

# Supporting smarter conservation for SA's Metros

With limited new water sources available, metros are being forced to prioritise conservation, efficiency and real time monitoring to stretch existing supplies. This is where VEGA's advanced instrumentation plays a critical role.

South Africa entered Water Week with a stark reminder: the country is running out of water. As a semi arid nation with 98% of its available water resources already allocated, the margin for error is shrinking fast. Climate change, rapid urbanisation, ageing infrastructure, and escalating demand are placing unprecedented pressure on water boards and metropolitan municipalities. To build resilience, South Africa must accelerate the adoption of smarter, data driven water management strategies, and this is where VEGA's advanced instrumentation plays a critical role.

## A system under strain

South Africa's water scarcity is structural, not seasonal. Rainfall is highly variable, with the east receiving significantly more precipitation than the arid west. This uneven distribution places enormous pressure on inter basin transfers and storage systems.

Compounding the challenge is the deterioration of water infrastructure. Wetland degradation, siltation of dams, and declining yields from surface and groundwater systems are reducing the supply. At the same time, demand continues to rise due to population growth, economic expansion, and changing consumption patterns.

The Department of Water and Sanitation's (DWS) latest reporting highlights that water losses and inefficient use remain among the biggest threats to national water security. Non revenue water – lost through leaks, bursts, and metering inaccuracies – remains critically high in many municipalities.

Where the crisis is most visible is in South Africa's largest metros – Johannesburg, Tshwane, Ekurhuleni, Cape Town, eThekweni, Nelson Mandela Bay, and Mangaung – face unique but interconnected water challenges.

- Ageing infrastructure and high water losses in many metros are the result of operating with decades old pipelines, reservoirs and pump stations. Leaks and bursts are frequent, and without accurate level and pressure monitoring, early detection is difficult.
- Rapid urbanisation in cities such as Johannesburg and Cape Town continues to fuel rapid growth, making it impossible for infrastructure upgrades to keep pace with demand. This creates ever-increasing pressure on bulk water supply systems.
- Climate variability: If anything, Cape Town's 'Day Zero' crisis demonstrated how quickly a metro can reach the brink. Meanwhile, Gauteng

relies heavily on the Vaal River System, which is under increasing stress.

- Limited new water sources: With nearly all available water already allocated, metros are being forced to prioritise conservation, efficiency and real time monitoring to stretch existing supplies.

## Conservation strategies for a thirsty nation

To ensure the long-term availability of water, metropolitan areas and water boards across South Africa are focusing on several strategic priorities. Reducing non-revenue water stands at the forefront, with accurate measurement playing a crucial role in identifying leaks, monitoring pressure zones, and effectively managing reservoir levels.

Enhancing real-time monitoring is another key focus, as continuous data on water flows, pressures and storage volumes enable proactive maintenance and a quicker response to system failures.

Additionally, optimising treatment and distribution processes is vital. By improving process control, municipalities can minimise waste, reduce energy use, and prevent excessive chemical use. Protecting strategic water source areas is also a high priority, given that these regions supply a significant portion of the country's water; thus, their careful monitoring and conservation are essential.

There is also a renewed emphasis on strengthening infrastructure investment. Public-sector spending on water infrastructure is on the rise once again, reflecting a renewed commitment to building resilience and securing sustainable water supplies for the future.

## Instrumentation that protects every drop

VEGA's instrumentation is engineered for accuracy, reliability and long term performance, all qualities essential for water boards and municipalities facing mounting operational pressures.

- Smart level measurement for reservoirs and bulk storage: VEGA's radar sensors,

such as the VEGAPULS 6X, provide non contact, maintenance free level measurement unaffected by condensation, foam or temperature fluctuations. This ensures accurate reservoir monitoring, enabling better demand forecasting and reducing overflows.

- Pressure monitoring for leak detection and network stability: VEGABAR pressure transmitters help utilities maintain stable pressure zones. Sudden pressure drops or spikes can indicate leaks or bursts—early detection saves millions of litres.
- Optimised treatment plant performance: From sedimentation tanks to chemical dosing systems, VEGA's sensors support precise process control, reducing waste and improving treatment efficiency.
- Monitoring of strategic water source areas and dams: Long range radar technology enables safe, accurate monitoring of dam levels, river flows, and catchment behaviour, which is critical for drought planning and flood mitigation.
- Digital integration for smarter water management: VEGA's instruments integrate seamlessly with SCADA and IoT platforms, giving water boards real time visibility across their networks.

## Technology as a cornerstone of water security

As South Africa confronts intensifying water scarcity, conservation is no longer optional; it is a national imperative. The country's metros and water boards need reliable, high precision data to manage every drop of water. VEGA's advanced level and pressure measurement technologies provide the accuracy, durability and intelligence required to build a more resilient water future.

During Water Week, the message was clear: saving water starts with knowing what water you have, and VEGA is ready to help South Africa measure what matters.

<https://www.vega.com/en-za>



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