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REAL ECONOMY INSIGHT

WATER

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WATER

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While the much-feared 'Day Zero' in South Africa's Western Cape province has been averted for the time being, owing to the public's abiding by water restrictions, among other efforts, the province and the country are not out of the woods.

In February this year, news agency GroundUp reported that, based on its extensive coverage of the water sector, a countrywide water shortage was but ten years away unless decisive action was taken to rehabilitate and preserve the country's rivers and catchment areas, repair and maintain existing infrastructure, and implement water reuse.

This was reiterated by the Department of Water and Sanitation (DWS) in a Ministerial interactive session on February 15. The department has said that if demand continues to escalate at current levels, the deficit between water supply and demand could be between 2.70-billion and 3.80-billion cubic litres a year by 2030 – a 17% water deficit.

The DWS, in its National Water and Sanitation Master Plan (NW&SMP) released in October 2018, says that South Africa requires a "new normal", a "significant paradigm shift" to achieve water security. This shift, it says, will recognise the limitations of water availability, ensure equitable access to limited water resources, deliver reliable water and sanitation services to all, focus on demand management and other sources of water and consider the impacts of climate change, as well as address deteriorating raw-water quality and the real value of water.

THE REAL VALUE OF WATER

Currently, the water sector is not financially viable.

This is owing to low tariffs, inadequate cost recovery, overconsumption, inefficient water use, wastage, leakage, inapt infrastructure choices – for example, water borne sanitation in a water-scarce country – inadequate planning and implementation, as well as population and economic growth.

To remedy the situation, the DWS says that tariff increases above existing inflationary targets will be required to address the historic undervaluation of water and sanitation services.

Investment in the water sector comprises capital for infrastructure development, operation and maintenance along the water supply chain, and funding for the governance and effective management of water and sanitation services delivery. The NW&SMP avers that the capital requirement of the sector totals an estimated R90-billion a year, encompassing about R70-billion for water supply infrastructure from source to end-user, and about R20-billion for sanitation and wastewater collection and treatment.

However, a funding gap of R33.30-billion a year exists, which must be reduced through focused interventions such as policy reviews, enhanced regulation, implementation of cost efficiency measures and proper management of user expectation and demand.

Through these measures, among others, the DWS believes that the current poor levels of maintenance and refurbishment in the sector, which are furthering the decline in the reliability of services and infrastructure, can be improved.

Further, voluntary coalition of South African and multinational companies the National Business Initiative (NBI) believes that a series of public–private partnerships (PPP) with municipalities could help ailing local water and sanitation departments, many of which are tackling challenges ranging from deteriorating infrastructure to declining water quality and poor governance.

According to NBI climate and water programme manager Alex McNamara, many municipalities are not running financially fit businesses, and are charging a quarter of what it costs to provide water.

The NBI contends that almost half of the local water and sanitation departments are in a "critical state" and need assistance from the private sector. The organisation has devised a project called Kopano ya Metsi, which examines how to strengthen municipal water management and enable PPPs to unlock water investment.

It proposes what it describes as a "virtuous cycle" to help municipalities deal with the litany of problems they

Water in Numbers

The Department of Water and Sanitation states in its National Water and Sanitation Master Plan released in October 2018 that:

- more than three-million people in South Arica still do not have access to a basic water supply service and 14.10-million people do not have access to safe sanitation.
- only 64% of households have access to a reliable water supply service.
- 56% of wastewater treatment works and 44% of water treatment works are in a poor or critical condition, while 11% are dysfunctional.
- more than 50% of South Africa's wetlands have been lost, and of those that remain, 33% are in poor ecological condition.
- only 5% of agricultural water used is by black farmers.
- 41% of municipal water does not generate revenue, while 35% is lost through leakage.
- municipalities are losing about 1 66-billion cubic metres a year through nonrevenue water. At a unit cost of R6/m^3, this amounts to R9.90-billion every year.
- – R33-billion more is needed every year for the next ten years to achieve water security.

Source: National Water and Sanitation Master Plan, October 2018

are facing, starting with targeted subsidies for the poor, combined with cost-effective tariffs for other users. More accurate billing combined with increased tariffs will raise revenues. It suggests this will filter through to better staffing, which will improve customer service levels. Increased revenues will also allow for investment to improve infrastructure development and maintenance. The NBI says that the main opportunities available to PPPs are involvement in the water value chain through desalination, groundwater extraction and wastewater treatment, and any form of water reuse.

A turnaround towards financial sustainability, however, will not succeed if another of the major challenges facing South Africa's water sector – nonrevenue water (NRW)– is not dealt with. NRW is costing municipalities about R9.90-billion of potential revenue a year.

NRW, which includes all water supplied that is not paid for, including physical water losses through leaks in the distribution system, illegal connections, unbilled consumption and billed, but unpaid for, water use, is currently estimated at 41%.

The high volume of water being lost by municipalities in the form of NRW, estimated at 1.66-billion cubic metres a year, is attributable to the state of the country's water infrastructure.

WATER INFRASTRUCTURE

The NW&SMP estimated the capital replacement value of South Africa's water and sanitation infrastructure at R1.36-trillion in 2017. However, the existing assets are also depreciating, resulting in a current book value of the infrastructure totalling an estimated R584-billion. This is because existing infrastructure has been extended beyond its life, owing to significant underinvestment in infrastructure maintenance, and delays in the renewal of aged infrastructure. This has resulted in an accumulated backlog in refurbishment of about R59-billion.

According to the South African government's 2019 'Budget: Estimates of National Expenditure' report, which details its expenditure plans for the three-year medium-term expenditure framework (MTEF) from 2019/20 to 2021/22, 81.10%, or R42-billion, of the DWS's spending over the medium term is earmarked for water infrastructure.

Investment in bulk and reticulation infrastructure for water and sanitation as part of the Water Infrastructure Development programme, which is the largest spending area in the budget, is expected to lead to an increase in expenditure on transfers to municipalities at an average rate of 4.30% a year, from R5.70-billion in 2018/19 to R6.50-billion in 2021/22.

Through the regional bulk infrastructure grant and the water services infrastructure grant, four mega, 34 large and 295 small regional bulk water and sanitation projects are expected to be completed over the MTEF period.

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An estimated R6.60-billion over the period will be made available to local governments through the regional bulk infrastructure grant and R11.80-billion to municipalities through the water services infrastructure grant. A further R11.90-billion will be made available over the MTEF through these grants for payments for capital assets.

Over the medium term, transfers to the Water Trading Entity, whose main functions include the development, operation and maintenance of specific water resource infrastructure and managing water resources in specific water management areas, are expected to fund short- and long-term interventions in:

- acid mine drainage (AMD) – mine water that is purified and used to augment the yield of the Vaal River system, in Gauteng, to ensure water security and environmental sustainability;
- the Olifants river water resources development project (Phase 2D);
- the Mokolo and Crocodile river water augmentation project (Phase 2A);
- the raising of Clanwilliam dam;
- the Groot Letaba river water development project;
- the raising of Tzaneen dam;
- the Mdloti river development project; and
- the raising of Hazelmere dam.

The entity will also subsidise the capital requirements, operations and maintenance of infrastructure for water resources. As a result, transfers to the entity are expected to increase at an average rate of 4% a year, from R2.10-billion in 2018/19 to R2.30-billion in 2021/22.

WATER SUPPLY AND DEMAND

To balance demand and supply, South Africa will need to reduce water demand, as well as increase supply for a growing population and economy.

Average domestic water use in South Africa is about 237 ℓ/d per person – 64 ℓ/d per person more than the world average of 173 ℓ/d per person.

The NW&SMP recommends that average domestic consumption must be reduced to 175 ℓ/d per person by 2025.

South Africa needs to progress from a water supply strongly dominated by surface water to one that includes reuse of effluent from wastewater treatment plants, water reclamation, as well as desalination and treated acid mine drainage.

The NW&SMP contends that, by 2040, treated AMD and desalinated seawater will contribute significantly to the country's water mix.

Groundwater is also expected to feature more prominently. The total volume of groundwater that is potentially accessible is about 4.50-billion cubic metres a year, of which only two-billion cubic metres to three-billion cubic metres are being used.

In terms of demand, agriculture is the biggest water-consuming sector in South Africa, accounting for 61% of total withdrawals, according to the DWS, yet the sector pays the lowest tariffs. This places increased responsibility on not only the fiscus but also other water consumers.

Picture by Creamer Media

The second-biggest user is the municipal sector, which supplies industrial, commercial and domestic consumers, while the mining and bulk industrial sectors are the third-biggest users.

Regardless of the volume of withdrawals by the sectors, the NW&SMP has emphasised that, to achieve water security, all water users in all sectors will have to use water more efficiently, and water use must be addressed in the plans of the municipal, energy, agriculture, forestry, mining and industrial sectors.

OUTLOOK

Climate change impacts on South Africa will likely be felt primarily through impacts on water resources.

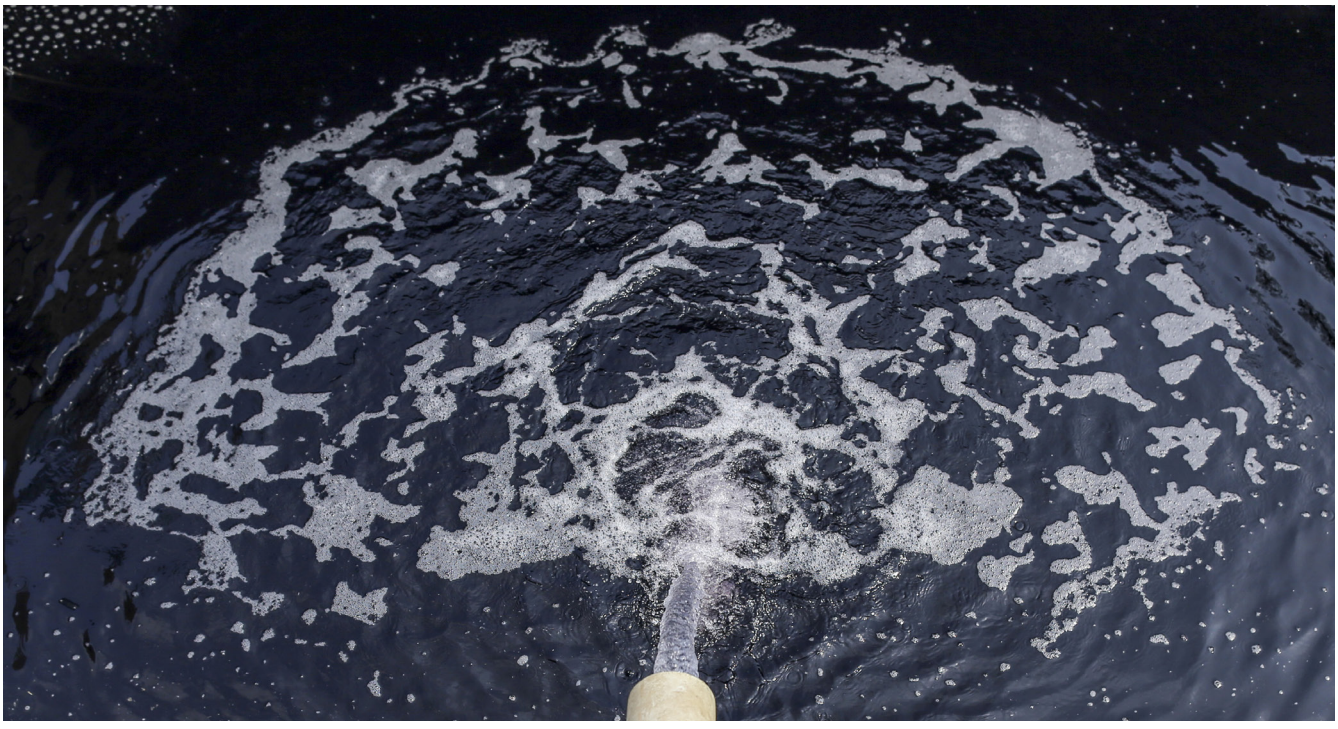
According to the Council for Scientific and Industrial Research, these will include longer droughts in the western parts of the country and the arid interior, and rainfall becoming more intense in the north and the eastern interior, resulting in flooding.

Many observers have forecast that the country will run out of water by 2030. Such a prediction will not eventuate, however, if there is a mindset change among consumers about the true value of water. A total of R899-billion is expected to be invested over the next decade to build new infrastructure and rehabilitate and upgrade existing facilities. This level of investment – about R89.90-billion a year – is about R33-billion more than what has been invested every year, which leaves a 37% funding gap.

The NW&SMP states that the mindset shift that must accompany an increase in water and sanitation infrastructure investment should occur not only among consumers but also at all levels of government, in the business sector and civil society.

Without demand management, currently planned infrastructure development and the broadening of the water mix will not be sufficient to balance supply and demand.

The NW&SMP contends that if the targets for reducing physical losses in municipal systems are reached, and there is a reduction in the per capita consumption of water to the global average of 173 ℓ/d, as well as a shift in the mix between the water-use types – surface water, groundwater supplies, desalination, reuse and treated AMD – there will be a slight surplus available in 2030.



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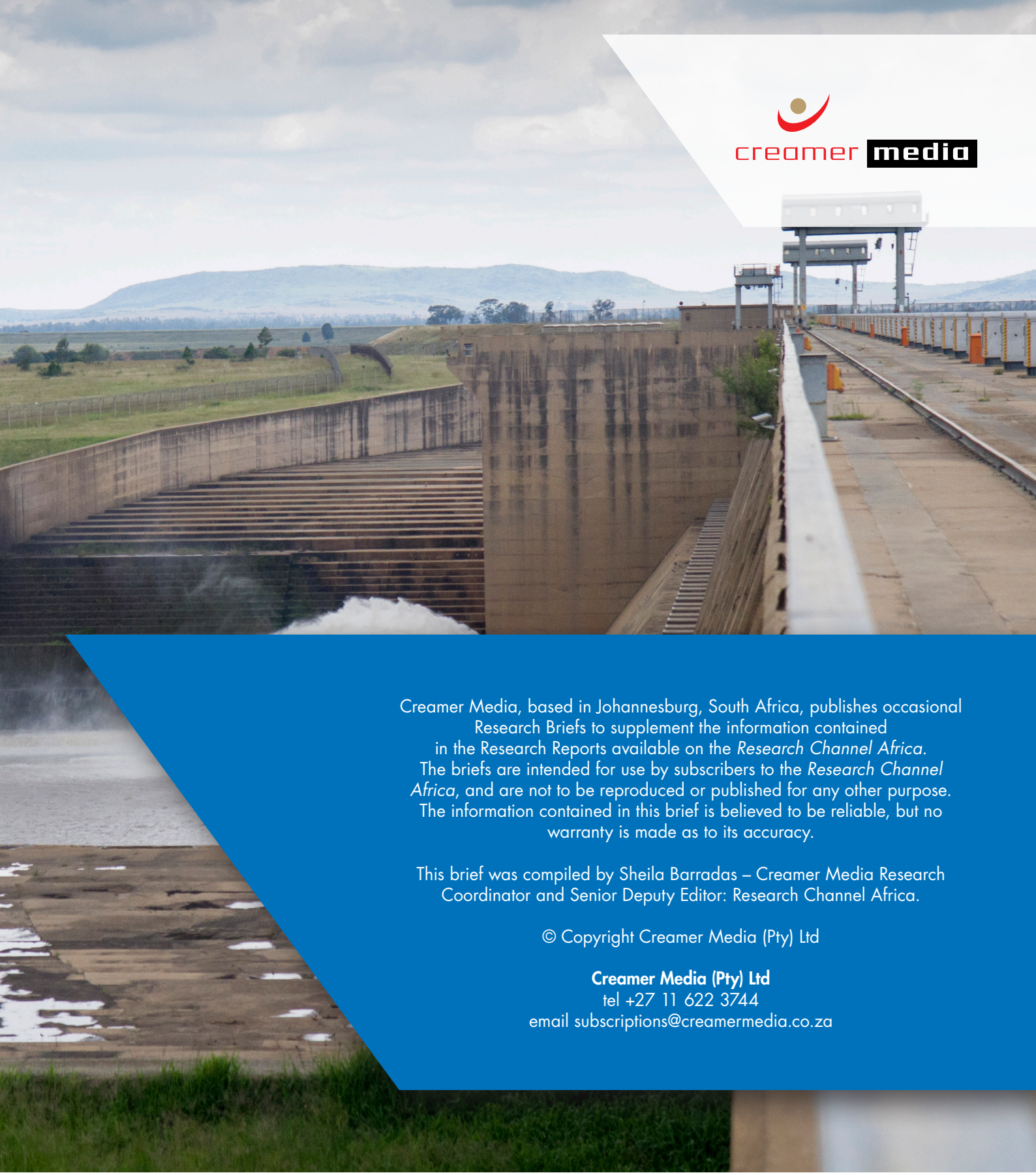

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