPLETED WATER RECONCILIATION STRATEGIES FOR 91 VILLAGES (CLUSTER OF VILLAGES) IN THE NC IN 2011 AND UPDATED IT IN 2016.

The **study determined the current and future demand for each town and water supply system**, evaluated the resource availability, abstraction capacity, water treatment works capacity as well as the reticulation systems and reservoir capacities.

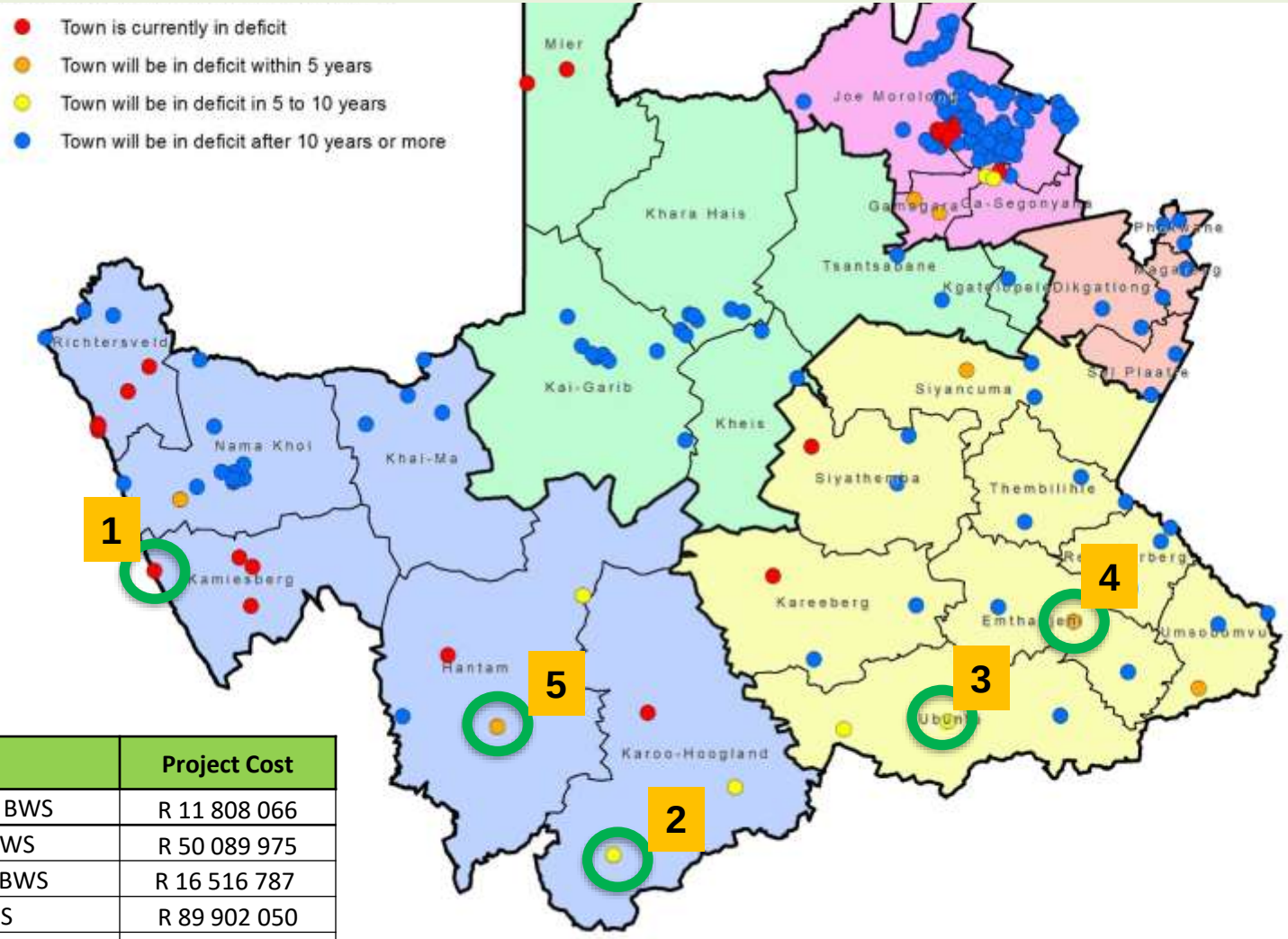
The strategies **provide direction on options for sources of water supply and development of implementation strategie**s.

Summaries of these supply systems indicated whether a water resource or infrastructure intervention is required in the short (five years), medium (ten years) or long term.

Thirty three percent (33%) of the supply systems studied are out of balance i.e. the available supplies are not able to meet the demands.

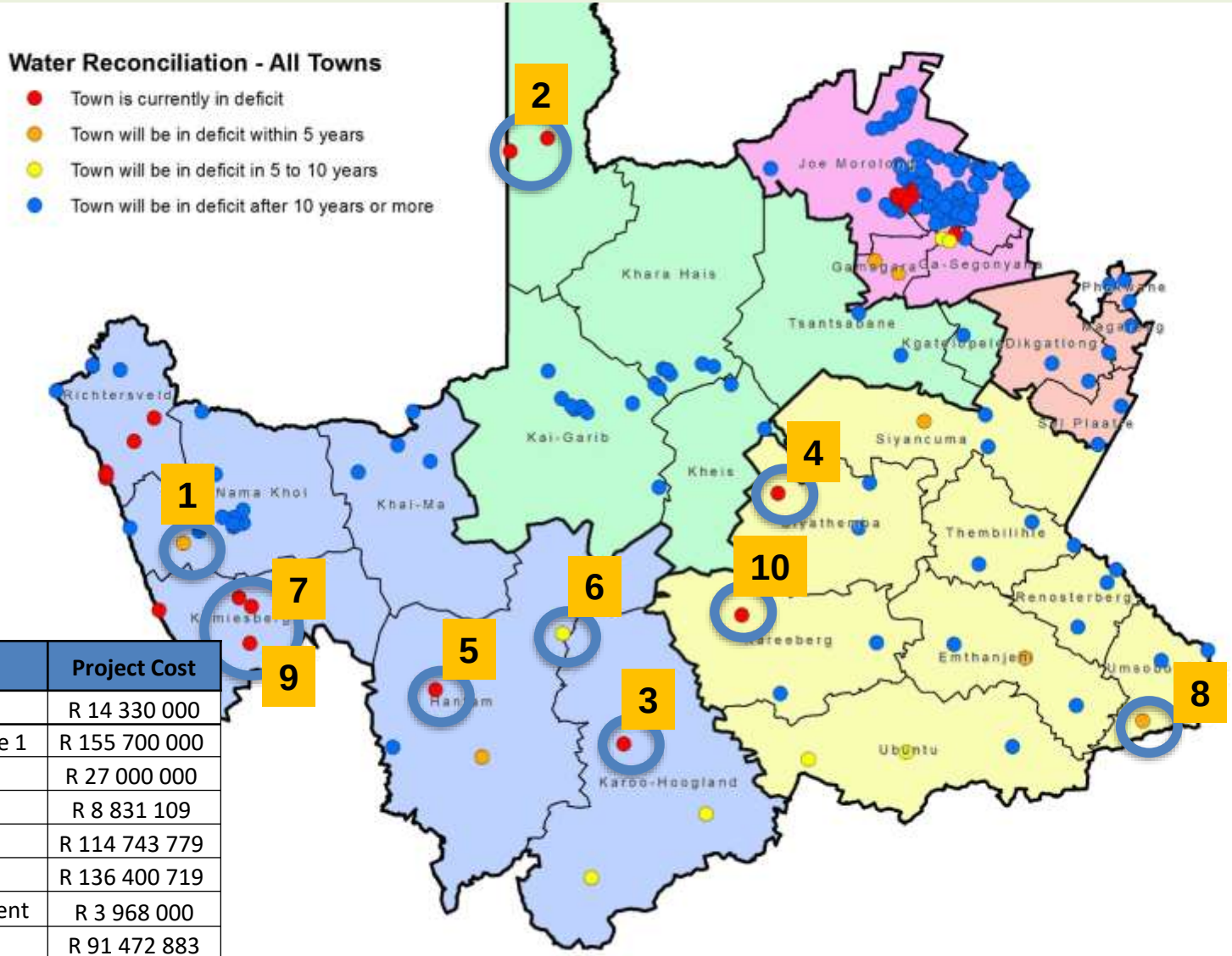
Eighteen percent (18%) of these systems requires immediate intervention since the towns are already experiencing a water supply deficit. The RBIG projects show good alignment with these strategies and projects have been prioritised for systems requiring interventions.

Implementation of the Water Recon strategies (All Town studies)
Major water resource projects under construction



Nr	ProjNme	Project Cost
1	Hondeklip Bay BWS	R 11 808 066
2	Sutherland BWS	R 50 089 975
3	Victoria West BWS	R 16 516 787
4	De Aar BWS	R 89 902 050
5	Calvinia BWS	R 281 442 896
	TOTAL	**R 449 759 774**

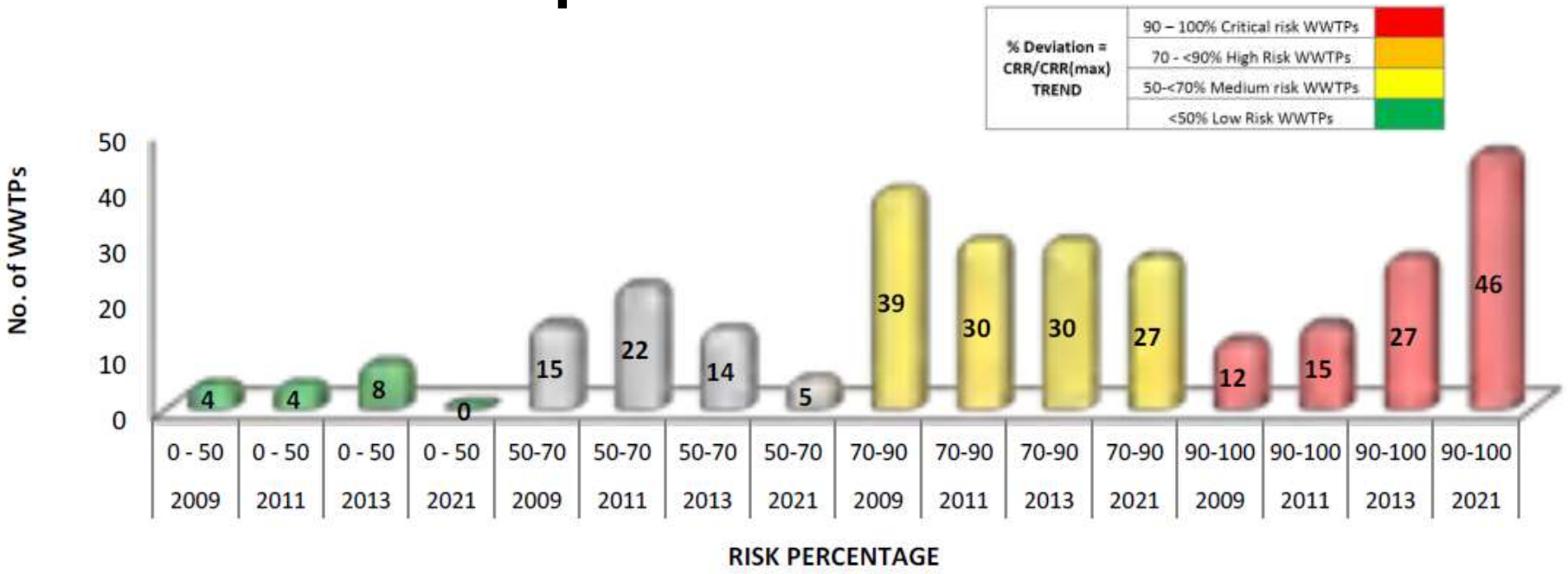
Implementation of the Water Recon strategies (All Town studies)
Major water resource completed projects



Nr	ProjNme	Project Cost
1	Buffelsrivier BWS	R 14 330 000
2	Kalahari East Pipeline phase 1	R 155 700 000
3	Williston BWS	R 27 000 000
4	Marydale BWS	R 8 831 109
5	Loeriesfontein BWS	R 114 743 779
6	Brandvlei BWS	R 136 400 719
7	Kamiesberg GW development	R 3 968 000
8	Noupoort BWS	R 91 472 883
9	Garies Desalination Plant	R 36 278 112
10	Van Wyksvlei BWS	R 99 676 142
	TOTAL	R 565 600 744

WASTE WATER TREAMENT WORKS

Green Drop Status



- The CRR decline has been consistent from 2011 to 2021
- The 2021 assessment cycle highlighted regressive shifts with a decrease in the number of low (8 to 0), medium (14 to 5) and high risk (30 to 27) WWTWs, and an increase in critical risk WWTWs (27 to 46).

WWTW authorisation status NC

	Northern Cape	Comment
Exemption	21	**Low Risk facilities exempted with a volume limitation and general conditions, Bulk of Evaporation ponds in NC:** Pofadder, OCC Nigramoep, OCC Nababeep, Kommaggas, Steinkopf, Springbok N7, Port Nolloth, Douglas, Marydale, Prieska, Augrabies, Kenhardt, Keimoes, Louisvaleweg, Groblershoop, Koingnaas & Mitchells Bay, Kleinzee, Twee Rivieren, Baken, Reuning, Hondeklipbaai, ~~Upington / Kameelmond, Fraserburg,~~ , .
License/ GA's	12	**Licensed through process with conditions:** Brandvlei, Carnarvon, Aggeneys, Springbok, Homevale, Kathu, Bestwood Estate, **Upington Kameelmond, Colesberg, Fraserburg**, **Finsch Mine, Alexander Bay (Alexcor),**
Permit	10	**ELU with volume and conditions, Upgraded facilities in NC:** Kamieskroon, Garies, Okiep, Carolusberg, Kakamas, De Aar, Williston, Sutherland, Beaconsfield, Postmasburg
No Authorisation	39	**High Risk:** Barkley West, Hartswater, Jan Kempdorp, Kuruman, Mothibistad, Dibeng, Warrenton, Pampierstad, Douglas, Hope Town **Low Risk:** Dingleton, Oliphantshoek, Hotazel, Richmond, Kharkams, Onseepkans, Pella, Concordia, Britstown, Vosburg, Niekerkshoop, Griekwastad, Strydenburg (new plant), Loxton, Victoria West, Jenn Haven , Danielskuil, Brandboom, Middlepos, Askham, Loubos, Philandersbron, Rietfontein, Welkom, Delportshoop / Longlands, Windsorton, Van Zylsrus, Vaalgama-gara, Lohatla Military,
Total	**82**	

WWTW authorisation status NC

Municipal Infrastructure Support Agent (MISA-NC) in collaboration with NC Provincial DWS are working together towards incremental authorization of unauthorize WWTW (Exemption).

To date the following has been achieved:

- Scope of work was finalized in March 2023.
- An action plan with timelines were completed in March 2023
- Letters to municipalities to appoint MISA as consultants was issued

However, the process is experiencing a difficulty due to lack of cooperation and availability of information to facilitate the incremental compliance authorization process.

Intervention is required form all Technical Directors and MMs to support the MISA officials. (DWS will not be able to authorize without required minimum information as prescribed in legislation

Enforcement on WWTW discharge and Pump stations

Name of WTW	Discharge to and impact on Water Resource	Volume (Ml/d)	Remarks	Status
Vryburg	Dry Harts River	15,0	Requested Court Order stop pollution	
Homevale	Kamferdam	48,0	Consider Court Order stop pollution	
Barkley West	Vaal River	3,0	Consider Court Order stop pollution	
Lichtenburg	Harts River	16,0	Requested Court Order stop pollution	
Kathu	Re-use Sishen Mine, discharge to stormwater	3,6	Sufficient compliance monitor	
Danielskuil	Discharge to dolomite aquifer	0,7	Sufficient compliance monitor	
Upington	Orange River	16,0	Stop pollution Monitor Action plan	
Vanderkloof	Seepage to river	0,2	Stop pollution Monitor Action plan	
Kuruman	Vlei re-used, dolomite aquifer	4,0	Stop pollution Monitor Action plan	
Hartswater	Stormwater canal into Harts River	2,0	Stop pollution Monitor Action plan	
Schweizer Reineke	Harts River	9,0	Stop pollution Monitor Action plan	
Jan Kempdorp	Tributary of the Harts River	2,7	Stop pollution Monitor Action plan	
Kakamas	Orange river	2,0	Stop pollution Monitor Action plan	
Hope Town	Orange river	2,0	Stop pollution Monitor Action plan	
Bloemhof	Vaal River	5,6	Sufficient compliance monitor	
Christiana	Vaal River	3,5	Sufficient compliance monitor	
Ottosdal	Dry Harts River	3,0	Sufficient compliance monitor	
Warrenton	Vaal River	2,0	Sufficient compliance monitor	
Postmasburg	Artificial Wetlands	4,8	Sufficient compliance monitor	
Kakamas	Orange river	2,0	Sufficient compliance monitor	
Beaconsfield	Paardeberg's vlei	8,0	Sufficient compliance monitor	
Nababeep	Discharge to stream	2,0	Sufficient compliance monitor	
Pampierstad	Harts River	4,0	Sufficient compliance monitor	
Phillipstown	Discharge to stream	0,3	Sufficient compliance monitor	
OCC Nababeep	Discharge to stream	2,0	Sufficient compliance monitor	
Garies	Discharge to stream		Sufficient compliance monitor	
Kommaggas	Discharge to stream		Sufficient compliance monitor	
Okiep	Discharge to stream		Sufficient compliance monitor	
Concordia	Discharge to stream		Sufficient compliance monitor	
		161,4		

Improve

Deteriorate

Criminal case Section 151 (1)(2)

Execution of works Court interdict Section 53 (1)(2)

Directive Section 53(1) 19(3)

Intention to issue directive Section 53(1) 19(3)

Unauthorised, non compliant Non compliance notice Section 53(1) 19(3),

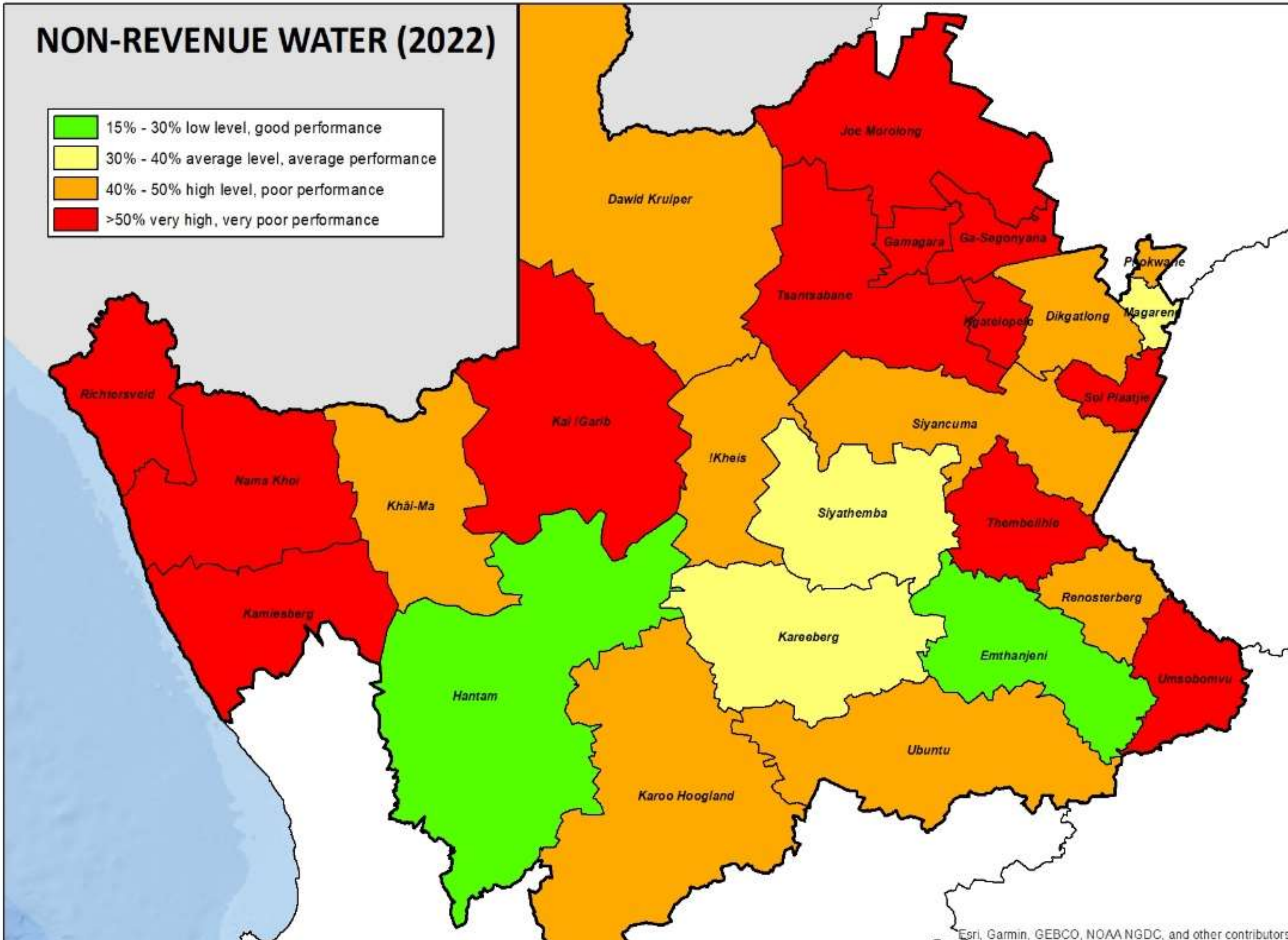
Enforcement on WWTW discharge and Pump stations

- Regulation of wastewater services require supply of save and sufficient drinking water and dignified sanitation, conveyance, treatment and disposal of wastewater and sludge to environment.
- The Blue, No and Green drop programs are best practise systems to allow municipalities to provide services in water and sanitation.
- Failures occur at WWTW and pumpstations due to noncompliance to systems, blockages, pumps, electrical and human with spillages and discharges of raw or partially treated effluent into yards, streets and the environment.
- These discharges are unlawful and pollution with risk to health and environment and DWS issue notices and directives that require municipalities to stop, rectify and rehabilitate these incidents within days or weeks.
- When municipalities do not stop, rectify and rehabilitate as required DWS can execute works and reclaim costs or make criminal and civil cases against the polluters.

WATER CONSERVATION/ NON-REVENUE WATER

Water Balance (2020/21)

Province	No	LM Code	Municipality	Category	WSA	Input volume (m3/annum)	RW (m3/annum)	NRW (m3/annum)	%NRW	litres / capita / day
NC	**1**	**DC6**	**Namakwa DM**	**C1**	**No**	**6 443 954**	**3 343 966**	**3 099 988**	**48,1%**	**147**
NC	2	NC061	Richtersveld	B3	Yes	905 437	382 976	522 461	57,7%	190
NC	3	NC062	Nama Khoi	B3	Yes	2 944 764	1 412 892	1 531 872	52,0%	166
NC	4	NC064	Kamiesberg	B3	Yes	459 120	225 356	233 764	50,9%	126
NC	5	NC065	Hantam	B3	Yes	641 320	508 160	133 160	20,8%	78
NC	6	NC066	Karoo Hoogland	B3	Yes	633 810	320 772	313 038	49,4%	128
NC	7	NC067	Khai-Ma	B3	Yes	859 503	493 810	365 693	42,5%	183
NC	**8**	**DC7**	**Pixley Ka Seme DM**	**C1**	**No**	**14 667 970**	**8 576 690**	**6 091 280**	**41,5%**	**196**
NC	9	NC071	Ubuntu	B3	Yes	830 173	445 511	384 662	46,3%	112
NC	10	NC072	Umsobomvu	B3	Yes	2 077 000	1 019 045	1 057 955	50,9%	176
NC	11	NC073	Emthanjeni	B3	Yes	3 430 662	2 617 162	813 500	23,7%	198
NC	12	NC074	Kareeberg	B3	Yes	468 441	326 811	141 630	30,2%	101
NC	13	NC075	Renosterberg	B3	Yes	756 486	411 764	344 723	45,6%	167
NC	14	NC076	Thembelihle	B3	Yes	1 724 770	545 579	1 179 191	68,4%	284
NC	15	NC077	Siyathemba	B3	Yes	2 731 499	1 878 221	853 278	31,2%	279
NC	16	NC078	Siyancuma	B3	Yes	2 648 939	1 332 597	1 316 341	49,7%	208
NC	**17**	**DC8**	**ZF Mgcawu**	**C1**	**No**	**24 245 987**	**11 879 512**	**12 366 475**	**51,0%**	**261**
NC	18	NC082	Kai !Garib	B3	Yes	2 863 200	1 183 536	1 679 664	58,7%	118
NC	19	NC084	!Kheis	B3	Yes	1 001 090	566 467	434 624	43,4%	164
NC	20	NC085	Tsantsabane	B3	Yes	2 969 788	1 039 396	1 930 392	65,0%	201
NC	21	NC086	Kgatelopele	B3	Yes	534 596	146 560	388 036	72,6%	67
NC	22	NC087	Dawid Kruiper	B2	Yes	16 877 313	8 943 553	7 933 760	47,0%	424
NC	**23**	**DC9**	**Frances Baard DM**	**C1**	**No**	**50 043 027**	**20 621 344**	**29 421 683**	**58,8%**	**348**
NC	24	NC091	Sol Plaatje	B1	Yes	39 960 665	14 295 555	25 665 110	64,2%	418
NC	25	NC092	Dikgatlong	B3	Yes	1 901 030	1 075 943	825 086	43,4%	103
NC	26	NC093	Magareng	B3	Yes	3 687 340	2 568 446	1 118 894	30,3%	453
NC	27	NC094	Phokwane	B3	Yes	4 493 992	2 681 400	1 812 592	40,3%	208
NC	**28**	**DC45**	**John Taolo Gaetsewe DM**	**C1**	**No**	**13 819 398**	**4 258 903**	**9 560 496**	**69,2%**	**180**
NC	29	NC451	Joe Morolong	B4	Yes	3 423 600	486 684	2 936 916	85,8%	135
NC	30	NC452	Ga-Segonyana	B3	Yes	5 884 275	1 591 320	4 292 955	73,0%	192
NC	31	NC453	Gamagara	B3	Yes	4 511 523	2 180 899	2 330 625	51,7%	220
TOTAL						**109 220 337**	**48 680 415**	**60 539 922**	**55,4%**	


NON-REVENUE WATER (2022)
15% - 30% low level, good performance
30% - 40% average level, average performance
40% - 50% high level, poor performance
>50% very high, very poor performance
Joe Morolong
Dawid Kruiper
Gamagara
Ga-Segonyana
Tsantsabane
Dikgatlong
Sol Plaatje
Richtersveld
Kai !Garib
Siyancuma
!Kheis
Nama Khoi
Khâi-Ma
Siyathemba
Thembelihle
Renosterberg
Kamiesberg
Kareeberg
Emthanjeni
Umsobomvu
Hantam
Ubuntu
Karoo Hoogland
Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Non-Revenue water challenges

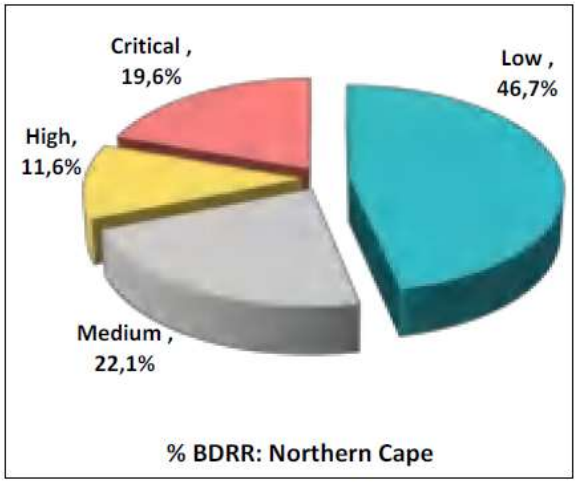
- Only 6 of the 26 WSA's report monthly on their water balances
- DWS is enforcing the municipalities to address the lack of Water Conservation Demand Management (WCDM) plans through the RBIG Implementation Readiness Study (IRS) conditions.
- DWS is supporting the municipality by compiling 5-year water and sanitation reliability plans and Water Services Developments Plans (WSDP) for each municipality. Part of the scope is updating of their water balances.

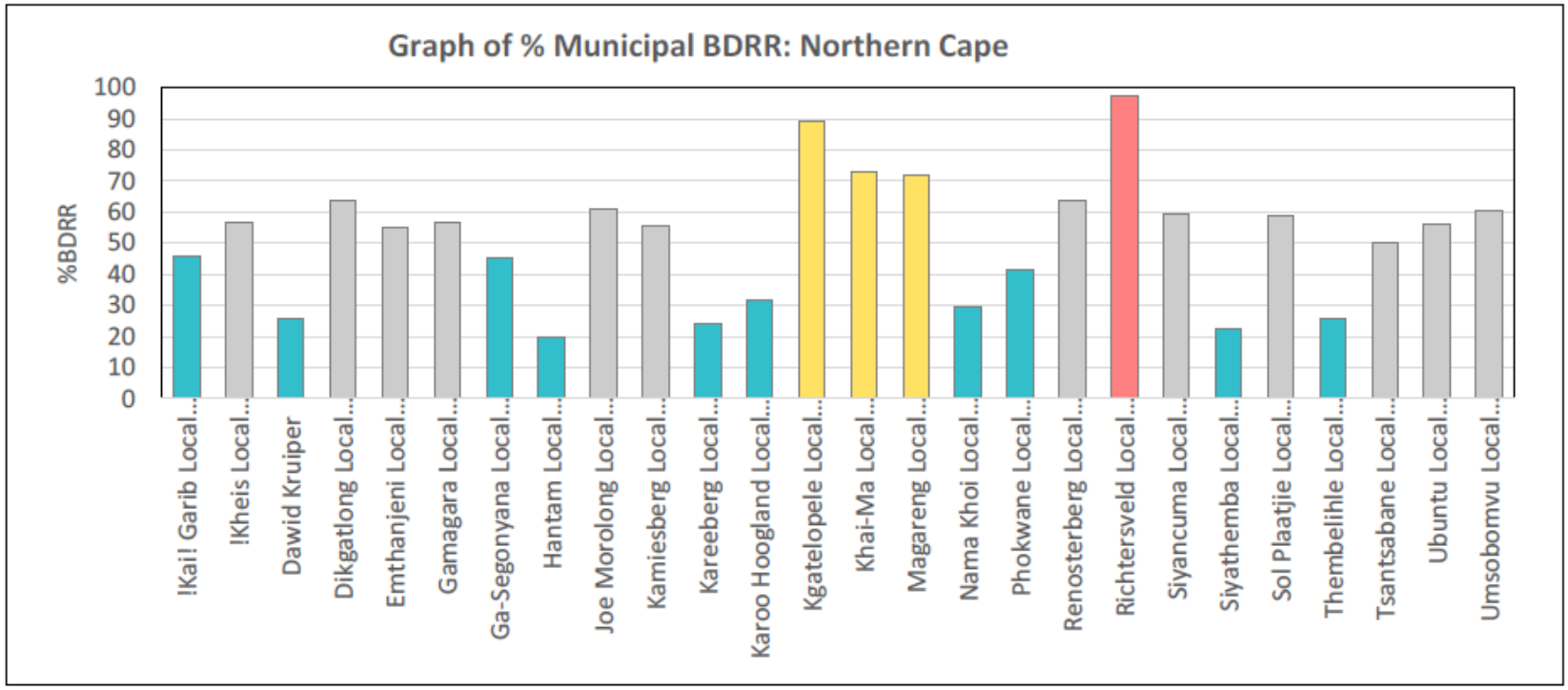
WATER QUALITY

Blue Drop status

Overall performance for Northern Cape Province is summarised as follows:

- 46.7% (93) of supply systems are in the low-risk category,
- 22.1% (44) of supply systems are in the medium risk category,
- 11.6% (23) of supply systems are in the high-risk category, and
- 19.6% (39) of supply systems are in the critical risk category





15 WSAs in NC were issued with Blue Drop Notices

1. **Dawid Kruiper**: Response March to June 23 results are compliant to the microbial limits and therefore, issuance of an advisory notice will not be justifiable since they are in compliance.
2. **Umsobomvu:** Response received in which the WSA agreed to having failures and that they are working on improving their water quality. A cleaning schedule for the old and new plant was underway in which thereafter, they were going to do a full SANS 241 in July 23 to see if there is any improvements in the water quality.
3. **Ga-Segonyana** – Acknowledgment of receipt received but no response.
4. **Kai !Garib** - Acknowledgment of receipt received but no response.
5. **Kamiesberg** - Acknowledgment of receipt received but no response.
6. **Khai Ma** - Acknowledgment of receipt received but no response.
7. **!Kheis** - Acknowledgment of receipt received but no response.
8. **Nama Khoi** - Acknowledgment of receipt but no response.
9. **Siyancuma** - Acknowledgment of receipt but no response.
10. **Dikgatlong** – No acknowledgement of receipt and no response.
11. **Magareng** - No acknowledgement of receipt and no response.
12. **Ubuntu** - No acknowledgement of receipt and no response.
13. **Phokwane** - No acknowledgement of receipt and no response.
14. **Richtersveld** - No acknowledgement of receipt and no response.
15. **Siyathemba** - No acknowledgement of receipt and no response.

Blue drop notices

- Save and sufficient drinking water is a constitutional right with the Blue, No and programs best practise systems that guide municipalities.
- Each municipality must sample, analyse and report to their consumers the quality of water supplied.
- When municipalities fail (low Blue drop score), at risk or report failures in water quality, noncompliance notices are issued to require them to rectify systems to supply safe and sufficient drinking water.

DEBT OWED BY MUNICIPALITIES

OUTSTANDING DEBT FROM WSA's TO DWS (JULY 2023)

Municipality	Total as at 31 July 2023	
Frances Baard	**R 235 822 251,27**	
Dikgatlong	R	115 966 608,70
Magareng	R	9 194 193,07
Sol Plaatje	R	110 661 449,50
John Taolo Gaetsewe	**R 11 336 908,41**	
Gamagara	R	5 431 388,47
Ga-Segonyana	R	3 175 864,76
Joe Morolong	R	2 732 594,70
Namakwa	**R 901 583,25**	
Hantam Local	R	10 932,02
Kamiesberg	R	12 177,77
Karoo Hoogland	R	7 373,75
Khâi-Ma	R	57 364,37
Nama Khoi	R	764 595,95
Richtersveld	R	49 139,39
Pixley Ka Seme	**R 16 611 023,45**	
Emthanjeni Local	R	1 475 040,57
Kareeberg	R	75 983,80
Siya Themba	R	13 444 442,77
Siyancuma	R	1 409 923,67
Thembelihle	R	6 520,90
Ubuntu	R	199 111,74
Zf Mgcawu	**R 60 468 753,03**	
David Kruiper	R	12 469 303,23
Kgatelopele	R	80 789,56
Kai !Garib	R	31 033 191,11
Mier Municipality	R	76 798,60
Tsantsabane	R	16 808 670,53
Grand Total	**R 325 140 519,41**	

DWS DEBT INCENTIVE SCHEME

- The Department is currently offering debt relief in a form of an incentive scheme which is adopted in order to relief customers to pay up outstanding debt within a reasonable period.

- This is available for the period ending 31 March 2024. All customers are eligible to participate in the scheme.

- The department will freeze the interest when customers join the scheme and honour the agreement,

- The scheme waives interest as per Treasury Regulations 11.4.1.b(iii)

INCENTIVE SCHEME OPTIONS

Option A:

Full interest write-off will be done where capital balance outstanding is paid in full(Full final settlement)

Option B:

Payment of 50% of Capital amount as a down payment, then the remaining balance to be broken to monthly instalments of not more than 12 months. Interest will only be written off once the full capital balance is paid-off. This will be indicated in the settlement agreement.

Option C:

The down payment of 10% on the total amount owed and the repayment plan is agreed upon to settle for balances which cannot be recovered within 12 months.

- CRITICAL TO NOTE

  > As part of the scheme the customer must ensure that current invoices are paid on monthly basis;

  > The whole amount of the capital balance together with interest shall become immediately due and payable and the settlement arrangement automatically be terminated.

  > Invoking of section 59 of the National Water Act 36 of 1998 to restrict water for nonpayers.

MUNICIPALITY ON DWS INCENTIVE SCHEME

Municipality	
Frances Baard	Only one Municipality out of three
Sol Plaatje	The Municipality is honouring the agreement
John Taolo Gaetsewe	None
N/A	N/A
Namakwa	None
N/A	N/A
Pixley Ka Seme	Only one Municipality out of six
Siya Themba	The Municipality is honouring the agreement
Zf Mgcawu	Only one Municipality out of five
David Kruiper	The Municipality is honouring the agreement
	Only 03 Municipalities joined the Scheme

WATERBOARDS OUTSTANDING DEBTS

Vaal Central WB (Bloem Water) Outstanding Debt –R'000 as at 31 July 2023

Above 70%	Municipality is servicing its account satisfactorily
Above 50% - 70%	Municipality is behind with payments and an intervention is required.
Below 50%	Municipality is not servicing its account satisfactority. A serious intervention is required.

Name of Municipality	Opening Balance	Amount Invoiced	Amount Paid	Balance per Age Analysis	RECOVERY RATE
Joe Morolong	-	50 237 290,47	(44 300 652,62)	5 936 637,85	88%
Dikgatlong	2 032 255,64	67 660 445,64	(44 426 831,62)	25 265 869,66	66%
Gamagara	2 392 194,62	98 329 960,17	(99 844 204,18)	877 950,61	102%
Tsantsabane	12 480 119,11	176 491 218,56	(92 929 376,67)	96 041 961,00	53%
Gasegonyane	8 732 336,16	204 806 317,59	(202 648 506,86)	10 890 146,89	99%
Phokwane	4 042 075,21	287 512 964,57	(132 322 364,72)	159 232 675,06	46%
Khai Ma	599 323,34	42 427 707,39	(26 230 927,91)	16 796 102,82	62%
Nama-Khoi	58 445 313,84	373 781 410,25	(225 110 549,34)	207 116 174,75	60%
	88 723 617,92	**1 301 247 314,64**	**(867 813 413,93)**	**522 157 518,63**	**67%**

COMMON WATER SERVICES CHALLENGES IN THE PROVINCE

MUNICIPALITY	NATURE OF CHALLENGE	INTERVENTIONS
ALL MUNICIPALITIES	Inadequate bulk water supply Poor water metering Inadequate reticulation network Vandalism and theft of infrastructure ,leading to high water loss Lack of proper O&M Procurement planning Institutional instability	On-going maintenance of existing boreholes, drilling boreholes Upgrade of different WTW to on additional capacity required Upgrade of pump station. Implementation of Bulk Water Scheme Implementing the Water Loss Management Project
	Dilapidated Wastewater treatment facilities Non-functional sewer pump stations and sewer spillages Outstanding debt to DWS and to Bloem Water leading to water pressure reduction Non enforcement of bylaws governing the quality of industrial effluent (e.g. Abattoirs) discharged in the WWTW	Upgrade of sewer network, sewer bulk line and pump stations Ongoing engagements with Bloem Water to resolve payment of historic debt.

NGIYATHOKOZA DANKIE KE A LEBOGA
NGIYABONGA
NDIYABULELA
INKOMU NDI KHOU LIVHUHA
Thank you

ANNEXURES

SIYANCUMA
(Bucket Eradication Programme)

17.5 Observations and Findings: (page 157 of report)

• Delegates noted the continued use of bucket system and expressed the need to remedy this matter.

CAMPBELL WATER SUPPLY STATUS QUO

- The estimated current population of Campbell based on Census data is 2 796. The level of service for water supply is indicated below.

	Nr of Households			
Ward nr	Piped (tap) water inside the dwelling	Piped (tap) water inside the yard	Piped (tap) water to community stand: distance less than 200m and 500m from dwelling	Other (not in dwelling or yard)
Ward 7 (Campbell)	604	715	260	128

- The town is totally depended on groundwater (boreholes and springs)
- There are no water treatment works.
- Water is treated by chlorination at the main reservoir.

GROUNDWATER RESOURCE (STATUS)

- Groundwater will be utilized as water resource supply solution. Campbell is located on a **dolomitic area,** therefore it has a **high potential for groundwater** development.
- The technical report and existing design need to be updated before implementation.
- A feasibility study is to be conducted to determine the long-term water solution (**Groundwater** vs **Surface Water**).
- A **technical report** for the construction of a new oxidation pond is **in place**.
- The municipality to submit an application for the construction of internal water and sewer reticulation

GROUNDWATER RESOURCE (STATUS)

Yield

- The combined abstraction of the existing groundwater sources amounts to 375,12m^3/day or 4,3 l/s for 24 hours per day.
- The current yield meets the current demand.

Demand

- **Additional production** boreholes need to be drilled and tested.
- Additional storage reservoir is also required to ensure 48 hours storage and pressure.

Quality

- The water quality of the new production boreholes at Campbell are of **good water quality** (Class 1), suitable for lifetime use. However, a water treatment work is required at the existing spring.

WATERBORNE SOLUTION USING GROUNDWATER

PROJECT ACTIVITIES	PROJECT COST
Internal water network	R 29 569 527(BEP)
Internal sewer network and toilet structures	R 47 384 852(BEP)
Wastewater treatment works and main outfall sewer pipeline	R 30 059 746 (MIG)
Drilling, equipping and additional and existing borehole	R 20 000 000 (WSIG)
Total estimated cost	**R 124 014 125**

PROJECT ACTIVTIES

- Environmental Impact Assessment (EIA)
- Design of Oxidation Pond and outfall sewer (3,5km)
- Design of internal reticulation network (Water and Sewer)
- Conversion to Full Waterborne

SIYANCUMA Campbell Implementation model - progress

- Siyancuma Local Municipality is the implementing agent (IA).
- The municipality has appointed a consultant to assist in design, preparation of tender document and project management for the bulk water supply, internal water and sewer reticulation and the construction of a new wastewater treatment works.
- DWS is awaiting the technical reports from the municipality for the bulk water supply and internal network. The business plan and technical report for the wastewater treatment work was received and approved.

SOL PLAATJE LM

Page 151 (NCOP Report)

14. Discussion

What is Premier Zamani Saul, doing to address the collapsing bulk sewage network which has caused a sewage lake to form outside Kimberley, and which he said will require R5 billion to overhaul the network. What is the Department of Water and Sanitation doing with to address the Sol Plaatje ageing and collapsing bulk sewage network? Are there plans in place and time-frames to address the challenges which has subsequently led to the closing of the R31, 10 km from Kimberley.

Level of Services

- There has been improvement in the delivery of services between 2015 and 2022. Piped water and flush toilets are available to more than 90% of households. The number of households with a pit latrine or bucket system has decreased substantially since 2015.

Indicator	2015	% of HHs	2022	% of HHs
Sewage				
Flush or chemical toilets	53 354	88%	60 429	93%
Pit latrines / buckets	4 028	7%	2 942	5%
Water				
Pipe water inside house or yard	53 591	89%	57 995	90%
Public / communal / neighbor's tap	6 703	11%	6 964	10%

Existing Water Supply infrastructure

- The Vaal River is the main water source of Kimberley, and the Riet River is for Ritchie.
- Water is abstracted and treated at the Riverton water treatment works (design capacity of 168 Ml/d) on the banks of the Vaal River some 20km north of Kimberley. Sol Plaatje abstract 28 000 000 kℓ/annum (76,7 Ml/day). A latest conditional assessment showed that the design capacity is sufficient, but most of the WTW components (inlet works, chlorine system, high lift pump stations, clear water tanks, valves, sludge handling facilities, supernatant recovery, and access, drainage, and fencing infrastructure) need urgent repairs in order to optimize the performance of the plant.
- The water consumption in Kimberley currently varies between 90 Ml/day in the winter months to 108 Ml/day in the summer months.
- The current NRW (Non-Revenue Water) is reported as follows:
    - Kimberley NRW 63.3% (59.11 Ml/day) and 48.5% (45.3 Ml/day) real losses
    - Richie NRW: 89.4% (3.21 Ml/day) and 70.6% (2.54 Ml/day) real losses
    - **Total for Sol Plaatje: NRW 64.3% (60.49 Ml/day) and 49.32% (47.79 Ml/day) real losses**

Existing Sanitation Infrastructure

- Kimberley is currently served by two sewage treatment plants,
  - Homevale situated North
  - Beaconsfield Southeast of Kimberley with a capacity of 7Ml
- The Beaconsfield plant is operating about capacity accepting a 12Ml/day.
- The Homevale WWTW which was constructed in 1977 with a capacity of 48Ml/day, on average accepting between 32 Ml/day.
- Ideally the Homevale WWTW accepts approximately 80% of Kimberley's sewage, of this 40% naturally drains north-west and is pumped over the watershed towards the plant.
- Treated effluent from the Homevale plant discharges into the Kamfers dam ("Flamingo Pan").
- The Ritchie system has a WWTW with a capacity of 3.2 Ml/day.

Regulatory and Compliance

- The municipality obtained a blue drop risk rating of 58,8% (Ideal < 30%)

Assessment Areas	Kimberley	Richie
Total Design Capacity (Ml/d)	162	4.88
% Operational Capacity in terms of design	No information	No Information
% Microbiological Compliance	98.4%	99.7%
% Microbiological Monitoring Compliance	100%	100%
% Chemical Compliance	88.1%	88.5%
% Chemical Monitoring Compliance	11.8%	11.8%
% Technical Skills	37.5%	0%
% Water Safety Plan Status	0%	0%
%BDRR/BDRR max	**59.0%**	**53.1%**

Regulatory and Compliance

Key Performance Area	Weight	Homevale	Beaconsfield	Ritchie
A. Capacity Management	15%	84.0%	84.0%	84.0%
B. Environmental Management	15%	16.0%	16.0%	16.0%
C. Financial Management	20%	26.5%	26.5%	26.5%
D. Technical Management	20%	37.0%	43.5%	37.0%
E. Effluent & Sludge Compliance	30%	15.0%	0.0%	7.5%
F. Bonus		52.5%	22.5%	15.0%
G. Penalties		-25.0%	0.0%	-25.0%
H. Disqualifiers		None	None	None
Green Drop Score (2021)		36%	32%	28%
2013 Green Drop Score		53%	53%	55%
2011 Green Drop Score		80%	62%	43%
2009 Green Drop Score		0%	0%	0%
Design Capacity	Ml/d	48	9	2
Design Capacity Utilisation (%)		NI	104%	NI
Resource Discharged into		Kamfers Dam	De Beers Mine & du Toits Pan	Modder River
Microbiological Compliance	%	Insufficient data set	Insufficient data set	No monitoring
Chemical Compliance	%	Insufficient data set	Insufficient data set	No monitoring
Physical Compliance	%	Insufficient data set	Insufficient data set	No monitoring
Wastewater Risk Rating (CRR% of CRR_{max})		Homevale	Beaconsfield	Ritchie
CRR (2011)		59.3%	63.6%	76.5%
CRR (2013)		59.6%	68.2%	58.8%
CRR (2021)		96.3%	81.8%	94.1%

Green drop score of 34%, Process controller shortfall of 2 Supervisors and 8 PC based on Green Drop (2022). Operational and compliance monitoring at all 3 WWTW is not satisfactory.

Regulatory and Compliance

- Routine inspections and interactions done by DWS with Sol Plaatje Municipality indicated **poor operation and maintenance** of both water and sanitation infrastructure leading to sewage spillages, water leaks and water interruptions.
- Investigations were conducted by DWS in which it was observed that the spillages of wastewater from the overflowing sewer network and pump stations were **ponding inside the Kamfersdam and Platfontein pans**.
- A **Notice of Intention** was issued by DWS in August 2015 followed by **Directives issued** in February 2016, September 2016, January 2018, December 2018.
- Representations were received by DWS from the municipality for some of the issued Directives in which the municipality indicated that they are having financial challenges to address the problems identified. DWS scheduled meetings on 31 October 2018; 31 January 2019; 26 February 2019 and 30 August 2019 where action plans were discussed.
- Two (2) Directives dated 21 February 2022 and 05 July 2022 have since been issued following the continued non-compliances observed on-site.

Homevale WWTW WUL audit Nov 2021

SOL PLAATJIE MUN-KIMBERLEY: Homevale WWTW

Conditions	Full (Compliant)		None (Non-Compliant)		Not part of scope of the audit
Number	8		76		41
Number & percentage for compliance and non compliance	9.52%		90.48%		
Number & percentage for compliance and non compliance to administrative and technical actions	A:2	25.00%	A:18	23.68%	
	T:6	75.00%	T:58	76.32%	

WATER AND SANITATION CHALLENGES IN SOL PLAATJE

1. Poor governance and management at the municipality
   - Poor operation and maintenance of infrastructure
   - Lack of appropriate skills at all levels in the municipality
   - Weak billing and revenue collection resulting in inadequate budget for operation and maintenance
2. Inadequate and dilapidated bulk water infrastructure
3. Dilapidated sewer collector infrastructure
4. Theft and vandalism of critical infrastructure
5. In-migration into the municipality which leads to increased water services demand
6. Blockages of sewer systems caused by citizens disposing foreign objects into the sewer systems

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RESULTS OF INTERVENTIONS IMPLEMENTED TO REDUCE SPILLAGES AND LEAKS TO PLATFONTEIN PANS

- Gogga pumpstation inflow repairs have reduced the spill volume by 10 Ml/d
- Measurements have indicated significant decline to the inflow in the water course towards the Platfontein pans. The decline is from 94l/s (8.1Ml/d) to 22 l/s (1.9Ml/d)
- There is up to 1 m water level decline in the Platfontein pans and the water level is more than 2 m below the R31 road surface which has significantly reduced the risk to the road
- The excess flow towards Platfontein is now directed towards Kamfersdam pan and Vaal River.
- Annually, the municipality conducts leak repairs of main supply pipeline from Riverton to Newton reservoir, this has reduced the water loss estimated to 40 Ml/d.

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SOL PLAATJE BFI
INTEGRATED BULK WATER SUPPLY SYSTEM INTERVENTION

- Sol Plaatje Municipality (SPM) submitted an application to the National Department of Treasury for Bulk Funding Infrastructure (BFI) in 2021, with the aim of addressing the much-needed upgrades to its ageing water supply infrastructure, more importantly, the Water Treatment Plant and the ever-leaking bulk supply pipeline.
- The submission and application for funding met most of the appraisal requirements and the programme was thus recommended for funding by National Treasury through the RBIG programme. A total of R2.5 billion was applied for through the BFI and was conditionally approved for funding:
  - R1.152 billion over the 2023 MTEF:
    - R86 million in 2023/24,
    - R492 million in 2024/25
    - R574 million in 2025/26 respectively and the remaining R1.3 billion in the outer years.
- According to the Municipality's project programme, the design will be ready September 2023 and contractor will be on-site as at February 2024.

SOL PLAATJE BFI
INTEGRATED BULK WATER SUPPLY SYSTEM INTERVENTION

- The DWS supports the investment in the water infrastructure of Sol Plaatje Municipality.
- It will bring significant improvement in the water provision mandate of the Municipality, not only in terms of renewed infrastructure but also water quality and supply security.
- However, the commitment of budgeting of O&M funds by the municipality after the completion of the project is still a great concern.
- Furthermore, the capacity which includes proper procurement still need to be investigated before commencement of the project.

SOL PLAATJE PERFORMANCE ON CAPITAL PROJECTS

- National Treasury stopped transfers amounting to R5 million and R18 million from the Sol Plaatje 2022/23 WSIG and Integrated National Electrification Programme (INEP) allocations of R19.9 million and R40 million respectively in terms of section 18 of the 2022 DoRA.
- The funding was not cash backed, resulting in the services providers (consulting engineer and contractor) terminating the contracts on the WSIG project.
- National Treasury during the 2021/22 financial year assessment determined that an amount R6.4 million was unspent and should be repaid to National Revenue Fund (NRF), the amount was in respect of the Infrastructure Skills Development Grant (ISDG) amounting to R599 thousand, INEP R1 million and the WSIG R4.9 million.
- The reason to repay the ISDG and INEP was as a result of a rollover request which was not approved, while for WSIG related to non-expenditure as per AFS.

SOL PLAATJE AS IMPLEMENTING AGENT ON WSIG PROJECTS

- The Carters ridge sewer pumpstation and outfall sewer line project is currently abandoned and DWS is in process of terminating the Implementing agent agreement with Sol Plaatje.
- The project management by Sol Plaatje on the past three (3) WSIG funded project were not to an expectable standard, with time and cost overrun on all projects and variations approved by the Sol Plaatje Municipality without DWS approval and without adequate funding secured.
- Written commitments by the municipality regarding the return of the contractor and consultant to site has not materialized, with no works on site and open trenching.
- A Site inspection was conducted on 17 July 2023.
- The letter of intention to terminate the Implementing Agent Agreement with the municipality was delivered to the municipality on 18 July 2023.
- No response has been received from the municipality on this letter to date.

RECOMMENDATIONS

- The CoGHSTA to support the municipality with short- and medium-term plans
- The municipality must consider the use of Implementing agents to improve on project management
- The municipality to ensure compliance to Blue/ No/ Green drop requirements.
- Municipality to update their Water Services Development Plan (WSDP) and Masterplan

VAAL GAMAGARA REGIONAL BULK WATER PROJECT PHASE 2

BACKGROUND

- The Vaal Gamagara Bulk Wate Supply refurbishment and upgrade project was conceptualized as a public-private collaboration with two phases, with **joint funding by the government and the mining forum.**
- Phase 1 entailed the upgrade of 80km of gravity pipeline between Roscoe and Blackrock and was **completed June 2022**.
- Vaal Gamagara Bulk supply Scheme assets are transferred to Bloem Water from Sedibeng Water Board.
- Phase 2 of the project is required to start with a 44% contribution by government and 56% from the private sector, as negotiated with the Northern Cape Mining Leadership Forum (MLF)

- The project consists of **three key interventions**:

1. Planning and Emergency/Short Term Interventions
   - DWS construction funded by ASSMANG
2. Phase 1 completed R1,4 billion
3. Phase 2 entails (260km of pipeline)

PROGRESS

- The initial plan was for Phase 2 to be implemented by means of an Off-take Agreement over 25 years, but this could not be successfully negotiated due to **smaller mines not being able to commit to the repayment period (25 years).**

- Individual member mines then agreed with Sedibeng to have a capital raising fund administered where the water board would raise 56% from the mines and 44% to be funded by Government (for the social component). In addition a special purpose vehicle (in terms of a Section 21 company) was to be created to implement the project at a more efficient level.

- There was a breakdown in the implementation of the agreement due to non-implementation by Sedibeng Water and the mining forum requested that the agreement also be signed by DWS; this was agreed to by DWS in August 2021.

- Ministerial intervention was sought by the Mining Leadership Forum to ensure that the Department commit to a public-private collaboration regarding the implementation of Phase 2.

- A **MOU** between DWS, DBSA, Bloem Water and MLF **was vetted** by DWS legal.

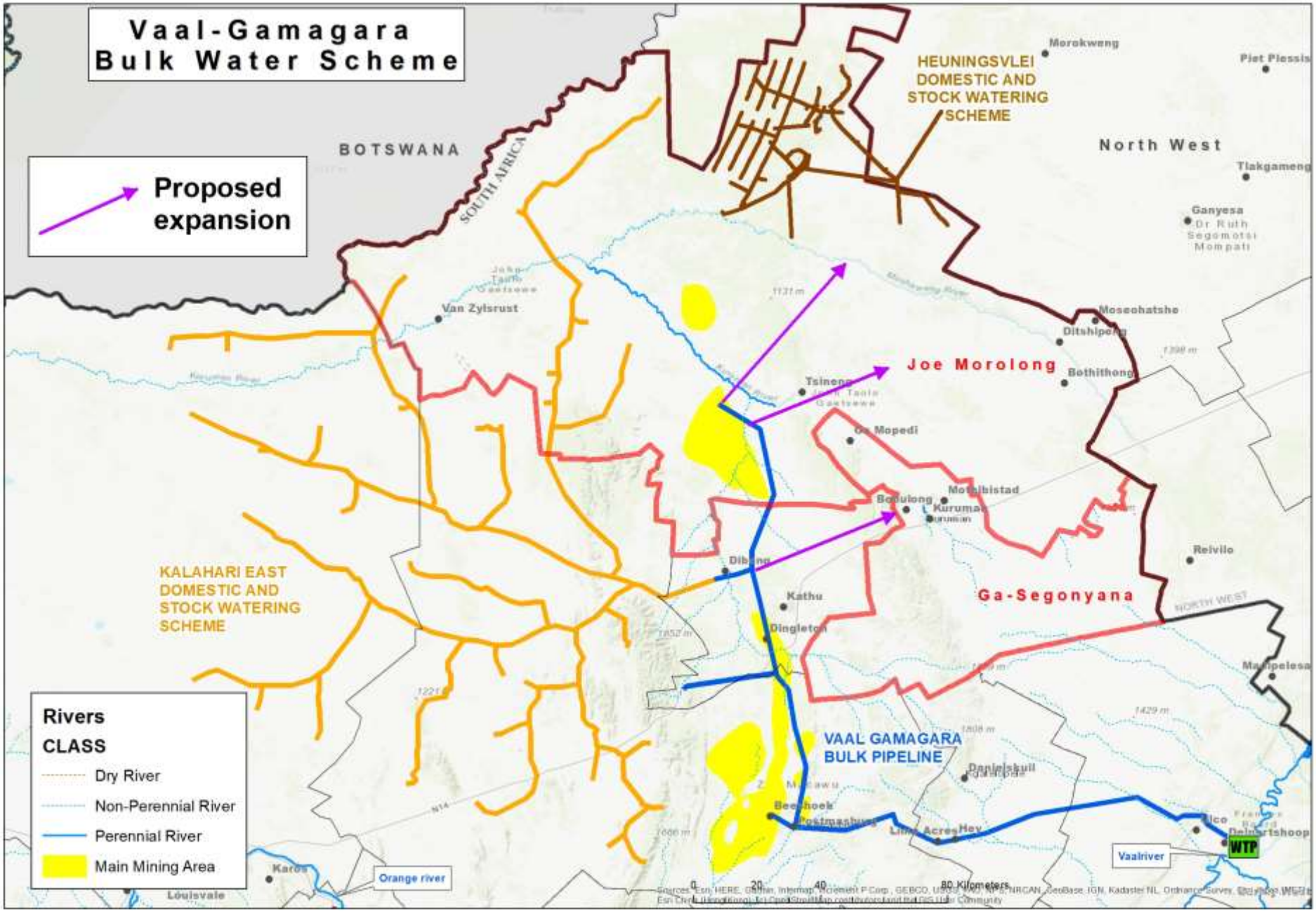
- **BFI application** for the 44% public sector funding contribution **was submitted** to the Infrastructure Fund.

- The total CAPEX modelled is estimated to be roughly **R8,108 billion (excluding VAT)**

Vaal Gamagara Phase 3

Background and status

- Minister, Mr Senzo Mchunu gave a directive for the region to explore alternative water resource other than groundwater of proving water to the John Taolo Gaetsewe Dstrict Municipality. The Provincial office therefore has to conduct a feasibility study to determine the possibility of extending Vaal Gamagara Bulk pipeline to Joe Morolong and Ga-Segonyana municipalities.
- The department is in process to appoint a consultant to develop the following studies:
    - Conduct a detailed conditional assessment of the existing Vaal-Gamagara BWS pipeline to determine the upgrade requirements to expand the Vaal-Gamagara pipeline into Ga-Segonyana and Joe Morolong.
    - Investigate the current bulk water and sanitation infrastructure and demand in Joe Morolong and Ga-Segonyana.
    - Investigate the future bulk water and sanitation infrastructure demand for all settlements in Ga-Segonyana and Joe Morolong, which include bulk water and sewer lines, reservoirs, pump stations, wastewater treatment works etc. The goal is to determine the total infrastructure requirement to provide all residents with erf water connections and waterborne sanitation. This should be done with consultation with affected stakeholders like Bloemwater, Human Settlement, Environmental Affairs, Education, Health, Eskom, Public Works, Water User Associations and the municipalities (Local and District) including other related stakeholders.


Vaal-Gamagara
Bulk Water Scheme
Proposed
expansion
BOTSWANA
SOUTH AFRICA
HEUNINGSVLEI
DOMESTIC AND
STOCK WATERING
SCHEME
North West
Morokweng
Piet Plessis
Tlakgameng
Ganyesa
Dr Ruth
Segomotsi
Mompati
Van Zylsrust
Moseohatshe
Ditshipeng
Bothithong
Joe Morolong
Tsineng
Ga Mopedi
Motlhabistad
Bodulong
Kuruman
Reivilo
KALAHARI EAST
DOMESTIC AND
STOCK WATERING
SCHEME
Dibeng
Kathu
Ga-Segonyana
Dingleton
Manpelesa
VAAL GAMAGARA
BULK PIPELINE
Daniëlskuil
Beeshoek
Postmasburg
Lime Acres
Hay
Olco
Delportshoop
WTP
Vaalriver
Orange river
Karos
Louisvale
Rivers
CLASS
Dry River
Non-Perennial River
Perennial River
Main Mining Area
0
20
40
80 Kilometers

GAMAGARA - Olifantshoek water challenges

- The population of the town and water use has triple the last 10 year. The bulk supply infrastructure was not designed for this expansion.

- The main source of water for Olifantshoek is from the Vaal-Gamagara bulk water pipeline. The exploration and equipping of boreholes was recommended to ease the water shortages encountered by the Olifantshoek communities, where water supply from Bloemwater is intermittent and not regular and communities are left without water from time to time.

- The municipality has registered the Groundwater supply in Olifantshoek project with DWS. The main scope are the siting, drilling, testing and equipping of boreholes, the construction of pumping main pipeline and the construction of pump houses. Total project cost is R 8 626 973.04

- The overall project progress in 40% and the estimated project completion is October 2023.

Dawid Kruiper: Water challenges

35.4 Department of Water and Sanitation: (Page 173 of report)

• The Department should furnish the NCOP with a report on the steps undertaken to restore water to the 25000 families without water. This should be attended to with immediate effect and the report should be furnished to the NCOP within 3 months of adoption of the report

Background

- The towns of Lambrechtsdrift and Leerkrans is situated 60km outside Upington.
- Major water challenges is currently experienced with the bulk water supply infrastructure within these towns including the outside areas that is supplied by the Abram Holbros WTW within Upington.
- Bulk water shortages is experienced mainly in the summer periods. The municipality has submitted a business plan for funding which will address these challenges.

Refurbishment of Lambrechsdrift, Leerkrans and Abraham Holbors September water treatment plants including the reseal of the joints of central reservoir

- The project cost is R 14 836 729.
- The project is still in procurement stage (appointment of contractor)
- The scope of work entails:
    - Refurbishment of the WTW's in Leerkrans and Lambrechsdrift, construction of a pipeline to the elevated reservoirs and sealing of the existing raw water reservoirs.
    - Refurbishment of the Abram Holbros WTW in Upington. Refurbish the central reservoir and reseal the joints.
- 22 567 households will benefit from the project.

RBIG & WSIG Project progress

Frances Baard DM

Completed

LM	Project	Grant	Project Cost	Progress	Comments
Sol Plaatje	Construction of Cartersridge sewer pumpstation	WSIG	R57 366 501	Phase 1 – 95% Phase 2 – 10%	Construction of a new outfall sewer line (6.4 km)and pumpstation. Beneficiaries **3500 HHs**
Dikgatlong	VIP toilets in Dikgatlong Phase 1	WSIG	R7 000 000	Completed	Construction of **400 VIP's**
Dikgatlong	VIP toilets in Dikgatlong Phase 2	WSIG	R10 000 000	5%	Construction of **445 VIP's**
Phokwane	Upgrading of Pampierstad internal sewer infrastructure	WSIG	R 25 294 394	90%	Construction of a new outfall sewer line and refurbishment of existing pump stations. Beneficiaries **2799 HH's**
Magareng	Warrenton WTW	RBIG	R91 000 000	85%	New: 2 x 6 Mℓ/d Flocculation channels, New: 2 x 6 Mℓ/d sedimentation tanks, New: 1 x 2.5 Mℓ/d filter block and refurbishment of the old filter block. New raw water pipeline from river pump-station and new pumps, New on-site clearwater reservoir, Existing high rate lamella settler will be converted to a dissolved air flotation unit. Beneficiaries **6120 HH's**
Magareng	Refurbishmet of Sewer pumpstation and WWTW in Warrenton	WSIG	Phase 1 – R 11 088 864 Phase 2 – R 37 822 677	Phase 1 – 80% Phase 2 - procurement	Emergency repair on the N12 sewer pump station Refurbishment on the inlet works, aeration basin, clarifier, RAS pumps, chlorine contact channel, vacuum pumps and electrical panels. Beneficiaries **6120 HH's**

JOHN TAOLO GAETSEWE DM

Completed

LM	Project	Grant	Project Cost	Progress	Comments
Joe Morolong	Bendell Refurbishment	WSIG	R5 319 485	Completed	Refurbishment of borehole equipment. Beneficiaries **135 HH's**
Joe Morolong	Gamothibi Refurbishment	WSIG	R2 803 567		
Joe Morolong	Cardington Refurbishment	WSIG	R3 594 603		
Joe Morolong	Masankong Refurbishment	WSIG	R3 886 718		
Joe Morolong	Tzaneen water supply	WSIG	R21 733 199	Completed	Construction of about 1800m water reticulation uPVC of 75mm diameter class 9 pipeline; Installation of 10 new standpipes. Beneficiaries **210 HH's**
Joe Morolong	Tsinengkop	WSIG	R7 906 150	Completed	Source Verification of Two existing borehole for quality and yield; Construction of 50KL Steel tank on 15m stand; Construction of approximately 500m of dedicated pumping mains; Construction of approximately 360m of internal reticulation uPVC pipes ranging; Refurbishment of two existing production boreholes; Allowance for Eskom connection and upgrade; Construction of 7 new Prepaid communal standpipes; Chlorination of 2 boreholes. Beneficiaries **76 HH's**

JOHN TAOLO GAETSEWE DM

Completed

LM	Project	Grant	Project Cost	Progress	Comments
Joe Morolong	Heiso water supply	WSIG	R10 173 155	Completed	Existing borehole will be tested for quantity and quality; An additional borehole will be drilled; Installation of dual motors and pumps; A new 100 kl steel storage tank will be installed; Five thousand five hundred (5500) metres of distribution network will be constructed; Thirty-five (35) prepaid stand-taps will be installed. Beneficiaries **215 HH's**
Joe Morolong	Heiningsvlei - Gamokwane water supply	WSIG	R8 631 962	Completed	Two existing boreholes will be refurbished; New pump house to be constructed at one of the boreholes; A new gravity feed connecting to the existing water reticulation network will be constructed; Twelve new communal standpipes to be constructed. Beneficiaries **171 HH's**
Joe Morolong	Gatshekedi water supply	WSIG	R9 199 100	Completed	Erection of 50kl elevated pressed steel tank on a 15m high stand; Construction of new security fence around reservoir; New pump houses and mono pump installations at existing borehole and proposed borehole; Both boreholes will be fitted with electrical installations, the main production borehole will have a dual power source; New pumping main pipeline from existing borehole to new elevated storage tank; New gravity line from the elevated tank, as an expansion on the water reticulation network.

JOHN TAOLO GAETSEWE DM

Completed

LM	Project	Grant	Project Cost	Progress	Comments
Ga-Segonyana	New MokalaMosane water supply	WSIG	R14 983 701	Phase 1 – 100% Phase 2 - procurement	Installation of Class PN10 HDPE Water Mains; 2000m long with 63mm diameter , 1500m long with 75 diameter and 700m with 110 diameter Total - 4 200m. Beneficiaries **3285 HH's**
Ga-Segonyana	Geelboom water supply	WSIG	R14 996 090	Completed	Source Verification for source provision. Construction of a 150kl elevated steel tank on a 20m stand. Construction of 2000m long with 110mm diameter Pump main. Installation of 1400m long with 63mm diameter medium pressure pipes and installation of 20 prepaid communal stand pipes. Beneficiaries **800 HH's**
Gamagara	Groundwater exploration in Olifantshoek: phase 2	WSIG	R8 127 611		Exploration of undergrund water : Drilling of BH, water resource testing. Beneficiaries **700 HH's**

NAMAKWA DM

Completed

LM	Project	Grant	Project Cost	Progress	Comments
Nama Khoi	Refurbishment of Carolusberg WWTW	WSIG	R11 506 518	100% (Emergency repairs)	Emergency repairs to the existing WWTW. Beneficiaries **399 HH's**
Nama Khoi	Construction of Nababeep WWTW	WSIG	R40 702 698	60%	Construction of new outfall sewer and 2 pump stations. Beneficiaries **526 HH's**
Kamiesberg	Hondeklip Bay Water supply	WSIG	R36 128 851	On Hold	Refurbishment / upgrading of 3 boreholes, drilling of 10 boreholes, bulk pipeline of 12,5km, installation of 350 prepaid meters. Beneficiaries **220 HH's**
Richtersveld	Khubus water supply	WSIG	R16 900 993	99%	Upgrading of the Sandrift / Kuboes Water Abstraction facilities Upgrading of the Baken Booster Pumpstation Upgrading of the Kuboes Water Treatment Works (WTW) to treat raw water for Kuboes. Beneficiaries **301 HH's**

NAMAKWA DM

Completed

LM	Project	Grant	Project Cost	Progress	Comments
Karoo Hoogland	Surtherland water supply	WSIG	R10 001 136	100%	Hydrogeology investigation, drilling of boreholes and construction of infrastructure to connect to existing reticulation. Beneficiaries **630 HH's**
Khai Ma	Upgrading of Pofadder water supply	WSIG	R10 000 000	60%	Upgrading and replacement of internal network to improve reliability and water loss. Beneficiaries **548 HH's**
Hantam	Construction of a Waterborne Sewage System for Calvinia	WSIG	R10 000 000	Phase 1 – 100% Phase 2 – 100% Phase 3 – 60%	Construction of a waterborne sewer reticulation network for Calvinia East. Comprises 2005m of sewer pipes, 32 number manholes, wastewater pumpstation and 4500m wastewater rising main. Beneficiaries **2507 HH's**
	Calvinia BWS	RBIG	R 178 956 388	5%	Equipping of 9 boreholes, construction of pumpmains, Upgrading of WTW and storage

PIXLEY KA SEME DM

Completed

LM	Project	Grant	Project Cost	Progress	Comments
Ubuntu	Replacement of asbestos cement pipes in Loxton, Source development in Loxton, WCDM in Victoria West	WSIG	R4 000 000	100%	Completing the replacement of asbestos cement pipes in Loxton. Emergency repairs on existing boreholes in Loxton. Replacement of old asbestos cement pipes in Victoria-West Beneficiaries **3800 HH's**
Kareeberg	Van Wyksvlei BWS	RBIG	R99 676 142	100%	The project concept is to boost supply from existing boreholes already equipped at Saaipoort via a pipeline to be laid in the road reserve to Vanwyksvlei's existing reservoirs. The pipeline diameter from Saaipoort to Vanwyksvlei is in the range of DN 90 to DN 125 mm and flow velocities are in the range of 0.24m/s to 0.66m/s respectively. The preliminary design is based on uPVC pipeline material. To meet current and future requirements, additional storage of 170 kℓ is required at Vanwyksvlei. Beneficiaries **471 HH's**
Kareeberg	Replacement of Asbestos cement pipes within Carnarvon	WSIG	R16 449 593	100%	Construction of HDPe pipelines ranging from 75mm to 110mm diameter with all fittings, valves, fire hydrant and valve chambers □ Construction of uPVC pipelines ranging from 110mm to 250mm diameter with all fittings, valves, fire hydrant and valve chambers. Beneficiaries **1653 HH's**

PIXLEY KA SEME DM

Completed

LM	Project	Grant	Project Cost	Progress	Comments
Siyathemba	Refurbishement/Upgrading of Prieska WWTW	WSIG	R4 057 683	100%	Work includes expansion of the current oxidation pond system as well as provision of sludge drying beds. Beneficiaries **4050 HH's**
Siyancuma	Douglas WTW emergency repairs / refurbishment & upgrade – Phase 1	WSIG	R9 067 577	5%	Refurbishment of existing purification plant to ensure a 2Ml/ day. The refurbishment of existing plant will consist of the following main components: Replace existing raw water meter. Repair raw water pump station (Orange Rive channel). Replacement of polymer dosing tank with band wall. Replacement of dosing mixer. Refurbishment of chlorine dosing station. Provision of safety showers. Rebuilt Vaal River raw water pump station. Replace, supply pipe from Vaal River raw water pump station purification plant. Beneficiaries **5092 HH's**
Renosterberg	Philipstown groundwater development/ Vanderkloof WWTW lining / repairs	WSIG	R5 963 711	100%	Installation of lining the final oxidation pond. Refurbishment of existing boreholes in Philipstown. Beneficiaries **3321 HH's**

PIXLEY KA SEME DM

Completed

LM	Project	Grant	Project Cost	Progress	Comments
Emthanjeni	De Aar BWS	WSIG	R 89 902 050	5%	Equipping twelve (12) new boreholes with pipeline to be connected to the existing infrastructure for the supply of water to the reservoirs. Beneficiaries **5356 HH's**
Umsobomvu	Noupoort Bulk sewer	WSIG	R16 353 317	80%	The scope of work involves the construction of the main sewer outfall, the sewer rising main, construction of the pump station, refurbishment of oxidation ponds and fencing. Beneficiaries **2715 HH's**
Thembelihle	Installation of Low-Flush toilets	WSIG	R6 995 450	100%	Construction of **492** low-flush toilets

ZF MGCAWU DM

Completed

LM	Project	Grant	Project Cost	Progress	Comments
Dawid Kruiper	Upgrading of Kameelmond WWTW – Phase 1	RBIG	R74 818 375	99%	Refurbishment of the exist 16 Ml/day WWTW. Beneficiaries **19886 HH's**
Dawid Kruiper	Upgrading of Rietfonten WWTW	WSIG	R11 423 494	100%	Construction - lining of the ponds completed, fencing and inlet works concrete works in construction. Beneficiaries **1505 HH's**
Dawid Kruiper	Installation of water reticulation and pre-paid meters	WSIG	R14 231 250	100%	Provision of water through the standpipes and tanks connection. Beneficiaries **2301 HH's**
Kai!Garib	Kakamas and Marchand WTW emergency repairs	WSIG	R9 033 975	80%	Raw water pump in river Construct and install a raft Built and install motor control panel Replace the existing motor control panels. Replace high lift pumps. Refurbish two vessel towers. Refurbish the control building Beneficiaries **2621 HH's**

ZF MGCAWU DM

Completed

LM	Project	Grant	Project Cost	Progress	Comments
Kgatelopele	Upgrading bulk sewer (replacement of conservancy tanks)	WSIG	R40 282 077	Phase 1 – 100% Phase 2 – 0% (procurement)	Provide sewer gravitional network to **369** ervens in Danielskuil, which are currently serviced with 369 conservancy tanks, by constructing the following infrastructure namely: The total length of the proposed gravitaional sewer reticulation is approximately 9.921m in lenght gravitating towards an existing sewer pump station. The proposed gravaitional network will comprise of 160mm diameter HDPe sewer pipes. HDPe Manholes will be placed at a maximum distance of 80m apart.
!Kheis	Upgrading of Brandboom storage	WSIG	R5 000 000	100%	New Concrete Reservoir (5Mℓ) New Elevated Storage Tank (65 kℓ), valve box, water line, security fence and electrical and mechanical equipment. Beneficiaries **530 HH's**
Tsantsabane	Skeyfontein water supply	WSIG	R10 635 627	Phase 1 – 100% Phase 2 –	New 116kl reservoir, equipping one borehole, 4km internal reticulation. Beneficiaries **114**