Report Number 4.1 Edition 1

PLAN

Water Quality Management Policies and Strategies for South Africa

Integrated Water Quality Management Implementation Plan

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

Department of Water and Sanitation

WATER QUALITY MANAGEMENT POLICIES AND STRATEGIES FOR SOUTH AFRICA

INTEGRATED WATER QUALITY MANAGEMENT IMPLEMENTATION PLAN

Report Number 4.1

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PREFACE

Background

South Africa is facing a multi-faceted water challenge, which, if not addressed effectively, has the potential to significantly limit the economic growth potential of the country, especially considering the levels of water scarcity, with frequent droughts, increasing water demands, and deteriorating resource water quality.

The deterioration in water quality is a factor of growing concern. Importantly, ***deteriorating water quality is an economic and developmental issue****, and should be addressed as such. Without a change in how water resources are managed, worsening resource water quality will continue to erode the socio-economic benefits from, and increase the costs associated with, the use of the country's water resources.*

In light of the above, the Department of Water and Sanitation (DWS) embarked on a journey to revise, update and consolidate its policies and strategies for managing the quality of the water in the Country's water resources and to develop a pragmatic plan for the conversion of the Integrated Water Quality Management (IWQM) Policy and Strategy into practice.

Integrated Water Quality Management Policy and Strategy

Since the inception of this initiative, several supporting documents were developed that aimed to establish the status quo with respect to water quality, its management practices and instruments, the challenges in South Africa and the institutional arrangements. A review of existing policies, strategies, and other relevant documents, both locally and internationally was used to i) analyse the root cause of the water quality issues; ii) determine the gaps in the IWQM approaches that have been used; iii) understand impacts that emerging trends may have on water quality (e.g. climate change, unconventional gas exploration, amongst others) and iv) look for innovative practices for IWQM.

Based on these learning's, the ***IWQM Policy*** *sought to amalgamate and describe an integrated, inclusive and adaptive approach to IWQM, that built on the tenets of sustainable development coupled with addressing the identified gaps in the policy framework. The IWQM Policy sets out the vision, goal, values, underlying principles and policy responses for managing the quality of our water in our surface and underground water resources.*

The ***IWQM Strategy*** *sets out those strategic actions which are required to be undertaken in order to realise the vision and goals for water quality in South Africa. It articulates the broader process of Integrated Water Quality Management and lists the prioritised strategic actions that need to take place over a short to medium term.*

The Implementation Plan *outlines the pragmatic approach to strategic implementation and clearly articulates roles and responsibilities, resource (financial and human capacity) requirements and linkages and dependencies between key activities.*

The Monitoring and Evaluation Framework *articulates the indicators to be monitored to determine the progress of the actions to be implemented and provide the foundation required to manage water quality adaptively. It also outlines the reporting structures and processes to be followed.*

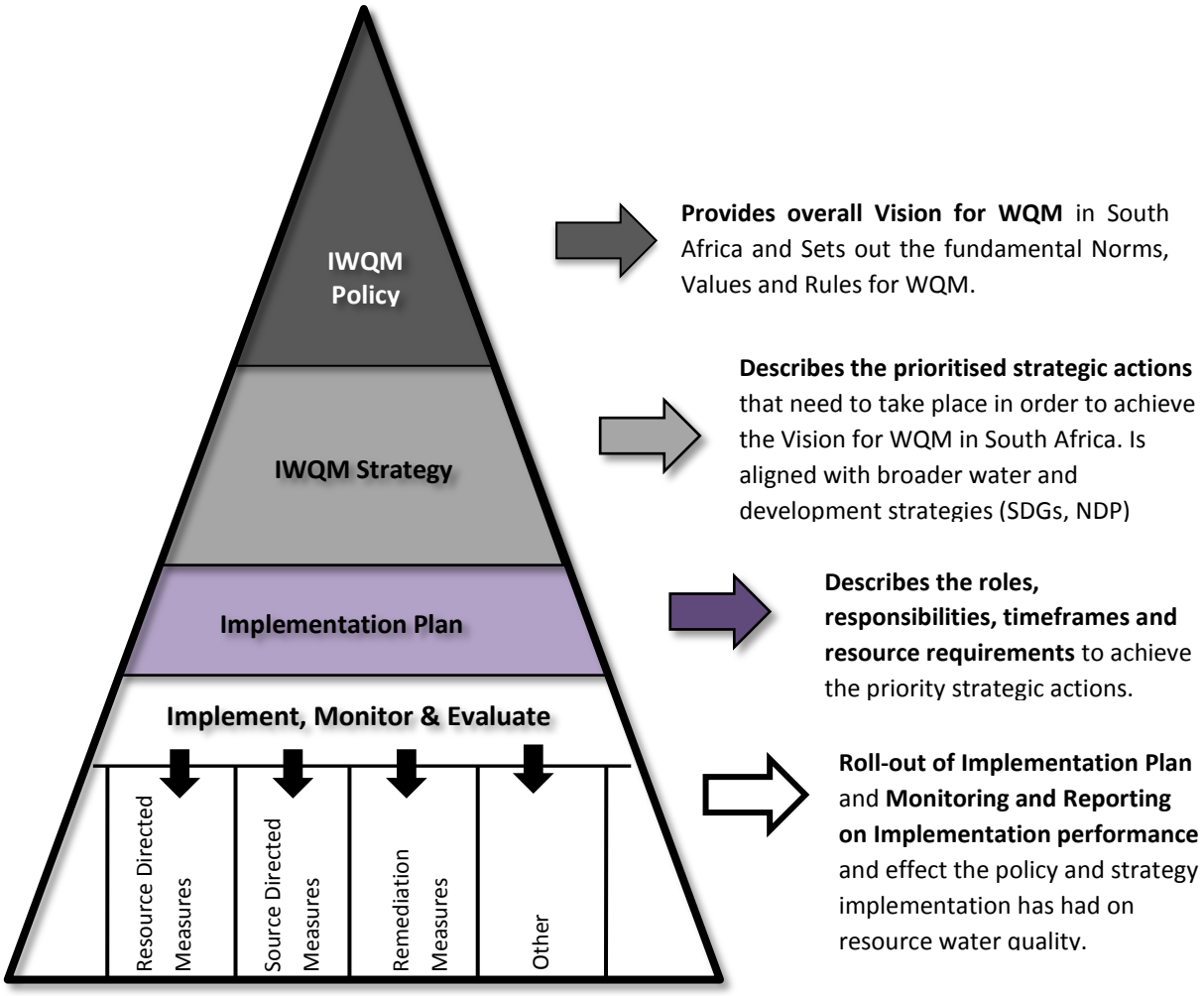

Figure P-1: Relationship between Policy, Strategy, and Implementation

Stakeholder Engagement

Given that the management of water quality constitutes an effort that is serviced and maintained by various role-players, a key element of the development of the IWQM Policy, Strategy and Implementation Plan is the involvement of relevant role-players, at a level where they may provide strategic and operational direction in the conceptualisation and finalisation of key areas and outputs. Consequently, a Stakeholder Consultation and Communication Strategy was developed to inform, consult, involve, collaborate and where possible empower the relevant key players by providing a strategic framework to: -

- ***Engage in policy and strategy development processes*** *of the key issues, priorities, guiding principles, and approaches regarding the IWQM Policy and Strategy.*

- ***Enhance the product*** *through inputs from stakeholders;*
- ***Establish Ownership and buy-in*** *of both the process and outcomes to ensure that stakeholders can relate and identify with the IWQM Policy and Strategy;*
- ***Facilitate Implementation:*** *a key result under this objective is the implementation of the Policy and Strategy. This will involve iterative process of learning-by-doing approach so that the implementation of the Policy and Strategy can serve as both a refining process and a learning curve;*
- ***Provide capacity development*** *and support through strategic collaborative efforts. This ensures that the necessary skills and capacities are shared between and among stakeholders;*
- ***Create awareness*** *and enhance the level of understanding on issues about the IWQM Policy and Strategy, in order to improve and strengthen active stakeholders' participation in WQM;*
- ***Consider appropriate mechanisms*** *for communication and publicising of the IWQM Policy and Strategy.*

Based on the fact that IWQM has environmental and social impacts, among others, it was imperative that consultation not be a single conversation but a series of opportunities to create an understanding about WQM amongst those it will likely affect or interest, and to learn how these internal and external parties view the initiative and its associated risks, impacts, opportunities, and mitigation measures. Listening to and incorporating stakeholder concerns and feedback is highly considered as a valuable source of information that can improve the design and outcomes of policy and strategy and help identify and control external risks. It is envisaged that the consultations done during this initiative form the basis for future collaboration and partnerships.

The Stakeholder Consultation and Communication Strategy focussed internally to relevant Government Departments and externally to targeted stakeholders.

- ***Internal to Government*** *- The purpose of targeting members within the Government Departments and its institutions (CMAs, Water Boards and other water management institutions) was to ensure that there was holistic preparation of staff at all levels. These staff have a range of interests that function at differing strategic levels within the Government and as such have different capacity building requirements.*
- ***External to Government*** *- There are a range of stakeholders that are interested and affected by the IWQM Policy, Strategy and Implementation Plan. These include the private sector, research and academia, civil society including NGOs, other national and provincial government departments, umbrella organisations such as the South African Local Government Association (SALGA), the South African Cities Network (SACN), the Chemical and Allied Industries Association (CAIA), Business Unity South Africa (BUSA), AgriSA, the Chamber of Mines, amongst others. The purpose of targeting these stakeholders was to solicit their input, create awareness and guide external stakeholders on water quality management issues, strengthen the understanding of the policy, and strategy and their implications, and strengthen collaborative systems. Moreover, it is important for the successful implementation of the policy*

and strategy that external stakeholders become more engaged in both developing the policy and strategy as well as through the implementation of the policy and strategy.

Way Forward

As sector lead, the Department understands that the management of water resources requires a sector-wide approach and this is a central theme to the implementation of the National Water Resources Strategy. Similarly, the management of water quality requires that a broader engagement that moves roles and relationships beyond that of user, stakeholder, Policy-maker and regulator, but towards one of cooperation, partnership and stewardship. This necessitates the development of robust and pragmatic management instruments, supported by effective communication and capacity building, both internally to the Department and externally to the larger sector.

DOCUMENT INDEX

Reports as part of this project:

WATER QUALITY MANAGEMENT POLICIES AND STRATEGIES FOR SOUTH AFRICA		
REPORT SERIES	**REPORT TITLE**	**DWS REPORT NUMBER**
1. PROJECT REPORTS/SUPPORTING DOCUMENTS		
1.1	Inception Report	P RSA 000/00/21715/1
1.2	Literature Review	
1.2.1	A Review of the Water Quality Management Policies and Strategies for South Africa	P RSA 000/00/21715/2
1.2.2	A Review of the Water Quality Management Institutional Arrangements for South Africa	P RSA 000/00/21715/3
1.2.3	A Review of the Water Quality Management Instruments for South Africa	P RSA 000/00/21715/4
1.3	Water Quality and Water Quality Management Challenges for South Africa	P RSA 000/00/21715/5
1.4	Water Quality Glossary	P RSA 000/00/21715/6
1.5	Stakeholder Consultation and Communication Strategy	P RSA 000/00/21715/7
1.6	Stakeholder Consultation and Communication Audit Report	P RSA 000/00/21715/8
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1.9	Technical Close-out Report	P RSA 000/00/21715/11
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2.2	Integrated Water Quality Management Policy - Edition 2	P RSA 000/00/21715/13
2.3	Summary of Integrated Water Quality Management Policy	P RSA 000/00/21715/14
3. STRATEGY REPORTS		
3.1	Integrated Water Quality Management Strategy - Edition 1	P RSA 000/00/21715/15
3.2	Integrated Water Quality Management Strategy - Edition 2	P RSA 000/00/21715/16
3.3	Summary of Integrated Water Quality Management Strategy	P RSA 000/00/21715/17
4. POLICY INTO PRACTICE REPORTS		
4.1	**Implementation Plan - Edition 1**	**P RSA 000/00/21715/18**
4.2	Implementation Plan - Edition 2	P RSA 000/00/21715/19
4.3	Monitoring and Evaluation Framework - Edition 1	P RSA 000/00/21715/20
4.4	Water Quality Management in the Department of Water and Sanitation: Organisational Design	P RSA 000/00/21715/21

Two editions of the IWQM Implementation Plan will be produced. This is the first edition and is based on the results from the literature survey, root cause analysis, reviews of existing strategies and plans related to WQM and stakeholder consultations. This edition will be revised to produce a second and final edition using further inputs from stakeholder consultations.

The finalised documents from the above list can be sourced from the Departmental Website:

http://www.dwa.gov.za/projects/iwqms

APPROVAL

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DATE	:	March 2017
AUTHOR	:	Ms Traci Reddy and Mr Derek Weston
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Government and Water Sector Institutions	External Stakeholders
Department of Agriculture, Forestry and Fisheries	Afri Forum
Department of Cooperative Governance and Traditional Affairs	AgriSA
Department of Energy	Alliance for Water Stewardship
Department of Environmental Affairs	Anglo American Platinum
Department of Health	Agricultural Research Council
Department of Higher Education and Training	Armour
Department of Human Settlement	ASA Metals
Department of Mineral Resources	Association of Cementitious Material Producers
Department of National Treasury	Bosch Capital
Department of Planning, Monitoring and Evaluation	Centre for Environmental Management
Department of Public Enterprises	Chamber of Mines
Department of Science and Technology	Cleanstream
Department of Tourism	Council for Scientific and Industrial Research
Department of Water and Sanitation	De Beers
	Eco-Owl Consulting
Provincial Department: Free State Department of Agriculture and Rural Development	Environment Legal Consultant
Provincial Department: Limpopo Department of Agriculture and Rural Development	EOH Coastal and Environmental Services
Provincial Department: Limpopo Department of Economic Development, Environment and Tourism	Eskom
Provincial Department: Western Cape Department of Agriculture	EXXARO
	Federation for a Sustainable Environment
Catchment Management Agency: Breede-Gouritz	Galeyo Environmental CC
Catchment Management Agency: Inkomati Usuthu	GIBB Engineering
Proto-Catchment Management Agency: Berg-Olifants	Glencore
Proto-Catchment Management Agency: Limpopo	Goldfields
Proto-Catchment Management Agency: Mzimvubu-Tsitsikamma	Green Cape
Proto-Catchment Management Agency: Olifants	Ikamva
Proto-Catchment Management Agency: Orange	Iliso Consulting
Proto-Catchment Management Agency: Pongolo-Umzimkhulu	IM Systems & Exova BmTRADA
Proto-Catchment Management Agency: Vaal	Impala Platinum
	International Water Management Institute
Bitou Local Municipality	Isiqalo Cooperative
Buffalo City Metropolitan Municipality	IVA Plats
Chris Hani District Municipality	Jaco K Consulting
City of Cape Town Metropolitan Municipality	Jantech CC

City of Johannesburg Metropolitan Municipality	Joint Water Forum
Ethekwini Metropolitan Municipality	Jones & Wagener
Fezile Dabi District Municipality	Kumkani FM
Frances Baard District Municipality	Kwanalu
Joe Gqabi District Municipality	La Bri
KwaDukuza Local Municipality	Land Bank
Lephalale Local Municipality	Liberty NPO
LIM 368 Local Municipality (Amalgamation of Mookgophong Local Municipality and Modimolle Local Municipality)	Living Lands
Makane Local Municipality	Maluti GSM
Mangaung Metropolitan Municipality	Marico River Conservation Association
Masilonyana Municipality	Midvaal Water Company
Mogalakwena Local Municipality	MISA Renosterberg
Nala Local Municipality	Mogalakwena Mine
OR Tambo District Municipality	Municipal Infrastructure Support Agency
Phumelela Local Municipality	Naledzi Environmental Consulting
Polokwane Local Municipality	Naledzi Water Works
Stellenbosch Local Municipality	National African Farmers Union
Swartland Municipality	Ntuzuma Enviro Cooperative
Tlokwe City Municipality	Palabora Copper
Umzinyathi District Municipality	Petra Diamonds (Cullinan)
	Pilanesberg Platinum Mines
Amatole Water	Re-Solve
Bloem Water	Rhodes University Institute for Water Research
Gamtoos Irrigation Board	Rockwell Diamonds
Kaap River Irrigation Board	Rowing SA & Usapho Consulting
Kakamas Water User Association	Royal Bofokeng Platinum
Komati Basin Water Authority	SANParks
Komati River Irrigation Board & LRIB	Sapienza University
Lehalelo Water User Association	Sasol Group Technology
Lepelle Northern Water	SEMBCORP Silulumanzi
Letaba Water User Association	Sephaka Cement
Luvhuvhu Catchment Management Forum	Source Point
Modder-Riet Catchment Management Forum	South African National Biodiversity Institute
Mutale Catchment Management Forum	South African Sugar Association
Nzheleke/Nwandi Catchment Management Forum	Transnet National Ports Authority
Oranje-Riet Water User Association	Union Mine Anglo American
Sand Catchment Management Forum	University of Limpopo
Sedibeng Water	University of Pretoria
Umgeni Water	University of the Witwatersrand
Umsunduzi Catchment Management Forum	Vele Colliery
Vhembe Water User Associations	Vin Pro
	Water Research Commission
	Wildlands
	Winetech
	Xylem

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LIST OF ACRONYMS

Abbreviation	Meaning
ARC	Agricultural Research Council
BPEO	Best Practicable Environmental Options
CARA	Conservation of Agricultural Resources Act
CMA	Catchment Management Agency
CME	Compliance Monitoring and Enforcement
CMS	Catchment Management Strategy
COGTA	Department of Cooperative Governance and Traditional Affairs
COM	Chamber of Mines
CSIR	Centre for Scientific and Industrial Research
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DPW	Department of Public Works
DTI	Department of Trade and Industry
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
IWQM	Integrated Water Quality Management
IWQMP	Integrated Water Quality Management Plan
IWRM	Integrated Water Resource Management
MPRDA	Mineral and Petroleum Resources Development Act
NEMA	National Environmental Management Act
NDP	National Development Plan
NPSS	Non-Point Source Strategy
NWA	National Water Act
NWRS	National Water Resource Strategy
SACN	South Africa Cities Network
SALGA	South African Local Government Association
SANBI	South African National Biodiversity Institute
SO	Strategic Objectives
SPLUMA	Spatial Planning and Land Use Management Act
SWOT	Strengths, Weaknesses, Opportunities and Threats
SWPN	Strategic Water Partners Network
WISA	Water Institute of South Africa

WDCS	Waste Discharge Charge System
WMA	Water Management Area
WSA	Water Services Authority

1. INTRODUCTION

1.1 Background

The Integrated Water Quality Management (IWQM) Policy and Strategy is a response to an increasing array of water quality challenges. Whilst there is continued pressure on water resources and resource quality continues to decline, current strategies are either not being implemented (due to limited resources) or are not effectively dealing with the increasing water quality challenges arising from, amongst other things, economic and population growth, historical legacies, and aging infrastructure. In the current context of increasing complexity, it is realised that the approaches of a far more regulatory nature, whilst still important, can no longer be the backbone of an approach to managing water quality. The complexity of managing scarce water resources within a developmental context demands a far more integrated and adaptive approach that will require near real-time decision making based on data and information, supported by engaged stakeholders.

Therefore, to be able to address current challenges and be prepared for future challenges, a new integrated approach is required. The IWQM Policy and Strategy have been structured around a fundamental shift in approach that enables sector-wide engagement through more active partnerships with Government Departments and institutions, as well as the private sector and civil society.

1.2 Process of Development

Although there has been substantial work conducted as part of the project to identify the issues around water quality and its management in the country, the true strength of the IWQM Implementation Plan actually lies in the extent to which implementers and stakeholders have been able to conceptualise the issues and the ability to adopt the strategic actions put forth. Water quality management is a multifaceted and complex issue, affecting all South Africans, and as such, needs to be pursued in a participatory manner, taking into account the varying and differing perspectives of stakeholders (government, private sector and civil society).

The IWQM Strategy will be implemented in a phased approach, with some short-term activities required to ensure longer-term intent. As such, there are parts of the strategy that need to be initiated rapidly, with the understanding that the action will quickly generate results. Other actions will be initiated in the short term knowing that the outcomes will only be realised in the longer term.

Therefore, in the development of the Implementation Plan, three parallel processes will take place, that will inform and be informed by each other (Figure 1):

i. The development of an implementation plan, to support the IWQM Strategy, provides the opportunity to articulate in a structured way, how the strategy can be pragmatically implemented. The Implementation Plan itself will consist of two drafting

stages: **one to develop** the Plan. This process amalgamates the existing knowledge gained until now, regarding the implementation activities, through various engagements from the project committees and targeted stakeholder groups. based on existing information collated during the project thus far (i.e. Edition 1 of the Implementation Plan) and the second **to test and finalise** the Plan (i.e. Edition 2 of the Implementation Plan) through targeted engagement with identified implementers, drivers and champions for water quality management.

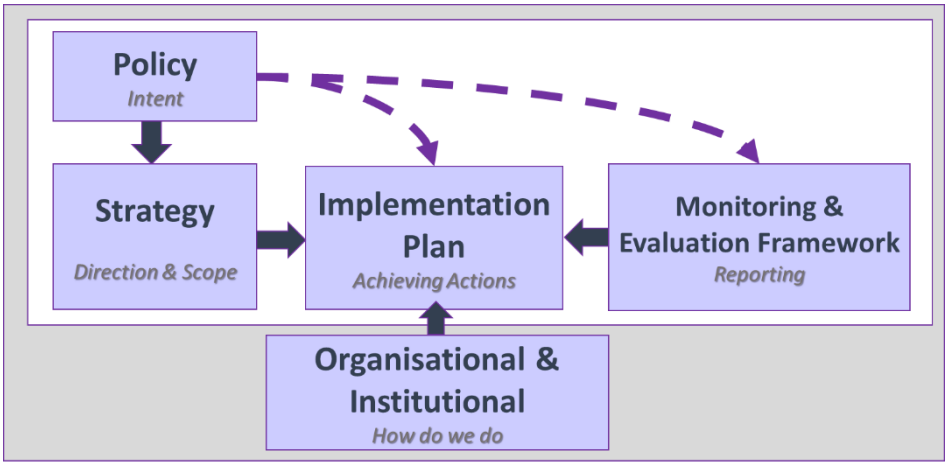

Figure 1: From policy to strategy to implementation

ii. The Monitoring and Evaluation Framework that supports the Implementation Plan will enable the DWS to monitor and report on progress.

iii. The review of the existing organisational structure within DWS will assist in enabling implementation by ensuring the correct line functions are identified as implementers or champions of aspects of the Plan.

The above allows Implementation Plan to become the critical catalyst for shifts in approach towards achievement. As such there is a need to carefully consider the nature of the implementation plan and develop this to create the opportunity to achieve, and demonstrate success.

1.3 Purpose

This IWQM I**mplementation Plan** is a management tool designed to illustrate, in detail, the critical steps required to progressively achieve the Vision and Goal set out for managing the country's water quality for the next 3-year cycle. It is the first discrete guide or map and will require regular monitoring, reporting, evaluation, and review to ensure that the country is always moving forward to achieving its Vision for IWQM. In light of moving forward, the purpose of this document, Edition 1 of the Implementation Plan, is to provide a framework for the development of Edition 2 which will be constructed through a process of engagement with DWS line functions and sector stakeholders. This engagement will provide richer detail as to the activities required as well as pragmatic inputs as to what is attainable within the 3-year time frame. By engaging in the development of this implementation plan, it is recognised that there will be improved buy-in and ownership of the implementation plan.

2. EFFECTING CHANGE VIA THE GLOBAL DEVELOPMENT AGENDA

South Africa's Vision for IWQM, as presented above, mandates that everyone has a role to play in improving resource water quality, especially in those critical areas where rural and peri-urban inhabitants are dependent directly on the resource itself. This improved water quality is crucial to improve socio-economic and environmental development. The National Development Plan (NDP) acknowledges water is a strategic resource and generally highlights that the country is water-scarce (NPC, 2012)

Africa's Agenda 2063 draws from the Pan African vison of having a continent that is peaceful and prosperous (African Union Commission, 2014). Furthermore, the Pan African vision envisages more involvement of its citizens in driving its own agenda, the exact sentiment is echoed by the IWQM Policy, whose vision is:

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

3. DOMESTICATION OF THE SUSTAINABLE DEVELOPMENT GOALS

The Sustainable Development Goals (SDGs) adopted in December 2015, are aimed at ending poverty, protecting the planet, and ensuring prosperity for all as part of a new sustainable development agenda. South Africa, as a signatory to the SDGs, must strive to meet specified targets under each of the SDGs. Water quality has a direct bearing on our ability to meet the goals of ending poverty, ending hunger and achieving food security, ensuring healthy lives and promoting sustainable economic growth. In relation to Goal 6: Ensure availability and sustainable management of water and sanitation for all, water quality is particularly relevant. Under Goal 6, there are three targets that are particularly relevant to water quality:

- By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally;
- By 2030, implement integrated water resources management at all levels, including through trans-boundary cooperation as appropriate; and
- By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

These SDGs mirror the sustainable socio-economic development path of South Africa as outlined in the National Framework for Sustainable Development (2008): *"South Africa aspires to be a sustainable, economically prosperous and self-reliant nation state that safeguards its democracy by meeting the fundamental human needs of its people, by managing its limited ecological resources responsibly for current and future generations, and*

by advancing efficient and effective integrated planning and governance through national, regional and global collaboration".

The Water Research Commission has heeded this call and has initiated a process to set the research agenda for the Sustainable Development Goals in the context of the Africa Agenda 2063 and the country's own National Development Plan to meet the global objectives on development. The dialogue recognised the role that ecosystems play in building resilience in the light of global threats such as climate change, water pollution, ecosystems degradation and biodiversity loss, among other challenges (WRC, 2017).

The global indicators, targets and monitoring framework for the SDG's have been set. South Africa is now in a process of building on those platforms to domesticise those indicators and targets to ensure that they are relevant and specific to South Africa. The uptake of those targets into National Policies is key to ensuring its success. The IWQM Policy has already advocated for its alignment with the broader development agenda. However, like the IWQM Policy, the SDG's require a core champion to ensure coordination and oversight, the functioning institutions and the relevant resources (both human and financial) assigned for its achievement. Trans-boundary uptake of those indicators is also crucial, and the existing platforms, such as River Basin Organisations, and any other structures that support transboundary management should participate in the setting and achieving of the targets.

3.1 IWQM Alignment to Global and Local Development Agendas

The Government Planning system is outlined in Figure 2[1]. The Medium Term Strategic Framework is the mechanism of implementation of the National Development Plan.

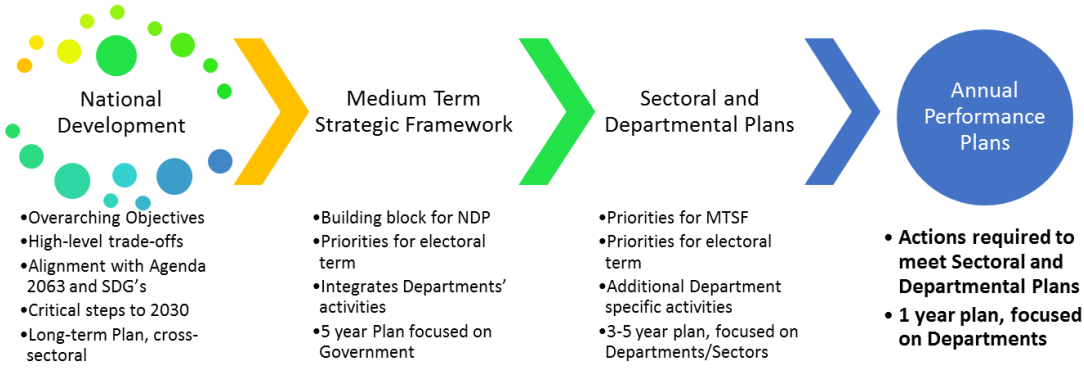

Figure 2: Government Planning System

With the domestication of the SDGs, it has been proposed that the reporting needs to align with the outcomes for the SDG process. The table below illustrates that the adoption and domestication of the SDGs is a process that needs to align with the overarching NDP, and

[1] WRC Dialogue, SDG's Domestication and the NDP, DPME Presentation, March 2017

ensure the targets and indicators, once developed, be incorporated into the rest of the Policies and Strategies.

The IWQM Policy places the IWQM in context with regards to National horizontal, vertical and transboundary policies as it recognised the severe need for integration. This Implementation Plan places IWQM in specific context of the Agenda 2063, SDG and the NDP, presented in Table 1 and Table 2 gives the specific water related aspects of the SDGs.

Table 1: IWQM Alignment to Global and Local Development Agendas

Agenda 2063	SDG	NDP Strategic Outcomes	IWQM
Goal 6: **Blue/ocean economy for accelerated economic growth**	**GOAL 14**: Conserve and sustainably use the oceans, seas and marine resources for sustainable development	**Outcome 2:** A long and healthy life for all South Africans. **Outcome 6:** An efficient, competitive and responsive economic infrastructure network.	**Strategic Issue 9:** Develop Pricing and Incentive Systems that Support IWQM **Strategic Issue 11:** Build WQ and WQM Capacity through Education, Training and Communication
Goal 7: **Environmentally sustainable climate resilient economies and communities**	**GOAL 6:** Ensure availability and sustainable management of water and sanitation for all	**Outcome 8:** Sustainable human settlements and improved quality of household life. **Outcome 7:** Vibrant, equitable and sustainable rural communities with food security for all.	**Strategic Issue 6:** Strengthen IWQM Regulation, Compliance and Enforcement **Strategic Issue 4:** Formalise non-governmental frameworks
	GOAL 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	**Outcome 10**: Environmental assets and natural resources that are well protected and continually enhanced.	**Strategic Issue 5:** Improve Coordination in Integrated Planning **Strategic Issue 6:** Strengthen IWQM Regulation, Compliance and Enforcement

Table 2: Auditing 'water' mainstreaming in the SDGs for the identification of potential research areas (WRC, 2017)

Goal Provisions	Targets mainstreaming the word 'water' in them	Indicators mainstreaming the word 'water' in them	Tier
SDG 3: Ensure healthy lives and promote wellbeing for all at all ages	• 3.3 By 2030, end the epidemics of AIDS tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases. • 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	• 3.3.3 Malaria incidence per 1,000 population • 3.3.5 Number of people requiring interventions against neglected tropical diseases • • 3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)	I I II
SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	• 4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	• 4.a.1 Proportion of schools with access to: (a) electricity; (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single-sex basic sanitation facilities; and (g) basic handwashing facilities (as per the WASH indicator definitions)	II
SDG 6: Ensure availability and sustainable management of water and sanitation for all	• 6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all • 6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations • 6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally • 6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	• 6.1.1 Proportion of population using safely managed drinking water service • 6.2.1 Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water • 6.3.1 Proportion of wastewater safely treated • 6.3.2 Proportion of bodies of water with good ambient water quality • 6.4.1 Change in water-use efficiency over time • 6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	I I III III III II

Goal Provisions	Targets mainstreaming the word 'water' in them	Indicators mainstreaming the word 'water' in them	Tier
	• 6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate • 6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes • 6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies • 6.b Support and strengthen the participation of local communities in improving water and sanitation management	• 6.5.1 Degree of integrated water resources management implementation (0-100) • 6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation • 6.6.1 Change in the extent of water related ecosystems over time • 6.a.1 Amount of water- and sanitation related official development assistance that is part of a government-coordinated spending plan • 6.b.1 Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management	II III III II II
SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable	• 11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situation	• 11.5.1 Number of deaths, missing persons and persons affected by disaster per 100,000 people • 11.5.2 Direct disaster economic loss in relation to global GDP, including disaster damage to critical infrastructure and disruption of basic services	II II
SDG 12*: Ensure sustainable consumption and production patterns	• 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	*This directly relates to IWQM Actions on understanding of: • Using Best Environmental Practice; • Monitoring of constituents that we do not have sufficient information on; and • Developing guidelines and protocols for their discharge.	III

Goal Provisions	Targets mainstreaming the word 'water' in them	Indicators mainstreaming the word 'water' in them	Tier
SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	• 15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species	• 15.8.1 Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species	III

It should be noted, that those with Tiers represent increasing level of complexity, as described below.

- Tier I: Indicator conceptually clear, established methodology and standards and data is available and data is regularly produced by some countries
- Tier II: Indicator conceptually clear, established methodology and standards and data is available but data is not regularly updated
- Tier III: Indicator for which there is no established methodology and standards

The above table reflects the global indicators. The process for domestication will require understanding the tiers for the South African context first, before hard targets are places within the Implementation Plan

4. CORE CONSIDERATIONS FOR PRIORITISATION

It is recognised that the sector faces a complex challenge within a context of resource constraints. The development of the implementation plan does therefore need to be both pragmatic and practical.

The core considerations for the formulation of the implementation plan include:

- **Focus on short to medium term timeframes, while building a platform for future** strategies in line with the policy and visions for water quality management
- **Prioritising critical concerns**, while ensuring that other issues are addressed through on-going management or monitoring for future prioritisation and action
- **Relevance at national, catchment and local scales,** while ensuring horizontal alignment across sectors and institutions at each scale
- **Provide a framework for actions towards a strategic intent** via a series of implementation plans
- **Enables adaptive response** to changing circumstances and achievements based on effective on-going monitoring and evaluation.

4.1 Aligning with broader objectives

Focus on short to medium term timeframes, while building a platform for future strategies in line with the policy and vision for water quality management.

The NWA enables the NWRS to be developed progressively over time as well as requiring that the strategy be reviewed and updated every 5 years. This enables the NWRS to have a longer- term vision supported by short to medium term action. It also enables the strategy to be improved and updated more regularly as required, in order to be adaptive. The second edition of the NWRS has placed a focus upon developing sectoral implementation plans that support the implementation of the NWRS, as well as develop a multi-sectoral approach.

The IWQM Strategy as part of the NWRS focusses on critical and prioritised actions for a short to medium term timeframe, whilst also providing the framework for the longer-term actions that must be undertaken to achieve effective IWQM. This implementation plan therefore, needs to be pragmatic in giving effect to the NWRS and the IWQM strategy in a clear, concise and measurable way, as well as aligning with the sectoral implementation plans that require development to support the NWRS.

4.2 Prioritised actions

Prioritising critical concerns, while ensuring that other issues are addressed through on-going management or monitoring for future prioritisation and action

The complexity of managing a scarce water resource under increasing levels of uncertainty will necessitate that not all of the many water quality challenges can be addressed

simultaneously. Human and financial resources as well as information and systems constraints will inhibit this. Therefore, the focus of the implementation plan must be on delivering change for prioritised challenges. This does not mean that work on other areas pertinent to water quality will not continue, but it serves to guide the allocation of human and financial resources for the 5-year period of the strategy, with the objective of building for longer term improvements.

In considering these priorities it will be critical to understand:

- **Impact:** Some activities need to be undertaken to reflect higher levels of impact upon water resources and water resource management.
- **Resources:** There are increasing levels of resource constraint that will influence as to what can be undertaken pragmatically.
- **Causality:** Some activities need to be undertaken in order to enable future activities.
- **Complexity:** It may be an effective approach to deal with simpler issues upfront whilst unpacking the more complex issues.

4.3 Scale and sectors

Relevance at national, catchment and local scales, while ensuring horizontal alignment across sectors and institutions at each scale

Implementation must consider activities across a range of different spatial scales (transboundary, national, catchment, local), whilst also addressing the issues that are specific to certain sectors, as well as between sectors (**Error! Reference source not found.**). These vertical and horizontal interfaces present an array of institutional and administrative challenges that are not easy to overcome, but are critical in ensuring effective water quality management. In considering these dimensions, the implementation plan needs to take a pragmatic view.

Whilst the roles of different departments and organisations vary according to spatial scale and mandate, the catchment level is understood as the critical scale for managing water quality and it is the various interfaces at the catchment scale that are key in successful water quality management. As such the role of Catchment Management Agencies become an important facilitator to this end. The development of catchment management strategies then becomes a key tool to guide in the strategic, adaptive management of water quality. As such the implementation plan needs to prioritise catchment level interventions.

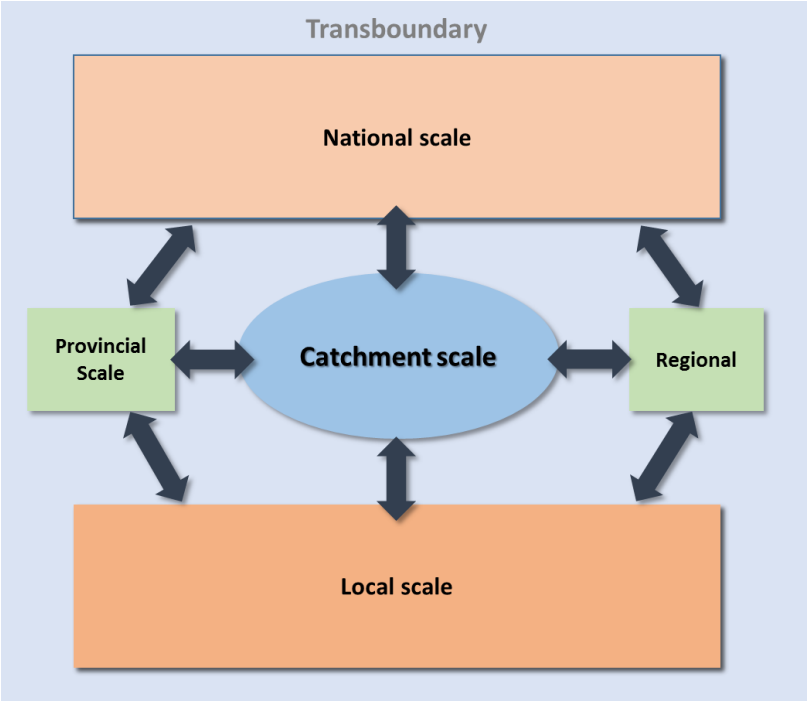

Figure 3: Scale and alignment for the implementation of the IWQMS

4.4 Supporting implementation

Provide the strategic intent and framework for actions to be described in the implementation plans *Provide a framework for actions towards a strategic intent*

Noting the complexity of water quality management which involves dimensions of protection, planning, authorisations, monitoring, regulation and oversight, it is important to provide a purposeful and pragmatic framework that enables short term achievement towards a longer-term purpose. In this regard, the implementation plan must have a short-term implementation focus and review cycle, and which must support the use of annual performance plans in government. Of critical importance is the development of SMART (Specific, Measurable, Agreed-upon, Realistic, Time-based) targets in these plans, that wil be supported by the development of a monitoring and evaluation framework as a separate report.

4.5 Systems-based Adaptive Management

Enables an adaptive response to changing circumstances and achievements based on effective on-going monitoring and evaluation

The management of a complex socio-ecological system requires an adaptive management approach. Successful implementation of the IWQM strategy will be based on the ability of the state, particularly at the catchment level, to implement a deliberate, systems-based, adaptive management approach. This approach must be inclusive, bringing together state, private

sector and civil society players on a regular basis to review and adapt plans and actions. As such the implementation plan must reflect where these different stakeholders are engaged.

Adaptive management enables the refinement of strategies and plans and the refocusing of financial and human resource allocation once certain actions have been implemented or certain milestones achieved, when the expected results from implemented actions are not achieved or when new information becomes available that informs improved approaches.

The implementation plan should look to support this approach, supported by an effective monitoring and evaluation system. This needs to take place at the catchment level where the most substantial implementation of the strategy will take place. This system needs to be structured around a broader programmatic monitoring and evaluation that would include a reflection of impact upon water resources themselves.

5. IMPLEMENTATION PRIORITIES

In many instances strategies fail due to the fact that there is significant pressure to develop and implement various solutions, without fully understanding the challenges at hand. In these instances, there is often an over emphasis on placing form over function, and institutions start restructuring. This results in an avoidance of the real issues in creating improved, efficient and effective action, underpinned by an active learning environment that enables staff and stakeholders to jointly learn and develop adaptive responses (Andrews, Pritchett and Woolcock, 2012).

There is therefore a need for a change in approach in order to ensure that the trajectory of declining water resource quality is checked, that we start to create the right capacity to strengthen our management of water resources whilst working towards a longer-term vision of on-going IWQM that is supported and enabled through adaptive management approaches.

The approach in the development of the implementation plan has therefore been to focus upon actions and activities that enable improved IWQM, with a sense that success will result in further success.

The IWQM Strategy provided a significant suite of 11 Strategic Issues, 21 Objectives and 60 Actions to fulfil the 5 Strategic Goals (Figure 4). Phased and pragmatic implementation of these actions are required and this section below aims to illuminate the process for prioritisation.

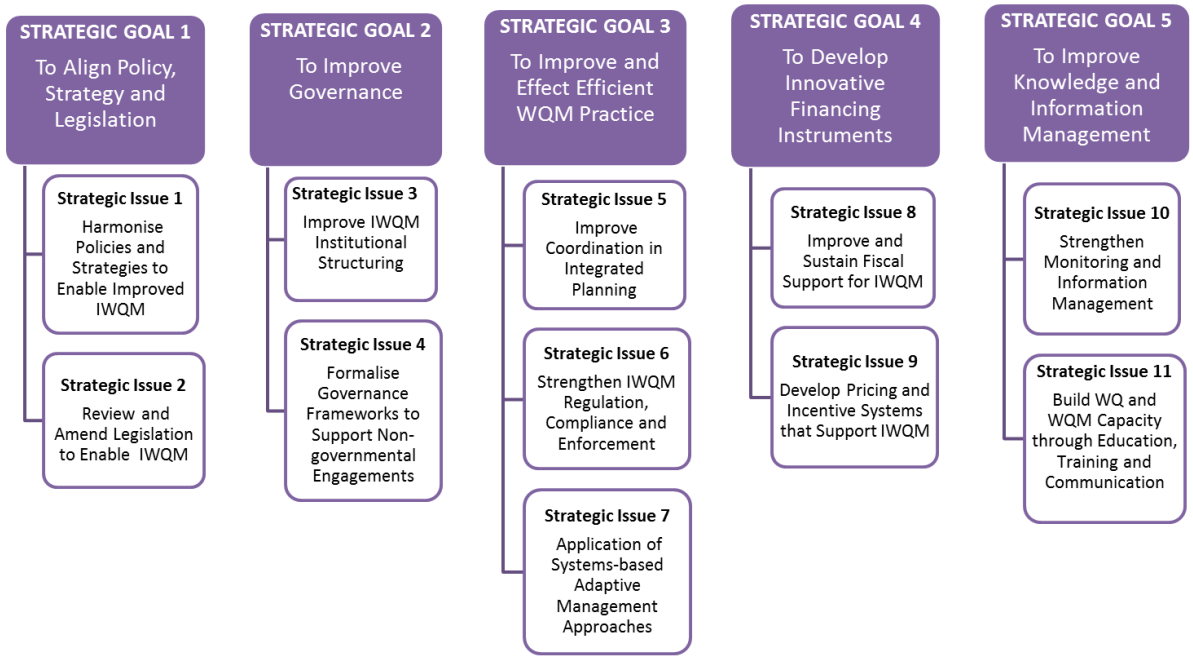

Figure 4: The IWQM Strategic Goals and Objectives

5.1 Critical Elements

The IWQM Strategy articulates the need to show success and so it is important to be able to reflect that our efforts can improve the status of water quality in identified catchments and not be seen as theoretical or academic exercises. Therefore, the implementation plan will reflect the need to deal with the key systemic and institutional issues, whilst reflecting the need to be rooted in our catchments and show impact (Figure 5).

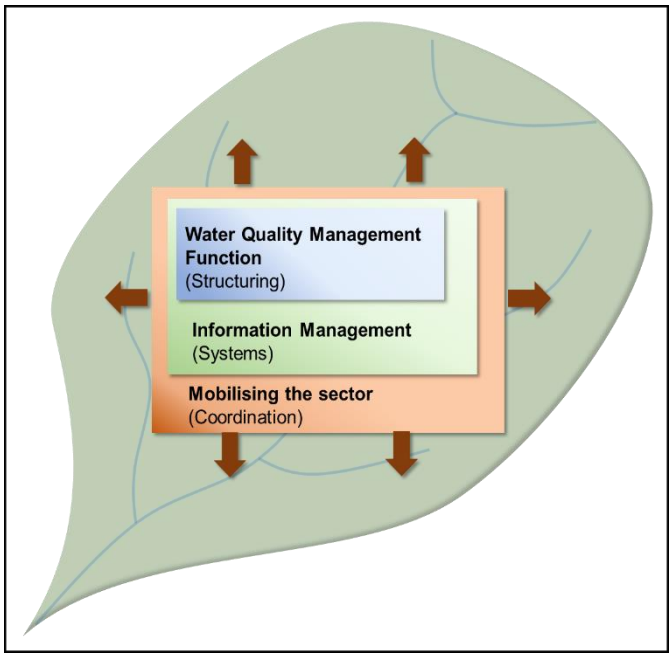

Figure 5: Focus for implementation

Focus on the business of water quality management in this first period of implementation should be towards:

- **Strengthening the water quality management function:** Whilst this may involve some elements of organisational design, this would ostensibly be about resolving roles and responsibilities as well as determining accountability.

  The identification of a cohort of champions within Government, and primarily DWS, to lead the water quality management function is priority. This will be supported by a drive to communicate the IWQM Strategy to the broader sector.

- **Improving our information management:** The need to improve our systems to support adaptive management responses is critical and whilst much effort has been applied within DWS, the need to create more integrated systems across Government is becoming increasingly important.

  At the core of information management is good, sound, current and scientifically defensible data to support the implementation of the actions and track progress. It is critical that the data systems are integrated and updated, to ensure that a baseline for

water quality can be established, for reporting and tracking purposes. This will require on-going development by both Government and the Sector.

- **Mobilising the sector:** The need to develop a sector-wide approach underpins the philosophy of IWQM. There are, and will continue to be, questions of clarification regarding roles and responsibilities between various actors, but noting that these will be resolved through experimentation and implementation means that efforts to mobilise across a wider spectrum of actors needs to be initiated sooner than later.

  Establishing the "Community of Practice" across the sector is a significant priority in initiating and maintaining sector wide engagement.

- **Realising impact:** Nothing breeds success, like success. It is critically important that as a sector we can demonstrate that we can fix key challenges in prioritised catchments or systems. The broader water quality management approaches, mentioned above, will support these impacts on the ground.

  Priority catchments must be identified and processes initiated to address the core issues of eutrophication, salinisation, urban pollution, sedimentation, and acidity/alkalinisation. The development of IWQM plans will be a priority in supporting this drive.

5.2 Identified Priorities

Consultation and communication with stakeholders has formed an essential part of the development of the IWQM Strategy. This has included a range of governmental and non-governmental stakeholders. Nine provincial roadshows, preceded by a work-session with the DWS Provincial Office and Proto-CMA, as well as a national workshop that involved many Government Departments has provided insights as to matters of priority at the national and provincial levels for the finalisation of this IWQM Strategy and for the development of the Implementation Plan.

These priorities provide guidance as to issues that need to be addressed within the first phase of implementation of this strategy (Table 3) noting that it will be essential to initiate activities that require longer-term time frames to be realised.

Table 3: Identified priorities for implementation

Goal	Strategic Issue	Strategic Objective	National/ Provincial	Comment
Aligned Policy, Strategy and Legislation	**1:** Harmonise Policies and Strategies to Enable Improved IWQM	**1a**: Policies and Strategies impacting upon IWQM are harmonized	National	Recognising the importance of enabling more seamless governance, this longer-term process needs to be initiated. DWS internal, operational policies and strategies also require strengthening to be more inclusive of WQM issues.

Goal	Strategic Issue	Strategic Objective	National/ Provincial	Comment
Improved Governance	**3.** Improved WQM institutional structuring	**3a:** DWS departmental structures support IWQM	National	The WQM function within the DWS and its institutions is spread across various line functions. Whilst there is a need for this to ensure good governance, there may be ways to strengthen the coordination as well as provide an aligned intent.
		3b: Inter-sector departmental structures to support IWQM	National	The need to have inter-governmental structures that enables improved coordination and reporting as well as better planning for interventions is fundamentally important to enable IWQM.
	4: Formalise Governance Frameworks to Support Non-Governmental Engagements	**4a**: Partnerships / stewardships established and maintained	Provincial	Whilst there are some partnerships that will be important at a national level, the importance of these arrangements at the catchment scale is a key part of enabling IWQM. Stewardships are most effective when focused upon specific catchments.
		4b: Governance framework for active citizenry formalised	Provincial	Civil Society, as the ultimate beneficiary of impacts from poor water quality in catchments, needs to be seen as a strategic partner. Civil society has always played a "watch-dog" and advocacy role, and is often the voice to hold both Government and Private Sector to account. However, a platform where the voice of civil society is given strength to play the above roles in a more formalised manner.
Improved, Effective and Efficient WQM Practice	**6**: Strengthen IWQM Regulation, Compliance and Enforcement	**6a**: Licencing processes streamlined	National Provincial	Clearly, there are process and procedural issues that require attention at the national level, however, there are concerns about process, timelines and information requirements that officers in catchments need to interface upon between DWS and water users.
		6b: Targeted/strengthened compliance monitoring and enforcement of key polluting sectors	National Provincial	Driven nationally, there is a need for a targeted programme to address priority issues. There is a need to reflect success at the catchment scale to influence behaviours. This requires a strong and coordinated partnership between national, provincial and local actors.
Innovative Finance	**8:** Fiscal support for IWQM	**SO8a:** WQM interventions are financially supported by the	National	The need to fully understand the cost of managing water quality is priority. Government then needs to develop an investment framework including innovative

Goal	Strategic Issue	Strategic Objective	National/ Provincial	Comment
		fiscus		mechanisms to mobilise funding for sustained support to IWQM
	9: Develop Pricing and Incentive Systems that Support IWQM	**9a**: The Waste Discharge Charge System is implemented	National	The Waste Discharge Charge System has been approved and work towards implementation readiness has been undertaken. Nationally, DWS with National Treasury, need to initiate implementation, but this will require some systems issues and legislative challenges to be resolved.
Improved Knowledge and Information Management	**10:** Strengthen Monitoring and Information Management	**10a**: An integrated and functioning water quality monitoring network	National Provincial	Nationally driven, with provincial and local support to operationalise. The need for data is critical to enable IWQM. This data is needed by many other national and provincial departments to inform management decisions.
		10b: Information systems that are current and accessible to support adaptive WQM	National Provincial	Access to data and information at national, provincial and local levels is essential for adaptive management. Improvements in terms of systems has been significant but there is still much to do, especially with regards to inter-departmental data and information, and regarding access by non-governmental stakeholders.
	11: Build WQ and WQM Capacity through Education, Training and Communication	**11a**: Sustained capacity for Government/CMA /sector to effectively manage and support WQM through improved education and training	National Provincial	In the technical arena of IWQM the need for qualified, skilled and competent staff is dire at national, provincial and local levels. The development of this capacity does not happen rapidly, and requires structured programmes with clear targets. This cuts across sectors and various government departments. This is a matter of absolute priority and was possibly the most discussed issue during the engagements on the strategy.

Consequently, the Implementation Plan has been developed with these priorities in mind and Chapter 4 provides the Implementation Activities earmark for the first Implementation Phase.

5.3 Sector Coordination

The largest challenge for the implementation of the IWQM Strategy, and indeed to the success of IWQM, will be the challenge to mobilise the broader sector. The Strategy had articulated repeatedly how the operational policies and strategies that the DWS has used to implement the NWA are in effect sound, however, the DWS cannot ensure that sustainable use of the resource without the buy-in and support of the broader sector.

Noting that different Government Departments and sectors have quite different interfaces with water resources, there is a need for a differentiated approach to this mobilisation (Table 4). The table below gives a high-level outline of the interfaces with other Government Departments. The Inter-Departmental workshop, held on 10th February 2017, was a useful platform to commence the series of engagements required to obtain buy-in and support for the IWQM. The leading role of the DWS in developing and maintaining these relationships will be critical in the months to follow.

Table 4: Government interfaces with IWQM

Government Departments	N/P/L	Concern	Interfaces	Strategic Objectives
Water Quality Impacting Sectors				
Agriculture, Fisheries and Forestry	N / P	• Water quality for irrigated agriculture • Impacts upon water and agricultural resources	• Policy • Planning • Regulation • Adaptive management • Monitoring and information • Capacity building	• SO1a • SO5a-b • SO6a-b • SO7a • SO10a-c • SO 11a-c
Cooperative Governance and Traditional Affairs	N / P	• Support inter-governmental cooperation • Oversight of municipal services	• Policy • Planning • Regulation • Monitoring and information • Building capacity	• SO1a • SO5a-b • SO6a-b • SO10a-c • SO11a-c
Energy	N	• Water quality of water used in power generation ie largely for cooling purposes	• Planning • Regulation	• SO5a-bb • SO6a-b
Environmental Affairs	N / P	• Environmental impact assessments • Protection of specific sites of importance • Compliance with SEMA legisation	• Policy • Planning • Regulation	• SO1a • S05a • SO6a-b
Health	N / P	• Water quality of domestic supplies (urban and rural supplies)	• Planning • Regulation • Monitoring and information • Build capacity	• SO6a-b • SO10a-c • SO11a-c
Human Settlements	N / P / L	• Water quality of domestic supplies • Sanitation	• Planning • Regulation	• S05a • SO6a-b
Mineral Resources	N / P	• Planning mining developments • Impact of mining developments	• Planning • Regulation • Adaptive management • Monitoring and information	• SO5a-b • SO6a-b • SO7a • SO10a-c

Municipalities	L	• Bylaws • Water quality from industrial discharges • Stormwater runoff • Municipal discharges from WWTW	• Policy • Planning • Regulation • Adaptive management • Monitoring and information	• SO1a • SO5a-b • SO6a-b • SO7a • SO10a-c
Public Enterprises	N	• Oversight of Public Entities adherence to environmental policy and regulation	• Regulation • Monitoring and information	• SO6a-b • SO10a-c
Rural Development and Land Reform	N	• Water quality for irrigated agriculture	• Policy • Planning	• SO1a • SO5a-b
Tourism	N / P / L	• Water quality of domestic supplies • Environmental health	• Planning • Regulation	• S05a • SO6a-b
Trade and Industry	N / P / L	• Water quality for industrial use purposes • Water quality of industrial discharges	• Policy • Planning	• SO1a • SO5a-b
Water and Sanitation	N	• Sustainable water use management and development • Sector coordination • Sector development	• Policy • Governance • Structuring • Planning • Regulation • Adaptive management • Financial support • Monitoring and information • Building sector capacity	• All SOs
Enabling Improved Water Quality				
Basic Education	N / P	• Broader societal awareness • Early career guidance	• Building sector capacity	• SO11a-c
Communications	N / P	• Broader societal awareness	• Building sector capacity	• SO11a-c
Higher Education	N / P	• Technical career guidance	• Building sector capacity	• SO11a-c
National Treasury	N / P	• Good governance • Financial resources to support IWQM	• Policy • Governance • Structuring • Financial management	• SO1a • SO3a-b • SO5a-b • SO8a • SO9a-b
Planning, Monitoring and Evaluation	N	• Oversight of strategic sector achievements	• Policy • Governance • Structuring • Financial management	• SO1a • SO3a-b • SO5a-b • SO6a-b • SO8a • SO9a-b

Science and Technology	N	• Support water research and technology development	• Cross cutting projects that touch all aspects	• All SOs

***National/Provincial/Local**

There are different ways in which these coordination committees could be developed. In the first instance the national matters of policy, legislation, regulation and key systemic issues could be coordinated through a national coordinating committee, whilst the more operational aspects of resource management and development would be handled at the provincial level working through the DWS Proto-CMA and would involve the provincial departments as well as the municipalities. It would be useful for the provincially based committees to report on matters so that key policy and regulatory challenges are swiftly resolved, as well as providing an opportunity for the national committee to gather lessons learned that may influence policy positions or day to day practice.

These structures, their formats and modalities will be developed progressively and this will be articulated in the implementation plan.

6. IMPLEMENTATION ACTIVITIES

The translation of the Strategic actions into a series of activities that need to unfold in the next 3-year cycle are presented in the Tables 5 to 9 that follow. These Tables have been constructed around the implementation of the 5 Strategic Goals. The tables relay the following information:

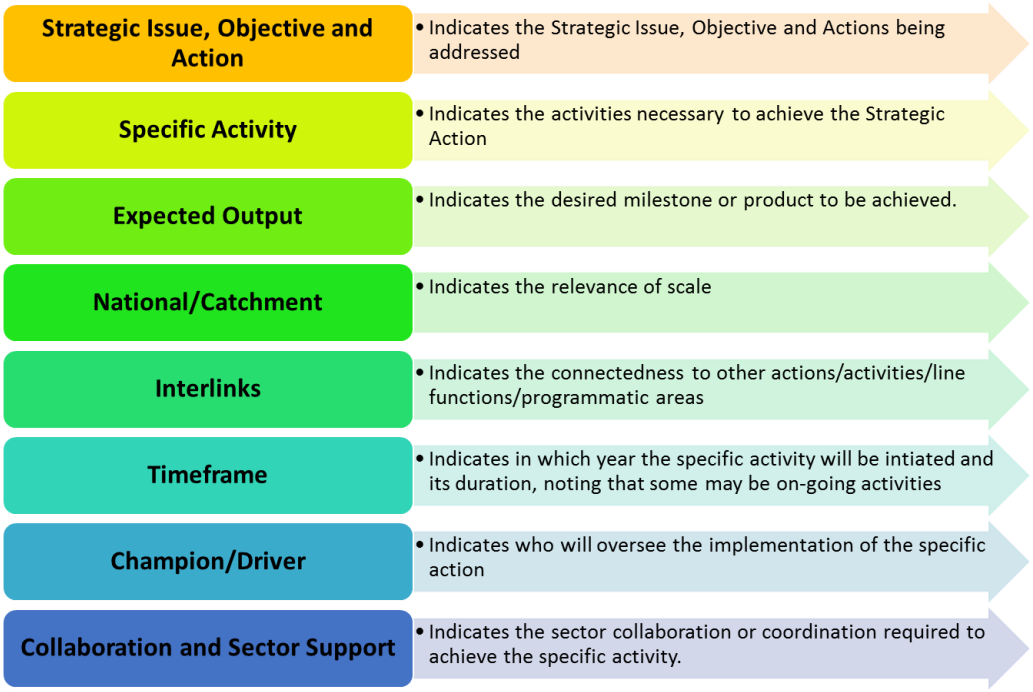

Figure 6: Outline of the IWQM Implementation Tables

6.1 Implementation Plan: GOAL 1

Table 5: Implementation Plan for to achieve Goal 1 in the short to medium term

Strategic Issue	Strategic Objective	Strategic Action	Specific Activity	Expected Output	National / Catchment	Inter-links	Timeframe			Champion/Driver	Collaboration and Sector Support							
							2018	2019	2020		National Government	Provincial Government	LG	Impacting Private Sectors			Civil Society	Other
													Muni	Mines	Industries	Agriculture		
SI1: Harmonise Policies, Strategies and Legislation to Enable Improved IWQM	**SO1a: Policies, Strategies and Legislation impacting upon IWQM are harmonized**		Assessment of key policies and strategies that require development or amendment to ensure IWQM	Understanding of gaps in policies and strategies and legislation that will enable IWQM across sectors	National	**DDG: Regs, CMAs**				**DWS: CD Policy and Strategy**	**DWS**		SALGA, SACN	CoM	CAIA	AgriSA	WSLG, CMFs, CMCs, others	
			Development and revision of other water resource management policies and strategies to ensure alignment with IWQM	Relevant Policies, Strategies and Legislation updated within DWS to ensure effective IWQM. This is an on-going initiative	National	**DDG: Regs, CMAs**				**DWS: CD Policy and Strategy**	**DWS**						WSLG, CMFs, CMCs, others	
		SA2: Sector departments to harmonise policies, strategies and legislation to support IWQM	Assessment of alignment issues with other sectoral policies, strategies and legislation (environment, agriculture, mining, industry, governmental etc.) that require development or amendment to ensure IWQM	Improved understanding of intersectoral alignment requirements	National	**DDG: Regs, CMAs**				**DWS**	**DWS, DAFF, DMR, DEA, DTI, COGTA, DPE**							
			Initiate processes to ensure alignment other sectoral policies, strategies and legislation (environment, agriculture, mining, industry, governmental etc.) that require development or amendment to ensure IWQM	Relevant Policies, Strategies and Legislation updated within Government to ensure effective IWQM.	National	**DDG: Regs, CMAs**				**DWS: DDG P&I**	**DWS, DAFF, DMR, DEA, DTI, COGTA, DPE**							
		SA3: DWS to finalise and implement non-point source strategy	The National Non-Point Source Strategy, developed as part of the Waste Discharge Charge System to be revised, updated and finalised	A finalised National Non-Point Source Strategy	National	**DDG: Regs, CMAs**				**DWS: HO (WDCS champion)**	**DWS, DAFF, DMR. DEA**							Academia, research institutes, WRC
			The finalised NNPS to be communicated to all relevant WQM officials and sectors	Informed WQM Officials, sectors and stakeholders	National Catchment	**DDG: Regs, CMAs**				**DDG: Regs, CMAs**	**DWS**	Through national Depts	Through COGTA, SALGA, SACN	CoM	CAIA	AgriSA	WSLG, CMFs, CMCs, others	
			The Implementation Guideline to be developed and incorporated in all relevant operational guidelines		National Catchment	**DDG: Regs, CMAs**				**DWS: DDG P&I**	**DWS**							

6.2 Implementation Plan: GOAL 2

Table 6: Implementation Plan for to achieve Goal 2 in the short to medium term

Strategic Issue	Strategic Objective	Strategic Action	Specific Activity	Expected Output	National / Catchment	Inter-links	Timeframe			Champion /Driver	Collaboration and Sector Support							
							2018	2019	2020		National Government	Provincial Government	LG	Impacting Private Sectors			Civil Society	Other
													Muni	Mines	Industries	Agriculture		
SI10: Strengthen Monitoring and Information Management	SO10a: An Integrated and functionining water quality monitoring network	SA 45: DWS/CMAs to strengthen national and catchment WQ monitoring networks through spatial expansion and identification of priority constituents for catchment-specific monitoring	Identify priority water quality constituents across catchments.	Key priorities identified	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC
			Assess monitoring gaps.	List of monitoring network gaps (constituents and spatial)	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC
			Develop national monitoring network development plan.	Identified priority actions and financial needs to strengthen networks	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC
		SA 46 DWS to support the network expansion with an initiative to ensure that accessible accredited laboratories are available to ensure efficient and effective analyses	Assess laboratory requirements per catchment / province.	Identified laboratory requirements for each catchment/ province	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS, DST							Academia, research institutes, WRC
			Assess priority gaps in laboratory needs across catchments/provinces.	Laboratory shortfalls understood	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS, DST							Academia, research institutes, WRC
			Development of laboratory development strategy in conjunction with DST and Provincial Government	Strengthening of the network of accredited laboratories supports improved WQM	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS, DST							Academia, research institutes, WRC
	SO10b: Information Systems that are current and accessible to support Adaptive Management	SA 47: DWS, with the WRC and CMAs, to lead the development of a programme to create and support citizen-based monitoring programmes	Outline types of data and information support that citizen based monitoring can provide IWQM.	Understanding of how citizen based monitoring can support IWQM	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC
			Develop a programme of support for key priorty catchments.	Priority catchments identified	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC
			Provide seed support to ensure programmes are initiated and maintained in the short term.	Improved data collection strengthens IWQM in key catchments.	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC
		SA 48: DWS/DEA/CMAs to ensure the harmonisation of data and	Delimit the systems and approaches being used across Departments and catchments.	Situation assessment of current systems	National	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC

Strategic Issue	Strategic Objective	Strategic Action	Specific Activity	Expected Output	National / Catchment	Inter-links	Timeframe			Champion /Driver	Collaboration and Sector Support							
							2018	2019	2020		National Government	Provincial Government	LG	Impacting Private Sectors			Civil Society	Other
													Muni	Mines	Industries	Agriculture		
		information systems pertaining to WQ	Assess gaps in the data and information management systems.	Situation assessment of current systems	National	**DDG: Regs, CMAs**				**DDG: P&I**	**DWS**							Academia, research institutes, WRC
			Strengthen existing systems. Develop interfaces between systems where appropriate.	Improved data collection and information management strengthens IWQM in key catchments.	National	**DDG: Regs, CMAs**				**DDG: P&I**	**DWS**							Academia, research institutes, WRC
		SA 49: DWS, CMAs, DEA, DAFF, DMR to develop systems to enable data and information access by stakeholders/ public	Assess information requirements of stakeholders and public.	Situation assessment of information of needs	National Catchment	**DDG: Regs, CMAs**				**DDG: P&I**	**DWS**							Academia, research institutes, WRC
			Assess existing access points and systems.	Situation assessment of information of needs	National Catchment	**DDG: Regs, CMAs**				**DDG: P&I**	**DWS**							Academia, research institutes, WRC
			Develop or strengthen systems to enable smooth access to data and information.	A more informed civil society supports IWQM	National Catchment	**DDG: Regs, CMAs**				**DDG: P&I**	**DWS**							Academia, research institutes, WRC

6.3 Implementation Plan: GOAL 3

Table 7: Implementation Plan for to achieve Goal 3 in the short to medium term

Strategic Issue	Strategic Objective	Strategic Action	Specific Activity	Expected Output	National / Catchment	Inter-links	Timeframe			Champion/ Driver	Collaboration and Sector Support							
							2018	2019	2020		National Government	Provincial Government	LG	Impacting Private Sectors			Civil Society	Other
													Muni	Mines	Industries	Agriculture		
SI06: Strengthen IWQM Regulation, Compliance and Enforcement	**SO6a: Licencing processes streamlined**	**SA 24: DWS to address the backlog of WUL applications urgently and to meet stipulated timeframes for new licence applications.**	Continue ongoing initiatives to improve administration of license applications	Efficient processing of water use license applications supports development initiatives.	National Catchment	**DDG: P&I, CMAs**				**DDG: Regs**	**DWS**							
			Develop and implement capacity building initiatives regarding WUL application processes and procedures	Ongoing processes and procedures maintained. More efficient processing of water use license applications.	National Catchment	**DDG: P&I, CMAs**				**DDG: Regs**	**DWS**							
		SA 25: DWS to categorise risk-based protocols for determining water use authorization	Identify water use risk profile per WMA.	Clearer understanding of priority water users	Catchment	**DDG: Regs, DDG:P &I**				**COO, CMAs**	**DWS**		SALGA	CoM	CAIA	AgriSA	WSLG, CMFs, CMCs	Academia, research institutes, WRC, SANBI
			Develop differentiated protocols for dealing with high risk water use from low risk water use applications	Protocols exist that assist in prioritising regulatory focus	National	**DDG:P &I, CMAs**				**DDG: Regs**	**DWS**							
			Pilot protocol in three WMAs.	Protocol tested to enable improvement	Catchment	**CMAs**				**DDG: Regs / COO**	**DWS**							
		SA 26: DWS/CMAs to develop protocols for CMA engagement in IWUL applications and approval processes	Develop draft protocols in conjunction with CMAs and Proto-CMAs.	More efficient processing of water use license applications.	National Catchment	**COO, CMAs**				**DDG: Regs**	**DWS**							
			Develop appropriate delegations.	Delegation prepared for Ministerial approval	National	**COO, CMAs**				**DDG: Regs**	**DWS**							
		SA 27: DWS, DEA, DAFF and DMR publish and implement licencing regulations	Update and strengthen regulations regarding licensing	Improved regulations for supporting licensing	National	**DDG: P&I, CMAs**				**DDG: Regs**	**DWS, DEA, DMR, DAFF**							
			Communicate regulations update	Improved awareness of regulations and licensing processes	National	**DDG: P&I, CMAs**				**DDG: Regs**	**DWS, DEA, DMR, DAFF**							
			Monitor and review application of regulations	Assess regulatory impact	National	**DDG: P&I, CMAs**				**DDG: Regs**	**DWS, DEA, DMR, DAFF**							
		SA 28: DWS, DEA, DAFF and DMR to develop information management systems to support the	Establish inter-departmental committee to support more integrated licensing processes.	Committee established to coordinate an inter-departmental process to develop integrated licensing processes	National	**DDG: P&I, CMAs**				**DDG: Regs**	**DWS, DEA, DMR, DAFF**							
			Assess the opportunities for integrated licenses	Potential for integrated licensing understood	National	**DDG: P&I, CMAs**				**DDG: Regs**	**DWS, DEA, DMR, DAFF**							

Strategic Issue	Strategic Objective	Strategic Action	Specific Activity	Expected Output	National / Catchment	Inter-links	Timeframe			Champion/ Driver	Collaboration and Sector Support							
							2018	2019	2020		National Government	Provincial Government	LG Muni	Impacting Private Sectors: Mines	Impacting Private Sectors: Industries	Impacting Private Sectors: Agriculture	Civil Society	Other
		integrated licensing approach	Identify organisational, institutional, information and systems issues to support integrated licensing	Gaps and challenges in developing an integrated licensing process understood	National	DDG: P&I, CMAs				DDG: Regs	DWS, DEA, DMR, DAFF							
			Develop implementation plan towards the establishment of an integrated licensing process	Implementation plan developed to guide actions	National	DDG: P&I, CMAs				DDG: Regs	DWS, DEA, DMR, DAFF							
	SO6b: Targeted/Strengthened Compliance, Monitoring and Enforcement of key polluting sectors	**SA 29: DWS, DEA to develop improved regulatory approaches to manage WQ pollution from land-based and in-stream activities**	Establish Inter-departmental working group	Improved cooperative governance	National	DDG: P&I, CMAs				DDG: Regs	DWS, DEA, DMR, DAFF							
			Determine existing regulatory approaches and gaps	Regulatory strengths and weaknesses understood	National	DDG: P&I, CMAs				DDG: Regs	DWS, DEA, DMR, DAFF							
			Determine regulatory system interfaces	Potential interfaces in systems identified	National	DDG: P&I, CMAs				DDG: Regs	DWS, DEA, DMR, DAFF							
			Develop inter-departmental approach	Approach towards more effective management of land based and in-stream activities developed	National	DDG: P&I, CMAs				DDG: Regs	DWS, DEA, DMR, DAFF							
		SA 30: DWS, DEA, CMAs to develop a targeted approach for the enforcement of regulation	Prioritise regulatory activities based on levels of risk	Effective regulatory actions in targeted areas realises water resource improvements.	National Catchment	DDG: P&I, CMAs				DDG: Regs	DWS							
			Develop enforcement guide and implementation plan	Tools exists to support consistency in approach across catchments	National	DDG: P&I, CMAs				DDG: Regs	DWS							
		SA 31: DWS, DEA to assess gaps in regulatory frameworks and instruments and develop revised approaches and instruments as necessary	Assessment of regulatory gaps.	Gaps in regulatory approach understood	National	DDG: P&I, CMAs				DDG: Regs	DWS							
			Develop list of key priorities.	Priorities for regulation identified	National	DDG: P&I, CMAs				DDG: Regs	DWS							
			Strengthen existing regulatory instruments.	Regulatory instruments improved to address gaps	National	DDG: P&I, CMAs				DDG: Regs	DWS							
			Develop new regulatory instruments as needed.	Strengthened inter-departmental regulatory approach	National	DDG: P&I, CMAs				DDG: Regs	DWS							
		SA 32: DWS, DEA, CMAs to develop approaches to strengthen operational CME and the EMI network	Assess capacity requirements and gaps.	Training needs assessed	National	DDG: P&I, CMAs				DDG: Regs	DWS, DEA							
			Develop capacity building plan.	Strengthened compliance monitoring and enforcement staff compliment	National	DDG: P&I, CMAs				DDG: Regs	DWS, DEA							

6.4 Implementation Plan: GOAL 4

Table 8: Implementation Plan for to achieve Goal 4 in the short to medium term

Strategic Issue	Strategic Objective	Strategic Action	Specific Activity	Expected Output	National / Catchment	Inter-links	Timeframe			Champion/ Driver	Collaboration and Sector Support							
							2018	2019	2020		National Government	Provincial Government	LG Muni	Impacting Private Sectors: Mines	Impacting Private Sectors: Industries	Impacting Private Sectors: Agriculture	Civil Society	Other
SI08: Fiscal Support for IWQM	SO8a: Fiscus financing is effectively used to support IWQM interventions	SA 36: WRC to support research into the socio-economic-environmental and management costs of poor WQ	Identify research areas	Terms of Reference developed	National Catchment	DDG: Regs, CMAs				WRC, DDG: P&I	DWS						WSLG, CMFs, CMCs, NGOs	Academia, research institutes, WRC
			Initiate and complete studies	Teams appointed and studies completed	National Catchment	DDG: Regs, CMAs				WRC, DDG: P&I	DWS							Academia, research institutes, WRC
			Present research findings to DWS.	Research finds innovative approaches to water quality management	National Catchment	DDG: Regs, CMAs				WRC, DDG: P&I	DWS							Academia, research institutes, WRC
		SA 37: Government to develop an investment framework including innovative mechanisms to mobilise funding for sustained support to IWQM	Assess implementation priorities.	List of priority implementation actions	National Catchment	DDG: Regs, WTE, CMAs				DDG: P&I, CMAs	DWS		SALGA, SACN	CoM	CAIA	AgriSA	WSLG	SANBI
			Develop an understanding funding requirements.	Funding needs identified	National Catchment	DDG: P&I				DDG: Regs, WTE	DWS		SALGA, SACN	CoM	CAIA	AgriSA	WSLG	SANBI
			Outline potential funding mechanisms.	Funding mechanisms identified	National	DDG: P&I				DDG: Regs, WTE	DWS, NT							
			Develop funding strategy.	Longer term funding strategy to support IWQM.	National	DDG: P&I				DDG: Regs, WTE	DWS, NT							
		SA 38: DWS, with COGTA, SALGA, to review municipal conditional grants	Assessment of the effectiveness of the existing grants.	Failings of current system understood and alternative approaches developed	National	DDG: P&I				DDG: Regs, WTE	DWS, NT		SALGA, SACN					
			Identify priority areas for funding support within municipalities.	Suite of priorities for funding in municiplaties determined	National	DDG: P&I				DDG: Regs, WTE	DWS, NT, COGTA		SALGA, SACN					
			Assessment of priority funding requirements for the MTEF period	Sufficient funding supports improved WQM in municipalities	National	DDG: P&I				DDG: Regs, WTE	DWS, NT		SALGA, SACN					
		SA 39: DWS to develop and implement a protocol for extending the financial provisioning clause to all industries that are deemed "high-risk" polluters.	Assessment of the water quality impacts by high risk sectors.	Understanding of the full brevity of water quality impacts by high risk sector	National Catchment	DDG: P&I				DDG: Regs, WTE	DWS, DMR, DAFF, DTI		SALGA, SACN					
			Assess the financial shortfall required to address these WQ issues.	Understanding of financial impact of pollution from high risk sectors	National Catchment	DDG: P&I				DDG: Regs, WTE	DWS, NT		SALGA, SACN					
			Develop protocol for financing.	Financial mechanisms identified to support the resolution of longer term impacts on water quality.	National	DDG: P&I				DDG: Regs, WTE	DWS, NT		SALGA, SACN					

6.5 Implementation Plan: GOAL 5

Table 9: Implementation Plan for to achieve Goal 5 in the short to medium term

Strategic Issue	Strategic Objective	Strategic Action	Specific Activity	Expected Output	National / Catchment	Inter-links	Timeframe			Champion/ Driver	Collaboration and Sector Support							
							2018	2019	2020		National Government	Provincial Government	LG Muni	Impacting Private Sectors: Mines	Impacting Private Sectors: Industries	Impacting Private Sectors: Agriculture	Civil Society	Other
SI10: Strengthen Monitoring and Information Management	SO10a: An Integrated and functioning water quality monitoring network	SA 45: DWS/CMAs to strengthen national and catchment WQ monitoring networks through spatial expansion and identification of priority constituents for catchment-specific monitoring	Identify priority water quality constituents across catchments.	Key priorities identified	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC
			Assess monitoring gaps.	List of monitoring network gaps (constituents and spatial)	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC
			Develop national monitoring network development plan.	Identified priority actions and financial needs to strengthen networks	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC
		SA 46 DWS to support the network expansion with an initiative to ensure that accessible accredited laboratories are available to ensure efficient and effective analyses	Assess laboratory requirements per catchment / province.	Identified laboratory requirements for each catchment/ province	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS, DST							Academia, research institutes, WRC
			Assess priority gaps in laboratory needs across catchments/provinces.	Laboratory shortfalls understood	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS, DST							Academia, research institutes, WRC
			Development of laboratory development strategy in conjunction with DST and Provincial Government	Strengthening of the network of accredited laboratories supports improved WQM	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS, DST							Academia, research institutes, WRC
	SO10b: Information Systems that are current and accessible to support Adaptive Management	SA 47: DWS, with the WRC and CMAs, to lead the development of a programme to create and support citizen-based monitoring programmes	Outline types of data and information support that citizen based monitoring can provide IWQM.	Understanding of how citizen based monitoring can support IWQM	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC
			Develop a programme of support for key priority catchments.	Priority catchments identified	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC
			Provide seed support to ensure programmes are initiated and maintained in the short term.	Improved data collection strengthens IWQM in key catchments.	National Catchment	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC
		SA 48: DWS/DEA/CMAs to ensure the harmonisation of data and	Delimit the systems and approaches being used across Departments and catchments.	Situation assessment of current systems	National	DDG: Regs, CMAs				DDG: P&I	DWS							Academia, research institutes, WRC

Strategic Issue	Strategic Objective	Strategic Action	Specific Activity	Expected Output	National / Catchment	Inter-links	Timeframe			Champion/ Driver	Collaboration and Sector Support							
							2018	2019	2020		National Government	Provincial Government	LG Muni	Impacting Private Sectors: Mines	Impacting Private Sectors: Industries	Impacting Private Sectors: Agriculture	Civil Society	Other
		information systems pertaining to WQ	Assess gaps in the data and information management systems.	Situation assessment of current systems	National	**DDG: Regs, CMAs**				**DDG: P&I**	**DWS**							Academia, research institutes, WRC
			Strengthen existing systems. Develop interfaces between systems where appropriate.	Improved data collection and information management strengthens IWQM in key catchments.	National	**DDG: Regs, CMAs**				**DDG: P&I**	**DWS**							Academia, research institutes, WRC
		SA 49: DWS, CMAs, DEA, DAFF, DMR to develop systems to enable data and information access by stakeholders/ public	Assess information requirements of stakeholders and public.	Situation assessment of information of needs	National Catchment	**DDG: Regs, CMAs**				**DDG: P&I**	**DWS**							Academia, research institutes, WRC
			Assess existing access points and systems.	Situation assessment of information of needs	National Catchment	**DDG: Regs, CMAs**				**DDG: P&I**	**DWS**							Academia, research institutes, WRC
			Develop or strengthen systems to enable smooth access to data and information.	A more informed civil society supports IWQM	National Catchment	**DDG: Regs, CMAs**				**DDG: P&I**	**DWS**							Academia, research institutes, WRC

7. WAY FORWARD

This document provides the agreed framework and structure for the conversion of the IWQM Policy and Strategy into Implementation Actions. The IWQM Policy and Strategy guide the aspirational and pragmatic intent, for improved water quality management of the country's resources. However, in order to wholly effect change, an understanding supported by results chains showing the interlinkages and dependencies between different activities. Those workflows provide an opportunity to understand roles and responsibilities towards an objective as well as matter of causality, providing the foundation for improved and effective inter-connectedness and integration.

The next two months provides the team with the opportunity to achieve the above by:

- **Engaging with relevant stakeholders in a targeted manner to finalise Edition 2:**
    - The project governance committees, provincial workshops, national inter-Departmental workshop and other targeted engagements have created the platform for additional constructive engagements around the development and finalisation of Edition 2 of the Implementation Plan.
    - The engagements provide the opportunity to get selected stakeholder inputs and agree on the list of specific activities to be included in the Implementation Plan and populate the table with the relevant information required.
    - Through the engagement, clarity will be achieved about achievable actions in each year of implementation.
- **Co-developing the Monitoring and Evaluation Framework:**
    - The development of the Monitoring and Evaluation framework will be co-developed during this time with Edition 2 of the Implementation Plan.
    - The framework will articulate the indicators to be monitored to effectively determine the progress of the actions to be implemented and provide the foundation required to manage water quality adaptively.
    - The framework will also outlines the reporting structures and processes to be followed.
- **Co-developing the IWQM Organisational Design:**
    - The function of water quality management needs to be interrogated to ensure alignment with the IWQM Policy which talks to an integrated and inclusive approach.
    - Therefore, the IWQM Organisation Design will provide the high-level institutional analysis required to understand the broader governance environment and the principles used to understand and streamline the way IWQM management functions, looking both vertically within DWS and

horizontally, across sectors, including private sector and civil society. A review of the existing WQM functions and structures within the current DWS structures will be presented and the potential gaps in the functions will be addressed.

- It should be noted that the team will engagement with the Restructuring Project team to ensure alignment, however, the final DWS structure is beyond the scope of this project.

Outlined above are the high-level steps required to finalise the Implementation Plan. However, the IWQM Policy and Strategy translates to a significant amount of work to be conducted over the next twenty years in to ensure that South Africa's water resources are appropriately managed to meet the socio-economic and environmental development needs of the people.

This document outlines what needs to be achieved in the next three years to work towards achieving the Vision for IWQM for the Country. The central challenge to the Implementation Plan process is to ensure that DWS continues to provide effective, efficient and excellent WRM and IWQM service during this transition and that there is ownership of the Plan itself while ensuring that transformation takes place both within Government and in the sector.

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