

APRIL 2025



MONTHLY STATE OF WATER BULLETIN

WATER IS LIFE - SANITATION IS DIGNITY



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA



Overview

South Africa experiences varying weather conditions with different rainfall seasons due to its unique geographical location and long coastline spanning 2,800 kilometres. The cold Atlantic Ocean on the west coast and the warmer Indian Ocean on the south and east coasts significantly influence both the climatic and weather conditions. The country's southwestern tip has a Mediterranean climate with hot, dry summers and cool, wet winters. Winter rainfall occurs in the southwestern parts of the country, and summer rainfall occurs in the eastern parts.

The South African Weather Service (SAWS) recently described the El Niño-Southern Oscillation (ENSO) to have returned to a neutral state and predicts it will stay in a neutral state for the foreseeable future. At the end of April 2025, the national dam levels were 100.9% of Full Supply Capacity (FSC). This level is 13.7% higher than last year same time, when the overall storage level was at 87.2% of FSC.

At least 131 dams were above 100% of FSC, while 17 were between 10 and 50% of FSC, and only one dam was below 10% of FSC (critically low). In Gauteng, all 5 dams were above 100% of FSC, followed by KwaZulu-Natal with 16 out of 19, North West with 22 out of 28. Persistent heavy rains since January 2025, drastically led to the historic overflow of Vaal Dam at 119% of FSC. The Department of Water and Sanitation (DWS) opened 10 sluice gates on the Vaal Dam wall, releasing water downstream into the Vaal River at 1,881m³/s. The release of such a large volume of water led to significant downstream flooding, particularly in low-lying areas along the Vaal and Bloemhof rivers.

The most recent 24-month Standardised Precipitation Index (SPI) show extreme drought status is indicated in some parts of Thabo Mofutsanyana and ZF Mgcawu DMs. Severe drought status is indicated in several DMs in the last 24 months, including ZF Mgcawu in the Northern Cape, Bojanala and Ngaka Modiri Molema in the North West, Thabo Mafutsanyane in the Free State, Gert Sibande in Mpumalanga, and Sedibeng in Gauteng. District municipalities such as 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.

Weather Forecast and Early Warning

The weather has a significant impact on water resources. Rising temperatures increase evaporation, reducing water availability and impacting water quality, while extreme weather events like droughts and floods exacerbate water scarcity and pollution. Changes in precipitation patterns also affect water availability, leading to either increased runoff or vice versa.

The South African Weather Service (SAWS) recently described the El Niño-Southern Oscillation (ENSO) to have returned to a neutral state and predicts it will stay in a neutral state for the foreseeable future (SAWS, 2025). ENSO is known to have limited influence on South Africa during the winter seasons, and hence it is not expected to have a significant impact in the next few months. Below-normal rainfall is predicted for most parts of the country during the upcoming winter season, except for some parts of Mpumalanga and Limpopo, where above-normal rainfall is expected during the mid and late winter. The south-western part, which normally receives significant rainfall during the winter season, is expected to receive mostly below-normal rainfall during this period (Figure 1).

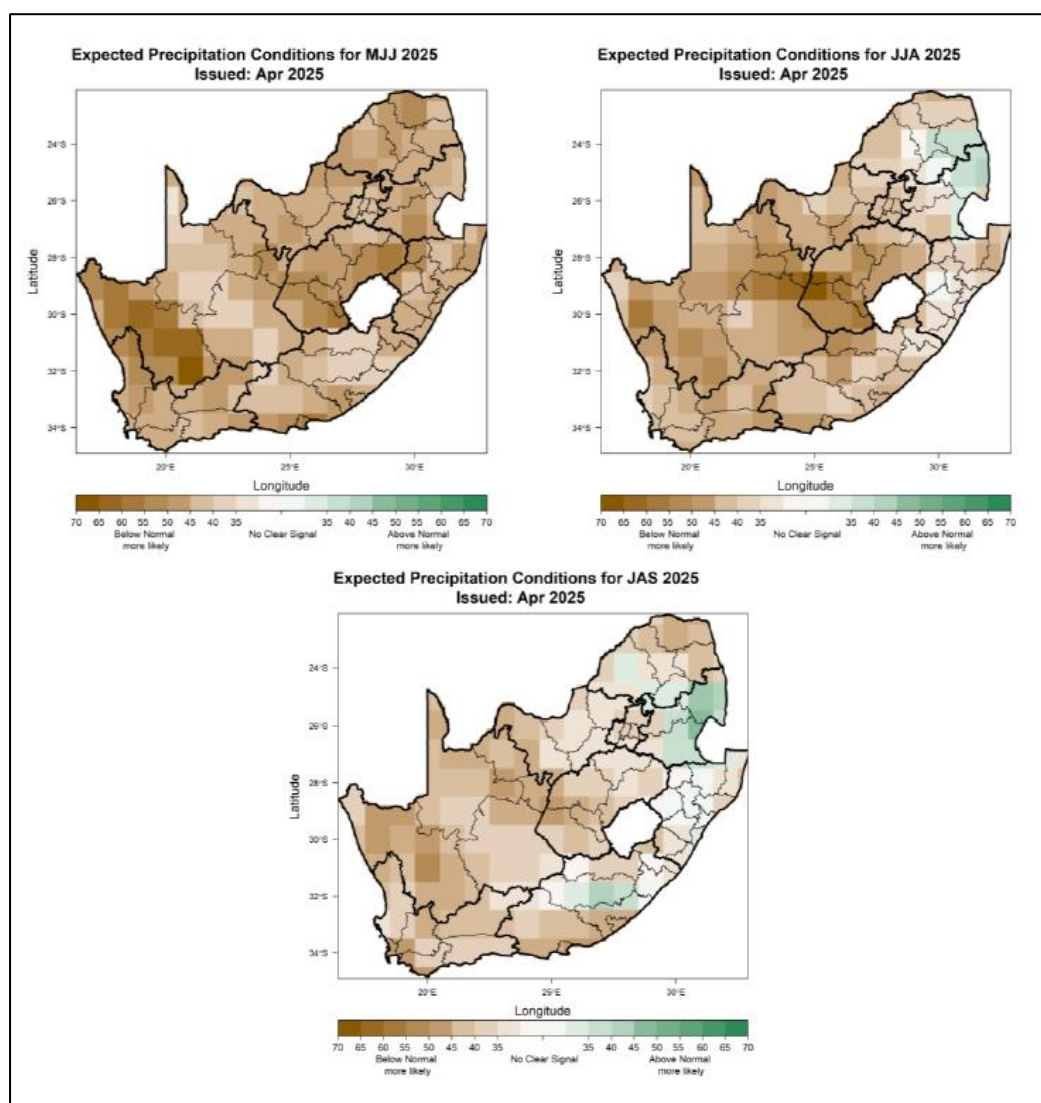


Figure 1: May-June-July 2025 (MJJ; left), June-July-August 2025 (JJA; right), July-August-September 2025 (JAS; bottom) seasonal precipitation prediction.

Minimum temperatures are anticipated to remain predominantly above normal throughout the majority of the forecast period. Maximum temperatures are expected to be above-normal as well, with the notable exception of the southern and south-eastern coastal areas, that are expected to have below-normal (Figure 2).

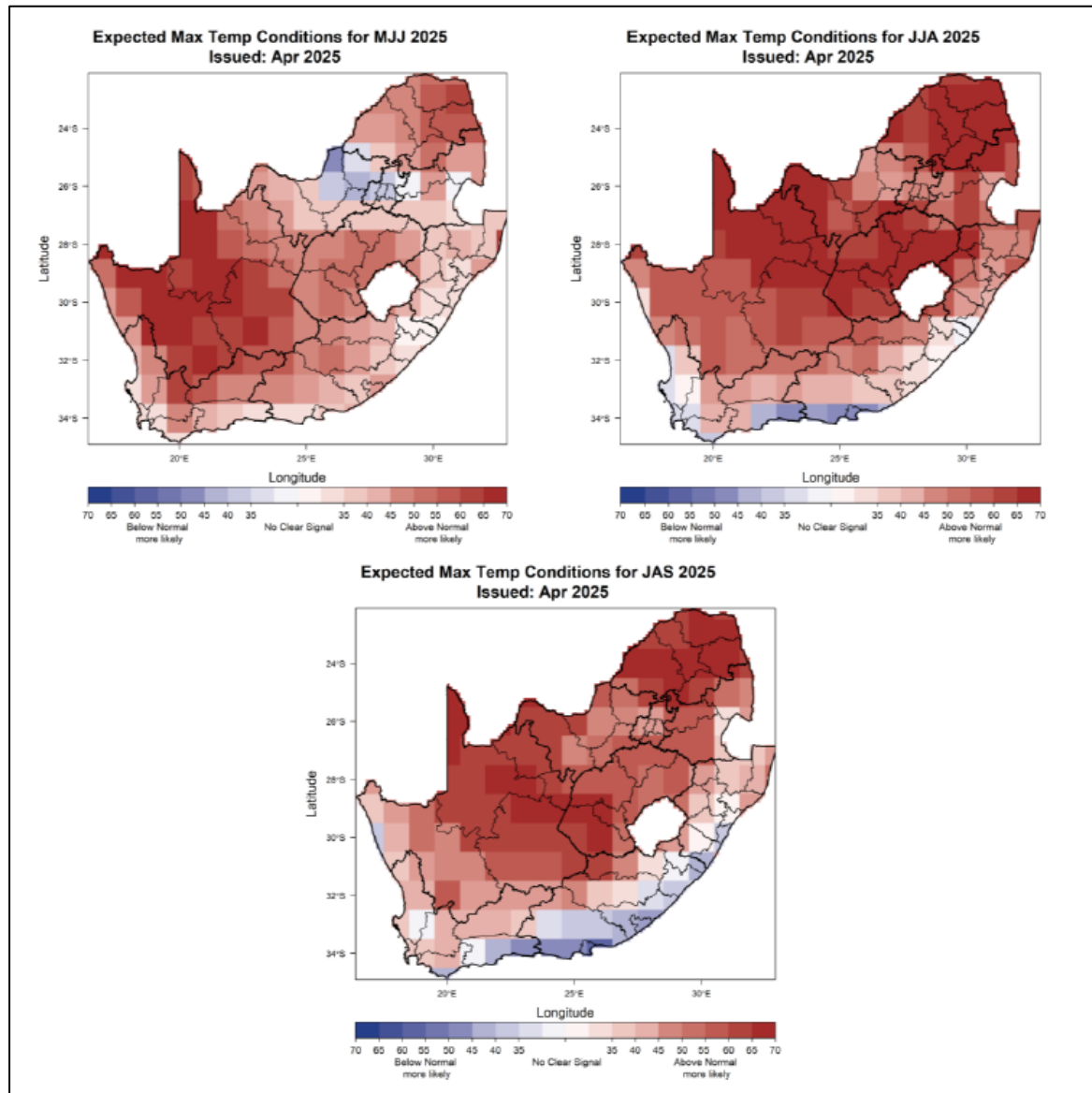


Figure 2: May-June-July 2025 (MJJ; left), June-July-August 2025 (JJA; right), July-August-September 2025 (JAS; bottom) seasonal maximum temperature prediction.

National Dam Storage

The national water storage trends for the current hydrological year (2024/25) against the past four hydrological years are graphically presented in Figure 3. The graph shows that at the end of April 2025, the national dam levels were 100.9% of Full Supply Capacity (FSC). This level is 13.7% higher than last year same time, when the overall storage level was at 87.2% of FSC (Table 1).

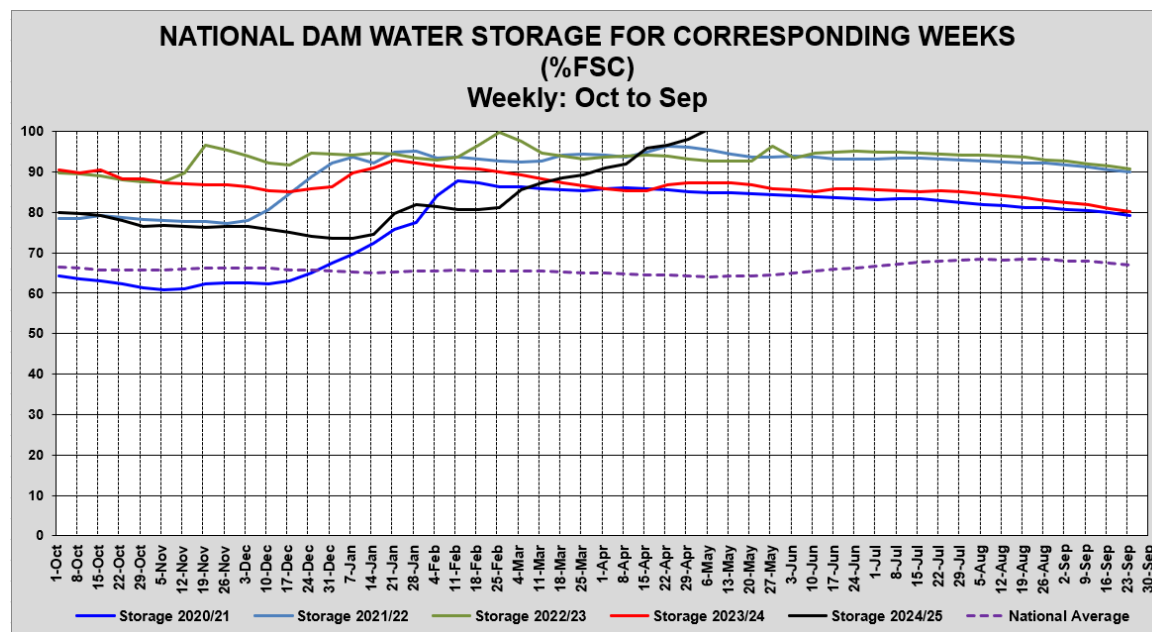


Figure 3: Weekly National Dam Storage at the end of April 2025, for five hydrological years.

Table 1: National Surface Water Storage – 28 April 2025

Provinces/ Kingdoms sharing Water Resources with RSA	FSC million m ³	Total Number of Dams	Number of Dams				% of Full capacity		
			<10%	10 - <50 (% of FSC)	50 - <100 (% of FSC)	>=100 (% of FSC)	28/04/2024	21/04/2025	28/04/2025
Kingdom of Eswatini	333.75	1				1	99.5	100.1	100.5 ↑
Eastern Cape	1 727.70	46		5	16	25	84.6	83.8	84.7 ↑
Free State	1 5656.90	21			4	17	87	103.6	109.9 ↑
Gauteng	128.08	5				5	90.6	102	103.2 ↑
KwaZulu-Natal	4 909.66	19			3	16	92.1	99.7	97.1 ↓
Kingdom of Lesotho	2 362.63	2			1	1	95.5	101.4	100.5 ↓
Limpopo	1 484.64	29	1	1	9	18	84.6	89.9	90.9 ↑
Mpumalanga	2 538.20	22			6	16	97.5	100.5	101.2 ↑
Northern Cape	146.33	5		1		4	77.5	117.3	133.5 ↑
North West	866.23	28			6	22	75.4	99.3	101.6 ↑
Western Cape - Other Rainfall	269.55	22		2	16	4	86.3	74.6	73.2 ↓
Western Cape - Winter Rainfall	1 596.80	22		8	12	2	55.2	54.1	53.1 ↓
Western Cape - Total	1 866.35	44	0	10	28	6	59.7	57.1	56.0 ↓
Grand Total	32 020.47	222	1	17	73	131	87.2	98	100.9 ↑

Table 1 summarises the status of **222** dams from South Africa, and the Kingdoms of Eswatini and Lesotho. All dam levels are over 80% except for the Western Cape. It is normal for the Western Cape dam levels to be low at this time of the year since it receives Winter rainfall. At least **131 (59%)** of the dams were above 100% of FSC, while **17 (7.7%)** were between 10 and 50% of FSC, **73 (33%)** were between 50 and 100%, and only **one (<1%)** dam was below 10% of FSC (critically low). In Gauteng, all 5 (100%) dams were above 100% of FSC, followed by KwaZulu-Natal with 16 out of 19 (84%), North West with 22 out of 28 (79%).

The spatial distribution of the 222 dams, showing their respective storage levels as of 28 April 2025, is presented in Figure 4. Most of the dams above 100% of FSC are located in the eastern half of South Africa, including dams in the Kingdom of Eswatini and Kingdom of Lesotho. In the Western Cape, 10 out of 44 dams (22%) had levels below 50% of FSC. This is consistent with the summer rainfall patterns of the western parts of the country.

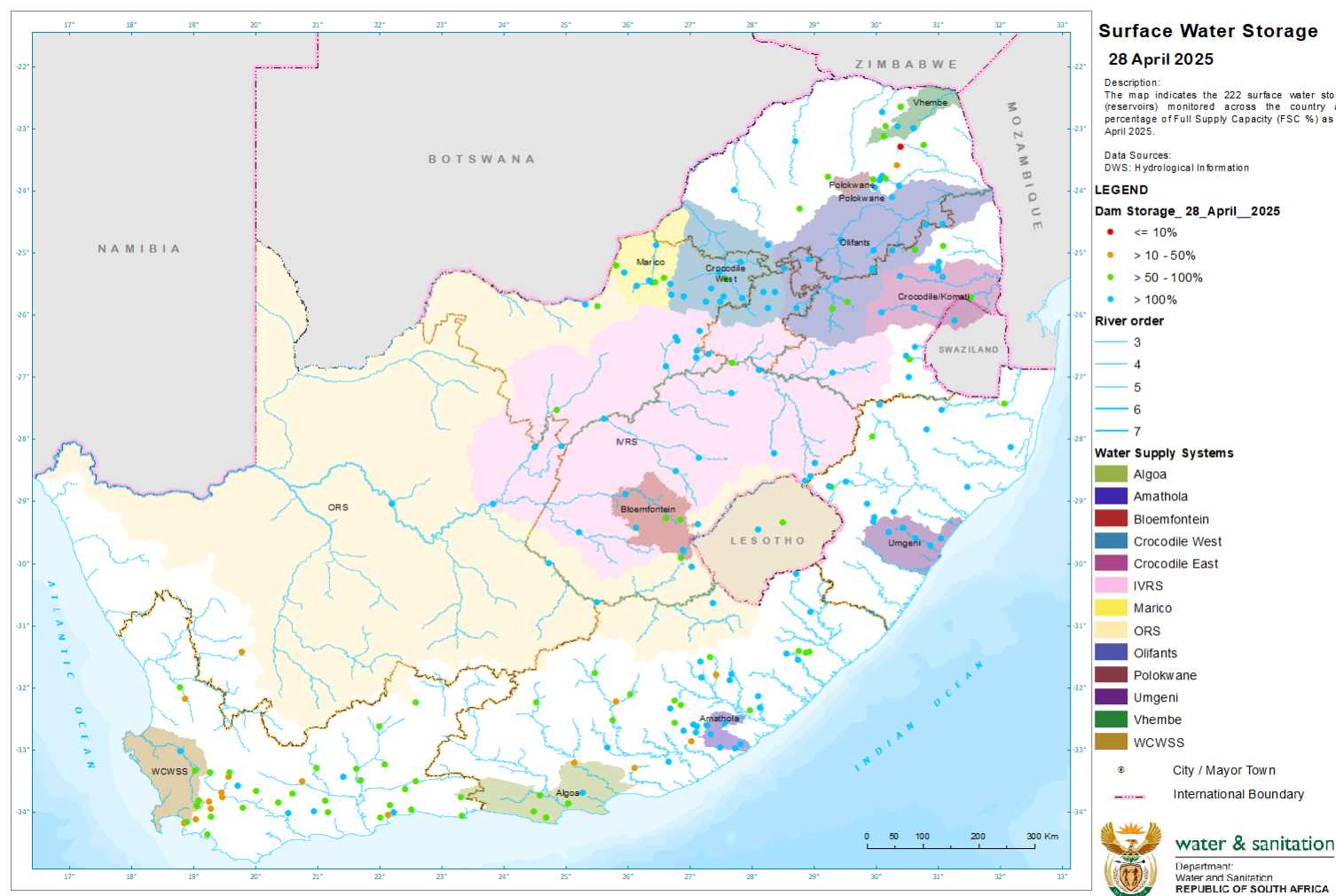


Figure 4: Surface Water Storage Levels – April 2025

The comparison of the storage levels per province (plus the Kingdoms of Eswatini and Lesotho) for April 2024 and April 2025 is graphically presented on Figure 5. Only the Western Cape showed a decline in dam storage at -3.7%. While Northern Cape is showing the most significant increase at +56% FSC, year-on-year. The general increase in the overall dam storage indicates higher-than-normal stream flows from above-normal rainfall received since the beginning of 2025. The other notable increases were observed in Gauteng (+12.6%), North West (+26.2%), Free State (+22.9%) and Limpopo (+6.3%). The Kingdoms of Eswatini and Lesotho have also shown a significant increase of 1% and 5%, respectively, compared to the previous year.

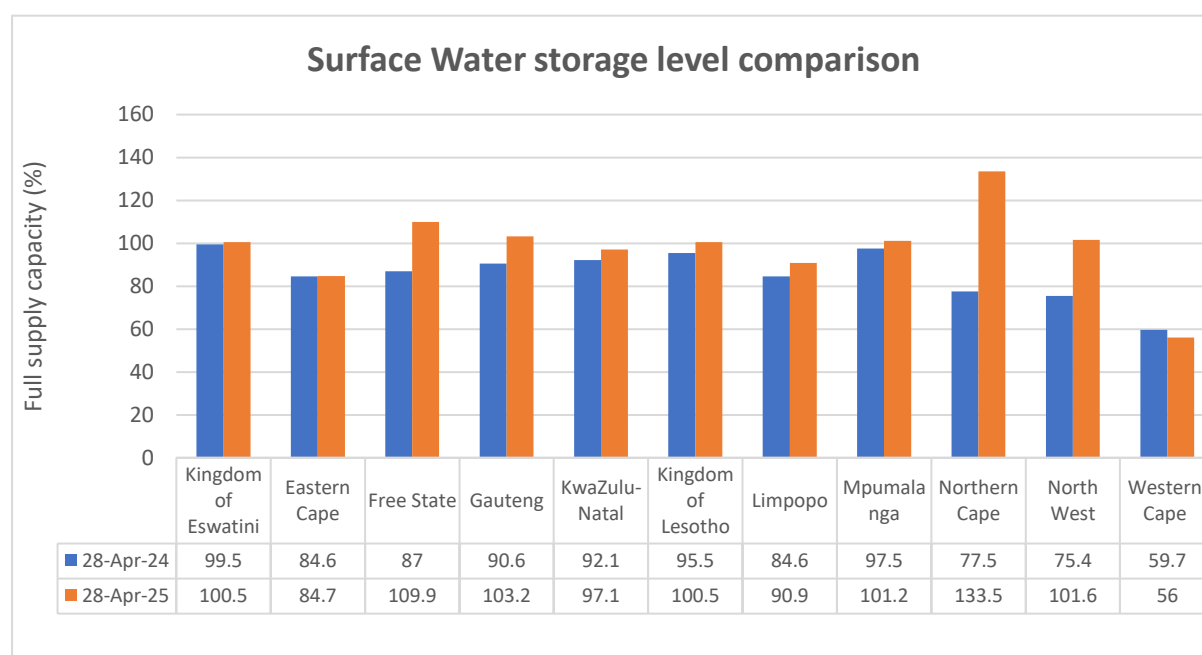


Figure 5: Water Storage Levels April 2024 vs. April 2025

The comparison between April 2024 and April 2025 of the country's five largest dam storage is presented in Table 2.

Table 2: Storage Levels comparison for the Five Largest storage dams (by volume).

Reservoir	River	Province	Full Supply Capacity (Mm ³)	28 April 2024 (% FSC)	28 April 2025 (% FSC)	Difference (%)
Gariiep Dam	Orange River	Free State	4903.45	87.1	111.6	+24.5
Vanderkloof Dam	Orange River	Free State & Northern Cape	3136.93	95.9	108.2	+12.3
Sterkfontein Dam	Nuwejaarspruit River	Free State	2616.90	99.7	100.1	+0.4
Vaal Dam	Vaal River	Free State	2560.97	60.4	119.2	+58.8
Pongolapoort Dam	Phongolo River	KwaZulu-Natal	2395.24	86	93.1	+7.1

At the end of January 2025, the Vaal Dam, one of the country's largest dams, was reported to have dropped to 24.1%, which was nearing the set 18% critical levels, compelling water release from Sterkfontein Dam. The Vaal Dam reached an impressive 119% of FSC, thanks to persistent heavy rains

since the beginning of 2025. While, year-on-year, the Vaal Dam levels, located between Free State, have increased significantly by +58.8%.

Another significant year-on-year storage improvement was observed in the critical level space at the Middle-Letaba Dam in Limpopo, which rose 6.1% higher to reach 8.8% of FSC (Table 3).

Table 3: Dam currently below 10% of FSC compared to last year

Reservoir	River	Province	Full Supply Capacity (Mm ³)	28 April 2024 % FSC	28 April 2025 (% FSC)	Difference (%)
Middel-Letaba Dam	Middel-Letaba River	Limpopo	171.93	2	8.1	+6.1

Figure 6 presents the 24-month Standardised Precipitation Index (SPI) analysed end of March 2025. Extreme drought status is indicated in some parts of Thabo Mofutsanyana DM. Severe drought status is indicated in several DMs in the last 24 months, including ZF Mgcawu in the Northern Cape, City of Joburg and Sedibeng in Gauteng. District municipalities such as Fezile dabi DM, Chris Hani DM, and Pixley ka seme DM experienced moderate drought.

District Municipalities

The year-on-year comparison of water storage levels per district municipality is presented in Figure 7. Only the Ngaka Modiri Molema DM experienced a substantial increase (>60%) in dam storage levels compared to last year. Four other district municipalities indicated a significant increase (>40%) in dam storage over the last year. Central Karoo is the only district municipality that experienced significant declines (>-20%) in dam levels. Based on the 24-month SPI discussed in the previous section, some of these district municipalities have been experiencing drought.

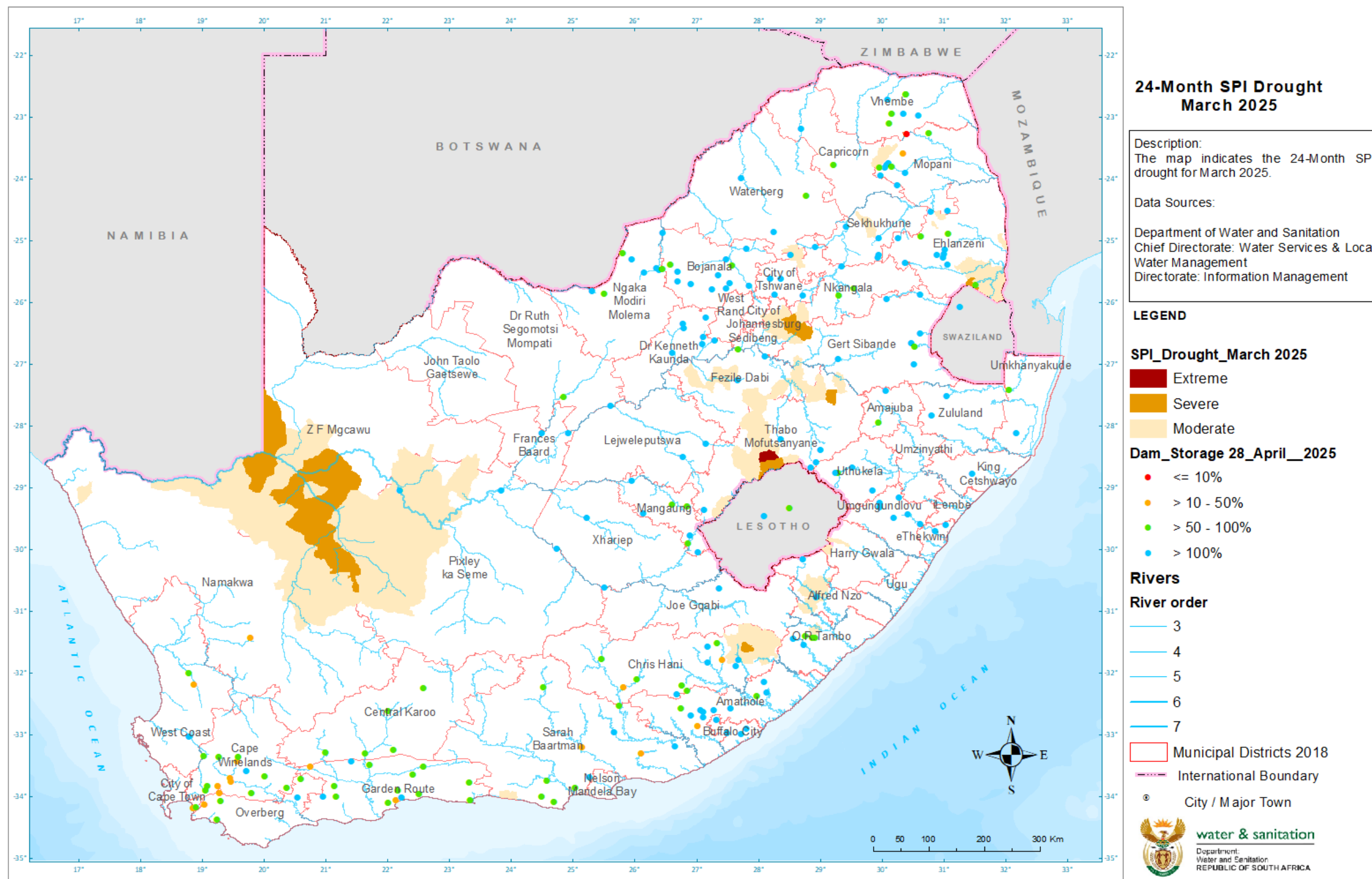


Figure 6: 24-Month Standardised Precipitation Index (SPI) – March 2025, including dam levels - April 2025

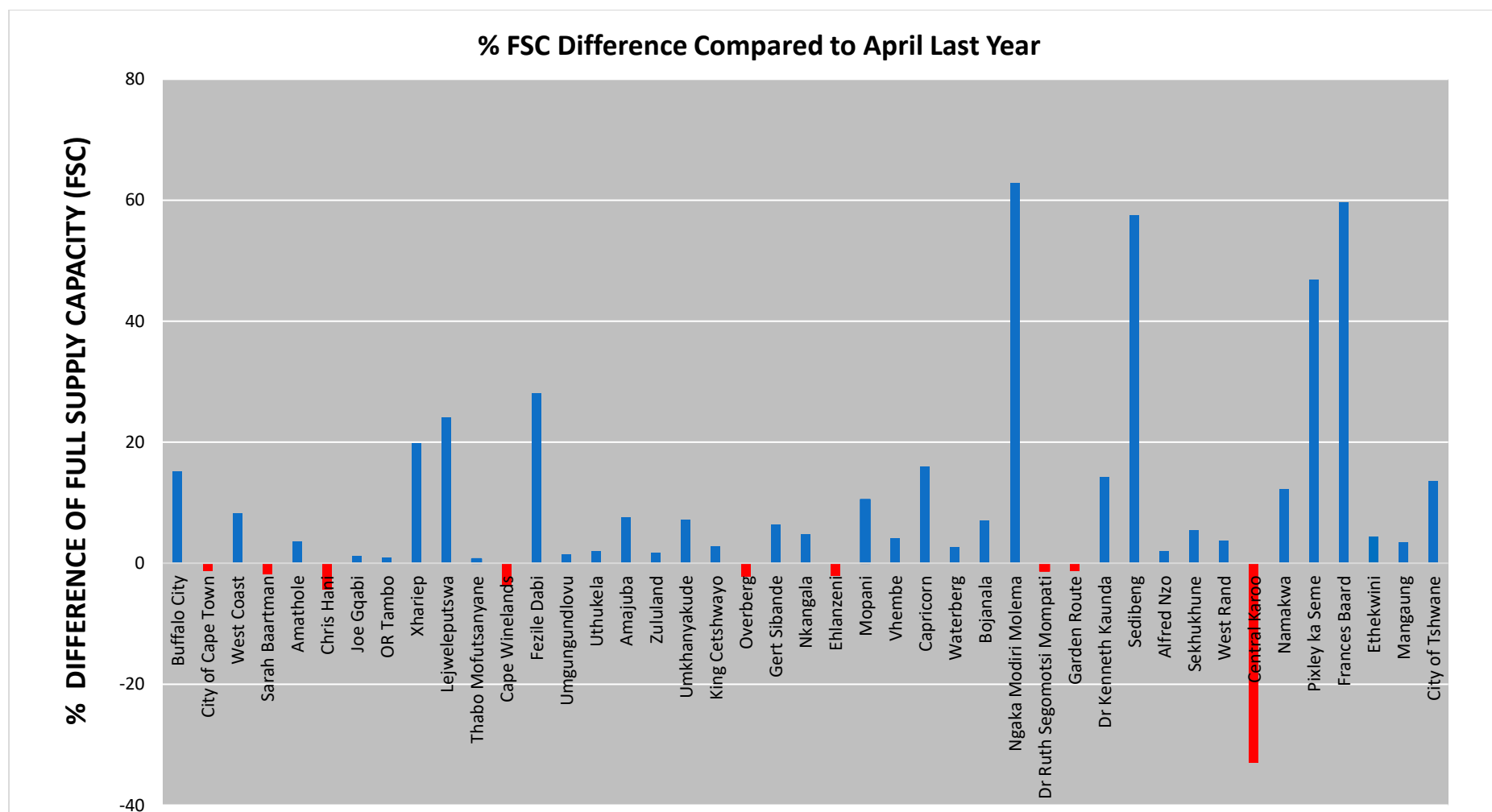


Figure 7: Comparison of water storage levels per District Municipality April 2024 vs April 2025

Water Supply Restrictions

The water supply systems and their respective restrictions are given in Table 4. Due to infrastructure limitations, permanent restrictions are applicable for the Polokwane and Bloemfontein Water Supply Systems. The National Water Supply Systems' dam storage levels are presented in Table 5. The Integrated Vaal River System (IVRS) is the largest and most economically significant system, with over 14 dams totalling over 10 546 Mm³. The second biggest system is the Orange with only two big dams, totalling over 7 996 Mm³.

Table 4: Water Supply Systems with Restrictions

System Name	Areas	Water Users	% Restrictions	Gazette Information	Next Review
Algoa WSS	Kromme subsystem	NMBM & Kouga LM Irrigation	23% domestic & industrial 43% irrigation	Recommended but not gazetted	Nov' 2025
Mangaung WSS	Caledon-Modder	Mangaung Metro	25% domestic & industrial when below 95%	13 Sep' 2024 Gazette no.5200	May 2025
Liebensbergvlei River	Run-off River abstractions Free State towns and irrigation	Towns of Bethlehem, Reitz, Tweeling within Dihlabeng, Mafube and Nketoana Local Municipalities	Irrigation users to abstract water on an alternative day basis Municipalities to use water sparingly	20 Sep' 2024 Gazette no.5223	Once off until the end of the LHWP tunnel shutdown for the planned maintenance
Middle Letaba/ Nsami	Middle Letaba/ Nsami	Irrigation Mopani Municipality	100% irrigation 25% domestic	28 Jun' 2024	May 2025
Mutshedzi Dam	Mutshedzi Dam	Makhado Municipality	35% domestic		May 2025
Nzhelele	Nzhelele	Nzhelele Government Irrigation Scheme Nzhelele Regional Scheme	20% domestic 20% irrigation	28 Jun' 2024	May 2025
Nwanedi/ Luphephe	Nwanedi/ Luphephe	Mutale Local Municipality Irrigation	20% D&I 45% irrigation	28 Jun' 2024	May 2025
Polokwane Water Supply System Letaba System	Seshego, Mashashane, Houtrivier and Chuniespoort Dams Ebenezer and Groot Letaba System	Capricorn District, Polokwane Local Municipality Groot Letaba Water Users Association, Mopani Municipality	30% domestic & industrial water uses 27% agricultural use	28 Jun' 2024	May 2025

Table 5: Water Supply Systems storage levels February comparisons

Water Supply Systems/ Clusters	Capacity in 10 ⁶ m ³	28 April 2024 (% FSC)	21 April 2025 (% FSC)	28 April 2025 (% FSC)	System Description
Algoa System	282	72.2	70.8	70.8	<u>5 dams serve the Nelson Mandela Bay Metro, Sarah Baartman (SB) DM, Kouga LM and Gamtoos Irrigation:</u> 1. Kromrivier Dam 2. Impofu Dam 3. Kouga Dam 4. Loerie Dam 5. Groendal Dam
Amathole System	241	94.8	104.5	103.9	<u>6 dams serve Bisho & Buffalo City, East London:</u> 1. Laing Dam 2. Rooikrans Dam 3. Bridle Drift Dam 4. Nahoon Dam 5. Gubu Dam 6. Wriggleswade Dam
Klipplaat System	57	95.1	93.1	94.4	<u>3 dams serve Queenstown (Chris Hani DM, Enoch Ngijima LM):</u> 1. Boesmanskrantz Dam 2. Waterdown Dam 3. Ockraal Dam
Butterworth System	14	93.7	100.9	100.3	<u>Xilinxha Dam and Gcuwa weirs serve Butterworth</u>
Integrated Vaal River System	10 546	87.7	102.8	107.1	<u>14 dams serve Gauteng, Sasol, and ESKOM:</u> 1. Vaal Dam 2. Grootdraai Dam 3. Sterkfontein Dam 4. Bloemhof Dam 5. Katse Dam 6. Mohale Dam 7. Woodstock Dam 8. Zaaihoek Dam 9. Jericho Dam 10. Westoe Dam 11. Morgenstond Dam 12. Heyshope Dam 13. Nooitgedacht Dam 14. Vygeboom Dam
Luvuvhu	225	100.2	101.1	100.8	<u>3 dams serve Thohoyandou etc.:</u> 1. Albasini Dam 2. Vondo Dam 3. Nandoni Dam
Bloemfontein	219	91.5	84	88.6	<u>4 dams serve Bloemfontein, Botshabelo and Thaba Nchu:</u> 1. Rustfontein Dam 2. Groothoek Dam 3. Welbedacht Dam 4. Knellpoort Dam

Water Supply Systems/ Clusters	Capacity in 10 ⁶ m ³	28 April 2024 (% FSC)	21 April 2025 (% FSC)	28 April 2025 (% FSC)	System Description
Polokwane	254.27	100.5	105.1	110.2	<u>2 dams serve Polokwane</u> 1. Flag Boshielo Dam 2. Ebenezer Dam
Crocodile West	444	96.9	95.9	99.2	<u>7 dams serve Tshwane up to Rustenburg:</u> 1. Hartbeespoort Dam 2. Rietvlei Dam 3. Bospoort Dam 4. Roodeplaat Dam 5. Klipvoor Dam 6. Vaalkop Dam 7. Roodekopjes Dam
uMgeni System	923	100.4	103.4	101.9	<u>5 dams serve Ethekwini, iLembe & Msunduzi:</u> 1. Midmar Dam 2. Nagle Dam 3. Albert Falls Dam 4. Inanda Dam 5. Spring Grove Dam
Cape Town System	889	62.1	61.3	60.2	<u>6 dams serve the City of Cape Town:</u> 1. Voelvlei Dam 2. Wemmershoek Dam 3. Berg River Dam 4. Steenbras-Lower Dam 5. Steenbras-Upper Dam 6. Theewaterskloof Dam
Crocodile East	159	100.3	100.7	101.1	<u>Kwena Dam supplies Nelspruit, Kanyamazane, Matsulu, Malelane and Komatipoort areas & Surroundings</u>
Orange	7 996	90.5	105.1	110.3	<u>2 dams service parts of the Free State, Northern and Eastern Cape Provinces:</u> 1. Gariep Dam 2. Vanderkloof Dam
uMhlathuze	301	97.8	100.4	100.5	<u>Goedertrouw Dam supplies Richards Bay, Empangeni Towns, small towns, surrounding rural areas, industries and irrigators, supported by lakes and transfer from Thukela River</u>

Extreme Weather Events: The Vaal Dam Flood Emergency of April 2025

The Vaal Dam is one of the country's largest and most critical water reservoirs. During April 2025, the Vaal Dam, surged to 119.2% – the highest level it's been this year. This was driven by persistent and intense rainfall, compelling the Department of Water and Sanitation (DWS) to open multiple sluice gates in an urgent effort to prevent structural damage and uncontrolled overflow. The Department of Water and Sanitation opened 10 sluice gates on the Vaal Dam wall, releasing water downstream into the Vaal River at 1,881 m³/s. The release of such a large volume of water led to disastrous downstream flooding, particularly in low-lying areas along the Vaal and Bloemhof rivers, as depicted in Figure 8. The sudden surge in water levels prompted authorities to issue urgent evacuation warnings to residents in these vulnerable zones. Emergency services were mobilized to assist with evacuations and to provide support to the affected communities.

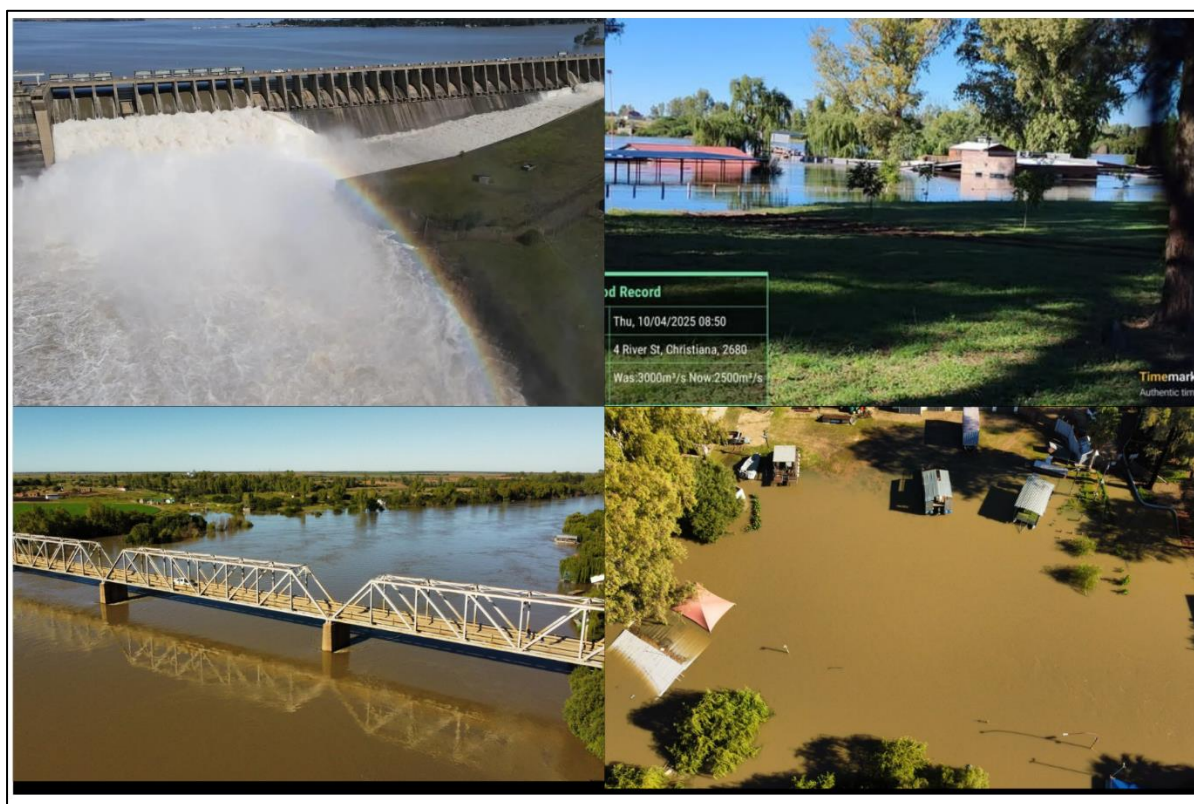


Figure 8: Images of the Vaal Dam showing 10 sluice gates open and Images showing Christiana experiencing increased water levels post-release from Bloemhof, causing heightened monitoring for potential flooding risks (11 April 2025). Source -Social Media

At the peak of the crisis, the inflow rate into the Vaal Dam exceeded 2,400 m³/s, a volume that placed immense pressure on the dam's infrastructure. To counter this, the DWS increased the outflow rate through the sluice gates, carefully balancing the need to reduce dam levels while minimizing downstream impact. This delicate operation required constant monitoring and coordination among various government agencies.

Despite these efforts, the flooding caused widespread disruption, with homes, businesses, and infrastructure affected in several regions. The situation remained tense for several days as authorities

worked to manage the water flow and provide relief to those displaced. Public frustration grew in some areas due to the perceived delay in evacuation notices and the scale of the damage.

By mid-May, conditions began to improve. The water levels in the Vaal Dam started to recede, allowing the DWS to gradually close the sluice gates, with the final gate shut once the dam returned to safer levels.

Lesotho Highlands Water Project Progress Report

The shutdown progress on the South African side of the project is advancing according to schedule. All major milestones have been completed, and the critical tunnel work was finalized in March. The final steps, including the closure of all access doors and the sealing of the South Dome at the Caledon site, are set to be completed by April. These actions will render the tunnel inaccessible and mark the transition into the demobilization phase, which is expected to begin before the end of April. Erosion control work along the Ash River is still ongoing, taking advantage of the remaining window before water is introduced into the system.

On the Lesotho Highlands Development Authority (LHDA) side, progress has been slower due to significant challenges with the coating application process. A large portion of the applied coating was rejected after failing to meet quality standards, prompting extensive rework. One of the primary issues stemmed from a malfunction in the two-component coating system, where a blocked hardener nozzle led to improper mixing and application. This problem went undetected for some time, resulting in a substantial area of steel requiring complete cleaning and repainting. These setbacks have impacted the overall timeline, and while some sections had previously reached near-completion, they had to be downgraded due to quality concerns. The team has since implemented corrective measures and is working to recover lost time.

Looking ahead, the LHDA team is targeting completion of all coating activities by mid-April. Once this is achieved, water flow is expected to begin in early May, starting with a single generating unit operating at limited capacity. The system is designed for future scalability, with plans to eventually support a large number of generating units and significantly increase flow rates. While the South African side is nearing full completion, the LHDA team remains focused on resolving technical issues and ensuring that all systems meet operational standards before water is introduced. Continued updates will be provided as the project reaches its next set of milestones.

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Accessible on the Website:

National State of Water Reporting Web page:

<https://www.dws.gov.za/Projects/National%20State%20of%20Water%20Report/MonthlyBulletin.aspx>

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Glossary

Term

Definition

DM	District Municipalities
DWS	Department of Water and Sanitation
ENSO	El Niño-Southern Oscillation
FSC	Full Storage Capacity
IVRS	Integrated Vaal River System
LHDA	Lesotho Highlands Development Authority (LHDA)
SANS:241	South African National Standard for drinking water quality
SAWS	South African Weather Services
SPI	Standardized Precipitation Index. 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
The department	The department of Water and Sanitation
WSA	Water Service Authorities
WSS	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

SAWS, (2025). South African Weather Service. Seasonal Climate Watch: May to September 2025. Centurion, South Africa.