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INTRODUCTION



1 INTRODUCTION

1.1 Background

The Department of Water and Sanitation is the public trustee or custodian of the nation's water resources and has a vital and significant role in managing the country's water resources. The Department runs several monitoring programmes through established monitoring networks to collect data and derive information on surface and groundwater quality and quantity.

River systems (mostly surface water storage) are the common surface water expression of water availability in South Africa, with others being lakes, ponds, and pans. South African river systems and catchments are characterised by a high spatial variation in rainfall, as well as variations in catchment sizes and physical properties. These result in different river patterns and dynamics within catchments and further in water management areas (WMAs), which have implications for water resource availability.

Aquifer (groundwater) storage is another expression of water availability in the country. In the past decades, an increased groundwater utilisation in the country's water mix has been observed due to the significant potential of the groundwater resources in adaptation to climatic-related stresses and augmenting of conventional surface water supply systems.

South Africa is characterised by spatial variability in rainfall, with the east of the country lying in the predominantly summer rainfall zone, receiving high rainfalls. In contrast, the country's west primarily lies in the semi-arid to arid region, receiving relatively less rainfall. South Africa is, however, naturally inclined to drought conditions because it is a semi-arid country. Also, there are persistent challenges that pose a risk to water security, as reported in this National State of Water Report.

South Africa requires additional water resources to support the growing economy as a developing country. With 98% of the country's available water resources already allocated, opportunities to supplement future water requirements with conventional surface water resources are limited. A mix of water resources or sources will be required to reconcile supply and demand, including sustainable ground water use, reuse of wastewater, and desalination where feasible.

South Africa also faces challenges in water and sanitation services delivery, such as insufficient water infrastructure maintenance and/or investment; increasing frequency of extreme weather events such as droughts and floods; and the worsening social inequities. Ruiters and Amadi-Echendu (2022) describes medium to long-term consequences of insufficient investments on water operations and maintenance include: (1) deteriorating reliability and quality of waters services (2) move to more

expensive crisis maintenance rather than planned maintenance (3) increasing the future cost of maintenance and refurbishment (4) shortening the useful life of assets leading to earlier replacement (5) cost influence on charge calculations and models. These challenges are further intensified by increasing number of municipalities not managing their water infrastructure assets strategically, this includes record keeping of water infrastructure assets and their locations, and the age and condition of water infrastructure assets.

South Africa's water supply is dependent on Strategic Water Source Areas (SWSAs). SWSAs are defined as areas of land of national importance that either: (a) supply relatively large quantities of mean annual surface water runoff compared to their size or (b) have high groundwater recharge and high dependence or (c) areas that meet both criteria (a) and (b). They include transboundary Water Source Areas that extend into Lesotho and Swaziland. All surface water SWSAs are located in high rainfall areas where baseflow is at least 1125 mm/a, which is evidence of a strong link between groundwater and surface water in the SWSAs. The water produced by these areas supports at least 50% of the population, 64% of the economy, and supplies about 70% of the water used by irrigated agriculture. Gauteng gets about 65% of its water from these areas, and Cape Town and eThekweni about 98%. About 24% of the settlements reliant on groundwater are located within groundwater SWSAs, which is equivalent to 10% of all settlements in South Africa. These SWSAs supply about 46% of the groundwater used by agriculture and 47% of the groundwater used for industrial purposes in South Africa.

A necessary means to address water insecurity challenges is the consideration of integrated, circular, and transformative approaches that include the Water-Energy-Food (WEF) nexus. The challenges of water, energy, and food insecurity are interlinked in such a way that any changes in any of the three sectors would also affect the other two. Providing solutions to any of the three should also consider the impacts on the other two. Otherwise, the interventions would transfer the challenges from one sector to another. Linear approaches have been helpful for a long time but have reached their limits. They are being replaced by circular approaches, which are multi-sectoral and multi-stakeholder in their approach.

The National State of Water (NSoW) Report sets out to communicate the available water resources information through this integrated report to assist water managers in decision-making; evaluating the impact of the implementation of legislation; highlight identified problem areas; inform the public on the status of water resources and sanitation; what is being done to balance the water demand and supply; and ensure availability of water for future generations. The report is based on analysis of identified and monitored water resource indicators for the Hydrological Year – October 2022 to September 2023.

1.2 National Water Resource Strategy

The goals of the National Water Resource Strategy-3 (NWRS-3) are to ensure water is protected, used, developed, managed, and controlled sustainably and equitably and that water and sanitation must support development and eliminate poverty and inequality. The NWRS-3 should contribute to the economy and job creation. The NWRS-3 focuses on increasing water supply, reducing water demand, managing effective water and sanitation, regulating the water and sanitation sector, redistributing water for transformation, promoting international cooperation, managing water and sanitation under a changing climate, improving raw water quality, and protecting aquatic ecosystems and maintaining and restoring ecological infrastructure.

The implementation of the NWRS-3 is possible when enabling aspects such as the creation of effective water sector institutions, data collection, analysis and information management for effective monitoring, evaluation and reporting, building capacity for action, ensuring financial sustainability, enhancing and deploying research, development and innovation, and addressing legislative and policy gaps are adequately addressed.

1.3 Water Management Areas

Based on the outcome of the Departmental Institutional Reform and Realignment study, the National Water Resource Strategy second edition (NWRS-2) established the nine WMAs in South Africa in July 2012 (Figure 1.1). These replaced the 19 WMAs identified before this date.

It was recognised that these WMA boundaries needed to be reviewed periodically to accommodate new realisations and issues. WMAs are based mainly on catchment boundaries, except for those catchments that cross international borders. Within these WMAs, catchments are further subdivided into tertiary, secondary, and quaternary catchments. The current state and historical trends of various water resource indicators provided in this report have been analysed and presented based primarily on the nine WMAs or, in some instances, Provinces.

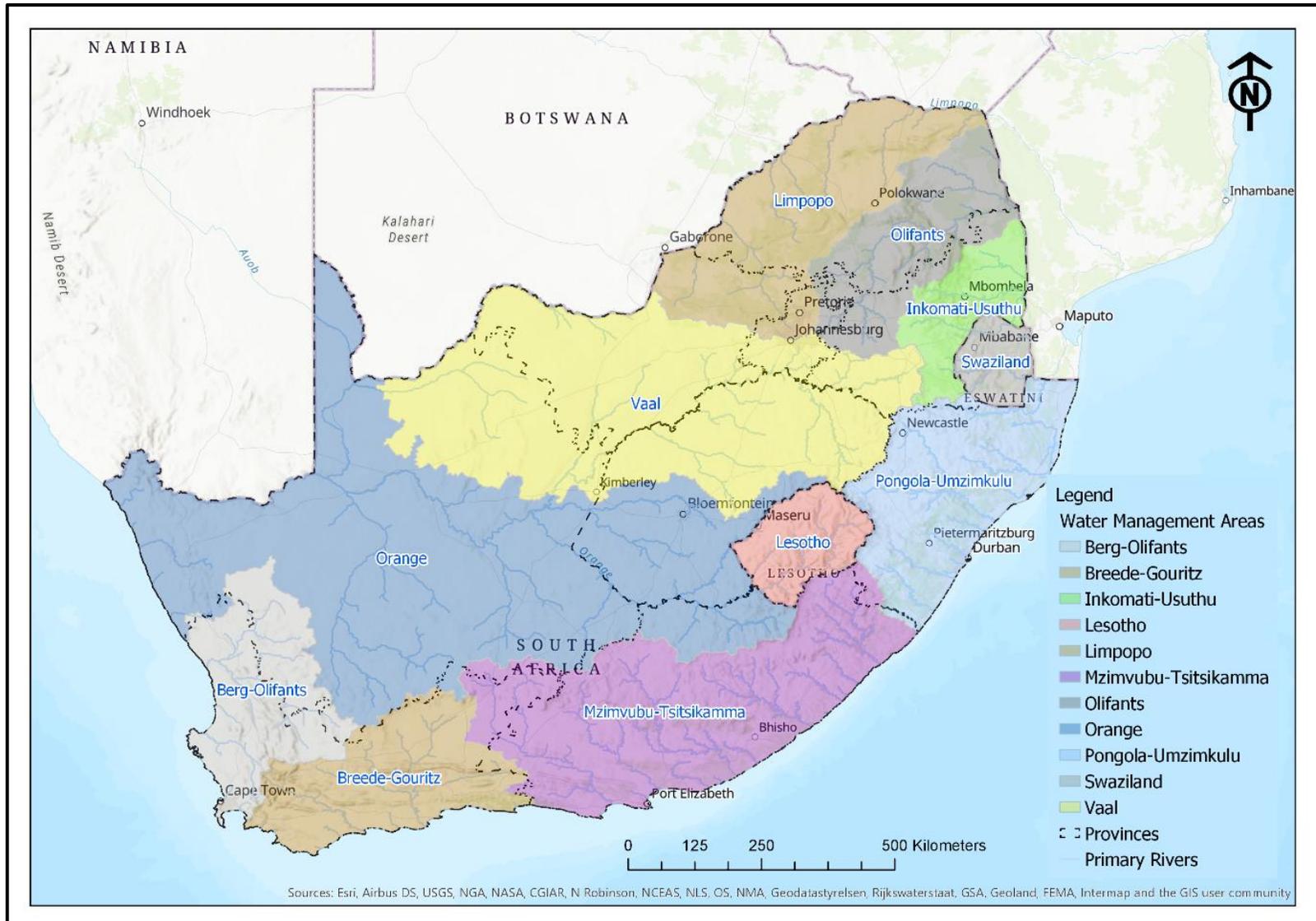


Figure 1.1: South African Nine Water Management Areas as of 2012.

1.4 Water Sector Institutional Reform

The South African Water Sector Institutional Reform has not been completed, and the outlook is illustrated Figure 1.2. The National Department of Water and Sanitation is the custodian of water resources with an obligation to perform water resource management functions. The National Department acting through the Minister is responsible for water sector policy, support, and regulation.

The water resource management functions are to be delegated to the Catchment Management Agencies (CMAs). This supports the principles of good governance, where water is managed locally. In water management areas where a CMA has not been established, DWS National and Provincial Operations remains the responsible authority, and continues to act as a CMA to perform all water resource management functions at a catchment level.

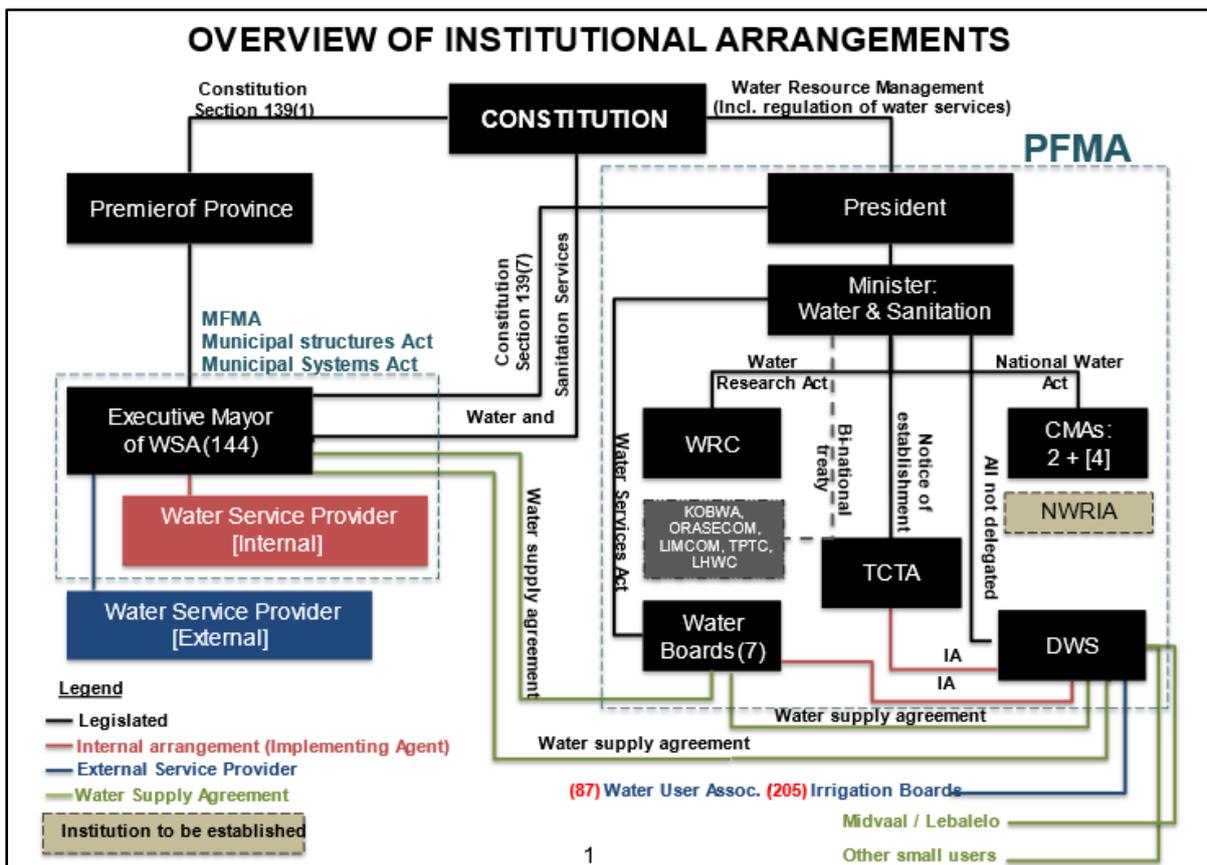


Figure 1.2: Water Sector Institutional Landscape.

At a national level, the reform process involves the consolidation of the DWS's Water Resource Infrastructure Branch and Trans Caledon Tunnel Authority (TCTA) to form a *National Water Resource Infrastructure Agency (NWRIA)*, which will be responsible for infrastructure development and management. At a regional level, the process of converting the Water Boards to Regional Water Utilities has been halted. At a local

level, the transformation of Irrigation Boards into Water User Associations (WUAs) has been halted due to policy shifts which are currently taking place.

Furthermore, we find Water Services Institutions (WSI) at the local level, and these are Water Services Authorities (WSAs) – municipalities that provide water services or outsource water services provisions to the private Water Services Providers (WSPs) – water boards. These WSAs and WSPs provide water and sanitation services and are regulated by the Department of Cooperative Governance and Traditional Affairs (CoGTA).

A water services authority would mean any municipality, including a district or rural council (as defined in the Local Government Transition Act, 1993), responsible for ensuring access to water services. Water services providers are any person who provides water services to consumers or another institution. Notably, some WSAs are WSPs; in other cases, the WSA has WSPs that provide water services on their behalf.

1.5 Establishment of CMAs

The Department has embarked on several institutional re-alignment processes to transform the water sector, build stable institutions with clearly defined roles and responsibilities, and promote effective institutional performance.

The National Water and Sanitation Master Plan, launched in November 2019, has prioritised the establishment of CMAs, and the progressive delegation or assignment of powers, functions, and duties of CMAs. CMA establishment has demanded attention be given to any opportunities for reducing costs and increasing efficiencies without compromising on the core objectives of decentralising water resource management.

The number of CMAs has as per NWRS-3, revised from nine to six through the consolidation of WMAs (Figure 1.3:.). The CMAs will be for: (1) Limpopo-Olifants (2) Inkomati-Usuthu; (3) Pongola-Umzimkhulu; (4) Vaal-Orange; (5) Mzimvubu-Tsitsikamma; (6) Breede-Olifants.

The main principles in realigning the WMA and CMAs from nine to six are the following:

- **Operational Integration** – *connected and integrated water systems, easy coordination, and monitoring of agreements improved capacity-pooled technical skills.*
- **Integrated water resource planning** – *the river basins fall within the same system, improved resource planning, and the same conventions manage transboundary systems.*
- **Economies of scale** – *enhance revenue and hence sustainability, cost-effectiveness, and consolidated management structures.*

The CMAs initial function will be to promote community participation in water governance. The CMA will manage and control water resources, develop catchment

management strategies and ensure coordination and implementation by municipalities as per section 80 of the National Water Act, 36 of 1998. The progress of the establishment of CMAs is provided in Table 1-1.



Figure 1.3: Revised WMAs as per NWRS-3.

Table 1-1: CMA Establishment Progress – December 2023

NAME OF THE CMA	STATUS OF CMA ESTABLISHMENT	Next Steps
Breede-Olifants (BOCMA)	<ul style="list-style-type: none"> The new board-appointed process is underway and should be finalised by March 2024. Workstreams have been established for a smooth transfer from Proto CMA to BOCMA 	Appointment of the Chief Executive Officer (CEO) to commence once the board is appointed – currently there is an acting CEO
Vaal-Orange (VOCMA)	<ul style="list-style-type: none"> Cabinet concurred on the appointment of Board Members for the VOCMA in November 2023 and their appointment was on 1 December 2023. Workstreams have been established for a smooth transfer from Proto CMA to VOCMA. 	Interim CEO appointed for the transitional phase until the board appoints a CEO
Pongola-Umzimkulu (PUCMA)	<ul style="list-style-type: none"> Cabinet concurred on the appointment of Board Members for the VOCMA in November 2023 and their appointment was on 1 December 2023. Workstreams have been established for a smooth transfer from Proto CMA to PUCMA. 	Interim CEO appointed for the transitional phase until the board appoints a CEO
Limpopo-Olifants (LOCMA)	<ul style="list-style-type: none"> Gazette notice for the establishment of the CMA was published on 22 September 2023. The board appointment process has commenced and should be completed by April 2024. DWS has requested to list the LOCMA under the Public Finance Management Act (PFMA) schedule. 	Processes to continue at a local level. Workstreams to be established for a smooth transfer from Proto CMA to LOCMA. Appointment of CEO once the board is established.
Mzimvubu-Tsitsikamma (MTCMA)	<ul style="list-style-type: none"> The recommendations on the board appointment process have been completed and submitted to the minister for consideration. 	

	<ul style="list-style-type: none"> Workstreams have been established for a smooth transfer from Proto CMA to MTCMA. 	
Inkomati-Usuthu	<ul style="list-style-type: none"> No configuration to be done 	

1.6 Transboundary Water Resources

South Africa shares four international river basins, namely the Limpopo, Orange/Senqu, Inkomati, and Maputo, with six neighbouring countries, Botswana, Lesotho, Mozambique, Namibia, eSwatini, and Zimbabwe.

The shared watercourse institutions are responsible for international cooperation on water resource management of the basin, including equitable water sharing between countries, basin management, operation of basin infrastructure for droughts and floods, and future water resource development options, water resource protection, etc. South Africa has three international rivers which it shares with its neighbours (Figure 1.4), i.e.:

- Orange – Senqu River: shared with the Kingdom of Lesotho, Botswana & Namibia
- Limpopo River: shared with Botswana, Zimbabwe, and Mozambique
- Inkomati River: shared with the Kingdom of Eswatini and Mozambique
- Maputo River: shared with the Kingdom of Eswatini and Mozambique

The summary of international agreements and their status is given in Table 1-2. These agreements have been established with the neighbouring states to promote international transboundary cooperation.

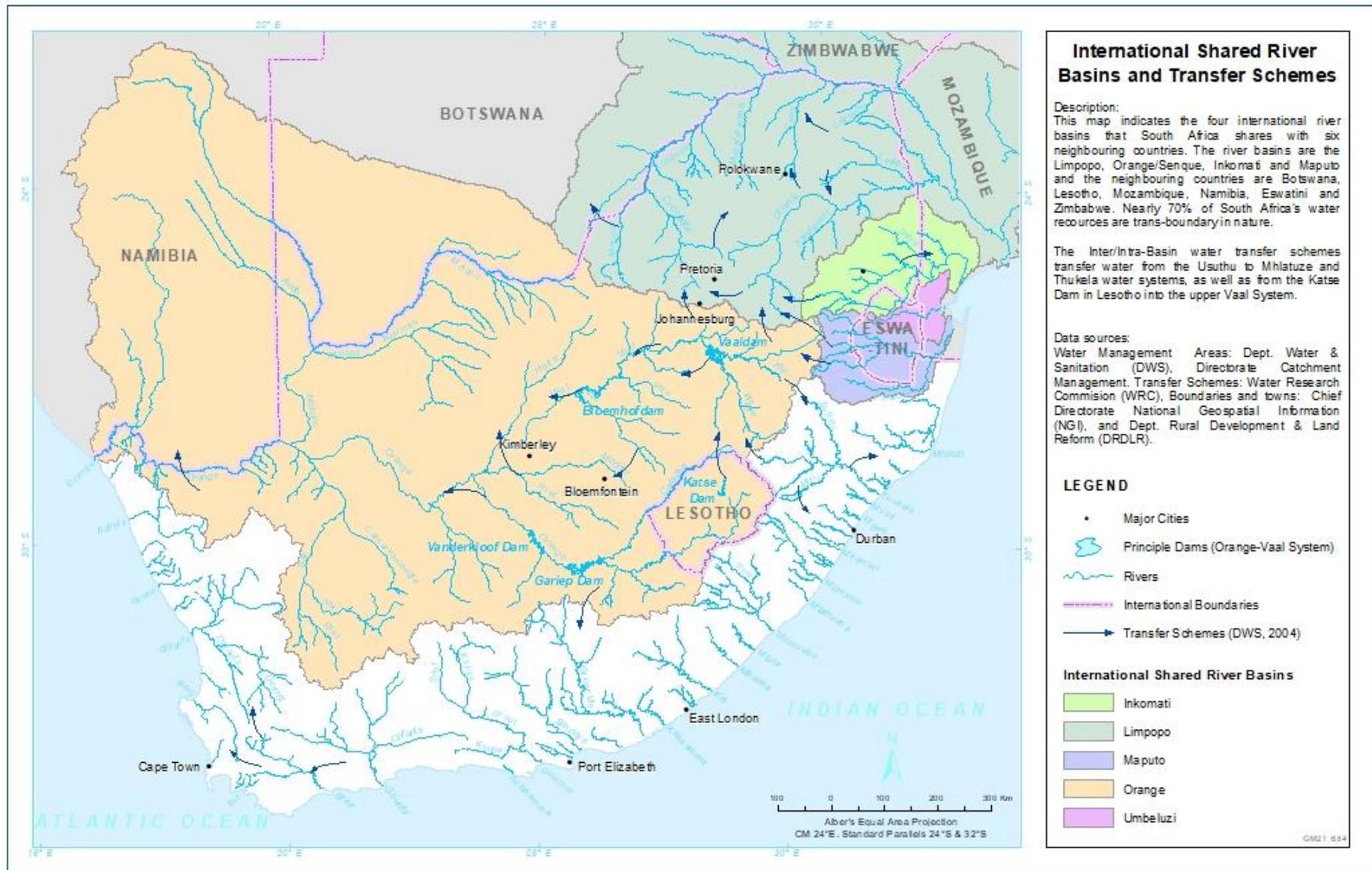


Figure 1.4: International shared basin and transfer schemes

Table 1-2 List of Shared Watercourses Agreements

Country	Title of the Agreement	Date signed	Date entered into force	Status of Agreement	Areas of Cooperation
Republic of Botswana, Republic of Mozambique, Republic of South Africa, and Republic of Zimbabwe	Agreement between Republic of Botswana, Republic of Mozambique, Republic of South Africa (RSA), and Republic of Zimbabwe on the establishment of the Limpopo watercourse Commission (LIMCOM)	2003/11/27	2003/11/27	Active	Joint Integrated Water Resource Management of the Limpopo River Shared Water between RSA, Botswana, Mozambique, and Zimbabwe
Republic of Botswana, Kingdom of Lesotho, Republic of Namibia, and Republic of South Africa	Agreement between Republic of Botswana, Kingdom of Lesotho Republic of Namibia, and Republic of South Africa on the establishment of the Orange Senqu River Commission (ORASECOM)	2000/11/03	2000/11/03	Active	Joint Integrated Water Resource Management of the Limpopo River Shared Water between RSA, Botswana, Namibia, and Lesotho
Republic of Botswana, Kingdom of Lesotho, and Republic of South Africa.	Memorandum of Agreement between the Government of Republic of Botswana, Kingdom of Lesotho and Republic of South Africa on the Lesotho-Botswana Water Transfer Feasibility Study	2017/11/16	2017/11/16	Active	RSA, Botswana, and Lesotho experts (engineers) jointly study the possibility of Botswana extracting water from the Lesotho Highlands Water Project. Implementation of Phase II Procurement process implementation

Country	Title of the Agreement	Date signed	Date entered into force	Status of Agreement	Areas of Cooperation
					Establishment of Project management
Republic of Mozambique, Kingdom of Swaziland/Eswatini, and Republic of South Africa	Agreement between the Kingdom of Swaziland, The Republic of Mozambique and Republic of South Africa on the establishment of Inco and Maputo Watercourse Commission. This is an envisaged Agreement which countries are still consulting with their respective Legal entities in their countries.			Not active	