

# EXECUTIVE SUMMARY



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The Department of Water and Sanitation (DWS) is a public trustee of the nation's water resources. The DWS is obliged in Chapter 14 of the National Water Act (Act No. 36 of 1998) to establish monitoring networks and information systems and report on the status of water resources in the country. The National State of Water (NSoW) report, which is published annually, aims to convey information about the available water resources to the public through an integrated report that assists water users with information to enable informed decision-making, evaluates the implementation of legislation, highlights identified problem areas, and outlines measures undertaken by the department to eradicate highlighted issues and balance the water demand and supply. The report focuses on analysing identified and monitored water resource indicators for the hydrological year from October 2023 to September 2024.

The El Nino-Southern Oscillation (ENSO) state has prevailed over the past three years, resulting in above-average precipitation, particularly in the summer rainfall regions. This was reflected in the surface water storage, where elevated dam levels were observed from 2021/22 to 2022/2023, particularly during summer. However, the 2023/2024 hydrological year deviated significantly and experienced below-average rainfall within the summer rainfall regions. Critical periods of dryness were observed in November 2023, February 2024, and March 2024, with several areas receiving less than 75% of the long-term average rainfall and some areas facing deficits of less than 50%. These conditions led to the mid-summer drought from January 2024 to March 2024. Conversely, winter rainfall regions experienced above-average precipitation during this period, highlighting the spatial variability of rainfall distribution across the country.

Temperature anomalies were notably high in 2024, with annual mean temperature data from 26 climatic stations reflecting an anomaly of 0.9°C above the reference period (1991–2020). The calendar year 2024 was the warmest year on record since 1951. The extreme heat was predominantly concentrated in the central and northern interior regions, while southern areas experienced temperatures closer to normal. These climatic trends reflect the significant variability and challenges of changing weather patterns.

The dry and warm conditions experienced in the spring of 2024 pronounced impacted surface water storage across South Africa. The Vaal Dam, one of the country's primary reservoirs, experienced a substantial decline in storage levels, decreasing by 39.5%. Similarly, the Gariep Dam saw a reduction of 16.8% in its storage capacity. Nationally, dam storage levels dropped to 79.7% of Full Supply Capacity (FSC), representing a significant decrease when compared to levels exceeding 90% observed during the preceding two hydrological years. These circumstances intensified water scarcity challenges. Nonetheless, the Western Cape demonstrated a remarkable improvement, with its dam storage levels increasing by 49.6% and most dams at 100%

FSC (full or spilling). These disparities underscore the pressing need for targeted interventions in water resource management to address regional challenges and enhance resilience against climate variability.

Although below-average rainfall was experienced during the 2023/24 hydrological year, groundwater levels were significantly replenished across South Africa. Notably, the southwestern regions of the country demonstrate elevated groundwater levels. However, some isolated parts of the Northern Cape indicated very low groundwater levels.

Extreme weather events also occurred during the reporting period. Key incidents included the heatwave of November 2023, severe rainfall events in June 2024, December 2023 and April 2024 and a mid-summer drought event spanning January 2024 to March 2024. Among these, the most notable was the devastating flood event that occurred in KwaZulu-Natal in April 2024, following an orange level 5 warning issued by the South African Weather Services (SAWS) for the province's south coast. Heavy rainfall and thunderstorms struck areas including Margate, Uvongo, Shelly Beach, and Port Edward, with Margate recording 250 mm of rainfall, 225 mm of which fell within six hours on April 14. The uGu District (Margate area) and eThekweni were the two most severely affected District, suffering extensive damage to infrastructure such as homes, roads, schools, clinics, businesses, and electricity supply. The floods affected over 249 people, destroyed more than 110 households, and tragically resulted in five confirmed fatalities. Furthermore, the Western Cape also experienced strong winds and floods on 10 April, which led to one fatality being reported, with 2,779 buildings affected, at least 26 schools damaged, and several highways closed across the Cape Winelands, Overberg, and West Coast regions, as well as several power outages.

The Department seeks to ensure that the water resources across South Africa remain suitable for designated use. Therefore, it implements various monitoring programmes, including the National Microbiological Monitoring Programme (NMMP), National Chemical Monitoring Programme, National Eutrophication Monitoring Programme, etc., to monitor water quality and the health of aquatic environments/ water resources across the country. According to the NMMP, data collected during the reporting period from 75 hotspot sites nationwide revealed significant microbial contamination at all points. Notably, 48% of sites were classified as unsuitable for irrigating crops intended for raw consumption, while 70% were deemed unsafe for recreational activities,

Eutrophication analysis across 69 sites revealed varying nutrient levels and potential impacts. Forty-seven sites exhibited serious to significant potential; another 21 showed moderate potential, while one had negligible potential. Areas characterised by serious eutrophication were predominantly in catchments hosting dense populations, which is associated with stressed sewage systems resulting from rapid urban growth, insufficient infrastructure, and industrial activity. Notably, Rietvlei and Hartbeespoort Dams were classified as hypertrophic, reflecting excessive nutrient enrichment.

Homestead Lake in Benoni was rated eutrophic, while 12 sites, including Koster and Olifantsnek Dams, were identified as mesotrophic, indicative of moderate nutrient levels. Meanwhile, 47 sites were oligotrophic, signifying low nutrient levels and reduced aquatic productivity.

The Macroinvertebrate Response Assessment Index Version 2 (MIRAI v2) was used to assess 503 sites during the hydrological year 2023/24. Most river systems had moderately modified conditions as their dominant state; 272 sites (54%) were found to be moderately modified (Category C). The upper portions of the Crocodile West catchment are in Gauteng's industrial and urban areas, so they are heavily influenced by human activity. The Jukskei River, Modderfonteinspruit River, Crocodile (west) River, Hartbeesspruit, and the Apies and Hennops Rivers were rated very poor (Categories D/E and E). These results highlight the need for targeted riverine conservation measures and effective management strategies to mitigate the adverse impacts of industrial and urban pressures, particularly in highly affected catchments.

The Water Services Act (Act No. 108 of 1997) prescribes the legislative duty of WSAs to provide drinking water to residents of all municipalities. The WSAs must monitor the microbiological and chemical quality of the water provided to the residents at specified intervals to provide suitable drinking water to all South Africans. The chemical and microbiological compliance of water supply systems across South Africa was evaluated between October 2023 and September 2024. For chemical compliance, 144 water services authorities (WSAs) were assessed. However, 36 failed to upload data to the Integrated Regulation Information System (IRIS). While 70% of systems achieved excellent compliance, 4.2% showed poor to critical compliance, reflecting inconsistencies in water quality management. Despite the requirement for 99.9% compliance to mitigate pathogen-related health risks, 75% of WSAs did not meet SANS:241 standards. Only 20% of systems achieved excellent compliance, and seven WSAs did not submit the required data, further impacting the national compliance outlook. The Department is deeply concerned about the overall poor compliance results, as most water supply systems pose a potential health risk to consumers.

South Africa also faces water and sanitation service delivery challenges, such as insufficient water infrastructure maintenance and/or investment. These challenges are further compounded by an increasing number of municipalities not managing their water infrastructure assets strategically; this includes record keeping of water infrastructure assets and their locations and the age and condition of water infrastructure assets. However, South Africa has made notable progress in ensuring universal access to improved sanitation. In May 2024, Stats SA reported that in the last 21 years, there has been substantial progress in access to sanitation in South Africa. In the same period, the percentage of households with improved sanitation facilities, such as flush toilets and pit toilets with ventilation pipes, increased from 61,7% to 83,3% (Stats SA, 2024). At 95%, Western Cape has the highest ratio of flush toilets, followed by Gauteng at 87%. Mpumalanga and Limpopo have the highest combined percentage of pit latrines at 54% and 69%, respectively. There is an urgent

need to focus on sustaining the sanitation infrastructure that has been provided since the dawn of our democracy to prolong its lifespan so that the infrastructure remains operational, safe, and hygienic whilst investing in new infrastructure to respond to rapid urbanisation. Moreover, there is also a need to ensure there is adequate investment in the operation and maintenance of wastewater infrastructure.

Lastly, the South African water sector has developed extensive infrastructure to transfer water between catchments to address supply deficits, particularly around the economic hubs. However, the nation's water resources are under significant strain, with over 98% of available water already allocated. According to the 2023 DWS No Drop Benchmarking Report, non-revenue water (NRW) accounts for 47.4%, while avoidable water losses are estimated at 40.8%. The status of NRW, at 47%, is of national concern, indicating that almost half of the potable water transported through the distribution system to customers does not generate revenue, thus resulting in billions of rands in revenue loss for municipalities.