WATER REUSE

Africa's water future: World Bank report calls for urgent action to scale water reuse

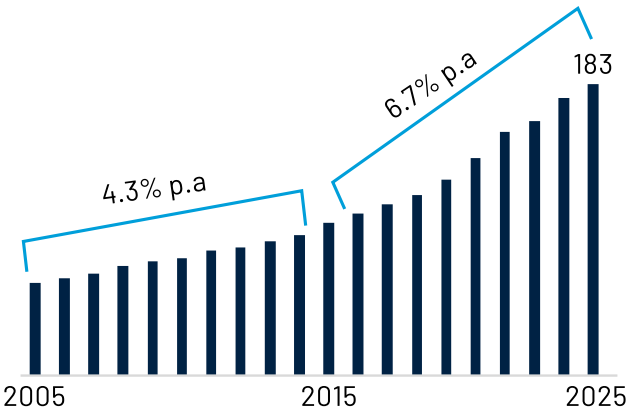
A new report from the World Bank Group has called for the scale-up of water reuse as part of a portfolio of options to stave off global water insecurity. According to the report, Scaling Water Reuse: A Tipping Point for Municipal and Industrial Use, accelerating investments into water reuse can develop the market, drive down costs, spur innovation and commercial finance, especially in water-scarce regions such as Africa. Lani van Vuuren reports.

The report outlines five strategic transitions and a suite of recommendations aimed at enabling governments, utilities, and industries to unlock the full potential of water reuse. With reuse representing only 3% of freshwater withdrawals in 2024 for municipal and industrial use, the world stands at a pivotal moment to turn 'wastewater' into valuable 'new water'.

Why water reuse matters for Africa

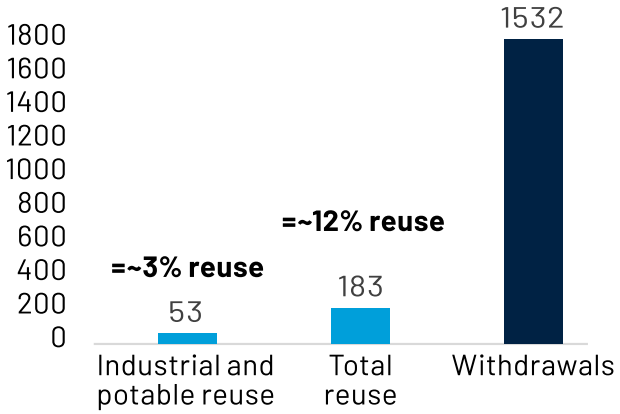
Africa is already facing acute water stress, with rising urbanisation, erratic rainfall, and infrastructure deficits putting millions at risk. South Africa, in particular, has made headlines for its periodic "Day Zero" threats in cities such as Cape Town. In such contexts, the report highlights that water reuse is not a luxury – it's a necessity. Cities and industries across the continent discharge enormous volumes of untreated water daily, missing an opportunity to transform this into a reliable, drought-resilient water supply. The report identifies reuse as a cost-effective and climate-resilient alternative to desalination or long-distance water transfers, both of which are often financially or technically unfeasible for African municipalities.

Africa, particularly South Africa, is home to several promising reuse initiatives. Notably, South Africa's eThekwini municipality is cited in the report as a successful model, with its Durban Water Recycling Project, for example, showing how reclaimed water can safely and reliably meet industrial and municipal demand. The country's first indirect water reuse scheme (via groundwater) was commissioned in the mid-1970s in Atlantis, Cape Town. The Atlantis aquifer is artificially recharged using a combination of stormwater runoff and treated domestic wastewater. Beaufort West was the first town to build a direct potable reuse plant in the country, where treated wastewater effluent is conveyed directly to a water treatment facility for further treatment to drinking water standard. Another successful example is the eMalahleni water reclamation plant in Mpumalanga, where mine-water is treated to drinking water standards.



Total global installed reuse capacity (million m³/day).

Khemka, R. and Eberhard, R. 2025. Scaling Water Reuse: A Tipping Point for Municipal and Industrial Use. Washington, DC: World Bank.



Reuse as a percentage of freshwater withdrawals for the municipal sector (million m³/day).

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As Kalebaila et al. point out in their working paper published in 2020, the potential role of water reuse as part of a portfolio of alternative water sources (above conventional surface water supplies) is well established in South Africa. The planning and commissioning of water reuse projects is guided by several policy documents and governed by legislation across different government departments. The country is planning to increase its dependence on water reuse to 18% (from the current 14%) by 2040. However, while several additional municipal water reuse projects are planned, progress is largely driven by crises during drought conditions when conventional water sources run dry. The water reclamation plants constructed in the towns of George and Mossel Bay during the drought in 2010 are examples of this.

Five key transitions for scaling water reuse

At the heart of the World Bank report are five "tipping point" transitions – clear, actionable shifts required to embed reuse in national and local water strategies:

1. **Value clean water appropriately**: Free or heavily subsidised freshwater makes reuse uncompetitive. The report calls on governments to adjust tariffs to reflect the full economic, environmental, and social cost of water.
2. **Prioritise high-value applications**: Purified water should be directed to uses where there is a willingness to pay, such as industrial processes or municipal drinking water, rather than low-value applications.
3. **Normalise 'new' water use**: Public perceptions must shift to accept treated used water as a safe, reliable source. Education and regulatory standards will be key to overcoming cultural resistance, particularly for potable reuse.
4. **Adopt programmatic, platform-based approaches**: Instead of isolated projects, the report urges countries to develop scalable, replicable programmes using consistent standards, public-private partnerships, and blended financing models.
5. **Mobilise private innovation and capital**: Just as renewable energy scaled through private investment and innovation, the same approach is needed for reuse. The report calls for creating bankable projects that crowd in commercial finance.

The African imperative: Specific recommendations

The report dedicates substantial attention to how these transitions can be implemented in African contexts.

Firstly, it emphasises the role of the public sector. The report recommends that African governments lead by establishing clear regulations on water abstraction and discharge, setting targets for reuse, and creating financial incentives for utilities and industries to invest in treatment infrastructure.

At the local government level, cities must include reuse in their water security strategies, especially as urban populations explode. By 2050, 70% of the global population will live in cities, many of them in Africa.

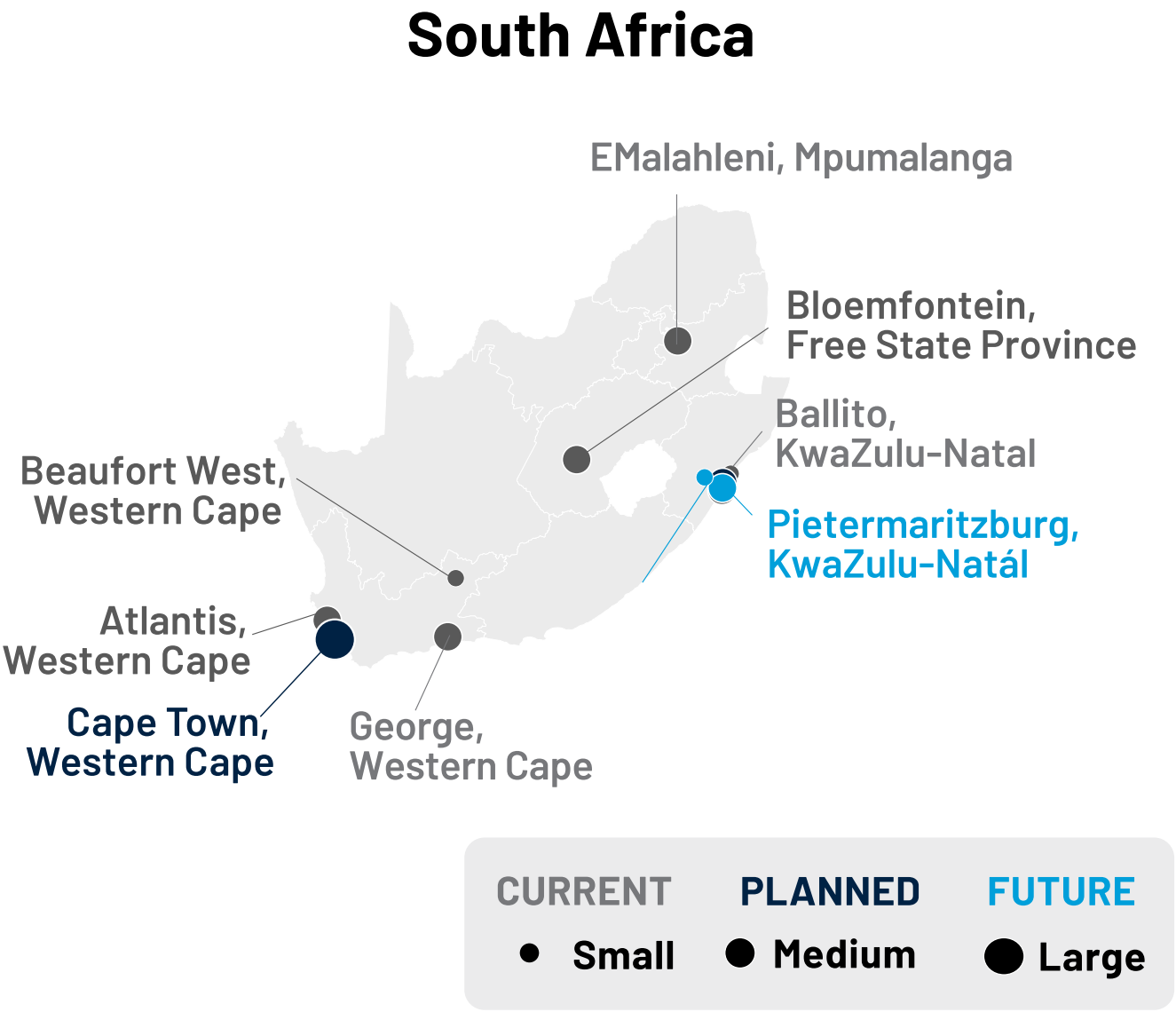
Water reuse offers various opportunities for the private sector. Industries, especially mining, textiles, and food processing, can adopt reuse to reduce risks and enhance supply reliability. The report identifies strong potential in industrial parks near urban centres where treated water can be looped back into production systems.

Lastly, there is a need for infrastructure investment. The World Bank estimates that US$170–340 billion is needed globally over 15 years to scale reuse to 25% of freshwater withdrawals. Africa will need a significant share of this investment, channelled into urban wastewater treatment, decentralised systems, and technology upgrades. Reuse must be integrated into broader water resource planning. In landlocked regions, it may affect downstream users. Systems thinking is essential to ensure equity and environmental sustainability.

Overcoming challenges: Cost, culture, and coordination

Despite its promise, the report acknowledges several barriers to widespread adoption. The first is the perception of cost. Compared to water reuse, freshwater remains cheap, and often free, in many parts of Africa. Until pricing reflects actual costs and risks, reuse will struggle to compete.

Then there is the 'yuck' factor associated with reused water – especially for drinking. As Kalebaila et al point out, in South Africa, a lack of public knowledge on treatment technology, a lack of trust in the implementation capacity of municipalities or a lack of technical skills within municipalities can jeopardise the success of any water reuse project. "In particular, the [general] poor performance of wastewater treatment works [in South



Current and planned water reuse activities in South Africa.

Africa] paints a negative picture with regards to the ability of municipalities to manage wastewater treatment [and therefore water reuse]."

Further, the World Bank report points out that governance is often fragmented in African countries and coordination across water, sanitation, health, and environmental ministries is often weak. The report stresses the need for integrated water governance structures.

Looking ahead: Reuse as a cornerstone of Africa's water future

With rapid population growth, increasing climate variability, and rising economic aspirations, Africa cannot afford to ignore the potential of water reuse. The World Bank report offers a clear, evidence-based roadmap for how governments, industries, and citizens can work together to redefine water security on the continent.

From the dusty streets of Gaborone to the industrial corridors of Gauteng, reused water could be the solution that bridges the widening gap between demand and supply. It is not just a question of technology; it is a matter of political will, institutional reform, and visionary planning.

As the report concludes: "Water reuse is not a solution of the future, it is a solution for today." For Africa, embracing this solution could be the key to securing a liveable, prosperous future for generations to come."

To access the original report, visit; https://www.worldbank.org/en/topic/water/publication/scaling-water-reuse#:~:text=The%20World%20Bank%20Group's%20new,sustainable%20source%20of%20new%20water.

Additional reference: N. Kalebaila et al. 2020, Working paper: Strengthening the implementation of water reuse in South Africa, https://wrcwebsite.azurewebsites.net/wp-content/uploads/mdocs/WRC%20Working%20Paper_water%20reuse%20in%20SA.pdf

Khemka, R, and Eberhard, R. 2025. Scaling Water Reuse: A Tipping Point for Municipal and Industrial Use. Washington, DC: World Bank.