

7 solutions to improve SA's wastewater infrastructure performance, revenue

South Africa's wastewater systems are decaying at an alarming rate. Half of the 850 municipal treatment facilities in the report are failing, and 334 (39%) are in a critical state. This is according to the latest [Green Drop](#) research report issued by the Department of Water and Sanitation.



Chetan Mistry, strategy and marketing manager at Xylem Africa

Yet a crisis is also an opportunity, and the state of local wastewater treatment is reversible, says Chetan Mistry, strategy and marketing manager at Xylem Africa.

"The *Green Drop* report is startling but we also live in a very opportune time to address those issues. There is an infrastructure revolution underway, using new technologies, engineering developments, modern materials and significant design improvements.

"The traditional view is of infrastructure that is singular, difficult to maintain, and requires long periods to recover cost of ownership. But things are radically different today, both for new infrastructure and retrofitting existing sites," says Mistry.

Established wastewater treatment sites can quickly improve performance and revenue while reducing maintenance, chemical storage and manual oversight costs. They can retrofit several solutions, including:

1. **Ozone and UV treatment:** Modern ozone and UV systems are self-contained solutions that require little maintenance or oversight. They complement fixtures such as chlorine treatment while radically reducing such chemicals' cost, storage and wear-and-tear.
2. **Variable speed drive and intelligent pumps:** Pumps are notoriously demanding on power when running continually. Intelligent pumps change this dynamic - these pumps have advanced monitoring features, variable speed drives that automatically manage power use, and leading models integrate with established SCADA and PMA systems for even greater control and visibility.
3. **Anti-clogging impellers:** Clogging is a major cause of pump breakdowns at wastewater sites, especially as fibres and large objects pass through sewage systems. Breakthroughs in anti-clogging impeller designs stop such detritus from snaring and stopping pumps, delivering much longer lifespans and less maintenance for wastewater pumps.
4. **Leak detection:** The *Green Drop* report notes that a significant amount of sewage never even reaches wastewater facilities. Modern leak detection systems such as acoustic balls can inspect kilometres of pipelines in little time, identifying large, small and developing leaks - even cracks invisible to the naked eye - without halting pipeline operations.
5. **Efficient aeration:** Aeration is a crucial part of cleaning wastewater, providing oxygen for the bacteria that remove harmful microorganisms. Typically, aeration represents 30-70% of the total energy costs at a typical wastewater treatment plant. Modern aerations and blower systems are substantially less power-hungry. They are more versatile, resilient to flow and power fluctuations, and reduce maintenance interventions.
6. **Sensor retrofits:** Modern sensors are affordable, simple to add to existing equipment, and often coupled with pre-

mounted panels for immediate operations. Best-of-breed sensor solutions offer advanced reporting and integrate with existing management systems.

7. **Intelligent management:** Digitally-powered decision intelligence provides new management and monitoring features for control rooms, including automated workflows and alerts, remote reporting on mobile devices, financial management and predictive maintenance. The leading management systems integrate with established site systems (such as SCADA), and use software and artificial intelligence to optimise water systems, make the best use of existing infrastructure and identify the most impactful infrastructure investment options.



5 ways to start fixing SA's deteriorating water quality

Andi Rweqane 30 May 2022



As South Africa's minister for water and sanitation, Senzo Mchunu, notes in the *Green Drop* report's foreword, the worrying state of many local wastewater facilities puts lives at risk and threatens the dignity and health of the country's people. He calls on everyone to create a turning point and revitalise those facilities.

Such a goal is within our reach. Using new technologies in water management, municipalities can revitalise their wastewater sites, improve oversight and still realise crucial savings.

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