December 2024

# MONTHLY STATE OF WATER BULLETIN

WATER IS LIFE - SANITATION IS DIGNITY

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

2030 NDP

# Overview

South Africa experiences winter rainfall in the southwestern parts of the country and summer rainfall in the eastern part. The country's southwestern tip has a Mediterranean climate with hot, dry summers and cool, wet winters. The South African climate is currently in a neutral El Niño-Southern Oscillation (ENSO), with predictions of weakening further. At the end of December 2024, the national dam levels were 73.6% of Full Supply Capacity (FSC). This level is lower than last year, at the same time of reporting when national storage levels were greater than 88.6% of FSC. At least **21.6%** of the national dams were **above 100% of FSC** (either full or spilling), while **64%** were between 50 and 100% of FSC, **11.7%** were between 10 and 50% of FSC, and **1.8%** were below 10% of FSC (critically low).

The most recent 24-month Standardised Precipitation Index revealed that several District Municipalities (DM) experienced severe drought in the last 24 Months, including the ZF Mgcawu DM in the Northern Cape, Bojanala DM in North West, Thabo Mafutsanyane DM in the Free State, Gert Sibande DM in Mpumalanga, and Capricorn and Mopani DMs in Limpopo. Moreover, district municipalities such as the Zululand DM in KwaZulu-Natal, Ngaka Modiri Molema DM in North-West, Sekhukhune DM in Limpopo, and Sedibeng DM in Gauteng only experienced moderate drought.

The collaborative maintenance operation being carried out by the Trans-Caledon Tunnel Authority (TCTA) and the Lesotho Highlands Development Agency (LHDA) is currently in progress, commencing after the closure of the tunnel system on 1 October 2024. This essential undertaking aims to ensure the long-term functionality and safety of the tunnel infrastructure, which plays a vital role in the region's water supply. The goal is to reinforce the infrastructure to withstand the test of time and ensure reliable operation for the next 20 to 30 years.

## Rainfall

The South African climate is currently in a neutral El Niño-Southern Oscillation (ENSO) and is predicted to weaken further. However, current South African Weather Service (SAWS) predictions are uncertain whether it will weaken towards a La Niña state during our next summer season. The monthly rainfall distribution for the current hydrological year, which started in October 2024, is presented in Figure 1 and Figure 2, respectively. In December, most provinces received rainfall (50-100mm), while rainfall above 200 mm was received over isolated parts of KwaZulu-Natal, Limpopo, and Mpumalanga provinces.

The monthly rainfall anomalies for the current hydrological year, expressed as a percentage of normal rainfall for October 2024 and December 2024, are presented in Figure 2. Above-normal rainfalls (>100 mm) were received in isolated parts of the KwaZulu-Natal, Limpopo, Mpumalanga, Gauteng, Free State and Northern Cape provinces.

The SAWS multi-model rainfall and temperature forecast predictions indicate above-normal rainfall for parts of the north-eastern central and coastal areas, with most parts of the summer rainfall areas expected to receive below-normal rainfall. During the latter parts of summer (Feb-Mar-Apr), there is a widespread increase in chances for above-normal rainfall over the summer rainfall areas, potentially indicating a very late influence from the potential La Niña event. Minimum and maximum temperatures are expected to be mostly above-normal countrywide for the forecast period. However, the southern coastal areas indicate that below-normal temperatures are more likely throughout the summer period.

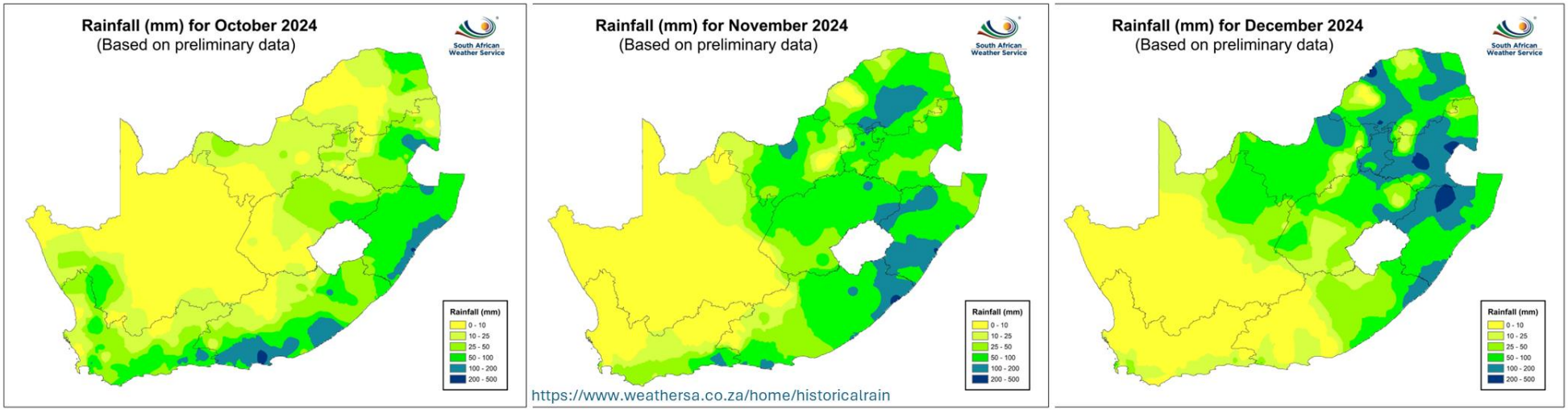



*Figure 1: Monthly rainfall distribution for October 2024, November 2024 and December 2024*

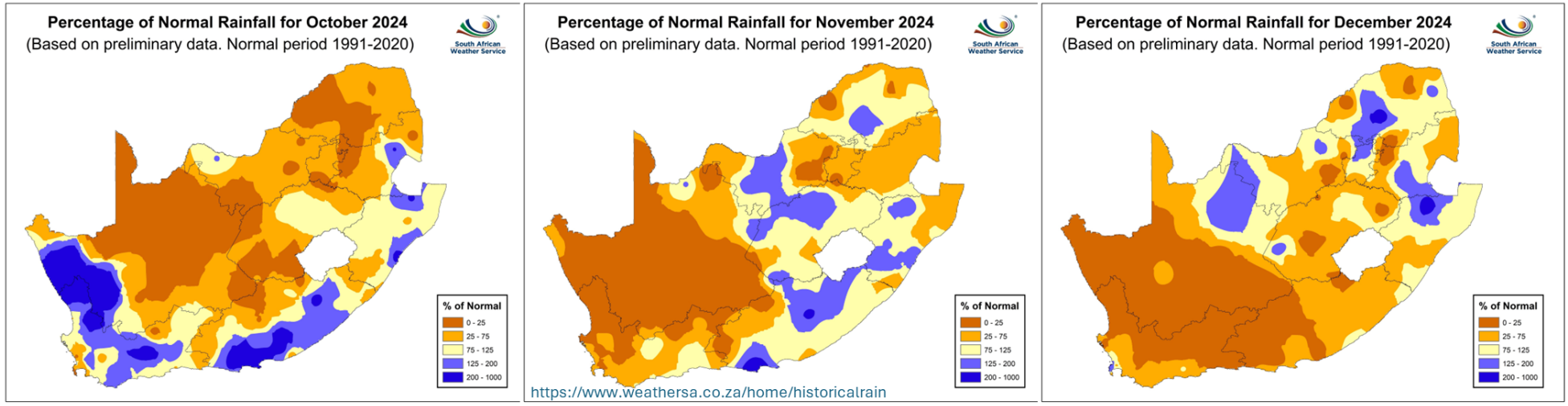



*Figure 2: Summer season Percentage of normal rainfall for October 2024, November 2024 and December 2024.*

## National Dam Storage

The national water storage trends since 1981 are presented in Figure 3, at the end of December 2024, the national dam levels were **73.6%** of Full Supply Capacity (FSC). This level is lower than last year, at the same time of reporting the national storage levels were at 88.6% of FSC.

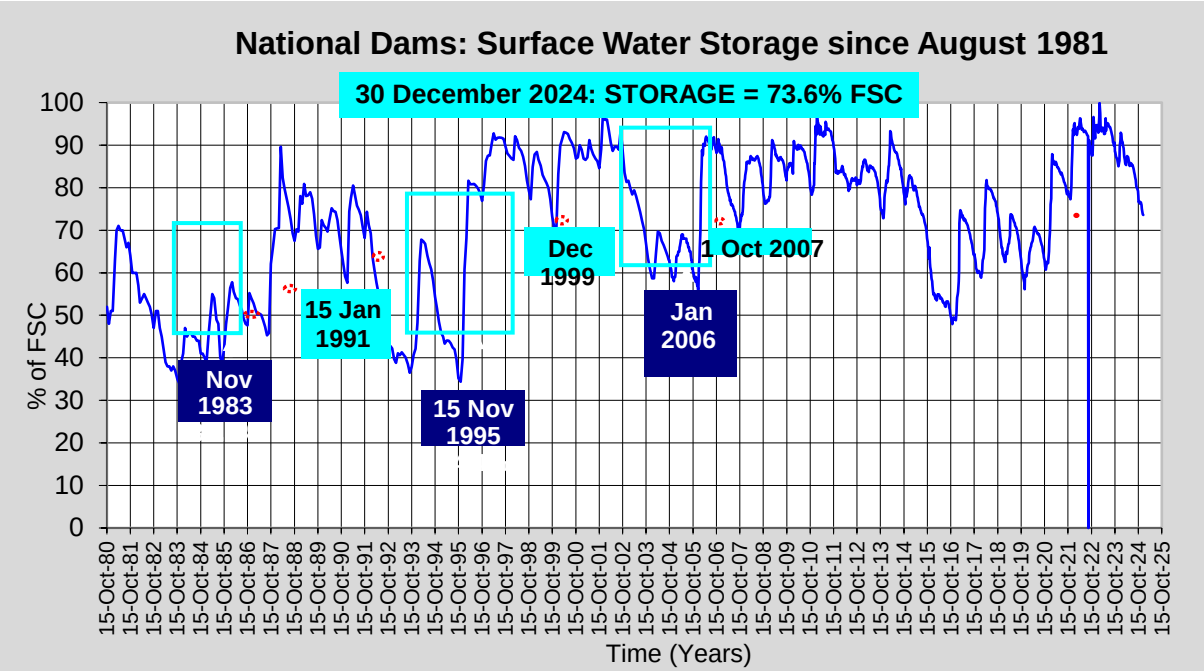



*Figure 3: National Dam Storage at the end of December 2024*

At least **21.6%** of the national dams were **above 100% of FSC** (either full or spilling), while **64%** were between 50 and 100% of FSC, **11.7%** were between 10 and 50% of FSC, and **1.8%** were below 10% of FSC (critically low). The comparison between December 2023 and December 2024 of the country's five largest dam storage (%of FSC) is presented in Table 1. Due to the drier and warmer conditions experienced in spring 2024 compared to spring 2023, the Vaal Dam and Gariep Dam storage levels have declined by -41.9% and -30.1%, respectively.

*Table 1: Storage Levels comparison for the Five Largest storage dams (by volume) to last year*

| Reservoir | River | Province | Full Supply Capacity ($Mm^3$) | 30 December 2023 (% FSC) | 30 December 2024 (% FSC) | Difference (%) |
|---|---|---|---|---|---|---|
| **Gariep Dam** | Orange River | Free State | 4903.45 | 101.2 | 71.1 | -30.1 |
| **Vanderkloof Dam** | Orange River | Free State | 3136.93 | 85.7 | 80.2 | -5.5 |
| **Sterkfontein Dam** | Nuwejaarspruit River | Free State | 2616.9 | 99.7 | 98 | -1.7 |
| **Vaal Dam** | Vaal River | Free State | 2560.97 | 66 | 24.1 | -41.9 |
| **Pongolapoort Dam** | Phongolo River | KwaZulu-Natal | 2395.24 | 73.8 | 73.4 | -0.4 |

In Limpopo Province, the Middle-Letaba remains the only dam at critical levels, while the same is true for Swartruggens Dam in North West, Debe Dam in the Eastern Cape, and Leeugamka Dam in the Western Cape, as given in Table 2.

*Table 2: Dams currently below 10% of Full Supply Capacity compared to last year*

| Reservoir | River | Province | Full Supply Capacity ($Mm^3$) | 30 December 2023 (% FSC) | 30 December 2024 (% FSC) | Difference (%) |
|---|---|---|---|---|---|---|
| **Leeugamka Dam** | Leeu River | Western Cape | 0.47 | 16.2 | 0.6 | -15.6 |
| **Middel-Letaba Dam** | Middel-Letaba River | Limpopo | 171.93 | 3.4 | 0.7 | -2.7 |
| **Swartruggens Dam** | Elands River | North West | 18.89 | 64.3 | 0.7 | -63.6 |
| **Debe Dam** | Debe River | Eastern Cape | 13.41 | 7.6 | 7.6 | 0 |

The spatial distribution of the dams showing the classified range of their storage levels as of 30 December 2024 is presented in Figure 4. The majority of national dams across the country were at storage levels of between 50 and 100% of FSC.

Figure 5 presents the 24-month Standardised Precipitation Index (SPI) for November 2024. An observation is made that several district municipalities (DM) have experienced severe droughts in the last 12 months. These include ZF Mgcawu DM in the Northern Cape, Bojanala DM in North West, Thabo Mafutsanyane DM in the Free State, Gert Sibande DM in Mpumalanga, and Capricorn and Mopani DMs in Limpopo.

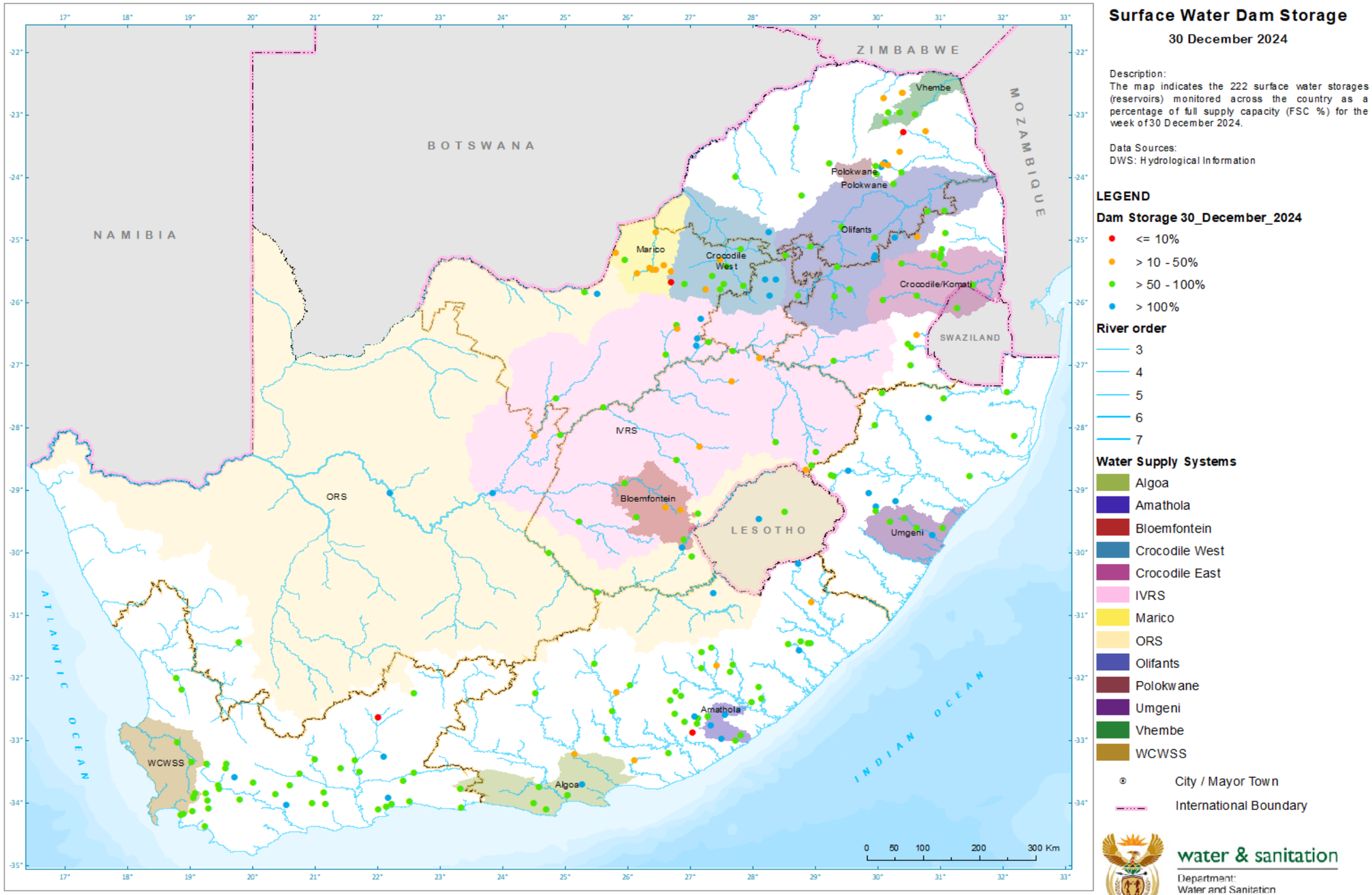



*Figure 4: Surface Water Storage Levels - December 2024*

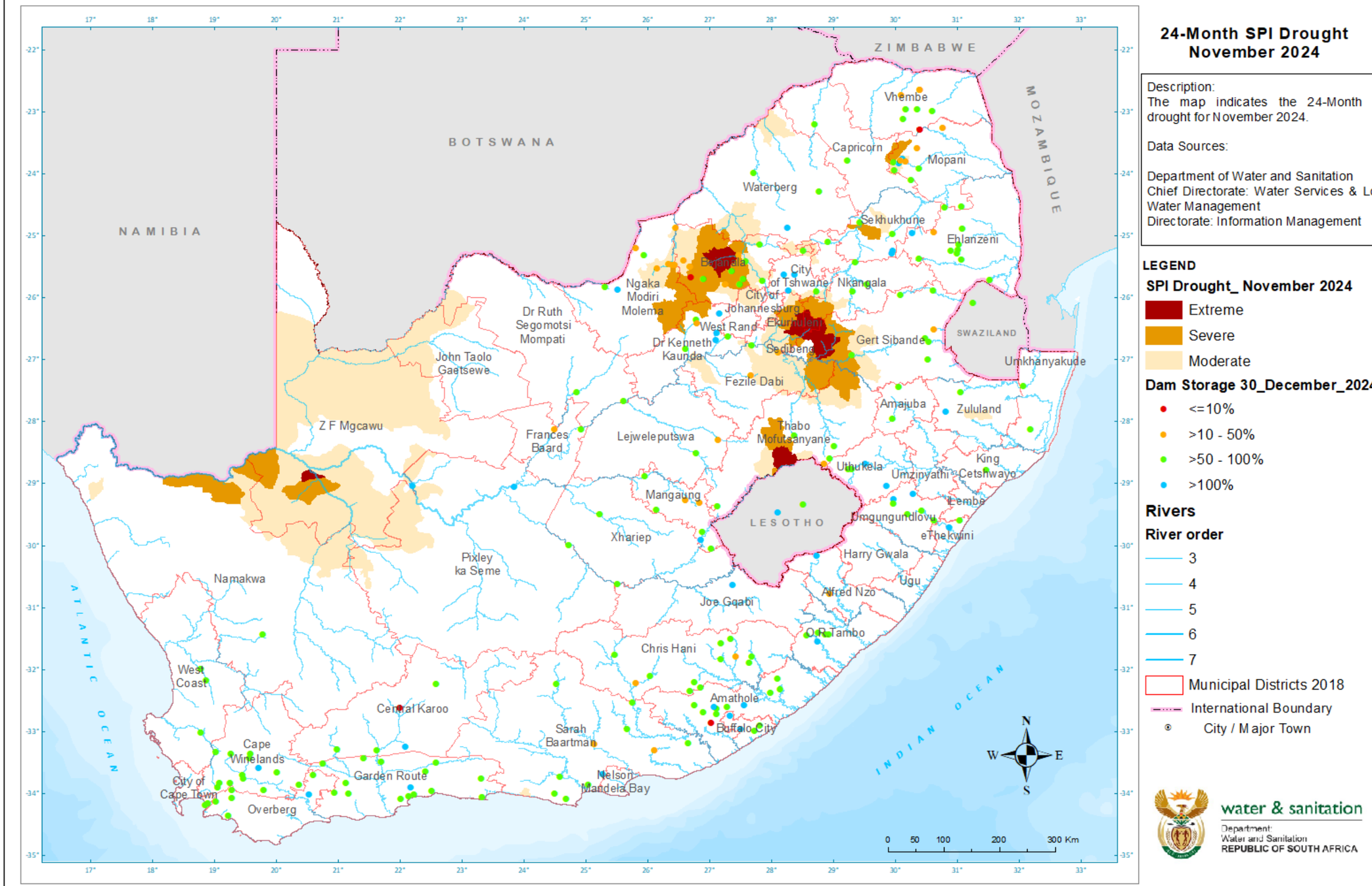
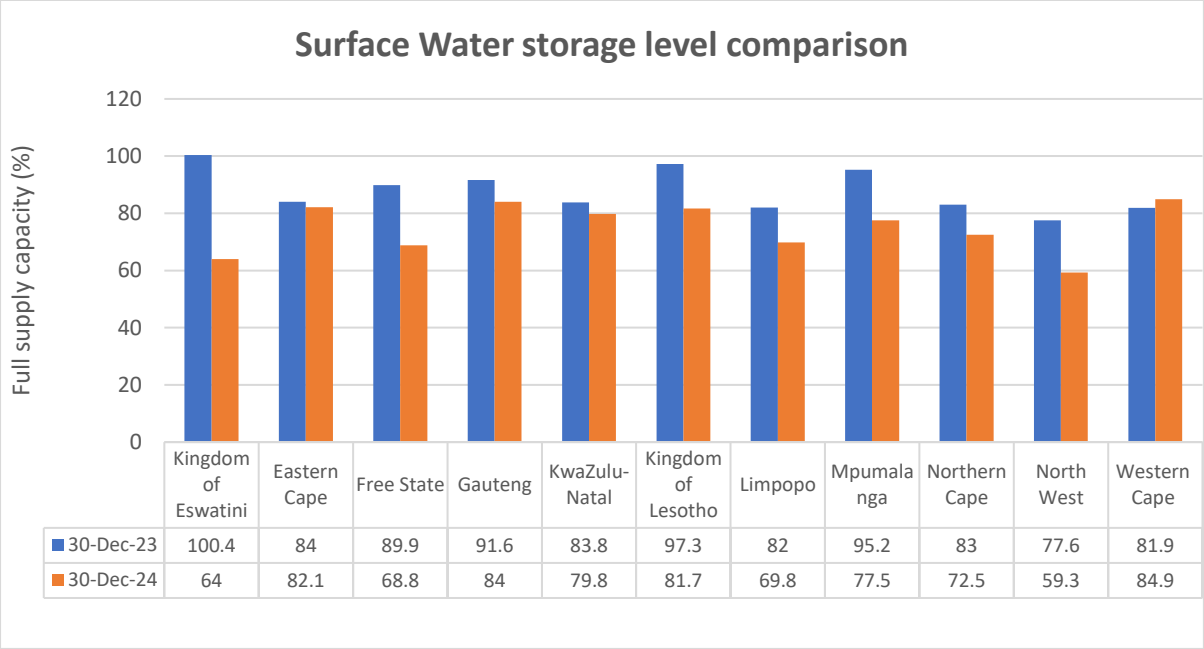



*Figure 5: 24-Month Standardised Precipitation Index (SPI) and dam levels*

District municipalities such as Zululand DM in KwaZulu-Natal, Ngaka Modiri Molema DM in North-West, Sekhukhune DM in Limpopo, and Sedibeng DMs in Gauteng only experienced moderate drought. These areas are experiencing drought due to below-normal rainfall received during the previous summer rainfall season.

The comparison of the storage levels per province and international areas for December 2024 to the same time last year is presented in Figure 6. The Western Cape is the only province showing an increase in storage levels, indicating normal to above-normal rainfall received during the winter rainfall season. The provinces showing significant declines (>-10%) in dam storage levels compared to the previous year are Free State (-21.9%), Limpopo (-12.2%), Mpumalanga (-17.7%); Northern Cape (-10.5%), and North West (-18.3%). The Kingdom of Eswatini has also shown a significant decline of -36.4% in dam storage compared to the previous year.




| | Kingdom of Eswatini | Eastern Cape | Free State | Gauteng | KwaZulu-Natal | Kingdom of Lesotho | Limpopo | Mpumalanga | Northern Cape | North West | Western Cape |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 30-Dec-23 | 100.4 | 84 | 89.9 | 91.6 | 83.8 | 97.3 | 82 | 95.2 | 83 | 77.6 | 81.9 |
| 30-Dec-24 | 64 | 82.1 | 68.8 | 84 | 79.8 | 81.7 | 69.8 | 77.5 | 72.5 | 59.3 | 84.9 |

*Figure 6: Water Storage Levels December 2023 vs. December 2024*

## District Municipalities

The year-on-year comparison of water storage levels per district municipality is presented in

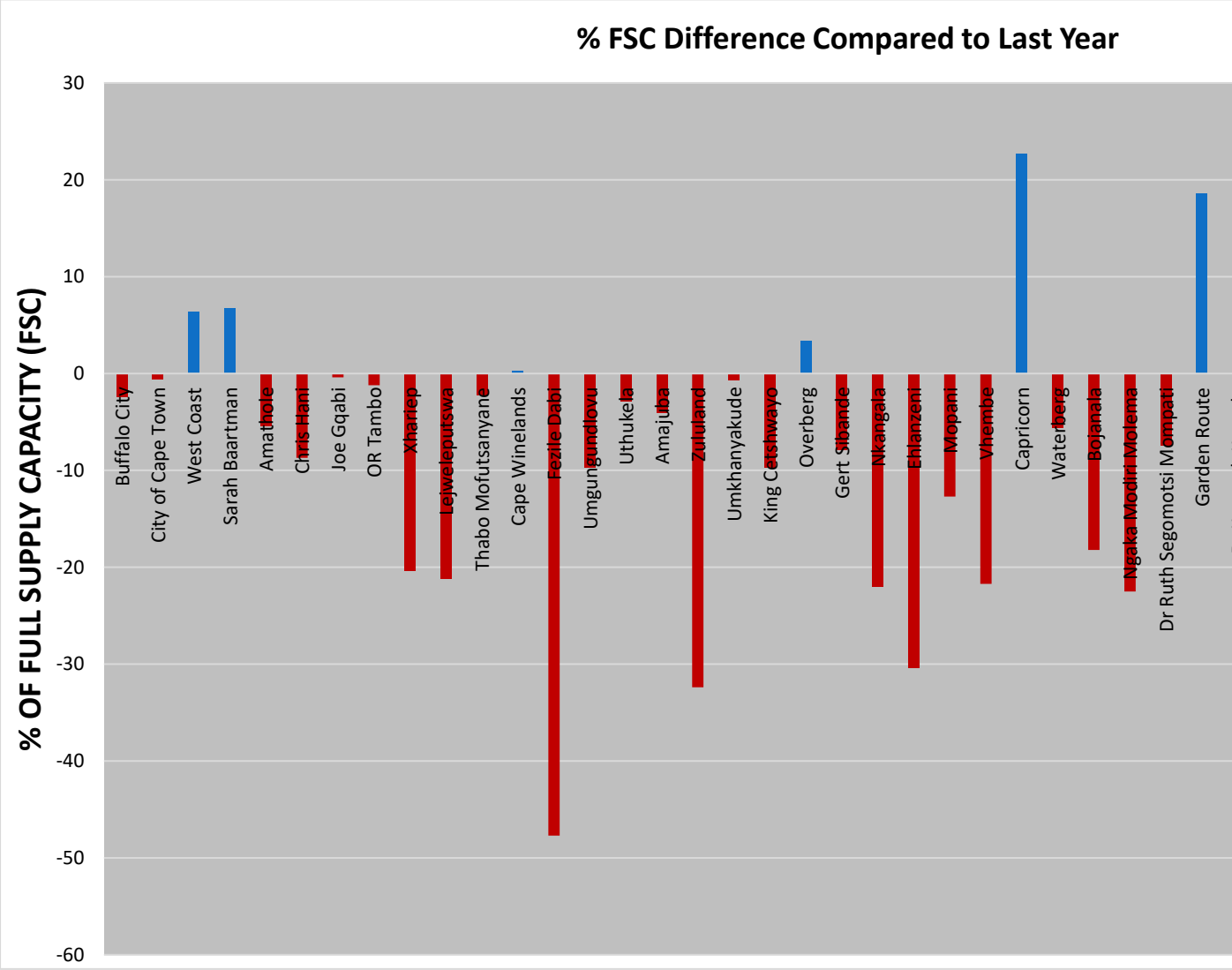



Figure 7. Only the Capricorn and Garden Route DMs experienced a significant increase (>10%) in dam storage levels compared to last year. Six district municipalities experienced a significant decline (>-20%) in dam levels compared to the same time last year, namely, Fezile Dabi DM, Bojanala DM, Ngaka Modiri Molema DM, Sedibeng DM, Alfred Nzo DM, and Francis Baard DM. Based on the 24-month SPI, some of these DMs have been experiencing drought in the last 24 months.

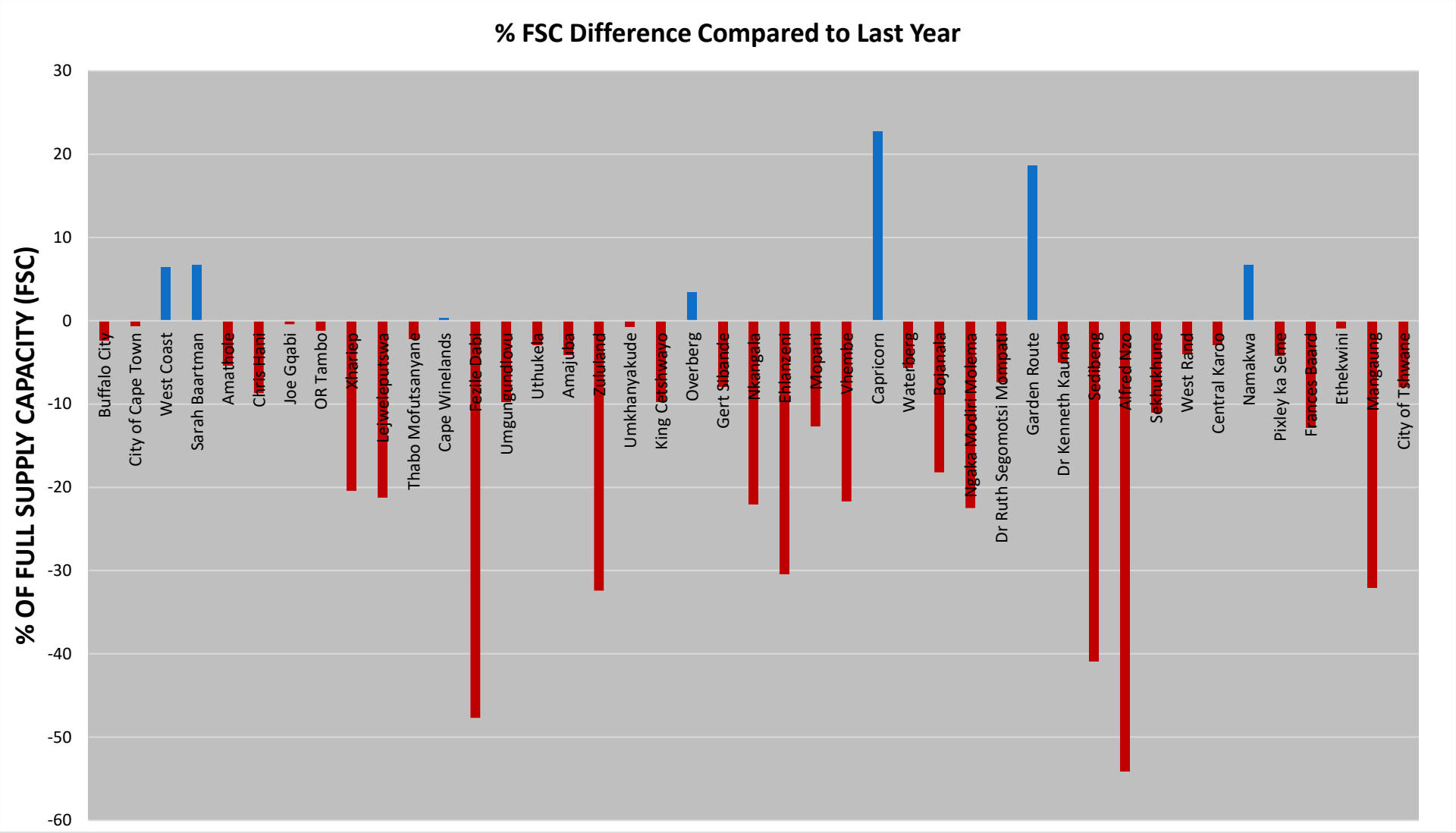



*Figure 7: Comparison of water storage levels per District Municipality December 2023 vs December 2024*

The dam storage levels in water supply systems (WSSs) and applicable restrictions are presented in Table 3. The Algoa WSS decision date was changed from 1 June to 1 November, and a new annual operating analysis for the decision date was performed, resulting in an update of water restrictions which were in effect from 1 November 2023 to 31 October 2024. However, these restrictions are yet to be gazetted.

The water supply systems with restrictions are given in Table 4. Due to infrastructure limitations, permanent restrictions are applicable for the Polokwane and Bloemfontein WSSs

*Table 3: Water Supply Systems storage levels*

| Water Supply Systems/clusters | Capacity in $10^6 m^3$ | 30 December 2023 (% FSC) | 23 December 2024 (% FSC) | 30 December 2024 (% FSC) | System Description |
|---|---|---|---|---|---|
| **Algoa** | 282 | 76.7 | 83.3 | 82.3 | The following 5 dams serve the Nelson Mandela Bay Metro, Sarah Baartman (SB) DM, Kouga LM, and Gamtoos Irrigation:<br>1. Kromrivier Dam<br>2. Impofu Dam<br>3. Kouga Dam<br>4. Loerie Dam<br>5. Groendal Dam |
| **Amathole** | 241 | 100.2 | 102 | 98.5 | The following 6 dams serve Bisho & Buffalo City, East London:<br>1. Laing Dam<br>2. Rooikrans Dam<br>3. Bridle Drift Dam<br>4. Nahoon Dam<br>5. Gubu Dam<br>6. Wriggleswade Dam |
| **Klipplaat** | 57 | 99.4 | 92.1 | 91.7 | The following 3 dams serve Queenstown (Chris Hani DM, Enoch Ngijima LM):<br>1. Boesmanskrantz Dam<br>2. Waterdown Dam<br>3. Oxkraal Dam |
| **Butterworth** | 14 | 100.2 | 96 | 95.6 | Xilinxa Dam and Gcuwa weirs serve Butterworth |
| **Integrated Vaal River** | 10 546 | 87.5 | 70.3 | 70.3 | The following 14 dams serve Gauteng, Sasol, and ESKOM:<br>1. Vaal Dam<br>2. Grootdraai Dam<br>3. Sterkfontein Dam<br>4. Bloemhof Dam<br>5. Katse Dam<br>6. Mohale Dam |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | 7. Woodstock Dam<br>8. Zaaihoek Dam<br>9. Jericho Dam<br>10. Westoe Dam<br>11. Morgenstond Dam<br>12. Heyshope Dam<br>13. Nooitgedacht Dam<br>14. Vygeboom Dam |
| **Luvuvhu** | 225 | 100.4 | 85.5 | 85.6 | The following 3 dams serve Thohoyandou etc:<br>1. Albasini Dam<br>2. Vondo Dam<br>3. Nandoni Dam |
| **Bloemfontein** | 219 | 97.1 | 70.6 | 70 | The following 4 dams serve Bloemfontein, Botshabelo and Thaba Nchu:<br>1. Rustfontein Dam<br>2. Groothoek Dam<br>3. Welbedacht Dam<br>4. Knellpoort Dam |
| **Polokwane** | 254.27 | 97.8 | 75.4 | 78.7 | The following 2 dams serve Polokwane<br>1. Flag Boshielo Dam<br>2. Ebenezer Dam |
| **Crocodile West** | 444 | 95.5 | 74.4 | 80.1 | The Following 7 dams serve Tshwane up to Rustenburg:<br>1.Hartbeespoort Dam<br>2. Rietvlei Dam<br>3. Bospoort Dam<br>4. Roodeplaat Dam<br>5.Klipvoor Dam<br>6. Vaalkop Dam<br>7. Roodekopjes Dam |
| **uMgeni** | 923 | 93.6 | 85.6 | 85.6 | The following 5 dams serve Ethekwini, iLembe & Msunduzi:<br>1. Midmar Dam<br>2. Nagle Dam<br>3. Albert Falls Dam<br>4. Inanda Dam<br>5. Spring Grove Dam |
| **Cape Town** | 889 | 88.1 | 91.6 | 89.7 | The following 6 dams serve the City of Cape Town:<br>1. Voelvlei Dam<br>2. Wemmershoek Dam<br>3. Berg River Dam<br>4. Steenbras-Lower Dam<br>5. Steenbras-Upper Dam<br>6. Theewaterskloof Dam |
| **Crocodile East** | 159 | 96.6 | 55 | 55.2 | Kwena Dam supplies Nelspruit, Kanyamazane, |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | Matsulu, Malelane and Komatipoort areas & Surroundings |
| **Orange** | 7 996 | 95.2 | 75.7 | 74.7 | The Following two dams service parts of the Free State, Northern, and Eastern Cape Provinces:<br>1. Gariep Dam<br>2. Vanderkloof Dam |
| **uMhlathuze** | 301 | 100.7 | 89.4 | 91 | Goedertrouw Dam supplies Richards Bay, Empangeni Towns, small towns, surrounding rural areas, industries, and irrigators, supported by lakes and transfer from Thukela River |

*Table 4: Water Supply Systems with Restrictions*

| Water Supply Systems | Restrictions |
|---|---|
| **Algoa WSS** | The decision date was changed from 1 June to 1 November 2023, therefore new AOA was conducted, and water restrictions were imposed as from 1 November 2023, Urban (Domestic and Industrial) = 5%, Irrigation = 15% for Kouga Sub-system and Urban (Domestic and Industrial) = 40%, Irrigation = 50% for the Kromme Sub-system, Gazetted on 26 April 2024 (Notice No. 50569) |
| **Bloemfontein WSS** | A 15% restriction has been recommended on Domestic and Industrial water supply when the system drops below 95%, notice is yet to be gazetted |
| **Polokwane WSS** | 20% restrictions on Domestic and Industrial |

## LESOTHO HIGHLANDS TUNNEL CLOSURE

The collaborative maintenance operation being carried out by the Trans-Caledon Tunnel Authority (TCTA) and the Lesotho Highlands Development Agency (LHDA) is currently in progress, commencing after the closure of the tunnel system on 1 October 2024. This essential undertaking aims to ensure the long-term functionality and safety of the tunnel infrastructure, which plays a vital role in the region's water supply.

The TCTA is specifically managing the maintenance work on the Delivery Tunnel North, located in South Africa, while the LHDA is focused on the transfer tunnels connected to the Muela hydropower station in the scenic highlands of Lesotho. According to a  Department of Water and Sanitation (DWS,2024), the previous maintenance shutdown in 2019 revealed alarming issues, such as extensive wear and tear on the steel liners of the tunnels, necessitating urgent repairs on both the South African and the Lesotho sides.

The scope of the current work is significant and comprehensive. It includes grit-blasting the steel-lined sections around the entire circumference of the tunnels, which aims to remove corrosion and prepare the surfaces for reapplication of protective coatings. This crucial step, along with various other maintenance and repair activities identified during the 2019 shutdown, is planned to take ample time. The goal is to reinforce the infrastructure to withstand the test of time and ensure reliable operation for the next 20 to 30 years.

However, this extensive shutdown comes with considerable implications for water supply among users along the Liebenbergsvlei River and its many tributaries. The Liebenbergsvlei River, which is fed directly by outflows from the tunnel, is crucial for the towns of Bethlehem, Reitz, and Tweeling, as well as for local licensed irrigators who depend on its waters. To mitigate challenges in water supply, preparations are to fill the Saulspoort Dam at the onset of the shutdown. DWS analysis shows that a fully stocked Saulspoort Dam will be capable of meeting local water demands—including those of Bethlehem, Reitz, and Tweeling—for an impressive duration of up to nine months, which comfortably exceeds the expected six-month closure of the tunnel.


*Figure 8: Upper Vaal Flow Monitoring sites (Green Dot – Towns, Blue Dot – Standalone Dams, Red Dot – Flow monitoring Point). Source https://www.dws.gov.za/hydrology/Unverified/Home/OrangeVaal*

A detailed update on the current flow conditions of the Ash River Outlet is presented in Figure 9 below. In December 2024, the outlet at gauging station number C8H036 experienced a complete cessation of water flow. This  was due to the tunnel closure, and isexpected to remain unchanged for the next few months. However, there is continuous monitoring of the situation.

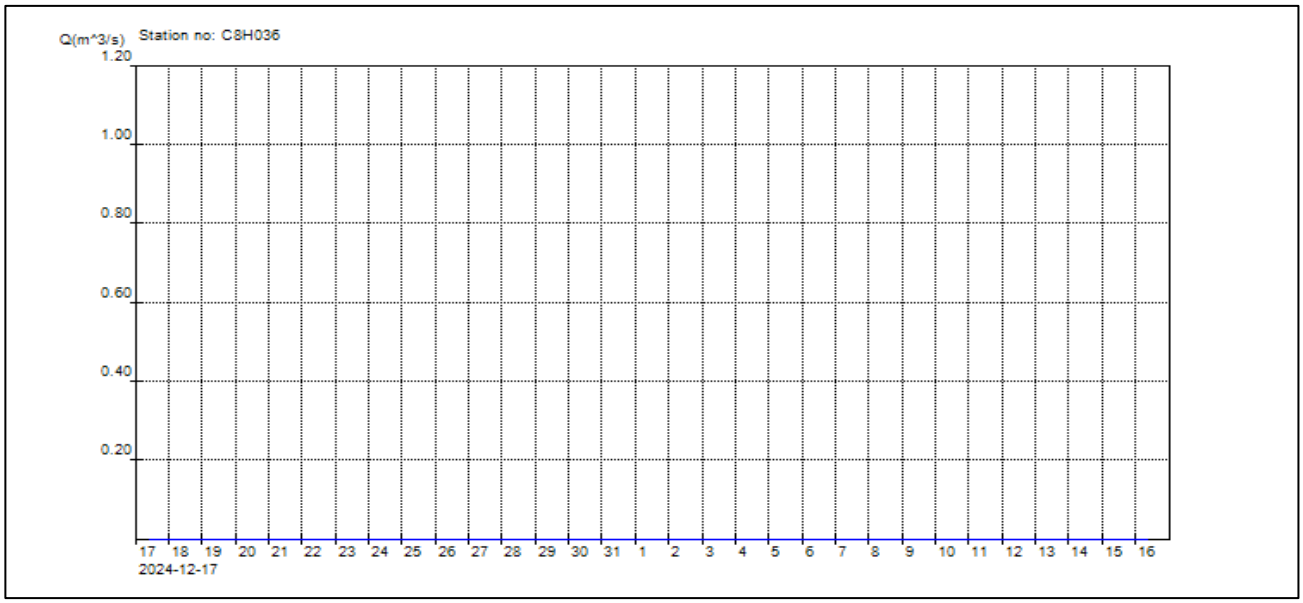



*Figure 9: Ash at outlet from Katse Dam source: https://www.dws.gov.za/Hydrology/Unverified/FlowDetail/6671*

As of 17 December  2024, the water level at Liebenbergsvlei, situated at Saulspoort Dam (C8R004), was recorded at 80.478%,by 31 December2024, the tracking percentage reached 80.875% of its Full Supply Capacity (FSC).

The decline in water level can primarily be attributed to two key factors: the abstraction of water by the Dihlabeng Municipality for municipal purposes and the natural process of evaporation. Analysing Figure 10 reveals a downward trend in the dam's volume starting from 31 November2024. Accompanied by a subsequent rise in water level observed on 16 December 2024 . This increase is a direct result of significant rainfall that occurred in the region, replenishing the dam and contributing positively to its overall water volume.

In terms of the dam's volume, there is a need for at least three planned water releases. However, due to the rainfall in the catchment area, the initial release was not implemented. An influx of water into the dam was experienced that exceeded expectations therefore the first release was not implemented. A comparison between predicted figures and the actual measurements indicates an excess of 2.4 million cubic meters of water in the dam, which proved advantageous for operations.

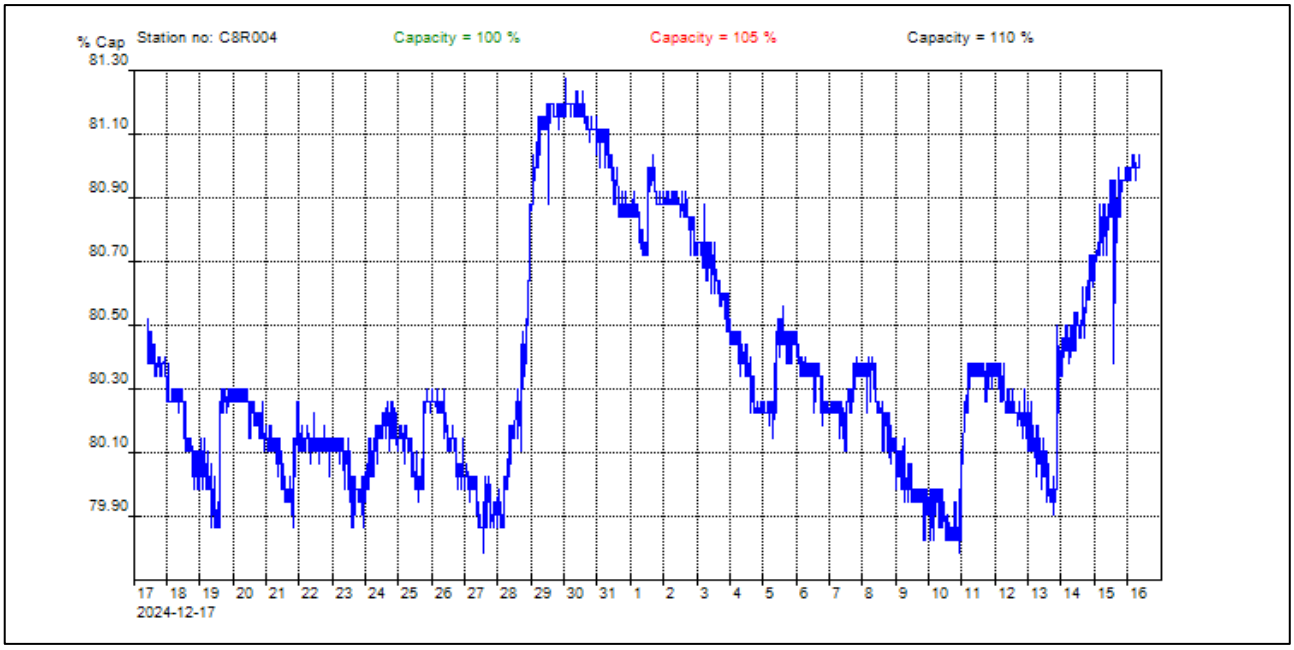



*Figure 10: Liebenbergsvlei at Saulspoort Dam Source https://www.dws.gov.za/Hydrology/Unverified/FlowDetail/1122*

In examining the first gauging station at C8H037 (Figure 11), situated upstream of Reitz, a notable decrease in water levels has been observed. This decline suggests that the Liebenbergsvlei River has significantly slowed its flow and may stop altogether around December 4, 2024. The accompanying graph clearly depicts a peak in the water volume occurring on December 11th, followed by a gradual decline that continues through December 16th.

Furthermore, the gauging weir, also referred to as the storage weir station number C8H026 as shown in figure 12, which supplies water to Reitz. Since November 27, 2024. A systematic drawdown of the water pool behind this storage structure is noted, leading to an absence of flow in this area. High peak is depicted on December 11, 2024 but current trends indicate a noticeable decline at the monitoring points at Frankfort.

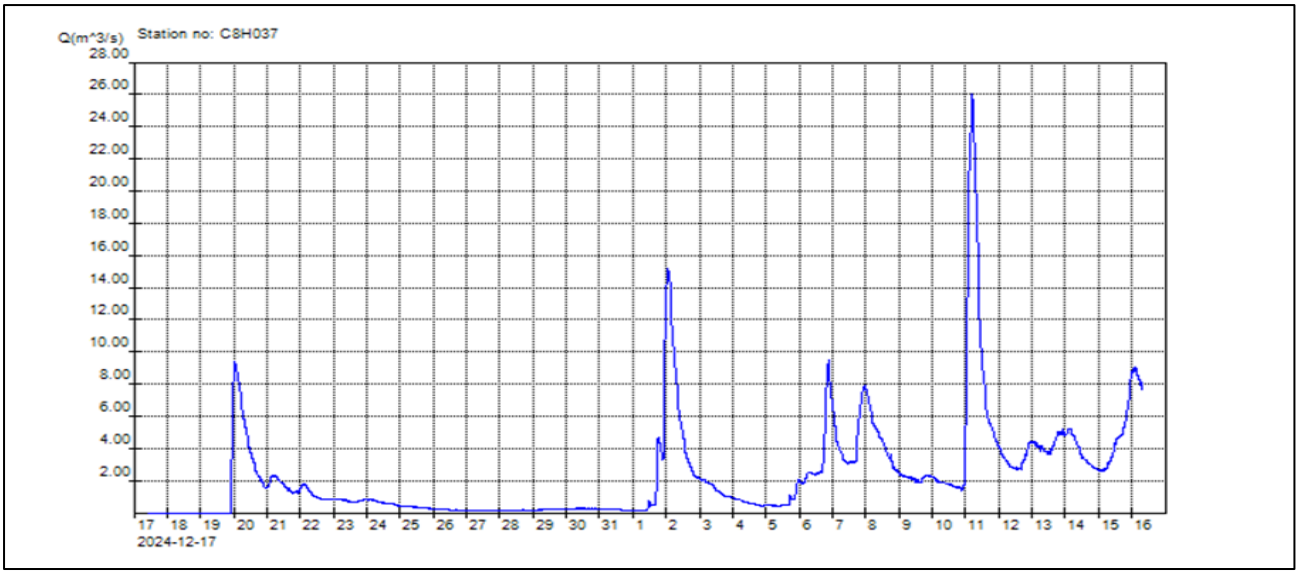



*Figure 11: Liebenbergsvlei at Reward*
*Source:https://www.dws.gov.za/Hydrology/Unverified/FlowDetail/6703*

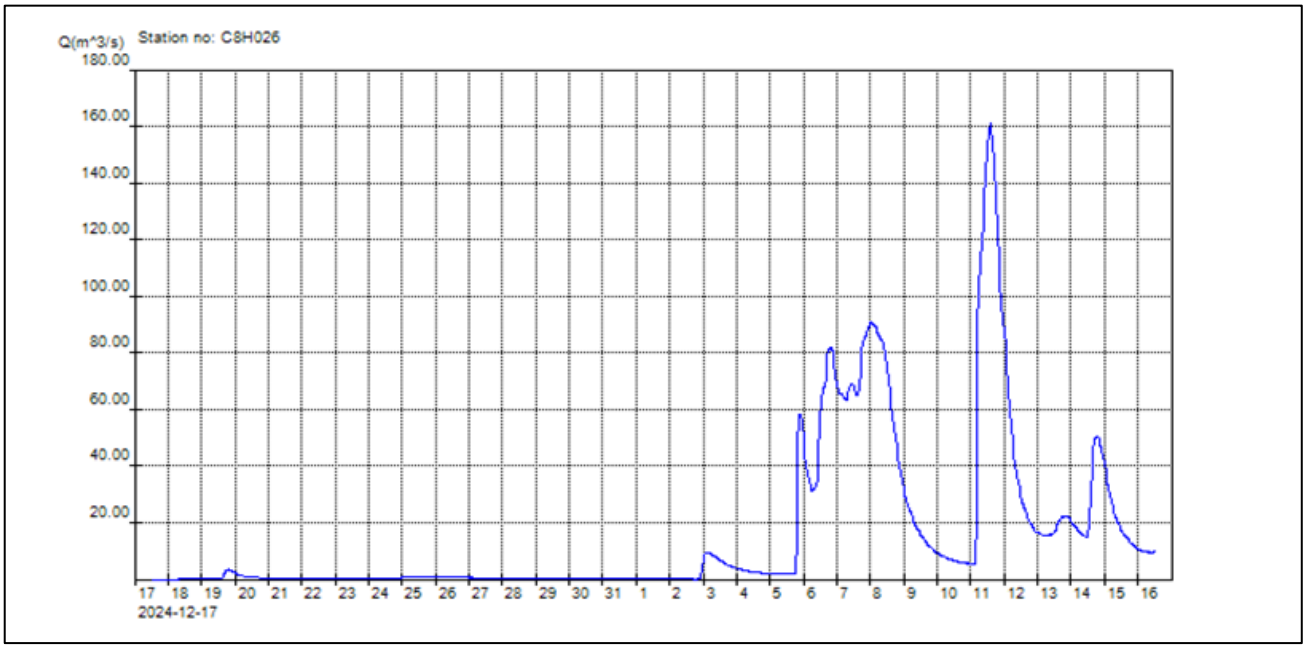



*Figure 12: Liebenbergsvlei at Frederiksdal. Source*
*https://www.dws.gov.za/Hydrology/Unverified/FlowDetail/2793*

A comprehensive analysis of the data concerning gauging station C8H027, as shown in Figure 13. The Wilge River reveals a notable and sustained decline in water levels, which has been observed since approximately November 15th or 16$^{th}$, 2024..

The readings from the gauging station C8H001 situated in Frankfort were examined refer to figure 14., this station plays a vital role in monitoring water levels post-confluence with the Liebenbergsvlei River, an essential tributary that contributes significantly to the river system's hydrology. On December 11, 2024 a peak in water levels can be seen, followed by a decline observed on December 17, 2024.

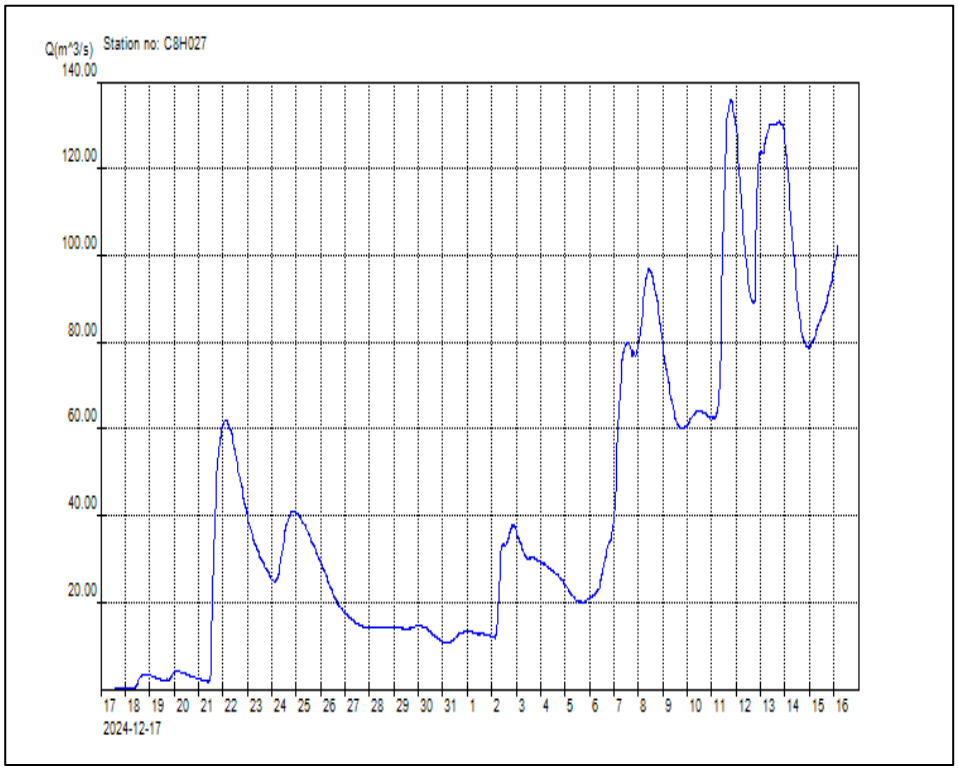



*Figure 13: Wilge at Ballingtomp. Source https://www.dws.gov.za/Hydrology/Unverified/FlowDetail/2252*

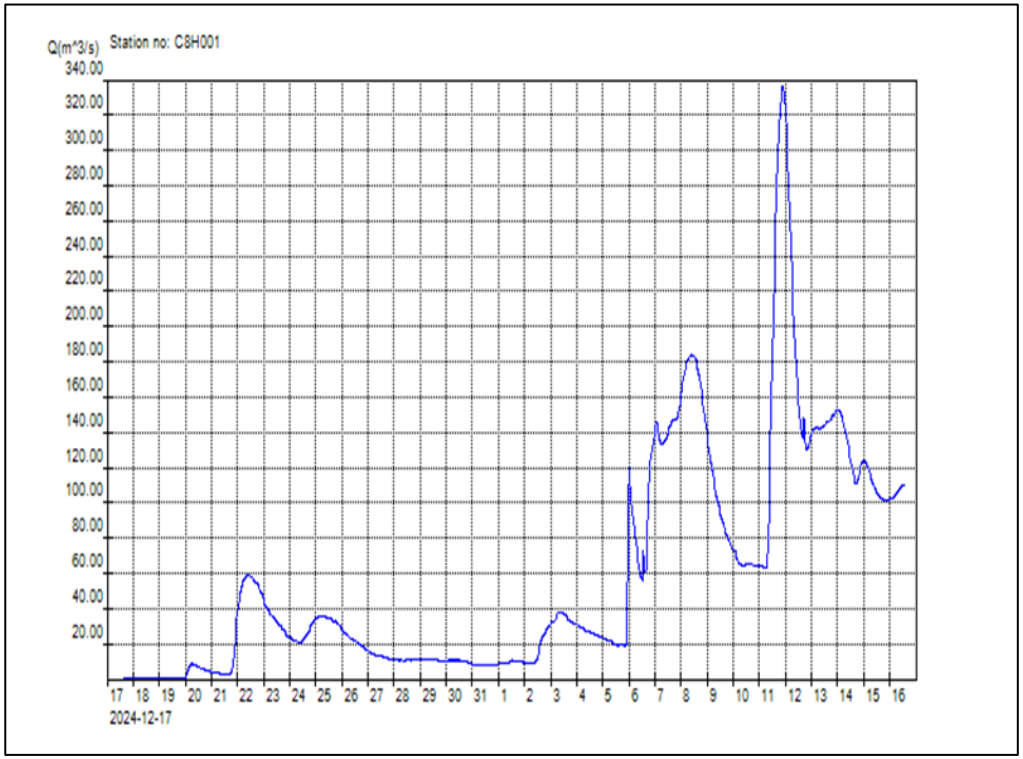



*Figure 14: Wilge at Frankfort. Source https://www.dws.gov.za/Hydrology/Unverified/FlowDetail/8173*

## *TCTA Update: Progress on the South African Side*

The schedule is currently being maintained on the South African side. Professional Service Providers are actively working to enhance workflow. To improve visibility and ensure the safety of workers in the tunnel, a robust lighting system is installed as shown in Figure 15. This addition allows for better observation of ongoing activities and enhances overall working conditions.

Accompanying this update are images showcasing one of the domes, which highlights the progress in Figure 15. It is intended that the approved Zippi Pro paint throughout the tunnel will be utilized to achieve a consistent and high-quality finish. Additionally, a trial was conducted with blue paint to explore the feasibility of local alternatives, given that the Zippi paint is sourced from England and entails substantial costs.

It was reported in the stakeholder meeting held on December 11, 2024 that within the tunnel, sandblasting operations and still lining have been carried out effectively preparing surfaces as illustrated in the attached photographs refer to Figure 17 and Figure 18. Lastly, the process of removing one of the major valves for a detailed investigation and necessary repairs is shown in depicted in figure 16, ensuring that all components function optimally.

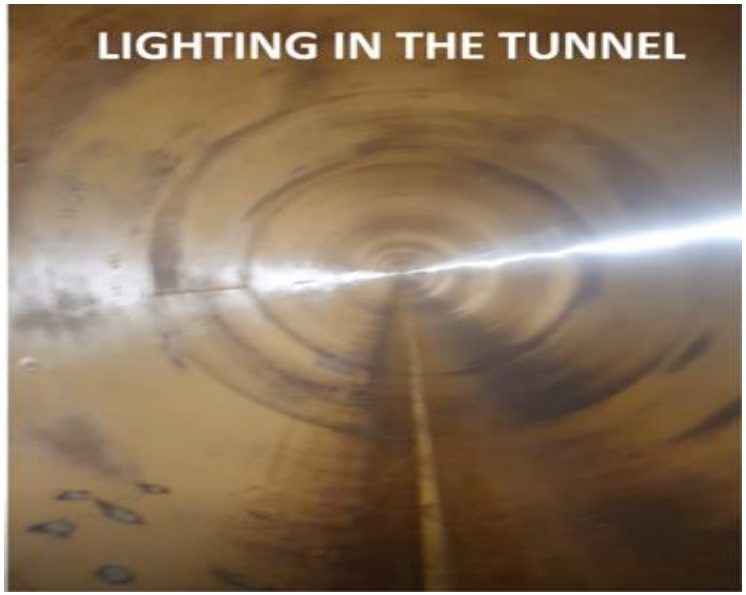



*Figure 15: Lighting Inside the tunnel*


*Figure 16: Re coating of the dome*

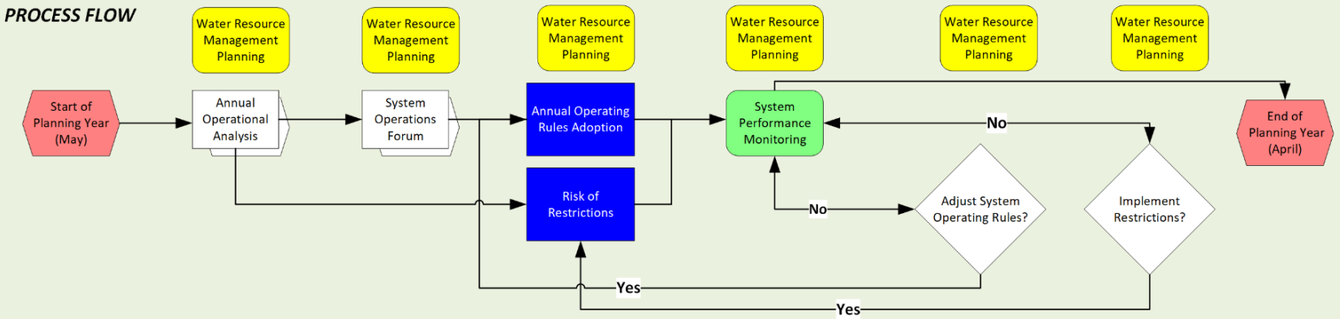

*Figure 17 :Sandblasting low cover section*

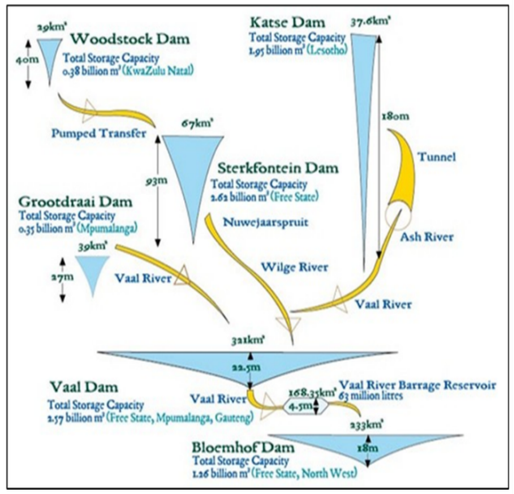

*Figure 18: Re Coating Steel Lining*


*Figure 19: Last valve being taken out*

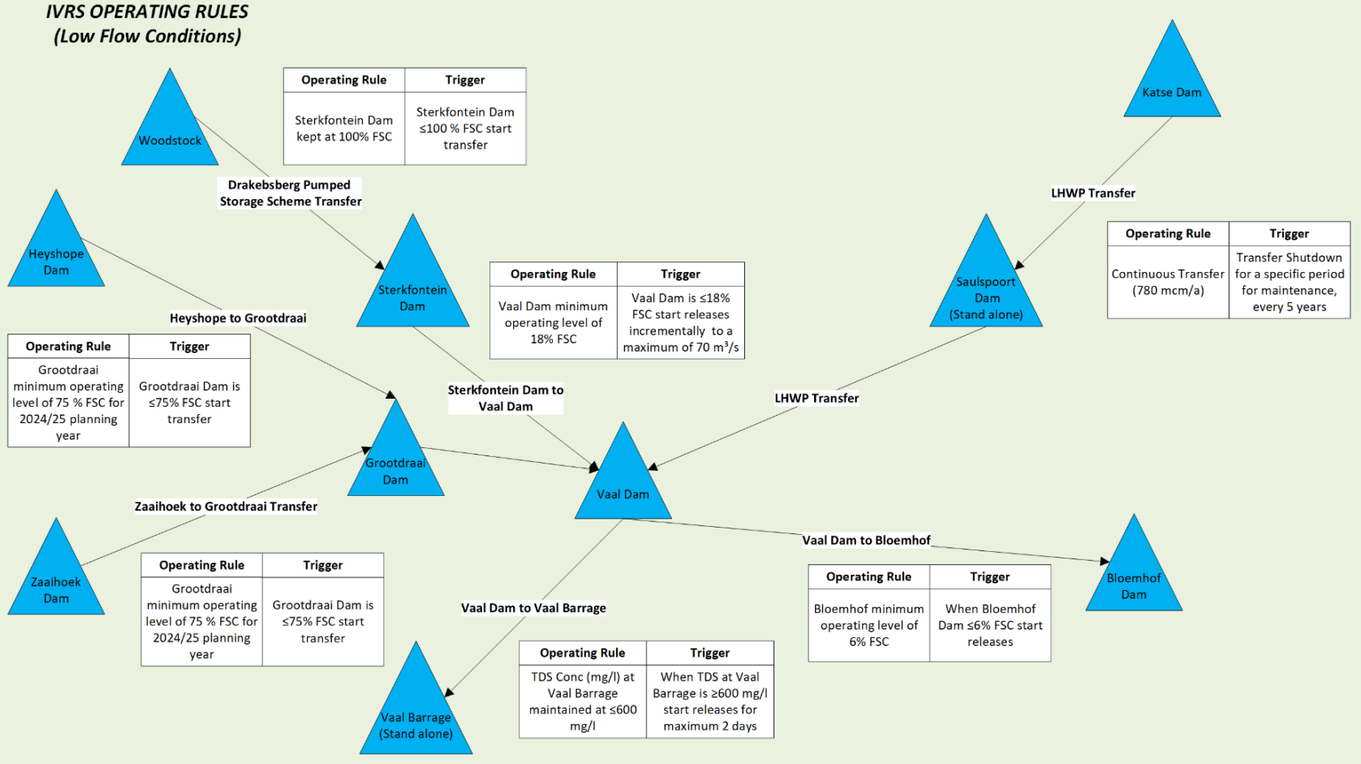
## INTEGRATED VAAL RIVER SYSTEM OPERATING RULES

### SYSTEM OPERATIONS PROCESS FLOW




### IVRS OPERATING RULES (Low Flow Conditions)




| Operating Rule | Trigger |
|---|---|
| Sterkfontein Dam kept at 100% FSC | Sterkfontein Dam ≤100 % FSC start transfer |

| Operating Rule | Trigger |
|---|---|
| Vaal Dam minimum operating level of 18% FSC | Vaal Dam is ≤18% FSC start releases incrementally to a maximum of 70 $m^3/s$ |

| Operating Rule | Trigger |
|---|---|
| Grootdraai minimum operating level of 75 % FSC for 2024/25 planning year | Grootdraai Dam is ≤75% FSC start transfer |

| Operating Rule | Trigger |
|---|---|
| Grootdraai minimum operating level of 75 % FSC for 2024/25 planning year | Grootdraai Dam is ≤75% FSC start transfer |

| Operating Rule | Trigger |
|---|---|
| TDS Conc (mg/l) at Vaal Barrage maintained at ≤600 mg/l | When TDS at Vaal Barrage is ≥600 mg/l start releases for maximum 2 days |

| Operating Rule | Trigger |
|---|---|
| Bloemhof minimum operating level of 6% FSC | When Bloemhof Dam ≤6% FSC start releases |

| Operating Rule | Trigger |
|---|---|
| Continuous Transfer (780 mcm/a) | Transfer Shutdown for a specific period for maintenance, every 5 years |

Governing Principles:

- Optimization to minimize costs of operations and maximize system yield through developing system operating rules
- Established water supply priorities and flow path constraints
- Different assurance of supply for different user groups
- Prevent the system from complete failure to supply – introducing restrictions levels incrementally during periods of short supply

**Legend**

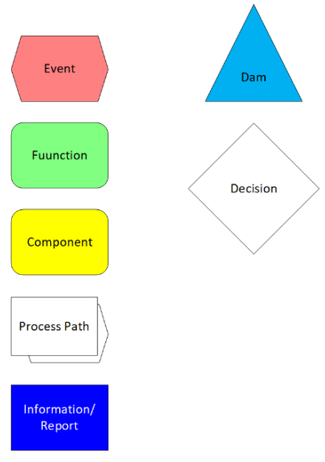



*Figure 19: Summary of the Integrated Vaal River System Operating Rules for planning year May 2024 – April 2025*

**Compiled by:** Hulisani Mafenya, Nokulunga Biyase, Mirrander Ndhlovu, Thandekile Mbili and Joshua Rasifudi

**For technical inputs and inquiries:**
Sub-Directorate: Integrated Water Resource Studies:
Tel: 012 336 6856
Email: IntegratedWaterStudies@dws.gov.za

**Accessible on the Website:**
National State of Water Reporting Web page:
https://www.dws.gov.za/Projects/National%20State%20of%20Water%20Report/default.aspx

Department of Water and Sanitation
Private Bag X313
Pretoria
0001

# Glossary

| Term | Definition |
|---|---|
| EDCs | Endocrine Disrupting Compounds |
| ENSO | El Niño-Southern Oscillation |
| FSC | Full Storage Capacity |
| HY | Hydrological Year |
| SAWS | South African Weather Service |
| SPI | Standardized Precipitation Index (SPI) is a widely used index to characterise meteorological drought on a range of timescales. On short timescales, the SPI is closely related to soil moisture, while at longer timescales, the SPI can be related to groundwater and reservoir storage |
| WCWSS | Western Cape Water Supply System |
| WSS | Water Supply System |
| Water Supply System | A typical town/city water supply system consists of a gravity or pumping-based transmission and distribution system from a local or distant water source with a needed water treatment system |

# References

South African Weather Service (SAWS), 2024. Media Release Report: *Heavy rain and flooding are expected over parts of the Eastern Cape and KwaZulu-Natal from Sunday to Tuesday, due to a cut off low pressure system* – (19 October 2024). SAWS, South Africa.