

# Water policy: A perfect reform storm?

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*In President Ramaphosa's SONA last month, South Africa's looming water crisis was noted with a call to establish a regulatory body to deal with bulk water tariffs and a new Water Resources Infrastructure Agency. The agency is not a new idea – the bill to establish the body was introduced to parliament in 2008 but lapsed after no action. The president also announced the issue of water use licences and promised movement in the next three months. These are key focus issues of Operation Vulindlela.*

*The Water Masterplan published in 2018 outlines a comprehensive plan to deal with the water security needs of the country. Yet very little has been accomplished from the plan so far despite such need. Water remains a hard area for investors to deploy capital.*

*The country recently experienced high rainfall levels, with many dams such as the Vaal reaching capacity for the first time in four years. While this should be a cause for comfort, the increased rains have placed additional pressure on the country's ageing and failing water infrastructure, with raw sewage entering the main water supply. The national defence force has been deployed to deal with the Vaal dam crisis and we anticipate further deployments to deal with emergency management.*

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**TOPICS**

Policy

**Water and Sanitation Policy - A snapshot**

<b>Departments and ministers involved</b>	Department of Human Settlements, Water and Sanitation (DWS) - Minister Lindiwe Sisulu
<b>Type of reform</b>	Policy, institutional and Regulatory
<b>Reform drivers</b>	Operation Vulindlela (Presidency and NT)
<b>Reform Blockers</b>	DWS (Capacity, not lack of political will)
<b>Impact on market (0 low; 5 high)</b>	Short term: 2 Medium term: 5
<b>Potential growth impact</b>	positive, moderate
<b>Progress to completion</b>	40% on planning and policy backdrop progress More action from OV due on institutional setup.
<b>Dates to watch</b>	New scheme for issuing of water use licences (May) National defence force deployment This year: Start of PPP framework amendments? <b>H2 2021:</b> Establishment of a water infrastructure agency and regulator.

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## Context and importance of the problem

### Background

The global attention garnered by the city of Cape Town's 2018 water shortage significantly raised awareness of the impact that global warming will have on South Africa's water security. Between 2015 and 2018, the Western Cape faced the worst drought in its history and risked being the first major city in the world to run out of municipal water supply.

"Day zero", the day Cape Town's taps were expected to run dry, was temporarily averted through severe water restrictions and unexpected rain. Each citizen was restricted to 50 litres per day – 20% of the average South African's daily usage.

South Africa's climate is increasingly exhibiting patterns of longer, more frequent droughts, punctuated with shorter periods of intense rain which increases the likelihood of floods. Severe restrictions such as those employed in 2017/2018 are unsustainable and more proactive solutions are necessary to ensure water security in the long term.

In addition to climate pressures, South Africa faces a water and sanitation crisis. A confluence of issues that have developed over the past 27 years of democracy exacerbate the severity of this crisis. These include:

- Under-investment in water infrastructure.
- Poor maintenance of existing infrastructure.
- A loss of technical skills in the water public sector; and
- Mismanagement of municipal budgets

President Cyril Ramaphosa's recent SONA gave a cursory nod to the reforms mentioned in the 2018 Masterplan which aims to reintroduce the plan to establish the Water Resources Infrastructure Agency, a regulatory body that is meant to better manage water infrastructure development which has thus far been plagued with inefficiencies and corruption within municipalities. The magnitude and gravity of the crisis, however, has yet to be realised and South Africa is set to run out of municipal water by 2030 if no major changes are made.

### What is the issue?

The challenge faced by South Africa is multifaceted and deeply entrenched. South Africa is the 30<sup>th</sup> driest country in the world, yet the average water use is 273 litres per person per day, 92% more than the world daily average. This highlights the problem of **a lack of adequate investment in new infrastructure and technology.**

At a household level, the typical South African lavatory uses between six and 12 litres of purified, potable water for each flush, which accounts for 30% to 40% of household water use. Investing in improved technology could drastically reduce the amount of water used while systems could be developed where treated sewage water can be utilised for sanitation. At a national level, there has been critical underinvestment in infrastructure over the past 27 years.

### Poor maintenance of existing infrastructure

The 2017/ 2018 auditor-general's annual report found that at local government level, 40% of municipalities had water losses of more than 30% of

their supply. This water that has been produced and is "lost" before it reaches the customer is known as non-revenue water. Water losses are largely due to leakages caused by ageing and poorly maintained infrastructure. The water and sanitation masterplan states that 44% of water treatment works are in a poor or critical condition, with about 11% completely dysfunctional. The Water Research Commission estimates that recapturing 37% of non-revenue water through routine maintenance would provide the Department of Water and Sanitation in excess of R10bn, which could be used for infrastructure maintenance and further investment.

**Table 1: Municipal Water losses 2016-2018 (share of municipalities)**

Province	Below or equal 30%	Above 30%	Not disclosed
Eastern Cape	8%	92%	
Free State	42%	50%	8%
Gauteng	75%	25%	
Kwa-Zulu Natal	36%	64%	
Limpopo	62%	25%	13%
Mpumalanga	56%	44%	
Northern Cape	47%	42%	11%
North West	22%	11%	67%
Western Cape	96%	4%	

Source: The Auditor General Report 2017/18

Poor maintenance of water infrastructure is in part due to **a loss of technical skills in the water public sector**. The auditor-general's 2017/18 report found there was a 21% national vacancy rate in the required skills.

**Figure 1: Auditor General's findings on maintenance of water infrastructure**



Source: Intellidex, Auditor General Report 2017/8

**Mismanagement of municipal budgets**

DWS is one of the worst-performing departments in the areas of budget inefficiencies. A total of R27bn was lost to irregular, fruitless, wasteful or unauthorised expenditure (R22bn at local government level and R5bn nationally) in 2017/2018.

**Why is this an issue now?**

Discussions on the impact of climate change in South Africa have long focused on the impact of fossil fuel energy generation on the environment and the future of the South African economy. With the country being a water-scarce region with increasing occurrence of droughts, water security is a factor that needs more attention. South Africa has reported on its forecast, worsening water scarcity problems to the UN as part of country specific reporting requirements after the Paris agreement.

This has implications for various parts of our economy:

### **Water infrastructure investment**

South Africa's municipal water is 73% reliant on rainwater which leaves it highly vulnerable to changing climate patterns. On one hand, increasing temperatures will see more evaporation from the land surface, causing more frequent and sustained droughts. On the other hand, hydrologists anticipate that storms will become more intense, causing an increased concentration in rain which could see river flows increase. This reliance on rainwater is therefore unreliable and unsustainable. In planning for future water infrastructure that takes into consideration the diminishing surface water available to municipalities, it is also important that government consider short-term solutions to water shortages.

Research by the Water Research Commission has shown that South African groundwater supplies are not yet being negatively affected by climate change. This is also evidenced by the contingency measure many Capetonians took at the height of the water shortages in 2017/ 2018 where they collected groundwater from the Newlands spring, whose aquifer reserves were still available. Infrastructure investment that provides access to groundwater may be necessary to maintain access to water in the short term.

### **Investors in agricultural production**

Food production in South Africa is one of the most water-intensive industrial processes. As measures by government to dampen the demand take effect and the cost of water increases due to infrastructure investment and investment in improving water quality, so the cost of production is likely to increase. This will have a knock-on effect on consumer prices, thus threatening the country's food security.

### **Government bonds**

In 2020, Water & Sanitation Minister Lindiwe Sisulu announced that municipalities had accumulated debt to the country's water boards in excess of R10bn, bringing into question the future financial viability of water boards. In considering funding models to build and maintain water infrastructure, the non-payment of municipalities for water usage makes the option of government bonds too risky.

### **Infrastructure investors**

Infrastructure investment is a key component of the government's economic strategy for recovering from the impact of Covid and years of sluggish growth. The renewed political will to crowd in private sector investments and promote public-private partnerships announced in the 2021 budget last week presents greater opportunities for investors in infrastructure.

### **Coal-fuelled energy generation**

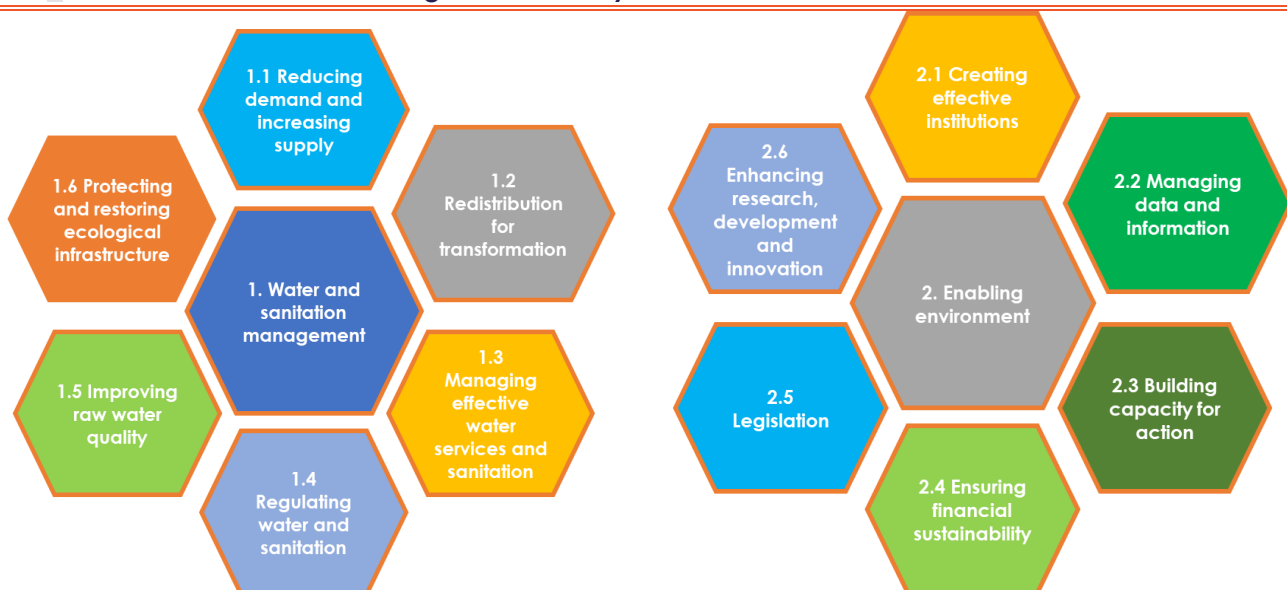
As water becomes more costly, so will the country's energy generation. South Africa is predominantly reliant on coal-fuelled power, which requires large volumes of water to cool plants. Eskom's struggle to generate adequate power for over a decade has hampered the growth potential of South Africa's GDP. The potential water insecurity facing this country threatens to exacerbate this challenge and further impede growth though Eskom is converting plants to air cooled systems.

## Policy implications

At the heart of South Africa's water policy is the water and sanitation masterplan. This comprehensive strategy was unveiled in November 2019 and calls for nearly R900bn investment in the water sector over 10 years.

The plan identifies 12 key areas where reform is required to adequately tackle the challenges that threaten South Africa's water security. These areas are clustered around two key themes: **water and sanitation management** and an **enabling environment (Figure 2)**. The appendix lists all the programmes the masterplan will undertake as well as when they are scheduled for completion. To date, this is the most comprehensive and well-researched attempt to address the complex problems faced in the water sector. The challenge, however, is the lack of its implementation thus far.

**Figure 2: Twelve elements in attaining water security in South Africa**



Source: The Water and Sanitation Masterplan

The short-term goals of the masterplan focus on costing the sector's infrastructure needs and broadening access to water through its increased supply. Increased access will be achieved through more efficient management of existing water supply (targeting leakages and theft) as well as identifying groundwater to be used in critical areas. To date, substantial progress has been made only in understanding the financing needs of the sector, which are included in the masterplan.

### Funding

Funding is the most substantial challenge facing the implementation of the masterplan. Figure 3 (below) illustrates the funding required to implement it, showing that R898bn is required to fund the five strategic areas of: **sanitation infrastructure; water resources infrastructure; bulk potable water infrastructure; bulk non-potable water infrastructure; and municipal water infrastructure.**

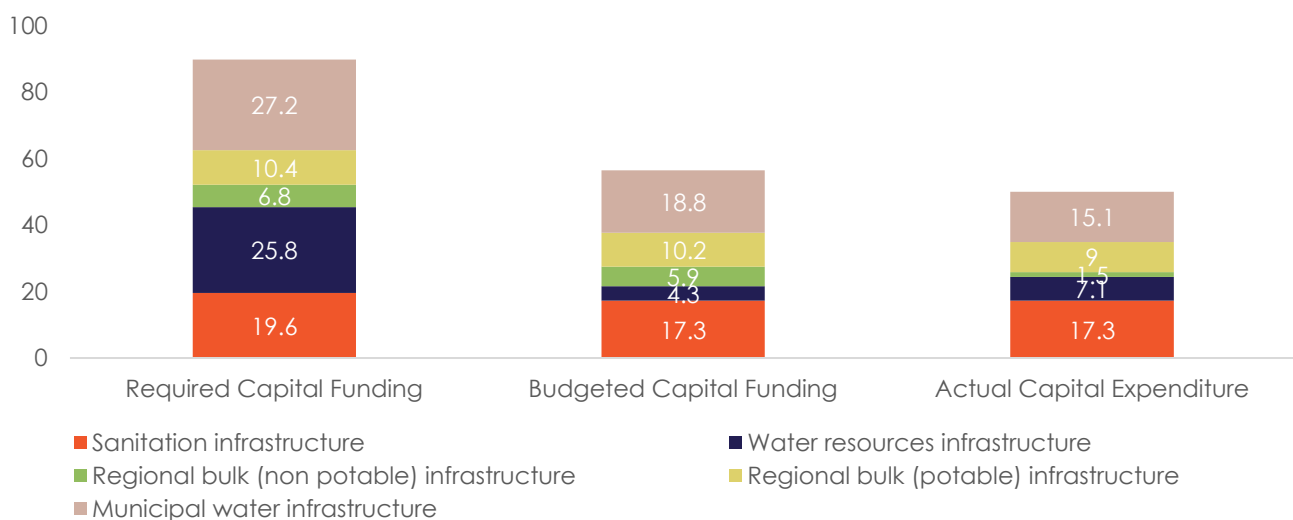
From 2020 to 2030, government has budgeted an average of R56,8bn a year but anticipates actual expenditure of R50bn a year. This will result in an additional capital investment funding gap of between R33bn and R39.8bn a

year. A combination of cost reduction and private sector investment will be relied on if the required funding is to be attained.

**Capital market bonds**

Capital markets are already playing an integral part in providing water infrastructure. Approximately R3bn a year is raised from the market through bonds from water boards. Capital market bonds are used effectively at national level and currently total about R 23bn within water boards. The Trans-Caledon Tunnel Authority (TCTA) has raised R19bn through its bond programme to date from local and international markets. Rand Water has raised R2.8bn and Umgeni Water R1.5bn. Increased use of the capital market bond funding is envisaged by these institutions and will depend on their funding requirements as well as borrowing limits granted through PFMA. The financial sector’s risk view of state-owned entities will also play an integral role in access to future funding.

**Figure 3: Annual capital funding: Required, budgeted and actual (R bn)**



Source: The Water and Sanitation Masterplan

**Regulating the water and sanitation sector**

Regulation in terms of water quality (in rivers and taps) is recommended by the masterplan to further enforce existing legislation and halt the deterioration in raw water quality across the country, along with curbing the high levels of water theft and water wastage. The masterplan had targeted the establishment of the National Water Resources and Services Regulator (NWRSR) by 2020 to finance, develop, manage and operate national water resource infrastructure and sanitation. The regulator has not been established to date. We anticipate some advancement on the regulator in the second half of 2021.

**Policies under development**

The water and sanitation masterplan also mentions new policies in development that will work alongside the masterplan. **The Mine Water Management policy** seeks to balance the mining sector’s economic development with ensuring sustainable use of water resources in a manner that is beneficial to all. It will provide a coherent and integrated South African approach for sustainable mine water management by building on existing strengths, addressing gaps and weaknesses and seizing identified

opportunities relating to mine water management (including acid mine drainage).

**The Sustainable Hydropower Generation policy** aims to support the long-term energy masterplan that pursues hydropower as part of the energy mix. In addition, it would provide policy positions on the establishment and development of hydropower from infrastructure owned by the DWS as part of long-term interventions that support and contribute towards sustainable power supply in South Africa.

Finally, **the Integrated Water Quality Management policy** seeks to develop an intergovernmental water quality management approach which would facilitate an integrated response to address water quality management challenges in the country. The policy would strengthen the existing integrated water quality management strategy that identified priority programmes to be implemented country wide.

Since the masterplan's publishing, there have been no developments regarding these policies.

## What's going right and what can be changed?

The budget review last month included an addendum that outlined changes that are necessary to the PPP framework that governs public-private partnerships. Private sector participation options had not been optimised and have seen a steady decline since 2011. National Treasury has made recommendations that would aid in streamlining the process. These include establishing a PPP regulator and standardising processes. The reduction of red tape in forming these partnerships is vital to scaling up the capacity and investment needed to expand the infrastructure necessary to implement the masterplan.

### Operation Vulindlela

Operation Vulindlela is the joint venture between the Presidency and National Treasury that aims to expedite the country's reform agenda. In last month's state-of-the-nation address, the president committed to three reforms to expedite in the water sector. The first is to ensure that water licence applications are finalised within the revised timeframe of 90 days, which is a significant reduction from the previous timeline of five years. This would positively affect industries where water is a critical production input.

The second commitment is to revive the Green Drop and Blue Drop programmes which were stopped in 2014. These programmes do extensive research and report on the state of water quality. Their reinstatement would increase transparency and strengthen water quality monitoring.

Operation Vulindlela will also finalise and implement the revised raw water pricing strategy. The strategy aims to promote water waste reduction while ensuring equitable pricing.

Finally, Vulindlela will accelerate the establishment of a national Water Resources Infrastructure Agency and a Water Regulatory authority. In 2008, the then department of water affairs and forestry published a bill to establish such an infrastructure agency broadly similar conceptually to the energy IPP office. The agency will be responsible for administering funding financing and developing, rehabilitating, refurbishing, operating and managing SA's water

resources. The water and sanitation masterplan will benefit greatly from having such an agency that would oversee the extensive list of required investments necessary over the next decade that need to be done in partnership with the private sector but for which most of the rest of government lacks the necessary capacity.

A tariff regulator is required to ensure the appropriate risk sharing on projects between public and private sector. A much more knotty issue for creditors is the fact that in water (unlikely electricity) production cannot be turned off given individual projects act as local monopolies.

## What can still be done?

### **Desalination**

As water becomes a scarcer resource in the country and embedded generation costs of electricity (rather than Eskom) become cheaper, desalination of sea water becomes an increasingly attractive prospect. There are already 10 desalination plants across the coastline of South Africa. The masterplan also makes provisions for research into desalination as a potential avenue to increase water supply in the future. Since the threat of day zero, the city of Cape Town has invested in a desalination plant that is expected to go online between 2024 and 2027. As with renewable energy, the government could explore incentivising independent private producers of desalinated water to help increase the supply of water.

### **Improvement of water wastage treatment**

The Water Research Commission has lamented the inefficient use, because of outdated technology, of municipal processed water. South Africa is one of the only countries that uses purified water for ablution purposes. New technology and expansion in regulation to would allow use of recycled water could enable more efficient use of the country's scarce potable water.

### **Attract Technical Skills**

Implementation of the water masterplan will require the sector to attract highly skilled professionals but much expertise has been lost to the country over the past 27 years. Skilled technical, financial and legal capacity is required to manage contracts effectively and to ensure that infrastructure meets or exceeds its expected useful life. The use of public-private partnerships is one way to attract these skills in the short term while crowding in private sector investment.

### **Citizens taking control of their municipalities.**

Last month the North West high court ruled in favour of private citizens who had invested their own funds into fixing their defunct water and sewage infrastructure. After the court had given the municipality ample chance to remedy their failing systems, the court allowed the community do privately fix the water infrastructure and claim money back from the municipality. This is not a sustainable solution, however, and government needs to attract the necessary skills to re-equip the public sector.



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## Appendix

Further selected details of the Water Master Plan (important recent and near term targets highlighted).

Plan number	Action	Responsibility	Completion
<b>1. Water &amp; Sanitation</b>			
<i>Reducing Water Demand and Increasing Supply</i>			
<i>Redistributing Water for Transformation</i>			
1.2.1	<b>Identify alternative sources of water and water that is not utilised (e.g. as mine are closing resulting from War on Leaks, etc) for transformation</b>	DWS, CMAs	2019
1.2.2	<b>Identify where more water can be made available in government water schemes for transformation</b>	DWS, CMAs, DAFF/PDAs, IUCMAS	2019
1.2.3	Implement the Water Administration System on all government irrigation schemes for transformation	DWS, DAFF/PDA	2024
1.2.4	<b>Implement pilot project on voluntary contributions from farmers for water reallocation in prioritised catchments</b>	DWS, DAFF	2020
1.2.5	<b>Identify areas where small dams or groundwater development can provide water for small scale black farmers</b>	DWS, CMAs	2019
1.2.6	Align water, land and agrarian reform programmes and link to the Irrigation Strategy	DWS, CMAs, DAFF, DRDLR	2030
1.2.7	<b>Use General Authorisation to enable small scale water use by black farmers</b>	DWS, DAFF	2019
1.2.8	<b>Investigate, revitalise, refurbish existing under-performing Black Owned schemes</b>	DAFF, DWS	2020
1.2.9	Define and implement process to allocate water(new/saved) to black applicants	DWS, DAFF	2030
<i>Managing Effective Water and Sanitation Services</i>			
1.3.10	<b>Align interventions with CoGTA on failing municipalities with existing support programmes</b>	CoGTA, MISA, DWS	2019
1.3.11	<b>Lifecycle planning (asset management) conditions to be set by DWS</b>	DWS	2020
1.4.1	Revitalise the Green, Blue and No Drop programmes and publish results. Revise and establish norms and standards	DWS, WSAs	Annually
1.4.2	<b>Include water use efficiency and conservation targets in the KPIs of municipal managers and municipal water supply and sanitation managers, and in municipal implementation plans</b>	CoGTA, Municipalities	2019
1.4.3	Establish Water Efficiency Labelling and Standards (WELS)Scheme	SABS, DWS	2025
1.4.4	<b>Identify (Blue Scorpions) and prosecute major non-compliant abstractors (water thieves) across the country, with a national communication campaign to accompany the action</b>	CMAs, NPA, SAPS, DEA, Regulator, DMR, DWS	2020
1.4.5	Replace all Existing Lawful Use (ELU) with licences with enforceable water use conditions	DWS, CMAs	2030
1.4.6	<b>Development and implementation of the MoU between the DWS and strategic users</b>	DWS, Chamber of Mines, Eskom, Industries	2020
1.4.7	<b>Develop and implement municipal bylaws to protect water quality</b>	DWS, WSAs	2020
1.4.8	<b>Identify and prosecute big polluters across the country (including municipalities), with a national communication campaign to accompany the action</b>	CMAs, NPA, SAPS, DEA, DMR, DWS	2020
<i>Improving Raw Water Quality</i>			
1.5.1	<b>Determine in-stream Resource water quality Objectives (RWQOs), based on the SA Water Quality Guidelines (SA36), in support of RQO's</b>	DWS, CMAs	2020

1.5.9	Ensure IWQM is supported by effective departmental arrangements (SA8 & SA9)	DWS	2020
1.5.11	Ensure fiscal support for IWQM (SA38 & SA39)	DWS, WSAs	2021
<b>2. Enabling Environment</b>			
<i>Creating Effective Water Sector Institutions</i>			
2.1.1	Establish a business case for streamlined institutional arrangements in the water and sanitation sector	DWS	2020
2.1.2	Establish a Municipal Intervention Unit for Water and Sanitation in DWS, staffed with highly competent experts to drive a national programme of intervention at the municipal level	DWS	2022
2.1.4	Establish the National Water Resources and Services Authority	DWS, NT	2020
2.1.5	Determine the optimal configuration of water boards to manage regional bulk water supply; assist municipalities to perform their primary water and sanitation services mandate where necessary manage regional water resources infrastructure, manage regional bulk WTWs and WWTWs	DWS, WBs	2020
2.1.6	Establish the National Water Resources and Services Regulator (NWRSR)	DWS, NT	2020
<i>Ensuring Financial Sustainability</i>			
2.4.1	Develop and implement institutional arrangements that recognise the diversity of circumstances across South Africa, the legacy of Apartheid and allow for regional cross subsidisation.	NT, DWS	2021
2.4.6	In all entities put in place mechanisms to deal with accumulated debts	WSAs, WBs, DWS, NT, AGSA	2020
2.4.7	Roll out of ring-fenced institutional models to increase private sector investment [The Infrastructure Agency]	DWS, NT, CoGTA	2021
2.4.8	National Treasury – linkage to Medium Term Sector Expenditure Framework (MTSEF)	NT, DWS	Ongoing
<i>Legislation</i>			
2.5.1	Gazette the National Water Amendment Bill, Water Services Amendment Bill and Water Research Amendment Bill	DWS, Portfolio Committee, Standing Committee	2019
2.5.2	Hold public consultation on National Water Amendment Bill, Water Services Amendment Bill and Water Research Amendment Bill	DWS, Portfolio Committee, Standing Committee	2020
2.5.3	Revise and promulgate the National Water Amendment Bill, Water Services Amendment Bill and the Water Research Amendment Act	DWS, Portfolio Committee, Standing Committee	2022
2.5.4	Review the Municipal Financial Management Act (MFMA) and the Municipal Systems Act (specifically chapter 8) to ensure that they provide an enabling environment for the provision of reliable water and sanitation services	NT, DWS, CoGTA, SALGA	2020
<i>Enhancing Research, Development, and Innovation</i>			
2.6.1	Implement and regularly review/revise Research, Development and Innovation Policies, Plans and Roadmaps across the sector	DWS, DST, WRC, CSIR	2021
2.6.2	Unlock investment, procurement and other localisation barriers to reposition the sector to implement new/niche solutions and approaches and roadmap the NMIU	DWS, NT, CoGTA, DST, NMIU	Ongoing
2.6.4	Strengthen partnerships with key water sector institutions to accelerate research and solutions into practice	DWS, WRC, DST, CoGTA, SALGA, the dti, DAFF	2020
2.6.5	Structure test bed partners with key water sector institutions in order to accelerate innovations to the market/public sector	WRC, DWS, DST, SALGA, Municipalities	Ongoing
2.6.6	Fund research into new models to better understand implementation approaches for water allocation reform, and equity issues	DWS, WRC, CSIR, DST	Ongoing
2.6.9	Tools for agriculture early warning systems need to be developed and tested at scale	WRC, CSIR, DWS, DAFF, ARC	Ongoing
2.6.11	Alternative Sanitation: Develop and demonstrate and validate appropriate alternative, water-less and off grid sanitation solutions (Current – 2025)	DWS, WRC, CSIR, DST, BMGF, the dti, Municipalities	Ongoing
2.6.12	Domestic and industrial Wastewater: Develop and Demonstrate appropriate wastewater technologies for cost effectiveness, energy efficiency and beneficiation.	DWS, TCTA, WRC, the dti, DST, TIA, MINTEK	Ongoing
2.6.13	Scan and sort the innovation sector for solutions that are ready for application and invest in their implementation	WRC, CSIR, DST, DWS	2021

## Consulted or recommended sources

- [https://www.gov.za/sites/default/files/PICC\\_Final.pdf](https://www.gov.za/sites/default/files/PICC_Final.pdf)
- <http://saice.org.za/wp-content/uploads/2017/09/SAICE-IRC-2017.pdf>
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