Integrated Water Quality Management
POLICIES AND STRATEGIES FOR SOUTH AFRICA

STRATEGY BROCHURE

WATER IS LIFE - SANITATION IS DIGNITY

water & sanitation
Department:
Water & Sanitation
REPUBLIC OF SOUTH AFRICA

2030 NDP

Purpose of this brochure

This brochure aims to introduce and provide an overview of the Integrated Water Quality Management Strategy (2017 IWQM Strategy) for South Africa. The IWQM Strategy gives effect to the Integrated Water Quality Management Policy and has been developed to support both current and future National Water Resource Strategies. This strategy not only builds upon previous water quality strategies, but also recognises the new WQM concepts that have been built into the IWQM policy. Importantly, the 2017 IWQM Policy has expanded the scope of water quality management and makes it clear that only by working together can Government, led by the Department of Water and Sanitation (DWS) and in partnership with the private sector and civil society, turn around the current deterioration of water quality for the benefit of the country's continued sustainable socio-economic development. This strategy works towards making the IWQM policy a reality and will be implemented by the DWS, in partnership with other government departments, the private sector and civil society over the next 15 to 20 years.

The complete document entitled Water Quality Management Policies and Strategies for South Africa. Report No. 3.2 Integrated Water Quality Management (2017 IWQM) Strategy – Edition 2 is available for download at www.dws.gov.za

The 2017 IWQM Policy is meant for every individual or institution or organization that plays a role in South Africa's socio-economic growth and development, that impacts or is impacted by water quality and has a stake in the country's future.

Goal of IWQM

To adopt a government-wide, adaptive and systems-based management approach, in alliance with the private sector and civil society that will

- *improve water resource quality in South Africa,*
- *prevent pollution and ecological degradation,*
- *support ecologically sustainable economic and social development, as well as*
- *inform the use of the nation's water resources.*

Vision for IWQM in South Africa

Government, in partnership with private sector and civil society, secures water that is fit-for-use, for all, forever!

How do water quality challenges affect South Africa's social & economic development?

The IWQM Policy makes it clear that South Africa is facing a large and complex water challenge, which, if not addressed effectively, has the potential to limit the economic growth potential of the country.

The deteriorating quality of water (in rivers, streams, dams, wetlands, estuaries and aquifers) :

Water pollution comes from a number of sources in a catchment, such as from mines, urban development or industries (direct source) and from run-off from land based activities (such as informal settlements, urban centres and agricultural land use). Water pollution affects both surface and ground water resources.

- **Reduces the amount of water available for productive use:** as water quality declines more water must be kept in our river systems to dilute polluted steams to acceptable standards.
- **Increases the costs of doing business:** when water quality declines, many businesses are forced to treat water before using it in their industrial processes. Even municipalities have to carry additional costs as the cost of municipal water treatment increases.
- **Impacts on the health of citizens:** with productivity falling as more work days are lost
- **Effects negatively on South Africa's economic sectors**: by impacting on crop yields and making crops vulnerable to import restrictions in key trading partner countries; it affects our built and ecological infrastructure, increasing the cost to supply water and affecting ecosystem services.
- **Impacts on rural livelihoods:** Much of South Africa's rural population rely on good quality water to ensure they have healthy crops and livestock, upon which they depend for their daily food and subsistence.

Some of the impacts of water quality deterioration are immediately visible, such as in the case of major fish kills, while others are more deceptive and long term. When added together, these challenges are having a significantly negative impact on socio-economic development in South Africa. Water quality is, therefore, clearly not just an environmental issue, but also an economic and developmental issue. due to water-related illnesses.

Why is IWQM so complex?

Water quality management **is a complex and confounding challenge** because of incomplete, competing, and changing requirements that are difficult to recognise. Often, there are a multitude of interacting factors, including incomplete information, political interference, institutional instability, and changes outside the control of managers.

There are many water and land uses that introduce contaminants into our water resources and each of these often have distinct requirements in terms of their treatment.

Unfortunately, it is an operational reality that the water quality management approach used to date in South Africa has not managed to adequately address the challenge. The water quality challenges reflected occur within already complex socio-economic and bio-physical systems and understanding the multiple potential impacts and changes in these systems provides a major challenge.

Water quality is changed and affected by both natural processes and human activities. Water quality management (WQM) involves the maintenance of the fitness for use of water resources on a sustained basis, by achieving a balance between socio-economic development and environmental protection.

Whereas water quality is managed in terms of volume or flow, water quality consists of well over 1000 chemical, biological, or physical parameters with new ones being discovered daily. Each of these largely require different tools, equipment and approaches for monitoring and their management.

WQM is complicated by poor co-ordination, poor understanding of the funding requirements and conflicting approaches between government departments and spheres of government. The complexity is increased by a large number of policies, strategies and management instruments across Government, with the fragmented nature of these creating a challenge for water quality management.

While the Department of Water and Sanitation is primarily responsible for protecting water quality in South Africa, there are other players that have important roles in this regard, namely:

National departments (and provincial, where applicable):

- Mineral Resources
- Agriculture
- Environmental Affairs
- Cooperative Governance
- Public Enterprises
- Health
- Trade and Industry
- Education (Basic and Higher)
- Rural Development and Land Reform
- Human Settlements
- Health
- Trade and Industry
- Education (Basic and Higher) National Treasury

Water management institutions (WMI) CMAs), Local Government, Private sector, Civil society, and Academia and Research institutions

How has the IWQM Policy been translated into a strategic response?

The IWQM Policy shows that there is a clear legal requirement, starting with both the Constitution of South Africa as well as compelling socio-political, economic and environmental arguments to be made for addressing the country's declining water resources. Whilst it is important to have a Policy that guides our thinking and intent with regards to IWQM, the rubber hits the road through the development and implementation of an IWQM Strategy.

To this end, the **IWQM Strategy is a national strategy** that reflects:

- The urgency to change the approach to WQM;
- The need to ensure that the trajectory of declining water resource quality is reversed, and
- The necessity to create the right capacity to strengthen our management of water resources whilst we progressively work towards a longer-term vision of practical and adaptive IWQM.

Noting that the IWQM Policy provides our long-term intent, the IWQM Strategy provides us with the **short, medium and long-term actions, and prioritises the actions and interventions** towards achieving the IWQM Policy.

To this end, the four policy pillars have been translated into five strategic goals.

Figure 1: Policy Pillars to Strategic Goals

What is our Strategic Response?

Five strategic goals will underpin our efforts to improve the management of water quality in South Africa. These will focus upon the need to strengthen our leadership and cooperative approaches, to improve our WQM practices and procedures, to ensure we have the financial resources to do what we need to do and to improve our information and knowledge base that enables us to take decisions.

Goal 1: Aligned Policy, Legislation and Strategy

In order to support the drive towards a more inclusive approach to IWQM, there is a need to find ways to improve the alignment between policy and legislative instruments, as well as in strategic approaches. This will take time and considerable effort, but will prove critical.

Goal 2: Good Governance

An inclusive approach will require that means are found to improve functional roles and responsibilities. This will require innovative approaches to the way approaches both within Government and externally with non-Governmental actors is structured.

Goal 3: Efficient and Effective WQM Practice

The need for more adaptive responses to WQM will require increasingly efficient and effective practices within catchments. This will mean critical review of these processes and practices at various levels within the WQM system.

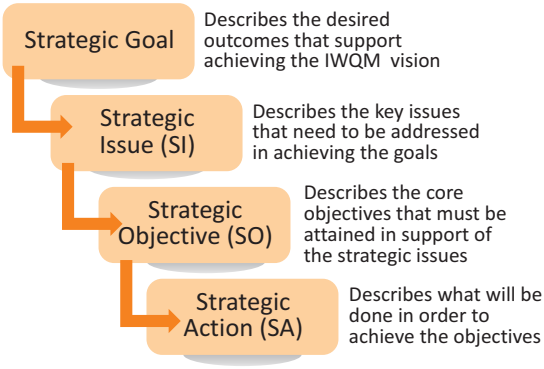
Goal 4: Innovative finance

To date there has been too much dependence upon funds from the national fiscus to support WQM. Noting that financial resources are limited, there will be a need to be more innovative in generating the funds required to support more effective IWQM.

Goal 5: Effective Knowledge and Information Management

Strengthening the knowledge base through active training and capacity building. A renewed and strengthened drive to improve than monitoring networks and to strengthen and consolidate information management systems is needed. The adaptive management approach is based upon the support of these networks and systems.

What will we do to achieve our strategic goals?



Strategic planning requires that we develop a broad coherent medium-term set of priorities, objectives, strategic actions (typically for five to ten years), that contribute towards achieving the vision under varying conditions and available capacity. To be implemented, the strategy must be translated into specific measurable strategic objectives and actions that are achievable with the available resources in a given time frame

When considering the key role of DWS, this does also imply and include the important role of water management institutions

Strategic Goal 1: Aligned Policy, Legislation and Strategy

Implementing effective IWQM requires a coherent cross-sectoral approach, which aims to increase and ensure the efficient use of limited resources (human, financial). We also need to make sure that IWQM is realized as a government-wide challenge and that as a collective, government needs to ensure water resource use is sustainable. The policies, legislation and strategies across sectors and departments need to support this intent.

Table 1: Strategic Action for Goal 1

STRATEGIC	OBJECTIVES
STRATEGIC ISSUE 1: Harmonization of Policies and Strategies to enable improved WQM	
SO1a: Policies and Strategies impacting upon IWQM are harmonized	**SA1:** DWS to ensure that policy and strategy development and refinement within DWS addresses WQM
	SA2: Sector departments to harmonise policies and strategies to support IWQM
	SA3: DWS to finalise and implement non-point source pollution strategy
STRATEGIC ISSUE 2: Legislative review and amendments to enable IWQM	
SO2a: IWQM is effectively supported by the National Water Act (NWA) and Water Services Act (WSA)	**SA4:** DWS to amend NWA and WSA to provide effective support to IWQM
	SA5: DWS to develop guidelines and protocols on the effective use of instruments
SO2b: IWQM is effectively supported by other legislation	**SA6:** National Treasury and DWS to promulgate a Money Bill for the Waste Discharge Levy

STRATEGIC	OBJECTIVES
	SA7: Government to identify and amend relevant legislation to strengthen IWQM

Strategic Goal 2: Good Governance

An inter-departmental approach which supports appropriate, clearly defined institutional arrangements, which includes resolving operational and functional challenges, clarifies structural and organisational issues, improves the internal systems and procedures for IWQM in relevant departments and organs of state, establishes effective inter-departmental co-ordinating structures and ensures that regulatory bodies are effectively mandated and resourced to perform their IWQM functions, is required.

Active engagement and partnerships with the private sector and civil society can substantially contribute to the management of water quality. Engaging these players brings greater knowledge to the table, and engages a wider range of individuals and organisations that can support actions by government in IWQM.

Table 2: Strategic Action for Goal 2

STRATEGIC	OBJECTIVES
STRATEGIC ISSUE 3: Improved WQM related governance	
SO3a: IWQM is supported by effective DWS departmental arrangements	**SA8:** DWS to reconfigure the departmental WQM function as needed to ensure efficiency and effectiveness **SA9:** DWS to identify a strategic water quality management champion that will drive and monitor the implementation of the IWQM Policy and Strategy
SO3b: Inter-sector departmental structures established to support IWQM	**SA10:** Establish inter-governmental WQM structures at trans-boundary basin, national and provincial levels to ensure coordination and joint action supported by regular reporting **SA11:** Government departments to develop sector WQM plans and report annually on progress
STRATEGIC ISSUE 4: Formalise governance frameworks to support non-governmental engagements	
SO4a: Partnerships/stewardships established and maintained	**SA12:** Government to develop a partnership framework that is fair and equitable **SA13:** Government to develop and foster strategic sector partnerships
SO4b: Governance framework for active citizenry formalized	**SA14:** DWS with DEA and CMAs to develop an engagement framework that enables more active participation of civil society at transboundary, national and catchment levels

STRATEGIC	OBJECTIVES
	SA15: DWS, DEA and CMAs to support and drive functional platforms for the engagement of civil society nationally and within catchments

Strategic Goal 3: Efficient and Effective WQM

There is a need to strengthen our abilities with regards to the day-to-day processes and procedures that underpin WQM. Pro-active and integrated planning to timeously address future water resource challenges is essential to maintaining water security. The development and roll-out of integrated plans that address the specific water quality issues in catchments will inform appropriate responses from a range of government, private sector and civil society actors.

Strengthening regulation and enforcement is just as important in ensuring that we protect water quality with the most effective use of limited state resources. This will entail strengthening the water use authorisation processes as well as improving the approach to compliance monitoring and enforcement.

While there is a need to develop a more rigorous and integrated command and control approach to the enforcement of authorisations, there is also a need to develop partnerships across sectors and between users to develop improved approaches that incentivise lawful and sustainable water use, self-regulation and citizen based approaches

Table 3: Strategic Action for Goal 3

STRATEGIC	OBJECTIVES
STRATEGIC ISSUE 5: Improved coordination in integrated planning	
SO5a: Integrated sectoral planning approach is adopted at transboundary and national level	**SA16:** DWS to lead the development of an IWQM plan for national priority catchments, ensuring consideration of transboundary water quality concerns
	SA17: DWS, with NT, SALGA and COGTA to develop a strategic action plan for the financing, rehabilitation and upgrade of prioritized WWTWs
	SA18: DWS, with DMR and DEA, to develop a strategic action plan for the implementation of the mine-water management policy
	SA19: DWS/DAFF/DMR/DEA/DRDLR/COGTA to develop strategic action plans to reduce non-point source pollution

STRATEGIC	OBJECTIVES
	SA20: DWS, DEA, SALGA and COGTA to develop a protocol for the management of industrial discharge within the municipal environment
SO5b: Integrated sectoral planning approach adopted in catchment/regional plans	**SA21:** CMAs to develop an IWQM plan for each water management area as part of the CMS **SA22:** DWS, DEA and DMR to integrate IWQM and water resource planning with Regional Mining Plans in priority areas **SA23:** DWS and COGTA to ensure that WSDPs, IDPs and SDFs reflect WQM priorities and management responses
STRATEGIC ISSUE 6: Strengthen IWQM Regulation, Compliance and Enforcement	
SO6a: Licencing processes streamlined	**SA24:** DWS to address the backlog of WUL applications urgently and to meet stipulated timeframes for new licence applications. **SA25:** DWS to categorise risk-based protocols for determining water use authorization **SA26:** DWS/CMAs to develop protocols for CMA engagement in IWUL applications and approval processes **SA27:** DWS, DEA DMR publish its own the licencing regulation and adhere to the regulations. Need to cooperatively manage things with DAFF **SA28:** DWS, DEA, DAFF and DMR to develop information management systems to support the integrated licensing approach
SO6b: Targeted/strengthened compliance monitoring and enforcement of key polluting sectors	**SA29:** DWS, DEA, COGTA, Department of Human Settlements, DRDLR to develop improved regulatory approaches to manage water quality pollution from land-based and in-stream activities **SA30:** DWS, DEA, CMAs to develop a targeted approach for the enforcement of regulation **SA31:** DWS, DEA to assess gaps in regulatory frameworks and instruments and develop revised approaches and instruments as necessary

STRATEGIC	OBJECTIVES
	SA32: DWS, DEA, CMAs to develop approaches to strengthen operational CME and the EMI network
STRATEGIC ISSUE 7: Application of Systems-based Adaptive Management Approaches	
SO7a: Adaptive systems-based management is applied at catchment level	**SA33:** CMAs to develop localised programmatic monitoring and reporting of actions and outcomes **SA34:** CMAs to lead process with other relevant government departments and agencies, and stakeholders, to review, identify and address priority water quality challenges at regular intervals **SA35:** DWS and CMAs to develop protocols for systems-based adaptive management for IWQM.

Strategic Goal 4: Innovative Financing

Improving our resource water quality to achieve sustainable, inclusive economic growth requires reliable, sufficient and sustained financing. Currently the government budget allocation is insufficient to address all water quality issues that require redress. Alternative sources of funding will need to support turnaround in the way that water quality is managed.

The development of a complete water quality management investment framework will be an important step in understanding the financial injections that are required; notably funding of WQM initiatives should not be limited to DWS, but must include other relevant government departments and public entities.

Appropriate pricing and economic incentives have been shown, globally, to result in behavioural change while also raising revenue for water management interventions. **Government is highly resource constrained, and innovative financing and incentive mechanisms can increase the financial resources available for integrated WQM** – directly contributing to the efforts and actions under Strategic Issue 8.

Table 4: Strategic Action for Goal 4

STRATEGIC	OBJECTIVES
STRATEGIC ISSUE 8: Fiscal support for integrated WQM	
SO8a: WQM interventions are financially supported by the fiscus	**SA37:** DWS/WRC to support research into the socio-economic-environmental and management costs of poor WQ **SA38:** Government to develop an investment framework including innovative mechanisms to mobilise funding for sustained support to IWQM **SA39:** DWS, with NT, COGTA, SALGA, to review municipal conditional grants **SA40:** DWS to develop and implement a protocol for extending the financial provisioning clause to all industries that are deemed "high-risk" polluters.
Strategic Issue 9: Develop Pricing and Incentive Mechanisms that Support IWQM	
SO9a: The Waste Discharge Charge System is implemented **SO9b:** Mechanisms for incentivising good practice developed	**SA41:** DWS, with CMAs, to implement the WDCS in priority catchments **SA42:** DWS, with CMAs, to develop an action plan to support the phased implementation of the WDCS across the country **SA43:** DWS/DEA/WRC to explore innovative financing mechanisms for incentivising good IWQM practice **SA44:** DWS and NT to determine financial incentives for water-reuse (AMD, other) **SA45:** Government to develop the legal and institutional mechanisms for introducing administrative penalties for environmental non-compliance including water pollution.

Strategic Goal 5: Effective Knowledge and Information Management

Good water quality monitoring enables effective water quality planning, regulation and communication.

Updating of the monitoring network and monitoring services enables effective water quality planning, improved enforcement and compliance of laws and regulation (Strategic Issue 6) and supports a systems-based adaptive management approach (Strategic Issue 7).

Improvement in our ability to monitor and manage water quality is not only about monitoring for water quality variables alone. Improvement in our monitoring of rainfall and hydrological flow id equally important to IWQM.

Strengthening the capacity of DWS and its sector partners towards improving and aligning internal structures and systems will support effective and efficient management of water quality. This requires the urgent development of a toolkit for the "business of WQM" which covers issues such as translating Resource Quality Objectives in to licence conditions and understanding how to adaptively manage water quality.

Holding national, provincial and local government departments to account for their roles in managing water quality is important. Establishing institutional structures to enable interaction and integration between levels of government, as well as the provision of support to develop a governmental reporting framework will be critical.

The building and maintaining of WQM capacity in DWS and its sector partners, including civil society, through education, training, research and communication is crucial in supporting the inclusive approach towards ensuring effective WQM.

Table 5: Strategic Action for Goal 5

STRATEGIC	OBJECTIVES
STRATEGIC ISSUE 10: Strengthen Monitoring and Information Management	
SO10a: An integrated and functioning water quality monitoring network	**SA46:** DWS/CMAs to strengthen national and catchment water quality monitoring networks through spatial expansion and identification of priority constituents for catchment-specific monitoring
	SA47: DWS to support the network expansion with an initiative to ensure that accessible accredited laboratories are available to ensure efficient and effective analyses

STRATEGIC	OBJECTIVES
STRATEGIC ISSUE 8: Fiscal support for integrated WQM	
SO10b: Information systems that are current and accessible to support adaptive WQM	**SA48:** DWS, with the WRC and CMAs, to lead the development of a programme to create and support citizen-based monitoring programmes **SA49:** Government to ensure the harmonisation of data and information systems pertaining to resource water quality **SA50:** Government to ensure the harmonisation of data and information systems pertaining to source water quality **SA51**: Government to develop systems to enable data and information access by stakeholders/ public
STRATEGIC ISSUE 11: Build water quality and WQM Capacity through Education, Training and Communication	
SO11a: Sustained capacity for Government /CMA/sector to effectively manage and support WQM through improved education and training	**SA53:** DWS/WRC to develop and implement a capacity building programme for officials in DWS, CMA and other sector departments in systems-based, adaptive IWQM **SA54:** DWS/CMAs to expand capacity-building initiatives to civil society and private sector **SA55:** DWS to develop regulations to ensure the professionalization of key water services functions **SA56:** DWS/private sector to provide bursaries/learnerships pertaining to WQM at tertiary institutions
SO11b: WQM decisions are underpinned by best practice, research and innovation	**SA57:** DWS, with the WRC, to investigate the options provided by recent innovative developments to improve water quality **SA58:** WRC to lead the sector in innovation, research and development for IWQM

STRATEGIC	OBJECTIVES
SO11c: A well informed and actively engaged South Africa	**SA59:** DWS to report annually on the state of water quality in the country **SA60:** DWS/WRC to develop online tools for easy access to water quality and WQM related information **SA61:** DWS/DEA/DAFF/DMR/CMAs to develop and maintain multi-sector stakeholder platforms for sharing information **SA62:** DWS, with other Departments and sector institutions, to lead and roll-out awareness creation campaigns

It is critical to focus our efforts to ensure that we make an impact in improving water resource quality, whilst creating the platform for future improvements in approach to IWQM.

Did you know?

The quality of water and the quality of life, in all its infinite forms, are critical parts of the overall, on-going health of this planet of ours.

- Peter Blake

How are we moving towards implementation?

The development of an IWQM Policy and Strategy is a response to the many water quality challenges that South Africa is facing. There are already concerns with regards to the significant issues of eutrophication, salinization, acid mine drainage and other wide spread water quality challenges. There are also a number of emerging water quality issues which we need to research, monitor and address with time. We, therefore, need an IWQM strategy that takes immediate action, but also has a longer term strategic intent to **progressively improve** and strengthen our ability to manage water quality.

It is not possible to address the many water quality challenges simultaneously; human and financial resources as well as information and systems constraints will inhibit this.

Therefore, the focus of this strategy is on delivering change for prioritised challenges. The development of an implementation plan, which will be renewed and improved through different phases, will support and guide the implementation of this strategy.

This will be supported by a **monitoring and evaluation framework** that will enable the DWS to monitor and report on progress. It is equally important that as we implement, as we learn, that we review how we work best to manage water quality. Over time, this will change how we organise ourselves, how we manage the various IWQM processes, how we share information and report on progress, and how we respond adaptively to shifting environmental and socio-economic contexts.

Notes

Notes

DEPARTMENT OF WATER AND SANITATION
185 Francis Baard Street, PRETORIA, 0001, South Africa

Tel: +21 12 336 7500 www.dws.gov.za

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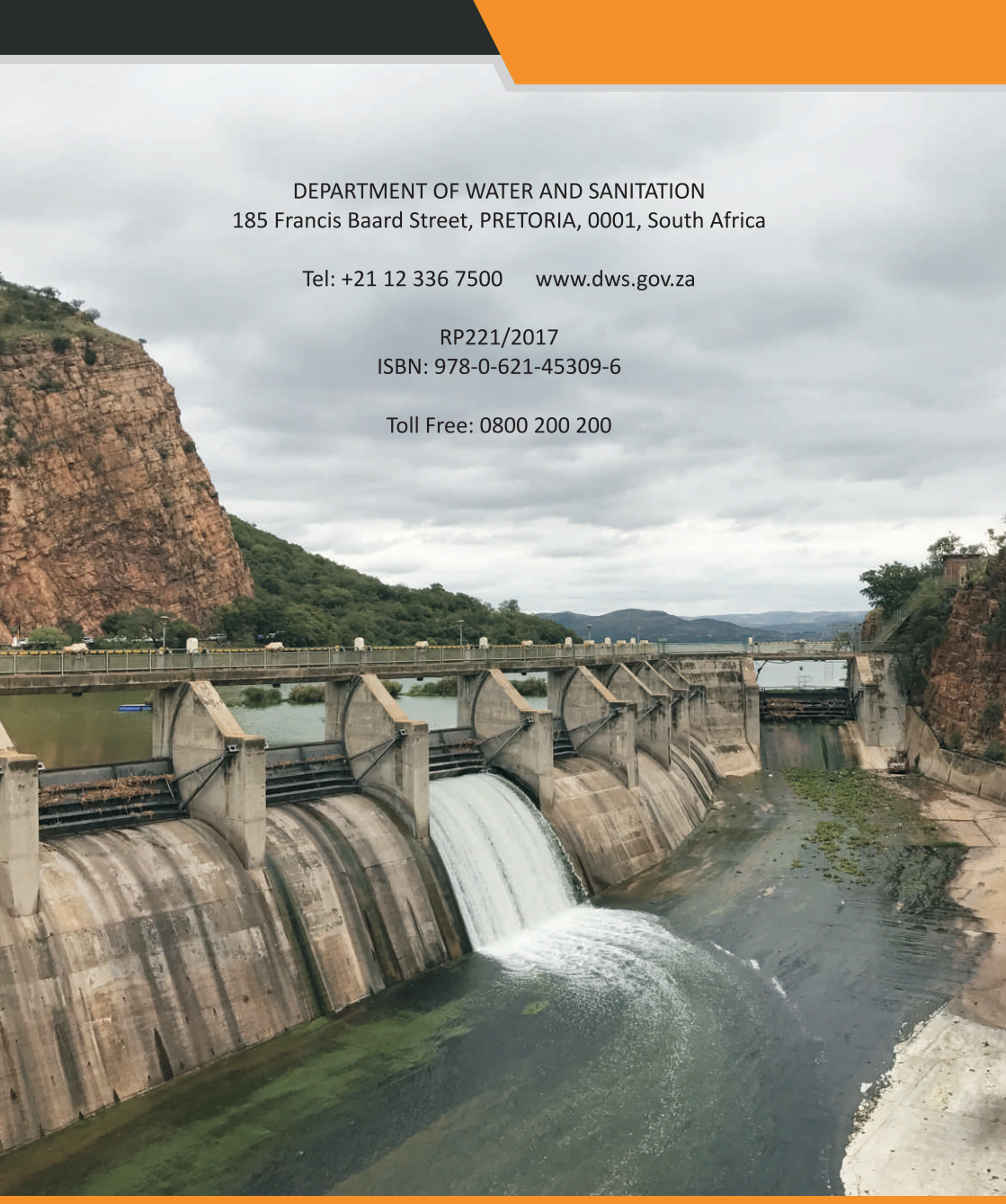

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