



# PRESENTATION TO NATIONAL COUNCIL OF PROVINCES

On

Status of Water and Sanitation in the Northern Cape
Province

Presented By: Ms I Lekalake

NC Provincial Head Date: March 2022

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- Northern Cape Provincial Overview
- Access to Basic Services
- Planned Water & Sanitation projects
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- Wastewater Treatment Works Status
- Water Conservation / Non-Revenue Water
- Drought
- Water Quality
- Municipality Debts
- Way forward





## **Provincial Overview...**



1 230 000 SMALLEST POPULATION



TOTAL OF

351 000

HOUSEHOLDS

- 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



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



#### NC ACCESS TO WATER

No of households	Sites with House Connection	Sites with Yard Connection	Sites with Communal Standpipe	Sites with Communal >200m	No Service
351000	173161	29627	47273	3358	24932

- There are 351 000 households in the province, which includes backyard dwellings.
   There are therefore sometimes more than one household on a site and the number of households is not the same as the number of sites
- There are 173 161 sites which are serviced with a house connection
- 105 190 sites must still be upgraded to a higher level of service (yard connection (29627), communal standpipe (47273), communal standpipe (3358),no service (24 932 sites)

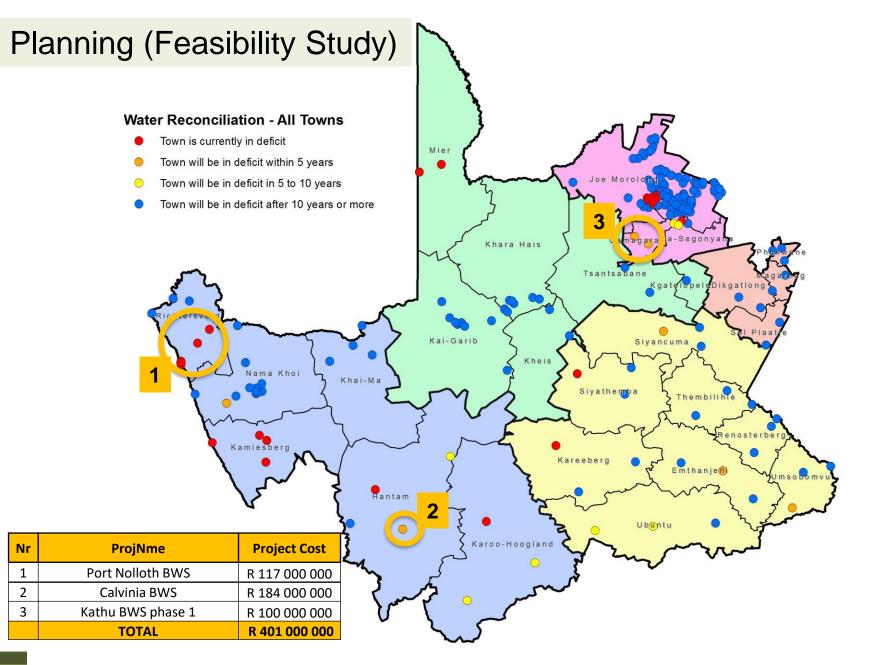




# PLANNED WATER & SANITATION PROJECTS











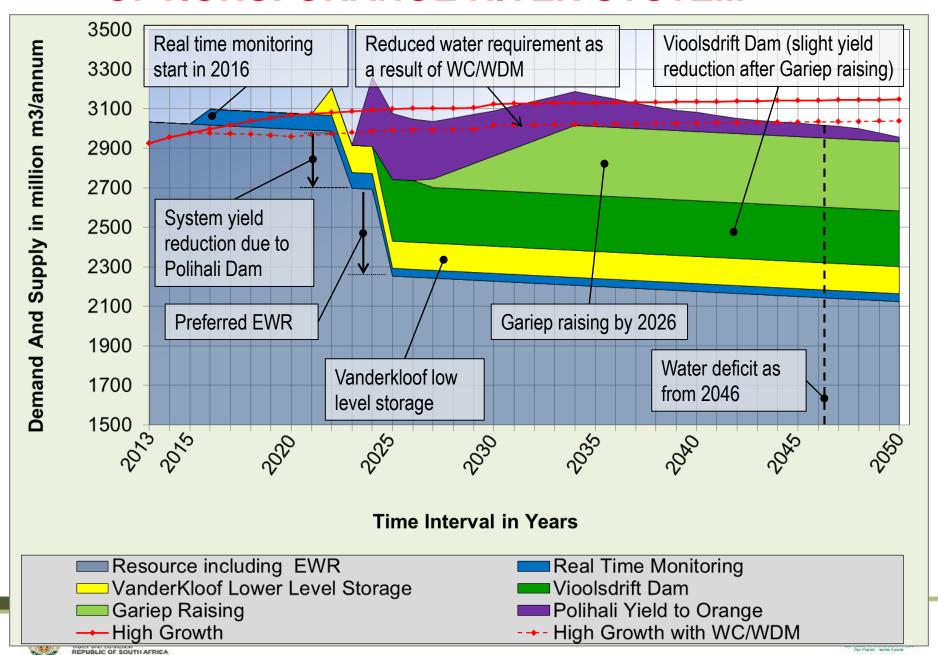
#### VIOOLSDRIFT DAM

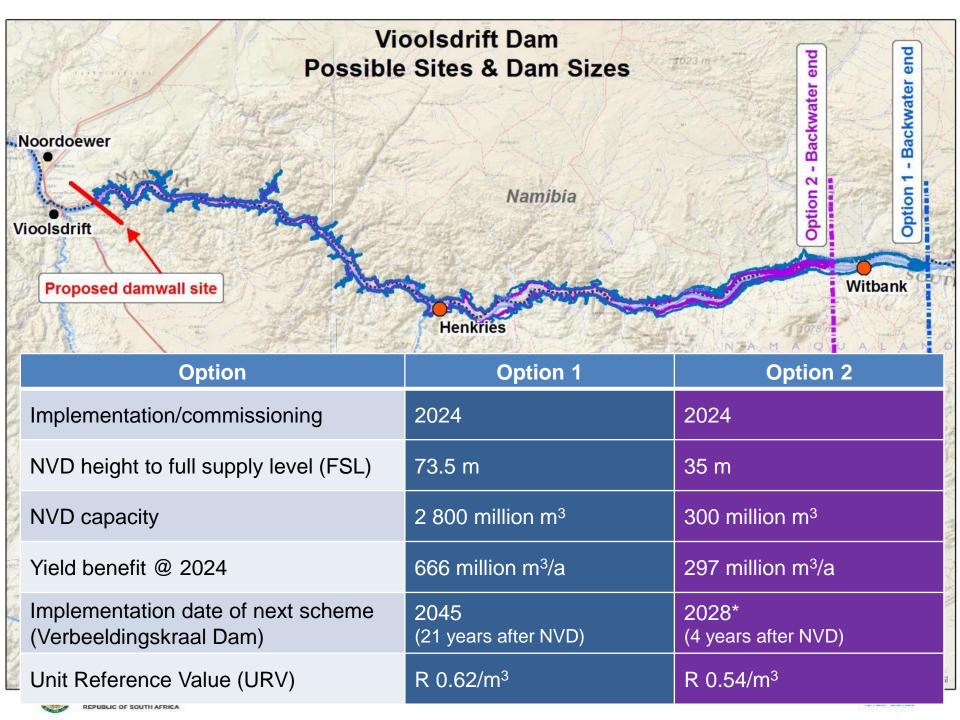
- A feasibility study for the possible development of the NVD was undertaken jointly between the governments of RSA and Namibia through their established Permanent Water Commission (PWC).
- The study was completed in May 2020 and indicated that in general the construction of the dam would be feasible, and its development was advisable.
- The project was included in the SADC list of priority regional projects.
- The study reports are complete and signed off and would be uploaded soon on the DWS website.
- However, owing to critical information (the determination of the Preliminary Reserve of the Lower Orange River signed off by DWS) that became available towards the completion of the study, the study could not be conclusive regarding the exact size of the optimal dam. Some additional work (which we refer to as a bridging study), was required to confirm this, but such additional work could not be undertaken during the course of that study.
- PWC is currently in the process of preparing the necessary documentation for the
  procurement of a service provider to undertake such bridging study. The processes, including
  the technical work and EIA authorisation could take up to 2 years to complete. Thereafter, it
  is likely that the project would be implemented. The implementation processes (negotiations,
  design and construction) would likely take a further about 6 years to complete.





## **OPTIONS: ORANGE RIVER SYSTEM**





# CURRENT WATER & SANITATION PROJECTS





## Projects under construction

Nr

1 2

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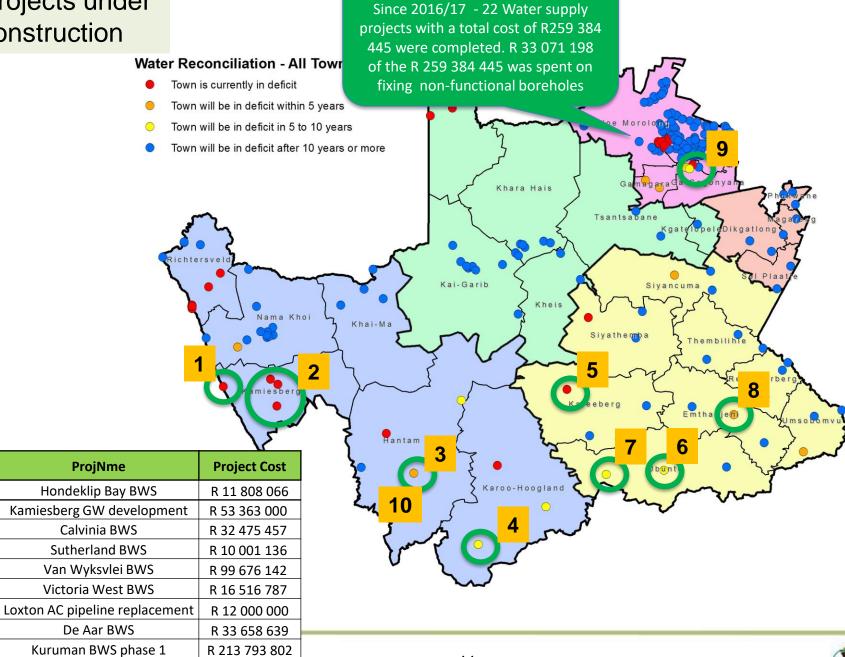
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Calvinia wellfield equipping

**TOTAL** 

R 21 000 000

R 504 293 029



Joe Morolong municipality



# RM 03: VAAL GAMARA REGIONAL WATER SUPPLY SCHEME PHASE 1

#### PROJECT DESCRIPTION

The purpose of the project is for the functional replacement of the existing steel pipeline with a new pipeline to provide assurance of current and future demands by all users. The main water users in the area include the various mines, municipalities, agricultural sector and Transnet.

#### LOCATION:

John Taolo Gaetsewe District Municiaplity

#### **START DATE:**

04 October 2016

#### **EXPECTED COMPLETION DATE:**

March 2021 (Initial completion date)
March 2022(revised completion date

#### **BENEFICIARIES:**

Households ±5958

#### **PROJECT COST:**

Initial Project Cost: R1 232 452 817,11

Revised Total Project Cost: R1 439 403 908.34 Incl. VAT

RBIG Contribution: R1 439 403 908.34 Incl. VAT

#### **CONSTRUCTION PROGRESS: 98%**



### **PROJECT SCOPE:**

Upgrading of the existing 75 km pipeline from Roscoe to Black Rock:

#### Pipeline 1A

 7.8 km of DN900 and DN1100 new pipeline from Roscoe to Khumani.

#### Pipeline 1B

 5.6 km of DN700 new pipeline from the end of SWEP by-pass to a new Pressure Reducing Valve (PRV) station at Kathu Reservoir.

Note: The Scope was reduced from 5.6km to 0.38km after a condition assessment of the existing pipeline indicated that replacement could be delayed for some years.

#### Pipeline 2

 54.5 km of DN700 and DN800 of a new pipeline from a new PRV station at Kathu Reservoir to Hotazel Reservoir.

#### Pipeline 3

 11 km of DN600 pipeline between Hotazel Reservoir and Blackrock as well as 2.3km of DN400 pipeline to be installed in parallel with an existing DN560 pipeline





#### **SUMMARY OF PHASE 2**

#### **PROJECT SCOPE:**

Upgrading of the existing 260 km pipeline from the Vaal river pump station to Roscoe near Kathu in the Gamagara Local Municipality:

#### PROJECT DESCRIPTION

The purpose of the project is for the functional replacement of the remaining existing steel pipeline with a new pipeline to provide assurance of current and future demands by all users.

#### LOCATION:

John Taolo Gaetsewe District Municiaplity

#### **ANTICIPATED START DATE:**

**EXPECTED COMPLETION DATE:** 

January 2023

March 2033

#### **PROJECT COST:**

Estimated Project Cost: R10 Billion

Government Contribution: 44%

#### **PROGRESS:**

- The concept design has been completed.
- Alternative model to Sedibeng Water as IA being investigated to find a suitable implementation model for phase 2.
- PSC was established to restart Phase 2.





#### WHAT IS HAPPENING WITH PHASE 2

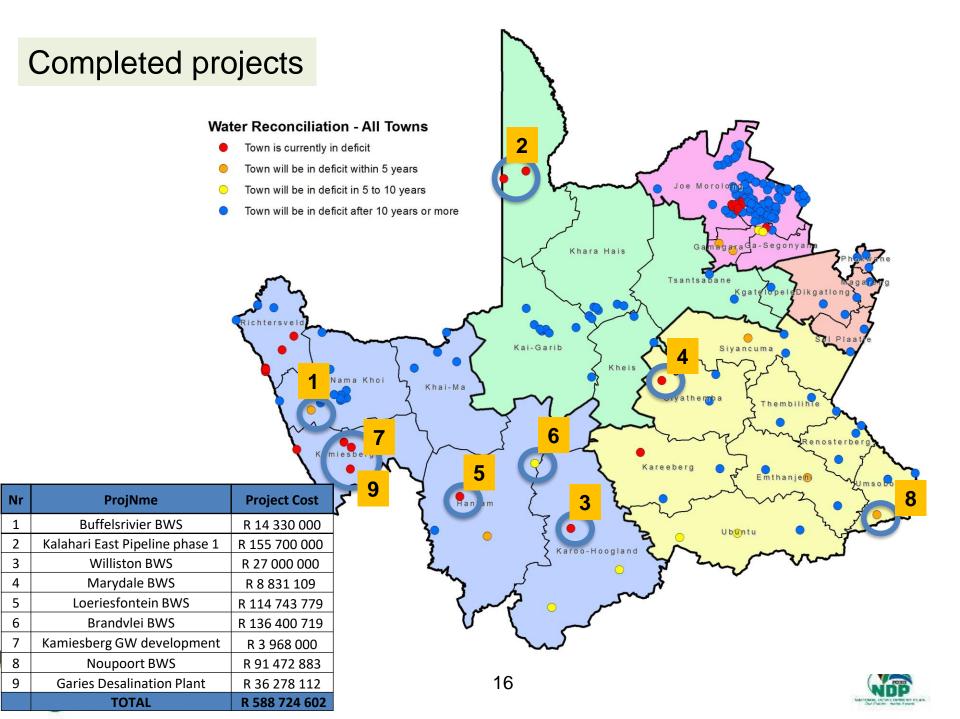
- To start Phase 2, SW and the mining forum signed the required agreements and protocols.
- However, there was a breakdown in the implementation of this agreement due to nonimplementation by SW and the mining forum requested that the agreement also be signed by DWS, and this was agreed to by DWS in August 2021.
- In terms of the agreement a steering committee was immediately established between the three parties. DWS requested that the certain aspects of the institutional and funding arrangements be changed, including the governments contribution of 44%, due to a view by the Dept that the 44% did not fully recognize the gov contribution on phase 1. In addition, SW indicated that it could not establish a separate account for the capital raising fee collected from the mining forum with joint signing authority between SW and the mining forum. The Dept also raised concerns about the Special Purpose Vehicle that was to be used for the implementation of the project in terms of the original agreement. The Dept and the mining forum have been debating these issues for the past 5 months.
- The Department has not yet made a request to Treasury for funding for phase 2.





# **COMPLETED PROJECTS**





# MANAGING FLOODING DUE TO WATER RELEASES DURING HIGH RAINFALLS







## Latest Scientific and Engineering Techniques to enable Effective Flood Control

- DWS has invested in the development of a network of gauging stations across the entire country, including the Vaal-Orange River Basin
  - The stations are at strategic location along rivers and dams
  - They are equipped with the latest technologies to enable the transmission of flow and dam levels to the offices for analyses and prediction of flood levels in near real-time
  - The analysts utilize sophisticated computer based decision support systems utilizing near real-time data to predict river and dam levels to be reached due to prevailing and impending high flows
- Large dams are equipped with gates or controlled spillways to ensure storage of flood waters and release them when safe to do so in controlled and reduced amounts.
   However, it's safer for smaller dams to have free spillways (no gates) as it reduces the chance failure of the gates and eventually the dams themselves
- All major dams in the country (incl. in the Orange River Basin) have rules which govern how the dams have to be operated during low, normal and high flow regimes





# Management of the January 2022 High Flows

- Using the gauging station network, river flow and dam levels in the Orange River Basin were monitored, and amounts and timings of water expected to flow into the dams was known upfront
- The monitoring and prediction information informed how much and when water must be stored and released from the dams, especially Vaal Dam and Bloemhof Dam
- Caution was exercised to ensure that high flows from the Orange River do not combine with high flows from the Vaal River to create one big destructive flood by withholding water in the Vaal and Bloemhof Dams
- But the dams levels kept on increasing to a point where they were threatening the safety
  of the dams and the saved water had to be released. The release were effected when the
  high flows from the Orange River had subsided.
- While the releases, especially from Bloemhof Dam seemed high, there were medium or equivalent to normal flows downstream at this time of the year.
- As it turned out the highest release of 2000 m<sup>3</sup>/s was much lower that the over 3000 m<sup>3</sup>/s which was estimated inflow into Bloemhof Dam. As a result, the flows in the Lower Orange were also much lower and the damage less than they would have been had these measures not been taken.
- The dams were initially left to fill-up because the objective of their construction is to store water such that they are full at the end of the season. While the analysts utilize weather forecasts which indicated that good rains were to be expected, weather forecasting is not yet precise hence the decision on flood control are informed by water that is already on the ground to minimize the risk of having empty dams at the end of the rainy season





# Responsibilities of Communities for their Own Safety

- Compliance with legislation in relation to the construction of essential services and settlement infrastructure above the 1:100 year floodline
- Taking heed of the warnings issued by the DWS when releases of water from dams which will cause significant increases of water levels are schedules
- Construction and maintenance of storm water drainage systems
- Communities adopting proof building





# **WASTE WATER TREAMENT WORKS**



# WWTW authorisation status NC

	Northern Cape	Comment
Exemption	23	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, Upington / Kameelmond, Groblershoop, Koingnaas & Mitchells Bay, Kleinzee, Frazerburg, Twee Rivieren, Baken, Reuning, Hondeklipbaai.
License/ GA's	6	Licensed through process with conditions: Carnarvon, Aggeneys, Springbok, Homevale, Kathu, Bestwood Estate
Permit	10	ELU with volume and conditions, Upgraded facilities in NC: Kamieskroon, Garies, Okiep, Carolusberg, Kakamas, De Aar, Williston, Sutherland, Beaconsfield, Postmasburg
No Authorisation 40		Barkley West, Hartswater, Jan Kempdorp, Kuruman, Mothibistad, Dibeng, Dingleton, Oliphantshoek, Warrenton, Hotazel, Pampierstad, Richmond, Brandvlei, 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, Alexander Bay, Lohatla Military, Finsch Mine
Total	79	

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## Enforcement on WWTW discharge and Pump stations

Name of WTW	Discharge to and impact on Water Resource	Volume R (Ml/d)	Remarks	Status Jan 2022
Vryburg	Dry Harts River		Requested Court Order stop pollution	
Homevale	Kamferdam		Consider Court Order stop pollution	
Barkley West	Vaal River	3,00	Consider Court Order stop pollution	
Lichtenburg	Harts River	16,0R	Requested Court Order stop pollution	
Kathu	Re-use Sishen Mine, discharge to stormwater	3,6	Sufficient compliance monitor	1
Danielskuil	Discharge to dolomite aquifer	0,7	Sufficient compliance monitor	4
Upington	Orange River	16,05	Stop pollution Monitor Action plan	-
Vanderkloof	Seepage to river	0,2	Stop pollution Monitor Action plan	-
Kuruman	Vlei re-used, dolomite aquifer	4,05	Stop pollution Monitor Action plan	-
Hartswater	Stormwater canal into Harts River	2,05	Stop pollution Monitor Action plan	-
Schweizer Reineke	Harts River	9,0	Stop pollution Monitor Action plan	
Jan Kempdorp	Tributary of the Harts River	2,75	Stop pollution Monitor Action plan	
Kakamas	Orange river	2,05	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	4,05	Sufficient compliance monitor	
Phillipstown	Discharge to stream	0,3	Sufficient compliance monitor	1
OCC Nababeep	Discharge to stream	2,0	Sufficient compliance monitor	4
Garies	Discharge to stream	S	Sufficient compliance monitor	
Kommaggas	Discharge to stream	S	Sufficient compliance monitor	
Okiep	Discharge to stream	S	Sufficient compliance monitor	7
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),



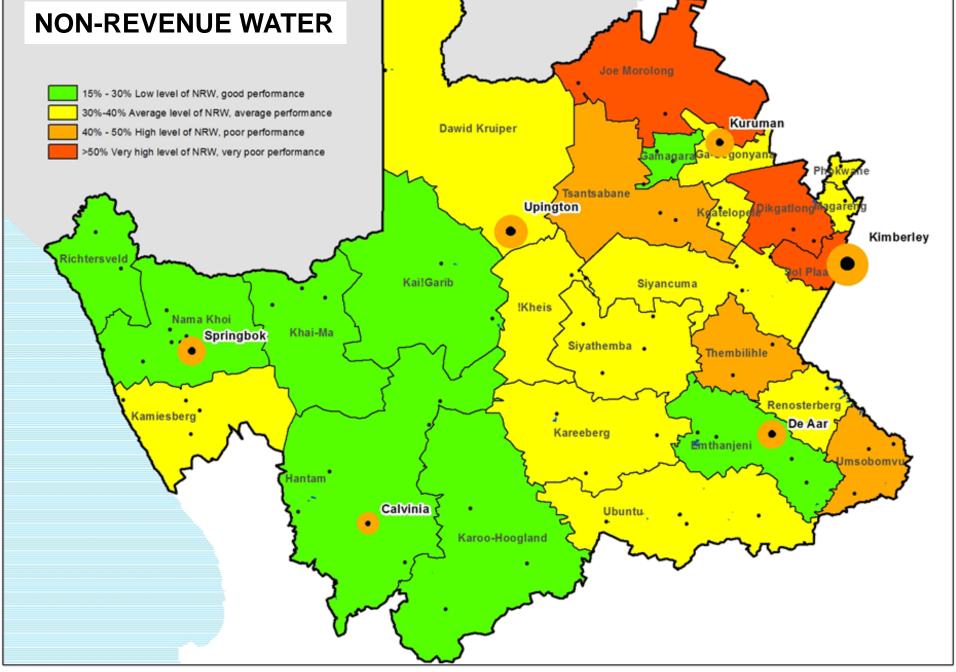


# WATER CONSERVATION/ NON-REVENUE WATER











## What was done since 2013/14 relating to WCDM

Municipality	NRW	Total meters of pipeline installed for prepaid metering	Total pre-paid meters installed	Total meters of Asbestos Cement pipes replaced to decrease water loss
Joe Morolong	>50%	192 390	826 (200m standpipes)	0
Ga-Segonyana	30% – 40%	120 863	383 (200m standpipes)	14095
Gamagara	15% - 30%	4419	747 (erf connections)	0
Kgatelopele	30% – 40%	0	0	5690
Ubuntu	30% – 40%	0	281 (erf connections)	7289
Umsobomvu	40% - 50%	0	0	3001
Thembelihle	40% - 50%	0	0	13100
Dawid Kruiper	30% – 40%	0	28 (200m standpipes)	0
Hantam	15% - 30%	0	800 (erf connections)	0
Total		317 672	3 065	43 175

#### WCDM achievement in the Vaal River mainstem

Vaalharts WUA implemented the electronic Water Allocation System (WAS). Water saving of 40 Million m3 per annum was achieved.



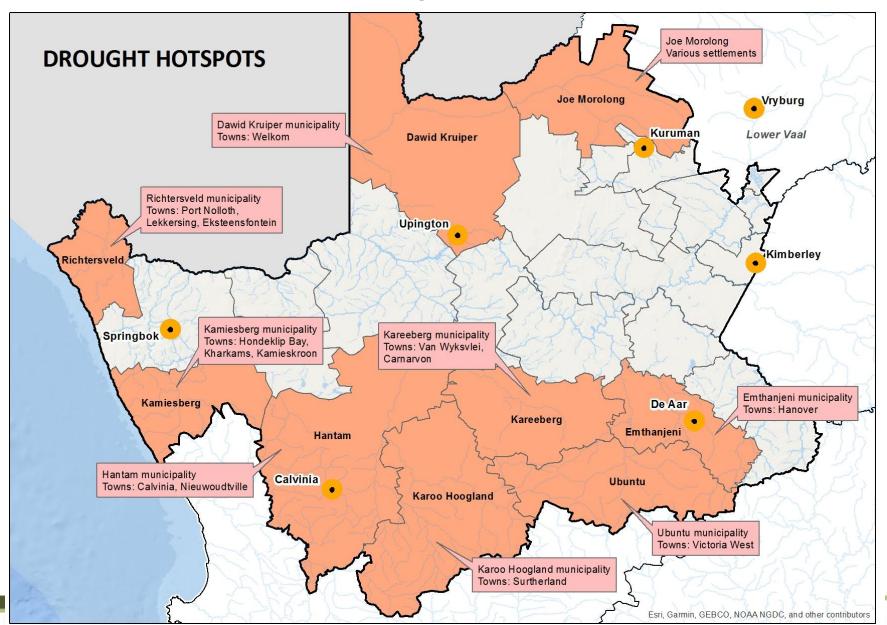
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# **DROUGHT**



# NC Drought Status



## **Drought in the Northern Cape**

- The Northern Cape has 439 towns of which 72% (316) are reliant solely on groundwater. A
  further 26% rely on surface water and the remaining 2% rely on both surface and
  groundwater.
- Inherently low level of rainfall, its variability and inconsistency have become more frequent in the last three decades and it has, in most instances, led to recurring bouts of droughts in certain parts of the province. This is especially case in the western, northern, and central parts of the province.
- Rapid emergency response by the tankering of water to ensure immediate relief of need;
   884 water tanks have been provided to municipalities throughout the province during emergency drought and COVID-19 response since March 2020.
- Source development of more than 77 municipal boreholes in 23 communities impacting 10
   161 households and 38 085 people.
- Communities include Garies, Soebatsfontein, Spoegrivier, Kamieskroon, Paulshoek, Leliefontein, Klipfontein, Kheis, Tweerivier and Kharkams in Kamiesberg LM; Vanwyksvlei in Kareeberg LM; Port Nolloth in Richtersveld LM; Calvinia, Nieuwoudtville and Middelpos in Hantam LM; Strydenburg and Kraankuil in Thembelihle LM; and, Ntswelengwe, Magagwe, Cassel, Ga-Sehunelo Wyk4, Mammebe and Manyeding in Joe Morolong LM.
  - Domestic and Stock Watering: 734 applications received. One-hundred and eighty-two 182 farms have been surveyed and 131 of farms have been drilled on. One-hundred and eighteen boreholes (118) yield and quality tested. Overall site progress is at 90%.

Project at 98% completion of R348 million allocation.



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# **WATER QUALITY**



# DRINKING WATER QUALITY BLUE DROP PROGRAM

- The NC is at 78% compliance to drinking water (bottom of all provinces) due to poor microbial, operational and disinfectant reporting and quality.
- Of the 26 Municipalities 3 (Kammiesberg, Kgatelopele and Khai Ma) did not report in 2021.
- The 2022 flood over more than 2 months (Jan-Mrt)
  with elevated turbidity and bacterial pollution hamper
  water treatment and complaints of poor drinking
  water quality in Sol Plaatje and Kai Garib LM's.
- Directives were issued to enforce LM's to refurbish water treatment facilities and improve water quality.





# **Drinking Water Quality Compliance**

	Acute Health  Microbiological		Acute Health Chemical		Chronic Health Chemical		Non Health Aesthetic		Operational		Disinfectant	
	Comply	*MRP	Comply	*MRP	Comply	*MRP	Comply	*MRP	Comply	*MRP	Comply	*MRP
Eastern Cape	91.2%	36.6%	>99.9%	0.0%	98.7%	6.5%	91.2%	89.5%	75.5%	55.0%	39.7%	4.0%
Free State	93.4%	50.2%	>99.9%	0.0%	>99.9%	74.9%	87.9%	91.6%	83.7%	61.6%	26.3%	67.5%
Gauteng	97.2%	28.0%	98.1%	0.0%	99.5%	62.9%	96.4%	85.7%	96.6%	45.1%	50.1%	29.3%
Kwazulu-Natal	92.3%	38.9%	>99.9%	0.0%	99.7%	7.8%	95.4%	95.1%	87.9%	63.2%	57.1%	2.0%
Limpopo	98.8%	40.1%	96.0%	0.0%	99.9%	35.6%	99.5%	87.2%	88.3%	52.3%	38.1%	17.8%
Mpumalanga	90.9%	42.8%	99.2%	4.0%	98.7%	10.3%	91.9%	85.1%	74.4%	51.5%	56.4%	4.3%
North West	90.7%	44.0%	>99.9%	0.0%	99.7%	18.6%	97.9%	84.9%	93.3%	63.1%	67.3%	10.7%
Northern Cape	79.8%	27.3%	96.2%	0.0%	94.9%	0.5%	90.7%	77.6%	74.6%	38.7%	36.8%	0.6%
Western Cape	98.3%	53.0%	>99.9%	70.9%	99.9%	9.5%	99.0%	92.4%	93.1%	61.9%	45.0%	3.6%
National	94.1%	>99.9%	99.0%	>99.9%	99.4%	>99.9%	95.5%	>99.9%	86.7%	>99.9%	49.2%	>99.9%

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# **DEBT OWED BY MUNICIPALITIES**



## **OUTSTANDING DEBT FROM WSA's TO DWS (JANUARY 2021)**

Municipality	Total Amount Outstanding			
Frances Baard	R232 694 855,92			
Dikgatlong	R98 982 272,92			
Magareng	R8 547 375,50			
Sol Plaatjie	R125 165 207,50			
John Taolo Gaetsewe	R30 531 435,55			
Gamagara	R4 656 144,50			
Ga-Segonyana	R2 301 173,97			
Joe Morolong	R2 109 811,23			
Kai !Garib	R21 464 305,85			
Namakwa	R434 124,74			
Hantam Local	R7 213,04			
Kamiesberg	R10 271,34			
Karoo Hoogland	R15 539,17			
Khâi-Ma	R45 512,57			
Nama Khoi	R320 387,51			
Richtersveld	R35 201,11			
Pixley Ka Seme	R17 670 411,71			
Emthanjeni Local	R1 290 565,79			
Kareeberg	R53 567,17			
Siya Themba	R15 139 846,80			
Siyancuma	R1 038 978,76			
Thembelihle	R1 725,73			
Ubuntu	R145 727,46			
Zf Mgcawu	R20 190 872,33			
David Kruiper	R4 402 985,63			
Kgatelopele	R51 095,51			
Mier Municipality	R67 229,19			
Tsantsabane	R15 669 562,00			
Grand Total	R301 521 700,25			









# Outstanding debt to Sedibeng Water (January 2021)

Name of Municipality	Opening Balance	Amount Invoiced	Amount Paid	Balance per Age Analysis
Joe Morolong	-	38 727 557,35	(38 096 958,56)	630 598,79
Dikgatlong	2 032 255,64	53 589 749,64	(38 088 241,57)	17 533 763,71
Gamagara	2 392 194,62	89 243 495,70	(90 150 236,17)	1 485 454,15
Tsantsabane	12 480 119,11	140 898 047,66	(82 808 576,49)	70 569 590,28
Gasegonyane	8 732 336,16	156 890 615,54	(162 271 305,40)	3 351 646,30
Khai Ma	599 323,34	30 827 470,93	(22 430 532,63)	8 996 261,64
Nama-Khoi	58 445 313,84	299 944 271,64	(156 090 910,91)	202 298 674,57

84 681 542,71 810 121 208,44 (589 936 761,73) 304 865 989,42





# Way Forward

- Support to local municipalities to complete infrastructure projects by appointing additional DWS technical staff within the region.
- Improve regulation of water users to ensure compliance to water quantity and quality.
- Public awareness and campaigns through ward councillors and ward committee to improve public ownership of municipal assets
- DWS is in the process of expanding partnerships between government and the private sector, for the development and management of water resource infrastructure as well as municipal water and sanitation.
- The Northern Cape Water and Sanitation Partnership will be launched by the Minister, Premier, SALGA, and organized private sector formations.





# DANKIE KE A LEBOGA GIYABONG

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# PROJECTS IMPLIMENTED BY DWS PROPOSED SITE VISITS

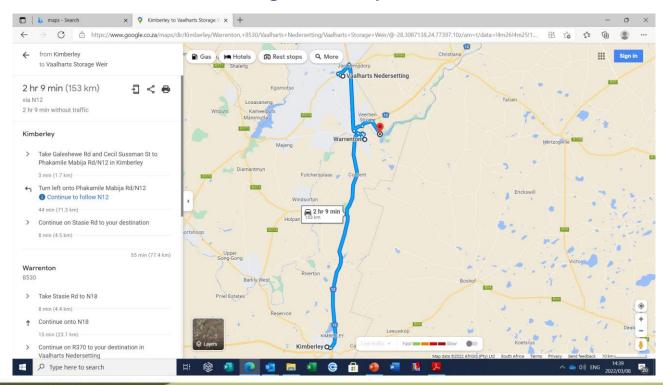




# PROPOSED SITE VISIT

It is suggested that the following sites be visited;

- Warrenton WTW Projects
- Vaalharts Weir
- Vaalharts Canal Irrigation System





Water and Santation REPUBLIC OF SOUTH AFRICA

