water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

2030 NDP
NATIONAL DEVELOPMENT PLAN
Our Future - make it work

Eutrophication Management Strategy into Practice

Public Meeting – Technical Presentation

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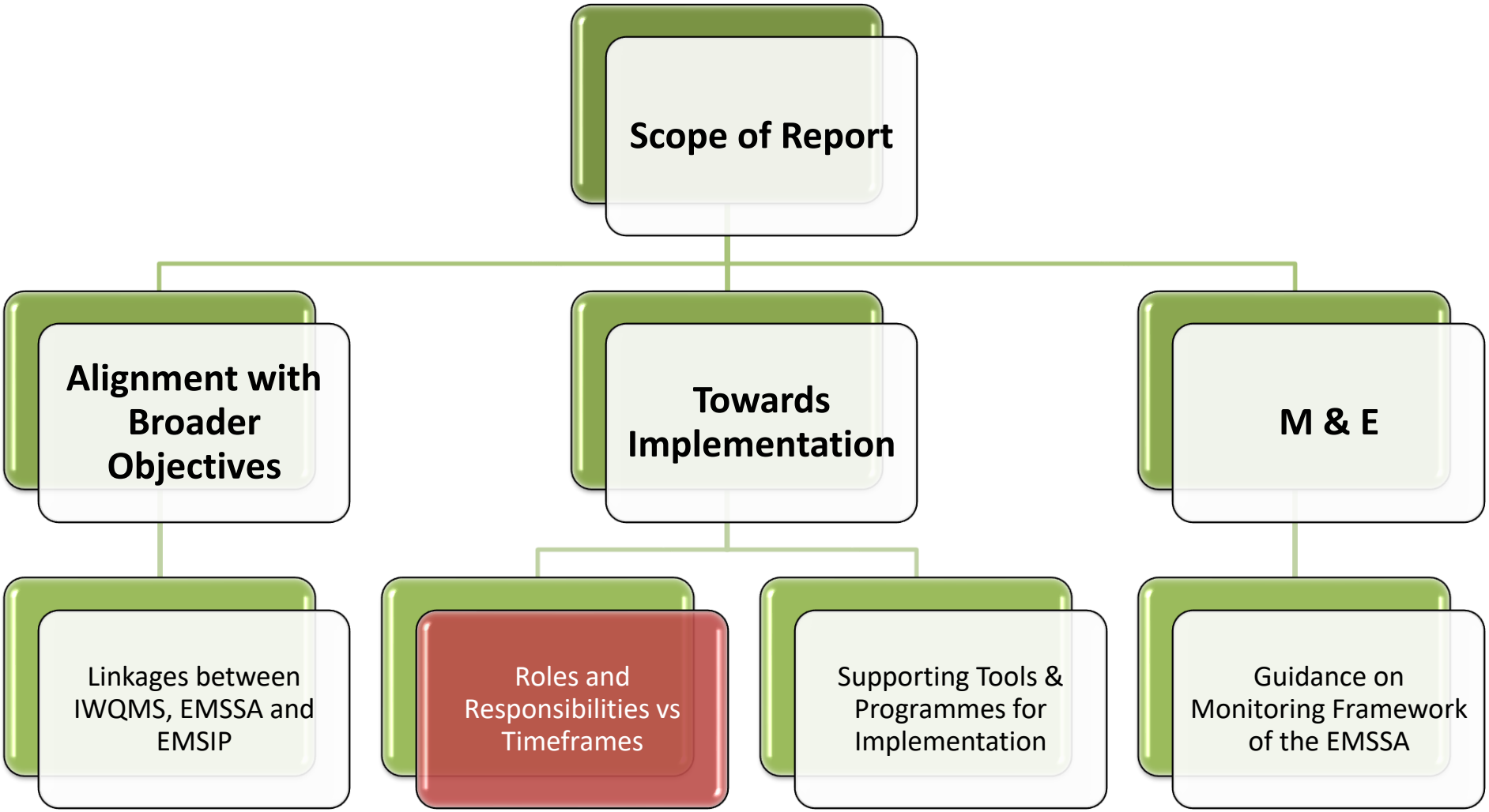
PURPOSE OF EUTROPHICATION MANAGEMENT STRATEGY INTO PRACTICE (EMSIP)

- Identified **actions** that need to be adopted and implemented by the water sector in South Africa to achieve the NWRS goals and objectives
- **Supports** the Eutrophication Management Strategy for South Africa (EMSSA) and provides a structured way to articulate how this strategy can be implemented
- **Arrangement** and **translation** of objectives, required actions, and interventions identified during the development of EMSSA into **measurable outcomes**
- **Strengthening** the eutrophication management function
- **Improving** eutrophication information management
- **Mobilising** the sector on eutrophication management
- **Prioritising** inclusion of eutrophication in catchment management plans

LAYOUT OF THE EMSIP REPORT

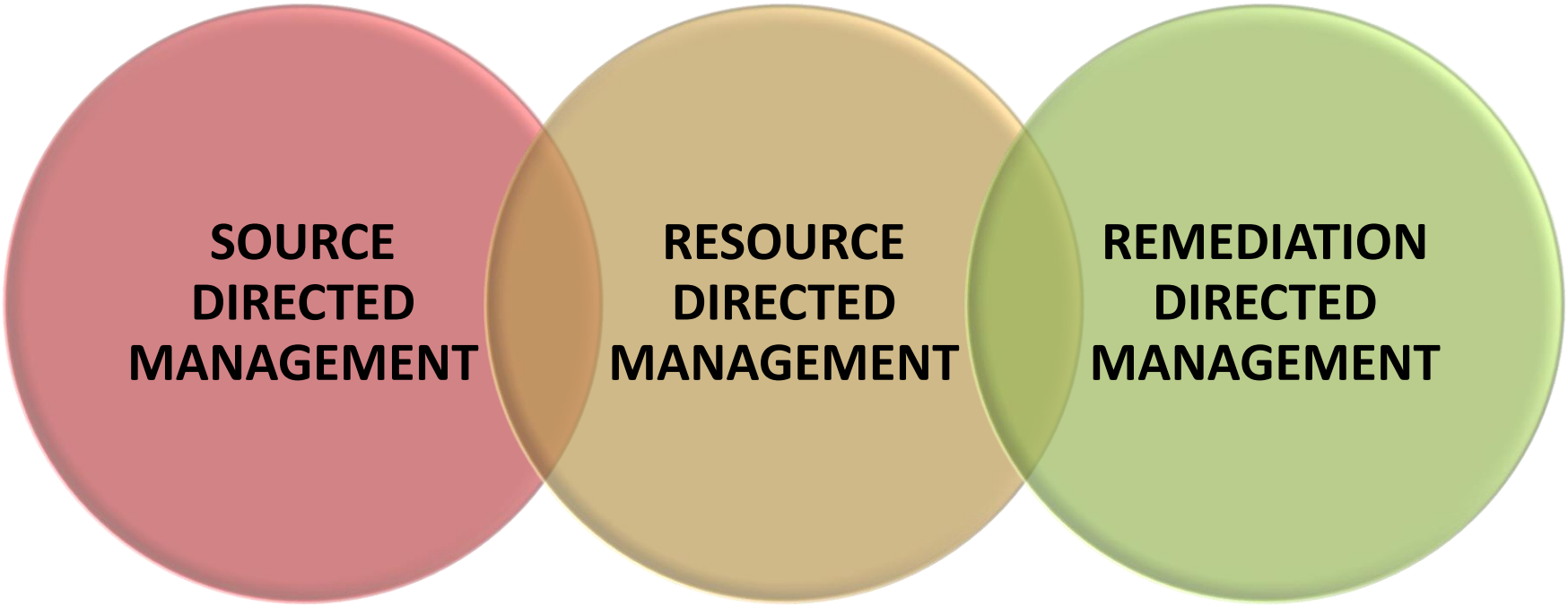


ROLE-PLAYERS AND RESPONSIBILITIES

DWS	• Ensure water is protected, used, developed, conserved, managed, and controlled in a sustainable and equitable manner, for the benefit of all persons. Implementation of NWA, 1998 (Act 36 of 1998)
DALRRD and provincial departments	• Responsible for the implementation of the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (CARA) and agricultural policy
DFFE and provincial departments	• Responsible for the implementation of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) and for conducting EIAs of listed activities
DMRE and provincial departments	• Responsible for regulation and control of mining waste
COGTA and provincial departments	• Responsible for promotion of an integrated and coordinated system of disaster management, with a special emphasis on prevention and mitigation, by national, provincial, and municipal organs of state, statuary functionaries, other role players and communities.
MISA	• Provides technical support to targeted municipalities, which improve infrastructure planning, implementation, as well as operations and maintenance
MUNICIPALITIES (WSAs)	• Responsible for implementation of the WSA 108: 1997 which provides the legislative framework to manage the access and delivery of water services
WATER MANAGEMENT INSTITUTES e.g. Water Boards	• Responsible for implementation of the WSA 108: 1997 which provides the legislative framework to manage the access and delivery of water services
Proto/CMAs and Water User Associations	• Responsible for alignment with NWRS and IWQM, and must ensure that, at the catchment scale, effective co-ordination of planning and implementation takes place between the relevant government departments
Private Sector, NGOs, NPOs	• Responsible for strengthening eutrophication awareness creation campaigns sector wide

TOWARDS IMPLEMENTATION

CORE STRATEGIES



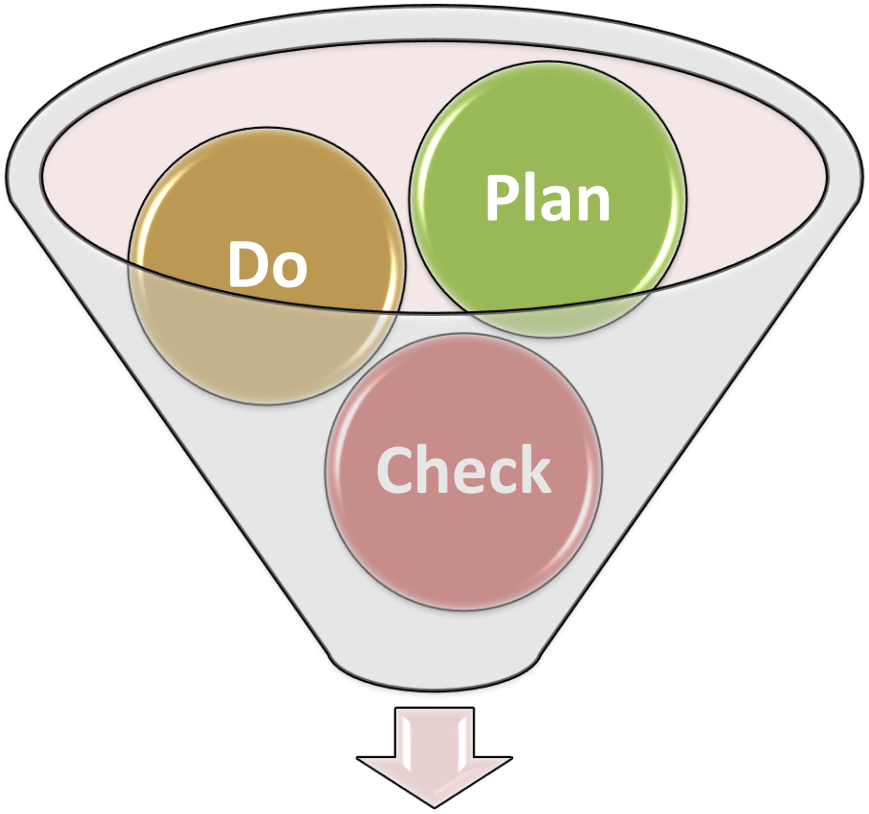
Strategies	Type of Strategies	Prioritized Actions	Authorities
		SHORT-TERM (0-5 years)	
CORE STRATEGIES	SOURCE DIRECTED MANAGEMENT	Develop and implement (an) approach(s) to ensure that the conditions in water use authorisations, including those that specify Waste Discharge Standards (WDSs), ensure compliance to statutory RDMs, specifically RQOs.	DWS Head Office (HO), Proto-CMA, Regional Offices (RO), Proto/CMAs
		Evaluate and/ or develop model by-laws, in support of local government, to limit excessive nutrient-loading and to protect raw water quality	COGTA, Water Service Authorities (WSA), DWS: (Water Services Regulation (WSR), Economic and Social Regulation, Sanitation Services)
		Develop and gazette water management regulations for impacting sectors (*e.g.* feedlots, industries, etc.) that also contribute towards anthropogenic eutrophication	DWS: Regulation, DALRRD, DTI
		Compile and publish specific sector offset policies for wetlands and for water quality to enable the rolling out of offsetting for eutrophication management	DWS, DFFE
		To evaluate the suitability and/ or effectiveness of those measures that deal with the control and regulation of sources of anthropogenic eutrophication – consideration must be given to the development and publication of such regulations	DWS: Regulation
		LONG-TERM (Over 5 years)	
		Develop and implement a Diffuse Source Management Strategy for South Africa that harmonise with, and support the Eutrophication Management Strategy for South Africa	DWS: Mining and Industrial Water Quality Regulation (MIWQR), WRC
		Develop and implement sector-specific action plans to reduce diffuse source pollution in support of the Diffuse Source Management Strategy for South Africa	DWS: MIWQR, Sanitation Services, DOH, water sector (*i.e.* Agriculture, Industrial, *etc.*)

Strategies	Type of Strategies	Prioritized Actions	Authorities
		SHORT-TERM (0-5 years)	
CORE STRATEGIES	RESOURCE DIRECTED MANAGEMENT	Operationalise the Receiving Water Quality Objectives (RWQOs) Approach and achieve compliance to the requirements of the Water Resource Class(es) (RQOs and Reserves) and/ or supporting RWQOs/ Water Quality Planning Limits (WQPLs). Better integration between Source and Resource Directed Management is essential	DWS: Water Resource Classification (D: WRC), Reserve Determination (D: RD), and Compliance Monitoring Enforcement (CME), RO
		Gazette regulations to protect high yield water source areas, particularly the strategic water source areas (*i.e.* strategic surface water source and critical groundwater recharge areas)	DWS: Regulation, DFFE
		In cases where the enabling legislation allows for the making of regulations that could assist with the protection of water resources against the effects of anthropogenic eutrophication, but such regulations do not exist, consideration must be given to the development and publication of such regulations.	DWS: Mining and Industrial Water Quality Regulation (MIWQR)
		LONG-TERM (Over 5 years)	
		Support SDG 6.3.2D and internalise reporting on the fitness-for-use of South Africa's water resources.	DWS: RQIS. RO to support RQIS

Strategies	Type of Strategies	Prioritized Actions	Authorities
		SHORT-TERM (0-5 years)	
CORE STRATEGIES	REMEDIATION DIRECTED MANAGEMENT	Establish a *"Remediation Working Group"* to initiate the development of the necessary instruments and to guide remedial activities	DWS, RO, Proto/CMAs, DFFE, WQM Forum (WQM-F), Anti-Pollution Task Team (APTT)
		Develop and implement a dedicated Remediation Guidelines for South Africa to guide the amelioration and/or removal of contaminants from, amongst others, soil, surface water, groundwater, and sediment, that may also exacerbate eutrophic conditions in receiving water resources	DWS, DFFE
		Investigate the implementation of financial provision, in conjunction with the WDCS, to cover the cost of remedial action	DWS: (MIWQR, Economic and Social Regulation (ESR)), DFFE, DMRE, NT, Private Sector (mining companies)
		Develop a risk-based approaches to prioritise remedial action	DWS: (MIWQR, Compliance Monitoring and Enforcement (CME), Resource Protection), DFFE
		Develop rule-based best management practice measures to inform remedial action	DWS: MIWR, WRC, DFFE, SANBI
		LONG-TERM (Over 5 years)	
		Develop and implement a programme to remediate priority impoundments and water resources, in accordance with relevant geographical water quality management strategies and thematic plans, utilising revenue from the WDCS	DWS: (RO, Resource Protection, SDS) Proto/CMAs, DFFE

DISCUSSION

OPERATIONAL STRATEGIES



Strategies	Type of Strategies	Prioritized Actions	Authorities
		SHORT-TERM (0-5 years)	
OPERATIONAL STRATEGIES	PLAN	Determine statutory RDMs, i.e. Water Resource Class(es) (and RQOs/ Reserves), for outstanding significant water resources	DWS – D: Water Resource Classification (D: WRC) and D: RD
		Determine/review Resource Water Quality Objectives (RWQOs)/ Water Quality Planning Limits (WQPLs), based on the South African Water Quality Guidelines, in support of statutory RDMs, specifically the RQOs	RWQOs **by Proto/CMAs**, and WQPLs by the **DWS: Water Quality Planning** (WQP)
		Develop and roll-out the methodologies to determine Nutrient Load Objectives (NLOs) (e.g. developing Total Maximum Daily Loads)	DWS: Mining and Industrial Water Quality Regulation (MIWQR), SDS, WRC
		Establish and implement geographical water quality management strategies and thematic plans for three priority WMAs (Crocodile (west) Marico, upper Vaal, and Upper Olifants) first, followed by the establishment and implementation of water quality management strategies and plans for the remaining WMAs. Waste load accounting, goal setting, and water quality allocation plan development constitute important components of this process	DWS: MIWQR Proto/CMAs
		LONG-TERM (Over 5 years)	
		Influence Water Services Development Plans (WSDPs), Integrated Development Plans (IDPs), and any other relevant strategies, plans or frameworks to reflect eutrophication management priorities and management requirements	DWS: Water Services Regulation (WSR), Water Services Authorities (WSA), COGTA
		Establish and implement geographical water quality management strategies and thematic plans for the remaining WMAs.	DWS: RO, Proto/CMA,

Strategies	Type of Strategies	Prioritized Actions	Authorities
		SHORT-TERM (0-5 years)	
OPERATIONAL STRATEGIES	DO	Promote the reduction, recycling and re-use of excessive nutrient-load containing waste and/ or wastewater, and faecal sludge in accordance with relevant geographical water quality management strategies and thematic plans	DWS: (Sanitation Services, RO), Proto/CMA, WSA, Dep. Education (DoE)
		Gazette uniform mandatory national Waste Discharge Standards (WDSs), specifically revising all eutrophication-related standards, in support of water use authorisations	DWS: Mining and Industrial Water Quality Regulation (MIWQR)
		Address shortcomings with respect to the authorisation conditions of some ELUs that cause, or may potentially cause, excessive nutrient-loading and anthropogenic eutrophication	DWS: Water Use Authorization (WUA), Proto/CMA
		Develop and implement a protocol to differentiate between water users in terms of risk. The differentiated control and management of sources of excessive nutrient-loading will enable the prioritisation of action and resources	DWS: CME, Proto/CMA, CMA
		Develop and implement a protocol for an integrated licencing process to streamline authorisations, including CMA engagement, as well as strengthen the regulation of licence conditions. Efficient authorisation is vital to effective eutrophication control and management	DWS: WUA, DMRE, DFFE
		Finalise Waste Discharge Charge System (WDCS) strategy for implementation nationally, including waste discharge charges for nutrient-loading	DWS: MIWQR
		Implementation of WDCS strategy	DWS: (MIWQR, ESR), Proto/CMAs
		Establish financial incentives to promote water reuse and recycling, including the reuse of municipal wastewater, when the water budget allows for it	DWS: ESR, Local Government, Water Users, WSA, COGTA
		Develop and publish a National Pollution Register, which, amongst others, shows compliance to nutrient standards	DWS: Resource Protection, CME

Strategies	Type of Strategies	Prioritized Actions	Authorities
		SHORT-TERM (0-5 years)	
OPERATIONAL STRATEGIES	DO	Promote cleaner production and technologies, specifically to combat anthropogenic eutrophication (e.g. *phosphate removal detergents*)	DWS: (Sanitation Services, SDS), Proto/CMAs, Local Government, WSA, Dep. Science and Innovation (DSI) WRC, DTI, DMRE, COGTA
		Investigate and establish stormwater quality measures to control nutrients ingress	WSA, COGTA DWS: RO to support WSAs
		Investigate and establish measures and controls for diffuse pollution	DWS: MIWQR, WSA, mines, agriculture, industries
		LONG-TERM (Over 5 years)	
		Implement (a) management system(s) to support an integrated licensing approach	DWS: WUA
		Develop and implement sectoral off-setting policies for water quality, wetlands and estuaries, based on the Overall Policy on Environmental Offsetting in South Africa	DWS, DFFE
		Develop a publicly accessible register of all offsets to facilitate compliance monitoring	DWS, DFFE

Strategies	Type of Strategies	Prioritized Actions	Authorities
		SHORT-TERM (0-5 years)	
OPERATIONAL STRATEGIES	CHECK	Ensure the availability of back-to-back laboratory services with appropriate accreditation and analytical sensitivity to support eutrophication management on a continuous basis	DWS: RQIS
		Undertake routine national eutrophication monitoring, considering the recommendations of the Review of the South African Water Resource Monitoring Network report	DWS: RQIS, Supported by Water Service Providers (WSP), CMAs
		Realign/ establish regional eutrophication monitoring programmes, in cooperation with all relevant role-players, and undertake routine regional eutrophication monitoring	DWS (RQIS & RO), Proto/CMAs
		Current gauging networks should be upgraded and maintained to undertake appropriate flow measurements, as part of the national and regional eutrophication monitoring programmes, to enable nutrient load monitoring and apportionment on a WMA and sub-catchment basis	DWS: Hydrology, RQIS, RO, Proto/CMAs, WSA
		Consider and, where desirable, develop and implement citizen science eutrophication monitoring programmes, in support of other resource quality monitoring programmes	DWS (RO, RQIS), WSPs, Proto/ CMAs RQIS to provide support
		Consider and, where necessary, introduce and mainstream advanced technology to monitor eutrophication, *e.g.* remote sensing, drone technology, etc	DWS: (RQIS & RO), CMAs, WRC, WSA, WSPs
		Achieve and ensure compliance to the requirements of all water use authorisations, specifically including water users that contribute, or may potentially contribute, towards anthropogenic eutrophication	DWS: (CME, Regional offices) and CMAs
		Improve the effectiveness and efficiency of the water quality data management system(s) through the implementation of the findings of the Data Management Strategy. Good data management is a prerequisite for effective eutrophication management	DWS: IP, RQIS
		Update and gazette regulations to compel water users to register and upload waste discharge water quality and volumetric data, specifically data and information that will aid eutrophication management, on the Integrated Regulatory Information System (IRiS), or alternative system(s)	DWS: WARMS, Municipal Wastewater Quality Monitoring (MWwQM)

Strategies	Type of Strategies	Prioritized Actions	Authorities
		SHORT-TERM (0-5 years)	
OPERATIONAL STRATEGIES	CHECK	Expand IRiS to capture data and information from water users that monitor the disposal of waste/ discharge of water containing waste for compliance monitoring purposes. The availability of suitable data and information will improve the management of eutrophication	DWS: MWwQM, CME
		Generate and compile annual national eutrophication related compliance monitoring status reports	DWS: SDS
		Generate and compile biennial national eutrophication status reports	DWS: SDS
		Generate and compile annual catchment eutrophication status report(s)	DWS: RO, RQIS (to provide support)
		Learn from the SDG Programme, and expand South Africa's domestic monitoring programmes, in support of effective eutrophication planning, regulation, and management, to incorporate the useful concepts from the SDG Programme	DWS: RQIS
		Harmonise the systems and approaches being used across sector departments and catchments for resource water quality data and information management	DWS: Water Resource Information (WRI)
		Structures, such as the National Water Quality Management Forum, the Anti-Pollution Task Team and the Water Quality Management Steering Committee, must be utilised as platforms for regular reporting, performance tracking and deliberating	DWS: MIWQR
		The DWS will be responsible for the national assessment of water quality, and will report annually to Parliament on the state of eutrophication in the country, including WSA' Green Drop performance	DWS: WEM
		Law review to enforce monitoring within the municipal water value chain, especially monitoring and submission of data by commercial and industrial activities that discharge to municipal sewer network systems	COGTA, WSA, DWS: (MWwQM, Regulation, Policy & Strategy)
		LONG-TERM (Over 5 years)	
		Government to ensure the harmonisation of data and information systems pertaining to source control, especially with respect to land use that contribute towards anthropogenic eutrophication	DWS: WRI, entire water-sector

Strategies	Type of Strategies	Prioritized Actions	Authorities
		SHORT-TERM (0-5 years)	
OPERATIONAL STRATEGIES	ACT	Committee structures, such as the National Water Quality Management Forum, the Anti-Pollution Task Team, and the Water Quality Management Steering Committee, must be utilised as platforms to effect improvement; and Catchment Management Forums (CMFs) must be utilised for early warning and local level feedback	DWS: MIWQR to coordinates committees; DWS RO to coordinate CMFs
		Achieve compliance to the requirements of in-water resource water quality objectives, *i.e.* the RQOs and supporting RWQOs/ WQPLs, to ensure fitness-for-use of receiving water resources through the implementation of adaptive, systems-based catchment eutrophication management, and adjust the control of impacts on the trophic status of receiving water resources	DWS: CME, MIWR, Resource Protection
		Implement programmes to rehabilitate and manage resource water quality *"hotspots"* in priority catchments, in accordance with the relevant geographical water quality management strategies and thematic plans (if justified, utilising revenue from the WDCS)	DWS: (ESR, RO, WQP), Proto/CMAs
		Undertake targeted compliance monitoring and enforcement of key polluting sectors, specifically those that contribute to anthropogenic eutrophication	DWS: CME, MIWQR
		Turn around the performance/ functionality of five, currently non-compliant/ dysfunctional, large WwTWs and initiate an accompanying publicity campaign, followed by a programme to address remaining non-compliant/ dysfunctional WwTWs	DWS: CME, WSR
		Roll-out of intervention plans to address priority non-compliant industries	DWS: RO, Proto/CMAs
		Restructure the grant funding mechanisms and conditions for water supply and sanitation so as to ensure a focus on maintaining and restoring existing infrastructure, rather than the construction of new infrastructure. Where appropriate new and innovative technology should be considered	DWS: (WSR, ESR), COGTA, WSA, NT, MISA
		Establish a mechanism for applying Administrative Penalties	DWS: ESR, Dept. of Justice
		Standardise and enforce required Operation and Maintenance (O&M) budgeting and expenditure for eutrophication management	DWS: ESR, NT, COGTA, MISA, SALGA

Strategies	Type of Strategies	Prioritized Actions	Authorities
LONG-TERM (Over 5 years)			
OPERATIONAL STRATEGIES	ACT	Continuous update on the water resources eutrophication status	DWS: RQIS

SUPPORTING STRATEGIES

Strategies	Type of Strategies	Prioritized Actions	Authorities
		SHORT-TERM (0-5 years)	
SUPPORTING STRATEGIES	TECHNICAL CAPACITY BUILDING TO GIVE IMPETUS TO EUTROPHICATION MANAGEMENT	Develop and implement a programme for recruiting and retaining experienced and qualified technical and managerial staff with technical qualifications	DWS: HR, COGTA, Dept. International Relations and Cooperation (DIRCO), Dept. Public Service and Administration (DPSA)
		Invest in good training programmes to ensure continuous learning and a clear professional development path for incumbents. This will require the reviving (and inclusion of an introductory section on eutrophication) of some of the old water quality training programmes, such as the Water Quality Management Orientation Course.	DWS: Knowledge Management, RPW, SDS
		Define (and reinstate in some cases) career paths with defined training and on the job experience to build a cadre of sector professionals	DWS: LA, HRD, WSA, Proto/CMAs
		Provide bursaries and/ or leadership pertaining to water quality management at tertiary institutions	DWS: LA, other private sector bursaries such as WRC, CSIR, DSI-NRF, etc
		Establish and strengthen eutrophication awareness creation campaigns at the national, WMA and municipal levels	WQMF, APTT, DWS (RO, Water Services Operational Support, Sanitation Services), Proto/CMAs, NGO's and NPO's
		LONG-TERM (Over 5 years)	
		There is a shortage of specific critical skills within various institutions, across the water value chain, *i.e.* limnology, engineering skills, artisans, socio-economic, environmental health, and management skills, which also negatively impact the management of eutrophication. The demands for these skills should be addressed	Water sector, DPSA, EWSETA
		Develop and implement a capacity building programme for officials in DWS, CMAs and other sector departments, and for the private sector and civil society on systems based, adaptive IWQM, applicable legislation and law enforcement	DWS: (SDS, RP&W), Dept. High Education and Training (DHET), (Institutions of Higher Learning)
		The DWS' Learning Academy initiative in conjunction with on-the-job training and mentorship has made strides in filling the skills gap within the water sector and should continue to receive the necessary support	DWS: LA, water sector, and Higher Institutions (Universities, FETs, etc.)

Strategies	Type of Strategies	Prioritized Actions	Authorities
		SHORT-TERM (0-5 years)	
SUPPORTING STRATEGIES	RESEARCH AND TECHNOLOGY DEVELOPMENT TO ADDRESS EUTROPHICATION-RELATED CHALLENGES	Promote, demonstrate, validate and encourage the use of alternative sanitation, such as water-less and off-grid sanitation solutions, and urine-diversion toilets. This potentially includes the development of strategies and regulations to mainstream appropriate sanitation technology	WRC, WSA, COGTA, DWS: Sanitation Services
		Investigate recent innovative treatment technologies to improve water quality such as green infrastructure to treat stormwater and non-compliant maturation pond effluent	DWS: SDS
		Develop and demonstrate appropriate domestic and industrial wastewater, and faecal sludge treatment technologies for cost effectiveness, energy efficiency and beneficiation	WRC, DWS (Sanitation Services, Water Services Planning), Water Institute of Southern Africa (WISA)
		Continue to do research on land use impacts on water linked ecosystems and raw water quality	DWS, WRC
		Test a suit of information and communication technology, and citizen science tools for data sourcing	DWS: (RO, RQIS), Proto/CMAs
		Review all relevant guidelines and R&D products to understand where eutrophication training modules need to be developed around new knowledge	DWS: Resource Protection
		LONG-TERM (Over 5 years)	
		DWS and the WRC will lead the sector in developing national eutrophication research, and innovation	DWS, WRC

Strategies	Type of Strategies	Prioritized Actions	Authorities
		SHORT-TERM (0-5 years)	
SUPPORTING STRATEGIES	COLLABORATION AND MANAGEMENT PARTICIPATION	Participate and strengthen intra-departmental structures for IWQM to also address the management of eutrophication, including the National Water Quality Management Forum (NWQMF), the Anti-Pollution Task Team (APTT) and the Water Quality Management Steering Committee (WQM-SC), to ensure efficient coordination and joint action, supported by regular reporting	DWS: (WEM, RO), Proto/CMAs
		Nominate Eutrophication Management Champion(s), preferably at both Head, Regional Office and CMA levels	DWS, Proto/CMA
		Strengthen and foster strategic sector partnerships, and enable active participation of civil society	DWS, RO, Proto/CMAs
		Establish and support Catchment Management Forums (e.g. Rivers/ Wetlands/ Estuary Management Forums)	DWS RO, Proto/CMAs, DFFE
		LONG-TERM (Over 5 years)	
		Provide eutrophication support to Integrated Water Quality Catchment Management and Integrated Regional Water Monitoring Committees	DWS, RO, Proto/CMAs
		Provide eutrophication support to the Inter-Governmental Task Team on IWQM), once established	Water sector, DMRE, DOH, CMFs
		Provide eutrophication support to the Regional Water Quality Functional Management Committees, once established	DWS
		Provide eutrophication support to the Water Quality Functional Management Committee, once established	DWS

THANK YOU