Water Research Commission

# STRATEGIC PLAN

**For the 2025/26 to 2029/30 Planning Cycle**

## EXECUTIVE AUTHORITY STATEMENT

Water is the basis of all life. It is a critical resource, indispensable not only for the maintenance of human life and health but also for the conservation of ecosystems and the socio-economic advancement of any country. South Africa is blessed with many natural riches, but water is not one of them. This means that the country must work carefully with the water that it has. Through sophisticated engineering and technological advances, South Africa has managed to expand access to water to nearly 90% of all households, while 84% have access to sanitation services.

Providing services to the remaining unserved communities while halting the deterioration of existing water and sanitation services is an important obligation for the South African government. The South African Constitution guarantees water rights. We therefore cannot let our people down by not fulfilling this commitment. Therefore, ensuring that water is available at the quantities and quality required to meet the needs of people, industry and the environment remains essential to our socio-economic progress.

These challenges are exacerbated by climate change, which essentially expresses itself through changes in the hydrological cycle. Climate change is expected to have a major impact in South Africa, with consequences for people, the economy, and the ecosystems. These consequences have been experienced in the form of extreme weather events, such as droughts and floods, which have impacted various parts of the country. To address these impacts, adaptation actions must be taken to manage or reduce potential harm. Planning for such adaptation measures requires expanding our knowledge about climate change impacts, and integration of adaptation and mitigation measures into long-term water resource management plans.

The Department of Water and Sanitation (DWS) has identified three key priorities in the short- to medium-term. Firstly, the department is investing in additional water resource infrastructure to capture the remaining exploitable water resources in South Africa. In this regard, several bulk water infrastructure projects, including the raising of existing dam walls and the building of new dams, such as Polihali Dam as part of the Lesotho Highlands Water Project, are well underway.

Secondly, the DWS is looking to diversify the water supply mix. At present, South Africa's water supply consists of 77% surface water. As water demand grows due to population and economic growth and development, alternative sources are required to meet the supply. More investment is therefore required in alternative water resources, including groundwater, desalination of seawater, utilising return flows from treated wastewater systems, and the reuse of poor-quality water such as industrial effluent and mine water.

Thirdly, the DWS is implementing more effective water conservation and demand management programmes to reduce water consumption levels among all water users. There are opportunities to increase water use efficiency in all water use sectors. Most of these sectors are expected to experience growth and use more water as the country develops. Given the complexity of the water agenda, it is clear that no single government department or organisation can tackle these issues alone. Addressing these challenges requires a combination of resources, investments, technical expertise, and innovations. Research, development and innovation (RDI) have a significant role to play in the improvement of the management of our water resources for the benefit of all our citizens.

South Africa is privileged to have a productive, albeit small, water science community, led by the Water Research Commission (WRC). We are inspired by the fact that the country has produced several new solutions, inventions and technologies that have the potential to not only solve South Africa's problems but may also have further applications globally. Scientific research is continuously adding to our knowledge and tools required to achieve a water-secure future. The Department will continue to work with the WRC towards innovative, sustainable solutions for the benefit of all South Africans.

**MS PEMMY MAJODINA MP**
**MINISTER OF WATER AND SANITATION**
**DATE** 05/02/2025

## ACCOUNTING AUTHORITY STATEMENT

The presence of an organisation such as the WRC is increasingly vital as South Africa faces the growing challenges of water scarcity and recognises the central role that water plays in the country's development. While South Africa is rich in many natural resources, as a semi-arid country, water is one of its most limited, and finite developmental resources, compelling the country to invest in resilient water infrastructure and technologies.

As the primary funder of water- and sanitation-related research in South Africa, the WRC has been at the forefront of water and sanitation RDI for more than five decades. The WRC fulfils its mandate by prioritising research based on the needs of the water sector and its stakeholders. Supported projects span the entire water cycle, addressing critical issues related to water availability, water quality and health, water use and water management. Through the RDI agenda, programmes and projects, the WRC aims to make a significant contribution to resolve water security and socio-economic challenges, whilst fostering an innovation-driven water and sanitation sector in South Africa. In 2024, the RDI programme introduced five thematic areas that will guide the creation of new knowledge, innovation and capacity building for the future. The WRC contributed towards an inclusive high-end water and sanitation sector skills pool training and development, increasing the RDI research capabilities by focusing on women and youth, and funding of students through RDI projects and other partnership initiatives. The WRC RDI has been reorganised to focus areas include water availability, water use, water quality and health, water advisory support and knowledge services.

As the gap between water supply and water demand continues widen, it is crucial to act before water demand exceeds supply in any of the water management areas. South Africa's inherent l water scarcity is exacerbated by climate change and water is the primary medium through which the impact of climate change will be felt. Already, the altered rainfall patterns, have resulted increased extreme weather events including more frequent and often prolonged floods and droughts. This impacts on water and food security, impacting the most vulnerable in society.

The WRC is funded by levies on water consumption, and the responsible management of these public funds remains a top priority for both the Board and the Executive team. The WRC also leverages co-funding through partnerships with the private sector and donor organisations to augment its research efforts and extend the impact of its RDI work. Over the next five years, the

WRC will continue to lead the charge from within the water science and technology community, the broader National System of Innovation (NSI) and build capacity for the sector toward a water-secure future for South Africa and its people. The WRC Board is committed to oversee the implementation of the strategy for the next strategy cycle.

Dr RB Melamu
Chairperson of the Board

# ACCOUNTING OFFICER STATEMENT

Achieving sustainable water security remains an elusive challenge for semi-arid South Africa and even more challenging with population growth, urbanisation, and the recent frequent and prolonged extreme weather events such as floods and droughts. The ecosystem requires enough water that is fit for purpose to ensure human health, sustain livelihoods, protect biodiversity and for economic growth. Thus, the management of the water resource holistically (surface water, groundwater, spring, etc.,) is a pre-requisite to ensure water security and that all needs are serviced effectively and efficiently from the available finite resource.

There is convergence across the globe that increasing water scarcity, deteriorating quality, and climate change impacts remain a critical risk (WEF, 2025) and South Africa is not immune to this. In response, the WRC has heightened its efforts to develop new scientific and technical knowledge and translate it into impactful solutions that can contribute to addressing the triple challenge of inequality, poverty, and unemployment and to improve the South African socio-economic development outlook. Thus, the WRC has arranged its technical core Research, Development and Innovation (RDI) programme into five key thematic areas namely; water availability, water use, water quality and health, water advisory support and knowledge services. This program's key focus outcomes include; contribution towards South Africa's attainment of the United Nations (UN) Sustainable Development Goals (SDG), the National Development Plan (NDP) and Vision 2030 Targets, and the government's 2025-2030 priorities.

Over the next five years, the WRC will focus on achieving four main outcomes through the implementation of its legislated mandate as follows:

- An informed society: through a stakeholder-centric strategy where the research agenda outcomes are responsive to the water sector and broader societal challenges.
- An innovative water sector: that embraces digitization, automation and new systems and technologies, that can prevent, predict and address water resource and water service provision challenges.
- A transformed water sector: where the human capacity and skills development interventions will ensure the production of graduates, researchers, citizen scientists and water stewards with a bias on women, youth and people living with disability for the benefit of the water sector.

- An agile organisation: where behavioural competencies are linked to the values of the organisation through training, development, and upskilling interventions.

As the leading funder of water research in South Africa, and funded through the water research levy, the WRC aims to effectively contribute to making an impact through the development of solutions that will improve the current state of water and sanitation in the country to a secure and resilient one. Over this 5-year planning cycle, the finance sub-program will continue to focus on prudent financial management practices and associated clean audit outcomes.

The WRC will continue to re-skill and upskill its employees to ensure that they can respond to the 4th Industrial Revolution (4IR), digitisation, and artificial intelligence in the workplace, as well as data management and analytics. Furthermore, the development of high-end water sector skills will be emphasised as part of the RDI outcomes by funding postgraduates, Post Doctoral fellows and exposing them internationally, and the training and development of young graduates through internship programs. The interaction with the broader community who are stakeholders will be implemented through a stakeholder-centric progressive and transformed Corporate Social Investment (CSI) program, that aims to develop a citizen science and water stewards' community.

The management of the WRC appreciates the effective participation of the Board, staff, and broader stakeholder community in developing this five-year Vision and Strategy aimed at making an impact on the sector and broader society.

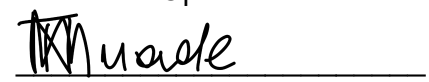
Dr JB Molwantwa
Chief Executive Officer

## OFFICIAL SIGN-OFF

It is hereby certified that this Strategic Plan:

- Was developed by management and the Board of the Water Research Commission under the guidance of Ms Pemmy Majodina MP, the Minister of Water and Sanitation.
- Consider all the relevant policies, legislation and other mandates for which the Water Research Commission is responsible
- Accurately reflects the impact, outcomes and outputs that the Water Research Commission will endeavour to achieve over the period 2025/26 to 2029/30

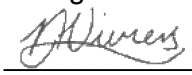
Ms T Muade
Executive: Operations



Ms T Muade
Acting Executive: Corporate Services

Dr S Liphadzi
Executive: Research, Development and Innovation

Dr V Naidoo
Acting Executive: Stakeholder and Communication



Ms N Viviers
Acting Chief Financial Officer

Dr JB Molwantwa
Chief Executive Officer

Dr RB Melamu
Chairperson of the board

***Approved by:***

Ms P Majodina MP
Minister of Water and Sanitation

## LIST OF ACRONYMS

| | |
|---|---|
| 4IR | Fourth Industrial Revolution |
| Agenda 2063 | African Union, Agenda 2063 |
| AI | Artificial intelligence |
| CBOs | Community-based organisations |
| DSTI | Department of Science, Technology and Innovation |
| DWS | Department of Water and Sanitation |
| ERRP | Economic Reconstruction and Recovery Plan |
| GDP | Gross domestic product |
| GERD | Gross domestic expenditure on research & development |
| HCD | Human capital development |
| HEIs | Higher education institutions |
| HLPW | High Level Panel on Water |
| ICT | Information and communication technology |
| IWRM | Integrated water resource management |
| MTSF:2024 | Medium-Term Strategic Framework: 2019–2024 |
| NDP | National Development Plan, 2030 |
| NRF | National Research Foundation |
| NSI | National System of Innovation |
| NWSMP | National Water and Sanitation Masterplan |
| NWA | National Water Act, 1998 (Act 36 of 1998) |
| NWRS3 | National Water Resource Strategy 3 |
| PC4IR | Presidential Commission on the Fourth Industrial Revolution |
| PFMA | Public Finance Management Act, 1998 (Act 1 of 1998) |
| POPIA | The Protection of Personal Information Act, 2013 (Act 4 of 2013) |
| RDI | Research, development, and innovation |
| SDG | Sustainable Development Goals |
| SMME | Small, medium and micro enterprise |
| Wader | Water Technologies Demonstration Programme |
| WMI | Water management institutions |
| WRA | Water Research Act |
| WRC | Water Research Commission |
| WRL | Water research levy |
| WSA | Water Services Act, 1997 (Act 108 of 1997) |
| WSDP | Water Services Development Plan |

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# PART A: OUR MANDATE

## 1 LEGISLATIVE AND POLICY MANDATES

### 1.1 Legislative mandate

The legislative environment, policies, and frameworks of Government, which, among others, provide developmental priorities for the country and the water sector, are a strategic impetus for the WRC. Key legislation and policy mandates relevant to the functioning and delivery of the WRC mandate are detailed below:

#### 1.1.1 The Constitution of the Republic of South Africa, Act 108 of 1996

The Constitution of the Republic of South Africa, 1996, as amended, encompasses the Bill of Rights which is a cornerstone of democracy and enshrines the rights of all people, including affirmation of democratic values of dignity, equality and freedom. The WRC, therefore, aligns with the following Constitutional imperatives:

- Everyone has the right to an environment that is not harmful to their health
- Everyone has the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation; and secure ecologically sustainable development and use of national resources while promoting justifiable economic and social development
- Everyone has the right to (access) sufficient food and water (Section 27(1b))

The Constitution further provides a foundation to affect the individual rights of academic freedom and freedom of scientific research which aligns with the WRC mandate.

#### 1.1.2 Water Research Act, 1971 (Act 34 of 1971) as amended

The Water Research Act, enables the WRC to coordinate and promote, as determined by the Minister or in broad outline, research in respect of:

a) The occurrence, preservation, conservation, utilisation, control, supply, distribution, purification, pollution, and reclamation of water supplies and water
b) The use of water for:

i. Agricultural purposes
ii. Industrial purposes
iii. Urban purposes

#### 1.1.2.1 Functions of the Water Research Commission

In executing its mandate, the functions of the commission shall be:

a) to cause, by itself or in collaboration with the Council for Scientific and Industrial Research established by section 2 of the Scientific Research Council Act, 1945, any State department, university or other institution, research to be undertaken in respect of matters relating to water;
b) to promote the research referred to in section 2(3), and in connection therewith to establish research programmes or to alter research programmes so established;
c) to make grants, with the approval of the Minister, and on such conditions as the Minister may approve (including conditions relating to rights regarding inventions and discoveries arising therefrom) from the fund to individuals, universities and other institutions for the benefit of such research, the development work for the application of the results of such research and the establishment of facilities for such research;
d) to receive and to examine progress reports on such research and the development work for the application of the results of such research;
e) to obtain information relating to such research and to development work for the application of the results of such research;
f) to accumulate, to assimilate and to disseminate knowledge in regard to the results of such research and the application thereof, and to promote development work for the purposes of such application;
g) to co-operate with institutions undertaking such research in other countries, with a view to the accumulation or dissemination of knowledge of such research and the results thereof;
h) to advise the Minister in respect of the levying of rates or charges under section 11;
i) to take such other measures as the commission may consider conducive to the attainment of its objects.

### 1.1.3 National Water Act, 1998 (Act 36 of 1998) as amended

The objective of the National Water Act (Act 36 of 1998) (NWA) is to ensure that South Africa's water resources are protected, used, developed, conserved, managed, and controlled sustainably and equitably for the benefit of all persons. The NWA also provides for the pricing strategy for water use charges, the primary mechanism for the calculation of a charge, payable by some or all raw water users, that is set for research purposes. The role of the WRC is to align its funding priorities with those key national water challenges articulated in the NWA and to help solve water-related problems that are critical to South Africa's sustainable development and economic growth.

### 1.1.4 Water Services Act, 1997 (Act 108 of 1997)

The Water Services Act (Act 108 of 1997) (WSA) provides for the right of access to basic water supply and basic sanitation by setting national standards and norms. Section 156, read in conjunction with Part B of Schedule 4 of the Constitution of the Republic of South Africa, vests in the Executive Authority the responsibility to support and strengthen the capacity of municipalities to manage their affairs, exercise their powers, and perform their functions. Applicability of the WSA to the WRC rests in the WRC's duty to respond through research and development to water supply and sanitation needs with research and development that helps to address those needs.

### 1.1.5 Public Finance Management Act, 1999 (Act 1 of 1999)

The Public Finance Management Act (Act 1 of 1999) (PFMA) regulates financial management in the national government and provincial governments to ensure that all revenue, expenditure, assets, and liabilities of those governments are managed efficiently and effectively; to provide for the responsibilities of persons entrusted with financial management in those governments; and to provide for matters connected therewith. The WRC is listed in Schedule 3: Part A as a National Public Entity and the provisions of the PFMA and its Treasury Regulations apply to its operations.

### 1.1.6 Protection of Personal Information Act, 2013 (Act 4 of 2013)

The Protection of Personal Information Act (POPIA) has been promulgated to regulate, in harmony with international standards, the processing of personal information by anyone who keeps any type of records relating to the personal information of others, public and private bodies in a manner that protects the right to privacy, subject to justifiable limitations that are aimed at protecting other rights and important interests.

The processing of information includes collecting, receiving, recording, organising, retrieving, or using such information; or disseminating, distributing, or making such personal information available. POPIA also relates to records which are already in one's possession.

## 1.2 Policies and other mandates

### 1.2.1 National Water Resource Strategy 3

The scope and purpose of the third instalment of the National Water Resource Strategy (NWRS-3) provides a vision for the protection and management of water resources to enable equitable and sustainable access to water and sanitation services in support of socio-economic growth and development for the well-being of current and future generations. NWRS-3 aims to enable the achievement of this vision through the following overarching goals:

- Water and sanitation supporting development and elimination of poverty and inequality
- Water and sanitation contribution to the economy and job creation
- Water that must be protected, used, developed, conserved managed, and controlled sustainably and equitably.

NWRS-3 considers research and innovation in the water sector as crucial elements in the achievement of both national and international imperatives of water conservation and demand management, water security, and the public health benefits of sanitation. The key focus area will be on the development of tools for skills development and the capacity required to address the current and future needs of the water and sanitation sector. The participation of all stakeholders, including the private sector, will be encouraged to increase the relevance and strengthen the implementation of products and knowledge from research and innovation.

### 1.2.2 National Development Plan, 2030

The National Development Plan, 2030 (NDP) provides an overarching policy framework for a trajectory to deal with the triple challenges of inequality, unemployment, and poverty. The NDP further supports a new societal deal of increased cooperation between government, business, labour, and other social partners for economic growth and development. The NDP further emphasises investment and development of bulk water, including water resource management infrastructure for water conservation and demand management, integrated catchment management and resource protection, and human capital development, such that there is water security for development.

### 1.2.3 African Union Agenda 2063

Agenda 2063 of the African Union provides a shared strategic framework for inclusive and sustainable development and a global strategy to optimise the use of resources for the benefit of all Africans. It serves as a concrete manifestation of the pan-African drive for unity, self-determination, freedom, progress, and collective prosperity. South Africa has prioritised its contribution to the development of the continent and in this regard the African Union Agenda 2063 is key. It provides the strategic framework for the socio-economic transformation of the continent and builds on the initiatives for growth and sustainable development. A prosperous Africa based on inclusive growth and sustainable development is one of Agenda 2063's aspirations and is significant to the WRC as it emphasises Africa's unique natural endowments, health and protection of its environment and ecosystems, and climate-resilient economies and communities.

### 1.2.4 United Nations Sustainable Development Goals

The Sustainable Development Goals (SDGs) are designed to be a blueprint for the achievement of a sustainable future across the world. The SDGs seek to address key systematic barriers to sustainable development, such as inequality, unsustainable consumption patterns, weak institutional capacity and environmental degradation. The SDGs further seek to improve water quality through pollution reduction, and to ensure sustainable withdrawals and the supply of freshwater to address water scarcity. The United Nations further convened a High Level Panel on Water (HLPW) which made recommendations on how to accelerate progress in achievement of availability and sustainable management of water and sanitation for all, as well as achievement of multiple other SDGs. High-level recommendations by the HLPW included, among others: understanding, valuing and managing water so as to provide a foundation for broader integrated water management; an integrated approach at local, country and regional levels, including building partnerships and international collaboration at the global level.

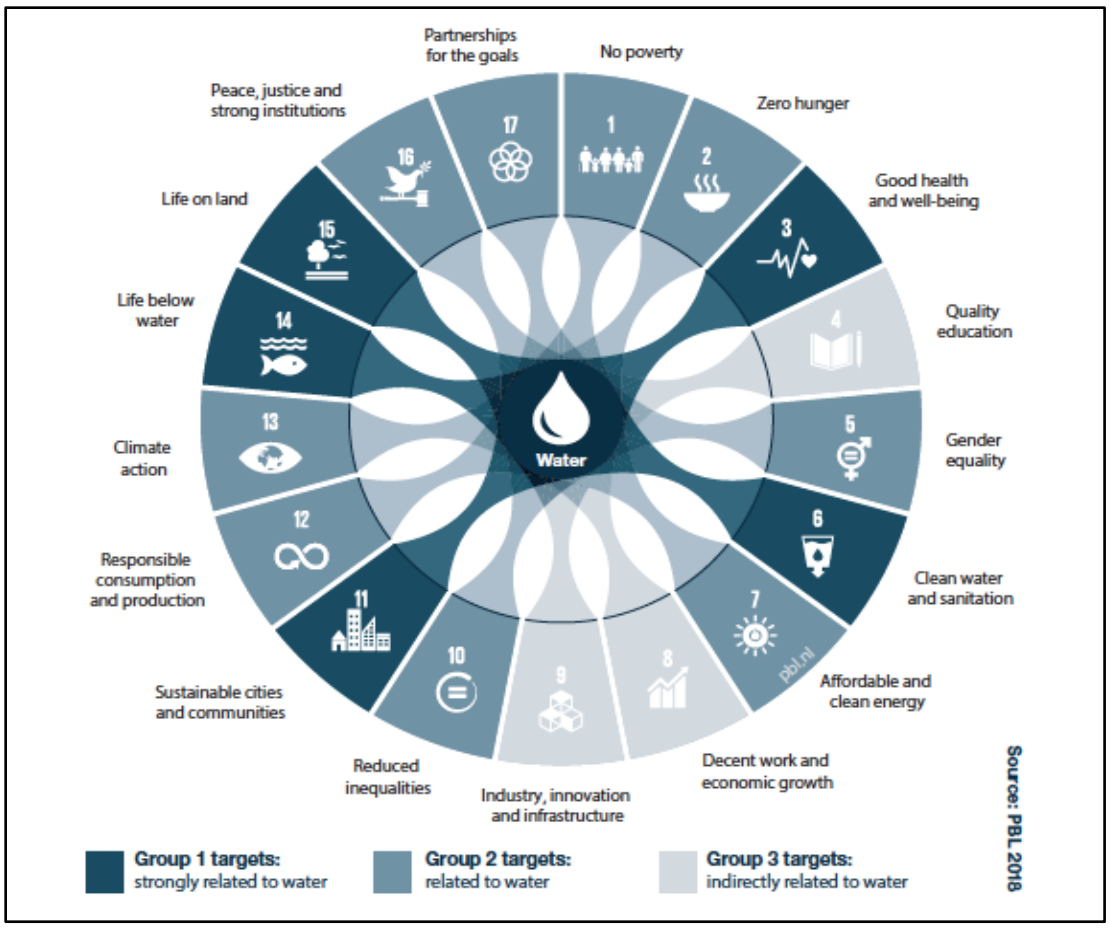



**Figure 1: How water links to the SDGs**

### 1.2.5 Presidential Commission on the Fourth Industrial Revolution

The Presidential Commission on the Fourth Industrial Revolution (PC4IR) outlined a vision for the development of South Africa to achieve prosperity, wealth creation, and inclusiveness, in being connected, digitally advanced, and technologically 'smart'. Furthermore, the development of 4IR systems can help to reach several goals articulated in South Africa: Vision 2030, specifically those that relate to:

- Economy and unemployment
- Economic infrastructure
- Improving education, training, and innovation
- Environmental sustainability and resilience
- South Africa's role in the region and the world
- Transforming human settlements

The PC4IR further identifies that South Africa's National System of Innovation (NSI) needs research and ideas on how it can be more effective, which is an element that the WRC will adequately respond to.

### 1.2.6 Economic Reconstruction and Recovery Plan

The Economic Reconstruction and Recovery Plan (ERRP), published by the National Treasury during the COVID-19 pandemic, aims to stimulate equitable and inclusive growth. One of the nine priority interventions the ERRP has identified is 'green economy interventions', which can be linked to the water sector as they guarantee the security of water supply, and effective wastewater management, among others. The ERRP indicates that, as part of South Africa's green agenda, private and public buildings will be retrofitted with measures to improve water efficiency.

### 1.2.7 White Paper on Science, Technology and Innovation, 2019

The National System of Innovation (NSI) concept was introduced into the formal public discourse through the 1996 White Paper on Science and Technology. The NSI is conceptualised as a means by which a country seeks to create, acquire, diffuse, and put new knowledge into practice so that the country and its people achieve their individual and collective goals. The 2019 White Paper on Science, Technology, and Innovation advocates for a coherent, inclusive NSI. The NSI concept is thus retained as an organising framework for the institutional landscape, wherein interactions and partnerships are encouraged among businesses, research institutions, higher education institutions (HEIs), and civil society. Coherence in key policy areas is encouraged and should be strengthened through shared values, information, and competencies. Further, the White Paper reflects the expansion of the scientific knowledge base, the strengthening of institutions, and the expansion and upgrading of the policy position, including monitoring and evaluation of the NSI.

## 1.3 Institutional Policies and Strategies

### 1.3.1 National Water and Sanitation Master Plan (NWSMP)

The National Water and Sanitation Masterplan (NWSMP) intends to coalesce water users and all the water management institutions (WMI) to resolve issues on water and sanitation service delivery. This is a novel plan that guides the South African water sector, led by the DWS, and is implemented at the local government level and with other sector partners. The plan is directed

towards the implementation of tangible actions that have an impact on the management of South Africa's water resources and the supply and use of water and sanitation in the country.

The plan proposes three pillars for RDI: research activities, skills, and deployment of innovation. The 'research activities' pillar aims to address ongoing research gaps, deepen insights and outputs in areas where South Africa has a unique global contribution to make, and continue growing capabilities in areas that are key to South African water security. The pillar on 'skills' focuses on high-end skills to ensure that there are suitably qualified individuals to drive the system of water for innovation and to obtain an understanding of how universities are preparing their graduates for careers in the water sector. It further focuses on postgraduate, post-doctoral, and research skills in alignment with international trends. The third pillar focuses on the deployment of innovation into practice in several ways: firstly, to package research outputs in a way that supports decision-making or policy-making, with demonstration and validation of a range of technology and decision support tools.

### 1.4 Alignment with Government and sector priorities

The WRC strategy seeks to align its outcomes and long-term impact (Table 3) with the priorities of the Medium-Term Development Plan: 2024-2029 (MTDP:2029).

The MTDP: 2029 priorities are as follows:

- Priority 1: Drive inclusive growth and job creation
- Priority 2: Reduce poverty and tackle the high cost of living
- Priority 3: Build a capable and ethical and developmental state

**Table 1: Alignment of WRC outcomes to the SDGs, MTDP and sector priorities, and outcomes**

| GOVERNMENT PRIORITIES | DWS/SECTOR PRIORITIES | WRC PRIORITIES |
|---|---|---|
| **Drive inclusive growth and job creation:**<br>1. Save existing jobs and industries<br>2. Industrialisation and localisation<br>3. Regulatory reforms, competition and SMMEs<br>4. Infrastructure investment<br>5. Ensure economic policy coherence and integration<br>6. Promote trade, tourism and investment<br>7. Ensure a just transition to a low-carbon economy<br>8. Promote spatial transformation and cities as engines of growth | Ensure timeous investment in additional water resources infrastructure to capture the remaining 25% of exploitable surface water resources. | An innovative water sector |
| | | A transformed water sector |
| | Diversify the water mix and make use of other sources of water (groundwater, re-use, desalination) | An agile organisation |

| GOVERNMENT PRIORITIES | DWS/SECTOR PRIORITIES | WRC PRIORITIES |
|---|---|---|
| 9. Rural development, land reform and agriculture<br>10. Promote science, technology and innovation for growth<br>11. Promote economic transformation | Implement more effective water conservation & demand management programmes to bring the water consumption per capita levels in line with or below the international average | |
| **Reduce poverty and tackle the high cost of living:**<br>1. Reduced poverty and improved livelihoods<br>2. Leverage of social security for local economic development<br>3. Early childhood development<br>4. Enhancing the quality of basic education and technology<br>5. Improve post-school education and training<br>6. Non-communicable diseases<br>7. Strengthen the national health system<br>8. Progressive implementation of the NHI | Implement more effective water conservation & demand management programmes to bring the water consumption per capita levels in line with or below the international average | An informed society<br><br>A transformed water sector |
| **Build a capable and ethical developmental state:**<br>1. Improve coordination, priority setting and implementation<br>2. Strengthen local government<br>3. Professionalisation of the public sector to improve delivery/ efficiency<br>4. Continue work to reform SOEs and public entities<br>5. Promote safer for communities<br>6. Address various forms of organised crime<br>7. Improve prosecutions against crime & corruption & improve coherence of CJS<br>8. Ensure effective border management | | An informed society<br><br>An agile organisation<br><br>A financially sustainable organisation |

### 1.5 Relevant court rulings

There are no relevant court rulings that may have an impact on the implementation of strategy over the five-year planning period.

## PART B: OUR STRATEGIC FOCUS

Water is a strategic resource, critical for basic human needs, and a driver for powering key economic sectors for the socio-economic benefit of South Africans. Thus, the sustainable management of this scarce and finite resource underpins the well-being and prosperity of South Africa and its people. For the water science community, the mandate is to coordinate and promote research, development, and innovation (RDI) and translate it into real solutions to address poverty, inequality, and unemployment, while applying knowledge solutions to advance opportunities to enable economic growth, improve competitiveness, and ensure prosperity.

### 1 VISION

To be the premier water Research Development and Innovation knowledge hub in South Africa and globally.

### 2 MISSION

Coordinate and promote water research development and innovation to enhance evidence-based decision-making for improved socio-economic conditions and technological developments to:

- Inform policy and decision-making;
- Create new products, innovations and services for socio-economic development;
- Develop human capital in the water and sanitation science sector;
- Empower communities and reduces poverty; and
- Support the national transformation and redress project.

### 3 VALUES

- Stakeholder centric
- Integrity
- Professionalism
- Innovation and creativity
- Learning and sharing
- Agility

# 4 SITUATIONAL ANALYSIS

The WRC's performance environment is created on the premise that the crux of the water and sanitation challenge in South Africa is a capacity and capability challenge that requires evidence-based and scientific decision-making. The three dimensions of this challenge addressed by the WRC are new knowledge, human capital, and technological solutions, through funding and facilitation of water RDI; knowledge generation and dissemination; and the translation of research and innovation products to advance national water security. The recipients of this knowledge may be HEIs, science councils, the private sector, and the various tiers of government.

There is convergence across the globe that increasing water scarcity on the back of decreased availability, deteriorating quality, and impacts of climate change is a crowning global crisis. South Africa is not immune to this. As a response, the WRC has heightened its efforts to not only grow scientific and technological knowledge but to translate this repository of knowledge into tangible, accessible, and cost-effective products that provide options for use on the ground. While the Commission's increased efficiencies, innovation, and partnerships will continue to maintain knowledge production levels, it is becoming increasingly difficult to meet two very basic challenges in the South African water value chain: The first is the ability to address the increasingly complex nature of problems such as non-revenue water, water quality and quantity, food security and the burden of disease, which are inter-linked and water-related. The second is the WRC's ability to both transform the South African RDI community through the development of researchers from the designated groups and to create further avenues for job creation and entrepreneurship development, which are all restricted by the limited availability of funds. At the same time, technological innovation, improvements in communication, increased collaboration and international partnerships have enhanced the ability of the South African water RDI community to contribute to global knowledge and communities of practice.

With the aforesaid, pursuit and success in the execution of the strategy of the WRC can be achieved when the required strategic resources and capabilities have been built and deployed. The WRC is thus considered to be a system, with an array of parts with their own distinct functions that can be affected by internal and external environmental factors. The external and internal environmental factors are discussed below.

### 4.1 External environment

The outcome of an external environmental analysis provides the identification of strategic capabilities that may affect the delivery of the WRC's mandate. These are derived from global influences whose impacts on industry drivers are immense and disruptive to current business models. The water sector, including the WRC, is no exception. The external environmental analysis was organised across the following key dimensions:

#### 4.1.1 Climate change

Climate change is one of the most powerful global forces inspiring a new business narrative as it may destabilise markets and curb economic growth. Weather patterns are increasingly becoming less favourable, and the frequency and severity of extreme events are increasing as temperatures are projected to continue rising and rainfall patterns are expected to shift. The incidence of climate-related water- and vector-borne diseases is expected to rise across all regions, and there will be a higher frequency of substantial damages, and increasingly irreversible losses, in freshwater ecosystems.

It is expected that Southern and North Africa will be severely impacted as it is estimated that their 'share of decade spent in drought' will average 80% by the year 2050 (UN World Development Report, 2024). Potential impacts of climate change on the South African economy are projected in Table 1, which shows that if South Africa adopts the agreement as per the Paris Accord and temperature increases are kept at or below 1°C, the potential GDP losses could be minimised. If there are no countervailing actions to reduce emissions, temperatures could increase by 4°C by the year 2100 resulting in increased potential GDP losses of 3.4%.

**Table 1: Potential South African GDP losses due to climate change by 2100**

| Increase in temperature | 1°C | 2°C | 3°C | 4°C |
|---|---|---|---|---|
| Impact on South African GDP | −0.74% | −1.57% | −2.46% | −3.43% |

Source: Kompas, Ha & Che, 2018

#### 4.1.2 Digital transformation

It is estimated that 80% and 50% of utilities in the developed and developing worlds, respectively, are expected to undergo digital transformation by 2025, meaning that fast advances in affordable sensors, high-resolution remote sensing, communication technologies, and social media are contributing to the proliferation of big data in the water sector and are likely transforming traditional

decision-making strategies. Big data analytics and AI are set to bring new opportunities and challenges into the water sector that may have policy and labour outcomes.

Progress in these revolutions in the water sector, intertwined with AI and big data, can be a catalyst for socio-economic changes that will cross sector boundaries (for instance, water and health sectors), as the emergence of new needs and business models will influence research in the water sector, with new forms of research based on large amounts of data being possible.

While technology will not be a panacea to address the current water-related challenges, technological advances are changing the resources equation in several ways; for instance, advances in analytics, robotics, and other elements such as materials science are already reducing resource consumption. The Fourth Industrial Revolution in the water sector will thus lead to an acceleration of a water resources innovation cycle.

### 4.1.3 State of the South African water research enterprise

The South African research enterprise has seen some growth in the past two decades as there has been a substantial amount of research collaboration in various fields culminating in an increased production of academic articles. In addition, there has been an improvement in the quality of articles produced and the frequency of their citation. However, there are still weaknesses in the system that require attention, particularly that investments in research and development in South Africa have not increased substantially compared to the rest of the world, meaning that strategic research areas such as water, energy, and food security remain underfunded.

The minimum funding requirements to achieve all the aspects of water research in the three main crucibles, i.e., access to water and sanitation, water and sanitation services, and preservation of ecological water resources, suggest a wide range of priorities indicative of the need for more resources. However, the South African Gross Domestic Expenditure on Research and Development (GERD) averaged 0.6%, compared to the global average of 2.6%. The DWS, through the WRC and the National Research Foundation (NRF), are the biggest funders of water research in South Africa. Across all science, technology, and innovation sectors, South Africa is struggling to break through the 1% benchmark. There is therefore a need to explore other funding sources for water research and development, with the private sector being the most obvious partner. Countries that have business funding a major component of research have recorded huge economic growth compared to those where funding is mostly from the government.

The institutional landscape in water research is composed of a number of research groups located within the HEIs. The institutional landscapes governing water research is sub-critical in comparison to the socio-economic importance of water in South Africa, with the additional challenge being that of data management, to the effect that datasets are incompatible and maintained in different databases.

The National Water and Sanitation Masterplan points to a need for recruitment of human resources at technical and managerial levels. The number of Masters and Doctoral graduates in the field is quite low, which is a concern. The water sector will not perform at its optimum if the current proficiency levels are not enhanced to the required levels across the entire value chain. Human capital development (HCD) is therefore required to increase the amount of locally produced expertise throughout the researcher pipeline.

### 4.1.4 State of South African water resources and services

Enormous pressure is mounting in terms of the demand for freshwater resources, due to increased demand for water and the prevalence of drought in Southern Africa. In South Africa's water sector and, more specifically, its water services sector, there are current dire and complex challenges linked to drought and associated management of water, as well as the critically concerning nature of the country's service delivery crisis. This has put pressure on wastewater treatment infrastructure and sanitation systems as key contributors to pollution in the water value chain.

The roots of this crisis have been linked to multiple issues that have led to the failure of local authorities to deliver water and sanitation services with commonly cited key issues being:

- ✓ Insufficient infrastructure capacity, coupled with poor maintenance of infrastructure
- ✓ A shortage of technical skills and overall human capacity shortages

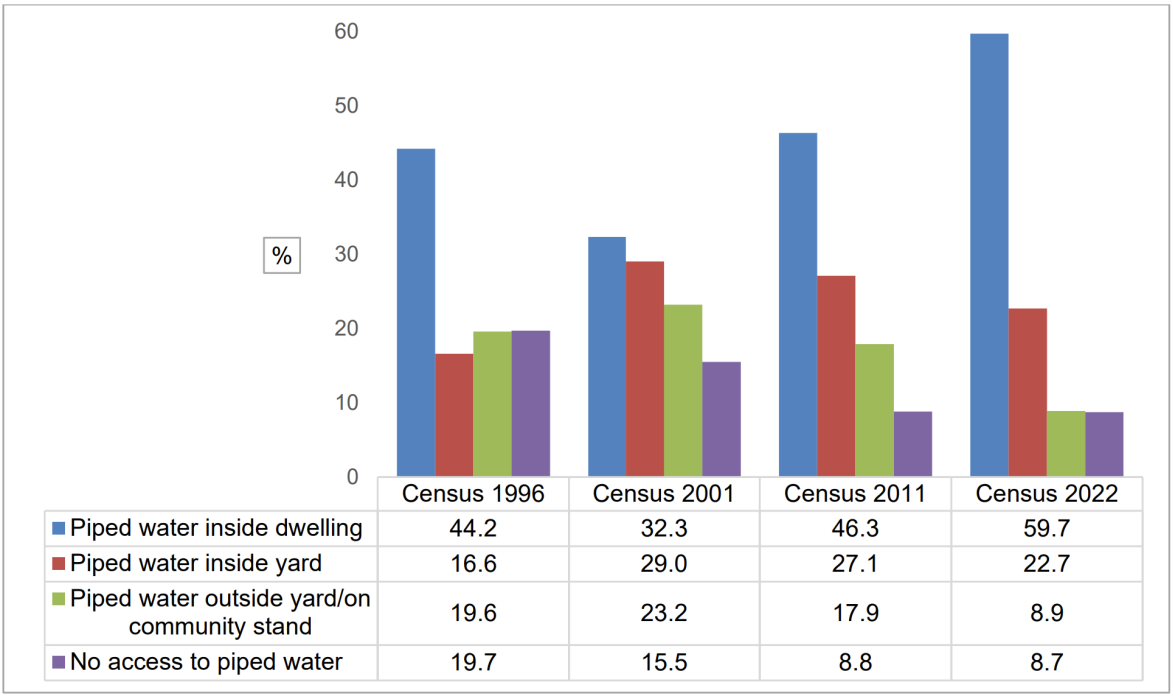
While there has been a proliferation of technocratic tools to assist with the planning and management of the water services sector, including spatial development frameworks, water services development plans (WSDPs), water safety plans, wastewater risk abatement plans, and others, there has been little success in effecting any significant improvements in the sector. Thus, the institutional landscapes governing water research remain sub-critical compared to the socio-economic importance of water in South Africa, with the additional challenge being data management, to the effect that datasets are incompatible and maintained in different databases.

Human capital development (HCD) is therefore required to increase the amount of locally produced expertise throughout the researcher pipeline.

South Africa is generally well-endowed with water resources infrastructure and is highly dependent on it to maintain reliable water supplies. Most of South Africa's rivers have been dammed with a storage capacity exceeding 100 million $m^3$ and approximately 20% provisioned for the ecological reserve. The biggest challenge affecting water resources is increasing pollution, mainly from industrial and domestic effluents, which is impacting the biotic diversity of freshwater ecosystems.

Notwithstanding the above, South Africa has made progress since the advent of democracy in providing water and sanitation services which has contributed toward the SDG targets, with some of the key achievements as follows:

- 82.4% of households have access to piped water inside the yard and 17.9% to piped water outside the yard




| | Census 1996 | Census 2001 | Census 2011 | Census 2022 |
|---|---|---|---|---|
| Piped water inside dwelling | 44.2 | 32.3 | 46.3 | 59.7 |
| Piped water inside yard | 16.6 | 29.0 | 27.1 | 22.7 |
| Piped water outside yard/on community stand | 19.6 | 23.2 | 17.9 | 8.9 |
| No access to piped water | 19.7 | 15.5 | 8.8 | 8.7 |

**Figure 2 Percentage distribution of households by access to piped water, Census 1996–2022**

### 4.1.5 The South African economic environment

Inflation has recently been at its highest in the past decade in most economies, with some developed economies announcing packages to countervail the rising inflation. While high inflation has put upward pressure on prices, mainly food and energy, the South African economy strengthened by 0.4% in the second quarter of 2024. The finance, manufacturing, trade, and electricity, gas, and water supply industries drove most of the economy's momentum on the production (supply) side. With the strengthening of the Rand, the Reserve Bank cut interest rates by 25 basis points in the third quarter as it continued to see a dip in headline inflation in the near term. This interest rate reduction is the first in more than four years, leaving the benchmark repo rate at 8%.

Most of the research and innovation projects in South Africa are funded through appropriations from the National Government. In the Auditor-General's report for water boards 2020/21 a slight financial health improvement was realised. However, concerns were raised about the time it takes for the water boards to collect monies owed to them and to pay their creditors. Furthermore, the WRC acknowledges the increased risk to financial sustainability, considering that the major source of the water research revenue comes from bulk water sales by water boards

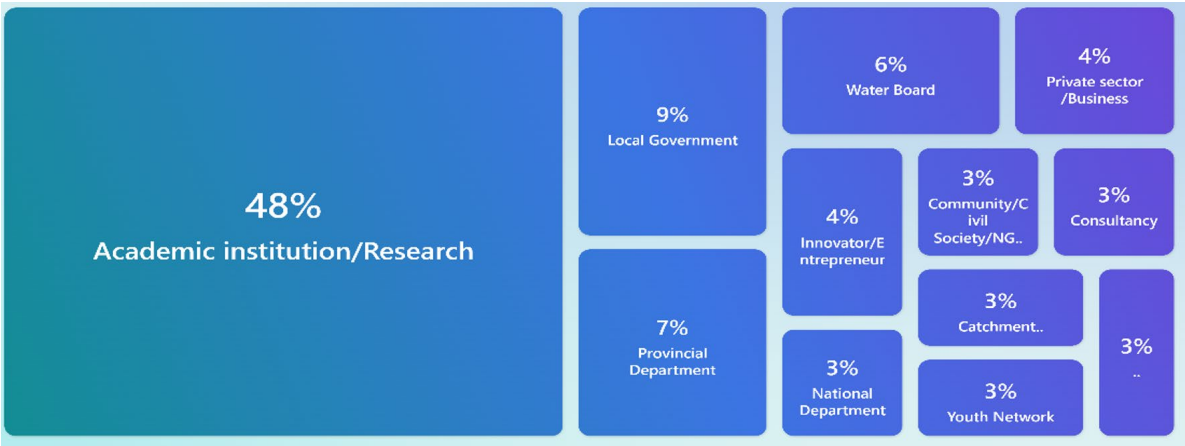
### 4.1.6 Stakeholder analysis and mapping

Through its stakeholder management strategy, the WRC seeks to build an organisation where stakeholders, both internal and external, upstream and downstream, together with shareholders, will experience an effective and efficient WRC. Effective stakeholder management will not only position and open new business opportunities for the WRC but will also contribute to building a capable water sector, trust, long-term relations and value-adding strategic partnerships. The success of stakeholder engagements is however dependent on the institutional culture, flexibility, behaviour, and structures embedding stakeholder engagement in all layers of the WRC hierarchy.


**Figure 3: WRC Stakeholder Ecosystem**

### 4.1.7 WRC Annual Stakeholder Engagement Survey

The results of the WRC Annual Stakeholder Engagement Survey(2023/24) indicate the spread of respondent's representation from the categories listed below which indicates that 48 percent of respondents were from the academic institutions, followed by local government at 9% and Provincial departments at 7%. The results also suggest the amount of work that still needs to be done to include other stakeholders such as Water Boards, Youth Networks, Communities and Catchment Management Agencies, to name a few. The graphic below indicates the responses by various stakeholder groups.




**Graphic 1 – *sector representation by stakeholders***

### 4.2 Internal environment

The outcome of the internal environment analysis is the identification of core competencies and a focus on addressing critical internal vulnerabilities to build an effective water research institution. The internal environmental analysis is organised along the following dimensions:

#### 4.2.1 SWOT analysis

**Table 2: SWOT analysis**

| STRENGTHS | WEAKNESSES |
|---|---|
| - Good governance<br>- Evidence-based knowledge solutions<br>- Experienced and globally recognised research experts<br>- Strong networks and partnerships<br>- Innovative water solutions | - Undefined organisational culture<br>- Undigitised organisational business processes and systems<br>- Low brand awareness & visibility<br>- Low cross-utilisation of skills<br>- Poor brand enforcement from research products |
| **OPPORTUNITIES** | **THREATS** |
| - Respected leadership<br>- Digitisation of organisational business processes and systems<br>- Footprint expansion<br>- Define organisational culture<br>- Upgrade staff skills to meet future demands | - Decrease in the water research<br>- The legislative limitation to uptake of research<br>- Misunderstanding of the WRC mandate<br>- Cyber crimes |

### 4.3 High-level organisational structure

The WRC structure (Figure 4) has been organised to enable it to be fit-for-purpose and comprises elements that enable its governance framework and are supportive toward effective strategy execution.

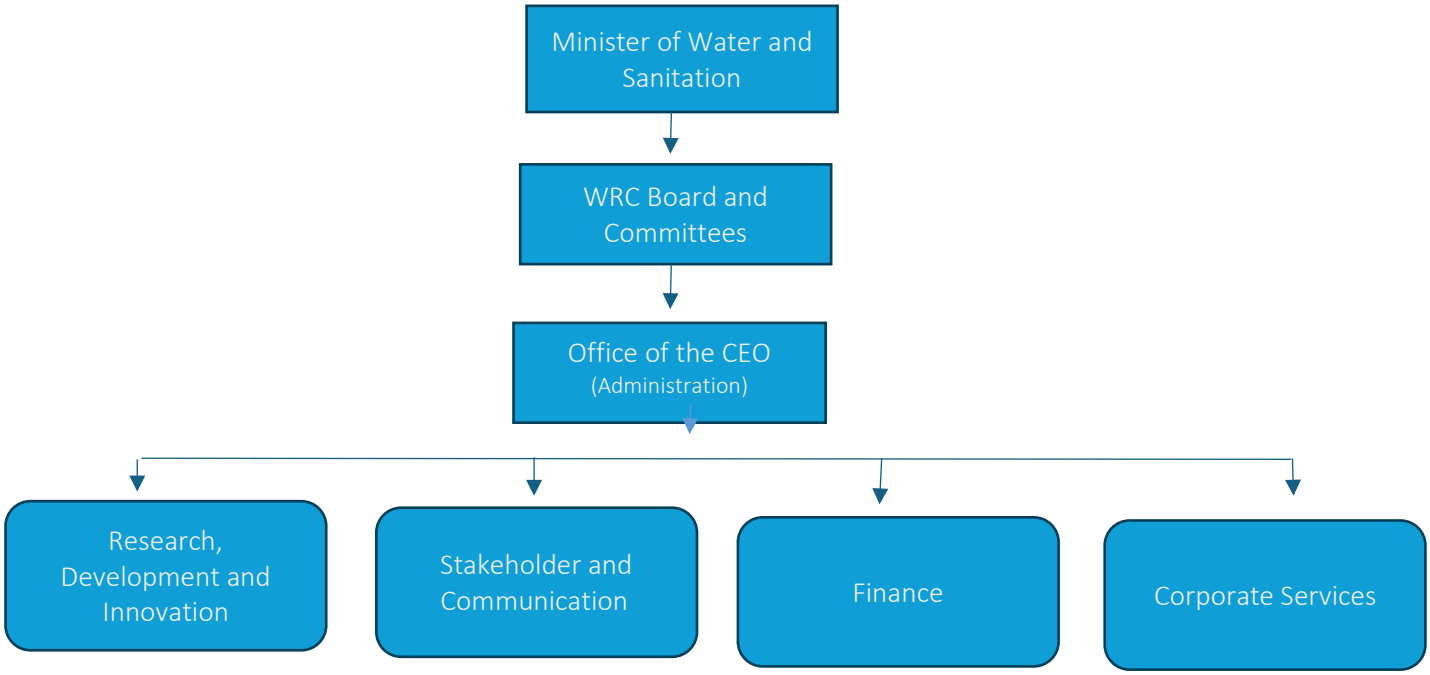



***Figure 4: High-level organisational structure***

Figure 4 depicts the relationship between the Board and the Minister of Water and Sanitation as the shareholder. Governance principles having implications for the shareholder, Executive Management and the Board apply.

The WRC is a corporate citizen and, as an entity of government, implements initiatives that enable it to play a developmental role. The WRC will continue to play a key role in the transformation trajectory of a democratic state. The processes of the WRC have always been designed to ensure economic transformation and redistribution to the benefit of historically disadvantaged individuals (women, youth and people living with disabilities). The WRC made a competitive assessment across all the scorecard elements and continues to make strides toward attaining a compliant B-BBEE position. The B-BBEE assessment and ultimate rating is not only a developmental imperative but is also a compliance imperative in terms of the Broad-Based Black Economic Empowerment Amendment Act (Act 53 of 2013).

# PART C: MEASURING OUR PERFORMANCE

## 5 INSTITUTIONAL PERFORMANCE INFORMATION

### 5.1 Measuring the impact

One of the characteristics of this Strategic Plan is a shift towards emphasizing the impact and outcomes of WRC interventions, thus the articulation of the strategic intent statement and selection of performance outcomes. The strategic plan is developed at a point of convergence in research, innovation, and the Fourth Industrial Revolution in the water sector, which is a distinguishing feature of the institutions that drive the knowledge economy of the country. With the position of the WRC as a key institution that enables water research, it is best placed to enable research that will result in societal impact. The impact statement seeks to portray a long-term change that the WRC intends to contribute towards through research, development, and innovation. The impact statement is grounded in the mandate of the WRC and stated as follows:

**" An informed society for a water-secure future"**

### 5.4 Measuring the Outcomes

In line with its mandate and aligned with the MTDP and sector priorities, the WRC has set itself the following five-year targets. Monthly and quarterly (statutory) reporting will be effected, and management actions will be taken to achieve the outcomes and targets as set out in Table 3.

**Table 3: Outcomes, indicators, and targets**

| Outcome | Outcome indicator | Baseline | Five-year target |
|---|---|---|---|
| Outcome 1:<br>An informed society | Percentage increase of water quality and health knowledge solutions produced | New indicator | 80% |
| | Percentage increase of sustainable water availability knowledge solutions produced | New indicator | 80% |
| | Percentage increase of water use knowledge solutions produced | New indicator | 80% |
| | Number of stakeholder advisories produced | New indicator | 25 |

| Outcome | Outcome indicator | Baseline | Five-year target |
|---|---|---|---|
| Outcome 2: An innovative water sector | Number of sites with innovations demonstrated | New indicator | 20 |
| | Percentage of innovations ready for transfer to stakeholders | 23% | 40% |
| Outcome 3: A transformed water sector | Percentage increase of initiated research projects led by women | New indicator | 30% |
| | Percentage increase of black emerging researchers supported for capacity building | New indicator | 40% |
| Outcome 4: An agile organisation | Percentage achieved on planned training for employees | New indicator | 80% |
| | Employee engagement index score | New indicator | 70 |
| | Percentage increase of digital transformation | New indicator | 80% |
| Outcome 5: A financially sustainable organisation | Percentage of RDI cost to total expenditure | New indicator | 65% |

### 5.5 Explanation of planned performance over the five years

To provide an outline of planned performance over the five years, the strategic intent was organised to respond to the threats posed and opportunities created by the external environment within which the entity operates. Cognisance was also taken of the organisational key weaknesses, and the strengths leveraged to enable effective strategic execution. The WRC's key impact for the next five years is to increase knowledge products on water quality and health, water availability and water use. Furthermore, the WRC seeks to drive impactful stakeholder engagements, accelerate or ease the uptake of available knowledge and innovations and build a fit-for-purpose organisation. The following key areas of performance per outcome were thus identified:

**Outcome 1: An informed society**

***Impactful stakeholder engagement***

The WRC is accountable to stakeholders who have legitimate and reasonable expectations for the research that the WRC enables. An informed society relies heavily on impactful stakeholder

engagement that integrates the perspectives of various stakeholders. Such processes not only build trust but also enhance the relevance and acceptance of interventions by aligning them with local needs and contexts. Impactful stakeholder engagements are a means for the WRC to close the gap between knowledge production, the use of research and innovation products, and influencing policy and broader water sector decision-making and to contribute to the achievement of the MTDP. Thus, having relevant and timeous stakeholder engagement is an important pathway to achieving the aspired research impact. The WRC is moving towards stakeholder engagement organised to promote science, technology and innovation for socio-economic impact, striking an appropriate balance between academic, instrumental, and conceptual impact. The stakeholder ecosystem of the WRC is depicted in Figure 2.

Key strategic initiatives:

- ✓ In organising for greater impact, knowledge products developed by the WRC will be fast-tracked to where they can have influence and impact on policy development and practice, service provision, legislation, and change in behaviour.
- ✓ Further projects and services that could potentially introduce new or improved technologies to the market, promote job creation, stimulate economic development, and ensure water security will be developed.
- ✓ Increased awareness of national, provincial, and local government authorities of the critical balance between development and water availability will be created. Capacity and awareness will not only be built nationally but will be enhanced through international collaborations.

**Outcome 2: An innovative water sector**

***Technologies transferred to the water sector***

An innovative water sector embraces cutting-edge technologies, forward-thinking policies, and collaborative practices to address modern challenges in water resource management and distribution. A tenet of the WRC is ensuring knowledge dissemination and transfer of technology products to the water sector, innovators, and entrepreneurs, including SMMEs. In this sense, platforms will be created to accelerate or ease the uptake of available knowledge and innovations, both locally and internationally. Further, platforms and vehicles for reaching out to rural and semi-urban stakeholders require improvements, and these will be performed during the planning cycle. Those technologies must be ready for uptake by the stakeholders.

Key strategic initiatives

- ✓ Partnerships will be created with national system of innovation partners, community-based organizations (CBOs), non-governmental organisations, local government and academic institutions to accelerate uptake and use of RDI products

**Outcome 3: A transformed water sector**

The WRC is a corporate citizen and, as an entity of government, implements initiatives that enables it to play a developmental role. The WRC will continue to play a key role in the transformation trajectory of a democratic state. The processes of the WRC have always been designed to ensure economic transformation and redistribution to the benefit of historically disadvantaged individuals.

**Outcome 4: An agile organisation**

The rapidly changing business environment, and the ever-increasing demands for service delivery calls for an agile organisation. The WRC shall ensure that its structure is fit for purpose, its policies, technology and capabilities are designed to enable employees to quickly respond to the service demands. In order to ensure that the right culture permeates throughout the WRC, within the context of integrated workforce planning and change management, the behavioural competencies must be observable, linked to the values of the organisation and contribute towards overall success within the WRC.

Key strategic initiatives:

- ✓ Empower management team to manage competently, professionally, and ethically
- ✓ Assess skills gaps and develop competencies required to meet WRC future service needs
- ✓ Implement employee engagement plans to achieve performance excellence and defined organisational culture
- ✓ Development of a digital transformation strategy for the WRC
- ✓ Development of a detailed roadmap with planned initiatives and a financial estimate for delivery over 5 years.

**Outcome 5: A financially sustainable organisation**

The sustainability of the revenue trajectory is under constant threat. The WRC has recognised this financial sustainability concern, and to augment the WRL there is a renewed focus on increasing the leverage income base. Further, strategies will be developed to counter the risk of financial stress related to the uncertainties associated with income, so that the WRC can continue with the sustainable delivery of its mandate.

Key Strategic Initiatives

- ✓ Development of a revenue enhancement strategy to counter the risk of financial stress for the WRC related to WRL uncertainties.
- ✓ Maintain a strong focus on cost containment and responsible procurement, in line with Government's transformation priorities

## 6. KEY STRATEGIC RISKS

The approach to risk management assumed an integrated enterprise-wide risk management which incorporates internal controls into the entire WRC operation. The risk management process is premised on the notion that the WRC provides value to its stakeholders. Risks identified will enable the WRC to effectively mitigate against any negative events that may impede the achievement of the WRC strategy, to effectively deal with uncertainty, and to take advantage of emergent opportunities. Risk management is an ongoing process where material risks are identified and assessed, whereafter mitigation actions are formulated and implemented.

The key risk profile of the WRC per outcome and mitigation plan is as follows (Table 4):

**Table 4: Key Risks and Mitigation**

| OUTCOMES | KEY RISK | RISK MITIGATIONS |
|---|---|---|
| **Outcome 1: An Informed Society** | **Inability to meet stakeholder expectations (expectation gap):**<br><br>Lack of proper understanding of the WRC mandate by stakeholders which creates unrealistic expectations and also leads to unresponsiveness by the WRC ultimately resulting in stakeholders' expectations not being met | 1. Implement the stakeholder management plan<br><br>2. Implement communications and promotions plan<br><br>3. Develop SOP which guides the on-boarding of stakeholders<br><br>4. Repackage material targeting specific stakeholder clusters based on their identified needs<br><br>5. Develop robust and digitised communication platforms to build brand and expand target audience |
| | **Inadequate processes to influence and improve water use and awareness:**<br><br>Inability to promote sustainable water use practices or enhance public awareness of water conservation | 6. Develop and implement a robust water awareness campaign/s<br><br>7. Conduct regular stakeholder engagement sessions, and allocate adequate resources for education campaigns<br><br>Start a campaign which builds awareness to change societal behaviour towards water and attitude towards water leaks (non-revenue water) |

| OUTCOMES | KEY RISK | RISK MITIGATION |
|---|---|---|
| **Outcome 2: An Innovative Water Sector** | **Slow adoption of emerging technologies:**<br><br>The reluctance to adopt or incorporate new technologies and innovations, which also results in the ineffective transfer of new innovations and technologies | 1. Review and update the research and innovation strategy to include other measures to close the value chain gaps<br><br>2. Conduct quarterly assessments and monitoring of the innovation impact with recommendations for further improvement<br><br>3. Conduct robust piloting, testbeds and catchment model.<br><br>4. Implement the WRC strategy with focus on current and future sector needs and link the process to stakeholder's assessment for the needs/actual demand; communicate effectively to manage expectations |
| **Outcome 3: A Transformed Water Sector** | **Lack of equity and redress in the water sector:**<br><br>Ineffective efforts to address equity, diversity, and transformation in the water sector | 1. Increase participation of local stakeholders in defining the WRC research, development and innovation agenda.<br><br>2. Source additional funds to support key segments of the knowledge/innovation value chain and WRC strategy<br><br>3. Increase funding for transformative projects benefiting marginalised communities.<br><br>4. Establish a support mechanism (funding, skills and project management) for the new intake of research leaders, especially of the HDI and quarterly report on the role of this support structure |

| OUTCOMES | KEY RISK | RISK MITIGATION |
|---|---|---|
| **Outcome 4: An Agile Organisation** | **Inadequate succession planning resulting in potential loss of institutional knowledge and business continuity:**<br><br>Due to aging workforce and inadequate transfer of knowledge there is a potential challenge for business continuity | 1. Management Development and Training programme for all SMSs to ensure they are ready to step in leadership positions in the event that there is a need (such as Leadership programmes)<br>2. Introducing change management programmes to make employees aware of the reviewed WRC strategy<br>3. Improve and intensify the implementation of Performance Management System to identify areas of weakness for all employees and thereafter conduct relevant training and capacity programmes for each<br>4. Development of intentional succession plans, with knowledge sharing and transfer being built into performance agreements |
| | **Ineffective information communication technology (ICT) and infrastructure to support and enable the WRC to have reliable, secured and integrated systems**:<br><br>Information technology and communications not supporting the WRC strategic focus and function | 5. Develop ICT Project Management Policy, to ensure that all IT related projects involve IT to provide advice and the expertise required.<br>6. Develop a digital transformation strategy and identify projects which need to be implemented in the financial year (also canvass the responsible branch heads)<br>7. Develop and implement ICT Change Management Policy.<br>8. Continuous upskilling of IT staff and awareness for WRC staff, particularly on new systems being introduced (a list of training attended will be required). |
| **Outcome 5 A financially sustainable Organisation** | **Possible limitation of WRC implementing mandate due to reduction in revenue:**<br><br>Risk of WRC becoming an unsustainable business with limitations to fund mandate due to the possible reduction in revenue base and increase in operating costs | 1. Implement the communication plan to get the WRC value proposition known in the sector<br>2. Develop a revenue enhancement strategy<br>3. Maintain the current ratio of 2:1<br>4. Maintain the cash ratio of >1 |

## PART D: TECHNICAL INDICATOR DESCRIPTIONS

**Outcome 1: An informed society**

| **Indicator title** | **Percentage of water quality and health knowledge solutions produced** |
|---|---|
| **Definition** | The indicator measures the percentage of water quality and health solutions produced from completed water quality and health projects within a given period. The water quality and health knowledge solutions are those focusing on the chemical, physical, and biological characteristics of water. |
| **Source of data** | • Final research reports<br>• Finalisation report |
| **Method of calculation or assessment** | Performance of this indicator will be assessed quantitatively:<br>The % of water quality and health knowledge solutions produced is given the value “y”.<br>The number of water quality and health knowledge solutions produced in a given period is given the value “x”<br>The total number of completed water quality and health projects within a given period is given the value "z"; the formula is as follows:<br>$$\gamma = {}^{x}/_{z} \times 100$$ |
| **Assumptions** | Reliable records showing reports published |
| **Disaggregation of beneficiaries (where applicable)** | Not applicable |
| **Spatial transformation (where applicable)** | Not applicable |
| **Reporting Cycle** | Annual |
| **Desired performance** | 80% |
| **Indicator responsibility** | Executive: Research, Development, and Innovation |

| **Indicator title** | **Percentage of water-use knowledge solutions produced** |
|---|---|
| **Definition** | The indicator measures the percentage of water-use solutions produced from completed water-use projects within a given period |
| **Source of data** | • Final research reports<br>• Finalisation report |
| **Method of calculation or assessment** | Performance of this indicator will be assessed quantitatively:<br>The % of water-use knowledge solutions produced is given the value “y”. The number of water-use knowledge solutions produced in a given period is given the value “x”<br>The total number of completed water-use projects within a given period is given the value "z"; the formula is as follows:<br>$$\gamma = {}^{x}/_{z} \times 100$$ |

| Indicator title | **Percentage of water-use knowledge solutions produced** |
|---|---|
| **Assumptions** | Reliable records showing reports published |
| **Disaggregation of beneficiaries (where applicable)** | Not applicable |
| **Spatial transformation (where applicable)** | Not applicable |
| **Reporting Cycle** | Annual |
| **Desired performance** | 80% |
| **Indicator responsibility** | Executive: Research, Development, and Innovation |

| Indicator title | **Percentage of water availability knowledge solutions produced** |
|---|---|
| **Definition** | The indicator measures the percentage of water availability solutions produced from completed water availability projects within a given period |
| **Source of data** | • Final research report<br>• Finalisation report |
| **Method of calculation or assessment** | Performance of this indicator will be assessed quantitatively:<br>The % of water availability knowledge solutions produced is given the value "y".<br>The number of water availability knowledge solutions produced in a given period is given the value "x".<br>The total number of completed water availability projects within a given period is given the value "z"; the formula is as follows:<br>$$\gamma = {}^{x}/_{z} \times 100$$ |
| **Assumptions** | Reliable records showing reports published |
| **Disaggregation of beneficiaries (where applicable)** | Not applicable |
| **Spatial transformation (where applicable)** | Not applicable |
| **Reporting Cycle** | Annual |
| **Desired performance** | 80% |
| **Indicator responsibility** | Executive: Research, Development, and Innovation |

| Indicator title | **Number of stakeholder advisories produced** |
|---|---|
| **Definition** | The indicator measures advisories produced for stakeholders to inform them of various research outputs or other available water knowledge outputs |
| **Source of data** | Research outputs and other available water knowledge outputs |
| **Method of calculation or assessment** | Performance of this indicator will be assessed quantitatively: A simple count of advisories produced |
| **Assumptions** | Availability of water knowledge resources<br><br>Understanding stakeholder needs |

| | |
|---|---|
| **Disaggregation of beneficiaries (where applicable)** | Not applicable |
| **Spatial transformation (where applicable)** | Not applicable |
| **Reporting Cycle** | Annual |
| **Desired performance** | 25 |
| **Indicator responsibility** | Executive: Research, Development, and Innovation |

**Outcome 2: An innovative water sector**

| **Indicator title** | **Number of sites with demonstrated innovations** |
|---|---|
| **Definition** | The indicator measures the total number of sites where WRC innovations have been demonstrated |
| **Source of data** | Innovation demonstration reports |
| **Method of calculation or assessment** | Performance of this indicator will be assessed quantitatively: A simple count of sites where innovations were demonstrated within a given period |
| **Assumptions** | Availability of funds to demonstrate innovations<br><br>Availability of testbeds |
| **Disaggregation of beneficiaries (where applicable)** | Not applicable |
| **Spatial transformation (where applicable)** | Not applicable |
| **Reporting Cycle** | Annual |
| **Desired performance** | 20 |
| **Indicator responsibility** | Executive: Research, Development, and Innovation |

| **Indicator title** | **Percentage of innovations ready for transfer to stakeholders** |
|---|---|
| **Definition** | The indicator measures the readiness of produced innovations for transfer to stakeholders.<br><br>An innovation is considered ready when it is at TRL 7 and above or when the stakeholders are ready to adopt the knowledge. |
| **Source of data** | Innovations reports |
| **Method of calculation or assessment** | The performance of this indicator will be assessed quantitatively as follows: “y” is the % of innovations ready for transfer.<br>The number of innovations ready for transfer in a given period is given the value "x"<br>The total number of innovations produced in a given period is given the value "z"; the formula is as follows:<br>$\boldsymbol{\gamma = {}^{x}/_{z} \times 100}$ |
| **Assumptions** | Availability of funds to develop prototypes to the appropriate readiness level<br><br>Stakeholder ready to adopt the knowledge |

| Indicator title | Percentage of innovations ready for transfer to stakeholders |
|---|---|
| **Disaggregation of beneficiaries (where applicable)** | Not applicable |
| **Spatial transformation (where applicable)** | Not applicable |
| **Reporting Cycle** | Annual |
| **Desired performance** | 40% |
| **Indicator responsibility** | Executive: Research, Development, and Innovation |

**Outcome 3: A transformed water sector**

| Indicator Title | Percentage of initiated research projects led by women |
|---|---|
| **Definition** | The indicator measures the percentage of women-led research projects from the total number of contracted research projects within a given period |
| **Source of data** | Research projects contracts |
| **Method of calculation or assessment** | The performance of this indicator will be assessed quantitatively as follows: "y" is the % of contracted projects led by women.<br>The number of contracted projects led by women in a given period is given the value "x"<br>The total number of contracted projects in a given period is given the value "z"; the formula is as follows:<br>$\boldsymbol{\gamma = {}^{x}/_{z} \times 100}$ |
| **Assumptions** | There will be enough research proposals submitted by women |
| **Disaggregation of beneficiaries (where applicable)** | Women |
| **Spatial transformation (where applicable)** | Not applicable |
| **Reporting Cycle** | Annual |
| **Desired performance** | 30% |
| **Indicator responsibility** | Executive: Research, Development, and Innovation |

| Indicator Title | Percentage of black emerging researchers supported for capacity building |
|---|---|
| **Definition** | To measure the WRC's contribution in transforming the sector through supporting Black emerging researchers for human capital development. An emerging researcher is defined as "someone who wishes to pursue a career in research and innovation and has not yet established themselves as a full academic. These candidates should also be under 40 years of age, undertaking or within 5 years of completing a Masters or Ph.D." This also includes current students and postdoctoral students supported by the WRC. |
| **Source of data** | WRC research projects contracts |
| **Method of calculation or assessment** | Quantitative: "y" is the % of Black emerging researchers supported for capacity building.<br>The number of Black emerging researchers supported is given the value "x" The total number of emerging researchers supported for capacity building within a given period is given the value "z"; the formula is as follows:<br>$\boldsymbol{\gamma = {}^{x}/_{z} \times 100}$ |

| Indicator Title | Percentage of black emerging researchers supported for capacity building |
|---|---|
| **Means of verification** | Identity Document copy and proof of registration |
| **Assumptions** | Availability of reliable records |
| **Disaggregation of beneficiaries (where applicable)** | Women (40%)<br>Youth (30%) |
| **Spatial transformation (where applicable)** | Not applicable |
| **Reporting Cycle** | Annual |
| **Calculation type** | Cumulative year end (the annual target is an aggregation of all the quarterly targets) |
| **Reporting cycle** | Quarterly |
| **Desired performance** | 40% |
| **Indicator responsibility** | Executive: Research Development and Innovation |

**Outcome 4: An agile organisation**

| Indicator title | Percentage achieved on planned training for employees |
|---|---|
| **Definition** | The indicator measures the percentage achieved of planned training attended by employees against the total number of planned training in a given period |
| **Source of data** | • Training plan<br>• Proof of training attendance |
| **Method of calculation or assessment** | The indicator will be assessed quantitatively as follows: “y” is the % of training attended.<br>The number of training attended is given the value "x"<br>The total number of planned training within a given period is given the value "z"; the formula is as follows:<br>$$\gamma = {}^{x}/_{z} \times 100$$ |
| **Assumptions** | • Availability of funds for training<br>• willingness of employees to attend training |
| **Disaggregation of beneficiaries (where applicable)** | Not applicable |
| **Spatial transformation (where applicable)** | Not applicable |
| **Reporting Cycle** | Annual |
| **Desired performance** | 80% |
| **Indicator responsibility** | Executive: Corporate Services |

| Indicator title | Employee Engagement Index score |
|---|---|
| Definition | The purpose of this measure is to monitor the extent to which employees feel valued and involved in their everyday work, which helps to improve their level of commitment and affiliation to the WRC employer brand |
| Source of data | Employee survey |
| Method of calculation or assessment | Employee survey results |
| Assumptions | Employee buy-in and participation |
| Disaggregation of beneficiaries (where applicable) | Not applicable |
| Spatial transformation (where applicable) | Not applicable |
| Reporting Cycle | Annual |
| Desired performance | 70 |
| Indicator responsibility | Executive: Corporate Services |

| Indicator title | Percentage of digital transformation achieved |
|---|---|
| Definition | The indicator measures the progress made towards digital transformation through the implementation of the digital transformation strategy |
| Source of data | • Digital transformation strategy<br>• Implementation reports |
| Method of calculation or assessment | The indicator will be assessed quantitatively as follows: “y” is the % of digital transformation achieved.<br>The number of completed digital transformation initiatives is given the value "x"<br>The total number of planned digital transformation initiatives within a given period is given the value "z"; the formula is as follows:<br>$\boldsymbol{y = {}^{x}/_{z} \times 100}$ |
| Assumptions | • Availability of funds to implement strategy<br>• Reliable proof implementation |
| Disaggregation of beneficiaries (where applicable) | Not applicable |
| Spatial transformation (where applicable) | Not applicable |
| Reporting Cycle | Annual |
| Desired performance | 80% |
| Indicator responsibility | Executive: Operations |

**Outcome 5 A financially sustainable organization**

| Indicator title | Percentage of total RDI cost in relation to total expenditure |
|---|---|
| Definition | The indicator measures the total research, development and innovation costs in relation to the total expenditure of the organisation. The RDI costs includes human resource cost which directly relates to RDI activities |
| Source of data | Financial records |

| | |
|---|---|
| **Method of calculation or assessment** | The indicator will be measured quantitatively as follows:<br>Total research, development and innovation costs incurred / total expenditure |
| **Assumptions** | Reliable records available for measuring financial performance |
| **Disaggregation of beneficiaries (where applicable)** | Not applicable |
| **Spatial transformation (where applicable)** | Not applicable |
| **Reporting Cycle** | Annual |
| **Desired performance** | 65% |
| **Indicator responsibility** | Chief Financial Officer |