

**BENCHMARKING SOUTH AFRICA'S NATIONAL WATER
POLICY AND LEGISLATION AND THE DEVELOPMENT OF A
FRAMEWORK FOR MONITORING THE PROGRESS OF
CURRENT AND FUTURE WATER POLICY AND
LEGISLATION:**

**REVIEW OF SOUTH AFRICA'S WATER POLICY AND
LEGISLATION**

**Report to the
WATER RESEARCH COMMISSION**

by

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EXECUTIVE SUMMARY

The political changes in South Africa in 1994 and the emergence of a democratic system based on a new constitution provided an opportunity for a comprehensive review of policy in all sectors in the country, including the water sector. Through an extensive stakeholder engagement process, two new water policies were developed for South Africa, which included the White Paper on Water Supply and Sanitation (1994) and White Paper on National Water Policy for South Africa (1997). These two water policies were later supported by the gazetting of the White Paper on Basic Household Sanitation (2001) and the National Water Policy Review of 2013 (the four water policies were hereafter collectively referred to as the national water policy or NWP). The water policies were legitimised in the late 1990s by the promulgation of two new water Acts, namely the Water Services Act (No. 108 of 1997) and the National Water Act (No. 36 of 1998) (hereafter referred to as the national water legislation/Acts or NWAs).

Since the promulgation of the new water policies and Acts in the 1990s, the water sector in the country has undergone a systematic process of change, restructuring both the water institutional arrangements and environment, including the organisational structure, policy, legislation, strategies and regulations. In the almost two decades of implementation of South Africa's national water policies and legislation the country had recorded many successes and challenges. The WRC and DWS had thus initiated this study, *BENCHMARKING SOUTH AFRICA'S NATIONAL WATER POLICY AND LEGISLATION AND THE DEVELOPMENT OF A FRAMEWORK FOR MONITORING THE PROGRESS OF CURRENT AND FUTURE WATER POLICY AND LEGISLATION*. The purpose of the study was to identify gaps and constraints to achieving the future vision of the water sector of the country. The review further needed to provide an understanding and recommendations of the future development in NWP and NW Acts which would support a successful water sector.

The research consisted of two distinct phases, namely:

1. **Phase 1:** To conduct a comprehensive **assessment** of the nature and extent of implementation of the water policies, identifying the **gaps and lessons learnt** from the implementation of these water policies and the NWAs. This part of the research addressed aims 1-3. This phase of the research was the focus of this report.
2. **Phase 2:** To **develop a framework for the assessment** of the resources required for the implementation of the amended/new and amalgamated NWP and NWAs and to **apply the framework** to formulate different resource dimensions required to implement and monitor progress of the reviewed/amalgamated NWP and NWAs. This part of the research addresses aims 4-7. A separate report WRC Report 2417/1 *BENCHMARKING SOUTH AFRICA'S NATIONAL WATER POLICY AND LEGISLATION AND THE DEVELOPMENT OF A FRAMEWORK FOR MONITORING OF THE EXTENT OF IMPLEMENTATION OF THE NATIONAL WATER ACTS AND POLICIES: A monitoring framework* provides the outcome of this phase of the research.

Due to the dual nature of this research, a number of methods and tools were utilised to address the aims and objective of the research. The water policy review, found in this report made use of a Sustainable Impact Assessment process, value chain analysis and benchmarking of water

policy against other countries. Phase 2 of the research utilised futures methods to develop a water future for the country and a hierarchical framework to develop a monitoring framework for this water future. Throughout the report recommendations are provided for amendments/changes to water policy which would be required to address current gaps and challenges in the countries policies. Recommendations of amendments or additions to current policies include policy positions related to:

WATER RESOURCE POLICY

- International water obligations
- Awareness and Education on wise water use
- Water scarcity and security in the water resource sector
- Adaptation to Climate Change
- Water for mining and industry
- Water, food and energy
- Groundwater management and use
- Wetlands and Estuaries
- Water Stewardship
- Mixed water use

WATER SUPPLY AND SANITATION POLICY

- Ensuring water security
- Right to water supply and sanitation
- Collection and treatment of used water
- Coping with uncertainties and risk
- Good governance and accountability
- Minimising water scarcity
- Economic and financial efficiency
- Operation and maintenance
- Reduce, re-use and recycling
- IWRM
- Appropriate technology
- Free Basic Sanitation – affordability
- Positions required for sustainable sanitation services provision

Policy needs to ensure a successful and sustainable water future in the country. Innovative policy positions were required for the water resource, water supply and sanitation sector of the country. South Africa could maintain international recognition of its policy, through the development and implementation of innovative and progress policy positions to address these gaps and challenges. This would require a shift in the focus of policy, while still maintaining core intents such as universal access and address water services backlogs; Free Basic Services; and water to support economic and household's development in the country. This policy needs to look towards the future and the potential challenges and needs of the sector – it must be proactive to future needs and not only reactive to current issue.

The terms Department of Water and Forestry (DWAF); Department of Water Affairs (DWS) and Department of Water and Sanitation (DWS) are utilised in the document in reference to the department responsible for water resources in South Africa. The departments name has changed over the period of implementation of the SFWS, hence the name which is applied to the department at any point in the document is linked to the time period which is being referred to i.e. the department was referred to as DWAF (2003 – 2009); DWA (2009-2014) and DWS (2014-present)

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LIST OF ABBREVIATIONS

BD	Blue Drop
DHS	Department of Human Settlement
DM	District Municipality
DoBE	Department of Basic Education
DoE	Department of Education
DoH	Department of Health
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
EC	Eastern Cape Province
EHP	Environmental Health Practitioner
FS	Free State Province
GD	Green Drop
GHS	General Household Survey
GP	Gauteng Province
HST	Health Systems Trust
KZN	Kwa-Zulu Natal Province
LGWSETA	Local Government, Water and related services Sector Education Training Authority
LM	Local Municipality
LP	Limpopo Province
Metro	Metropolitan Municipality
MP	Mpumalanga Province
MTSF	Medium-term Strategic Framework
NC	Northern Cape Province
NDP	National Development Plan
NEIMS	National Education Information Management System
NW	North West Province
O&M	Operation and maintenance
RDP	Reconstruction and Development Programme
SAICE	South Africa Institution of Civil Engineering
SDG	Sustainable Development Goals
SFWS	Strategic Framework for Water Services
WC	Western Cape Province
WISA	Water Institution of South Africa
WRC	Water Research Commission
WSA	Water Services Authority
WSP	Water and Sanitation Programme
WSUP	Water and Sanitation for the Urban Poor

1 INTRODUCTION

1.1 BACKGROUND

The political changes in South Africa in 1994 and the emergence of a democratic system based on a new constitution provided an opportunity for a comprehensive review of policy in all sectors in the country, including the water sector. Through an extensive stakeholder engagement process, two new water policies were developed for South Africa, which included the White Paper on Water Supply and Sanitation (1994) and White Paper on National Water Policy for South Africa (1997) (DWA, 1994; DWA, 1997). These two water policies were later supported by the gazetting of the White Paper on Basic Household Sanitation (2001) and the National Water Policy Review of 2013 (the four water policies were hereafter collectively referred to as the national water policy or NWP) (DWA, 2001; DWA, 2013a). The water policies were legitimised in the late 1990s by the promulgation of two new water Acts, namely the Water Services Act (No. 108 of 1997) and the National Water Act (No. 36 of 1998) (hereafter referred to as the national water legislation/Acts or NWAs) (South Africa, 1997; South Africa, 1998). During the course of this research, a review of the sanitation policy was completed, with the gazetting of the National Sanitation Policy Review in December of 2016 (DWS, 2016).

Since the promulgation of these new water policies and Acts, the water sector in the country had undergone a systematic process of change, restructuring both the water institutional arrangements and environment, including the organisational structure, policy, legislation, strategies and regulations. In the almost two decades of implementation of South Africa's national water policies and legislation the country had recorded many successes and challenges. Similarly, there had been a number of changes and adjustments in the water socio-political and other environments, both globally and locally. All these successes, challenges and changes provided an ideal opportunity for the South African water sector to pause in 2013 and to reflect on what was required in the next decades of implementation to ensure sustainable water resources and provision of sustainable water supply and sanitation services to the population of the country. Before the sector could move into the next phase of implementation, there was a need to assess the success, challenges, gaps and changes that were required from our current NWP and NWAs

Recognising this need, the Water Research Commission (WRC) and Department of Water and Sanitation (DWS) initiated this study, *BENCHMARKING SOUTH AFRICA'S NATIONAL WATER POLICY AND LEGISLATION AND THE DEVELOPMENT OF A FRAMEWORK FOR MONITORING THE PROGRESS OF CURRENT AND FUTURE WATER POLICY AND LEGISLATION*. The purpose of the study was to identify gaps and constraints to achieving the future vision of the water sector of the country. The review further needed to provide an understanding and recommendations of the future development in NWP and NW Acts which would support a successful water sector.

This research study thus had the purpose to address the above-mentioned need by conducting an assessment of the NWP and the NWAs, addressing the following aims:

No.	Aim
PHASE 1:	
1	To conduct a comprehensive assessment of the nature and extent of the water policies
2	To identify the gaps and lessons learnt from the implementation of these water policies and the NWAs
3	To inform the amalgamating of the NWP and NWAs, based on a consultative process of assessment

No.	Aim
PHASE 2:	
4	To develop a framework for the assessment of the resources required for the implementation of the amended/new and amalgamated NWP and NWA
5	To apply the framework to formulate different resource dimensions required to implement, and monitor progress of, the reviewed/amalgamated NWP and NWA
6	To establish the means of determining the obstacles and/or contradiction that may hamper implementation of the NWA and NWP.
7	Using scenarios, identify the kind of quantum of investments that were needed to achieve the different scenarios i.e. development of a Business Case for the scenarios

The table above shows that this research consisted of two distinct phases, namely:

1. Phase 1: To conduct a comprehensive assessment of the nature and extent of the water policies, identifying the gaps and lessons learnt from the implementation of these water policies and the NWA. This part of the research addressed aims 1-3. This phase of the research was the focus of this report.
2. Phase 2: To develop a framework for the assessment of the resources required for the implementation of the amended/new and amalgamated NWP and NWA and to apply the framework to formulate different resource dimensions required to implement and monitor progress of the reviewed/amalgamated NWP and NWA. This part of the research addresses aims 4-7. A separate report WRC Report 2417/1 BENCHMARKING SOUTH AFRICA'S NATIONAL WATER POLICY AND LEGISLATION AND THE DEVELOPMENT OF A FRAMEWORK FOR MONITORING THE PROGRESS OF CURRENT AND FUTURE WATER POLICY AND LEGISLATION: A monitoring Framework provides this framework.

It should be noted that this main policy review was conducted in 2015, with a focus on capturing success, gaps and challenges in the policy arena between gazetted of the policy and 2013. Hence, policy which were not published or implemented by 2013 (i.e. the National Water Policy Review (2013) (DWA, 2013a); the National Development Policy (2013) (Presidency, 2012) and the National Sanitation Policy Reviewed (2016) (DWS, 2016)) were not a key focus of this review. It should however be highlighted that the National Sanitation Policy Review (2016) was based on much of the outcomes of this research and can thus be viewed as an outcome of this research. Hence Section 11: National Sanitation Policy Review shows how the recommendations of this research outlined in Section 10 were utilised to inform and guide amendments to the sanitation policy of South Africa.

1.2 STRUCTURE OF THE REPORT

The structure of the Report was thus:

- **Section 1:** The introduction and purpose of the study
- **Section 2:** Literature review of policy and assessment methods
- **Section 3:** Method of the policy review
- **Section 4:** A background to the South Africa policy development process
- **Section 5:** The socio-political landscape which shaped the development of the policies. This socio-political landscape information was taken from the policies themselves.
- **Section 6:** An overview of the overarching, core intents of the policy
- **Section 7:** Water resources policy review
- **Section 8:** Water services policy review
- **Section 9:** Future considerations of water policy in South Africa

- **Section 10:** Recommended water policy additions or amendments
- **Section 11:** National Sanitation Policy Review
- **Section 12:** Conclusion
- **Section 13:** References

2 LITERATURE REVIEW OF POLICY REVIEW AND ASSESSMENT METHODS

Single policies or entire policy packages are often assessed using different methods aiming at a quantification of effects as well as the detection of undesired outcomes and the knowledge of potential impacts (Justen et al., 2014). Various approaches have been adopted across the world to conduct analysis of national policies and these assessment approaches support policy decision-making. This section of the report provides an overview of some of the most relevant policy analysis approaches.

There are generally three key approaches to policy analysis, namely analycentric, the policy process, and the meta-policy approach.

- An **analycentric** approach focuses on individual problems and their solutions; the scope of the analysis would be the micro-scale and the problem interpretation is usually of a technical nature. The primary aim is to identify the most effective and efficient solution in technical and economic terms (e.g. the most efficient allocation of resources).
- The **policy process** approach focusses on political processes in policy review and involves stakeholders; the scope of the analysis would be at a meso-scale and the problem interpretation is usually of a political nature. The policy analysis aims at determining what processes and means were used and attempts to explain the role and influence of stakeholders within the policy process.
- The **meta-policy approach** is a systems and context approach; i.e., the scope of the policy analysis would be at the macro-scale and the problem interpretation is usually of a structural nature. It aims to explain the contextual factors of the policy process; i.e., what are the political, economic and socio-cultural factors influencing it.

The approach taken in this review of water and sanitation policies in South Africa was a meta-policy approach, with the review being at a meta-scale and including a review of the political, economic and socio-cultural factors influencing and influenced by the policies.

The literature indicates two forms of policy analysis, namely analysis **for** policy which applies methods to conduct analysis for the development of a new policy and (2) analysis **of** policy which applies method to conduct analysis of a policy which has already been developed. The literature review below focusses only on methods applied to analysis **of** policy as the purpose of this research was to review the current, already implemented water and sanitation policy of South Africa.

Analysis 'of' policy, according to Rizvi and Lingard (2010), includes three major stages, namely: 'contextual', 'textual' and 'outcomes'.

1. Contextual analysis: - analyses policy from the historical and political origins, asking questions such as:
 - where did the policy originate from;
 - why was the policy adopted and why now;
 - who were the players involved in establishing the policy agenda and the policy etc.
2. Textual analysis: - analysed the policy discourse and discursive formation of policy and policy problems, dealing with questions such as:
 - what discourses framed the policy text;

- were these globalized discourses;
 - to which problem was the policy constructed as a solution;
 - how was the policy problem conceptualized;
 - how had the policy text been constructed linguistically;
 - how did the policy work as a text;
 - how had the policy been mediatized;
 - how had any competing interests been sutured together in the text;
 - what was the intertextuality of the policy;
 - who had advanced and promoted the policy and why;
 - how had competing interests been negotiated in relation to the policy agenda, etc.
3. Outcomes/implementation analysis: - was associated with analysis of the strategies and policy outcomes, addressing questions such as:
- what are the strategies for implementation;
 - was this a material or symbolic policy;
 - did the policy have unintended consequences;
 - in whose interests did the policy actually work; and
 - what were the social justice effects of the policy etc.

Taylor et al. (1997) proposed a similar approach and framework of policy analysis which includes the aspects of 'context', 'texts' and 'consequences' as did Ball's (1993) framework of 'text', 'discourse' and 'effects'. A range of assessment methods are used in policymaking, using quantitative data, qualitative information and observations or opinions (Justen et al., 2014). All these methods have advantages and disadvantages.

3 METHOD OF THE POLICY REVIEW

There are different types of impact assessments and related assessment methodologies. These methods evaluate a proposed policy or project by assessing its impacts on selected factors. The following table shows some of these methods and their brief description:

Table 1: Types of Impact Assessment Methods

Types of Impact Assessments Method	Description
Cost-benefit analysis (CBA)	CBA has been widely used in the water sector since 1930s. CBA was an analytic procedure which estimates the net economic value of a given policy or project, but it has a little bite for regulation (Cowen, 1998).
Modelling	Modelling is a data-intensive process that is useful in throwing light on problems important to policy-makers.
Regulatory Impact Assessment (RIA)	RIA is amongst the oldest and most common form of impact assessment used in OECD member countries, examines the costs and benefits of complying with proposed regulations (OECD, 2008).
Environmental Impact Assessment (EIA)	EIA predicts the possible environmental impacts of specific projects, while strategic environmental assessments (SEA) examine those of broader policies and programmes (OECD, 2006).
Trade Impact Assessment (TIA)	TIA look at the economic, environmental and other effects of trade agreements and trade liberalisation (OECD, 2000).
Sustainable Impact Assessment (SIA)	SIA is a methodological soft policy instrument for developing integrated policies which take full account of the five sustainable development dimensions and include cross-cutting, intangible and long-term considerations (OECD, 2010).

Given the above-mentioned assessment methods, the research team applied the SIA method for reviewing the National Water Policy (NWP). The SIA was the chosen method as it was not only a policy instrument for developing and reviewing integrated policies but it could also assess the likely economic, social, environmental, infrastructural and institutional effects of policies, strategies, plans and programmes. The SIA method further comprised of important principles, which are appropriate for the review of NWPs, including:

- **Sustainability.** In SIA sustainability means that all five sustainable development dimensions were fully integrated into the assessment.
- **Focus beyond numbers.** The SIA used a variety of tools and methodologies to capture the less readily monetised aspects of sustainability (OECD, 2010).
- **Transparency and accountability.** The overall goal of an SIA is to create integrated policies which take full account of the sustainable dimensions, intangible, spatial and long-term considerations and unintended side-effects. SIA provides transparency and accountability at different levels.
- **Stakeholder involvement.** SIA stimulates reflection and learning among all those who participated.
- **Clear lines of responsibility.** To embed the SIA within the institutional set-up and its operations, clear procedures need to be established on timing, who will do what, for what purpose and with what resources (OECD, 2010).

The SIA Process was understood as a policy-level appraisal focussed on the assessment of the key impacts of legislative or strategic proposals.

Due to the dual nature of this research, a number of methods and tools were utilised in the SIA to address the aims and objectives of the research. However, the SIA of the policy involved two key methods of capturing the successes, gaps and challenges with the current policy:

- Desk-top review of the policy using sustainability dimensions; a water value chain lens and benchmarking against international water policies; and
- A stakeholder engagement process to capture sector perceptions of the successes, gaps and challenges with the current policy.

These tools and methods are outlined in the sections below.

3.1 PROCESS FOLLOWED FOR THE DESK-TOP REVIEW OF THE POLICY

The purpose of this report, the Final Policy Review Report, was to provide the results of the review of the South Africa’s water and sanitation policy intents/positions/principles/objectives (hereafter collectively referred to as ‘intents’). Since these policy intents had defined and delimited the water sector of the country for the past 20 years, and informed the development and implementation of the water legislation, identifying and assessing the success, challenges and gaps in addressing and achieving these intents was crucial to this policy review.

The process followed in the desk-top review of the water policies is shown in Figure 1. The first step in the process was the conducting of a desk-top review of the current policy. This review provided the scope of the intents/positions/principles/ objectives (hereafter collectively referred to as ‘intents’) of each of the water policies. Since these policy intents have defined and delineated the water sector of the country for the past 20 years, and informed the development and implementation of the water legislation, capturing of these intents were crucial to the review of the water policies and acts of South Africa. The policy intents included were from the three South African water and sanitation policies, namely the:

1. White Paper on Water Supply and Sanitation (1994)
2. White Paper on a National Water Policy for South Africa (1997)
3. White Paper on Basic Household Sanitation (2001)

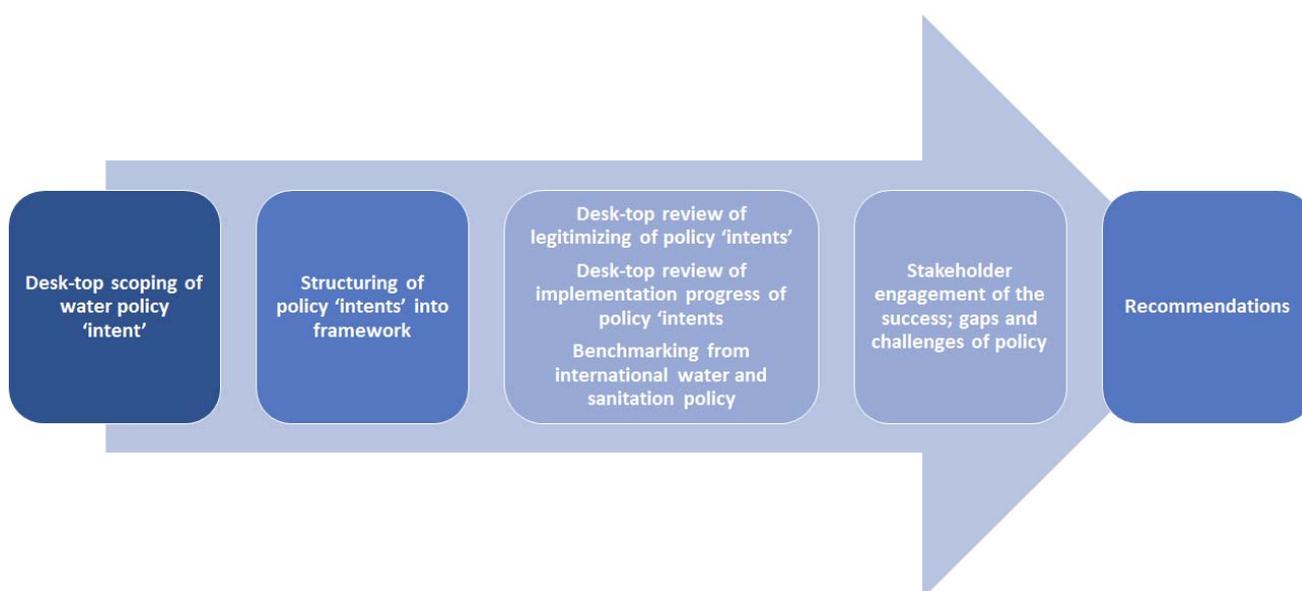


Figure 1: Process followed in the review of water and sanitation policies of South Africa

The policy intents that emanated from this scoping of the water policies were structured in a logical, systematic manner using the methods outlined in the next Section 2.2 of this report.

The next step in the process was to structure the policy 'intents' into the analysis framework (see Section 2.2). The implementation of policy 'intents' were then assessed through three activities:

1. A desk-top review to determine if and how the policy intents were legislated in the National Water Act (No. 36 of 1998) and/or the Water Services Act (No. of 1997). The assumption was made that if the policy intent has been legitimised in the NWActs, it has been prioritised as a focus of the sector and would thus be included in the implementation plans and strategies for the sector.
2. A desk-top review to determine how the legislated policy intents were subsequently implemented, i.e. National Water Resource Strategy (DWA, 2005 and 2013b) and Strategic Framework for Water Services (DWAF, 2003) and where possible, to capture the performance of the sector in implementing the policy intents.
3. A review of international water and sanitation policies was conducted and, where possible, South Africa's progress with the policy intents was benchmarked against these international policies. International benchmarking refers to the systematic measurement and comparison among countries against a selected set of indicators. In recent years, policy benchmarking had become a widely popular and influential policy-making instrument (Fagerberg, 2001; Keehley and MacBride, 2002; Sisson et al. 2003; Zängle, 2004; Lodge, 2005). As policy-makers search for means to guide the design and implementation of successful public policies, international benchmarking is increasingly viewed as an attractive source of evidence and policy learning. Internationally, benchmarking is widely advocated by most countries and international bodies as an emerging methodology for improvement of policies (Shen et al., 2015).

Intergovernmental organisations, such as the Organisation for Economic Co-operation and Development (OECD) and the European Commission (EC), place importance on policy and performance benchmarking in facilitating mutual learning processes among their member states, while the World Bank and UN agencies employ international benchmarking in the context of their research activities and country advisory services. Public policy think tanks and research institutions commonly use benchmarking to reinforce an international perspective in policy studies. Yet, despite its popularity, policy benchmarking as a technique for policy learning is surprisingly understudied (Dominique et al., 2013).

Benchmarking of the South African policies against other related countries was one of the assessment tools in this research. Countries included in the benchmarking exercise were SADC countries, Upper Middle Income African Countries, BRICS countries and Kenya. The criteria was utilised to limit the review based on the assumption that these countries have similar water and development challenges as experienced by South Africa. The review of water policies was thus limited to the following countries (Table 2):

Table 2: Water Policies which were utilised to benchmark and inform South African water policies

	Year	Single or separate policies
Upper Middle Income Countries		
Botswana	2012	Single
Namibia	2000	Single
South Africa	1994 and 1997	Separate
BRICS Countries		
Brazil	1997	Single
Russia	Policy not available in English	Policy not available in English
India	2012	Single
China	2011	Single
SADC (surrounding SA)		
Swaziland	2009	Single
Lesotho	2007	Single
Zimbabwe	2012	Single
Other Countries		
Kenya	2012	Single

Where possible, the South African water policy intent and progress was compared against progress of these countries in addressing their water policy intent and interventions. It should be noted that some of the policy intents in the South African water policy were not found in any of the other benchmarking countries' policies and thus cannot be benchmarked. This report however, focussed on a review of the South Africa policy, providing some aspects of the results of the benchmarking exercise. Much of the results of the benchmarking were included in the other report K2417/2 linked to this assignment, shown as recommended policy positions which South Africa should consider in future i.e. policy positions of the benchmarking countries were used to develop these policy positions.

Once the desk-top review had been conducted, a series of stakeholder engagements were conducted to capture stakeholders' perceptions of the success, gaps and challenges with the water and sanitation policies of the country. This stakeholder engagement was linked to research on the Impact Assessment of the Strategic Framework for Water Services (WRC Report 2415) (See Section 2.3. for an outline of this stakeholder engagement). Any policy-related issues emanating from the stakeholder engagement were included in this report; while implementation issues were included in the SFWS research report.

3.2 FRAMEWORK OF DESK-TOP ANALYSIS OF THE WATER POLICIES

Thus, the Framework of Analysis for the review of water and sanitation policies utilised three tools to structure the policy intents in a systematic manner. Firstly, the policy intents were categorized into their sustainability dimension (Figure 2). For each policy intent outlined in the policy scoping exercise discussed in Figure 1 above, the question was asked - 'which sustainability dimensions the policy intent most directly related to?' The result of this exercise was the categorising of policy intents into one of the five dimensions of sustainability shown in Figure 2.

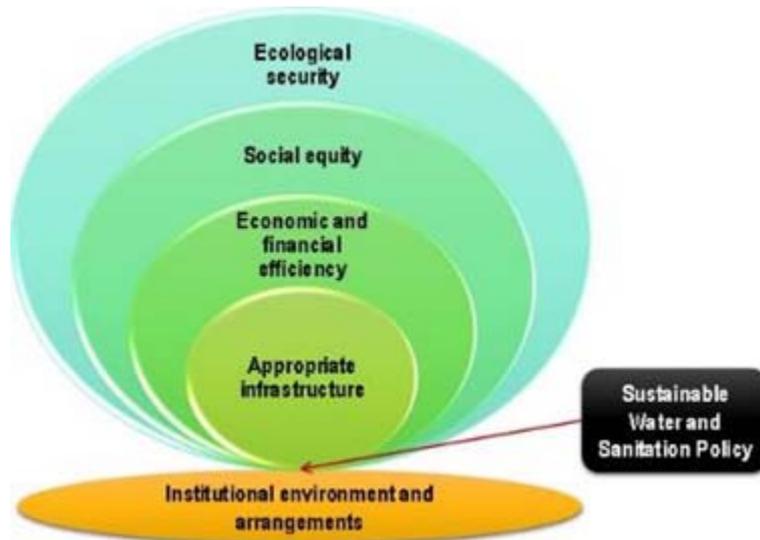


Figure 2: Dimensions of sustainability which categorised of water policy intents

Secondly, based on their foci, the intents under each sustainability dimension were grouped into common themes, i.e. water regulations, integrated planning, guidelines etc.

Finally, the policy intents within each theme were structured, as far as possible, into the various components of the **water value chain** shown in Figure 3. In other words, for each theme under a sustainability dimension, the intents were captured from those related to the resource, to the intents related to the consumer/user and back to the intents relating to the return, then to the resource.

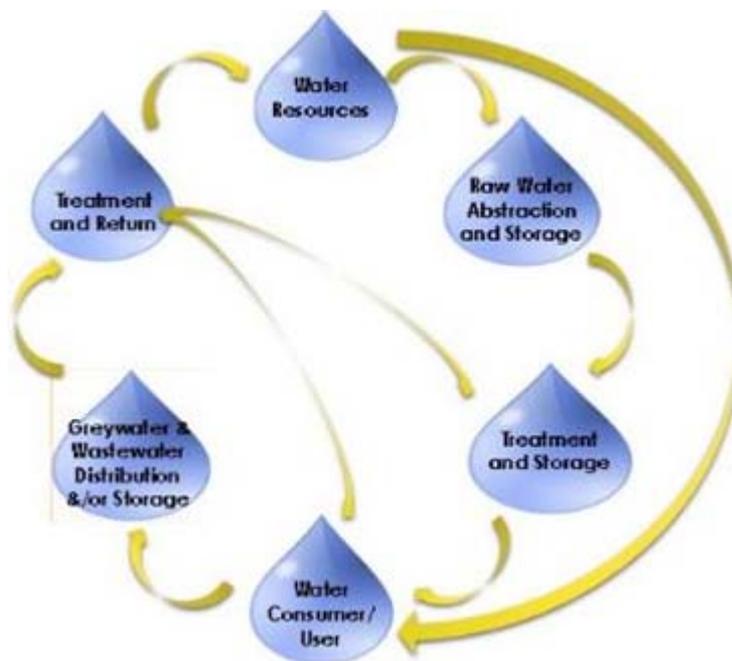


Figure 3: Simplified Water Value Chain which was utilized to categorize policy intents

3.3 STAKEHOLDER ENGAGEMENT ON THE WATER POLICIES

Stakeholder engagements took the form of national focus-group working session, as well as a more provincial working session. Working sessions were conducted with the groups at the venues and dates shown in Table 3. The key purpose of the workshops was to engage with stakeholders on:

- LOOKING BACK: where had we come with the implementation of the SFWS – success and challenges
- VISIONING FORWARD: where would we like to go in future with our SFWS – road ahead for the water sector

Table 3: Stakeholder engagement working sessions related to the SFWS Impact Assessment linked to this assignment.

Working session name	Date of working session	Venue
Individuals involved in the drafting of the SFWS	13 April 2015	Sustento Office, Pretoria
Working Session on the SFWS Institution	14 April 2015	Stone Cradle, Pretoria
Water Supply Working Session	15 April 2015	Stone Cradle, Pretoria
Sanitation Working Session	23 April 2015	Stone Cradle, Pretoria
Eastern Cape Working Session	20 May 2015	Amatola Water – East Landon
KZN Working Session	28 May 2015	Ethekwini Northern Waterworks, Durban
KZN Working Session	29 May 2015	Mhlathuze Water –Amanzi, Richards Bay
Gauteng Working Session	3 June 2015	Rand Water, Johannesburg South
Limpopo Working Session	4 June 2015	Lepelle Northern Water, Polokwane
North West Working Session	18 June 2015	Rustenburg Local Municipality

Any policy-related issues emanating from the stakeholder engagement on the success and challenges and the need for the water sector were included in this report; while implementation issues were included in the SFWS research report.

Much of the outcomes of these workshops were related to policy, specifically the visioning forward, i.e. where the sector would like to go in future.

Five (5) more workshops were held with the DWS Policy personnel to discuss the perceived success, gaps and challenges with the policies of the sector and to design a water future for the country that would inform future water and sanitation policies (this water future is outlined in the WRC Report 2417/1).

Figure 4: Stakeholder engagement working sessions linked to this assignment

Date	Name of Workshop
29 September 2015	Benchmarking National Water Policy
30 October 2015	Implementation of National Water Policy: Preliminary results
10 December 2015	Comparative Risk Assessment
31 March 2016	Water Futures 1: Developing desired water futures
12 September 2016	Water Futures 2: Deepening the developed water futures (internal)

Of note was the workshop held on the 30 October 2015 at which the Department of Water and Sanitation (DWS) presented the preliminary results of this research to the DWS regional and other national departments. The outcome of this workshop informed the finalisation of this policy review report. Stakeholders at this workshop indicated that the key gaps and challenges in current water and sanitation as:

- Technologies
- Planning
- Food-Water-Energy Nexus
- Water stewardship
- Water mix and multiple use
- Pricing as a tool and
- Water and economic development.

Each of these gaps and challenges are address in this document.

4 BACKGROUND TO SOUTH AFRICA'S WATER POLICIES, ACTS AND STRATEGIES

South Africa had a well-developed, systematic manner of developing, gazetting and implementing national legislation, including water legislation. Assuming the drafting of the water policy followed standard procedures, the development of the policies would have followed the procedure outlined in this section of the report.

Figure 5 below shows policy, legislation and strategies in the water sector of South Africa. At the time of this study, the water sector had:

- White Papers: -
 - White Paper on Water Supply and Sanitation (1994) which provided the countries hopes, methods and principles to achieve water supply and sanitation;
 - the White Paper on National Water Policy for South Africa (1997) which provided the water resource vision for the country
 - the White Paper on Basic Household Sanitation (2001) which provided additional policy related to provision of basic sanitation to households in the country;
 - National Water Policy Review (2013) which provided policy amendments to the 1994 and 1997 White Papers;
- 2 Water Laws – the Water Service Act (No. 108 of 1997) which was the law for the water services sector of the country and the National Water Action (No. 36 of 1998) which was the law for water resource management (including water resources used for water services) in the country.
- 2 Strategies – the Strategic Framework for Water Services (2003) which outlined the implementation protocol for achieving South Africa's water supply and sanitation aspirations and the National Water Resource Strategy (2013) which provided the implementation protocol for water resources in the country.

The process of formalising South Africa water legislation of 1997 and 1998 started with the publishing of a discussion document called a draft Policy Document or Green Paper. The Green Paper is drafted in the Ministry or department dealing with a particular issue, in this case it would have been the Department of Water and Sanitation (DWS). The discussion document provided the general thinking that informs a particular policy. It should then be published for comment, suggestions or ideas. A submission date for input from stakeholders and civil society was assigned to the Green Paper.

This led to the development of a final refined policy document, a White Paper (referred to as the Policy), containing the broad statement of what the government hoped to achieve in the water sector and the methods and principles it would use to achieve these. It stated the goals of the ministry and the department. The policy document identified new laws needed to achieve its goals.

Following the publication of a White Paper, the Minister and officials within the State department concerned drafted Legislative Proposals for the water sector. This document was gazetted as a Draft Bill, for comment by a defined date, or given to certain organisations for comment. Once all comments had been considered the document was taken to the State Law Advisers who checks the proposals in detail and their consistency with existing legislation. These proposals were then printed by Parliament, given and tabled or introduced in either the National Assembly or the National Council of Provinces. The document was now no longer a Draft Bill, but a Bill. The introduction or tabling of the Bill is called the first reading. When both Houses have passed the Bill, it is allocated an Act number and then is signed by the State President. It is then published in the Government Gazette as an Act and becomes a law of the land. Laws set out standards, procedures and principles that must be followed. If a law is not followed, those responsible for breaking them could be prosecuted in court.

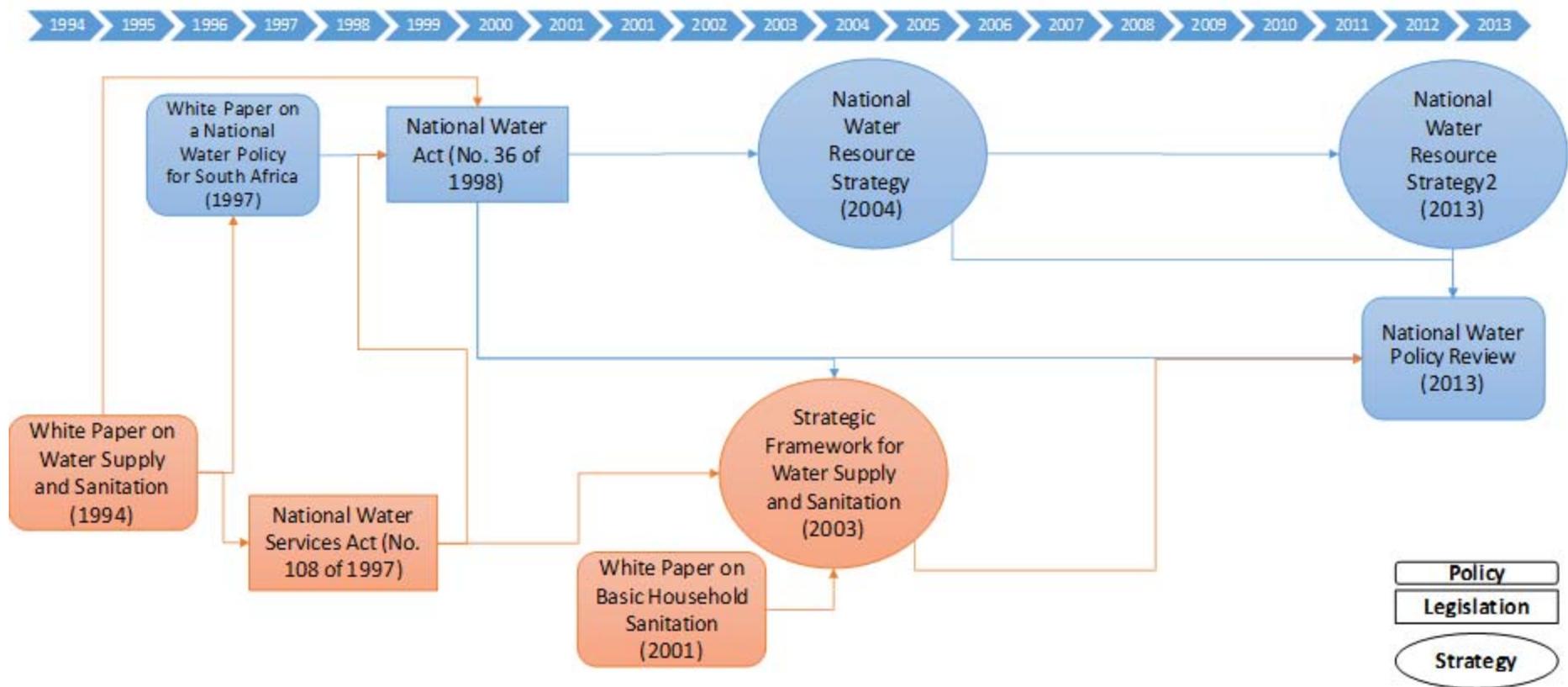


Figure 5: Policy, legislation and strategies in the water sector of South Africa.

The 1994, 1997 and 2001 water policies of South Africa had a very strong developmental focus, with the key imperatives of these early policies being equity, redress and provision of basic services to all people in the country. The key strategic intents were reflected in the policies in the following manner:

4.1 WHITE PAPER ON WATER SUPPLY AND SANITATION (1994)

The strategic intent of this White Paper was to ensure that all South Africans had access to essential basic water supply and sanitation services at a cost which was affordable both to the household and to the country as a whole. The purpose of the White Paper was to:

- Provide some historical background regarding water supply and sanitation development in South Africa;
- Explain the development approach which had guided policy formulation;
- Put forward certain basic policy principles;
- Outline the institutional framework proposed for water supply and sanitation services;
- Provide standards and guidelines for basic service delivery;
- Set out policy for the financing of services;
- Outline certain immediate initiatives which were being taken;
- Provide supplementary policy and briefing information on important related topics.

4.2 WHITE PAPER ON NATIONAL WATER POLICY FOR SOUTH AFRICA (1997)

The key intent of this White Paper was that *everyone had the right to access to sufficient water*, thus the need to address the Bill of Rights Constitutional responsibilities of the country (South Africa, 1996; Constitution of South Africa, Section 27 (1) (b)). This strategic intent was largely articulated in the 28 water principles which could be found in the policy, namely:

Principle 1:	The water law shall be subject to and consistent with the Constitution in all matters including the determination of the public interest and the rights and obligations of all parties, public and private, with regards to water. While taking cognisance of existing uses, the water law will actively promote the values enshrined in the Bill of Rights.
Principle 2:	All water, wherever it occurs in the water cycle, was a resource common to all, the use of which shall be subject to national control. All water shall have a consistent status in law, irrespective of where it occurs.
Principle 3:	There shall be no ownership of water but only a right (for environmental and basic human needs) or an authorisation for its use. Any authorisation to use water in terms of the water law shall not be in perpetuity.
Principle 4:	The location of the water resource in relation to land shall not in itself confer preferential rights to usage. The riparian principle shall not apply.
WATER RESOURCE MANAGEMENT PRIORITIES	
Principle 7:	The objective of managing the quantity, quality and reliability of the Nation's water resources was to achieve optimum, long term, environmentally sustainable social and economic benefit for society from their use.
Principle 8:	The water required to ensure that all people had access to sufficient water shall be reserved.
Principle 9:	The quantity, quality and reliability of water required to maintain the ecological functions on which humans depend shall be reserved so that the human use of water did not individually or cumulatively compromise the long-term sustainability of aquatic and associated ecosystems.
Principle 10:	The water required to meet the basic human needs referred to in Principle 8 and the needs of the environment shall be identified as "The Reserve" and shall enjoy priority of use by right. The use of water for all other purposes shall be subject to authorisation.

Principle 11: International water resources, specifically shared river systems, shall be managed in a manner that optimises the benefits for all parties in a spirit of mutual co-operation. Allocations agreed for downstream countries shall be respected.

WATER RESOURCE MANAGEMENT APPROACHES

Principle 12: The National Government was the custodian of the nation's water resources, as an indivisible national asset. Guided by its duty to promote the public trust, the National Government had ultimate responsibility for, and authority over, water resource management, the equitable allocation and usage of water and the transfer of water between catchments and international water matters.

Principle 13: As custodian of the nation's water resources, the National Government shall ensure that the development, apportionment, management and use of those resources was carried out using the criteria of public interest, sustainability, equity and efficiency of use in a manner which reflects its public trust obligations and the value of water to society while ensuring that basic domestic needs, the requirements of the environment and international obligations were met.

Principle 14: Water resources shall be developed, apportioned and managed in such a manner as to enable all user sectors to gain equitable access to the desired quantity, quality and reliability of water. Conservation and other measures to manage demand shall be actively promoted as a preferred option to achieve these objectives.

Principle 15: Water quality and quantity were interdependent and shall be managed in an integrated manner, which was consistent with broader environmental management approaches.

Principle 16: Water quality management options shall include the use of economic incentives and penalties to reduce pollution, and the possibility of irretrievable environmental degradation as a result of pollution shall be prevented.

Principle 17: Water resource development and supply activities shall be managed in a manner which was consistent with the broader national approaches to environmental management.

Principle 18: Since many land uses had a significant impact upon the water cycle, the regulation of land use shall, where appropriate, be used as an instrument to manage water resources within the broader integrated framework of land use management.

Principle 19: Any authorisation to use water shall be given in a timely fashion and in a manner which was clear, secure and predictable in respect of the assurance of availability, extent and duration of use. The purpose for which the water could be used shall not arbitrarily be restricted.

Principle 20: The conditions upon which authorisation was granted to use water shall take into consideration the investment made by the user in developing infrastructure to be able to use the water.

Principle 21: The development and management of water resources shall be carried out in a manner which limits to an acceptable minimum the danger to life and property due to natural or manmade disasters.

WATER INSTITUTIONS

Principle 22: The institutional framework for water management shall as far as possible be simple, pragmatic and understandable. It shall be self-driven and minimise the necessity for State intervention. Administrative decisions shall be subject to appeal.

Principle 23: Responsibility for the development, apportionment and management of available water resources shall, where possible and appropriate, be delegated to a catchment or regional level in such a manner as to enable interested parties to participate.

Principle 24: Beneficiaries of the water management system shall contribute to the cost of its establishment and maintenance on an equitable basis.

WATER SERVICES

Principle 25:	The right of all citizens to had access to basic water services (the provision of potable water supply and the removal and disposal of human excreta and waste water) necessary to afford them a healthy environment on an equitable and economically and environmentally sustainable basis shall be supported.
Principle 26:	Water services shall be regulated in a manner which was consistent with and supportive of the aims and approaches of the broader local government framework.
Principle 27:	While the provision of water services was an activity distinct from the development and management of water resources, water services shall be provided in a manner consistent with the goals of water resource management.
Principle 28:	Where water services were provided in a monopoly situation, the interests of the individual consumer and the wider public must be protected and the broad goals of public policy promoted.

4.3 WHITE PAPER ON BASIC HOUSEHOLD SANITATION (2001)

This policy focused specifically on the provision of a basic level of household sanitation to mainly rural communities and informal settlements. The policy also dealt with the need for an environmentally sound approach to providing sanitation services, and addressed the need to protect surface and ground water resources from sanitation pollution through integrated environmental management practices.

The strategic intents of this policy included: -

- Facilitating the participation of communities;
- Promoting health and hygiene awareness and practices;
- Development and use of local resources;
- Upgrading of existing facilities
- Adopting an integrated environmental management approach;
- Developing a common approach to implementation; and
- Undertaking specific programmes to clear the backlog.

4.4 WATER SERVICE ACT (1997) AND THE NATIONAL WATER ACT (1998)

The above policies were legislated through two Water Acts of the country, the Water Service Act (1997) and the National Water Act (1998). The Acts had the overarching objectives (South Africa, 1997; South Africa, 1998) of (See Table 4):

Table 4: Purpose and objectives of the water Acts of South Africa

<p>Water Services Act (1997) objectives were to provide for-</p>	<p>The purpose of the National Water Act (1998) was to ensure that the nation's water resources were protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors:</p>
<ul style="list-style-type: none"> a) the right of access to basic water supply and the right to basic sanitation necessary to secure sufficient water and an environment not harmful to human health or well-being; b) the setting of national standards and norms and standards for tariffs in respect of water services; c) the preparation and adoption of water services development plans by water services authorities; d) a regulatory framework for water services institutions and water services intermediaries; e) the establishment and disestablishment of water boards and water services committees and their duties and powers; f) the monitoring of water services and intervention by the Minister or by the relevant Province; g) financial assistance to water services institutions; h) the gathering of information in a national information system and the distribution of that information; i) the accountability of water services providers; j) the promotion of effective water resource management and conservation. 	<ul style="list-style-type: none"> a) meeting the basic human needs of present and future generations b) promoting equitable access to water; c) redressing the results of past racial and gender discrimination; d) promoting the efficient, sustainable and beneficial use of water in the public interest; e) facilitating social and economic development; f) providing for growing demand for water use; g) protecting aquatic and associated ecosystems and their biological diversity; h) reducing and preventing pollution and degradation of water resources; i) meeting international obligations; j) promoting dam safety; k) managing floods and droughts, l) and for achieving this purpose, to establish suitable institutions and to ensure that they had appropriate community, racial and gender representation.

4.5 NATIONAL WATER POLICY REVIEW (2013)

Finally, the 1994 and 1997 White Papers country remained unchanged until the National Water Policy Review (NWPR) instituted by the Minister of Water in 2013. The purpose of 2013 policy review was to provide amended policy positions which outline additional, new or updated courses of actions which the government wished to adopt in pursuit of national water objectives in the future. The NWPR focussed on 12 recommended policy positional amendments, namely (DWA, 2013a):

Use-It or Lose-It	Water Trading between Authorised Water Users
<ul style="list-style-type: none"> • Any authorised water use, including Existing Lawful Use (ELU), which was not utilised for a period specified by the Minister, should be reallocated to the public trust managed by the Minister as custodian of the nation's water resources. • The Minister will re-allocate this water to address social and economic equity. This aligns the ELU to the provision of the NWA. • Minister will mandate timeframes and methodology by which all ELUs entitlements will cease to be recognised and users must have applied for a license. 	<ul style="list-style-type: none"> • The Ministers discretion to approve water use will be guided by the needs and requirements of the transformation and development objectives of the state • There shall be no form of temporary or permanent trading between authorised water users. It will be obligatory for any holder of an entitlement to use water which was no longer utilised to surrender such use to the public trust. • This position strengthens the use-it or lose-it principle.

Prioritising Social and Economic Equity in the Reallocation of Water

- Decision making in reallocation of water will have equity as the primary consideration.
- Priority will be accorded to water use authorisation applications that meet the equity requirement, as provided in the regulatory instruments.
- Priority in reallocations should be afforded to black women and men, these include Africans, Coloureds and Indians, all of whom were citizens of South Africa and were disenfranchised before 1994 and therefore had unfair constrained water access.
- The Minister has discretion to determine priority considerations for reallocation of water.

Roles and Functions of WUAs

- Reaffirming the 1997 White Paper's policy position that the national Department promote the establishment and support the functioning of Catchment Management Agencies (CMAs), as and where conditions permit. Where CMAs are not established, the Department (or a delegate) will carry out the management functions until they can eventually be handed over to such an agency.
- A CMA, in consultation with the Minister, will determine the water institutional structures required to manage water within their jurisdiction.
- The Minister will specify a date by which WUAs and Irrigation Boards (IBs) will cease to exist, with the appropriate functions related to a state-owned water scheme being delegated to a CMA or Regional Water Utility.

Multiple Water Use Approach in Planning Infrastructure

- A multiple water use approach, which incorporates all water uses in an area including water supply, must be adopted in planning of bulk water infrastructure. This approach will also have equity and transformation as a priority.
- A participatory planning approach will be adopted to avoid conflicts over allocations to different purposes or users.
- This approach enables users to realize short- and long-term benefits, including improved health, education and access to food, savings in time and costs, higher productivity and income, all of which contribute to the reduction of poverty.
- .

Access to Basic Water Supply

- A basic water supply facility was defined as the infrastructure necessary to supply potable water to a formal connection at the boundary of a stand or site of a public institution (school, clinic, hospital etc.).
- A WSA should work progressively or incrementally towards providing higher levels of a sustainably water supply to all households and public institutions, including rural areas.
- In line with the Strategic Framework for Water Services mandate of stepping up the water ladder when providing water supply, a WSA must in planning, consider a basic water supply which addresses current domestic and productive use requirements, as well as future growth in these requirements.
- If a household was willing and able to pay for a higher level of service, planning standards need to make provision for a household to apply through the WSA process for a higher level of service. This reaffirms the 1994 Policy position that *the desire of many communities to upgrade a basic service to provide for household connections should be taken into account during planning*

Free Basic Water Supply to Indigent Households

- Policy position amendments:
- Free basic water supply will be provided to only indigent households.
- The free basic water supply applies to the provision of a minimum of 25 litres per person per day
- The Minister may attach conditions to the provision of free basic water.

Economic Regulation

- Amended policy positions:
- Economic regulation will be applied throughout the water value chain.
- Scope and functions of economic regulation will encompass the setting of the rules to control, monitor, enforce and/or change tariffs/charge; tariff/charge determination structures and service standards for the water sector whilst recognizing and supporting government policy and broader social, environmental and

<ul style="list-style-type: none"> • DWA will provide norms and standards for provision of free basic water supply to indigent households. 	<p>economic imperatives and the function of technical regulation of water infrastructure.</p> <ul style="list-style-type: none"> • To avoid any conflict of interest, real or perceived, water use tariffs will be determining annually by DWA, in consultation with National Treasury.
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<p>Establishment and Functions of Regional Water Utilities</p>	<p>Powers and Functions of WSAs</p>
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<ul style="list-style-type: none"> • The Minister was responsible for Region Bulk Infrastructure, including master planning and its functioning. • The functions of the Regional Water Utility will be to plan, build, operate, support and maintain Regional Bulk Infrastructure. • Regional Water Utility institutional arrangements will be appropriate to the area of operation. • A Regional Water Utility must be established based on clear principles such as financial sustainability and clear funding mechanism and clarity on requirements for addition fiscal support to build, operate and maintain Regional Bulk Infrastructure in the area of need • The Minister may issue a directive for a Regional Water Utility to address water infrastructure development and/or maintenance needs in an area. 	<ul style="list-style-type: none"> • A WSA powers and functions will be determined by CoGTA, in concurrence with DWA. • DWA will develop a norms and standards for the technical component of the authorization of a WSA and strengthen regulation of compliance to new and existing norms and standards.
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<p>Roles and functions of Water User Associations</p>	<p>Establishment and Functions of Regional Water Utilities</p>
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<ul style="list-style-type: none"> • A CMA, in consultation with the Minister, will determine the water institutional structures required to manage water within their jurisdiction. • The Minister will specify a date by which WUAs and Irrigation Boards (IBs) will cease to exist, with the appropriate functions related to a state-owned water scheme being delegated to a CMA or Regional Water Utility. The process of dis-establishment will be aligned to the establishment of CMAs and will ensure adequate measures are put in place to ensure a smooth transition from the existing arrangements. 	<ul style="list-style-type: none"> • Policy positions amendments: • The Minister was responsible for Region Bulk Infrastructure, including master planning and its functioning. • The functions of the Regional Water Utility will be to plan, build, operate, support and maintain Regional Bulk Infrastructure. • Regional Water Utility institutional arrangements will be appropriate to the area of operation. • A Regional Water Utility must be established based on clear principles such as financial sustainability and clear funding mechanism and clarity on requirements for addition fiscal support to build, operate and maintain Regional Bulk Infrastructure in the area of need • The Minister may issue a directive for a Regional Water Utility to address water infrastructure development and/or maintenance needs in an area.
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<p>Appeal functions to be aligned with NEMA and others appeal mechanisms</p>	<p>Public Water Institutions and Appointment of Boards and Chief Executives</p>
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<ul style="list-style-type: none"> • Reaffirming the 1997 White Paper's position that appropriate mechanisms will be created to make sure that there was procedural fairness in all allocation decisions and the development of appropriate dispute resolution 	<ul style="list-style-type: none"> • The appointment of members to the Board and the Chief Executives of a water institution will be aligned with best practice models, the Presidential Review Committee Report and the PFMA.
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mechanisms will make sure that the new system meets all the requirements of administrative justice.

- In line with NEMA, the process of speedily, cheaply and transparently resolving difference or disagreements will be mediation.
- The Minister may appoint an independent panel, based on the conditions that he/she deems necessary, to advise on a dispute/s.
- Where mediation does not resolve the matter, parties may refer the matter to arbitration.

- The appointment of Chief Executives will be by the Board of the water institution, in concurrence with Minister.

5 SOCIO-POLITICAL LANDSCAPE IN WHICH THE WATER AND SANITATION POLICIES WERE DEVELOPED

The 1994, 1997 and 2001 South African water and sanitation policies were developed within a particular legal, institutional and international landscape, all of which were factors in determining the success of implementation of the policies. This landscape was reviewed in this project, providing a background to the status quo at the time of development of the policies.

5.1 LOCAL CONTEXT

5.1.1 *The Reconstruction and Development Programme (RDP)*

The Reconstruction and Development Programme (RDP) was the first socio-economic policy framework for South Africa, implemented in 1994 (South Africa, 1994). The RDP emphasised that growth and development were essential pillars of a common strategy (DWAF, 1997:16). Essentially, this implied that economic growth would lead to improvement in quality of life, which in-turn would provide the political conditions for further economic growth (DWAF, 1997:16). The RDP was first and foremost about job creation and improving opportunities, particularly for the poor and disenfranchised, by focussing on creating opportunities for the current and future generations of the country through the development of skills and productively work to earn an income to meet basic needs.

The lack of water supply and sanitation services for the majority of rural and black South Africans in 1994 was seen as a key symptom of poverty and underdevelopment (DWAF, 1994:4). The provision of such services was deemed to be necessary for a successful development strategy in the country. Hence, the RDP introduced a minimum water supply volume to the country, indicating that the plan was to supply 20 to 30 litres of clean water each day to every person within two years, and 50 to 60 litres a day within five years from a point no more than 200 metres from their dwelling. Similarly, the RDP indicated that all homes must have sanitation and refuse collection within two years (DWAF, 1994).

Another key principle of the Reconstruction and Development Programme was that services should be provided and paid for in a manner that did not require ongoing Government funds to keep them running (DWAF, 1994:17). To achieve this, it was necessary to review both the cost of providing services and the way in which these were paid for (DWAF, 1994:17). Ultimately, the RDP imperatives, targets and recommendations informed the development of the NWPs of the country.

5.1.2 *The Constitution*

The Constitution of South Africa, the cornerstone of water policy and legislation in the country, was adopted in 1996 (South Africa, 1996). The Bill of Rights (Chapter 2) contained in the Constitution ensured the rights of individuals to the environment that is not harmful and the right to water. Section 24 of the Constitution provided that *“Everyone had the right (a) to an environment that is not harmful to their health or wellbeing; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that (i) prevent pollution and ecological degradation; (ii) promote conservation; (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”* It was therefore the duty of the Government to ensure that the new water and sanitation policies ensured prevention of water pollution, that there was sufficient water to maintain the ecological integrity of our

water resources, and that water conservation and sustainable “justifiable economic and social development” were promoted (DWAF, 1997:11).

The Bill of Rights (Chapter 2) also provided that every person had a right to life and guaranteed the “inherent dignity” of all persons and the “right to have their dignity respected and protected”. The state had to make sure that this right was respected, amongst other things, through access to water (DWAF, 1997:11). Access to sufficient affordable clean water for hygiene purposes was seen as part of the primary health care services (DWAF, 1997:12). Section 27 of the Bill of Rights provided for the right to water as follows: (1) *everyone had the right to had access to (a) healthcare services... (b) sufficient food and water; ... (2) the state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of each of these rights* (South Africa, 1996,11-13).

The Constitution thus introduced both second and third generational rights to the water sector of the country. First generation rights encompass the traditional liberties such as freedom of speech, and association, and were commonly characterised as imposing negative duties on the State, i.e. these rights were enjoyed without the State having to provide anything or excluding any other individual (Kidd, 2011). Second generation rights encompass social, economic and cultural rights, such as the right to work, food and water (Kidd, 2011). These rights require positive action by the State to ensure the right was recognised, and could result in the exclusions of other individuals in realising this right. Third generation rights encompass ‘people or solidarity rights’, such as environmental rights, the right to peace and the right to development. These rights were usually exercised as group rights and were thus the rights of the public at large. Interestingly, the right to water was in fact a second generation or social right in the Constitution, while the environmental rights were third generation rights.

The Government was also assigned the Constitutional right to impose regulations that impact upon property rights without such intervention being considered to be an expropriation (DWAF, 1997:12).

Thus, emanating out of the Constitution and impacting on the development of the new water and sanitation policy are:

1. Environmental rights;
2. A right to water;
3. National competence for management of water resources, and
4. The right to impose regulation that impact upon property rights.

These fundamental rights needed to form the backbone of the new South African water and sanitation policy and law.

5.1.3 Legal status of water

At the time of developing the new water and sanitation policies for South Africa, the existing legal understanding of water use was based on a link between the right to use water and the ownership of land adjacent to that water (the riparian principle).

The system of riparian rights (as found in the water legislation of the time, the Water Act (54 of 1956)) was largely developed by the courts through a combination of Roman- Dutch, English and American law (DWAF, 1997:22). This resulted in the idea that all adjacent landowners could take their share of water from a river (DWAF, 1997:22). The Water Act did not explicitly determine who the owner of

private water was but confirmed the exclusive use rights of the water by the owner of the land where the water had its source or flowed (Pienaar and van der Schyff, 2007).

Prior to the new 1998 National Water Act, water users who did not have access to water as a result of land ownership or did not have property adjacent to a river, could only gain access to water through a Water Court application (with the limitation that they meet their needs without affecting the allocations of riparian owners), or by buying land with access to water (DWAF, 1997:22). The Water Act 54 of 1956 did however provide for the establishment of Government Water Control Areas in which, in certain circumstances, the Minister could override riparian allocations (DWAF, 1997:22).

Further state intervention was allowed by the Act for the creation of legal controls on the amount of water that could be stored or taken from a water resource, on afforestation and on the construction of farm dams (DWAF, 1997:22). This was the result of a greater capacity among farmers to intercept and store water in dams, which had the potential to impact badly on water users' further downstream (DWAF, 1997:22).

Access to water, thus remained heavily skewed in favour of a privileged minority of private land owners in the country. There was a need in the new policy to develop the means of balancing the growing demands on a variable resource, to strengthen the role of Government as the guardian of the public interest (Principle 12) and to ensure equity in the sector as a whole (DWAF, 1997:22). One of the most important challenges for post-apartheid democratic water policy in South Africa was to address these challenges, as well as find a balance between traditional views that water was a public good and the modern view that water also had a commercial value (Tewari, 2009).

The new water dispensation, introduced through the promulgation of the White Paper on Water Supply and Sanitation (DWAF, 1994) and the White Paper on a National Water Policy for South Africa (1997) and legitimised in the Water Service Act (South Africa, 1997) and the National Water Act (NWA) in 1998, did away with private control of water in favour of state management. The National Water Act (1998) legitimises *National Government's overall responsibility for and authority over the nation's water resources and their use, including the equitable allocation of water for beneficial use, the redistribution of water, and international water matters* (South Africa, 1998). Water resource management thus changed from being private and common property right to being a public property rights.

The National Government, through the Minister of Water Affairs, was established as the public trustee of these water resources, and therefore had the power to regulate the use, flow and control of all water and other aquatic ecosystem services. Water resources that fell within this public trust ambit were defined by the NWA to include a watercourse, surface water, estuary, or aquifer. Water resources were therefore akin to ecological infrastructure (South Africa, 1998).

5.1.4 Equity in water and sanitation access

At the time of developing the water policies for the country, there were significant disparities in equity in access to the water resources of the country. This was particularly true for the rural and peri-urban areas and areas of the country, which formed part of the former homelands. Water supply and sanitation service provision was largely focussed on the urban, white population of the country.

Water rights and access to water supply and basic sanitation was viewed by the new democratic government as one of the most critical developmental priorities in South Africa. At the time of the first

democratic election in the country, an estimated 15.2 million people (12 million in rural areas) lacked access to basic water supply¹ and 20,5 million people lacked basic sanitation services (DWAF, 2002). Targets were set to provide each individual with at least 25 litres of water per day within 200 metres of their home, and to provide each household with basic sanitation in the form of at least a Ventilated Improved Pit (VIP) latrine (DWAF, 2002).

5.1.5 **GEAR- Growth, Employment and Redistribution Strategy**

Due to fiscal flaws in the RDP, government introduced a macro-economic policy framework in 1996 called the Growth, Employment and Redistribution (GEAR) strategy. The purpose of GEAR was to stimulate faster economic growth, which was required to provide the resources to meet social investment needs in South Africa. The policy followed most of the social objectives of the RDP, but also included components to reduce fiscal deficits, lowering inflation, maintaining exchanged rate stability, decreasing trade barriers and liberalising capital flows.

To address the needs of the rural poor, GEAR focused on land reform and associated agricultural development and on the provision of infrastructure, notably water (DWAF, 1997:16). Investment in public infrastructure was deemed to be an important focus, both to generate jobs and improve the quality of life and also to improve the productivity of the economy (DWAF, 1997:16). Key success factors in this area included the organisation of service provision in a manner which recovers their costs and facilitates the use of capital from the private sector (DWAF, 1997:16).

In accordance with GEAR, and the policy of payment for water, the White Paper on a National Water Policy for South Africa included the intent that new Government water resource development projects would, where possible, be funded by a mix of finance from commercial and concessional sources, underpinned by user payments (DWAF, 1997:16).

Similarly, the water and developmental imperatives of GEAR informed the development of the 1997 White Paper on a National Water Policy for South Africa and the 2001 White Paper on Basic Household Sanitation.

5.1.6 **Development Vision**

The water development vision at the time of writing for the water and sanitation policy included:

- **Productive use:** The water management system in the new policies needed to be adapted to meet the needs of consumers who were more productive in their use of water (DWAF, 1997:17). These adaptations in the policy and legislation needed to be supportive of:
 - agricultural activities
 - the imperatives of the Constitution, which promotes equity and opportunity for all South Africans,
 - protecting reasonable rights and upon whom it places reasonable demands (DWAF, 1997:17).

¹ At the time, *Basic Water Supply* was defined as 25 litres per person per day, within 200 metres of the home, and of acceptable quality. Basic sanitation was defined as a Ventilated Improved pit latrine or equivalent. These definitions had since been modified.

- **Sharing:** In the years and decades to come, the new policies needed to recognise the sharing of a limited water resource between growing numbers of users in a developing society. The manner in which this would be done would determine the success of South Africa as a society (DWAF, 1997:17).
- **Water development, use and protection was a common endeavour:** In the interests of all (DWAF, 1997:17). It was in this spirit that the new water policy and law would be written (DWAF, 1997:17).
- **Growth and development were not opposing goals** but essential pillars of a common strategy (DWAF, 1997:15). The new policies need to be developed from this developmental perspective.
- **Participation:** People had to be kept at the centre of the concern for sustainable development. Water management and development should be conducted on a participatory basis with decision-making occurring at the lowest appropriate level (DWAF, 1997:18). A core of the new water policies needed to be that participation in water decision-making, planning, implementation and management was maximised.
- **Protection of water resources:** Attention in the new water policy need to increasingly turn to the need to protect and sustain the water resources on which everyone depended (DWAF, 1997:18).
- **Economic value of water:** the new water policies need to place greater emphasis on the management of demand for water as an economic good to make sure that water use was as efficient as possible, both in terms of the quantities of water used and the impacts on water quality (DWAF, 1997:18).

This vision for the water sector of South Africa provided the framework for the development and implementation of the new water policies of the country.

5.1.7 *Management of water*

The White Paper on A National Water Policy for South Africa (1997) indicated that, at the time of its development, the major water management activities in the country were focussed on the development of systems to store and transport water, including construction and operation of large dams, tunnels and pipelines for the storage and transport/transfer of water, and the local construction of systems of weirs, pump stations, and irrigation canals (DWAF, 1997:26).

Similarly, the function of the Department of Water Affairs and Forestry (pre-1994), and its predecessor, the Department of Irrigation was focussed on meeting the needs of those water users the Government wanted to assist (DWAF, 1997:33). Hence, up until 1994, the technical expertise of the Department of Water Affairs was directed towards servicing the water needs of the apartheid state. This central approach to water management largely ignored the needs of the majority of South Africa people, particularly the black majority (DWAF, 1997:48). Participation of ordinary citizens in decisions that directly affected their lives was almost non-existent (DWAF, 1997:48). This exclusion was further exacerbated by the high levels of illiteracy amongst the majority of the population, which limited their access to water-related information (DWAF, 1997:48).

Apartheid had also left a great lack of management capacity in many areas across the country in all spheres of government (DWAF, 1997:48). Hence, the nature of this water management business had to be changed by the new water policy of the country (DWAF, 1997:26).

5.2 INTERNATIONAL WATER AGREEMENT

South Africa share water basins with its neighbouring countries. The White Paper on a National Water Policy for South Africa (1997) highlighted the need for the South African government to be empowered to give priority to meeting the legitimate water requirements of neighbouring countries (DWAF, 1997:4). In a series of international meetings, South African representatives urged other countries to use water and the water policy as a focus for healing and co-operation rather than as a source of conflict and tension (DWAF, 1997:18).

The policy considered international custom and practice (such as the Helsinki Rules) and the need to assist to develop regional co-operation through a variety of Southern African Development Community (SADC) initiatives, including the SADC Protocol on Shared Water Course Systems (DWAF, 1997:18).

These and other international water obligations and agreements informed the development the new water and sanitation policy of the country. The NWPs accorded high priority to harmonious relations over water with neighbouring states and the NWA provided that water be made available to meet international rights and obligations (DWAF, 2004).

The National Water Act (NWA) recognised the importance of the above policy positions on international water management and assigns an entire chapter, Chapter 10, to deal with issues of implementing international agreements in respect of the management and development of water resources shared with neighbouring countries, and on regional cooperation over water resources (South Africa, 1998). The Act mandated the Minister to, in consultation with the Cabinet, establish a body (a body corporate that had the powers of a natural person of full capacity) to implement any international agreement entered into by the South African Government and a foreign government relating to (Section 102):

- investigating, managing, monitoring and protecting water resources;
- regional co-operation on water resources;
- acquiring, constructing, altering, operating or maintaining a waterworks; or
- the allocation, use and supply of water.

The establishment of such a body had to be gazetted, with the notice outlining (a) governance of the body; (b) functions of the body; (c) financing of the body; (d) mechanisms for controlling and supervising the affairs of the body; (e) items of Schedule 4, if any, apply to the body; (f) disestablishment of the body and the winding-up of the body's affairs; and (g) any other matter necessary to give effect to the agreement (South Africa, 1998).

The bodies remained answerable to the Minister for their affairs; financial position and for information and data on water resources (South Africa, 1998). The Minister could appoint a person to investigate the affairs or financial position of a body and that person could for this purpose attend any meeting of the body. The Minister was also mandated the right to recover from the body concerned the reasonable fees and disbursements of any person appointed under subsection (South Africa, 1998).

The National Water Resource Strategy of 2004 indicated that South Africa shares four major river basins (which together cover about 60 % of South Africa's land area and account for around 40 % of the total surface runoff) with neighbouring countries (DWAF, 2004). Figure 6 shows South Africa's four major rivers, which are shared with its neighbours, namely:

- Orange/Senque system which was share between South Africa, Lesotho, Botswana and Namibia;
- Limpopo Systems, a system shared between South Africa, Botswana, Zimbabwe and Mozambique;
- Inkomati system which was shared between South Africa, Swaziland and Mozambique; and
- Usuthu/Pongola-Maputo system, shared between South Africa, Mozambique and Swaziland.



Figure 6: South Africa's shared rivers (taken from DWA, 2013c)

The NWA introduced three bodies involved in international water resource management at the time of promulgating the Act (South Africa, 1998).

- The Trans-Caledon Tunnel Authority established by Government Notice No. 2631 of 12 December 1986,
- the Komati Basin Water Authority established by an agreement dated 13 March 1992 with the Kingdom of Swaziland, and
- the Vioolsdrift Noordoewer Joint Irrigation Authority established by an agreement dated 14 September 1992 with the Government of Namibia.

The NWRS2 further operationalises South Africa's legislative commitment to international cooperation and trans-boundary water course management (Chapter 11). The NWRS2 indicated that South Africa, through its commitments to the SADC Revised Protocol on Share Water Courses, would fulfil its commitments to cooperate with its neighbours in the management of international water in the interest of regional economic integration, peace and security (DWA, 2013c).

In line with its legislative commitment to shared international water courses, South Africa had signed a number of transboundary water agreement and formulated a number of 'bodies' to manage and implement these agreements. The following transboundary agreements and bodies had been legislated as being involved in international water resource management:

- Lesotho and South Africa collaborated on a bilateral basis in the Lesotho Highlands Water Project on the Orange-Senqu River. One of the largest bilateral infrastructure development projects in Africa, the Lesotho Highlands Water Project (LHWP), transferred water that would normally flow down the main stem of the Orange-Senqu River to South Africa's main water demand centres, which lie in the Vaal River sub-catchment (Muller et al., 2015) (Figure 7). In terms of the treaty, South Africa was responsible for all the water transfer costs and its financial interests were safeguarded by assured water delivery schedules, whereas Lesotho was responsible for all costs on the hydropower component and ancillary development related to the LHWP in Lesotho (Claassen, 2011a; 2011b) The Trans-Caledon Tunnel Authority was a State-owned entity (SoE) Gazetted in Notice 277 No 21017 dated 24 March 2000, promulgated in terms of the National Water Act, 1988 (Chapter 10), which had as one of its project responsibilities the LHWP.



Figure 7: Map of the Lesotho Highlands Water Project (source: <https://www.dwaf.gov.za/orange/images/rm207t6.gif>)

- At a transboundary level, a number of agreements that govern water development and management in the Komati River Basin were in place. These were (i) Piggs Peak Agreement signed between Mozambique, South Africa and Swaziland in 1991, (ii) Treaty on the Development and Utilisation of the Water Resources of the Komati River Basin signed between South Africa and Swaziland in 1992 (KOBWA, 2009). The Komati Basin Water Authority (KOBWA) was a bi-national company formed in 1993 between Swaziland and South Africa. The purpose of KOBWA was an implementation one on behalf of both countries, i.e.

implementation of the Komati River Basin Development Project to design, construct, operate and maintain the Driekoppies Dam in South Africa and the Maguga Dam in Swaziland.

- The Orange-Senqu River Commission (ORASECOM) was established on 3 November 2000 in Windhoek, Namibia by the Governments of Botswana, Lesotho, Namibia and South Africa through the "Agreement for the Establishment of the Orange-Senqu Commission" (ORASECOM, undated). The Agreement commits the four Member States "towards the realisation of the principle of equitable and reasonable utilisation, as well as the principle of sustainable development with regard to the River System". South Africa participated in the yearly ORASECOM Council meetings as per Council rotational rule and procedure. The Minister of Foreign Affairs in 2006, recognised the Orange-Senqu River Commission (ORASECOM) for the purposes of granting the immunities and privileges provided for in the Diplomatic Immunities and Privileges Act, Act No. 37 of 2001.

The NWRS (2004) indicated that an institution for international water management established in terms of the Act is required to submit a report each year to the Minister and any other party specified in the international agreement. The report must contain sufficient details to enable the Minister to assess the institution's performance against the objectives of the agreement, as well as audited financial statements for the financial year. The report must be submitted to the Secretary to Parliament via the Department (DWAF, 2004).

South Africa also has a number of cooperative agreements with a number of countries (Table 5). These agreements relate to various water aspects.

Table 5: South African water agreements with a number of African countries (provided by DWS, 2013)

Title of the Agreement	Date signed yyy/mm/d	Date entered into force	Status of Agreement	Implementation activity
Cooperation in the water sector – DRC	2011/06/26	2011/06/26	Active	Refurbishment of the 10km pipeline in Katanga province in progress. The project has gone over the budget by 16%; a request for additional funding has been sent to Department of Treasury to consider extra allocation to complete the project. Expected completion has now been shifted to February 2014, subject to budget approval.
Joint programme of cooperation on capacity building and training in the forestry, water and sanitation sector – Rwanda	2009/03/25	2009/03/25	Active	Training on Hydrological services has been conducted. Strategic interventions to improve their water quality are jointly being developed by both Rwanda and SOUTH AFRICA.
Permanent Water Commission agreement between South Africa and Namibia (PWC)	1992/09/14	1992/09/14	Active	A new draft water sharing agreement was under negotiations between South Africa and Namibia. General principles of cooperation have been developed.
Uganda – Agreement on cooperation in the field of the environment and water resource	2012/11/9	2012/11/9	Active	Implementation plan has been developed and implementation started in the 4 th quarter of 2013/14

Policy benchmarking related to international agreements

A number of countries had, within their policies, consideration of international water agreements.

Of particular note is the SADC Regional Water Policy of 2005 that indicated that since *the mid-1990s SADC Member States have engaged in wide ranging and intense consultations on development of the water sector in the region. This has brought about a heightened awareness of the importance of water for socio-economic development, regional integration and poverty reduction. However, there are a number of institutional, technical, economic, social and environmental factors which, to one degree or another, still constrain effective management of the region's water resources. These include:*

- (i) Weak legal and regulatory framework.*
- (ii) Inadequate institutional capacities of national water authorities, and regional or river basin organizations.*
- (iii) Weak policy framework for sustainable development of national water resources.*
- (iv) Poor information acquisition, management and dissemination systems.*
- (v) Low levels of awareness, education and training with respect to economic, social, environmental and political issues related to water resources development and management.*
- (vi) Lack of effective public participation by all stakeholders particularly women and the poor.*
- (vii) Infrastructure is inadequate and unable to meet the growing demands for service.*

The same Regional Water Policy document highlighted that the region would face a number of water challenges in future, including (SADC, 2005):

- i) Mismatch between water availability and demand.
- ii) High variability of available water resources, which impacts on reliability.
- iii) Shared watercourses, which cut across political jurisdictions and cover several countries with different socio-economic conditions and complex water rights, serve as a potential source of conflict unless managed in a coordinated, integrated and equitable manner.
- iv) Widespread poverty in the region.
- v) Weak inter-sectoral linkages and coordination.
- vi) Low access to safe drinking water and adequate sanitation.
- vii) Weak policy linkages at regional and national levels, particularly weak implementation mechanisms at national level.
- viii) Sharing benefits of water allocation requiring joint assessment, planning and understanding of resource availability and utilisation.
- ix) Poorly developed formal dispute resolution mechanisms.
- x) The prevalence of HIV/AIDS, with the associated challenges for the capacity, sensitivity and requirements to water resources management in the region.

The Regional Water Policy mandated, related to regional cooperation in water resource management, that integrated water resource management would be the focus of water development and management in the region, in a balanced, equitable and mutually beneficial manner. The policy indicated that the regional cooperation in shared watercourses would be guided by the Revised SADC Protocol on Shared Watercourses.

The SADC Protocol on Shared Watercourses indicated that states of a shared watercourse system:

- 1) have rights to utilise the resources of the watercourse systems for agricultural, domestic, industrial, and navigational uses.
- 2) were required to respect and apply the existing general or customary international law related to the utilisation and management of shared watercourse systems and to respect and abide by the principles of community interests.
- 3) were required to balance human needs for water and the conservation and enhancement of the environment.
- 4) were required to cooperate in activities which would affect the watercourse system
- 5) should share information and data regarding the hydrological, hydrogeological, water quality, meteorological and ecological condition of such watercourse system.
- 6) Would share water in an equitable manner, taking into account all relevant factors and circumstances including:
 - (i) geographical, hydrographical, hydrological, climate and other factors of a natural character;
 - (ii) the social and economic needs of the member States concerned;
 - (iii) the effects of the use of a shared watercourse system in one watercourse state on another watercourse state;
 - (iv) existing and potential uses of the shared watercourse system;
 - (v) guidelines and agreed standards to be adopted.
- 7) would require any person intending to use the waters to obtain a permit from the relevant authority.
- 8) notify other potentially affected States and competent international organisations, of any emergency originating within their respective territories.
- 9) in the case of an emergency to save life or protect public health and safety may immediately proceed with implementation or execution, while communicating the urgency of the measure to other States.
- 10) take all measures necessary to prevent the introduction of alien aquatic species which may have detrimental effects on the ecosystem.
- 11) prevent pollution or environmental degradation.
- 12) adhere principles enshrined in the SADC Treaty and in the Charter of the United Nations and shall be inviolable in time of international as well as internal conflicts.

The Namibian Government, for example, had signed, ratified and acceded to numerous international protocols and Conventions concerning water, notably those designed to protect the environment. The Namibia policy did not only focus on establishment of water bodies but had in Principle 12 of the 2000 National Water Policy that it shall *strive to promote equitable and beneficial use of international water courses, based on generally accepted principles and practices of international law* (MAWRD, 2000).

The policy intent of the 2012 National Water Policy for Botswana, the 2009 National Water Policy for Swaziland and the 2007 Water and Sanitation Policy of Lesotho indicated that shared international and riparian trans-boundary water resources must be managed and developed in accordance with the obligations and entitlements articulated in international, regional and bilateral agreements, and in a manner that ensures maximum benefits while taking cognisance of the obligations to downstream users under international law (MMEWR, 2012; Ministry of Natural Resources, 2007; MNRE, 2009).

All three countries thus recognise international water obligations, but also outline that these obligations will be managed in a manner that promote equitable and beneficial use of international water courses.

5.3 INTERNATIONAL OBLIGATIONS AND PROTOCOLS

South Africa was, and still is, signatory to several international protocols that were important for water management policy, such as the Ramsar Convention on the Protection of Wetlands, the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), and the Convention to Combat Desertification (DWAFF, 1997:18).

The South African Constitutions mandated that the signing of international agreements only binds the Republic after it had been approved by resolution in either the National Assembly or the National Council of Provinces (Kidd, 2011). Any international water agreement thus only becomes law in South Africa when it was enacted into law by national legislation. The national water Acts, in reference to international obligations, refer only to South Africa's international obligations to shared waters with neighbouring countries. There was no reference in the Acts to South Africa's obligations to international water treaties or customs.

There were a number of sources of international law, two of which were (Kidd, 2011):

- International conventions (treaties): agreements between states or between states and international organisation, operating within the field of international law;
- International customs: the common law of the international community

Although signatory to a convention or custom, it was difficult to sanction a country for contravention of the agreement. Unlike prosecution, which would follow if breaking one of the national water laws, sanction to secure observance of international law was different. Sanctions widely used in these cases were suspension or expulsion of member states from certain international organisation.

6 POLICY OVERARCHING PRINCIPLES

This section of the report outlines the overarching, core intents of the water and sanitation policies, which could be applied to more than one of the sustainability dimensions. These overarching, core policy intents provide the fundamental intentions of the policy.

The policy vision was that South Africa was a country where people had opportunities; opportunities to develop their skills and opportunities to use them productively to work and earn an income with which they could at least meet their basic needs (DWAF, 1997:15).

The goal of the water sector at the time of developing the water and sanitation policies was thus to ensure: “Some, For All, For ever”, which could be summed up as (DWAF, 1997:7):

- **access to a limited resource** (some) (DWAF, 1997:7)
- on an **equitable** basis (for all) (DWAF, 1997:7)
- in a **sustainable** manner, now and in the future (for ever) (DWAF, 1997:7).

The policy tasked the Department of Water Affairs and Forestry (DWAF) (now the Department of Water and Sanitation – DWS) with the national responsibility of ensuring that the water needs of people and of the economy, which sustains them, were effectively met (DWAF, 1997).

The White Paper on a National Water Policy for South Africa also took the overarching positions that the provision of water supply and sanitation services cannot be separated from the effective management of water resources for other, economic, purposes (DWAF, 1997).

6.1 WATER WAS A COMMON GOOD HELD IN PUBLIC TRUST

A public trust was defined as the principle that certain natural and cultural resources were preserved for public use, and that the government owns and must protect and maintain these resources for the public's use.

The White Paper on a National Water Policy for South Africa provided a number of key principles (policy intents) which needed to be considered in the development of the new water and sanitation legislation in the country. These principles are:

- 1) Principle 1: The water law shall be subject to and consistent with the **Constitution** in all matters including the determination of the public interest and the rights and obligations of all parties, public and private, with regards to water. While taking cognisance of existing uses, the water law would actively **promote the values enshrined in the Bill of Rights** (DWAF, 1997:60). The policy intent was that the water law must recognise and be underpinned by the Constitution and the Bill of Rights therein, as these were the supreme documents governing water resources, water supply and sanitation in the country.
- 2) Principle 2: All water, wherever it occurs in the water cycle, was a **resource common to all**, the use of which shall be subject to national control. All water shall have a **consistent status in law**, irrespective of where it occurs (DWAF, 1997:60). The policy goes on to propose the intention that, in future:
 - water resources as an **indivisible national asset** would be confirmed and formalised (DWAF, 1997:4). The same policy intent was outlined by the White Paper on Water Supply and

Sanitation, which indicated that to manage water to equitable benefit for all people in South Africa the available water had to be treated as a national asset (DWAF, 1994:30).

- **all water in the water cycle would be treated as part of the common resource** and to the extent required to meet the broad objectives of water resource management, would be subject to common approaches (DWAF, 1997:4).
- **National Government would act as the custodian** of the nation's water resources and its powers in this regard would be exercised as a public trust (DWAF, 1997:4). By definition, a public trust was those natural and/or cultural resources that were preserved for public use, and which the government manages, protects and maintains for the public's use (Nolo's Plain-English Law Dictionary). This intent provided a new approach to water management in the country and the foundation of the new water law (DWAF, 1997:23). This policy intent was reaffirmed by Principle 12, which highlights that national Government was the custodian of the nation's water resources, as an indivisible national asset.

Guided by its duty to promote the public trust, the National Government had ultimate responsibility for- and authority over- water resource management, the equitable allocation and usage of water, and the transfer of water between catchments and international water matters (DWAF, 1997:61). The main idea of the public trust was that the national Government had a duty to regulate water use for the benefit of all South Africans, in a way that takes into account the public nature of water resources and the need to ensure fair access to these resources (DWAF, 1997:23). The national Government was committed to carry out its public trust obligations in a way that (DWAF, 1997:23).

- guaranteed access to sufficient water for basic domestic need;
- made sure that the requirements of the environment were met;
- took into account the interconnected nature of the water cycle - a process on which the sustainability and renewability of the resource depended;
- made provision for the transfer of water between catchments;
- respected South Africa's obligations to its neighbours; and
- fulfilled its commitment as custodian of the nation's water.

Central to the role played by national government was thus to ensure that scarce water resources were beneficially used in the public interest (DWAF, 1997:23). This policy intent reaffirms that of the 1994 White Paper on Water Supply and Sanitation (DWAF, 1994:10).

The concept of public trust was binding on all spheres of Government (DWAF, 1997:24).

The policy also invalidates the previous policy intent which recognised riparian rights to water, with the intent of Principle 4 being that the location of the **water resource in relation to land shall not in itself confer preferential rights** to usage. The riparian principle shall not apply (DWAF, 1997:60).

Section 3 of the NWA (1998) legislated the public trust of water resource by National Government and that water was a common good, indicating that (South Africa, 1998):

- (1) As the public trustee of the nation's water resources the National Government, acting through the Minister, must ensure that water was protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner, for the benefit of all persons and in accordance with its constitutional mandate.
- (2) Without limiting (1), the Minister was ultimately responsible to ensure that water was allocated equitably and used beneficially in the public interest, while promoting environmental values.

(3) The National Government, acting through the Minister, had the power to regulate the use, flow and control of all water in the Republic.

The NWA had several innovative features to address the above legislative requirements, including:

- the Reserve;
- that regulation of water would be at a national level but management was envisaged to be at a regional and local level through Catchment Management Agencies and Water User Associations;
- water planning included a water resources classification system; and
- water use which was defined as both 'use' of water and also activities that could adversely impact on water resources (Kidd, 2011).

All these aspects of the Act are addressed later in this report.

Benchmarking against international water policies

Many country policies recognise water as a common good that was held in trust by the national government, including Mozambique, Namibia, Swaziland and India.

The Mozambique water policy was preceded by the promulgation of the new Water Law (Water Law (Law 16/91, of August 3, 1991) (Government of Mozambique, 1991). Like South Africa, the national law establishes (GWP, 2008):

- that water resources were public domain
- the competences of the Government to manage water resources were public domain
- the principles for water management
- the general regime for water use
- the rights and obligations of water users, with a distinction established between waters of free use and those whose use was dependent on a licence or concession.

The Water Law of Mozambique introduces the crucial principle of water for common and private use. Common use aimed at meeting the domestic, personal and family water needs, including drinking water for cattle and water for small scale irrigation. Water for private use needs authorisation that could be given by law, licence or concession, under the following general principles and constraints (Ibraimo, 1999; GWP, 2008):

- water supply for domestic use had priority over all the other private uses;
- no private uses will be allowed if they conflict with the water requirements for environmental conservation;
- conflicts resulting from water scarcity to satisfy different requirements will be solved in function of the socio-economic value of each use.

Similarly, Principle 1 of Namibia's 2000 National Water Policy stated that Namibia's limited and vulnerable water resources were an indivisible national asset, whose ownership was vested in the state on behalf of the whole society (MAWRD, 2000). The policy intent guarantees access to this essential resource to all Namibians, to satisfy both their basic survival and health needs, and to support the whole range of productive activities that contribute to the country's development (MAWRD, 2000: 10).

Swaziland, like South Africa, had recognised the common good of water in its Constitution, with Section 210 of the Constitution declaring water as a national resource and vests the ultimate responsibility for its protection in the State. Section 215 rules out any private right of property in any water found in Swaziland. Other sections deal with environmental protection that had implications for water, as well as Parliament's intervention with regards to enactment of laws related to water.

The policy intent of India indicated that water needs to be managed as a common pool community resource held by the state under public trust doctrine to achieve food security, support livelihood, and ensure equitable and sustainable development for all (Ministry of Water Resource, 2012).

6.2 WATER RIGHTS AND THE RESERVE

Water rights by definition were a *group of rights designed to protect the use and enjoyment of water that travels in streams, rivers, lakes, and ponds, gathers on the surface of the earth, or collects underground* (West's Encyclopaedia of American Law, 2008). The South Africa policy had the intent to recognise only two such water rights in the country.

Principle 3 of the 1997 White Paper on a National Water Policy for South Africa indicated that there shall be no ownership of water in the country and recognition that the only **rights to water would be environmental and basic human needs**. To address these policy intents of the right to water, Principle 8 of the same 1997 policy document specifies that to ensure that all people had access to sufficient water this water shall be reserved (DWAF, 1997:60). Thus, the policy intent was that only water required to meet basic human needs and to maintain environmental sustainability would be guaranteed as a right in the country, and according to Principle 10: this water shall be identified as "The Reserve" and shall enjoy priority of use by right. The use of water for all other purposes shall be subject to authorisation and no claim for existing water-use rights that limits the water required for basic needs would be recognised (DWAF, 1997:26 and 61).

The White Paper (DWAF, 1997) assigned the duty to national Government, as part of its public trust function, to assess the needs of the Environmental Reserve and to make sure that this amount of water, of an appropriate quality, was set aside.

The National Water Act legitimised the Reserve, which it defined as the quantity and quality of water required (South Africa, 1998). -

- a) to satisfy basic human needs by securing a basic water supply, as prescribed under the Water Services Act, 1997 (Act No 108 of 1997), for people who were now or who will, in the reasonably near future, be-
 - i. relying upon;
 - ii. taking water from; or
 - iii. being supplied from, the relevant water resource; and
- b) to protect aquatic ecosystems in order to secure ecologically sustainable development and use of the relevant water resource;

The NWA required that the Minister, as soon as reasonably practicable after the class of all or part of a water resource had been determined, must determine the Reserve for all or part of any significant water resource by notice in the Gazette (South Africa, 1998). The Minister was required to publish for public comment a notice in the Gazette setting out the proposed Reserve before Gazetting the Reserve (South Africa, 1998).

If a resource had not yet been classified, the NWA required that a preliminary determination of the Reserve could be made and later superseded by a new one (South Africa, 1998).

The Reserve was intended to ensure equity, efficiency and ecologically sustainable development and utilisation of water resources in the country. Thus, the prioritisation of the Reserve prior to any other water use was a statutory requirement and was the only allocation that enjoys statutory protection in South African law (Pollard et al., 2002).

6.2.1 **Basic Human Needs Reserve**

The policy indicated that the new water law, which would be developed, must put in place arrangements to ensure, amongst other things, that all South Africans gain access to sufficient water (Constitutional requirement) to meet basic human needs (policy intent) (DWAF, 1997:12 and 25). The 1997 Policy also indicated that since there was no definition of “sufficient water” to determine the Basic Human Needs Reserve (BHNR), the policy intent was to recommend the utilising of the present RDP provision of 25 litres per person per day as a short-term target. Note: the BHNR was basically the reserving, from the water resource, of 25 litres per person per day for every person in the country. The policy also recommended that the approach taken in the Water Services Bill was to allow for the progressive increase in the standards of basic services to be assured by local government (DWAF, 1997:25). The need for reliability in this supply of water must be taken into account in future calculations of the Reserve and provision must be made for population changes and progressive improvements in the level of basic services over time (DWAF, 1997:25).

The National Water Act legitimises the BHNR as the essential needs of individuals served by the water resource in question and included water for drinking, for food preparation and for personal hygiene (South Africa, 1998). The NWA defined this BHNR as the *securing of a basic water supply as prescribed under the Water Services Act, 1997 (Act No 108 of 1997)*. The Water Services Act defined a basic water supply as *the prescribed minimum standard of water supply services necessary for the reliable supply of a sufficient quantity and quality of water to households, including informal households, to support life and personal hygiene* and basic sanitation as *the prescribed minimum standard of services necessary for the safe, hygienic and adequate collection, removal, disposal or purification of human excreta domestic waste-water and sewage from households, including informal households* (South Africa, 1998).

Neither the NWA nor the Water Services Act assigned a volume or quality requirements to the BHNRs, relying on the subsequent regulations to determine these (South Africa, 1998). This was done in 2001 through gazetting compulsory national norms and standards in terms of section 9 of the Water Services Act (DWAF, 2001).

Figure 8, indicated that two important components were required to ensure the BHNR entitlement of individuals in a catchment in South Africa: (1) sufficient stock of water from the water resource to ensure this entitlement and (2) the infrastructure to deliver the stock of water to the user (Pollard et al, 2002). Water resource planners and implementers of the BHNR need to address both components to ensure equity in access to water in South Africa and to address the Constitutional water right imperatives. The assumption was made, in implementing the right to water and sanitation, the prescribed *minimum standard of water supply services necessary for the reliable supply of a sufficient quantity and quality of water to households, including informal households, to support life and*

personal hygiene was the policy imperative of 25 litres per person per day for every person in the country.

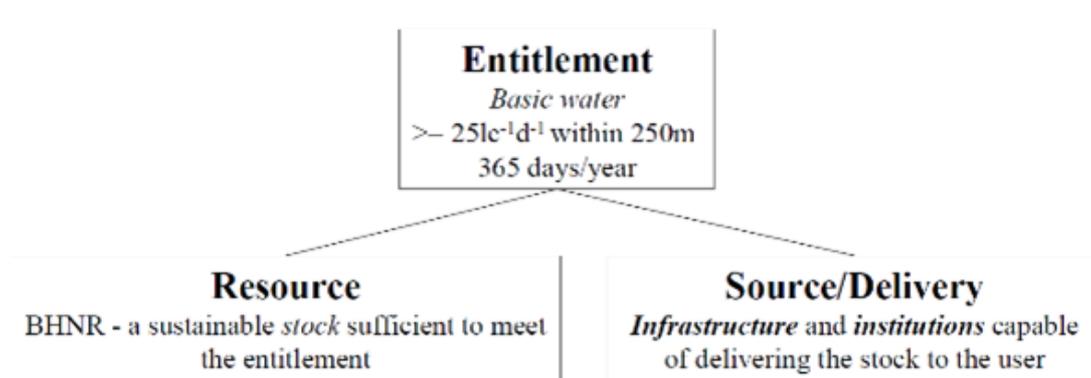


Figure 8: Two important requirements to address the BHNR in South Africa (taken from Pollard et al., 2002)

The determination of BHNR for basic water services in a municipal area could be based on a number of financial and water economic models; some examples include (Pollard et al., 2002):

- Simply, the number of individuals in a management area multiplied by 25 litres per person per day;
- The basic human needs (BHNR) vary with the level of service provided;
- The basic human needs (BHNR) vary with the household income level.

This did not mean that individuals in South Africa only utilised this 25 l/c/d water right. The actual water used by an individual was different to the BHNR and was much higher than this BHNR. A recent WRC study by McKenzie et al. (2012) found that the litres/capita/day water use in the country, based on usable data sets for total water supplied and the total population served in each Municipality, averaged consumption per individual per day was 235 litres (Figure 9). However, consumption varied significantly from the Metro average of 291 litres per capita per day (l/c/d) to 65 l/c/d in the more rural municipalities. These consumption figures were higher than those reported by the Municipal Benchmark Initiative, which estimated the national system input volume average (based on population) of 196 l/capita/day (based on 96 datasets – 63% of WSAs). These water use figures do, however, include all losses, as well as all commercial and industrial use supplied from the municipal system, which could be significant in some areas.

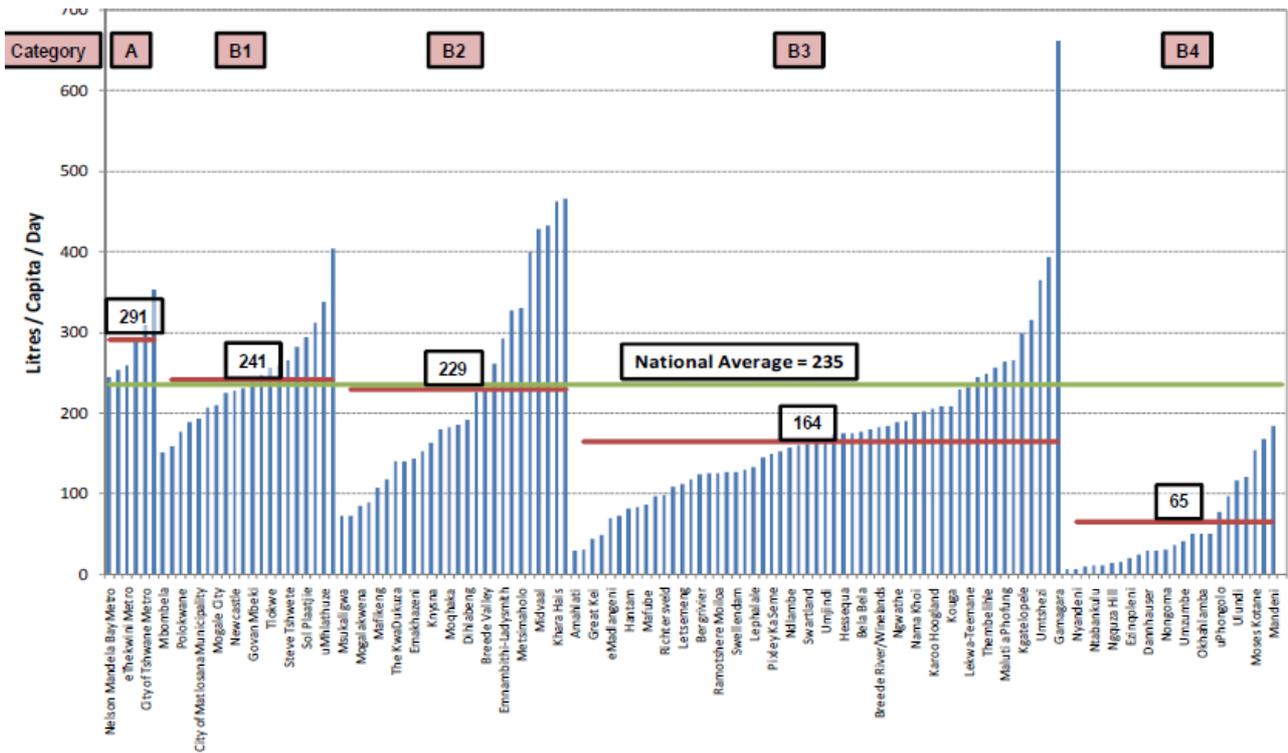


Figure 9: Water consumption (litres per capita per day) in South Africa, based on the various municipal types (taken from McKenzie et al., 2012)

Mckenzie et al. (2012) also indicated that South Africa's per capita consumption (highlighted in yellow) was above the world average (Figure 10).

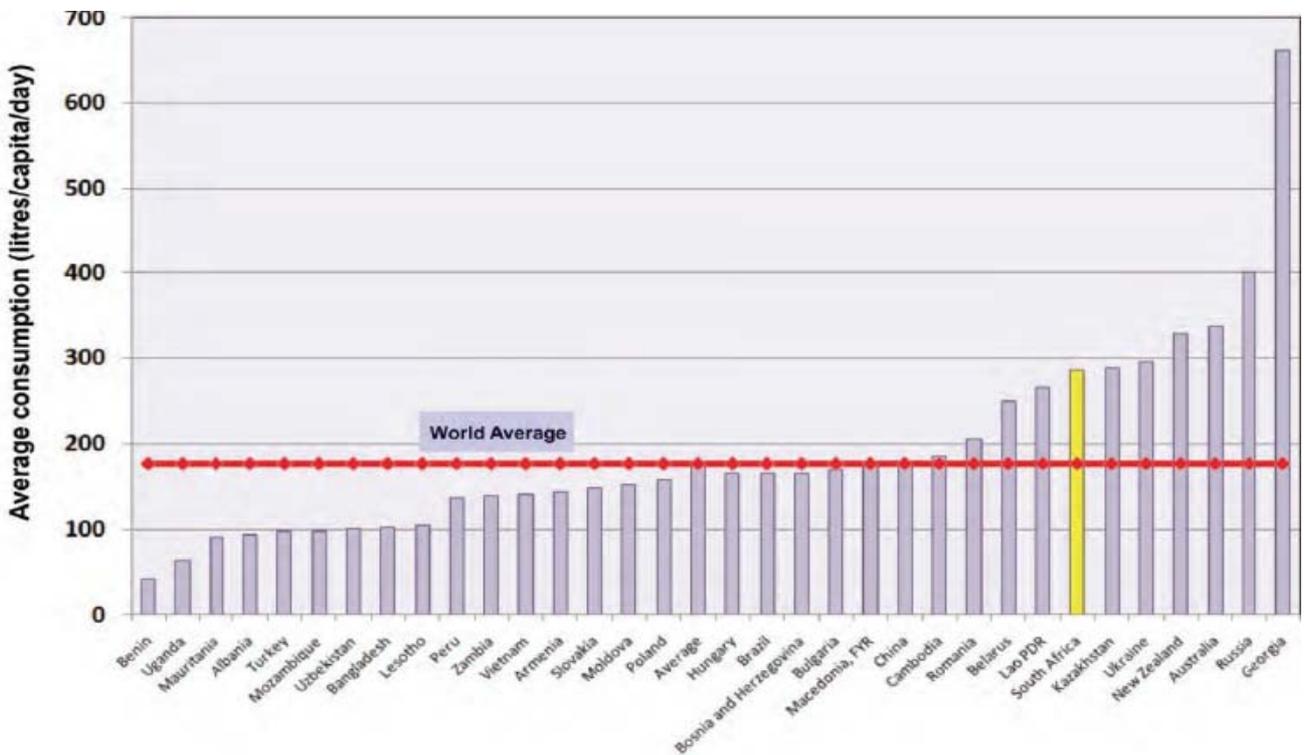


Figure 10: Water consumption (litres per capital per day) in South Africa as compared to other countries (taken from McKenzie et al., 2012)

The infrastructure component of the Reserve, shown in Figure 8, was thus planned and implemented for delivery of a much higher level of water supply than that of the BHNR. The BHNR however remained the only volume of water to which individuals had a Constitutional right.

6.2.2 **Ecological Reserve**

The 1997 White Paper on a National Water Policy for South Africa indicated that after providing for the basic needs of citizens, the only other water that was provided as a right was the Environmental Reserve - to protect the ecosystems that underpin our water resources, now and into the future (Principle 9) (DWAF, 1997:25).

Where the needs of the Environmental Reserve cannot be met because of existing developments, the policy intent was that provision must be made for active intervention to protect the water resources (DWAF, 1997:26).

The challenge now was to translate the concept of the Reserve into practical policy and to make provision to ensure that the environmental objectives of water resource management were attained (DWAF, 1997:30).

The National Water Act (1998) legitimises the Ecological Reserve, defining it as the quantity and quality of water required to protect aquatic ecosystems in order to secure ecologically sustainable development and use of the relevant water resource. The ecological reserve relates to the water required to protect the aquatic ecosystems of the water resource.

International policy benchmarking related to the ecological reserve

From the review of international policies, only one country recognised the ecological reserve in its policy, namely India. The policy intent of the 2012 National Water Policy of India stated that ecological needs of the river should be determined, through scientific study, recognising that the natural river flows were characterised by low or no flows, small floods (freshets), large floods, etc., and should accommodate developmental needs (Ministry of Water Resource, 2012). A portion of river flows should be kept aside to meet ecological needs ensuring that the low and high flow releases were proportional to the natural flow regime, including base flow contribution in the low flow season through regulated ground water use (Ministry of Water Resource, 2012).

6.3 **UNIVERSAL ACCESS TO WATER SUPPLY AND SANITATION SERVICE (RIGHT TO BASIC WATER SERVICE)**

Universal access, by definition, refers to the ability of all people to have equal opportunity and **access** to a service or product from which they could benefit, regardless of their social class, ethnicity, background or physical disabilities. The policy intents on the right to basic water supply and sanitation services was that all South Africans should have access to essential basic water supply and sanitation services (DWAF, 1994,1).

The policy intent was that the use of water to provide domestic services to meet basic needs was a high political priority and that government had a constitutional responsibility to ensure that all South Africans have access to adequate sanitation (DWAF, 1994:32; DWAF, 1997:13; DWAF, 2001:4). This policy intent was termed 'universal access'. The policy intent required to enable practical realisation

of the second component required to address the right to water (Figure 8), namely the infrastructure and institutions (as well as effective management of the infrastructure and institutions) required to provide the water source to the individual.

Principle 25 of the White Paper on a Water Policy for South Africa recognises the **right of all citizens** and the support by spheres of government to have access to **basic water services** (the provision of potable water supply and the removal and disposal of human excreta and waste water) necessary to afford them a healthy environment on an equitable and economically and environmentally sustainable basis (DWAF, 1997:63). Effectively, these rights could be translated to a right to potable water from the tap (which went one step further than the BHR and a right to a sanitation services). This right was a **service delivery right via appropriate and effective infrastructure and institutions** – therefore adding practical effect to the Constitutional right to water and sanitation.

The Water Service Act legislated the right to access to a basic water supply in Section 3 of the Act, indicating that, all individuals had a right to access to basic water supply (Section 3 (1)), that water services institution must take reasonable measures to realise these rights, ensuring the inclusion of measures to realise these rights in their water services development plan. The Water Services Act legislated a basic water supply as *the prescribed minimum standard of water supply services necessary for the reliable supply of a sufficient quantity and quality of water to households, including informal households, to support life and personal hygiene* (South Africa, 1997). The Act did not stipulate what the minimum standard is. However, the White Paper on Water Supply and Sanitation defined a basic water supply based on quantity, cartage, quality, availability and assurance of supply, indicating these as the following (DWAF, 1994.:15) (See Table 6):

Table 6: Basic water supply requirements as defined in the policies and strategies

Requirements	White Paper on Water Supply and Sanitation (1994)	Strategic Framework for Water Services (2003)	
	Basic Water Supply	Basic Water Supply Facility	Basic Water Supply Service
Quantity:	25 litres per person per day ²	Infrastructure necessary to provide 25 litres of <u>potable water</u> per person per day	
Cartage:	Maximum distance to cart water to dwelling was 200metres In steep terrain this distance had to be reduced to take account of the extra effort required to cart water up steep slopes.	Within 200 metres of a household	
Availability:	<ul style="list-style-type: none"> The flow rate of water from the outlet of not be less than 10 litres a minute and water should be available on a regular, daily basis. 	<ul style="list-style-type: none"> A minimum flow of 10 litres per minute (in the case of communal water points) 6000 litres of potable water supplied per formal connection per month (in the case of yard or house connections). 	

² This was considered to be the minimum required for direct consumption, for the preparation of food and for personal hygiene. It was not considered to be adequate for a full, healthy and productive life which was why it was considered as a minimum.

Assurance of supply:	Schemes for domestic water supply should ensure the availability of "raw" water for 98% of the time - service should not fail due to drought more than one year in 50, on average		
	Operation and maintenance of the system must be effective. The aim should be to have no more than one week's interruption in supply per year.		Sustainable operation of the facility (available for at least 350 days per year and not interrupted for more than 48 consecutive hours per incident)
Quality:	The quality of water provided as a basic service should be in accordance with currently accepted minimum standards with respect to health-related chemical and microbial contaminants.	<u>Potable water</u>	
	Should be acceptable to consumers in terms of its potability (taste, odour and appearance).		
Communication			The communication of good water-use, hygiene and related practices.

Standards were legislated in 2001 through gazetting compulsory national norms and standards in terms of section 9 of the Water Services Act (DWAF, 2001). These legislative rights were further implemented through the Strategic Framework for Water Services (SFWS), which outlines the institution, financial, technical and other requirements to give effect to the universal right to water supply and sanitation in the country. The SFWS sets the target that *all people in South Africa had access to a functioning basic water supply facility by 2008*. The SFWS did provide a more measurable definition of a basic water supply, and adds a definition of a basic water service (Table 6). However, the definition did not address assurance of supply of raw water or aesthetic water quality as outlined in the White Paper on Water Supply and Sanitation. The SFWS adds to the definition the 6KI requirement for household connections; the requirement of potable water (i.e. meets SANS 241 requirements); and the need to provide water-use communication. The legislative requirement of a basic water supply was legislated through regulations in 2011 that set put compulsory national standards for water services including:

- Minimum standard of water supply service – 25 l/p/day within 200 meters of a dwelling; available 350 days a year and not interrupted for more than 48 consecutive hours per incident); with a flow of 10 litres per minute or 6 KI per month.
- Sufficient quality – potable water that complies with SANS241
- Sufficient quantity – infrastructure and institutions necessary to supply a minimum of 25 litres per person per day.

Figure 11 shows that the percent of individual having water supply at a distance of more than 200 metres from the household had decreased from 16,1% in 2006 to 11,9% in 2013, with an improvement in the percent of individuals having a source within 200 meters of the dwelling from 81,3% in 2006 to

8985,7% in 2013. A higher percentage of individuals were estimated to have a water source closer to the household in 2013

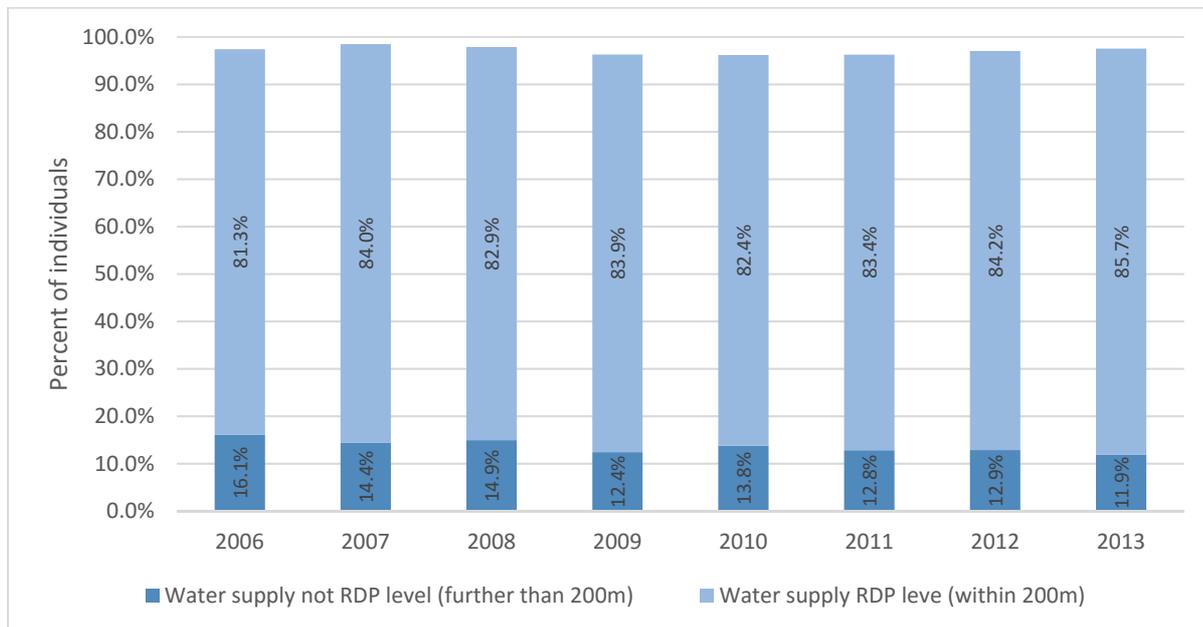


Figure 11: Percent of individuals with access to a basic water supply within 200 metres of a household (Data source: General Household Survey, StatsSA, various years)

As to meeting the minimum standard of water supply service as outlined in the White Paper of 1994 and the regulations and SFWS (i.e. available 350 days a year and not interrupted for more than 48 consecutive hours per incident) and with a flow of 10 litres per minute or 6 kl per month, Figure 12 shows that just under 4,4 million households indicated in 2011 that their water supply had been interrupted in the previous 12 months, with 2,84 million (65%) of these households indicating that the duration of interruptions had in some cases been longer than 48 hours. This implies that at least 2,84 million households that were shown as receiving a basic water supply in Figure 12 were in fact not receiving this supply from a continuity perspective. Taken this continuity issues into consideration, the households that would be receiving a basic water supply in 2011 would drop to 67% and the basic water supply backlog would increase to 30% of households in the country.

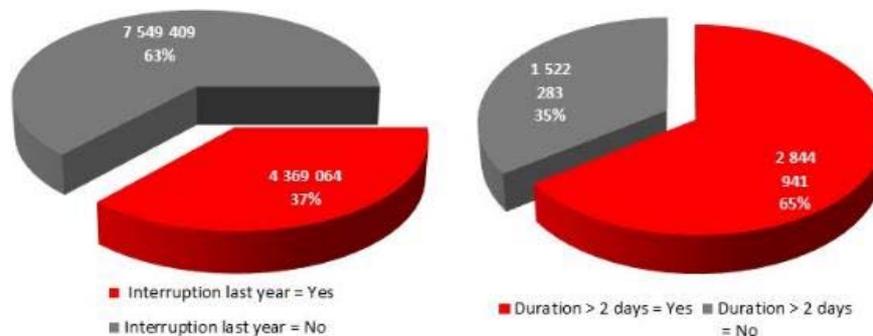


Figure 12: (Left) Number and percent of households which indicated an interrupted water supply in the year prior to the 2011 Census, and (Right) the percent and number of households which indicated that this interruption lasted longer than 48 hours (Data source: Census 2011; StatsSA)

International policy benchmarking related to the right to water supply and sanitation

Like South Africa, the policy intent of the 2000 National Water Policy for Namibia indicated a right of every citizen to be able to obtain, within reasonable distance from their place of abode and a quantity of water sufficient to maintain life, health and productive activity will be respected in law (MAWRD, 2000). Principle 2 of the 2000 National Water Policy for Namibia states that all Namibians shall have the right of access to sufficient safe water for a healthy and productive life (MAWRD, 2000).

The policy intent of the 2012 National Water Policy for Botswana mandated that safe, affordable and reliable water and sanitation must be provided to all the people of Botswana to promote a healthy population and provide the foundations for sustainable economic development and diversification (MMEWR, 2012). The equity principle of the same policy indicated that access to water will be given in the following order of priority: the basic requirements required for human consumption; the environment to ensure sustainable foundations for supporting the national interests; and followed by arable and livestock use; commercial and industrial applications.

The policy intent of the 2007 Water and Sanitation Policy for Lesotho also ensured access to a sustainable supply of potable water and basic sanitation services for all Basotho (Ministry of Natural Resources, 2007). To address this policy intent, Principle F of the 2007 Water and Sanitation Policy for Lesotho indicated that all the Basotho were entitled to have access to a sustainable supply of potable water and to the provision of basic sanitation services at an affordable cost (Ministry of Natural Resources, 2007: 2). The same policy also advocated the promotion of adequate and sustainable supply of potable water and sanitation services to all of the population of Lesotho (Ministry of Natural Resources, 2007).

These countries thus recognised the right to water supply and sanitation, as did the policy of South Africa. Figure 13-14 shows how South Africa had fared in addressing universal access to water services, when compared to some of these and other middle-income countries. Figure 13 indicated that in the rural areas of South Africa, provision of water supply had been below the average upper middle-income countries, but within the region of the average for sub-Saharan countries. Countries such as Mauritius, Botswana and Namibia had higher coverage of rural water supply than South Africa, although it should be noted that these countries already had a much higher coverage in 2003.

Figure 14 shows that water supply provision in urban areas of countries was always much higher than in rural areas. South Africa performed well in providing these services to urban areas, outstripping the average upper middle-income countries and the sub-Saharan average.

According to the 2015 Progress Report on Sanitation and Drinking Water, jointly published by UNICEF and the World Health Organisation (WHO), South Africa met the Millennium Development Goals (MDG) target of halving the water supply backlog during the 25 years (1990 to 2015).



Figure 13: Trends in provision of water supply to rural households for various upper middle countries in Africa (data source: World Bank)

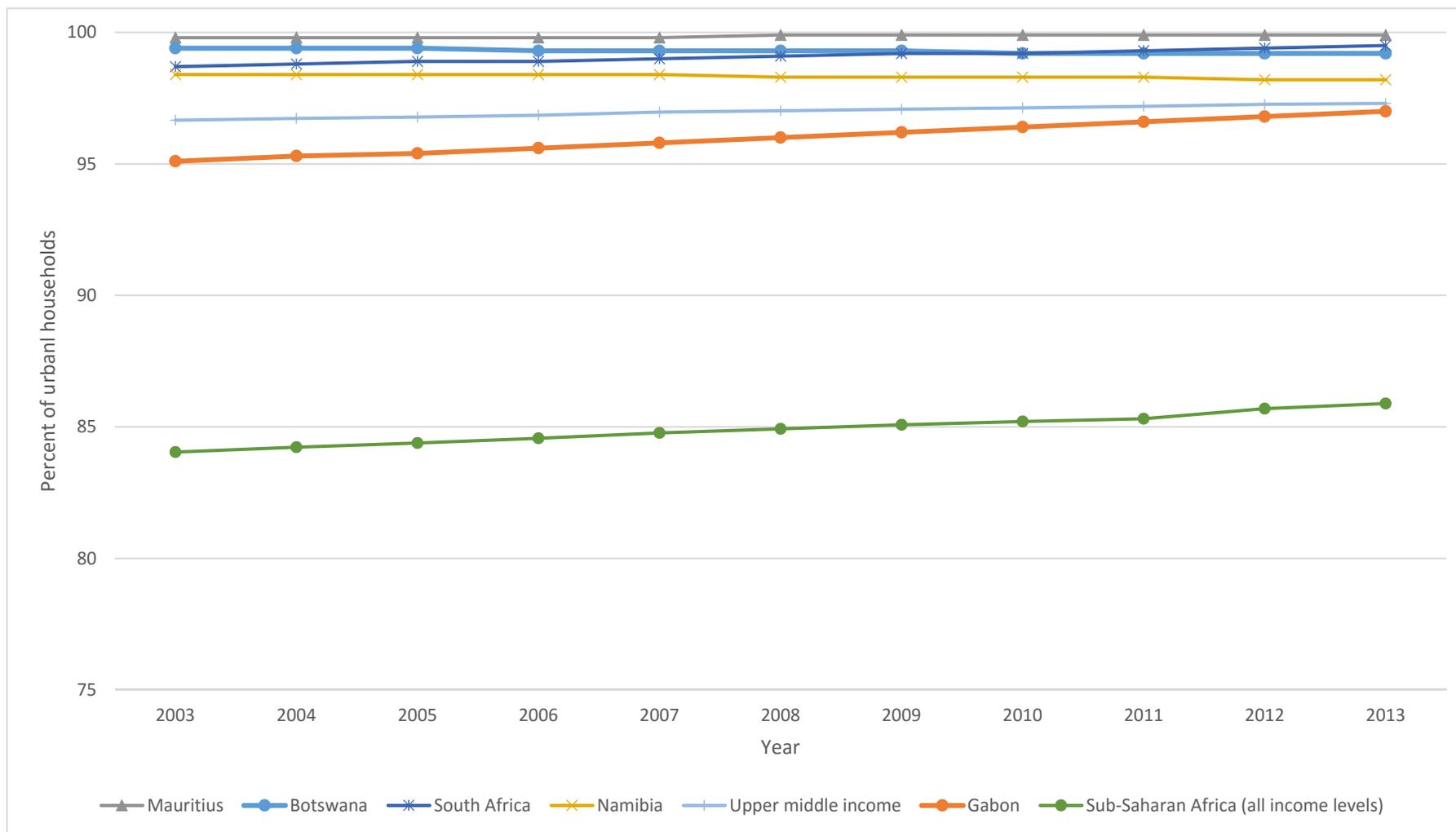


Figure 14: Trends in provision of water supply to urban households for various upper middle countries in Africa (data source: World Bank)

6.4 RIGHT TO SANITATION

Although the right to sanitation was not explicitly mentioned in the Constitution, or in the 1994 White paper on Water Supply and Sanitation, this policy did take the policy intent that basic services were a human right, as a right to a level of services adequate to provide a healthy environment (this did not imply the right of an individual person or community to demand services at the expense of others) (DWAF, 1994:8and34). Sanitation, as a basic service was thus recognised as a right in the 1994 White Paper.

The 2001 White Paper on Household Sanitation reaffirms the policy intent that basic sanitation was a human right (DWAF, 2001:11). This policy intent obligates government to create an enabling environment through which all South Africans could gain access to basic sanitation services (DWAF, 2001:11).

The policy intent of universal access to sanitation (particularly) was to clear the sanitation backlog (DWAF, 2001:18) by:

- developing plans to address the sanitation problem in all communities by the set target date;
- structuring suitable institutional arrangements and agree on roles and responsibilities;
- prioritising the communities with the greatest need;
- setting the overall target date by which the backlog must be cleared;
- funding the plan;
- implementing the plan; and
- monitoring the implementation of the plan.

Given that sanitation facilities were chosen to be the minimum need to ensure health, the levels of service presented by the policy should be seen as minimum standards to be applied in publicly funded schemes, unless a relaxation had been specifically approved (DWAF, 1994:14). According to the policy, adequate sanitation was the immediate priority to provide to all, which meet basic health and functional requirements including the protection of the quality of both surface and underground water (DWAF, 1994:14). Since conventional waterborne sanitation were not a realistic, viable and achievable minimum service standard in the short term due to its cost and insufficient water supply in many areas, the policy mandated that a Ventilated Improved Pit toilet (VIP), if constructed to agreed standards and maintained properly, provided an appropriate and adequate basic level of sanitation service. Adequate basic provision was therefore defined as one well-constructed VIP toilet (in various forms, to agreed standards) per household (DWAF, 1994:15).

Policy noted that geo-technical conditions would seldom justify a change to water-borne sewerage (DWAF, 2001:9). Very few soils would create problems that cannot be solved by lining a pit (DWAF, 2001:9). Even where excavation of rock was necessary, it would still usually be cheaper and more practical to construct Ventilated Improved Pit (VIP) latrines than it would be to install and maintain water borne sewer systems (DWAF, 2001:9).

The Water Services Act defined basic sanitation as *the prescribed minimum standard of services necessary for the safe, hygienic and adequate collection, removal, disposal or purification of human excreta domestic waste-water and sewage from households, including informal households*. The main objects of this Act were to legislate the right to basic sanitation necessary to secure an environment not harmful to human health or well-being. Similarly, to the right to a basic water supply, the Act

mandated the right to access to a basic sanitation in Section 3 of the Act, indicating that, all individuals had a right to *access* to a basic sanitation (Section 3 (1)) and that water services institution must take reasonable measures to realise this right, ensuring the inclusion of measures to realise these rights in their water services development plan. The water institutions were also mandated to prioritise this right, with the Act indicating that if the water services provided by a water services institution were unable to meet the requirements of all its existing consumers, it must give preference to the provision of basic water supply and basic sanitation to them (Section 5).

The prescribed minimum standards for sanitation services were provided in the White Papers and the SFWS to include (Table 7):

Table 7: The Prescribed minimum standards for sanitation services as provided in the White Papers and SFWS.

Requirements	White Paper on Water Supply and Sanitation (1994)	White Paper on Basic Households Sanitation (2001)	Strategic Framework for Water Services (2003)	
	Adequate Basic Sanitation	Minimum acceptable basic level of sanitation	Basic Sanitation Facility	Basic Sanitation Service
Technology	Ventilated Improved Pit toilet	A system for disposing of human excreta, household waste water and refuse, which was acceptable and affordable to the users, safe, hygienic and easily accessible, and which did not have an unacceptable impact on the environment (DWAF, 2001:6);	Infrastructure necessary to provide a sanitation facility that was safe, reliable, private, protected from the weather and ventilated, keeps smells to the minimum, was easy to keep clean, minimises the risk of the spread of sanitation-related diseases by facilitating the appropriate control of disease carrying flies and pests, and enables safe and appropriate treatment and/or removal of human waste and wastewater in an environmentally sound manner.	
Accessibility				The provision of a basic sanitation facility that was easily accessible to a household,
Continuity of service				The sustainable operation of the facility, including the safe removal of human waste and wastewater from the premises where this was appropriate and necessary,
Hygiene communication		Appropriate health and hygiene awareness and behaviour (DWAF, 2001:6)		and the communication of good sanitation, hygiene and related practices.

The White Paper on Basic Households Sanitation (2001) policy sets the target for clearing the sanitation backlog as **by March 2010 all South Africans must have access to a basic minimum level of sanitation** (DWAF, 2001:18). Only the White Paper on Water Supply and Sanitation specified that a basic level of sanitation was a VIP toilet. It was however, generally accepted in the sanitation sector that the *infrastructure necessary to provide a sanitation facility that was safe, reliable, private, protected from the weather and ventilated, keeps smells to the minimum, was easy to keep clean, minimises the risk of the spread of sanitation-related diseases by facilitating the appropriate control of disease carrying flies and pests, and enables safe and appropriate treatment and/or removal of human waste and wastewater in an environmentally sound manner* was the minimum of a VIP toilet.

Figure 15 shows that South Africa still had to achieve universal access to basic sanitation – VIP or higher level of sanitation. However, the sanitation backlog of individuals without basic sanitation had decreased since 2003 from 42% to 23% in 2013, according to StatsSA General Household Survey.

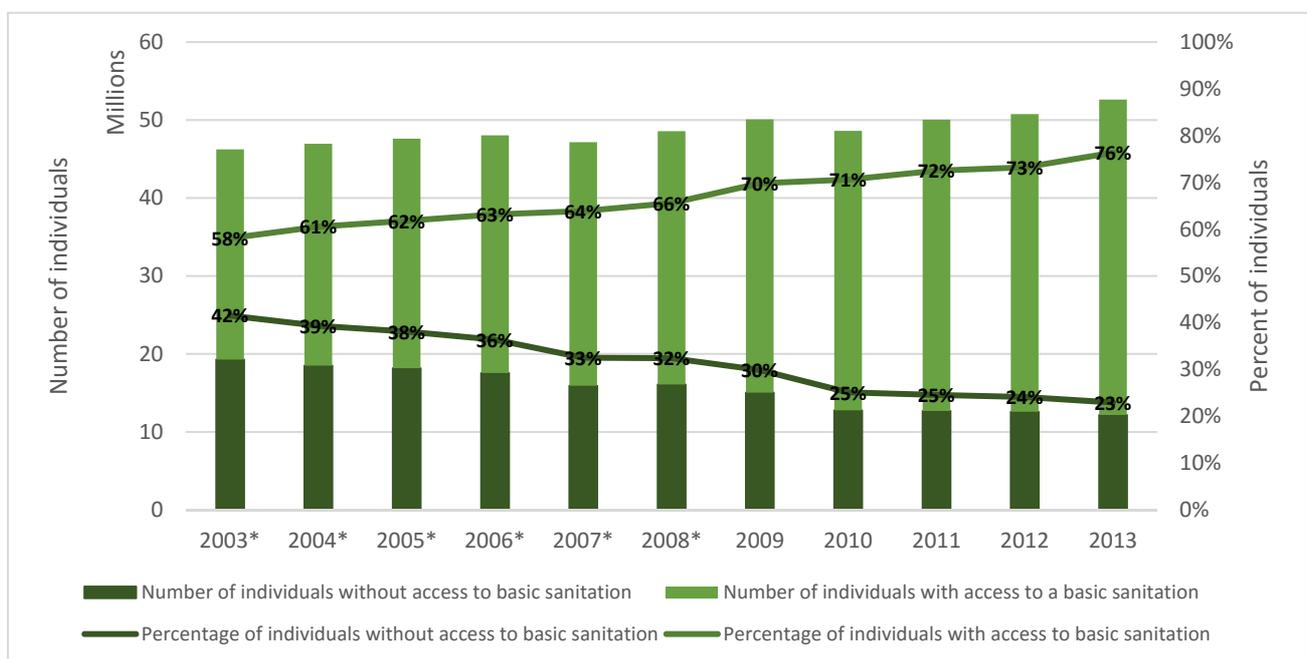


Figure 15: Percent of individuals with access to basic sanitation between 2003 and 2013 (data source: StatsSA General Household Survey, various years)

Based on the definition of a basic sanitation service in the SFWS, a basic sanitation facility needed to be easily accessible to a household. If it was assumed that for a facility to be easily accessible, it needs to be within the yard of the user, then Figure 16 shows that over 92% of individuals with a basic sanitation had an easily accessible facility in their dwelling or in their yard. However, approximately 3% (approx. 1,73 million) of individuals had to leave their property to access a sanitation facility.

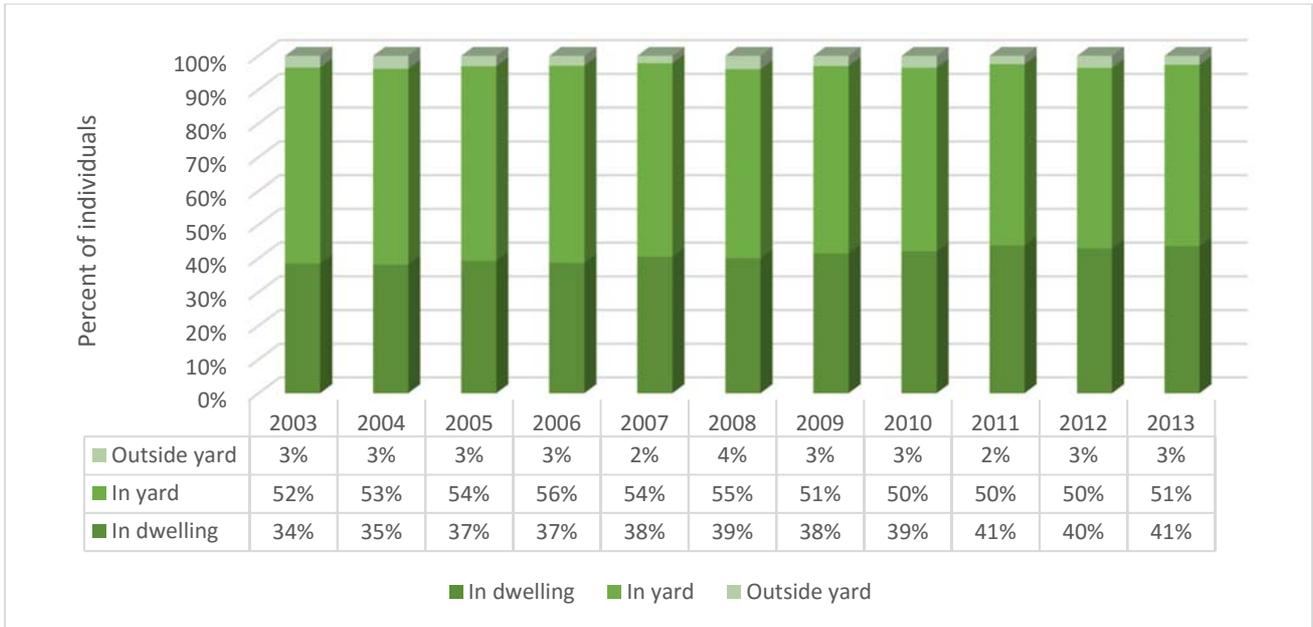


Figure 16: Percent of individuals with a basic sanitation facility which was easily accessible (data source: General Households Survey, StatsSA, various years)

An additional measure of safety of a facility could be whether the facility was shared with other households. Figure 17 shows that in 2014, 13,7% of individuals had access to a shared sanitation facility. This amounts to just over 7 million individuals that could be deemed to not have had access to a safe facility. There does not seem to be a clear trend of change in this indicator, which may be due to the interpretation of the individuals of what a ‘shared’ toilet was, or could be a symptom of the large transient population in informal settlements, which are usually the recipients of communal or shared toilets.

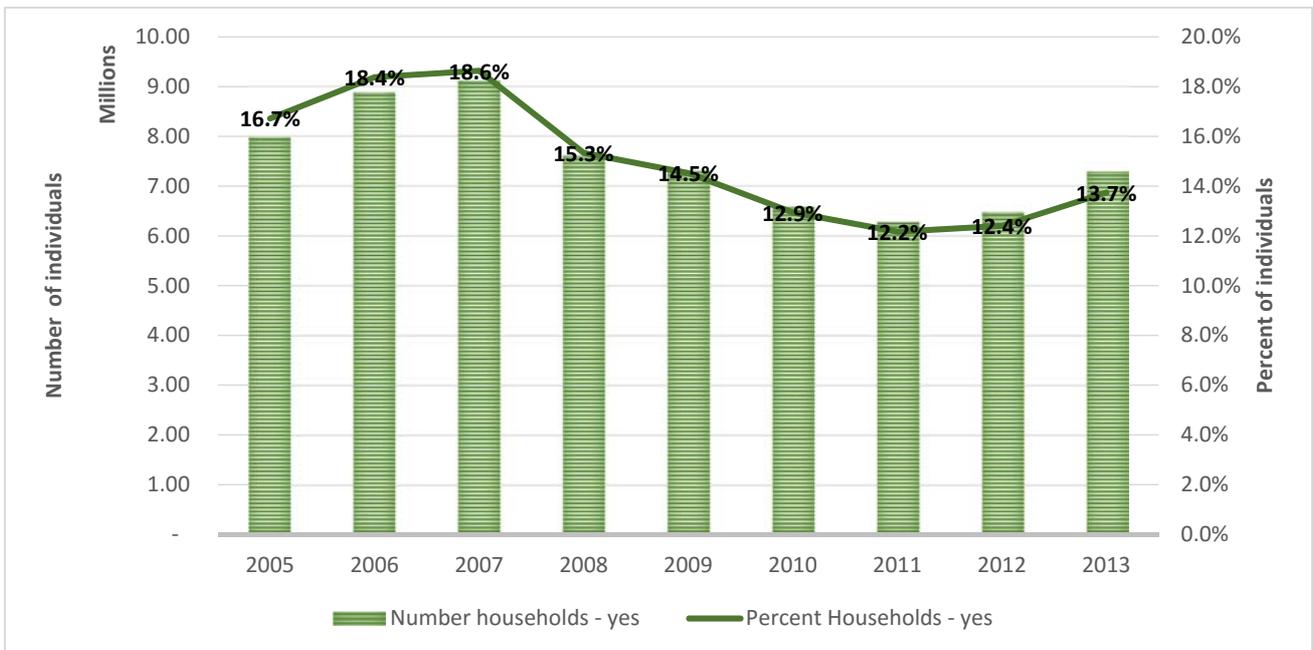


Figure 17: Percent of individuals reporting a sanitation facility which was shared with other households (data source: General Households Survey, StatsSA, various years)

Figure 18 shows that when compared to the average upper middle-income country, South Africa had not progressed as well with sanitation service provision, being well below the international average for these countries. However, sanitation service provision was much higher than the average sub-Saharan countries.

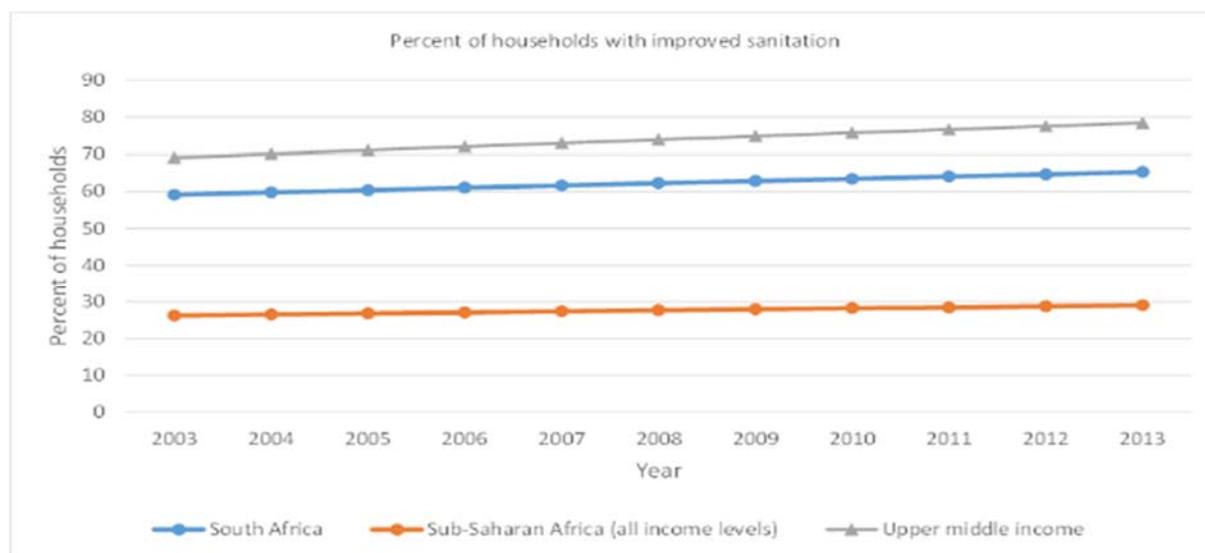


Figure 18: Trends in provision of water supply to urban households for various upper middle countries in Africa (data source: World Bank)

According to the 2015 Progress Report on Sanitation and Drinking Water, jointly published by UNICEF and the World Health Organisation (WHO), South Africa did not meet the MDG target of halving the sanitation backlog during the 25-year period (1990 to 2015) and progress was only classified as “moderate”.

6.5 EQUITY IN WATER

A fundamental issue that needed to be address in the water policies and the water sector was that of **water equity** – the line which divided those with adequate access to water from those without was the same line dividing the rich from the poor, the hungry from the well fed, the line of race and privilege (DWAF, 1994:3). The policy intent was to ensure fairness and equity in the water sector, values that were cornerstones of South Africa’s new Constitution, and to end the inequity in access to basic water supply and sanitation services in South Africa (DWAF, 1994:3). The 1997 White Paper reaffirms this commitment, indicating that the policy intent was equitable access by all South Africans to and benefit from the nation’s water resources, and an end to discrimination with regard to access to water on the basis of race, class or gender (DWAF, 1997:10).

The principle of equity was central to the water law reform process at the time of developing the policies, with the policy intents affording special attention to addressing the needs of those who were historically denied access to water or to the economic benefits of water (DWAF, 1997:19).

To address this policy intent, Principle 14 of the 1997 White Paper on a National Water Policy for South Africa indicated that water resources would be developed, apportioned and managed in such a manner as to enable all user sectors to gain **equitable access to the desired quantity, quality and reliability** of water. Equity implies a concept of fairness, which allows for different practices in

the management of water in response to different social, economic, and environmental needs (DWAF, 1997:19).

The White Paper made it clear that the objective of the new policy was not just to promote equity in access to and benefit from the nation's water resources for all South Africans, but to make sure that the needs and challenges of South Africa in the 21st century could be addressed (DWAF, 1997:6). Water equity must therefore, also reflect the limits to the water resources available to us as a nation and must actively promote, as a preferred option, water conservation and other measures to manage demand in meeting water equity objectives (DWAF, 1997:61).

The 1997 White Paper did however highlight that it was not immediately obvious what was meant by equity in the context of water policy. The policy outlines at least three aspects to defining equity (DWAF, 1997:19), namely:

- Equity in access to water services
- Equity in access to water resources
- Equity in the benefits to water
- Equity in tariffs.

6.5.1 Equitable access to water services

Equity in access required the provision of funds and the regulation and direction of the institutions whose task it was to provide the services (DWAF, 1997:19). This policy intent was addressed in the Water Services Act (1997) by mandating that in making any grant or loan or giving any subsidy, the Minister must consider (a) the requirements of equity and transparency. Equity in access to water supply and sanitation were implemented through a number of equity mechanism in South Africa, facilitated through the provision of subsidised services to poor/indigent households. Three key subsidies were crucial to ensuring equity in access to water supply and sanitation in the country (DWAF, 2003); namely:

- **Infrastructure (hardware) subsidy** (capital subsidy from government grants, such as the Municipal Infrastructure Grant (MIG) from the fiscal budget) for the provision of the water or sanitation facility.
- **Software subsidy** (subsidy as portion of MIG) for national government to address health and hygiene promotion.
- **Operational subsidy** (Free Basic Water and Sanitation subsidy from the Local Government Equitable Share (LGES) from the fiscal budget) for the operating and maintenance costs of the service to poor consumers.

The first mechanism, the infrastructure subsidy, was made available to poor households to provide basic water supply and sanitation infrastructure, through the Municipal Infrastructure Grant (MIG). The Grant, which was introduced to the water services sector by the White Paper on Basic Household Sanitation (2001) and implemented via the SFWS (2003), was provided by national government to ensure universal provision of at least a basic water supply facility and a basic sanitation facility within a reasonable period of time. The SFWS indicated that this subsidy should be allocated in a way that benefits all consumers in the same circumstances equally.

In line with the SFWS intent of the *need to increase the amount of resources made available to local government through the municipal infrastructure grant and the local government equitable share over time*, Figure 19 shows that the municipal infrastructure grants had increased significantly between 2004/05 and 2012/13, from R4 368 489 to R10 963 074. The country had expended R67 billion over this time period on MIG funds.

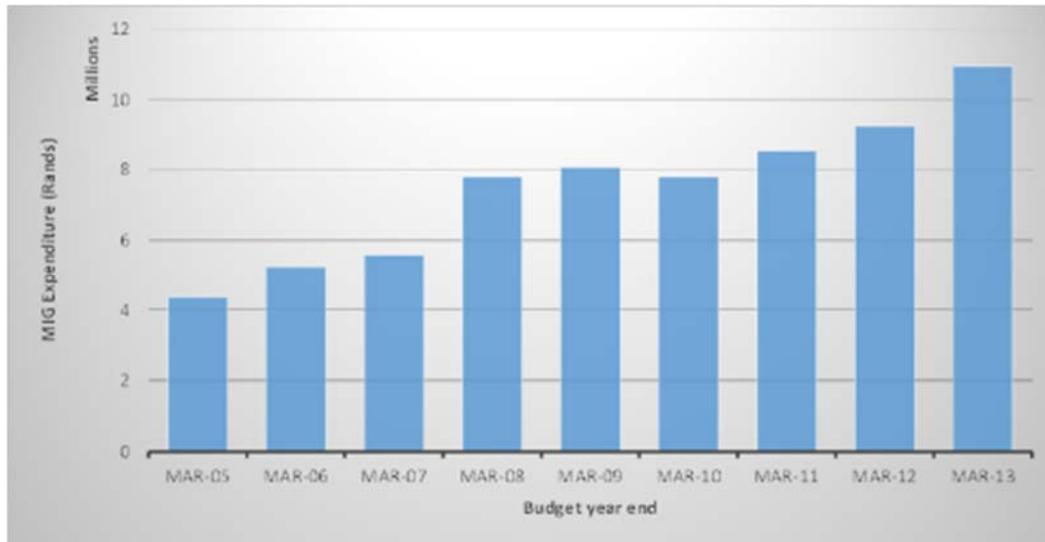


Figure 19: MIG expenditure by local government between 2004/05 and 2012/13 (Source: Treasury, 2014)

Treasury (2014) data showed that at least 27% of these MIG funds were allocated to water and sanitation, while the actual expenditure on water supply was higher than allocated at 34%, but the amounts spent on providing basic sanitation was lower than the allocation at 23%.

MIG funding had allowed municipalities to provide basic water supply and sanitation services to a significant number of households in the country over the past 20 years. As shown above, based on StatsSA General Household Survey (various years), the percent of households in the country that had access to a basic water supply had increased since 2005 by 11% (backlog reduction by 12,3%), and access to a basic sanitation facility had increased by 15% since 2003 (backlogs had reduced by 17% over the same time period). This was a significant number of additional households that received these services, amounting to approximately an additional 4,69 million households with access to a basic water supply and an additional 5,21 million households with access to a basic sanitation.

This positive effect of the MIG infrastructure grant was demonstrated in Figure 20 and Figure 21 below. Figure 20 demonstrates that a higher percent of indigent or poorest quintile households had access to a basic water supply and sanitation. Figure 20 demonstrate that 96% of households in the upper quintile had access to a basic water supply, with this percent decreasing in the next three quintiles to 74% of households in the 2nd quintile. However, the percentage of households with access to a basic water supply in the poorest (lower) quintile increased to 81%. This implies that a higher percentage of poor households had access to a basic water supply when compared to the 2nd and 3rd quintile of households with moderate household incomes. This perhaps could be attributed to the available of the MIG subsidy to support these households to access these basic services.

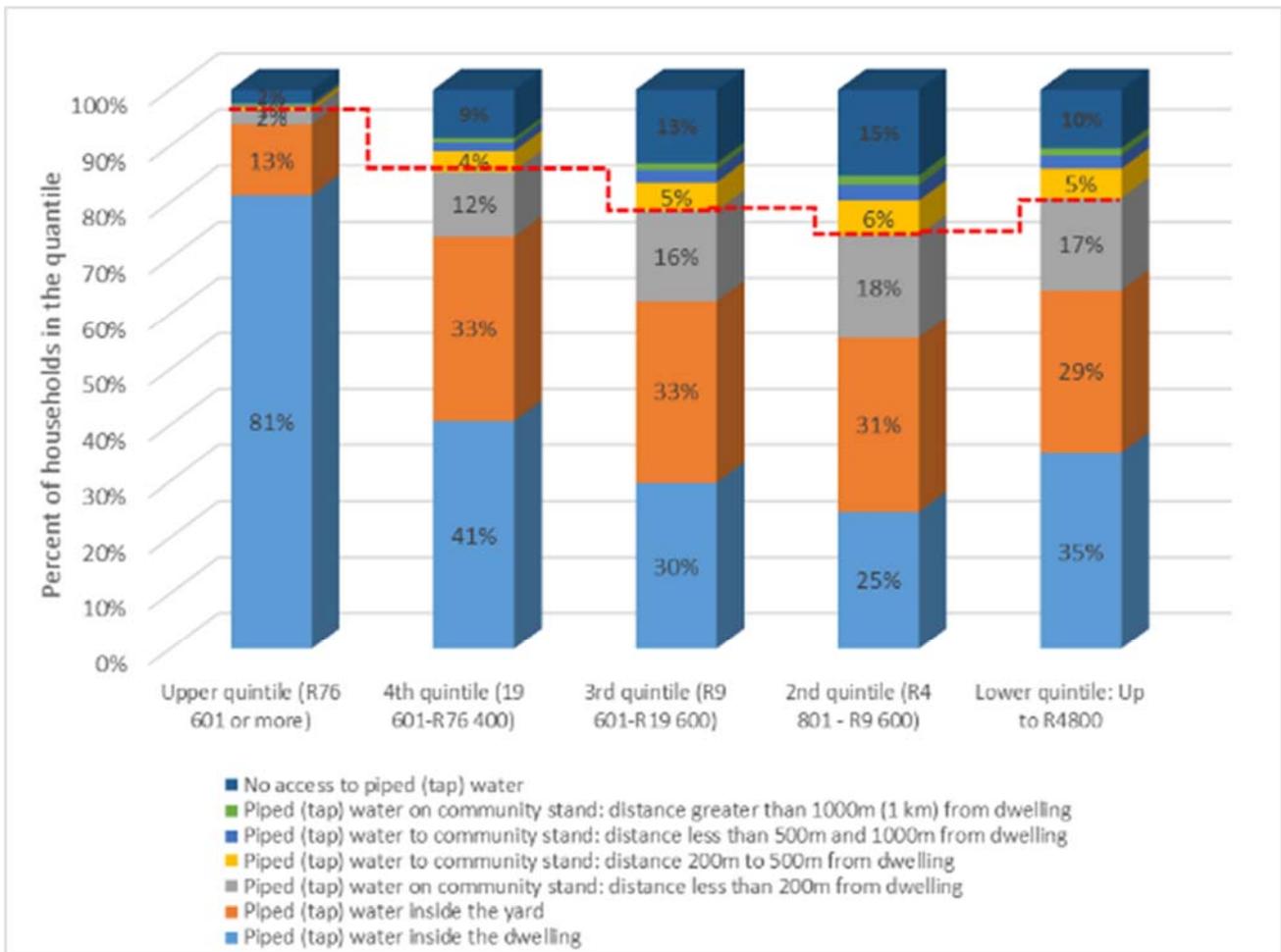


Figure 20: Access to a basic water supply by household's income quintile (data source: StatsSA Census 2011). Red line denoted level of households with access to a basic water supply.

Figure 21 shows a similar result for poor households' access to basic sanitation, with 61% of households in the lower quintile having access to a basic sanitation, higher than the 51% in the 2nd and 56% in the 3rd quintile. Again, this could perhaps be attributed to the availability of the sanitation subsidy to facilitate access of poor households to these services. The subsidy did seem to be addressing some equity aspects in the water supply and sanitation services in the country, facilitating access to these services in poor households.

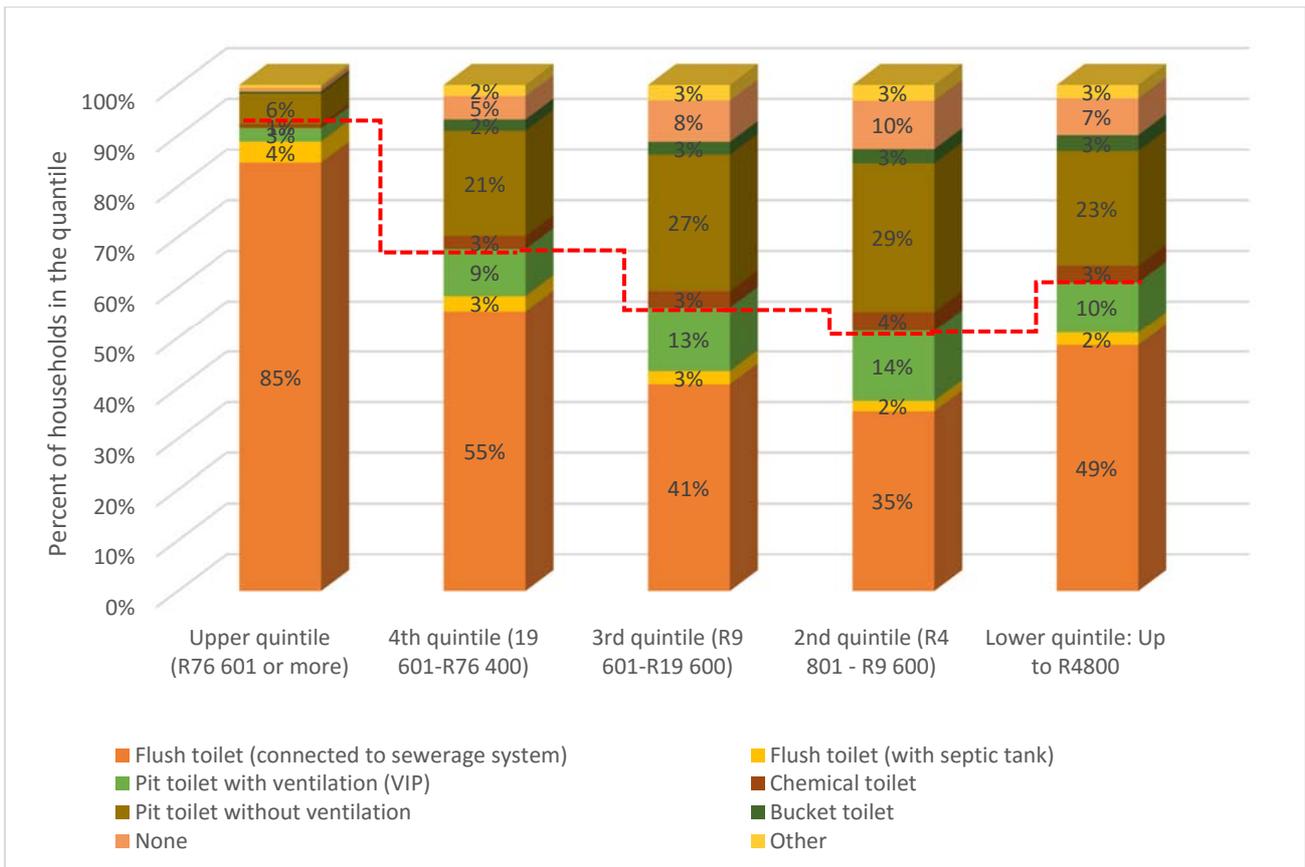


Figure 21: Access to a basic sanitation by household’s income quintile (data source: StatsSA Census 2011). Red line denoted level of households with access to a basic sanitation facility.

The second equity mechanism that addresses equitable access to water services in South Africa was the Free Basic Water Supply (FBW) and Free Basic Sanitation (FBSan) subsidy. The White Paper for Water Supply and Sanitation indicated that communities must pay for their operating and maintenance costs of their water supply and sanitation to ensure both equity and sustainability (DWAF, 1994:21). However, where communities do not pay, Government must cover these costs on their behalf.

The free basic water grant made available a basic amount of water for consumption by poor households per month free of charge (DWAF, 2003). The SFWS indicated that water services authorities had to decide how they would apply the policy specifically and practically, but they had to implement the FBW with immediate effect. The SFWS indicated 25 litres per person per day as the FBW, but that water services authorities should give consideration to increasing the basic quantity of water provided free of charge, aiming for the free provision of at least 50 litres per person per day to indigent households.

Free basic services were provided from national government to water services institution via the LGES, to assist indigent households to equitably access water services. Free basic water services could also be financed through cross-subsidisation between users within a system of supply or water services authority area, where appropriate.

A basic level of water was provided free to all households that earn less than the poverty line, which was defined as a monthly household income of R2 300 per month by National Treasury in 2013. Current estimates were that 59% of households in the country qualify for the free basic services

subsidy (National Treasury, 2014). The monthly amount provided for each service was detailed in Table 8 and included a 10% maintenance estimate and the 2014/15 cost estimates, updated for inflation and other bulk costs. The allocation to each municipality was calculated by multiplying this monthly subsidy by the number of households below the affordability threshold in each municipal area.

Table 8: Free basic service subsidy per household in 2013/14 (taken from National Treasury, 2013)

2014/15 Local Government Equitable Share	Allocation per household below affordability threshold			Total allocation per service (R million)
	Operations	Maintenance	Total	
Water	R 83,78	R 9,31	R 93,09	R 722,00
Sanitation	R 68,40	R 7,60	R 70,00	R 937,00
Total for free basic water services	R 152,18	R 16,91	R 163,09	R 659,00
Total for basic services	R 263,72	R 29,30	R 293,03	R 603,00

As an unconditional grant, the LGES could be utilised at the municipalities' discretion. National Treasury et al. (2014) indicated that it was however, unrealistic to expect all of this subsidy to enter the municipal maintenance budgets as it was the municipality's choice to use these funds for maintenance or not (National Treasury et al., 2014).

Although implementing of the FBW was slow initially, recent data from the Non-Financial Census of Municipalities, conducted by StatsSA annually, shows that water service institutions in all the provinces were implementing the FBW policy (Figure 22). Water services institutions in Gauteng were providing FBW to the highest number of consumer units, followed by the Western Cape and KwaZulu Natal institutions. The majority of provinces had reduced the number of consumer units receiving FBW between 2008 and 2013, which could perhaps be attributed to better information on which households were indigent and thus greater targeting of the FBW grant to these beneficiaries. The Western Cape and Mpumalanga had demonstrated an increase in consumer units benefiting from the FBW grant between 2008 and 2013. Of note was that in 2013, at least 2,85 million consumer units were benefiting from the FBW grant in the country, facilitating the sustainable operation of basic water supply services in poor households in the country.

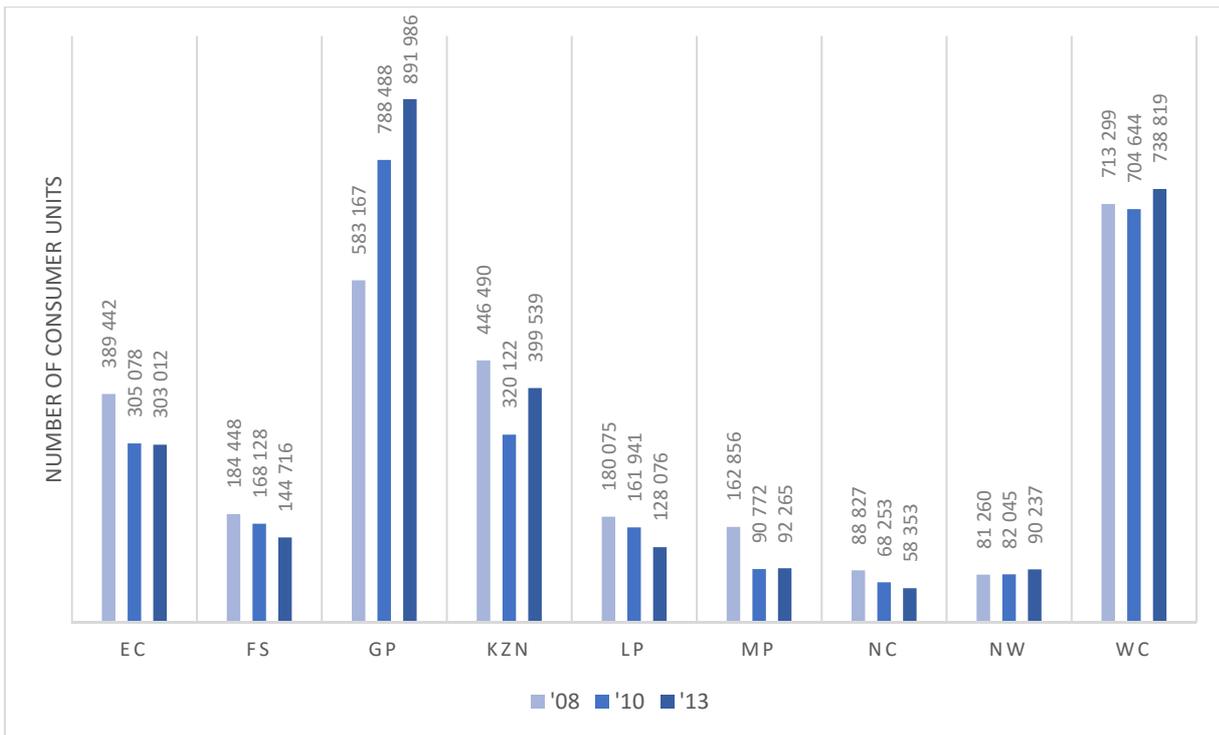


Figure 22: Number of consumer units provided with FBW in 2008, 2010 and 2013 (data source: Non-financial Census of Municipalities, StatsSA)

Similar to the FBW policy introduced by the SFWs, a Free Basic Sanitation (FBSan) policy was introduced to the water services sector. The primary purpose of the free basic sanitation policy was to assist in promoting affordable access by poor households to at least a basic level of sanitation service. The SFWS outline that subsidies for free basic sanitation should cover the hygiene promotion costs and the operating costs of providing a basic sanitation service to households, calculated as a subsidy per household per month for each settlement type and technology used. This subsidy could be paid to the water services provider or directly to the household.

Figure 23 shows the number of consumer units having access to FBSan in 2008-2013. Access of consumer units to FBSan grants follow similar patterns to the FBW in that Gauteng and Western Cape provided this grant to the largest number of consumer units. Most of the provinces, apart from Gauteng, Western Cape and North West, had seen a decline in the number of beneficiaries of the grant in the period under review. It should be noted, however, that Treasury estimated in 2014 that 59% of households in the country were indigent, which implies that the number of consumer units benefiting from the FBW and FBSan grant was significantly lower than should be the case.

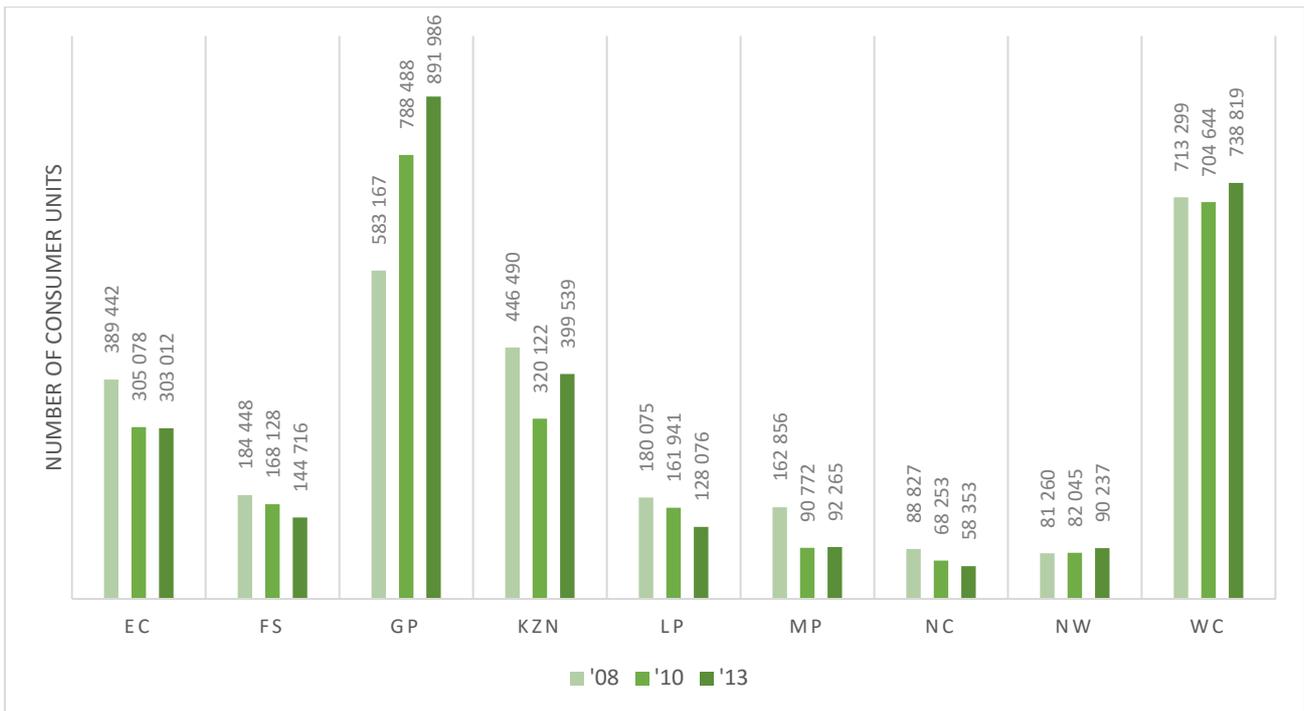


Figure 23: Number of consumer units with access to Free Basic Sanitation between 2008 and 2013 (data source: Non-financial Municipal Survey)

6.5.2 Equitable access to water resources

The second equity mechanism outlined in the water policies was equitable access to water resources, which included equitable, direct access to the water resource for purposes other than basic human needs (DWAF, 1997:19). The NWRS2 defined this as equity in direct access to water for productive purposes, such as water for irrigating crops, or water for a business or an industry (DWA, 2013b).

The White Paper on Water Supply and Sanitation (1994) indicated that in 1994, despite the fact that water for human consumption was but a small proportion of the total available, many communities had totally inadequate access to drinking water; meanwhile farmers used large volumes of water for irrigation and stock farming even in the more arid areas of the country (DWAF, 1994,3). This was a contradiction that was deeply felt and widely resented (DWAF, 1994,3).

South Africa did make available equitable access to the water resource through two equity mechanism: (1) for small scale users, through recognition by the National Water Act of Schedule 1 water use; and (2) General Authorisation.

6.5.2.1 Schedule 1 Water Use

Schedule 1 water uses refer to small volumes of water for household use with little potential for negative impacts on the water resource, and for which no application for authorisation needs to be made. In other words, Schedule 1 water could not be used for commercial purposes.

Sections 4(1) and 22(1) (a) (i) and Item 2 of Schedule 3 of the NWA indicated that Schedule 1 water use allocates small quantities of water for use, including (South Africa, 1998):

- taking water directly from any water resource for domestic use in your household if you had lawful access to that water
- storing and using run-off water from a roof
- small gardening that was not for commercial use
- watering animals for subsistence use
- using the water surface or surrounding land for recreational use (for example boating)
- using water for emergencies for example for human consumption or firefighting.

Schedule 1 water use covers the allocation of water for productive uses and to support sustainable livelihoods. Although the Water Act did not specify numerical limits for water allocation for Schedule 1 uses, these water uses were subject to any restrictions or prohibitions imposed by other relevant laws, ordinances, bylaws and regulations. Quantities for small-scale productive uses that contribute to food, poverty alleviation and gender equity were perceived to be addressed through these water allocations. For this category of small-scale users, of whom the majority are poor, the issue was how water entitlements were recognised and acknowledged in an equitable manner within a legal system that was by design allocation of different sorts of first-class entitlements to different sorts of citizens (van Koppen et al., 2010).

Research had shown that access to Schedule 1 as a mechanism to improve water equity in South Africa also raises a number of concerns:

- a) there was little guidance or support to local government on methods to be used for the provision of water for these productive uses;
- b) under Schedule 1 an individual must have access to land and a garden in a suitable place close to a water source to access this water entitlement. Schedule 1 water allocation refers to raw water taken directly from the resource. Individuals with gardens and crop at a distance from the resource could be unable to equitably benefit from this water entitlement; and
- c) many of the water sources on which poor households rely for this Schedule 1 water entitlement were not very reliable. They dry up during the winter season and after years of poor rainfall (Moriarty and Butterworth, 2003).

The National Water Resource Strategy of 2004 further states that *requirements for water for small-scale uses in rural areas would be quantified during compulsory licensing, and the Department would investigate ways of making secure and cost-effective supplies of water available without placing unnecessary administrative burdens on the users* (DWAF, 2004).

6.5.2.2 **General Authorisation**

General Authorization (GA) water use is, according the Water Act, the conditional authorised allocation of larger (than Schedule 1 use) volumes of water for a specific type of water use or category of water user (DWAF, 2004). GA was also regarded as another equity mechanism to redress the inequities from the past (DWAF 2004; Van Koppen et al., 2010).

In some water resource situations, these users could be required to register their water use with the management authority. However, this was not the norm and even when GA registration was required by the water authority, some GA water uses could be exempt from the registration process. Limits were placed through Gazette Regulations on water use that qualifies for GA, based on the nature of use and capacity of the resource to accommodate the use without significant degradation (DWA,

2004). Generally, GA applies for a limited time period (usually 3-5 years) and could be reviewed and amended during this time (DWAF, 2004).

Part 6 of the NWA establishes a procedure to enable a responsible authority, after public consultation, to permit the use of water by publishing general authorisations in the Gazette (South Africa, 1998). GA could further be restricted to a particular water resource and category of persons, a defined geographical area, or a period of time, and required conformity with other relevant laws.

In Gazetting GAs, the responsible authority could authorise all or any category of persons to use water. The notice must state the geographical area in respect of which the general authorisation would apply, and the date upon which the general authorisation would come into force, and could state the date on which the general authorisation would lapse. An authorisation to use water under this section did not replace or limit any entitlement to use water that a person could otherwise have had under this Act.

The use of water under a GA does not require an application for a license, thus providing a mechanism to achieve some form of water equity within a water catchment by setting aside water for specific categories of water users, without having to introduce the administrative burden of compulsory water licensing (Anderson et al, 2007). GAs could be administered by a Catchment Management Agency, allowing for adaptations to address local concerns and priorities (Anderson et al, 2007). According to Anderson et al. (2007) *GAs were initially considered by the DWAF to be a temporary entitlement to allow small volumes of water to be taken up before the licensing process was formalised. However, there had been a shift in thinking that category specific GAs could be used to promote uptake of water by HDIs, in support of water allocation reform.*

Still, a number of challenges is evident in addressing redress and water equity utilising GAs, including:

- That in the large number of stressed catchments of the country, no unallocated water was available to GAs to address equity in access to water resources in the catchment (Schriener et al., 2010).
- GA was not considered to have had the same legal standing as a license and was thus often considered as 'second class' right (Anderson et al, 2007).
- The allocation of water under a GAs was often not sufficient to ensure water equity as other factors, such as the availability of land, financial resources, skills, and markets, play a pivotal role in water equity (Anderson et al, 2007).
- The existing GAs require that all users conduct a monitoring programme that regularly measures the quantity and quality of water used under the GA. Many of the users that could qualify for category specific GAs could not have had the capacity to effectively monitor their water use (Anderson et al, 2007).

Unfortunately, at the time of the study, there was little information on the levels of Schedule 1 and GA water use in the South Africa. The limited understanding and knowledge of water users of this equity mechanism and the fact that this water use was recognised without the requirement for registration means that data was not captured for Schedule 1 or GA water users on an ongoing basis. Hence, the number of users and areas of land under these water equity mechanisms were not available. However, Aliber et al. (2009) indicated that there were an estimated 4 million black individuals from about 2.5 million households practising some form of farming for food production as: an extra source of food and income; the main source of income; and a leisure activity or hobby. This could suggest that there were at least 2,5 million Schedule 1 water users in South Africa.

Van Averbek and Khosa (2011) also indicated that 7.7 % of irrigated land in the country, or 100 thousand hectares, was used by smallholder farmers, mostly in the former homelands. Around half of these consists of small home gardens, and the other half was located on smallholder irrigation schemes, thus 317 in total. Denison and Manona (2007) estimated about 33,000 plot holders as part of these schemes, each cultivating an average of around 1.5 hectares. Approximately 2% to 3% of irrigated land was held by smallholders outside these schemes, smallholders account for a very small share (5% to 6%) of the country's irrigated farmland. Estimates could therefore be made that at least 100 thousand hectares of land were under GAs in the country.

6.5.3 Equitable access to benefits from water resource use

The White Paper indicated a third water equity mechanism through the allocation and use of water to bring maximum benefit, whether directly or indirectly (DWAF, 1997:20). The concept "beneficial use" plays a pivotal role in South African water legislation, forming the foundation of the mechanism to make water use rights available for the reform of the allocation of water use entitlements (van der Walt, 2011).

According to the NWA, national government had overall responsibility for the equitable allocation of water for beneficial use and the redistribution of water (South Africa, 1998). The Minister was ultimately responsible to ensure that water was allocated equitably and used beneficially in the public interest, while promoting environmental values. According to the White Paper on a National Water Policy (1997) the beneficial use of water means the use of water for a productive purpose, such as farming or industry. The White Paper defined beneficial use as *the use of water for an economically or socially useful purpose* (DWAF, 1997, Appendix 2).

The meaning of beneficial use was constrained by the terms of the Section 195(1)(b) of the *Constitution*, which dictates that the public administration must be governed by the democratic values and principles enshrined in the Constitution, including the principles that efficient, economic and effective use of resources must be promoted. The phrase should be understood in the context of distributing water, as meaning a use that was producing a decided and economical effect and was without waste, in other words was efficient (van der Walt, 2011).

A number of key concepts were linked in the policy and legislation to beneficial use, namely 'in the public interest' and 'economic good'.

According to the White Paper on a National Water Policy (1997) "beneficial use in the public interest" could be defined as use that achieves the most desirable combination of social, economic and environmental objectives. This concept refers to water allocations that were to the benefit of the public and the nation, in attempts to balance the broader public interest with the rights of the individual. It included the commitment to equity. The NWA indicated that when a responsible authority issues a general authorisation or licence, it must take into account efficient and beneficial use of water in the public interest (South Africa, 1998). Beneficial use was also taken into account if it was desirable that water uses in respect of one or more water resources within a specific geographic area be licensed.

The use and allocation of water resources were also constrained by the fact that they need to be economic. The economic viability of an undertaking for which water was used, was a condition for water use. The *National Water Act* recognises that the ultimate aim of water resource management was to achieve the sustainable use of water for the benefit of all users.

Although the South African *Strategy for Water Allocation Reform (WAR)* stated in 2006 that water allocation must promote the beneficial use of water in the public interest, no clear guidelines had yet been issued. The Department points out that in catchments where applications could exceed the available water, the principles that apply to evaluate applications were:

- All applications must be tested against section 27 of the *National Water Act*.
- Licences could be refused if the use impinges on existing users, or on potential future beneficial use. Beneficial use remained the underlying condition for water use.
- Every effort must be made to find water for previously disadvantaged applicants. Attempts must also be made to find water for high priority applications. This was to be done by curtailing possible unlawful use, instituting water conservation measures and lowering the assurance of supply. The underlying principle was that as many of the outstanding applications as possible should be authorised, with preference being given to uses that represent beneficial use in the public interest.

Assessing and reporting the performance of South Africa in addressing this policy and legislative was next to impossible. The definition of 'beneficial use in the public interest' was still very subjective and thus difficult to place a definitive measure of successful achievement of this intent. However, one could perhaps suggest that the equitable allocation of available water, in a socially and procedurally just manner, would reflect the country's success in ensuring beneficial use of water in the public interest. The 1997 White Paper confirms this by indicating the intent to pay particular attention to evaluating whether equity objectives and fair resource allocations were achieved in the country (DWAF, 1997:39).

6.5.4 Equity in water tariffs

The White Paper for Water Supply and Sanitation (DWAF, 1994) indicated that the policy of the Department was that all consumers of potable water must contribute to the cost of their water supplies. However, in poor communities, which were unable to afford to pay both the construction and operation costs of schemes provided by Government, a social tariff covering only the operating expenses would be charged for the minimum level of service, which was a communal water source. This policy imperative was reflected in the Free Basic Water Services subsidy discussed in section 5.5.1 above.

The policy also indicated that for higher levels of service, the full cost of supply would be charged. The National Water Act mandated, related to the prescribing the norms and standards for water tariffs, that the Minister must consider among other factors (South Africa, 1998):

- a) any national standards prescribed by him or her;
- b) social equity;
- c) the financial sustainability of the water services in the geographic area in question;
- d) the recovery of costs reasonably associated with providing the water services;
- e) the redemption period of any loans for the provision of water services;
- f) the need for a return on capital invested for the provision of water services;
- g) the need to provide for drought and excess water availability.

Section 56 (6) of the NWA legislated that pricing strategies for water must consider measures necessary to support the establishment of tariffs by water services authorities in terms of section 10 of the Water Services Act, 1997 (Act No 108 of 1997), and the use of lifeline tariffs and progressive

block tariffs (South Africa, 1998). Tariffs could thus, through the lifeline tariffs and progressive block tariffs, facilitate equity in the water supply and sanitation sector (see Section 7.2.1 for more details on how these equity mechanisms had been implemented and progress with these in South Africa).

Since 2001 with the introduction of the Free Basic FBW policy, Government had introduced a rising block tariff system to facilitate equitable access to water by all (e.g. first block was for free basic water (FBW)), cost recovery principles (higher usage cross-subsidises the FBW block) and water conservation measures (e.g. financial penalties for excessive use) (Otterman et al., 2013). The first block was set at the lowest amount possible taking into account the need to provide free basic water to the poor households and ensuring the viability and sustainability of water services. It had a maximum consumption volume of not less than five and not more than ten kilolitres per household per 30-day period and could be cross-subsidised from revenues generated by the higher blocks.

Otterman et al. (2013) found that in the 2012-13 financial year, 41% of Local Municipalities (LMs) were providing the Block 1: Free Basic Water zero tariff to all households in their jurisdictions, 39% were targeting the zero tariff Block 1 to indigent households, while 15% of LMs were not implementing the zero Block 1 FBW tariff (Table 9).

Table 9: Local government Block 1 free basic water tariff implementation in 2012-13 (taken from Otterman et al., 2013)

	No. of LMs	% of total
LMs where all get FBW	96	41%
Only Indigent get FBW	91	39%
LMs with no FBW	35	15%
Unknown	12	5%
TOTAL	234	100%

Otterman et al. (2013) showed that about 80% of the total population benefit from the free basic water policy, including more than 20 million poor people.

7 WATER RESOURCES POLICY REVIEW

This section of the report provides the review of the 1997 White Paper on Water Policy for South Africa and some aspects of the benchmarking of international policies.

7.1 INSTITUTIONAL WATER RESOURCES POLICY INTENTIONS

The policy intent on the water institution of South Africa was articulated in Principle 22 of the 1997 White Paper on a National Water Policy for South Africa, which indicated that the institutional framework for water management shall as far as possible be **simple, pragmatic and understandable**, as well as **self-driven**, and **minimise State intervention** (DWAF, 1997:62). Any administrative decisions made by this national water institution shall be subject to appeal (DWAF, 1997:62).

The policy indicated that the new water institution, which evolves out of the new water policy and law, would be developmental in nature, informed by technical and social considerations, structured to promote the values and intent of the Constitution, and able to adopt a flexible approach to water management (DWAF, 1997:48).

One of the key new water institutions intents, emanating from the policy, was a management approach and organisational arrangements that provided for **integration** across a number of dimensions, namely (DWAF, 1997:50):

- **Vertically**: between spheres of authority and levels of organisation in water management i.e. local, provincial and national government (DWAF, 1997:50);
- **Horizontally**: between authorities and organisations with common interests or competing needs for water resources i.e. between national department (DWAF, 1997:51);
- **Co-operatively**: within water use sectors with a joint interest (DWAF, 1997:51);
- **Coherently**, between organisations active in the development, management and use of scarce resources such as water, land, minerals, finance and the environment generally (DWAF, 1997:51); and
- **Geographically**, in a way which reflects the interactions of the water cycle and the web of human life and activity (DWAF, 1997:51).

A key component of the water institution thus was to ensure **cooperative governance** of as many functions across organisations and levels of operation as possible (DWAF, 1997:48). All spheres of Government and all organs of State must cooperate with each other in mutual trust and good faith by coordinating their actions and legislation with each other (DWAF, 1997:12). Where water management aspects were beyond the capacity of local or provincial government (i.e. hazardous spills), the system of cooperative governance must allow for the national Department to provide assistance to that local and provincial authorities (DWAF, 1997:32).

7.1.1 *Water institutions*

The water policies provide the policy intentions for the institutional arrangements of the South African water sector (Figure 24). Institutions were grouped based on their functions, such as those that focus on management, development, and conservation of the water resources (i.e. CMAs and Irrigation

Boards) and those that focus on provision of water supply and sanitation services (i.e. Water Boards, National Public Water Utility, Local Government) (see Section 7).

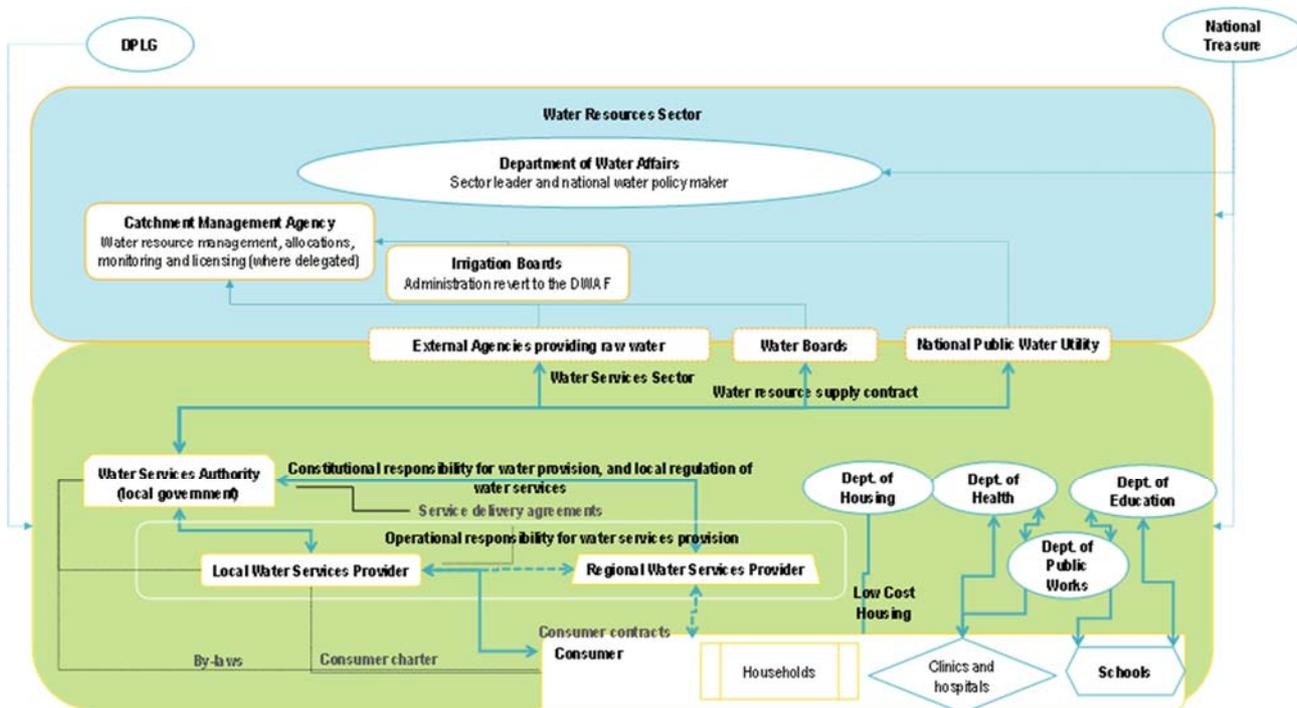


Figure 24: Organisation structure of the water resource management and water supply and sanitation service provision of South Africa, as recommended by the water and sanitation policies of the country

7.1.1.1 Powers of the Water Minister

The policy documents in the water sector do not necessarily assign powers and functions to the Minister responsible for Water, however, most crucial in the policy was the assigning of national Government the duty to regulate water use for the benefit of all South Africans, in a way that takes into account the public nature of water resources and the need to ensure fair access to these resources (DWA, 1997). The key aim was to ensure that these scarce resources were beneficially used in the public interest. In its role of guardian of our Nation’s water resources, national Government had the right to influence the country’s economic and social development - for the benefit of present and future generations - through responsibility for determining the proper use of the nation’s water resources (DWA, 1997).

Section 74 of the Water Services Act and Section 63 of the NWA indicated that the Minister could, in writing, delegate any power vested in him or her by or under the Act, but cannot delegate the power of (South Africa, 1998):

- a) making regulations;
- b) issuing of directives under section 41;
- c) intervening under section 63;
- d) appointing members of a water board;
- e) prescribing policy; or
- f) expropriation.

Central to this delegation of responsibilities in the water resource sector was the right of the Minister to delegate certain water resource management responsibilities to Catchment Management

Agencies. The delegations of these powers had impact on the establishment and function of CMAs in the country. The NWRS2 indicated that the slow delegation of functions to CMAs in the country, with the associated authority and responsibility and delays in the transfer of funds, had impeded the effective functioning of the Catchment Management Agencies (CMAs) that had been established by 2013 (DWA, 2013b). The intent going forward would be for the DWS to accelerated delegation of the regulatory functions to CMAs that would progressively take over regulation of water use at the catchment level (DWA, 2013b).

7.1.1.2 National Government

The 1994 Water Supply and Sanitation Policy assigns the then new Department of Water and Forestry certain functions, particularly related to water supply and sanitation. The later White Paper on a Water Policy for South Africa of 1997, which was promulgated after the DWAF and second tier water management institutions had been established, focus more specifically on the explicit functions of the DWAF and less on the requirement for establishment of the structure. Figure 25 provided a summary of these water resource management functions of the DWAF, as discussed in the section below.

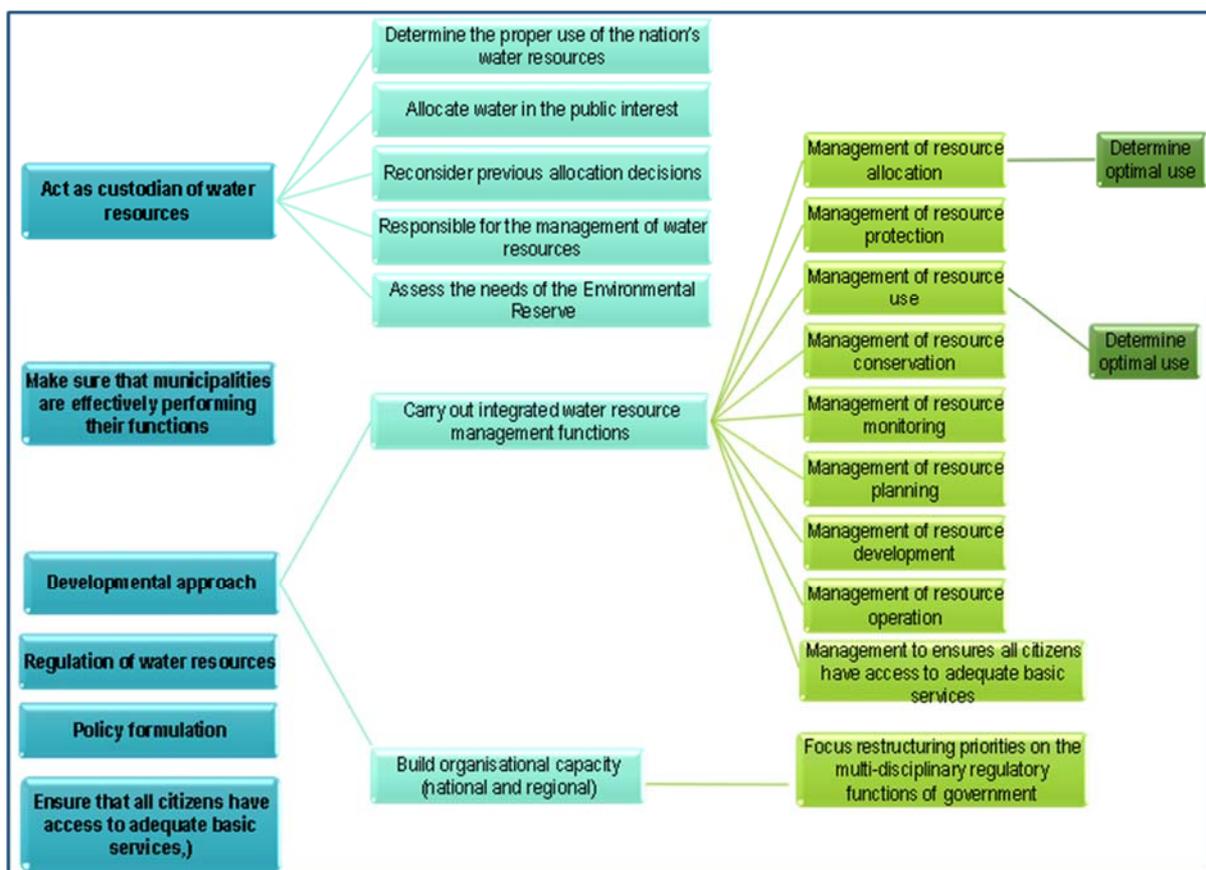


Figure 25: Summary of policy intents on the functions and responsibility of national government

The policy intent related to the Minister’s custodianship of the nation’s water included that National Government ensures the **development, apportionment, management, and use** of water resources was carried out using the criteria of **public interest, sustainability, equity and efficiency of use** in a manner that reflects its **public trust obligations** and the **value of water** to society, while ensuring that basic domestic needs, the requirements of the environment, and international obligations were met (Principle 13) (DWAF, 1997:61). This principle was firmly entrenched in Section 3 of the National Water Act (NWA) (Act 36 of 1998), which indicated that:

“As the public trustee of the nation’s water resources the National Government acting through the Minister, must ensure that water was protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner, for the benefit of all persons and in accordance with its constitutional mandate” (section 3(1), South Africa, 1998).

The policy initiates that an institutional framework would be established that reflects the central responsibility of the national Government as custodian of the nation’s water resources (DWAF, 1997:51), with the role of national Government to:

- **determine the proper use** of the nation’s water resources (DWAF, 1997:24). The NWA stipulates that: *“The National Government, acting through the Minister, had the power to regulate the use, flow and control of all water in the Republic”* (section 3(3) of NWA, South Africa, 1998)
- **allocate water in the public interest** - consider the planning and development of water resources in a manner which ensures the efficient, equitable and sustainable use of the resources (DWAF, 1997:24). According to section 3(2) of the NWA the Minister was *“ultimately responsible to ensure that water was allocated equitably and used beneficially in the public interest, while promoting environmental values”* (South Africa, 1998)
- **Reconsider previous allocation decisions** - government must not be bound by past decisions in water allocation as these could be inappropriate in the light of current knowledge or inconsistent with current needs (DWAF, 1997:24). This policy intent was captured in section 34 of the NWA, which allows for “existing lawful water use “to be continued but that such allocations could later be replaced by a licence or *“any other limitation or prohibition by or under this Act”* (section 34(1)(c); South Africa, 1998).

National government was also assigned responsibility to **assess the needs of the Environmental Reserve** and to make sure that this volume of water, of an appropriate quality, was set aside (DWAF, 1997:25). The policy indicated that a system was needed to calculate the Environmental Reserve (DWAF, 1997:25). This policy intent was firmly entrenched in Sections 16 to 18 of the NWA (South Africa, 1998) and given practical implementation by creating a specific unit in the DWAF to determine the reserve in specific catchments or sub catchments (See Section 6.4.1 for details on progress with determination of the ecological reserve).

Apart from the clear governmental functions of **policy formulation and regulation**, the White Paper indicated that certain water resource management functions would continue to be performed by Government at national level, including (DWAF, 1997:51):

- strategic and technical planning, and the maintenance of a national water plan (DWAF, 1997:51); this policy intent legislated in section 5 of the NWA (South Africa, 1998) where the Minister was tasked to “establish a national water resource strategy” with the condition that it “must be reviewed at intervals of not more than five years”. Such National Water Resource Strategies (NWRS) were published in 2004 and again in 2013 (NWRS 2)
- joint management of international catchments (DWAF, 1997:51); The DWAF entered into several bi-lateral agreements on shared river basins with neighbouring countries, such as Lesotho, Namibia, Botswana, Mozambique, Swaziland and Zimbabwe. These agreements were dealing with the joint management of rivers, such as the Orange/Senqu, Crocodile and Limpopo as well as the Komati Rivers
- overall management of catchments on a national basis (DWAF, 1997:51); and
- water information services (DWAF, 1997:51).

The NWRS2 indicated that progress with the formulation and operation of the new Department of Water Affairs had seen good progress in certain areas and slower progress in others. The following were outlined as some of the successes and challenges in the DWA addressing its mandate and fulfilling its water resource management responsibilities:

- Overlap and unclear roles and responsibilities: the NWRS2 indicated that strategic interventions would take place to clarify the roles and responsibilities of the institutions with the water sector for water resource management and for providing water services.
- This role of the DWA included policy and leadership by:
 - Providing strong sector leadership
 - Developing and revising national policies
 - Providing oversight of all legislation impacting on the water sector (including the setting of national norms and standards)
 - Providing guidance on institutional roles and responsibilities
 - Co-ordinating with other national departments on policy, legislation and other sector issues
 - Promoting good practice
 - Developing national strategies to achieve water sector goals

DWA had a role and responsibility regarding research and development, envisaged by national science and technology policy. The DWA, as the sector leader, had the primary responsibility for liaison with the Department of Science and Technology (DST) and for the drafting of a sector Research and Innovation (R&I) strategy that meets the needs of the sector and dovetails with the national R&D (research and development) policy and strategy.

7.1.1.3 Provincial Government

The 1997 White Paper indicated that provincial and national government share a number of responsibilities in the water sector, particularly matters such as the environment and pollution control. These were concurrent national and provincial functions, which need to be addressed in the spirit of cooperative governance (DWA, 1997;12). Cooperative governance was thus a cornerstone of water resource management in South Africa.

The NWA assigns responsibility to the National Council of Provinces to consider, and option to reject, any water regulations tabled by the Minister responsible for water (South Africa, 1998).

The Constitution states that "government was constituted as national, provincial and local spheres of government which were distinctive, interdependent and interrelated" (s 40(1)) (South Africa, 1996). The Constitution allocates government functions on either an exclusive, or shared (concurrent), basis. The bulk of social services were shared competencies between the national and provincial governments. The provinces' function was largely that of implementation within the national framework. Although provinces were "distinctive", they exercised their powers and performed their functions within the regulatory framework set by the national government, which was also responsible for monitoring compliance with that framework. It was this relationship of regulation and supervision that defined how the three spheres of government were "interrelated"; provinces and municipalities exercised their distinctive powers within imposed frameworks and under supervision.

According to the *Framework for National Water Sector Partnership Structures* (DWA, 2009), a number of structures had been established over the past fifteen years to facilitate cooperative governance, including formal high-level politically-led structures, such as the Provincial Water Liaison Committees; non-statutory provincial and district-level planning forums for engaging local

government; sanitation task teams at district, provincial and national levels; coordinative structures between SALGA, Department of Provincial and Local Government (now Cooperative Governance and Traditional Affairs) and Department of Water Affairs. Underlying these initiatives was a simple yet important acknowledgement that the management, development and delivery of water was a cooperative responsibility in the country that required cooperation and coordination by a number of departments, private sector and civil society. The culture of establishing platforms for formal partnerships was pivotal to the success of the water services programme and the institutional support of water services authorities in the past 20 years (DWA, 2009).

Since 1996 informal IGR forums had been formed along sectoral lines, consisting of national ministers and their provincial counterparts in so-called MinMECs (Layman, 2003). Minister with provincial MECs (MinMECs) performed multi-purpose functions:

- Information sharing and consultation.
- Consultation with supervised spheres on supervision issues.
- As a forum of cooperative government, they had been utilised to align policies and coordinate actions.

Layman (2003) did indicate that for IGR forums to function optimally there was a need to clarify their status, role, governing principles and the relationship between them and the executive authorities they comprise of. Uncertainty and confusion about the ground rules resulted in inconsistent practices, unreasonable expectations and unconstitutional conduct. These consequences were, unfortunately, not uncommon. Clarity on the ground rules of IGR forums was thus essential for the stability and predictability of the system of intergovernmental relations in the water sector.

7.1.2 Organisational Arrangements for Water Resource Management

According to the water policy, the intent of the organisations involved in water resource protection, conservation and management would be to:

- Intensify **national management and supervision**; the policy intent of the 1997 water policy was transformed into concrete strategies in the 2004 National Water Resource Strategy (NWRS), as well as the Second National Water Resource Strategy launched in 2013 (NWRS 2). The concept of Integrated Water Resource Management (IWRM) was coined after the first NWRS
- **Manage at a regional or catchment water management area** (which would coincide either with natural river catchments, groups of catchments, sub catchments or areas with linked supply systems with common socio-economic interests) – ensure that local policy did not interfere with the need for a national and international perspective on water use (DWA, 1997:6). The main responsibilities of CMAs were to manage water resources at catchment level in collaboration with local stakeholders, with a specific focus on involving local communities in the decision-making processes, in terms of meeting basic human needs, promoting equitable access to water, and facilitating social and economic development. In essence, CMAs were service-delivery agencies and were listed in the Public Finance Management Act, 1999 (Act 1 of 1999). There were nine CMAs in South Africa. See next section 1.1.3.1 for details on the Catchment Management Agencies (CMAs).
- **Phased establishment of catchment management agencies**, subject to national authority, (DWA, 1997:6). See section 1.1.3.1

- **Transfer to a public utility**, established for the purpose, the functions of the development and operation of the national water infrastructure linking regional catchments and systems (DWAF, 1997:6). See section 1.1.4.2 for full details.

The National Water Act (1998), in Schedule 4 of the Act, legislated the manner of establishment and operations of water management institutions. A water management institution was defined by the Act as a catchment management agency, a water user association, a body responsible for international water management, or any person who fulfils the functions of a water management institution in terms of this Act (South Africa, 1998). The Act indicated that a governing board of the water management institution:

- a) is responsible for the management of the affairs of the water management institution; and
- b) may exercise the powers of the institution.

The role of the boards in these institutions were to determine the strategies and policies to be followed by the institution; and to ensure that the institution exercises its powers or performs its duties in a proper, efficient, economical and sustainable manner (South Africa, 1998). The board was expected to carry out these functions as efficiently as possible and based on prudent commercial practice.

The Act indicated that the board of the management institution could appoint a suitably qualified person as chief executive officer of the institution, with the chief executive officer of the institution holding office on the terms and conditions determined by the board. The board could remove the chief executive officer of the institution from office (South Africa, 1998). The board must comply with a directive given by the Minister and thus was responsible to report to the Minister. However, the Act did not provide the Minister the opportunity to consult on the appointments to the boards of the water management institutions. Hence, the National Water Policy Report of 2013, include the new policy positions of:

The appointment of members to the Board and the Chief Executives of a water institution would be aligned with best practice models, the Presidential Review Committee Report and the PFMA.

The appointment of Chief Executives would be by the Board of the water institution, in concurrence with the Minister.

The Act also outline how the board members of the water management institution should perform their duties, including preparing business plans, for at least the first three years, which begins when the first financial year starts and must be not more than six months after the board was established. Subsequent business plans must be updated annually. Each business plan must be in the form determined by the Minister and:

- a) must set out the objectives of the institution;
- b) must outline the overall strategies and policies that the institution was to follow to achieve the objectives;
- c) must include a statement of the services which the institution expects to provide and the standards expected to be achieved in providing those services;
- d) must include the financial and performance indicators and targets considered by the board to be appropriate;
- e) may include any other information which the board considers appropriate; and
- f) must include any other information determined by the Minister.

Each business plan must include a financial target for the water management institution; must outline the overall financial strategies for the institution, including the setting of charges, borrowing, investment and purchasing and disposal strategies; must include a forecast of the revenue and expenditure of the institution, including a forecast of capital expenditure and borrowings; must provide for capacity building amongst its board members and officials; could include any other financial information that the board considers appropriate; and must include any other financial information determined by the Minister (South Africa, 1998).

The Presidential Review Committee on State Owned Entities (SOEs) Report (2012) Volume 1 indicated that, despite an attempt to harmonise and formalise recruitment practices by SOEs in all three spheres of Government by publication of the *Handbook for the Appointment of Persons to Boards of State and State-Controlled Institutions*, the Handbook was used only sporadically in these appointments. The PRC had identified a number of issues and challenges with the current framework for recruitment, selection, appointment and induction of boards of SOEs. These include:

- The absence of a clear legislative framework for recruitment, selection, appointment and induction of boards of SOEs; and
- The lack of uniformity in the application of appointment procedures, not least in respect of to each category of SOEs.

Water management institutions, which were outlined in the policy, and discussed in the following sections of this document, include catchment management agencies and water user associations (WUA) and Irrigation Boards (IBs).

Catchment Management Agencies (CMAs)

According to the water policy, the intent of the water organisational structure for water resource protection, conservation and management is that the management of water resources would be at a regional or catchment water management area and to ensure that local policy did not interfere with national and international imperatives on water use (DWAF, 1997:6). Principle 23 of the White Paper on a National Water Policy for South Africa advocates that responsibility for the development, apportionment and management of available water resources shall, where possible and appropriate, be delegated to a catchment or regional level in such a manner as to enable interested parties to participate (DWAF, 1997:50 and 62).

The extent of responsibility assigned by the policy to these catchments or regional organisations could have a wider or more restricted range of functions, depending on the requirements of the specific catchment/s and systems within their jurisdiction, their capacity to undertake the management tasks, and policy decisions on the overall approach (DWAF, 1997:52).

The concept of catchment management agencies (CMA) was legislated in the NWA in great detail in Chapter 7 (sections 77 to 90) covering all aspects around CMAs, including establishment (77 and 78), powers and duties (section 79, initial functions (section 80) whilst sections 81 to 83 deals with the governing board of the CMAs (South Africa, 1998). Subsequently funding, litigation and delegation of powers were covered in sections 84 to 86 and the last four sections on CMAs (87 to 90) deal with interventions, disestablishment, transfer of assets and liabilities and regulations.

This intent of local development, apportionment and management of water resources by CMAs would only be achieved if such delegation occurred hand in hand with systematic capacity building and effective monitoring and support from the national Department (DWAF, 1997:50). What was mostly

indicated in this section of the 1997 water policy was that there should be decentralised catchment management functions in the medium and long term whilst capacity need to be built in the short term be able later to transfer or delegate such functions.

The policy envisages a phased establishment of Catchment Management Agencies (CMAs) in the country, subject to national authority (DWAF, 1997:6). This policy intent was indeed implemented starting with the Nkomati CMA in Mpumalanga and the Breede River CMA in the Western Cape. The governing boards of the CMAs had been legislated in sections 81 to 83 of the NWA (South Africa, 1998) and to be more specific, the balance of interests was covered in section 81 (1) that stipulates: “the Minister, in making such appointment, must do with the object of achieving a balance among the interests of water users, potential water users, local and provincial government and environmental interest groups”. Section 81 in subsection 81 (10) further provided for the Minister to appoint additional members in order to achieve amongst others also “sufficient gender representation” or “obtain expertise necessary...” (South Africa, 1998).

The policy highlighted that the national Department would need to promote the establishment of these organisations, support the functioning of Catchment Management Agencies (CMAs) and provide guidelines and standards for the management of these activities (DWAF, 1997:52). Any functions carried out by a CMA would need to happen within the parameters of these national policy and standards (DWAF, 1997:52). Section 79 of the NWA ruled that its powers must be “consistent with this Act”, which practically means that a CMA had extensive powers within its area of jurisdiction but it must still act within the NWA and regulations gazetted in terms of this legislation (South Africa, 1998). National government also needed to approve the catchment management plans of CMAs and when combined, these plans would constitute the basis of a national water management plan (DWAF, 1997:52). There was no specific clause in the NWA stipulating that the Minister must approve a catchment management strategy although the practice had been established in the then DWAF that such strategies were submitted to the Minister for formal approval (South Africa, 1998).

For Catchment Management Agencies to be successful and to implement sustainable and participatory water management strategies, the water policy advocated the building of capacity in marginalised and disadvantaged groups, as well as at a technical level. As women were an important group, particularly in rural areas, they would be targeted by capacity building programmes of CMAs (DWAF, 1997:54). The Women in Water Project aims to strengthen the active participation of rural women in water resource management. Women identify water-related challenges in their communities and conceptualise ideas to address them. They were registered for Women in Water awards. The national winners received cash prizes, which were used for further project development and implementation.

The Government and all other players were also required to be involved in partnership activities for capacity building at a catchment level (DWAF, 1997:54). There were several such practical examples, e.g.: the then DWAF, with the assistance of the Royal Danish Government, initiated a programme in 2000 to pilot IWRM approaches in three water management areas of South Africa: Crocodile West–Marico (mainly in North West), Mvoti to uMzimkulu (KwaZulu-Natal) and Olifants-Doorn (mainly in the Western Cape). These water management areas were selected as they represented a cross-section of water resources conditions, as well as water-use conditions and user interests.

Where CMAs were not established, the policy intent was that the Department (or a delegate) would carry out the management functions until they could eventually be handed over to such an agency

(DWAF, 1997:52). Where this approach was adopted, a catchment advisory committee would need to be established to enable water users and those who impact indirectly on water quality or quantity to participate in water management (DWAF, 1997:52). This would provide a focus for the development of local capacity to undertake an increasing range of water management functions (DWAF, 1997:52). The practical implementation of this policy took place through the creation by the DWA of a Regional Steering Committee (RSC) that work with officials in developing the Business Case for a CMA. Once the Business Case was approved by the Minister, and the CMA and its governing board had been established, the RSC was then transformed into a Catchment Management Forum (CMF) that continued to act as the liaison body between the CMA and water users, and those who impact indirectly on water quality or quantity. Catchment Management Forums (CMF) were non-statutory bodies, established to democratise participation in water resource management and to support Catchment Management Agencies (DWA, 2013b). CMFs were important structures for facilitating stakeholder representation in the establishment of CMAs and were envisaged to play an active role in assisting CMAs in carrying out their functions (DWA, 2013b). CMFs were envisaged to become an appropriate vehicle to foster cooperative governance between the CMA, local government and other stakeholder interest groups, in the interests of integrated management (DWA, 2013c).

The policy intent was also that CMAs must be financially viable (DWAF, 1997:52). This policy intent was covered in section 79 (2) (c) of the NWA that stipulates that a CMA must “*act prudently in financial matters*”, whilst the funding of a CMA was catered for in section 84 of the NWA. (South Africa, 1998)

A vital component of the water supply mechanism was the catchment area itself, the development of which must be managed according to sound environmental and resource allocation principles (DWAF, 1994:30). The policy indicated that organisations, such as water boards and irrigation boards, would interact with the CMA primarily as stakeholders within the catchment; however, given the limited water management expertise available, it could be appropriate in some circumstances to delegate certain functions to them (DWAF, 1997:53). Section 86 of the NWA made provision for the delegation of powers by a CMA (South Africa, 1998).

South Africa had made slow progress in gazetting Catchment Management Agencies in the country. The Minister, in July 2012, gazetted the reduction of the number of Water Management Areas from the original 19 to the 9 shown in Table 10. Current indications were that 6 of the 9 CMAs had been established and one additional CMA proposal had been gazetted.

Table 10: Water Management Areas with progress with establishment of CMAs in each of the WMAs

WATER MANAGEMENT AREA	MAJOR RIVERS IN THE CMA	CMA NAME	PROGRESS	GAZETTE DATE AND NUMBER
1. Limpopo:	Major rivers include the Limpopo, Matlabas, Mokolo, Lephala, Mogalakwena, Sand, Nzhelele, Mutale and Luvuvhu	Limpopo-North West Catchment Management Agency	Established	23 could 2014: Gazette No. 409
2. Olifants:	Major rivers include the Elands, Wilge, Steelpoort, Olifants and Letaba	Olifants Catchment Management Agency	Established	27 Feb 2015: Gazette No. 167
3. Inkomati·Usuthu:	Major rivers include the Nwanedzi, Sabie, Crocodile (East), Komati and Usuthu	Inkomati-Usuthu Catchment Management Agency	Established	2 could 2014: Gazette No. 330
4. Pongola-Mtamvuna:	Major rivers include the Pongola, Mhlatuze, Mfolozi, Mkuze, Thukela, Mvoti, Umgeni, Umkomazi, Umzimkulu and Mtamvuna	Pongola-Umzimkulu Catchment Management Agency	Established	23 could 2014: Gazette No. 411

WATER MANAGEMENT AREA	MAJOR RIVERS IN THE CMA	CMA NAME	PROGRESS	GAZETTE DATE AND NUMBER
5. Vaal:	Major rivers include the Wilge, Uebenbergsvlei, Mooi, Renoster, Vals, Sand, Vet, Harts, Molopo and Vaal	Vaal River Catchment Management Agency	Proposal for establishment	20 Feb 2015: Gazette No. 107
6. Orange:	Major rivers include the Modder, Riel, Caledon, Kraai, Ongers, Hartbees and Orange			
7. Mzimvubu to Tsitsikamma:	Major rivers include the Mzimvubu, Mtata, Mbashe, Buffalo, Nahoon, Groot Kei and Keiskamma, Fish, Kowie, Boesmans, Sundays, Gamtoos, Kromme, Groot and T sitsikamma			
8. Breede-Gourttz:	Major rivers include the Breede, Sonderend, Sout, Bot, Palmiet, Gouritz, Olifants, Kamanassie, Gamka, Buffels, Touws, Goukou and Ouiwenhoks	Breede-Gouritz Catchment Management Agency	Established	23 could 2014: Gazette Number 412
9. Berg-Olifants:	Major rivers include the Berg, Diep, Steenbras, Olifants, Doorn, Krorn. Sand, and Sout			

Figure 26 shows the position of each of the CMAs and progress with establishment of each of the CMAs in South Africa.

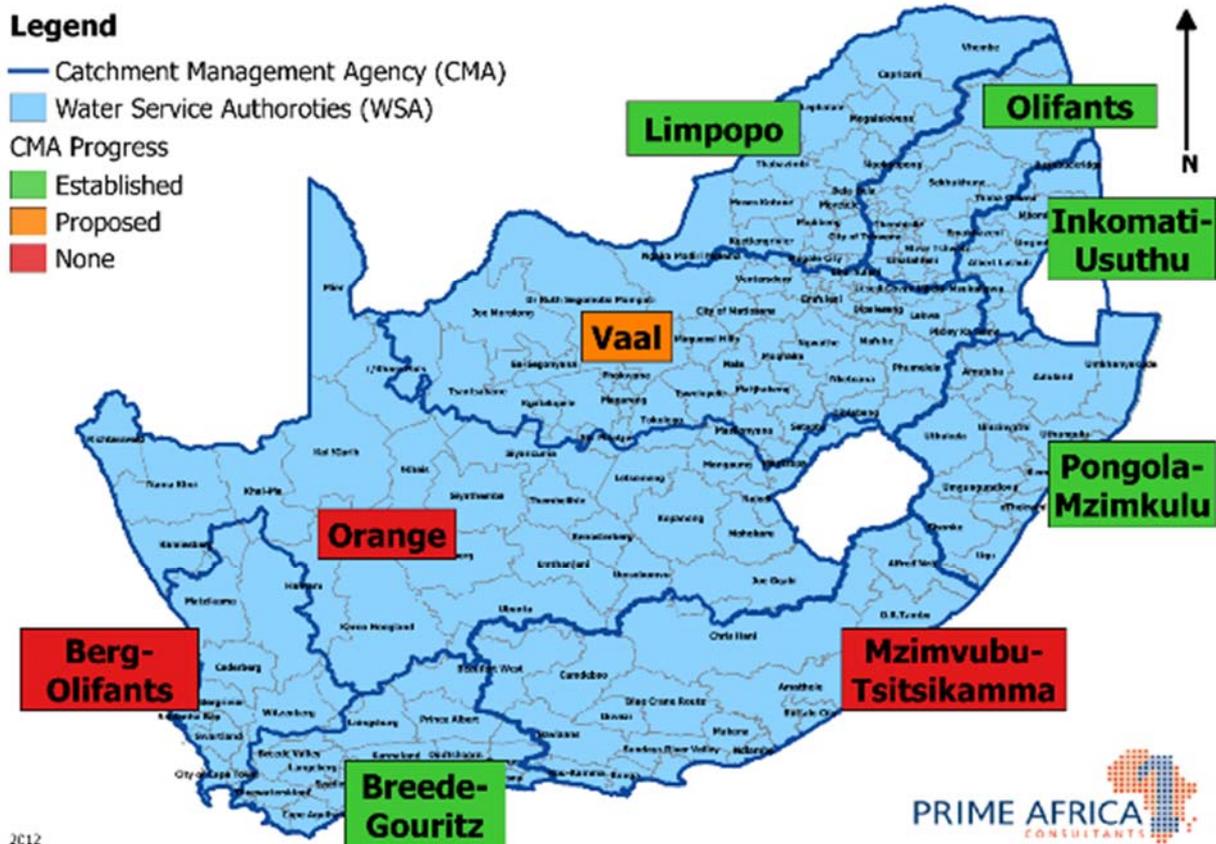


Figure 26: Progress in the establishment of CMAs in South Africa. Green CMAs indicate established, orange indicated proposal for establishment and red indicated still to be established.

The NWRS2 indicated that by 2013 *slow delegation of functions, with the associated authority and responsibility and delays in the transfer of funds, had impeded the effective functioning of Catchment Management Agencies (CMAs)* (DWA, 2013b). Looking toward the future, the NWRS2 suggests a number of activities to speed up the establishment and operationalisation of the CMAs in the country, including:

- the rationalising of 19 CMAs into 9 viable CMAs, which would undertake water resource management for each of the nine newly defined water management areas by 2016.
- The functions to be delegated to CMAs would include:
 - Water use authorisation
 - Water resources protection
 - Compliance monitoring and enforcement
 - Coordination of water conservation and water demand management programmes
 - Water quality management
 - Establishment and oversight of WUAs
 - Water resources planning
 - Water resources information management
 - Billing and collection of water use charges
 - Coordination of disaster management
- The DWA would assist CMAs to build capacity to carry out these delegated functions as soon as was practically possible.
- The eight CMAs where progress in establishment of management structures had occurred were to be disestablished and consolidated to align with the nine redefined water management areas.
- The two established CMAs, the Inkomati and the Breede-Overberg CMAs, were to receive priority attention to be realigned into the Inkomati-Usuthu and the Breede-Gouritz CMAs, respectively.
- CMAs would be obligated to support the creation and maintenance of CMFs and to ensure their participation in the formulation of the CMS. In this way, the intention in the National Water Act of ensuring responsible public participation in water resource management could be realised.

The ability of the CMA to carry out each of these functions would determine the rate at which these functions would be delegated.

International Policy Benchmarking Practices and Progress related to River Basin Agencies

While South Africa refers to the regional water management agencies as CMAs, many countries refer to River Basin Agencies (RBAs) or River Basin Organisations (RBOs) for similar institutions.

Brazil, Mozambique and Swaziland were some of the countries that mandate river basin management responsibilities to an RBA or RBO.

Brazil

In 1997, Brazil implemented a National Water Resource Policy (NWRP), an encompassing water reform that subscribes to the tenets of integrated water management. Since the early 1990s, several states had undertaken local level water reform, creating their own committees and water agencies (Porto and Kelman, 2000). Table 11 below presents five of the twelve hydrographic regions in Brazil

and the respective basins falling under federal jurisdiction. The River Basin Committees and Water Agencies established so far were in the Southeast, South and Northeast regions of Brazil (Porto and Kelman, 2000). These were regions where the industrial and financial centres were located, with its water resources under a demand relationship, due to excessive consumption and pollution of the large urban areas.

Table 11: NWRP instruments in Brazil's hydrographic regions (ANA: 2010; 2011)

Hydrographic regions	River basins	WRM institutional framework			WRM instruments ³				
		River Basin Committees	Water Agencies	river basin management	classification of water bodies	water permits	water charges	water resource	
Atlantico Sudeste	Doce	Yes	No	Yes	Yes	Yes	Yes	Yes	
	Paraiba do Sul	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Parana	Paracicaba, Capivari, Jundiá	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Paranaíba	Yes	No	No	No	Yes	Yes	Yes	
	Grande	Yes	No	No	No	No	No	No	
	Parapanema	Yes	No	No	No	No	No	No	
Sao Francisco	Sao Francisco	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Verde Grande	Yes	No	Yes	No	Yes	No	No	
Atlantico Nordeste Oriental	Paranhad Acu	Yes	No	No	No	Yes	No	No	
Tocantins/Araguaia	Tocantins	No	No	Yes	No	No	No	No	

According to the National Water Agency (ANA), the regulatory agency responsible for the implementation and operationalisation of the National Water Policy instruments, the creation of committees in these regions was directly related to conflicts over quantitative and qualitative availability of water (ANA, 2009). In the remaining seven river basins (Amazônica, Paranaíba, Atlântico Nordeste Ocidental, Atlântico Sul, Atlântico Leste, Uruguai and Paraguai) under federal jurisdiction, no institutional bodies or instruments had been established (ANA 2009).

Swaziland

The Swaziland Water Act of 2003, mandated enhanced stakeholder participation and decentralisation of water resource management (Swaziland, 2003). The Act legislated the establishment of:

1. A **National Water Authority (NWA)**: envisaged to be a highly participatory body corporate whose role was to supervise the activities of the Basin level structures and to provide policy advice to the Dept of Water Affairs.
2. **River Basin Authorities (RBAs)**: mandated to manage dams and river-based resources by issuing water user permits amongst other responsibilities. Currently five RBAs exist in Swaziland, i.e. Lomati, Komati, Mbuluzi, Usuthu and Ngwavuma.

³1= river basin management plans; 2= classification of water bodies; 3= water permits; 4= water charges; 5= water resource information system

3. **Irrigation Districts (IDs):** were gazetted body corporates of a $\frac{2}{3}$ majority of water users in a district who were mandated by the Act to control the operation and maintenance of works in the district and the distribution of permitted volumes of water in accordance with permits. The ID could also perform functions at the conveyance of the Minister. The ID was governed by a board of directors.
4. **Water User Associations (WUAs).** At the approval of the ID board, a WUA of holders of permits in an area or watercourse/river system could be formed. The objective of the WUA was to maximise the benefits from their permitted water and promote efficient use thereof. The ID board could also delegate to a water user association certain power.

Since the adoption of the new Water Act (2003), Swaziland had adopted a decentralised designation of powers to guide the future of water development and management in the country. However, the literature indicated that the overall transformation and decentralisation process in the country had been slow and not yet taken place, largely due to a lack of funding.

Mozambique

The Mozambique water policy was preceded by the promulgation of the new Water Law (Water Law (Law 16/91, of August 3, 1991) (Government of Mozambique, 1991). According to the new Water Act, the National Water Directorate within the Ministry of Public Works and Housing (MOPH) was responsible for formulation and implementation of water policy in the country, as well as the planning and management of water resources and the provision of rural water supply and sanitation and reporting (Limpopo River Awareness Kit, undated). However, activities related to irrigation and drainage were the responsibility of the National Directorate for Agricultural Hydraulics (DNHA) within the Ministry of Agriculture and Rural Development (MADER).

The MOPH had provincial directorates of Public Works and Housing (DPOPH) within each of which was a Department of Water and Sanitation (DAS). DPOPH plays a facilitative and supervisory role at Provincial level.

The sector was still highly centralised, with funding proposals and new sector initiatives coming from central government.

Article 18 of the Water Law, required the establishment of regional water authorities (*Administração Regional de Águas – ARA*) to direct regional water resources management. The ARAs maintain financial and organisational autonomy, but report to the National Water Directorate (Limpopo River Awareness Kit, undated). Currently five RWA were envisaged in the Act, namely (Figure 27):

- ARA Sul, that covers the south border of the country to the basin of the Save river;
- ARA Centro, that covers the basin of the Save river to the basin of the Zambezi river;
- ARA Zambezi that covers the basin of the Zambezi river;
- ARA Centro Norte - that covers the region from the basin of the Zambezi river to Lurio river and
- ARA Norte - that covers the basin of the Lúrio river to the northern border.



Figure 27: Regional Water Authorities of Mozambique (taken from Limpopo River Awareness Kit, undated)

The Water Law of 1991 provided for a limited role of stakeholders in water resources management, mainly through the Basin Committees (GWP, 2008). These Basin Committees had a consultative role only.

The decentralisation approach to water management had been applied in Mozambique; however, according to the literature there were still challenges. The ARA-Sul (2011) indicated that the following were still required under the decentralised management of river basins: 1) improving stakeholder participation; 2) implementation of integrated water resource management; 3) enforcement of the role of Regional Water Agencies; 4) some users still extract water without formal permission (ARA-Sul, 2011 in Matsinhe, 2012).

Irrigation boards

The South African policy intent on Irrigation Boards was that the administration of these organisations would revert to the Department of Water Affairs and Forestry (DWA, 1994:29). The policy of the Government on Irrigation Boards was similar to the policy for Water Boards, with the policy indicating that a strategy of rationalisation and democratisation of these organisations was expected to be implemented in due course (DWA, 1994:30). The concept of irrigation boards was replaced in the NWA by another water institution namely the Water Users Associations (WUA) and the concept was explained in the preamble to chapter 8 of the NWA dealing with the WUAs in sections 91 to 98 and was quoted here (South Africa, 1998):

“Although water user associations were water management institutions their primary purpose, unlike catchment management agencies, was not water management. They operate at a restricted localised level, and were in effect co-operative associations of individual water users who wish to undertake water-related activities for their mutual benefit. A water user association could exercise management powers and duties only if and to the extent these had been assigned or delegated to it. The Minister establishes and disestablishes water user associations according to procedures set out in the Chapter. A water user association for a particular purpose would usually be established following a proposal to the Minister by an interested person, but such an association could also be established on the Minister's initiative. The functions of a water user association depend on its approved constitution, which could be expected to conform to a large extent to the model constitution in Schedule 5. This Schedule also made detailed provisions for the management and operation of water user associations. Although water user associations must operate within the framework of national policy and standards, particularly the national water resource strategy, the Minister could exercise control over them by giving them directives or by temporarily taking over their functions under particular circumstances.

Existing irrigation boards, subterranean water control boards and water boards established for stock watering purposes would continue in operation until they were restructured as water user associations”

The amount of water that these Irrigation Boards were permitted to use was determined by an allocation or apportionment made by the Department of Water Affairs and Forestry (DWA, 1994:30). Where existing allocations of water did not allow for equitable access to all, or where they place a restriction on development for a particular sector of people, the Department would investigate far reaching re-allocations (DWA, 1994:30). Refer to section 6.1.3.3 below dealing with water allocations for further detail.

Progress with transformation of Irrigation Boards into Water User Association and establishment of new WUAs had been extremely slow in South Africa. In 2006, indications were that 279 Irrigation Boards (IBs) were required to transform to WUAs. However, the NWRS2 indicated that only 92 of the IBs had transformed into 50 WUAs by 2013. Currently, indications are that the transformation had not progress significantly as 129 IBs are still required to transform (DWA, 2013c). At the time of the NWRS2 (2013) only 90 WUAs had been established in the country.

REGION /WMA	ESTABLISHMENTS OF NEW WUAs	TOTAL IBs TO BE TRANSFORMED	WUAs FROM TRANSFORMATIONS OF IRRIGATION BOARDS (No of Irrigation Boards)
GAUTENG	0	4	0
NORTH WEST	0	20	0
LIMPOPO	7	7	2
FREESTATE	4	8	3 (5)
MPUMALANGA	1	44	1
KZN	1	28	4
NORTHERN CAPE	6	22	3(5)
EASTERN CAPE	0	33	3(18)
WESTERN CAPE	4	113	22(33)
TOTAL	23	279	38 (68)

It was largely due to this slow progress in transforming local water management institutions that the Minister responsible for water amended the National Water Policy to disestablish WUAs in South Africa. The currently policy position on WUAs was therefore, that (DWA, 2013a):

A CMA, in consultation with the Minister, would determine the water institutional structures required to manage water within their jurisdiction.

The Minister would specify a date by which WUAs and Irrigation Boards (IBs) would cease to exist, with the appropriate functions related to a state-owned water scheme being delegated to a CMA or Regional Water Utility.

WUAs and IBs would thus, by a Minister specified date, cease to exist in the country, being replaced by local water management institutions the CMA and Minister deem necessary to manage water in their jurisdiction.

National Water Advisory Council

The NWP's indicated that a National Water Advisory Council be established to ensure that a wide cross-section of South African society, representing all water users, had the opportunity to comment and advise on all aspects of water in the country. This advisory council could play an important role in advising on priorities, monitoring progress and ensuring that equity was achieved.

At this point the legal and institutional differences between a committee and a council should be flagged. Although, according to the Oxford dictionary, these words were synonyms, the practical connection of the word "council" with well-known entities, such as municipal councils, had the implication that councils were seen in the South African context as executive bodies, whilst a committee would be solely there to advise and guide. In other words, a committee performs those tasks assigned by the power that appointed them whereas a council has more independence. This had the result that "advisory committees" was legislated not in the Water Services Act in 1997 but later in the National Water Act (Section 99), although this committee appointed by the Minister was often called the "National Water Advisory Council", which in practice often led to debates within their meetings (South Africa, 1998).

Section 99 of the NWA stipulates that the "*Minister could establish an advisory committee.... determine its functions.... the need for the committee to represent various interests*" which had the

clear intention to work with the water sector both private sector and civil society as well as drawn from established expertise outside of government (South Africa, 1998).

Chapter 9 of the NWA empowers the Minister to establish advisory committees, with each advisory committee being established for a particular purpose (South Africa, 1998). The NWA recognises that it was possible for a variety of advisory committees to be established with different purposes and functions. The Minister was mandated to determine the purpose and function of the committee, make appointments to the committee and disestablish such a committee in Chapter 9 of the NWA (South Africa, 1998).

7.1.3 Policy Instruments

The development of the water and sanitation policies required a shift in the manner in which water was managed (see section 2.1.5). New approaches to water management were needed (DWAF, 1997:33).

These new approaches to water management and service provision, according to the policy, needed to focus on the way in which water was used (efficiency, effectiveness and demand management) in each user sector rather than simply on predicting, planning and supplying water needs (DWAF, 1997:33). Water management would focus instead on promoting the optimum use of water (DWAF, 1997:33). As pressure on the resource grew, it was necessary to give as much attention to limiting water use as to supplying it. Concomitant to controlling water demand, South Africa also needed to make water available for new users without harming the interests of existing users (DWAF, 1997:33). The policy mandated a systematic approach to water resource conservation, linked to the resource protection policy (DWAF, 1997:33).

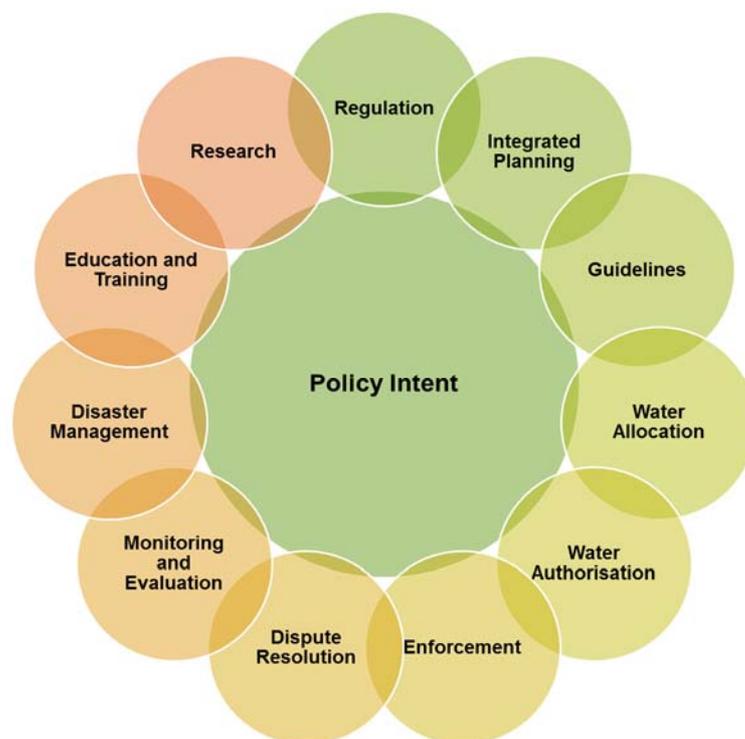


Figure 28: Policy instruments outlined in the water and sanitation policy to support addressing the objectives of the policy

To address the above policy intents, a number of policy instruments were recommended by the policy as the means for government to achieve public policy outcomes. These policy instruments were broadly defined as the “means by which policy objectives were pursued.” The instruments, which were outlined in the policy to achieve the water objectives in South Africa, include those shown in Figure 28. Each of these instruments is discussed in more detail below.

7.1.3.1 Water regulation

The policy indicated that all major water user sectors must develop a water use, conservation and protection policy, with regulations being introduced to ensure compliance with the policy in key areas (DWAF, 1997:5). The new water law, which would emanate out of the policy, needed to provide for the regulation in the public interest of all existing water claims and future allocations (DWAF, 1997:25). Although the term “water regulation” had not been coined in the NWA or the WS Act, various sections in these acts addressed the various aspects or dimensions of regulation. For example, the NWA addresses regulation under topics such as “prevention and remedying effects of pollution (section 19); control of emergency incidents (section 20); conditions of general authorisations and licences (section 21); controlled activities (section 37); general authorisations (section 39); and various aspects of licences, including compulsory licensing, and the review and renewal of licences (sections 40 to 52). Other relevant sections in the NWA deal with dam safety regulation (sections 117 to 123), and appeals and dispute resolution, including the working of the tribunal (sections 146 to 150). Lastly, these were followed by sections 151 to 155 dealing with offences (South Africa, 1998).

The evolution of the regulation concept in South Africa was obvious from the NWRS2 as the word “regulation” did not even feature in the NWA (although implied as discussed above), whilst the NWRS2 dedicates a complete chapter to discuss regulation. The following section from the NWRS2 was useful to quote here:

“Regulation of the water sector and of the use of water was a critical element of effective, equitable and sustainable water management of water resources and the delivery of sustainable and appropriate water services.

Regulation and oversight Regulation aims to change the behaviour of water users and water institutions to ensure the sustainable and equitable use, protection, conservation, and development of the nation’s water resources.

The Minister, as a shareholder in a number of water sector institutions, plays a role in providing strategic guidance and oversight to these organisations, which was different from the regulatory role of various organs of state. The DWA regulated water use even under the 1956 Water Act through, for example, issuing water permits, setting discharge standards and regulating dam safety. Under the National Water Act, the scope of this regulatory role had expanded considerably....in relation to water resources, the DWA plays the major role, although elements of these regulatory functions would be transferred to CMAs in due course. The DWA’s mandate was derived from the Constitution, the National Water Act and the Water Services Act. Successful implementation of the broader scope of regulation under the NWA remained a challenge that must be addressed by the DWA and other water sector institutions over the next period.” (DWA, 2013b)

In regulation of water resources, the DWA plays the major role, although elements of these regulatory functions would be transferred to CMAs in due course (DWA, 2013b). The NWRS2 did indicate that

regulation related to the NWA remained a challenge that must be addressed by the DWA and other water sector institutions over the next period.

The scope of water regulation that was the responsibility of the national department (some which would be delegated to CMAs in future) encompassed:

- Water use authorisation: the department was responsible to regulate water use authorisations with the principles of the equitable and sustainable use of water in the public interest.
- Drinking water quality and wastewater discharge regulation: the department must regulate the minimum standards for drinking water provision through SANS 241, and for wastewater discharge through license conditions and general authorisations.
- Infrastructure regulation: the department must regulate that water infrastructure was functional, properly operated and maintained, appropriate for present and future needs, met public health and safety standards and was sufficiently durable for a realistic economic life expectancy, largely through norms and standards regulations; SANS standards, and policy and legislative requirements.
- Regulation of corporate governance: the department must regulate the water sector institutions to ensue with legislation and rules that govern the behaviour of organisations and functionaries in the public sector
- Regulation of qualification: the department must regulate that process controllers and other functionaries responsible for operating water and wastewater works had the requisite skills and that courses offered by training institutions were accredited to the appropriate standards, using regulations such as Regulation 17.
- Regulation of competition: to ensure fair competition where appropriate.
- Economic and social regulation: the department needs to regulate that pricing was appropriate and pro-poor while still ensuring sufficient funding from revenue and the fiscus to maintain appropriate service standards and sustainable infrastructure, utilising instruments such as the Norms and standards for water services tariffs.

The NWRS2 indicated that *despite the progress, there were still a number of challenges facing the regulation of water use in the country.* To address the challenges in regulation of water resource the NWRS2 recommended the following principles to be applied in the country:

- Equity
- Administratively fair and just procedures
- Predictability in the regulatory framework
- Minimal regulation
- Transparency
- Information based
- Appropriate institutional operating framework
- Adequate capacity
- Comprehensive regulation

Activities and interventions the NWRS recommended to address some of the regulation challenges in the country include:

- Amendment of water legislation where necessary
- Development of a comprehensive regulatory framework

- To regulate water, use a call for compulsory licensing would be made for stressed catchments to ensure equitable allocation of water and to impose appropriate conditions across these catchments
- Strengthening of compliance monitoring and enforcement capacity to take strong action against illegal water use in accordance with the enforcement protocol.
- Revising the national standards for the provision of water services and liaising with the DCoG to ensure that WSAs develop, promulgate and implement water-related by-laws in compliance with national norms and standards.
- Enforcement of compliance with Section 18(2) of the Water Services Act, which required WSAs to report annually on the implementation of their WSDP and on a water audit.

The DWS had initiated a Compliance, Monitoring and Enforcement (CME) Chief Directorate, which was tasked with enforcement, monitoring and enforcing compliance for infractions of stated rules, with the intention of eliminating undesirable conduct. The objectives of enforcement by the DWS were to set actions (pro-active enforcement, administrative, criminal and civil) that can be taken against non-compliance (Adams, 2015):

- (a) to enforce compliance with the National Water Act (Act NO. 36 of 1998) and other relevant legislation;
- (b) to ensure successful prosecution throughout the water value chain;
- (c) to provide business processes to guide activities, information flow, roles and responsibilities;
- (d) to guide regular, strategic, effective and efficient enforcement processes with regard to water and other relevant legislation;
- (e) to inform, consult and make all stakeholders aware of the principles that will guide enforcement action in the event of suspected contraventions and prevent contraventions into water related legislation; and
- (f) to achieve progressive improvement of enforcement to legislation.

The DWS has experience challenges in enforcement of regulatory interventions, due to capacity constraints, incomplete clarity on water use and allocation across the country, limited up-to-date and accurate data and limitation was areas of the implementation of the Waste Discharge Charge System and Acid Mine Drainage issues (Adams, 2015).

Water use regulations

Section 26 of the NWA mandated regulations on the use of water in the country, and legislates the Minister to make regulations (South Africa, 1998):

- a) limiting or restricting the purpose, manner or extent of **water use**;
- b) requiring that the use of water from a **water resource be monitored, measured and recorded**;
- c) requiring that any water use be **registered with the responsible authority**;
- d) prescribing the outcome or effect which must be achieved by the **installation and operation of any waterworks**;
- e) regulating the **design, construction, installation, operation and maintenance of waterworks** where it was necessary or desirable to monitor any water use or to protect a water resource;
- f) requiring **qualifications for and registration of persons authorised to design, construct, install, operate and maintain any waterworks**, in order to protect the public and to safeguard human life and property;

- g) regulating or prohibiting any **activity in order to protect a water resource** or instream or riparian habitat;
- h) prescribing **waste standards** which specify the quantity, quality and temperature of waste which could be discharged or deposited into or allowed to enter a water resource;
- i) prescribing the outcome or effect which must be achieved through management practices for the treatment of waste, or any class of waste, before it was discharged or deposited into or allowed to enter a water resource;
- j) requiring that waste discharged or deposited into or allowed to enter a water resource be monitored and analysed, and prescribing methods for such monitoring and analysis;
- k) prescribing procedural requirements for license applications;
- l) relating to transactions in respect of authorisations to use water, including but not limited to-
 - i. the circumstances under which a transaction could be permitted;
 - ii. the conditions subject to which a transaction could take place; and
 - iii. the procedure to deal with a transaction;
- m) prescribing methods for making a volumetric determination of water to be ascribed to a stream flow reduction activity for purposes of water use allocation and the imposition of charges;
- n) prescribing procedures for the allocation of water by means of public tender or auction; and
- o) prescribing-
 - i. procedures for obtaining; and
 - ii. the required contents of, assessments of the likely effect which any proposed license could had on the quality of the water resource in question.

The NWA mandated that when making regulations, the Minister must take into account all relevant considerations, including the need to (South Africa, 1998):

- a) promote the economic and sustainable use of water;
- b) conserve and protect water resources or, in stream and riparian habitat;
- c) prevent wasteful water use;
- d) facilitate the management of water use and waterworks;
- e) facilitate the monitoring of water use and water resources; and
- f) facilitate the imposition and recovery of charges

Specific regulations were gazetted to deal with General Authorizations (section 39) and early in 2015 a set of regulations was published for public comment regarding the procedural requirements for licence applications in terms of section 26(1) (k) of the NWA (South Africa, 1998).

Progress in the regulation of water through the licensing compliance in the country also had its own difficulties, including the following (Speelman et al., 2010a):

1. Duration: represent the period of the rights. In terms of duration, water license in South Africa had a specified duration of maximum 40 years. However, this license had to be evaluated at least every five years, at which time the conditions attached to licenses could change. This five-yearly revision had been shown to clearly influence investment decisions of farmers (Nieuwoudt and Armitage, 2004; Backeberg, 2006; Speelman et al., 2010b). Since the conditions attached to licenses could change at each review (for instance the volumes and timing of abstractions, the volume that could be stored, etc.), Nieuwoudt and Armitage (2004) found that farmers had the impression that their licenses were insecure.
2. Exclusivity: describes the extent to which others could be prevented from accessing the item/ resource or enjoying the benefits that flow from it. This element of property right specification was

most difficult to fully assign (Dragun *et al.* 1986 in Pagan and Crase, 2005) due to the common pool resource attributes of water resources and many of the non-extractive uses of water resource (e.g. uncongested recreational uses, riverine aesthetics, non-consumptive riverine ecological processes) were public goods. It would be unrealistic to place restriction, through water licensing, on the use of water for these purposes, or to charge people for water used in supplying these services (i.e. specification of private rights was inefficient). Consequently, while the NWA was fairly effective in specifying water rights for extractive and discharge water users (to ensure that all benefits and costs of their water use accrues to them), it was less clear in specifying water property rights in a way that would not undermine non-extractive public good uses of water.

3. Flexibility: defined the extent to which the right permits an alteration to the pattern of use transferability: encapsulates the ease with which a right could be passed to others. In the NWA, provisions were made regarding transferability of rights of use. It was stated that permanent transfers, constituting trade in water licenses, would be subject to all requirements for license applications. This means that the CMA had to approve every transfer (Speelman *et al.*, 2010c). Legislation was however, not very clear about the timing of the introduction of trade in water licenses (Perret, 2002; Backeberg, 2006).

The NWRS2 indicated that in 2013, there was limited capacity to ensure compliance with conditions in water authorisations, which had led to high levels of illegal water use, and pollution from various sources, including from municipal wastewater treatment works. Illegal water abstractions, especially by irrigation farmers, present serious problems. Another major challenge in regulation of water use authorisations was the means to ensure accurate and up-to-date capturing of water use information on the Water Authorisation Registration Management System (WARMS) (DWA, 2013b). Regulation of water use authorisation thus did still require additional attention in the country.

Economic and social regulation

Economic regulation was an important component of regulation in the water sector and receives substantial attention internationally. However, in the South African context, economic regulation was often neglected in the water sector (DWA, 2013b). The NWRS2 indicated that current institutional arrangements of the economic or price regulator do not lend themselves to a clear separation of the policy and regulatory roles (DWA, 2013b). For example, the Minister, as a shareholder in a number of water sector institutions, plays a role in providing strategic guidance and oversight to these organisations, which was different from the regulatory role of various organs of state.

There had also been extensive debate on enforceability and justifiability of socio-economic rights (i.e. right to food, water, housing, etc.) over the past few years. Christiansen (2007) for example, argues that in South Africa, because the judiciary was already tasked with interpreting social rights in the South African Constitution by the Constitutional Assembly, concerns of transplanting responsibilities of the legislature to the judiciary do not apply. Brennan (2009) further argued that South African courts were not only obliged to adjudicate socio-economic rights, they had also been able to craft ways of retaining a separation of powers between legislature and the judiciary.

A number of mechanisms had been used to make water for productive use available to blacks. Among these were set-asides that included 2000 ha set-aside by the pre-1994 government in the Mhlathuze catchment, 800 ha set-aside in the Blyde irrigation area by Minister Asmal, and a further 12 000 ha

set-aside in the Orange River. The uptake of this 14 800 ha as set-asides had been slow due to a number of factors:

- Water had sometimes been set-aside in areas where potential beneficiaries had no access to land, e.g. the Blyde set aside could only be taken up after a land claim in the area had been settled in favour of the Molatele community.
- Potential beneficiaries had not been made aware of the possibility of applying for this water.
- In many cases, proximity to the water resource as well as lack of water delivery infrastructure had proved to be a challenge.
- Delays in carrying out feasibility studies into viable ventures where this water could potentially be used had caused some delays.
- Failure by Provincial Departments of Agriculture to support uptake of set-aside water by emerging farmers.

Sector specific regulations for compliance to conservation and protection policies

The NWRS2 indicated that since hydraulic fracturing (fracking) could pose a threat to groundwater and to the environment, there could be a need to declare fracking a controlled activity in terms of the NWA. This occurred in September 2013, when the Minister of Water and Environmental Affairs issued a notice of intention to declare fracking a controlled activity of the National Water Act, 1998 (Act 36 of 1998). The notice, which was published in the Government Gazette for public comment, included the exploration for and/or production of onshore unconventional oil gas resources. The department's key priority was to protect the environment and water resources, and take every precaution to ensure that the possible effect of fracking on water resources was carefully managed and minimised. An interdepartmental monitoring committee had been established for regulation of the exploration and production of unconventional oil and gas.

Enforcement

The policy objectives were to ensure the right balance between promotion and enforcement. The exact combination of incentives (promotion) and penalties (enforcement) could be situation-specific and should be flexible to different situations (DWAF, 1997:34). These must include methods for improving water use, incentives to encourage change and the penalties to punish any failure to change. Training and research were also essential to support new methods (DWAF, 1997:33).

The policy also recommended self-regulation through promoting better water utilisation and comparative information (benchmarking) of difference users. Promotion of better water utilisation through research, pilot projects, education, and general communication activities would work best within a supportive framework that included regulatory incentives and penalties (DWAF, 1997:34). The promotion of conservation and better use was an important function in its own right and the organisation of the national Department, its agencies and the user sectors themselves should reflect this (DWAF, 1997:34). Similarly, providing information on a comparative basis about how different users were behaving and what they were achieving could be very effective in identifying problem areas and encouraging action (DWAF, 1997:34).

Policy advocated the enforcement of protection of water resources occurring through a system of source-directed measures, including the registration of sources of impact, standards for waste discharges, best management practices, permits and impact assessments (DWAF, 1997:32). The use of directives and fines, and the ability to suspend or revoke permits and licences (DWAF,

1997:32), were effective options for dealing quickly and effectively with cases of pollution (DWAF, 1997:32). The use of regulatory measures to control damage to resources other than pollution, such as habitat destruction, would be introduced where appropriate (DWAF, 1997:32).

Where any person was convicted of an offense under this Act and (a) another person had suffered harm or loss as a result of the act or omission constituting the offense; or (b) damage had been caused to a water resource, the Court may, in the same proceedings-

- (i) at the written request of the person who suffered the harm or loss; or
- (ii) at the written request of the Minister in respect of the damage caused to a water resource; and
- (iii) in the presence of the convicted person,

enquire without pleadings into the harm, loss or damage and determine the extent thereof.

After making the determination in terms of section 152, the Court may-

- a) award damages for the loss or harm suffered by the person referred to in section 152 against the accused;
- b) order the accused to pay for the cost of any remedial measures implemented or to be implemented; and
- c) order that the remedial measures to be implemented, be undertaken either by the accused or the relevant water management institution.

A High Court may, on application by the Minister or the water management institution concerned, grant an interdict or any other appropriate order against any person who had contravened any provision of this Act, including an order to discontinue any activity constituting the contravention and to remedy the adverse effects of the contravention.

Part 10 of the NWA deals with the consequences of contraventions of license conditions (South Africa, 1998). These range from the responsible authority requiring the licensee to take remedial action, failing which it could take the necessary action and recover reasonable costs from that person, to the suspension or withdrawal of a license. Where a licensee offers to surrender a license, the responsible authority was obliged to accept the surrender and cancel the license unless there was good reason for refusal (South Africa, 1998).

The Department of Water and Sanitation (DWS) established the Blue Scorpions within the regulation unit with an aim to speed up awareness about criminally reckless use of water within the legal system. The Blue Scorpions work closely with other units within the DWS and with other law enforcement agencies to ensure compliance and monitor water use activities, and to act when there was noncompliance. In the first quarter of the 2007/8 financial year, the Blue Scorpions achieved a 7% eradication of the backlog of unlawful water use case. For the year, up until June 2010, 264 pre-directives were issued for illegal water usage by mines, the agricultural sector, Water Service Authorities (WSA), the industrial sector, and other sectors. For the same period, 97 directives were issued, 7 cases were taken to the Water Tribunal and 23 criminal cases against illegal water users were opened. The highest illegal usage of water was for irrigation (Nepfumbada, 2010).

The NWRS2 indicated a need for strengthening compliance monitoring and enforcement, particularly related to water conservation and water demand management (WCWDM) measures. Similarly, where conditions for water use had been set, such conditions will need to be enforced and compliance with such conditions monitored. The department will in future strengthen its compliance monitoring and

enforcement capacity to take strong action against illegal water use in accordance with the enforcement protocol. The DWA would also develop and ensure compliance with norms and standards for various water resource development options and strategies, such as groundwater management, rainwater harvesting, desalination, and water re-use, to provide guidance to the sector (DWA, 2013b).

7.1.3.2 Integrated Planning

Two key principles in the policy that underpin water sector planning, namely Principle 17 of the 1997 White Paper on a National Water Policy for South Africa, advocates that water resource development and supply activities be managed in a manner that was consistent with the broader national approaches to environmental management (DWA, 1997:62), and the principle of environment integrity – where the environment was considered and protected in all development activities.

The policy advocates that existing systems for promoting and controlling water development be reviewed to make sure that development that was in the public interest could continue to occur efficiently. Approaches would need to be introduced to ensure that development was implemented in a manner that was supportive of and compatible with the new goals of water policy and the relevant catchment management plan, whether they were implemented by Government or by private bodies (DWA, 1997:42and47). There was a need for an environmental impact evaluation of any water scheme (DWA, 1997:42), which had become standard practice for all water projects in order to comply with the National Environmental Act (NEMA).

A number of integrated plans were introduced to the water resource sector, to ensure integration as well as public participation in the planning process. These included:

- National integrated planning
- Catchment management plans (strategies);

National integrated planning

Some high-level strategies and plans that must be integrated with water planning to achieve national development objectives and outcomes, are highlighted below.

The Cabinet Lekgotla in January 2010 adopted 12 Government Outcomes, which were the key indicators for the National Government's Programme of Action for 2010 – 2014, and it was essential for the DWA to align the water sector and its strategies with these outcomes.

The NWRS2 provided the following summary to indicate how the water strategies were directly supporting and promoting at least 7 of the 12 the Government Outcomes:

- Outcome 2: A long and healthy life for all South Africans: Water was fundamental requirement for human health and well-being. The NWRS2 made provision for the allocation of water to meet basic human needs and included a sub-strategy for the protection of water resources.
- Outcome 5: A skilled and capable workforce to support an inclusive growth path. The NWRS2 recognises the importance of a technically competent workforce in the sustainable management of water resources and included a sub-strategy for water sector capacity building.
- Outcome 6: Provision for investment in water infrastructure to support economic development. The NWRS2 made provision for investment in water infrastructure to support economic development through a strategy for infrastructure development and management and the National Water Investment Framework.

- Outcome 7: Vibrant, equitable and sustainable rural communities with food security for all. The NWRS2 adopts the principle of 'source to tap and back to source' and the maximisation of local water resources to improve access to adequate water for domestic and productive use, particularly in rural communities. The equity and redress focus of the NWRS2 was in line with supporting Outcome 7.
- Outcome 8: Sustainable human settlements and improved quality of household life. The NWRS2 made provision for the allocation of water to meet basic human needs and water planning that supports local economic growth and job creation.
- Outcome 9: A responsive, accountable, effective and efficient local government system. The NWRS2 provided options for water resource development to meet water supply and sanitation services for a growing population and for the provision of higher levels of service.
- Outcome 10: Environmental assets and natural resources were well protected and continually enhanced. A strategic goal of the NWRS2 was the protection of water resources and associated aquatic ecosystems; and a sub-strategy for the protection of water resources and a regulatory framework for water resources were included.

South Africa was, at the time of the study, a water-stressed country and was facing a number of water challenges and concerns, including security of supply, environmental degradation and resource pollution. The limited water resources require careful management. The sustainability of the country's fresh water resources had reached a critical point and its associated management was now at a crossroads. The NWRS2 sets the strategic direction for water resource management in the country over the next five years, subject to continuous review, as required, with a focus on priorities and objectives for 2013 - 2017. It provided a developmental and transformational framework for the protection, use, development, conservation, management and control of water resources for South Africa, as well as the framework within which water must be managed at catchment level, in defined water management areas.

Catchment management plans

Policy outlines that it was in the public interest to ensure that the development and use of all surface, ground and unconventional water resources was undertaken in a way that was sensitive to the environment (DWAF, 1997:41).

The policy also indicated that it was clearly necessary to change the way in which the development of water resources takes place. In doing this, greater emphasis would have had to be placed on providing services to the unserved and on corrective programmes to meet the other needs of the majority of South Africans who were historically excluded from the benefits of water development (DWAF, 1997:41).

Similarly, the 1997 policy mandated that inter-basin transfers would have to meet special planning requirements and implementation procedures, which should involve agencies from both the donor and recipient catchments (DWAF, 1997:42). Catchments to which water would be transferred would have to show that the water currently available in that catchment was being optimally used and that reasonable measures to conserve water were in force (DWAF, 1997:42).

The main tool proposed to facilitate management at regional or catchment level was the use of a catchment or system management plan, which would be drafted within a nationally determined framework either by the CMA or in consultation with all role players where a CMA did not exist (DWAF, 1997:52). Section 80 of the NWA dealing with the initial functions of a CMA prescribes in section 80

(b) that one of such initial functions must be to develop a catchment strategy. The policy provided the structure of the catchment management plan, indicating that it should contain details of (DWAF, 1997:52):

The NWA changed the concept of a catchment management plan to a catchment management strategy with the same goals, and also provided in section 10 that the Minister could establish guidelines for the preparation of catchment management strategies (South Africa, 1998):

- water allocations,
- the requirements of the Reserve and international obligations,
- the main issues affecting water quality and quantity which require intervention,
- management goals for addressing the critical issues,
- potential management strategies and responsibilities for action to achieve these objectives, and
- financial arrangements.

With only two CMAs operational in South Africa, namely the Inkomati-Usutu and Breede-Gouritz CMAs, no CMS had been gazetted. The Inkomati CMA had gazetted a proposed catchment management strategy for comment, however the jurisdiction of the CMA had since been changed to include the Usutu WMA and thus the strategy would need to be revised. The Breede-Overberg catchment management strategy draft document was published in 2010. The jurisdiction of the CMA had also since been expanded, which necessitates a rewrite of the strategy.

According to the NWP, the general policy for development of groundwater would be flexible enough to provide guidance for the different needs of this development. The following additional provisions were to be made for groundwater development (DWAF, 1997:43) with a separate detail policy for groundwater to be developed addressing all the issues as listed here.

- Registration new wells;
- Registration of drillers should also be considered;
- Notice of intention to drill could be required in certain areas.
- Development must be carried out in the context of an adequate catchment management plan, based on an understanding of the sustainable yield of the local groundwater sources.
- Approval of drilling could thus include operating conditions to protect other users as well as the resource itself (DWAF, 1997:43)
-

7.1.3.3 Water Resource Guidelines

Water Allocation

Water policy highlights that in many areas of our country most of the readily available and reliable water resources were already allocated for use (DWAF, 1997:27). The policy reinforces that water allocation and use would need to assess competing water-uses at a catchment level on the basis of *optimum* use rather than simply beneficial use (DWAF, 1997:49). The concept of optimum use was legislated in section 27 of the NWA where it was clearly stated that before a general authorisation or licence was issued the responsible authority must take into account all the 11 relevant factors listed in that section and should not base such a decision on one or more that could be favoured. Whatever arrangement was introduced, it must be clear that it would remain subject to national authority (DWAF, 1997:49).

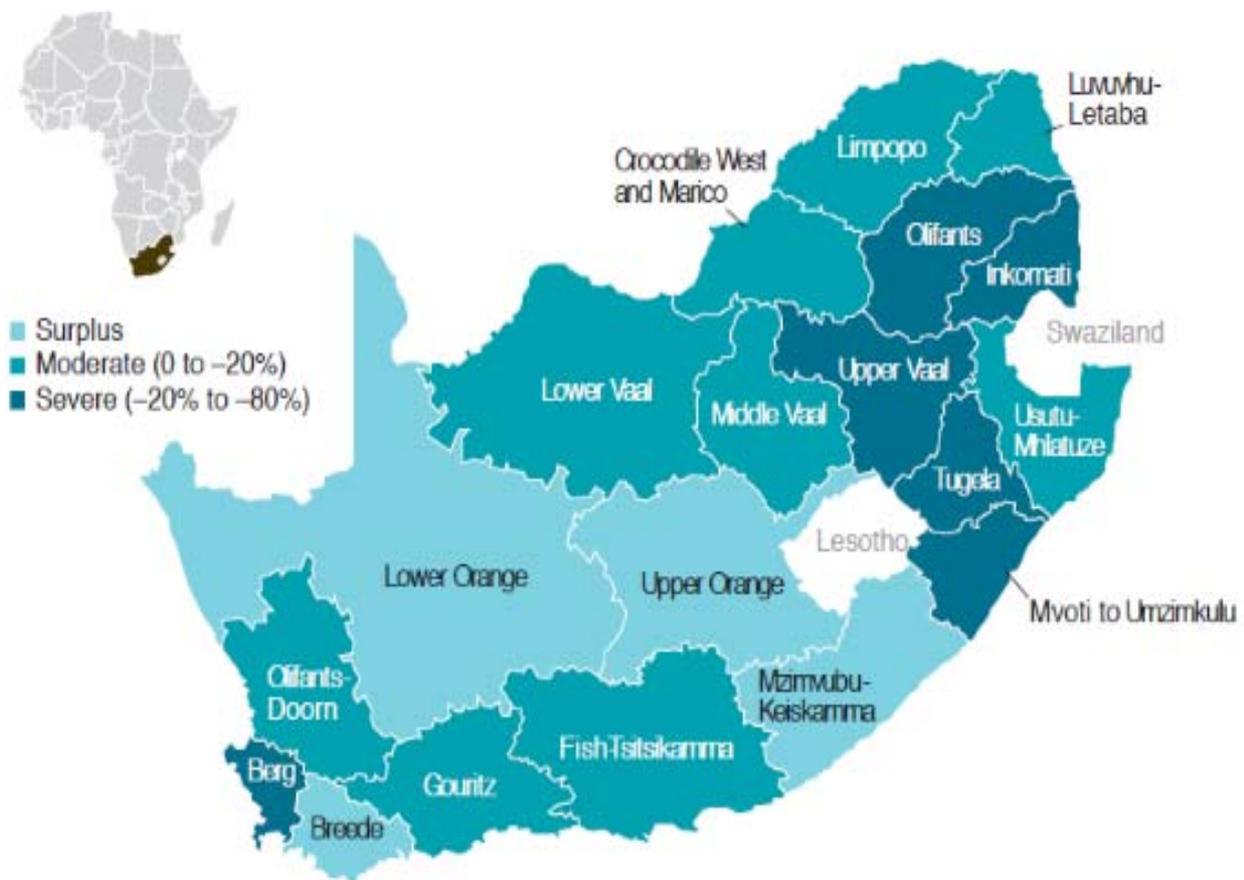


Figure 29: Gap between existing water availability and water requirements in 2030 (taken from McKinsey and Company, 2010)

Figure 29 shows that a number of South Africa's water management areas could experience moderate to severe water shortages by 2030 (McKinsey and company, 2010):

This gap further limits any new uses of water and constrains the potential of other water users in the country (DWAF, 1997:27). Due to these limitations, the policy recommended that a new approach to water allocation be implemented, moving towards a more optimum use of the nation's limited water and ensure greater flexibility of allocation in the future (DWAF, 1997:27). This new approach to water allocation would be guided by:

- Recognition of only those beneficially water uses (excluding those discussed in section 3) in the public interest (DWAF, 1997:4)
- Consideration of water uses (excluding those discussed in section 3) that promote optimal use for the achievement of equitable and sustainable economic and social development (DWAF, 1997:4).
- Considerations of investments made by the user in infrastructure (DWAF, 1997:5).
- Implementation in a phased manner, beginning in water management areas which were already under stress. This system of allocation would use water pricing, limited term allocations and other administrative mechanisms to bring supply and demand into balance in a manner which was beneficial in the public interest (DWAF, 1997:5).

- Abolishment of the riparian system of allocation, in which the right to use water was tied to the ownership of land along rivers. Transitional arrangements would, over time, ensure an orderly, efficient and gradual shift in water use allocations as and when necessary (DWAF, 1997:5).
- Water use allocations would no longer being permanent, but would be given for a reasonable period
- Enabling of the transfer or trade of these rights between users, with Ministerial consent (DWAF, 1997:5).
- Not inflicting avoidable or unnecessary damage on regional economies or on particular groups such as farmers and farm workers (DWAF, 1997:27).
- Not causing uncertainty and thereby hamper economic activity (DWAF, 1997:27).
- Ensuring that, at all stages in the process, water users were clear about what they could and cannot do (DWAF, 1997:27).
- Transfers to other basins being subject to conditions which ensure that reasonable needs in the donor catchment were met (DWAF, 1997:28).

The policy further supports the reallocation of existing water uses in the country to improve the optimum and equitable use of all water. This was presented by the policy to be constitutionally valid and in line with international developments where the role of the state as the public trustee of natural resources had increased (DWAF, 1997:12).

The policy did contain the provision that when the extent of future allocations for redressing the results of past racial discrimination result in the reduction of existing valid allocations, the reallocations take precedence and would be protected by the Constitutional provisions for corrective action (DWAF, 1997:25).

The policy intent was that the general approach would initially be to refrain from making formal allocations, except where there was clear evidence that groundwater abstraction was impacting negatively on other water users and on the environment (DWAF, 1997:30).

International Policy Benchmarking Practices related to Water Allocation

The policy intent for the 2000 National Water Policy for Namibia mandated that water will be allocated between and within uses so that its value in different uses was recognised and benefits to society maximised. All management and investment decisions will be subject to an economic and social Cost Benefit Analysis (MAWRD, 2000:27).

Similarly, the policy intent of the 2009 National Water Policy for Swaziland was that water allocation between sectors and users shall consider, among other things, the economic benefits balanced with social obligation and environmental requirements (MNRE, 2009:18). In allocating water, priority shall be given to primary use, the natural environment, industrial use and then other uses based on economic value (allocative efficiency) taking due cognisance of national priorities (MNRE, 2009: p28). The policy also mandated that groundwater shall not be allocated for purposes other than primary use, unless prior exemption had been obtained from the NWA or its delegated authority (MNRE, 2009:29).

The Indian water policy had a similar principle of equity and social justice informing use and allocation of water (Ministry of Water Resource, 2012).

Water Use Licensing/Authorisation

Section 4 of the NWA (1998) mandated that the users can be entitled to water use, in the following situation (South Africa, 1998):

- A person could use water in or from a water resource for purposes such as reasonable domestic use, domestic gardening, animal watering, firefighting and recreational use, as set out in Schedule 1.
- A person could continue with an existing lawful water use in accordance with section 34.
- A person could use water in terms of a general authorisation or license under this Act.
- Any entitlement granted to a person by or under this Act replaces any right to use water which that person might otherwise had been able to enjoy or enforce under any other law:
 - to take or use water;
 - to obstruct or divert a flow of water;
 - to affect the quality of any water;
 - to receive any particular flow of water;
 - to receive a flow of water of any particular quality; or
 - to construct, operate or maintain any waterworks.

Water was allocated only as use rights by making provision for authorisations of water use through:

- Schedule 1 use: use of relatively small quantity of water, primarily for domestic purposes;
- General authorisations: allows limited water use of larger volumes with some potential for negative impacts on the water resource;
- Water use licenses (WUL): control all other water uses. Any water use that exceeds a Schedule 1 use, or that exceeds the limits imposed under general authorisations, must be authorised by a licence. Rights under a licence could not constitute property at law, but rather merely a person right. Hence, in South Africa the rights under a water licence could merely make 'an act lawful which without it would be unlawful'.

The National Water Act reiterates that the National Government had overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest, a person could only be entitled to use water if the use was permissible under the Act. The Act recognises various types of licensed and unlicensed entitlements to use water (South Africa, 1998). Water use was defined in the National Water Act as (South Africa, 1998):

- a) taking water from a water resource;
- b) storing water;
- c) impeding or diverting the flow of water in a watercourse;
- d) engaging in a stream flow reduction activity contemplated in section 36;
- e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);
- f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
- g) disposing of waste in a manner which could detrimentally impact on a water resource;
- h) disposing in any manner of water which contains waste from, or which had been heated in, any industrial or power generation process;
- i) altering the bed, banks, course or characteristics of a watercourse;
- j) removing, discharging or disposing of water found underground if it was necessary for the efficient continuation of an activity or for the safety of people; and

k) using water for recreational purposes.

According to the NWA all water use must be licensed unless it was listed in Schedule 1, was an existing lawful use, was permissible under a general authorisation, or if a responsible authority waives the need for a license (South Africa, 1998). Any uses of water must be used subject to any condition of the relevant authorisation for that use; was subject to any limitation, restriction or prohibition in terms of this Act or any other applicable law; in the case of the discharge or disposal of waste or water containing waste contemplated in section 21 (f), (g), (h) or (j) of the NWA, must comply with any applicable waste standards or management practices prescribed under section 26(1)(h) and (i), unless the conditions of the relevant authorisation provide otherwise; could not waste that water; and must return any seepage, run-off or water containing waste that emanates from that use, to the water resource from which the water was taken, unless the responsible authority directs otherwise or the relevant authorisation provides otherwise (South Africa, 1998). A responsible authority could dispense with the requirement for a license for water use if it was satisfied that the purpose of this Act would be met by the grant of a license, permit or other authorisation under any other law.

Principle 3 of the 1997 White Paper on A National Water Policy for South Africa recognised an authorisation for use of water, with this authorisation not being into perpetuity (DWAF, 1997:60).

Principle 19 of the same policy indicated that any authorisation to use water should be given in a timely fashion and in a manner, that was clear, secure and predictable in respect of the assurance of availability, extent and duration of use. The purpose for which the water could be used shall not arbitrarily be restricted (DWAF, 1997:62).

Similarly, Principle 20 outlines that the conditions upon which authorisation was granted shall take into consideration the investment made by the user in developing infrastructure to be able to use the water (DWAF, 1997:62). The policy intent was that licenses would be granted on a five-year cycle with a maximum length of forty years (DWAF, 1997:28). Furthermore, investment in existing infrastructure would guide decisions and inform the period for which an initial allocation would be licensed (DWAF, 1997:29). For example, long term crops or industrial uses that involve substantial infrastructure investments with long time horizons would be given longer term licences (DWAF, 1997:28).

Holders of licences would also be able to apply for a licence renewal during the period that the licence was valid (DWAF, 1997:28). New applications would be considered at the same time as applications for renewal (DWAF, 1997:28). Where new applications compete with existing uses, the criteria that guide the granting of renewals or new allocations would include the Reserve, equity, and the optimum use of water (DWAF, 1997:28).

In general, water authorisations would be specific in terms of the location of water use, the volume of water to be used, the time at which it was to be abstracted, its quality and reliability (DWAF, 1997:29). Since it could not always be possible to specify direct measures of volume, duration and quality of water to be used, indirect methods of allocation, such as the authorisation of areas and/or methods of cultivation, size of storage dams, and pump capacity, could be used, as well as general standards of quality for a particular area (DWAF, 1997:29).

In those areas in which the supply of water was still greater than the demand, water users would be given the opportunity to register, which would oblige them to pay the catchment management charge, but which would also secure their use of that water for the time period of the license (DWAF, 1997:29).

Similarly, provision would be made to licence land uses that substantially impact on the refrain availability of water in an area. This was already being done for forestry and consideration would be made to the extension of the approach to other land uses where it could be shown that these significantly impact upon other water users. The existing afforestation permit system would be integrated into the new allocation system and existing permits would be honoured (DWAF, 1997:30).

The NWA mandated that a responsible authority may, subject to section 17, authorise the use of water before (South Africa, 1998)-

- a) a national water resource strategy had been established;
- b) a catchment management strategy in respect of the water resource in question had been established;
- c) a classification system for water resources had been established;
- d) the class and resource quality objectives for the water resource in question had been determined;
- or
- e) the Reserve for the water resource in question had been finally determined.

The NWA also provided the legislative process and procedure if a water use license was refused, as well as in Section 24, the granting of licenses for use water found underground on land not owned by the applicant if the owner of the land consents or if there was good reason to do so (South Africa, 1998).

The Act did allow a water management institution, at the request of a person authorised to use water for irrigation under this Act, allow that person on a temporary basis and on such conditions as the water management institution could determine, to use some or all of that water for a different purpose, or to allow the use of some or all of that water on another property in the same vicinity for the same or a similar purpose.

Barring restriction, suspension or termination in terms of this Act and review, a licence remained in force until the end of the licence period, when it expires. A responsible authority could however, extend for a single review period, the licence period or a licence if this was done as part of a general review of licences carried out in terms of section 49. Extension of the license could be to different conditions which could include a lesser permitted water use.

Part 7 of the NWA provided the procedures that apply in all cases where a license was required to use water, but where no general invitation to apply for licenses had been issued. Water users who were not required to license their use, but who wish to convert the use to licensed use, could also use the procedure set out in this Part, but the responsible authority could decline to grant a license when the applicant was entitled to the use of water under an existing lawful use or by a general authorisation. In considering an application, a responsible authority could require additional information from the applicant and could also require the applicant to undertake an environmental or other assessment, which assessments could be subject to independent review. After a responsible authority had reached a decision on a license application, it must promptly (South Africa, 1998): -

- a) notify the applicant and any person who had objected to the application; and
- b) at the request of any person contemplated in paragraph (a), give written reasons for its decision.

Part 8 of the NWA established a procedure for a responsible authority to undertake compulsory licensing of any aspect of water use in respect of one or more water resources within a geographic

area (South Africa, 1998). It included requirements for a responsible authority to prepare schedules for allocating quantities of water to existing and new users. The procedure was intended to be used in areas which are, or were soon likely to be, under “water stress” (for example, where the demands for water were approaching or exceed the available supply, where water quality problems were imminent or already exist, or where the water resource quality was under threat), or where it was necessary to review prevailing water use to achieve equity of access to water.

In such cases the responsible authority must publish a notice in the Gazette and other appropriate media, requiring people to apply for licenses in the designated area. Applicants could be required to submit additional information and could also be required to undertake an environmental or other assessment, which assessments could be subject to independent review.

A study by Msibi and Dlamini (2011) found that the DWS issued 1,656 licenses between 1998 and 2008. Of these, 256 were issued to previously disadvantaged individuals or to communities. KwaZulu-Natal and the Eastern Cape issued 139 and 77 licenses respectively. Of the 256 licenses issued to HDIs, 223 were for afforestation in three regions, i.e. Eastern Cape, KwaZulu-Natal, and Mpumalanga. Limpopo had the highest number (26) of licenses issued for irrigation.

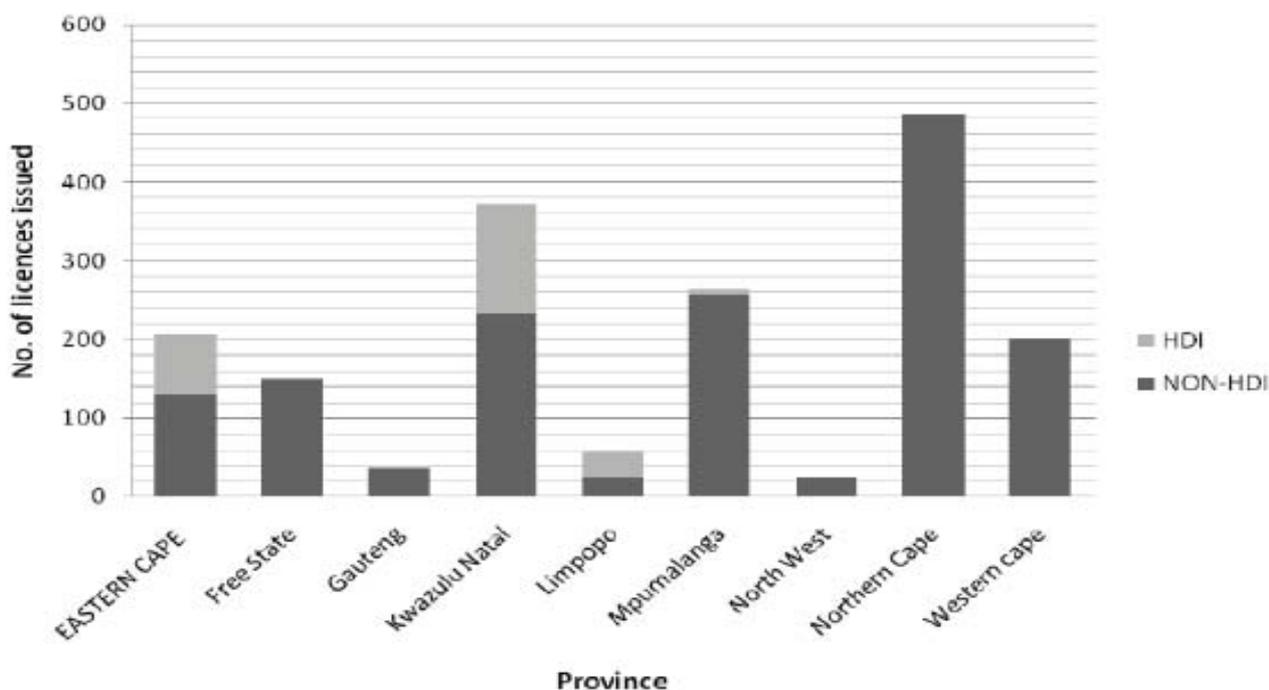


Figure 30: Number of licenses issued to HDIs Vs Non HDIs by region (1998-2008) (taken from Msibi and Dlamini, 2011)

Figure 31 shows that the majority of water licenses issued by the DWS by 2010 related to stream flow reduction activities, followed by agricultural water licenses.

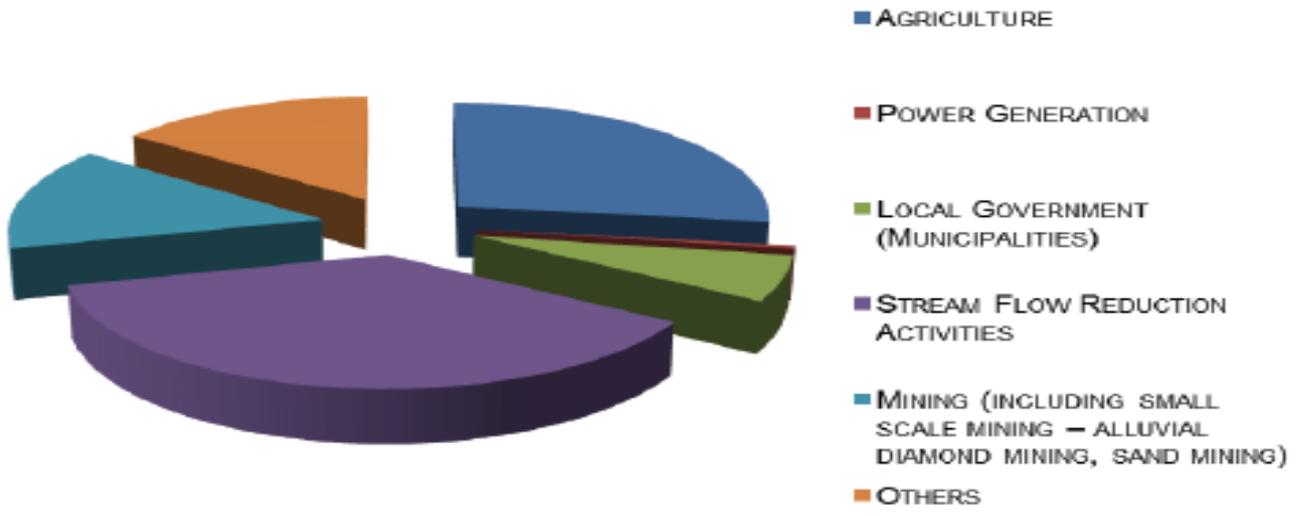


Figure 31: Sector spread of water licenses issues by DWS by 2010 (taken from Msibi and Dlamini, 2011)

Msibi and Dlamini (2011) also indicated that South Africa had experienced serious backlogs in the processing of water licenses. Figure 32 shows that, in 2010, the backlog in water licenses stood at 4,318.

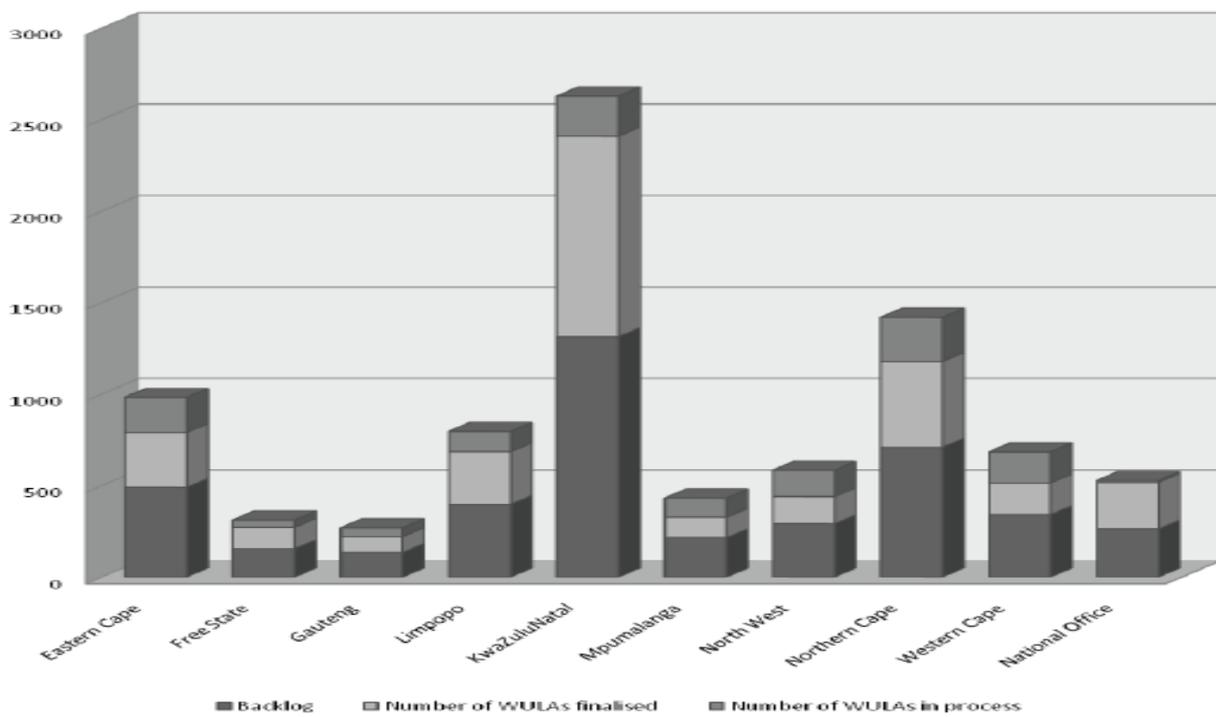


Figure 32: Water license issued and backlogs in 2010 (taken from Msibi and Dlamini, 2011)

The NWRS2 indicated that by 2013, the backlog of licence applications that had been delaying legal water use over a number of years had largely been removed (DWA, 2013b). The DWA had registered all raw water users in South Africa, even though there were challenges in ensuring the accuracy of this data. Similarly, verification of existing lawful uses in the country was in progress and illegal water users and polluters were being criminally prosecuted. However, backlogs in license applications for

the use of groundwater persisted, resulting in water use without proper regulation and monitoring and enforcement of water use groundwater licensing conditions was weak (DWA, 2013b).

In order to address some of the challenges in the water use authorisation process, the NWRS2 proposed the following interventions:

- Establishing a single authorisation process between the DEA, the DMR, and the DWA, as well as a joint compliance monitoring and enforcement programme between the DEA and the DWA.
- Accelerated delegation of regulatory functions to CMAs which, will progressively take over regulation of water use at the catchment level.
- Accelerate its on-going programme of verification of existing water use.

Existing Lawful Water Use

The NWA defined existing lawful water use as water use that had taken place at any time during a period of two years immediately before the date of commencement of this act and which (South Africa, 1998)-

- (i) was authorised by or under any law which was in force immediately before the date of commencement of this Act;
- (ii) is a stream flow reduction activity; or
- (iii) is a controlled activity; or

and that had been declared an existing lawful water use (South Africa, 1998).

A person could apply to a responsible authority to have a water use that was not contemplated in section 32 (1) (a), declared to be an existing lawful water use. A responsible authority may, on its own initiative, declare a water use to be an existing lawful water use. A responsible authority could only make a declaration if it was satisfied that the water use-

- a) took place lawfully more than two years before the date of commencement of this Act and was discontinued for good reason; or
- b) had not yet taken place at any time before the date of commencement of this Act but-
 - (i) would had been lawful had it so taken place; and
 - (ii) steps towards effecting the use had been taken in good faith before the date of commencement of this Act.

A person, or that person's successor-in-title, could continue with an existing lawful water use, subject to

- a) any existing conditions or obligations attaching to that use;
- b) its replacement by a license in terms of this Act; or
- c) any other limitation or prohibition by or under this Act.

A responsible authority may, subject to any regulation made under section 26(1) (c), require the registration of an existing lawful water use.

The responsible authority may, in order to verify the lawfulness or extent of an existing water use, by written notice, require any person claiming an entitlement to that water use to apply for a verification of that use. The policy position had since been amended in the National Water Policy Review of 2013 to:

Any authorised water use, including Existing Lawful Use (ELU), which was not utilised for a period specified by the Minister, should be reallocated to the public trust managed by the Minister as custodian of the nation's water resources.

The Minister would re-allocate this water to address social and economic equity. This aligns the ELU to the provision of the NWA.

There shall be no form of temporary or permanent trading between authorised water users. It would be obligatory for any holder of an entitlement to use water which was no longer utilised to surrender such use to the public trust.

The Ministers discretion to approve water use would be guided by the needs and requirements of the transformation and development objectives of the state.

This position strengthens the use-it or lose-it principle.

Minister would mandate timeframes and methodology by which all ELUs entitlements would cease to be recognised and users must have applied for a license.

Similarly, a person holding an entitlement to use water from a water resource in respect of any land could surrender that entitlement or part of that entitlement:

- a) in order to facilitate a particular licence application under section 41 for the use of water from the same resource in respect of other land; and
- b) on condition that the surrender only becomes effective if and when such application was granted.

South Africa currently does not have clarity on the extent of Existing Lawful Water Use in the country.

7.1.3.4 **Dispute Resolution**

The NWP's had the objectives to identify the policies, institutions and practices that would support the principle of equity and equitable access and would protect the constitutional right to procedural fairness and access to courts or other appropriate forums (DWAF, 1997:53). Equitable access also recognises the public's rights to present evidence to the administration, and to obtain written records or reasons for decisions (DWAF, 1997: 53).

The Minister was tasked with establishing procedures in order to encourage and coordinate the response to serious incidents that threaten the nation's water resources (DWAF, 1997: 32). Offenders would be prosecuted speedily, avoiding the delays that occurred under the existing system (DWAF, 1997: 32). Consideration would be given to the possibility of giving the national Department, which manages the resource protection function, the power to carry out its own prosecution of people or organisations who break the water law. Penalties for serious offences would reflect the extent and nature of the damage and would include provision for the recovery of the costs of repairing the damage (DWAF, 1997: 32). The Minister would be given the power to establish a review committee or to refer an administrative appeal to an advisory committee before he or she made a decision on the appeal (DWAF, 1997: 53).

Should the Minister's decision be considered by either party to be unacceptable on administrative grounds, such as unreasonableness or undue bias, the matter could be taken to the High Court for judicial review (DWAF, 1997:53). Section 34 of the Constitution provided that everyone had the right

to have any dispute that could be resolved by the application of law decided in a fair public hearing before a court, or where appropriate before another independent and impartial tribunal or forum (DWAF, 1997:53).

The policy objective in Principle 22 of the 1997 White Paper on a National Water Policy for South Africa required that the institutional framework for water management minimises the necessity for state intervention. In light of this principle, the inefficient and inaccessibility of the Water Courts, which existed at the time of compiling of the new water policies, would be reviewed in consultation with the Chief Justice and Judge Presidents of the High Court and the Minister and Department of Justice and replaced with more appropriate legal institutions (DWAF, 1997:53). A possibility that would be considered was the establishment of a specialised Natural Resources Court to deal with all-natural resource and environmental matters (DWAF, 1997:53).

Chapter 15 of the NWA addressed appeals and dispute resolution in the water sector, through the establishment of a Water Tribunal to hear appeals against certain decisions made by a responsible authority, catchment management agency, or water management institution under this Act (South Africa, 1998). The Tribunal was an independent body, whose members were appointed through an independent selection process, and could conduct hearings throughout the Republic (South Africa, 1998). A person could appeal to a High Court against a decision of the Tribunal on a question of law. This Chapter also provided for disputes to be resolved by mediation, if so directed by the Minister (South Africa, 1998).

The NWRS2 indicated a need to investigate challenges related to the Water Tribunal in terms of the effective execution of its mandate, and proposals to improve its performance should be submitted and considered by the Minister. An Advisory Committee could be established by the Minister to conduct such an enquiry (DWA, 2013B).

7.1.3.5 Monitoring and Evaluation

The establishment of monitoring systems and a national information system for water resources was legislated in Chapter 14 of the NWA (sections 137 to 145) (South Africa, 1998). The preamble to this chapter clearly states that: “*Monitoring, recording, assessing and disseminating information on water resources was critically important for achieving the objects of the Act*” (South Africa, 1998). These issues are discussed in greater detail below.

To achieve the new goals outlined in the White Paper for a National Water Policy for South Africa, systematic monitoring and evaluation of water information were critical. The policy objective of ongoing monitoring and assessment of the patterns of resource use, and the response of the resource to use, were introduced as critical to manage and protect those resources (DWAF, 1997:45). Policy outlines that the following need to be included in the resource monitoring programme:

- Assessment of the status of water resources, and communication of information, in order to support decisions on management, development and allocation of water resources (DWAF, 1997:45);
- Ongoing monitoring, and investigations, where appropriate, of:
 - resource use (both water use and discharge quality) in different sectors (DWAF, 1997:45);
 - the status of water resources (surface and groundwater), in terms of water quantity, resource quality and demands on the resources (DWAF, 1997:45);
 - impacts on water resources, including the impacts of waste discharges, land uses, water abstraction and climatic conditions (DWAF, 1997:45);

These aspects were addressed in the NWA that compelled the Minister to: “establish national monitoring systems on water resources as soon as reasonably practicable. (Section 137(1) of the NWA) (South Africa, 1998), and further more in section (2) stated that these monitoring systems must provide for the collection of appropriate data and information necessary to assess, among other matters -“(a) *the quantity of water in the various water resources;*(b) *the quality of water resources;*(c) *the use of water resources;*(d) *the rehabilitation of water resources;*(e) *compliance with resource quality objectives;*(f) *the health of aquatic ecosystems; and (g) atmospheric conditions which could influence water resources.*

The information contained in allocation of licence registers and obtained through the development and groundwater permit systems should also contribute to monitoring and assessment (DWAF, 1997:45).

The policy objective on Monitoring, Assessment and Auditing Monitoring and Information Management Functions included that;

- Monitoring and assessment programmes would be designed and maintained in consultation with all users, and must be accompanied by clear programmes of action (DWAF, 1997:45)
- Monitoring and information management were functions of national Government, specifically of the DWAF whose responsibilities would include (DWAF, 1997:45):
 - National design and co-ordination of monitoring programmes;
 - Development of technology and methods to support monitoring, assessment and auditing;
 - Standardisation of approved methods and techniques for monitoring, analysis and assessment (DWAF, 1997:46);
 - Regular review of regulations, standards, methodology and accreditation requirements (DWAF, 1997:46);
 - Design, establishment and maintenance of a national monitoring network (DWAF, 1997:46)

Monitoring would be conducted in a manner that:

- Technical support and guidance could be provided to those organisations, agencies or authorities that participate in national monitoring programmes (DWAF, 1997:46). The DWS and its “family” of institutions, such as water boards, CMAs and the WRC, regularly share information from the national information system for water services, as well as the national monitoring systems on water resources
- The DWAF could report to Parliament regularly on the status of the country’s water resources (DWAF, 1997:46). This can frequently be done by means of the departmental annual report, strategic plan, several ad hoc presentations to the Portfolio Committee on Water and Environment in the National Assembly, as well as the selected committee in the National Council of Provinces.
- The Minister was empowered to request any information regarding water matters that was considered to be in the national importance (DWAF, 1997:46) internal structures within the DWS provided for this and several Ministers had instructed that their own specific needs be added.
- Ensure that legitimate confidentiality needs were respected through relevant procedures (DWAF, 1997:46)
- Will be available to the public - except where confidentiality was required (DWAF, 1997:46). The national information system for water services was accessible on the DWAF (now DWS) website and also provided information to the regulatory functions in the DWS.

- To guarantee effective monitoring, assessment and auditing, the policy indicated the objective of ensuring adequate funding, human resources and technical support (DWAF, 1997:46).

The Minister, according to the NWA, was also, as soon as it was practicable to do so, required to establish national information systems, each covering a different aspect of water resources, including among others (South Africa, 1998)-

- a) a hydrological information system;
- b) a water resource quality information system;
- c) a groundwater information system; and
- d) a register of water use authorisations.

The objectives of national information systems are (South Africa, 1998)-

- a) to store and provide data and information for the protection, sustainable use and management of water resources;
- b) to provide information for the development and implementation of the national water resource strategy;
- c) to provide information to water management institutions, water users and the public-
 - i. for research and development;
 - ii. for planning and environment impact assessments;
 - iii. for public safety and disaster management; and
 - iv. on the status of water resources.

Part 3 of the NWA required certain information relating to floods, droughts and potential risks to be made available to the public (South Africa, 1998). A water management institution must, at its own expense, make information at its disposal available to the public in an appropriate manner, in respect of (South Africa, 1998)-

- a) a flood that had occurred or was likely to occur;
- b) a drought that had occurred or was likely to occur;
- c) a waterworks that might fail or had failed, if the failure might endanger life or property;
- d) any risk posed by any dam;
- e) levels likely to be reached by floodwaters from time to time;
- f) any risk posed by the quality of any water to life, health or property; and
- g) any matter connected with water or water resources, which the public need to know.

The Cabinet Lekgotla in January 2010 adopted 12 Government Outcomes, which were the key indicators for the National Government's Programme of Action for 2010 - 2014. A total new dimension to performance auditing was added when the DWS started regular performance reports to the Presidency on these Government Outcomes.

The NWRS2 acknowledges that monitoring and collecting relevant data will go a long way to being able to accurately assess the status of water resources and the magnitude of water problems in the country, but will also vastly improve planning and policy formulation processes. Existing monitoring programmes, according to the NWRS2, were in varying phases of maturity. These programmes include the national River Health Programme, Wetland Health Programme and Estuary Health Programme. An urgent need was identified to initiate an Aquifer Health Programme to monitor the health and extent of pollution of significant aquifers.

According to the NWRS2 the following strategic objectives should be pursued in relation to monitoring and information management: (DWA, 2013B)

- a) Develop and implement a national monitoring and information management plan to compile and maintain easily accessible and accurate data to support decision-making, reduce and manage risks and deal with emerging climate changed impacts.
- b) Raise awareness of the importance of investing in the collection and management of high-quality water-related information for supporting water resource management.
- c) Improve governance of monitoring and information management in the water sector.
- d) Ensure uninterrupted continuation of existing monitoring programmes.

To achieve an integrated monitoring and information management system that supports sustainable water resource management in the country and address the NWA monitoring mandate, the NWRS2 advocates monitoring and information systems that:

- enable assessment of the current state of the water body in terms of quantity and quality and their variability in space and time;
- provide information needed for planning, decision-making and operational water management at local, national and regional level, and in critical situations, such as floods or droughts.

It was expected that water users will follow a path of continuous improvement in their water use efficiency, as indicated by:

- Where targets had been set, it was expected that users will report on the achievement of such targets and the DWA will monitor progress against meeting these targets.
- Monitoring and enforcement of compliance to regulations promulgated through water legislation, including the Water Services Act, will be given increased attention.
- Ensuring that, in the issuing of water use licences, water conservation and water demand management (WCWDM) was considered by all water users.
- All sectors, agricultural irrigation schemes, local government, industry, mining and power generation should monitor and report, on a regular basis, on water loss and water efficiency improvements, such as water balances and measures implemented.

7.1.3.6 Disaster management

Principle 21 of the 1997 White Paper had the objective that the development and management of water resources would be carried out in a manner that limits, to an acceptable minimum, the danger to life and property due to natural or manmade disasters (DWA, 1997:62).

The policy intent on Safety and Disaster Prevention indicated that, as custodian of the Nation's water resources, the DWA would participate in Government initiatives to develop a new approach to disaster management and would focus more strongly on developing proactive and pre-emptive approaches in the field of water related disaster prevention (DWA:1997:44).

The hazards that needed to be addressed were those that arose from extreme natural events and those deriving from human activities, including developments for which permits were given by water management agencies and the development activities of water management agencies themselves (DWA, 1997:43).

Flood management required both proactive and reactive measures, including monitoring and warning systems, and managed dam releases (DWAF, 1997:43). Government would continue to promote effective planning and development control in flood plains and similar situations. Community involvement and local government participation would be emphasised (DWAF, 1997:44).

The risks associated with agricultural activity also need to be recognised and more appropriate agricultural practices encouraged (DWAF, 1997:43). Supply systems for other purposes were required to be designed to maintain desired levels of service in exceptionally dry years with priority given to the supply of basic human needs (DWAF, 1997:43). A high assurance of supply was also to be given to strategic activities, such as power generation (DWAF, 1997:43). Backup provisions for interventions, such as emergency supply schemes, tinkering, etc., for vulnerable domestic consumers would continue to be required for the most extreme cases (DWAF, 1997:44).

Part 5 of the NWA has a focus on dealing with pollution of water resources following an emergency incident, such as an accident involving the spilling of a harmful substance that finds, or could find, its way into a water resource (South Africa, 1998). The responsibility for remediating the situation rests with the person responsible for the incident or the substance involved. Failure to act will result in the relevant catchment management agency taking the necessary steps and recovering the costs from every responsible person (South Africa, 1998). The NWA does not mention disaster or addressing disasters in the water sector. However, the DWS (2013) developed a Disaster Management Plan in 2013. In the plan, a disaster was defined as “a progressive or sudden, widespread or localised, natural or human-caused occurrence that:

(a) causes or threatens to cause;

(i) death, injury or disease;

(ii) damage to property, infrastructure or the environment; or

(iii) disruption of the life of a community; and

(b) disaster to cope with its effects using only their own resources

The DWS (2013) disaster management plan concurs with the statement above, indicating that *the National Water Act, Act No 36 of 1998 and Water Services Act, Act No. 108 of 1997 have limited reference to disaster management. The National Water Act refers to “Objectives of national information systems” and specifically (section 140 (iii)): “for public safety and disaster management”, but do have various reference to ‘safety’.*

7.1.3.7 Water Awareness and Education

The 1997 Water Policy indicated a need to promote better water utilisation, through research, pilot projects, education, and general communication activities (DWAF, 1997:34). To improve water use and promote conservation, communication and educational activities were very important (DWAF, 1997:35). The policy indicated that the National Water Conservation Campaign had already been established in 1997 for this purpose and its research and pilot project activities need to be further strengthened and integrated into the work of the Department (DWAF, 1997:35).

Related to education, which was the long-term, formalised process of building capacity and skills, the 1997 Water Policy indicated that historically, access to education had been racially determined,

resulting in a severe lack of training, education and skills development in the black community, particularly for women (DWAF, 1997:54).

The White Paper mandated that human resource development would lie at the heart of the transformation of the DWAF (DWAF, 1997:54). The DWAF would restructure a bursary programme, would conduct a vigorous in-house training programme, and would provide opportunities for existing staff to further their education (DWAF, 1997:54). These educational activities would lay the foundation for the development of a team of competent personnel in the water field (DWAF, 1997:54). Capacity would also need to be developed in Catchment Management Agencies particularly within marginalised and disadvantaged groups, as well as at a technical level (DWAF, 1997:54). Women would be an important group, particularly in rural areas, who should be specifically targeted by capacity building programmes.

The NWRS2 indicated that the Energy and Water Sector Education and Training Authority (EWSETA) was charged with the responsibility of coordinating and facilitating skills development and capacity building in accordance with the Skills Development Strategy III, Human Resource Development Strategy II (2010-2030) and the New Growth Path National Skills Accord (NSA) between government, business and labour (DWA, 2013b).

The NWRS2 indicated the following skills and capacity challenges and shortages in the water sector (DWA, 2013b):

- Approximately 3 000 engineers (a 57% vacancy rate)
- About 7 200 health and hygiene/environmental health practitioners in the medium term and an immediate need for 125 new environmental health practitioners as well as for 150 to upgrade their skills
- 23 000 management staff (at least 1 200 in technical management positions; that is, engineers with management skills or managers with technical skills). Of these, 1 400 were required immediately, 246 of which were construction project managers, construction managers, engineer managers and technical project managers (21% of total required technical management skills)
- A long-term need for an additional 12 000 staff with developmental and financial management skills and
- An urgent need for 4 000 artisans / technicians.

Similarly, the NWRS2 also indicated that many South Africans were not aware of the scarcity of water in the country and that if water was not well managed, there will not be enough to meet all the demands. There was a need for people in the country to recognise water as a valuable resource and invest in technologies and communications that will improve the way that it was used and managed (DWA, 2013b). The challenge was to work with the private sector, organisations, communities and individuals to ensure that they value water and the water environment. The aim should be to changed South African habits by providing better information so that they could make more informed choices and use water more efficiently. Education and awareness-raising campaigns were important mechanisms to bring the need for WCWDM to the public and to trigger committed public actions and response.

With these challenges in mind, the NWRS2 indicated the following interventions to address this policy intent:

- Identification of roles and responsibilities in education

- drive skills planning within the sector in line with the policies and strategies
- LGSETA and EWSETA to facilitate close and functional links between water-sector institutions, professional bodies, as well as education and training institutions to address registration and experiential learning bottlenecks in line with the New Growth Path Skills Accord
- The DWA would also work with the Department of Higher Education and Training to ensure that the HET syllabus was aligned more closely with the requirements of water sector institutions
- Implementation of a public awareness and water literacy programme, with a particular focus on efficient water use and management.
- Various communication and awareness-raising mediums and approaches would be explored in a programme which will solicit and derive support and partnership from the private sector and other government departments and agencies.

7.1.3.8 **Water Research**

Water research was a crucial component of the water sector in South Africa. The policy indicated that the existence of the Water Research Commission (WRC) was probably the single most important assurance that necessary research would be conducted and that trained human resources would be available for the water sector (DWAF, 1997:56). It affirms that the Water Research Act would be retained as an important part of the family of water legislation. However, the policy required that appropriate directives make sure that the WRC funds were used to further the objectives of the national water policy, especially in social and economic areas (DWAF, 1997:56).

The NWRS2 indicated that research into existing gaps in scientific understanding, such as impact studies on land-use, sedimentation, groundwater, water quality, dam safety, flooding, infrastructure sustainability, and evaporation, the socio-economic costs, and new elements of the process, such as stilling and its effect on evaporation, would need to be initiated (DWA, 2013b).

The NWRS2 highlights that although much progress had been made with regard to research since the promulgation of the Water Research Act (Act 34 of 1971), the following key strategic issues still require attention:

- Sustainable utilisation of groundwater resources
- Development of human research capacity
- Degradation of water quality and water ecosystems resulting from industrial and agricultural development, mining and rapid growth of human settlements in peri-urban areas
- Increased health risks to humans and animals as a result of contamination of water by hazardous pollutants
- Uncertain impacts of climate change on the availability of water
- Insufficient provision of basic water supply and sanitation to some rural areas

To address the research policy intent for the water sector, the NWRS2 indicated that there was a need to develop a National Water Research Plan that covers the entire innovation value chain; to develop mechanisms to ensure that water information and water research outputs were protected, accessible and beneficially applied in improved water management and for effectively dealing with other challenges facing the water sector and to clarify roles and mandates between institutions that were involved in R&D within the sector (DWA, 2013b).

7.2 ECONOMIC AND FINANCIAL WATER RESOURCE POLICY INTENTIONS

7.2.1 *Raw Water Charges and Tariffs*

Principle 24 of the 1997 White Paper indicated that beneficiaries of the water management system shall contribute to the cost of its establishment and maintenance on an equitable basis (DWAF, 1997:62).

Some of the key financial principles of the policy include:

- All water use, wherever in the water cycle it occurs, would be subject to a catchment management charge which would cover actual costs incurred (DWAF, 1997:5).
- All water use, wherever in the water cycle it occurs, would be subject to a resource conservation charge where there were competing beneficial uses or where such use significantly affects other users (DWAF, 1997:5).
- All significant water resource use would be charged for, regardless of where it occurs (DWAF, 1997:39). Users would be charge for the full financial costs of providing access to water, including infrastructure development and catchment management activities. This would be done on an equitable basis and according to the realistic reasonable programme that had already been begun (DWAF, 1997:5). Licensed users (including those who had applied for licences for existing uses) would have both privileges of use and responsibilities and would be subject to various charges, including a catchment management charge that would assist in funding the allocation system (DWAF, 1997:28)
- To promote equitable access to water for disadvantaged groups for productive purposes, such as agriculture, some or all of these charges could be waived for a determined period (DWAF, 1997:5).
- To promote equitable access to water for basic human needs, provision would also be made for some or all of these charges to be waived (DWAF, 1997:5). The Reserve would be provided free of charge in support of the current policy of Government, which was to encourage the adoption of lifeline tariffs for water services to ensure that all South Africans could achieve access to basic services (DWAF, 1997:39). The price to be levied for water reserved to meet basic needs must merit particular attention (DWAF, 1997:39).
- The use of rivers and other water resources to dispose of wastes would also be made subject to a catchment management charge, which would cover actual costs, and a resource conservation charge in the case of competing beneficial uses for such use and/or such use significantly affects other users (DWAF, 1997:5). To encourage a reduction in pollution, policy intentions was that a system of economic incentives would be put in place in which charges would be introduced for the discharge of waste into water bodies (DWAF, 1997:32). This would encourage the development of low-waste and non-waste technologies (Principle 16) (DWAF, 1997:32). Funds raised in this way should be used for resource quality management and protection activities (DWAF, 1997:32). Places where these charges were introduced should be explored and the effects of such charges need to be carefully monitored to make sure that they achieve their goals (DWAF, 1997:38).

The policy specified the intent that user sectors (particularly agriculture and mining) would have to re-evaluate their use of, and impact on, the nation's water resources, and would have to pay a price for water that reflects the real economic cost, including the indirect costs to society and the environment for their water use (DWAF, 1997:6). The Cabinet decided in February 1996 that the price paid for

water by major users should progressively be raised to meet the full financial costs of making it available and to reflect its value to society (DWAF, 1997:36). One priority of the new legislation would therefore be to ensure that all water use was covered by the new policy (DWAF, 1997:36).

The water prices to be charged by the Government from its own water schemes would be adjusted over a reasonable period to cover the full operation, maintenance costs and financial costs (DWAF, 1997:39).

Where the imposition of the full water price discourages the use of available water, provision could be made for some elements of the tariff to be suspended for a limited period of time (DWAF, 1997:39).

Policy indicated that water pricing could also be used to assist in the water allocation process (DWAF, 1997:28). The system would be compatible with provisions for creating a market in water use allocations should that become desirable in the future (DWAF, 1997:28). Water allocations could also be offered within a given area and all potential users offered the opportunity to bid for them (DWAF, 1997:38).

The policy also takes the positions that payment for less direct water uses needs to be addressed. The first was afforestation and other water intensive dryland agriculture that intercepts rain in high rainfall areas and reduce river flow for other users (DWAF, 1997:36). The second was the disposal of waste into rivers or other water bodies to remove wastes and render them acceptable (DWAF, 1997:36) (see last bullet above).

Issues related to the approach to water as a scarce resource and the need for water conservation and management of demand (DWAF, 1997:36), suggested that one way of achieving these goals was to set a price that reflects this scarcity. Policy recommended that consideration must be given to how this could practically be applied in South Africa (DWAF, 1997:37).

Income from water charges would be divided between operational agencies, water management authorities and national Government in accordance with their contributions and responsibilities (DWAF, 1997:40).

The present research levy to fund the Water Research Commission would be maintained and would continue to be administered through the Water Research Act (DWAF, 1997:40).

Chapter 5, Part 1 of the NWA mandated that **the** Minister could from time to time, after public consultation, set a pricing policy, which could differentiate among geographical areas, categories of water users or individual water users (South Africa, 1998). The achievement of social equity was one of the considerations in setting differentiated charges. Water use charges were to be used to fund the direct and related costs of water resource management, development and use, and could also be used to achieve an equitable and efficient allocation of water. In addition, they could also be used to ensure compliance with prescribed standards and water management practices according to the user pays and polluter pays principle. Water use charges would be used as a means of encouraging reduction in waste, and provision was made for incentives for effective and efficient water use (South Africa, 1998). Non-payment of water use charges would attract penalties, including the possible restriction or suspension of water supply from a waterworks or of an authorisation to use water (South Africa, 1998).

The NWA allows that the pricing strategy could differentiate on an equitable basis between different types of geographic areas (i.e. socioeconomic aspects within the area in question; the physical attributes of each area; and the demographic attributes of each area); different categories of water use (i.e. the manner in which the water was taken, supplied, discharged or disposed of; whether the use was consumptive or non-consumptive; the assurance and reliability of supply and water quality; the effect of return flows on a water resource; the extent of the benefit to be derived from the development of a new water resource; the class and resource quality objectives of the water resource in question; and the required quality of the water to be used) and different water users (i.e. the extent of their water use; the quantity of water returned by them to a water resource; their economic circumstances; and the statistical probability of the supply of water to them) (South Africa, 1998). The pricing strategy could provide for a differential rate for waste discharges.

The NWRS2 indicated that water use charges and water tariffs did not fully achieve their objectives. Prices for raw water were kept artificially low, which meant that the aggregate of revenues collected from the sale of raw water did not cover the cost of supplying the water (DWA, 2013b). Raw water charges, according to a recent study by Otterman et al. (2013), include:

- Water Resource Management (WRM) cost to plan, manage, protect, allocate and control water use from and water quality of water resources, which functions will in future be undertaken by CMAs per WMA.
- Water resource infrastructure charges on Government Water Schemes (GWS). Such costs could include recovery of capital costs, taking cognisance of any state funded grant, social contribution and/or commercial loan funding.
- Economic charges, such as incentives to increase economic value and efficiency of water use. It could also be developed into a water trading model.
- Waste Discharge Charge System (WDCS) to affect the “polluter pays” principle for mitigation of environmental costs, sustainable development, and protection of the resource.
- Trans Caledon Tunnel Authority (TCTA) levy to users benefitting from the Lesotho Highlands Water Project (LHWP) and other bulk schemes
- IAP (Invasive Alien Plants Charge)
- HPG (Hydropower Generation Tariff)

The main objectives of the raw water use charges were to ensure social equity, ecological sustainability, financial viability and economic efficiency.

Otterman et al. (2013) provided the following table for WRM charges (**excluding VAT**) for the 2011/12 and 2012/13 financial years (Table 12). Indications were that the annual increase in water management charges per WMA was 18% for domestic and industrial users, 18% for irrigation and 5% for forestry (Otterman et al., 2013). The former two increases exceed both the average **CPI (5,6%)** and the average **PPI (6.6%** for domestic output) for June 2011 to June 2012.

Table 12: Water resource management charges for the water management areas of South Africa in 2012-13 (taken from Otterman et al., 2013)

ID	WMA	Domestic & Industrial (c/m ³) (excl VAT)			Irrigation (c/m ³) (excl VAT)			Forestry (c/m ³) (excl VAT)		
		2011/2012	2012/2013	% incr	2011/2012	2012/2013	% incr	2011/2012	2012/2013	% incr
WMA1	Limpopo	R 0.0190	R 0.0246	29.47%	R 0.0190	R 0.0202	6.32%	R 0.0092	R 0.0098	6.52%
WMA2	Luvuvhu Letaba	R 0.0315	R 0.0315	0.00%	R 0.0184	R 0.0184	0.00%	R 0.0109	R 0.0109	0.00%
WMA3	Crocodile (w), Marico	R 0.0180	R 0.0234	30.00%	R 0.0180	R 0.0192	6.67%	R 0.0076	R 0.0081	6.58%
WMA4	Olifants	R 0.0229	R 0.0240	4.80%	R 0.0156	R 0.0167	7.05%	R 0.0085	R 0.0091	7.06%
WMA5	Inkomati	R 0.0158	R 0.0205	29.75%	R 0.0125	R 0.0150	20.00%	R 0.0082	R 0.0087	6.10%
WMA6	Usutu-Mhlatauze	R 0.0101	R 0.0131	29.70%	R 0.0082	R 0.0105	28.05%	R 0.0046	R 0.0049	6.52%
WMA7	Thukela	R 0.0080	R 0.0104	30.00%	R 0.0080	R 0.0118	47.50%	R 0.0048	R 0.0051	6.25%
WMA8	Upper Vaal	R 0.0210	R 0.0258	22.86%	R 0.0139	R 0.0188	35.25%	R 0.0100	R 0.0106	6.00%
WMA9	Middle Vaal	R 0.0250	R 0.0261	4.40%	R 0.0194	R 0.0194	0.00%	R 0.0000	R 0.0000	0.00%
WMA10	Lower Vaal	R 0.0139	R 0.0177	27.34%	R 0.0102	R 0.0143	40.20%	R 0.0000	R 0.0000	0.00%
WMA11	Mvoti-Umzimkulu	R 0.0214	R 0.0231	7.94%	R 0.0206	R 0.0219	6.31%	R 0.0122	R 0.0130	6.56%
WMA12	Mzimvubu-Keiskamma	R 0.0234	R 0.0290	23.93%	R 0.0202	R 0.0215	6.44%	R 0.0117	R 0.0125	6.84%
WMA13	Upper Orange	R 0.0076	R 0.0076	0.00%	R 0.0043	R 0.0043	0.00%	R 0.0000	R 0.0000	0.00%
WMA14	Lower Orange	R 0.0136	R 0.0166	22.06%	R 0.0087	R 0.0111	27.59%	R 0.0000	R 0.0000	0.00%
WMA15	Fish-Tsitsikamma	R 0.0228	R 0.0228	0.00%	R 0.0111	R 0.0150	35.14%	R 0.0066	R 0.0070	6.06%
WMA16	Gouritz	R 0.0312	R 0.0406	30.13%	R 0.0135	R 0.0150	11.11%	R 0.0074	R 0.0079	6.76%
WMA17	Olifants/Doom	R 0.0227	R 0.0296	30.40%	R 0.0125	R 0.0150	20.00%	R 0.0074	R 0.0079	6.76%
WMA18	Breede	R 0.0329	R 0.0329	0.00%	R 0.0114	R 0.0150	31.58%	R 0.0045	R 0.0048	6.67%
WMA19	Berg	R 0.0405	R 0.0477	17.78%	R 0.0135	R 0.0150	11.11%	R 0.0096	R 0.0103	7.29%

The DWS NIWIS dashboard showed the average raw water tariffs for provinces of the country (Figure 33) in 2011/12 and 2012/13, indicating that a number of the Eastern Cape, Gauteng, North West and Limpopo had high raw water charges (>R0,02 per m³ for Domestic, Industrial and Irrigation water). The Free State, Mpumalanga and Western Cape demonstrate high average domestic/industrial charges, with the Western Cape demonstration the highest average charges at R0,0418 per m³. Average irrigation charges are less than R0,02 per m³ in these provinces. The KwaZulu-Natal and Northern Cape demonstrated low (<R0,02 per m³) averages charges for both domestic/industrial and irrigation water in 2011/2012.

Prov	Average of 2011/2012 WRM Charges (R/m ³ ,incl.VAT)		Average of 2012/2013 WRM Charges (R/m ³ ,incl.VAT)		Annual Increase of WRM charges from 2012 to 2013	
	D&I	IRR	D&I	IRR	D&I	IRR
EC	R 0.0251	R 0.0182	R 0.0285	R 0.0201	14%	11%
FS	R 0.0205	R 0.0145	R 0.0218	R 0.0157	6%	8%
GT	R 0.0229	R 0.0172	R 0.0284	R 0.0214	24%	24%
KZN	R 0.0163	R 0.0151	R 0.0185	R 0.0174	14%	15%
LP	R 0.0260	R 0.0200	R 0.0296	R 0.0211	14%	5%
MP	R 0.0226	R 0.0159	R 0.0246	R 0.0179	9%	13%
NC	R 0.0161	R 0.0106	R 0.0191	R 0.0129	19%	22%
NW	R 0.0197	R 0.0163	R 0.0258	R 0.0201	31%	23%
WC	R 0.0374	R 0.0147	R 0.0418	R 0.0169	12%	15%
Grand Total	R 0.0224	R 0.0158	R 0.0259	R 0.0178		

Figure 33: Raw water tariffs (2012/13) in the provinces of the country (data source: NIWIS Document Management)

The water resource infrastructure charges, also referred to as Consumptive Charges, were published per the DWA scheme, which mostly covered multiple municipalities and could run across provincial

boundaries. Table 13 below lists the average of scheme charges per province for both the 2012/13 and 2011/12 year (**Inc. VAT**).

Table 13: Consumptive charges 2012 and 2013 (taken from Otterman et al., 2013)

Prov	Average of 2011/2012 Cons Charges (R/m3, incl VAT)		Average of 2012/2013 Cons Charges (R/m3, incl VAT)		% Increase	
	D&I	IRR	D&I	IRR	D&I	
EC	R 1.15	R 0.10	R 1.17	R 0.09	2.3%	-6.1%
FS	R 1.56	R 0.03	R 1.68	R 0.04	7.3%	10.5%
GT	R 2.07	R 0.19	R 2.22	R 0.21	7.2%	7.3%
KZN	R 0.80	R 0.14	R 0.89	R 0.17	11.6%	19.9%
LP	R 1.03	R 0.17	R 1.08	R 0.20	4.4%	17.3%
MP	R 2.70	R 0.07	R 2.91	R 0.08	7.7%	14.9%
NC	R 0.98	R 0.02	R 1.05	R 0.02	7.7%	-1.1%
NW	R 1.14	R 0.18	R 1.21	R 0.19	6.3%	10.0%
WC	R 0.53	R 0.07	R 0.59	R 0.07	11.6%	-8.3%
Grand Total	R 1.45	R 0.10	R 1.55	R 0.10	7.0%	7.4%

The National Water Act made provision for a Pricing Strategy for Water Use Charges (Pricing Strategy) to promote financial sustainability and economic efficiency in water use. The Act also made provision for financial assistance to water users in the form of grants, loans or subsidies. A Pricing Strategy was first published in Government Notice No. 1353 of 12 November 1999. A revised Pricing Strategy for raw-water-use charges was published in 2007 (DWA, 2013c). However, the NWRS2 indicated the following issues still require attention and refinement of the Strategy:

- The water resource management charge did not reflect the full management cost because of the capping of the charge for certain sectors.
- The infrastructure charge did not provide sufficient funding for covering the life cycle costs of infrastructure maintenance and refurbishment because of the capping of charge increases for the irrigation sector.
- The price of water did not send the correct economic signal that water was a scarce resource.
- The price of water varies considerably from place to place, sometimes to the detriment of low income areas.
- The price of water was not always charged based on the actual volume of water consumed.

To address these issues, the DWA had initiated a revision of the Pricing Strategy. The DWA had also commenced with the establishment of an economic regulation function with a view to regulating water prices from source to tap as well as water institutions.

7.2.2 Job creation and economic growth

Government's policy was to promote the growth of industry and to increase jobs in areas such as tourism, as well as to ensure greater equity in society (DWA, 1997:17). It should be noted however, within a safeguarded natural environment, the water available to support tourism and recreation also had great potential for job creation (DWA, 1997:13).

7.2.3 Polluter pays

Principle 16 of the 1997 White Paper indicated that water quality management options shall include the use of economic incentives and penalties to reduce pollution; and the possibility of irretrievable environmental degradation as a result of pollution shall be prevented (DWAF, 1997:62).

Part 4 of the NWA dealt with pollution prevention and in particular the situation where pollution of a water resource occurs or might occur as a result of activities on land (South Africa, 1998). The person who owns, controls, occupies or uses the land in question was responsible for taking measures to prevent pollution of water resources. If these measures were not taken, the catchment management agency concerned could itself do whatever was necessary to prevent the pollution or to remedy its effects, and to recover all reasonable costs proportionally from the persons responsible for the pollution.

7.3 SOCIAL WATER RESOURCES POLICY INTENTIONS

The key focus on social intentions in the White Paper on a National Water Policy of 1997 was that of water equity in the country (see Section 5.5 for discussion).

7.3.1 Water and gender

The White Paper of 1997 indicated that the development of women in relation to water management was important for a number of reasons (DWAF, 1997:55), in that women were the traditional custodians of natural resources in the rural areas, and they were also the people who suffered most from degradation of water and other natural resources. As a result, empowering women through access to information on simple water purification procedures, as well as making it possible for them to work through water committees, and ultimately in catchment management agencies, will make sure that women's voices were heard in the quest for safe, available water (DWAF, 1997:55). It was through education and communication with women that basic attitudes to water will change (DWAF, 1997:55).

It was important that women were represented at all levels and in all spheres of water management activities, in political, technical and managerial positions (DWAF, 1997:55). The State must also make sure that rural women had equal access to economic opportunities and enjoyed adequate living conditions in relation to water supply and sanitation (DWAF, 1997:55). In short, the policy supported the feminisation of water management.

Neither the Water Services Act of 1997 nor the National Water Act of 1998 mentions gender.

The Water Re-Allocation Programme (NWRP) had taken up a focus on women in water and had made provision to set aside water in a catchment, specifically for allocation to black and women users. The NWRP2 indicated that in stressed catchments, water that becomes available (for example, from water conservation, water demand management and illegal water use recovered during the verification and validation process) will be set aside for black and women users (DWA, 2013a). In line with this, the NWRP took a new policy positions that:

Priority in re-allocations should be afforded to black women and men, these include Africans, Coloureds and Indians, all of whom were citizens of South Africa and were disenfranchised before 1994 and therefore had unfair constrained water access.

As a water equity mechanism, future General Authorisations will, in terms of the NWA, be potentially gazetted for specific catchments for the allocation of water resources to black and women users. The national target was 30% water in the hands of South African black and women citizens.

7.4 ENVIRONMENTAL INTENTIONS

The NWP's indicated that new approaches to water management would be needed, which recognise our aspirations for the growth and development of our society in the 21st century within current water resource limitations (DWAF, 1997:3).

The White Paper on a Water Policy for South Africa introduced three core environmental principles to the water sector, namely:

- Principle 5: recognising the **unity of the water cycle and the interdependence of its elements**, where evaporation, clouds and rainfall were linked to groundwater, rivers, lakes, wetlands and the sea, and where the basic hydrological unit was the catchment (DWAF, 1997:60). In this regard the “indivisibility” of water as a natural resource was clearly evident - each activity or call on the resource had an impact and an effect (DWAF, 1994:28). The environment should therefore not be regarded as a “user” of water in competition with other users, but as the base from which the resource was derived and without which no development was sustainable (DWAF, 1994:28). Protection and conservation of the natural resource base were therefore imperative.
- Principle 6: the **variable, uneven and unpredictable distribution of water** in the water cycle should be acknowledged (DWAF, 1997:60).
- Principle 7: the objective of managing the quantity, quality and reliability of the Nation’s water resources was to **achieve optimum, long term, environmentally sustainable social and economic benefit for society** from their use (DWAF, 1997:60).
 - The intention of “environmentally sustainable water use” was to balance water use with the protection of the resource in such a way that the resources were not degraded beyond recovery (DWAF, 1997:21). The sustainable use of water resources means that, even where the immediate demands for development were very high, society must find different development approaches that make sure that the use of water resources did not destroy their ability to recover (DWAF, 1997:21). This approach was in keeping with Section 24 of the Constitution, which states that any development and use of our natural resources (including water resources) must be environmentally sustainable (DWAF, 1997:21).
 - The Constitution places a duty on the national Government, in cooperation with the other spheres of government, to make sure that our limited water resources were used to improve the quality of life of all South Africans (DWAF, 1997:20).
 - The process of balancing social and economic benefits, as well as determining environmental objectives, should involve those affected, or their representatives, in weighing up the options on an informed basis (DWAF, 1997:21).

While the policy approach proposed in the country for establishing the resource protection objectives emphasises the involvement of water users and other stakeholders, the public trust places the responsibility on Government to make sure that environmental interests were represented and that

the resource was effectively protected (DWAF, 1997:31). However, the policy did also indicate that promoters of the needs of the environment would also have to justify the degree of environmental protection required (DWAF, 1997:6).

7.4.1 Water ecosystem services

Most water uses impact on the environment, and the cost of this must be accounted for in assessing the economic benefits of alternative water uses and developments. To sustain the established uses of water, the natural resource base must be suitably protected (DWAF, 1997:13).

In the progressive Principle 9 of the White Paper on a National Water Policy for South Africa, the policy required that the quantity, quality and reliability of water required to maintain the ecological functions on which humans depend (ecosystem services) shall be reserved so that the human use of water did not individually or cumulatively compromise the long-term sustainability of aquatic and associated ecosystems (DWAF, 1997:61). The policy indicated that the water and water-related services people use were not dependent only on the physical and chemical characteristics of the water itself, but on the healthy functioning of whole ecosystems, such as rivers, lakes, dams, wetlands, estuaries or the coastal marine environment. These services people use include water for domestic purposes, agriculture or industry but also to provide certain “silent services” such as aesthetics and culture uses (DWAF, 1997:30).

The well-being of present and future generations depends on access to and the availability of ecosystem services (Figure 34) (Lankford et al. 2011). The Millennium Ecosystem Assessment (MA 2005) has crystallised thinking on the concept of ecosystem services and has re-defined the concept of ecosystem services in a way that was useful; namely ecosystem services are the benefits people obtain from ecosystems. These include provisioning services, such as food, water, timber, and fibre; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and supporting services, such as soil formation, photosynthesis, and nutrient cycling (MA, 2005). A water property right could thus be defined as a claim to the ecosystem services (benefits) provided by aquatic ecosystems.

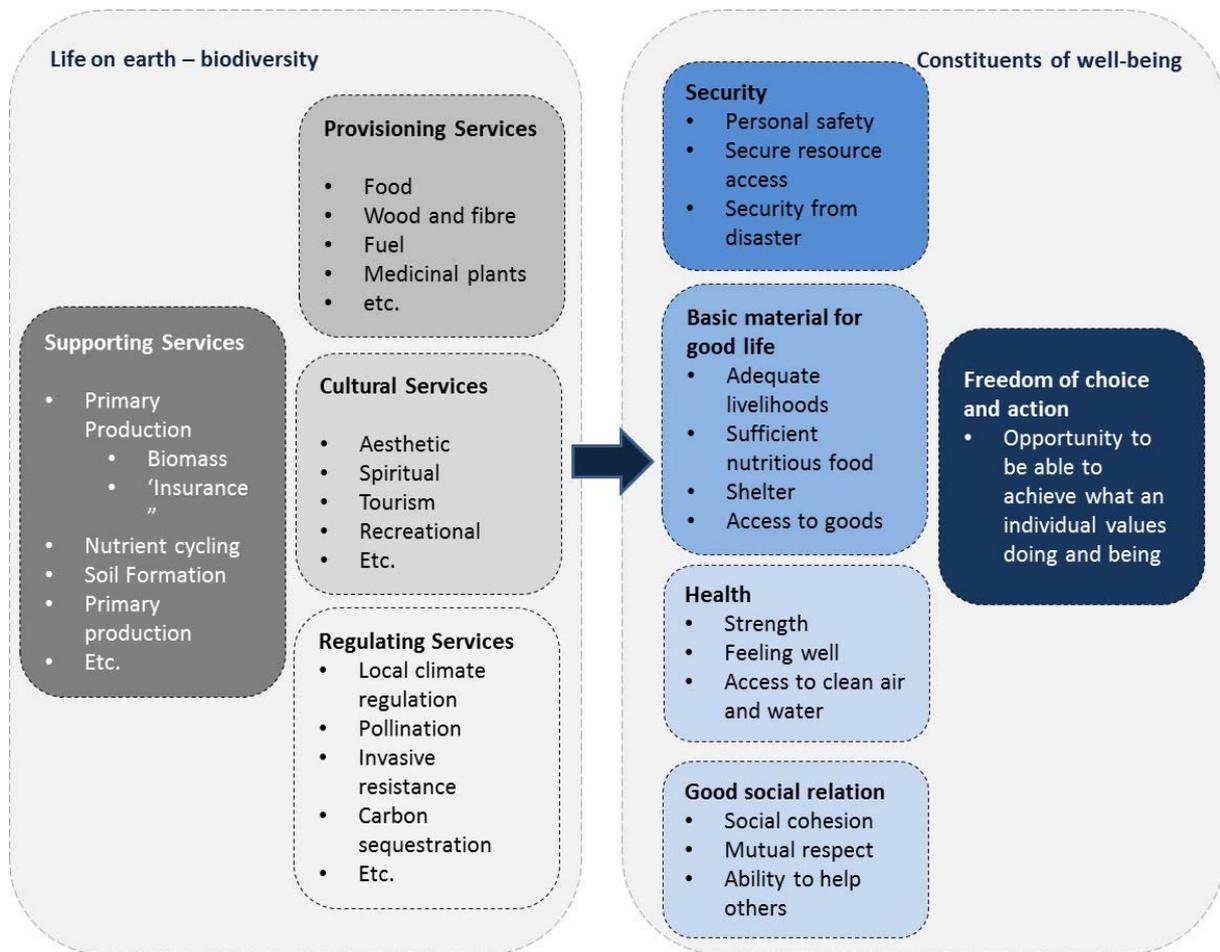


Figure 34: Ecosystem Services provided by or derived from inland water systems (taken from MA, 2005)

In order to achieve social and economic development goals, water ecosystem users and managers would often have to make trade-offs between the available services (MA, 2005), particularly as the use of resources has begun to outstrip their supply. Decisions regarding trade-offs are complicated by the perceived value of ecosystem services by different stakeholder groups (Lankford et al. 2011). Furthermore, policy makers often ignore supporting and regulatory services as they were difficult to quantify and monitor.

If water resources were over utilised for short term benefit, or if water resources were degraded due to the impacts of waste discharges and land use, they could lose their ability to sustain utilisation in the long term (DWAF, 1997:30). Hence, policy indicated that it was essential to protect water resources in order to ensure their sustainable utilisation (DWAF, 1997:30).

The establishment of the Environmental Reserve was an important step in this direction since, under previous legislation, only limited provision was made to reserve a quantity of water for environmental protection purposes. The term “resource quality” was used to include the health of all of the parts of a water resource, which together make up an “ecosystem”, including plant and animal communities and their habitats (DWAF, 1997:30). It was the healthy functioning of the whole ecosystem that gives a water resource its ability to recover from droughts, floods and the impacts of human use (DWAF, 1997:30). Therefore, the most effective approach was to use receiving water quality objectives as the basis for water environmental quality management (DWAF, 1997:30)

Policy indicated that in setting the Environmental Reserve, we would seek to identify and provide for all the factors needed for a water resource to function: the quality, quantity and reliability of water; the physical and vegetation aspects of habitat in the water and on the banks; and the numbers and kinds of plant and animal communities - this highlights the fact that “receiving water capacity” was a valuable property in its own right and should perhaps be managed from an economic, as well as from an environmental protection perspective (DWAF, 1997:36).

The NRWS2 indicated that the most critical resource protection imperative over the next five years was the use of the gazetted classification process to classify all the major rivers, wetlands and aquifers. This would involve stakeholder engagement to create ownership of water resources. The amount of water available to allocate will be determined after accounting for the Ecological Reserve, international obligations, and the water requirements for power generation, which was considered a strategic sector (DWA, 2013b). The NRWS2 indicated that the second priority in water allocation in the country was ensuring sufficient water of an appropriate quality to sustain healthy aquatic ecosystems. Comprehensive work was continuing in this regard (DWA, 2013b).

Ecological Reserve determination was an estimation of the environmental water requirements (EWR) of different components of a river (Jordanova et al. 2004). The flow patterns (magnitude, timing and duration) and water quality need to maintain a riverine ecosystem in a particular condition. The term, environmental water requirements, was used to refer to both the quantity and quality components. According to the NRWS2, from the flow perspective of the EWR, *approximately 25% of the total national MAR in South Africa of 49 000 million cubic metres per annum needs to remain in the rivers and estuaries to support ecological functioning of the catchments, depending on the specific river systems. In many water management areas, the ecological portion of the Reserve was not yet fully implemented* (DWA, 2013b). The EWR for a management area was not a single number but could vary for various site or nodes in the management area.

A significant proportion of the Ecological Reserve determinations has been done, since the promulgation of the NWA, with different level of confidence (DWA, 2013b). Progress with determining the Ecological Reserve for the major water management areas of the country in 2010 are shown in Figure 35 for surface waters and Figure 36 for groundwater. Figure 35 shows that desktop, rapid, intermediate and comprehensive reserve determinations have been completed in a large number of the surface waters in the water catchment management areas of the country. Figure 36 shows that in 2010, most of the groundwater reserve determinations were still in progress.

The DWS RDM website indicated various Ecological Reserve determinations were ongoing or are completed in the country, including (taken from DWS website):

- Intermediate Reserve Determination for Crocodile West
- Intermediate Reserve Determination for the Berg River
- Comprehensive Reserve Determination for the Olifants/Doring Rivers
- Comprehensive Reserve Determination for the Seekoei/Kromme Rivers
- Groundwater Reserve Determination for the Sandveld
- Comprehensive Reserve Determination for the Mhlatuze River
- Comprehensive Reserve Determination for the Komati River
- Comprehensive Reserve Determination for the Letaba River
- Comprehensive Reserve Determination for the Apies/Pienaar Rivers
- Comprehensive Reserve Determination for the Kei River

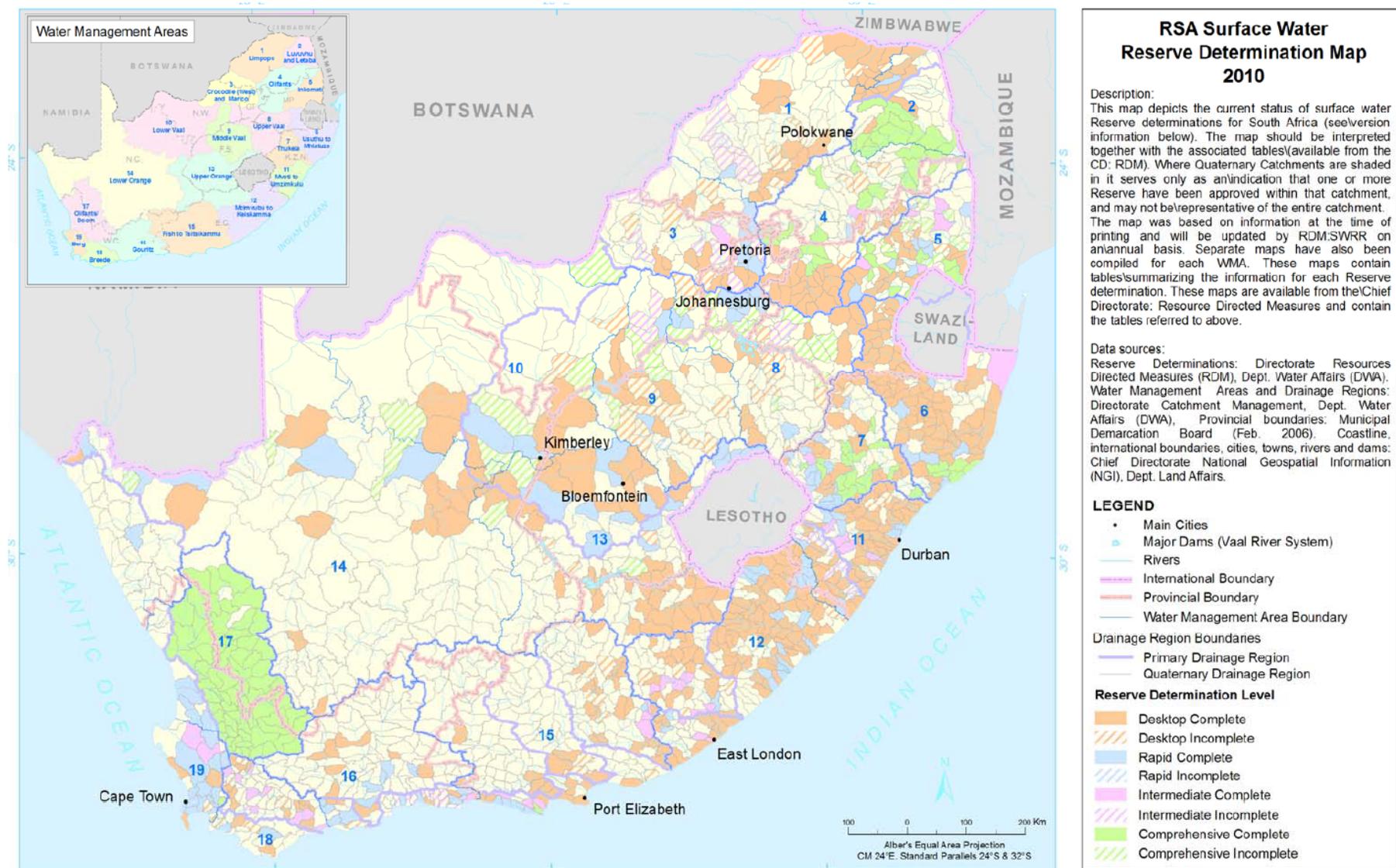


Figure 35: Surface water Reserve Determination Status Map in 2010 (taken from the DWS website)

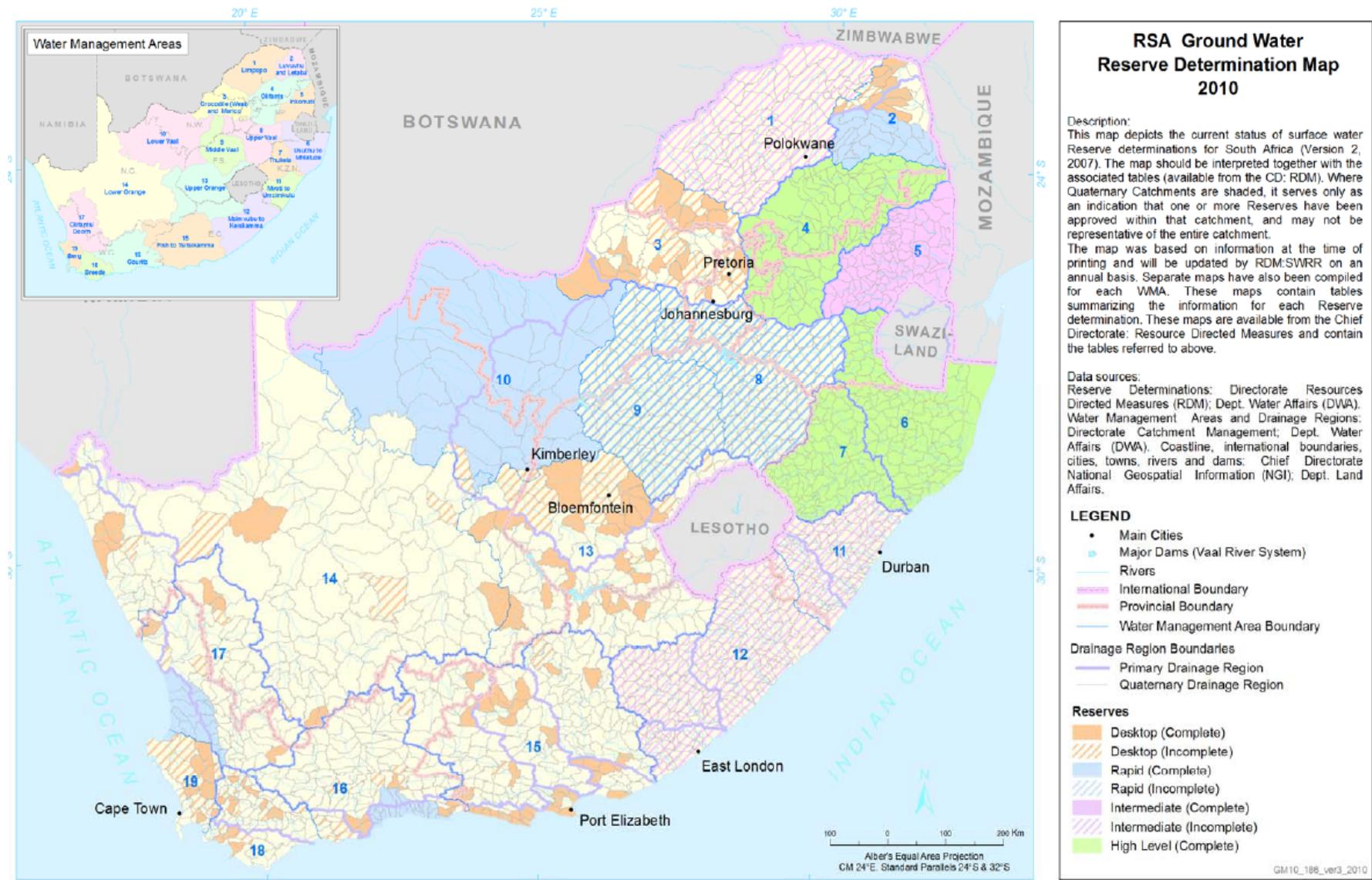


Figure 36: Groundwater Reserve Determination Status Map in 2010 (taken from the DWS website)

The NWRS2 has prioritised in Principle 1: Protection of the resource through classification of the resource with the Reserve as a prior right in the next five years. The NWRS2 indicates that *the most critical resource protection imperative over the next five years was the use of the gazetted classification process to classify all the major rivers, wetlands and aquifers. This should involve stakeholder engagement to create ownership of water resources. The amount of water available to allocate would be determined after accounting for the Reserve, international obligations and the water requirements for power generation, which was considered a strategic sector.*

7.4.2 Water Resource Protection

Almost every activity that takes place on land affects our water resources in some way. To control these impacts on the resource, policy required that planning be based on water catchment rather than political borders (DWAF, 1997:32). Procedures for consultation in this regard would be put in place to allow Government to protect human and environmental health in relation to water quality and quantity (DWAF, 1997:32).

Principle 15 of the White Paper on a National Water Policy for South Africa highlighted that water quality and quantity were interdependent and shall be managed in an integrated manner, which was consistent with broader environmental management approaches (DWAF, 1997:61). There was as much concern to minimise the impact of other activities on water resources as there was to develop new water sources, for there was no benefit to gaining access to more water if its quality was so poor that it cannot be used (DWAF, 1997:26).

The National Water Act (1998) defined resource quality to mean the quality of all the aspects of a water resource including:

- the quantity, pattern, timing, water level and assurance of instream flow;
- the water quality, including the physical, chemical and biological characteristics of the water;
- the character and condition of the instream and riparian habitat; and
- the characteristics, condition and distribution of the aquatic biota.

The policy further outlines that for effective resource protection, two separate sets of measures were required (figure 37):

- Resource Directed Measures
- Source Directed Controls

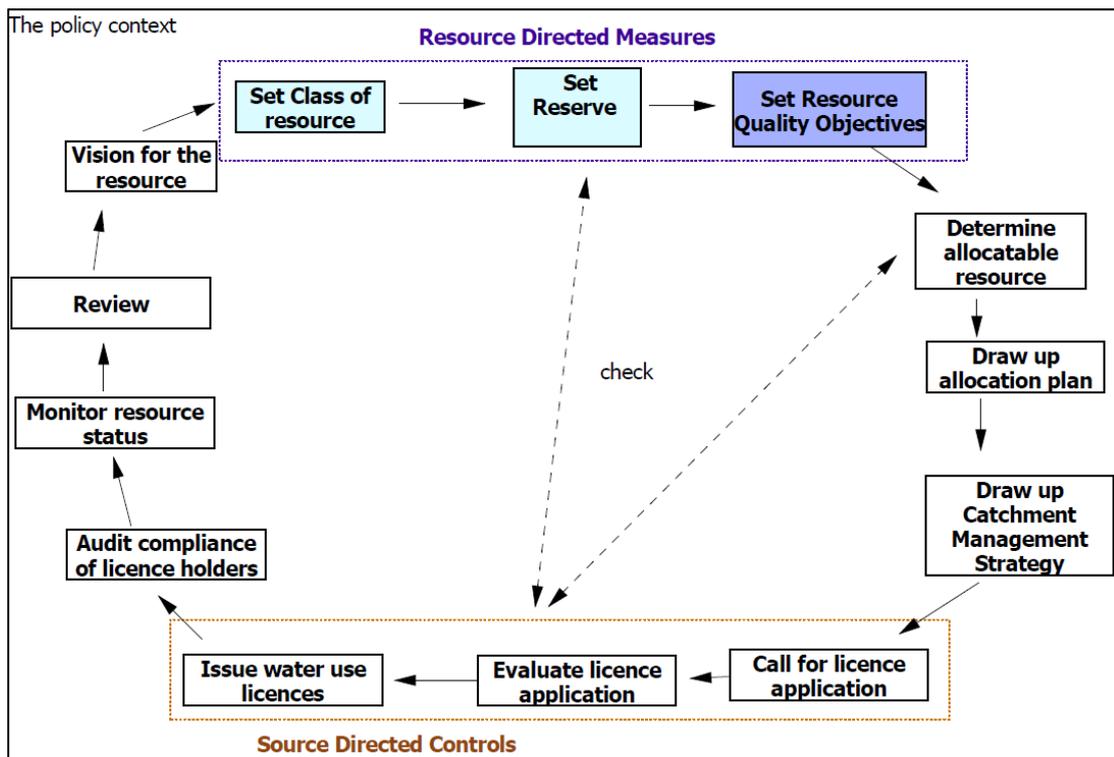


Figure 37: Schematic of the steps in the water resource management cycle in South Africa (taken from Pollard et al., 2002).

7.4.2.1 Resource-directed measures

The first measures of resource protection in the policy was that of resource-directed measures (RDMs), which set clear objectives for the desired level of protection for each resource (DWAF, 1997:31). The policy indicated that a national resource protection classification system would be introduced (DWAF, 1997:31). Through a process of consensus-seeking among water users and other stakeholders, the level of protection for a resource would be decided by setting objectives for each aspect of the Ecological Reserve (water quality, quantity and assurance, habitat structure, and living organisms) (DWAF, 1997:31). The objectives for each aspect of the Ecological Reserve would show what degree of change or impact was considered acceptable, and unlikely to damage a water resource beyond repair (DWAF, 1997:31).

Resources would be grouped into a number of protection classes, with each class representing a certain level of protection (DWAF, 1997:31). Where a high level of protection was required, the objectives would be strict, demanding a low risk of damage and the use of great caution. In other cases, the need for short to medium term use could be more pressing and the need for protection lower (DWAF, 1997:31). Some resources could already need action to restore them to a healthy state, and, in future, no resources should be allowed to become irreversibly degraded (DWAF, 1997:31).

With this in mind, Africa had committed to Resource Directed Measures (RDMs), which focus on the quality of the water resource itself, regarding it as an ecosystem rather than a commodity. RDMs comprised the following components (DWAF, 2006):

- **Classification system:** The purpose was to provide a set of nationally consistent rules to guide decision making about water resources - what would be allowed to happen in our water resources and what would not be allowed to happen. The management class was a combination of the ecological requirements for the resource and the requirements of other water users within the catchment.
- **The Reserve:** This was the quantity and quality of water required to satisfy the basic human needs, and to protect aquatic ecosystems, in order to secure ecologically sustainable development and use of the relevant water resource. The objective of the Reserve was to serve the needs of the people who depend on ecosystem-based goods and services (Van Wyk *et al.*, 2006).
- **Resource Quality Objectives (RQOs):** RQOs were “clear goals relating to the quality of the relevant water resources” set in accordance with the management class that had been selected for that resource, and could relate to water quality, water quantity, or the integrity of the aquatic ecosystems. They were objectives for controlling impacts on the water resource through regulatory measures, such as licensing of water use. It was formally the Department's responsibility to comply with RQOs, not individual water users. Resource Water Quality Objectives (RWQOs) were the water quality component of the Resource Quality Objectives (RQOs).

The NWA mandated that, as soon as was reasonably practicable, the Minister must prescribe a system for classifying water resources (South Africa, 1998). The system for classifying water resources could (South Africa, 1998):

- establish guidelines and procedures for determining different classes of water resources;
- in respect of each class of water resource:
- establish procedures for determining the Reserve;
- establish procedures which were designed to satisfy the water quality requirements of water users as far as was reasonably possible, without significantly altering the natural water quality characteristics of the resource;
- set out water uses for instream or land-based activities which activities must be regulated or prohibited in order to protect the water resource; and
- provide for such other matters relating to the protection, use, development, conservation, management and control of water resources, as the Minister considers necessary.

Part 2 of the NWA legislated that the Director-General was required to use the classification system to determine the class and resource quality objectives of all, or part of, water resources considered to be significant. The purpose of the resource quality objectives was to establish clear goals relating to the quality of the relevant water resources (South Africa, 1998). In determining resource quality objectives, a balance was to be sought between the need to protect and sustain water resources on the one hand, and the need to develop and use them on the other. Provision was made for preliminary determinations of the class and resource quality objectives of water resources before the formal classification system was established. Once the class of a water resource and the resource quality objectives had been determined, they were binding on all authorities and institutions when exercising any power or performing any duties under the Act (South Africa, 1998).

At the time of this study, the DWS was monitoring whether Resource Water Quality Objectives (RWQOs), which had been set for 6 water quality parameters (i.e. electrical conductivity, pH, sulphate, chloride, phosphate, ammonia) for various geographic locations, were being complied with or not. This was a compliance / non-compliance dashboard related to RWQOs. There could be cases where data was not available for all 6 water quality parameters - a “no value” indication was given when data was not available. The 6 water quality parameters included in this dashboard had been chosen as they were likely to be of concern in all catchments (DWS, NIWIMS). Figure 38 shows that for large areas of the country RQOs were currently not being monitoring, with water quality parameters only being monitored in the coastal Western Cape and Eastern Cape management areas, and in the Upper and Lower Vaal areas.

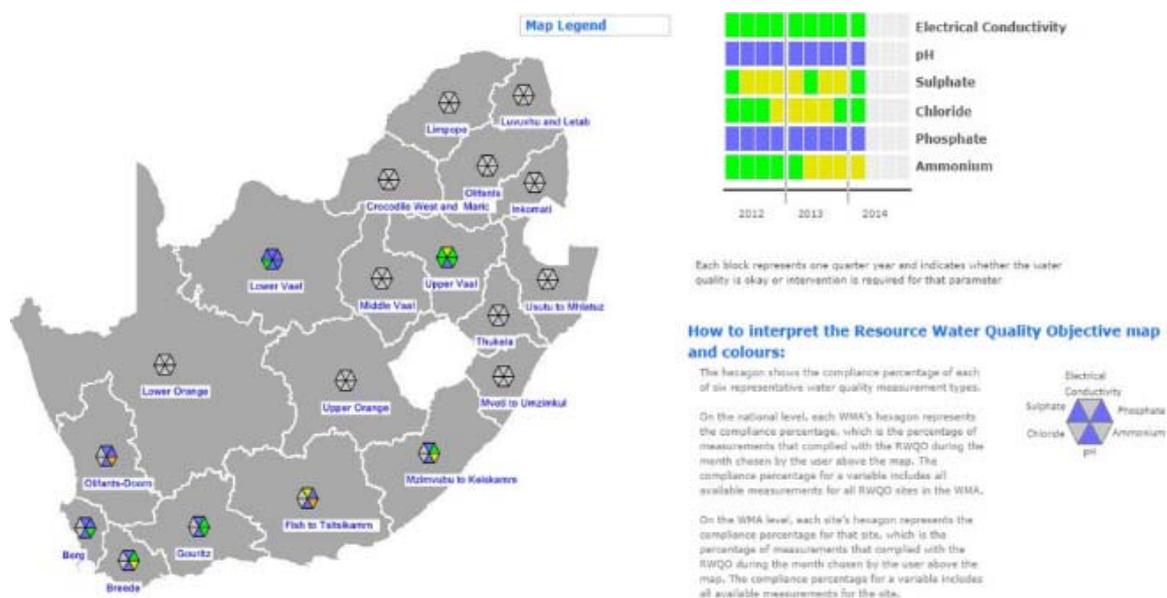


Figure 38: WQO parameters monitoring in the catchment management areas of the country (DWA, NIWIMS).

7.4.2.2 Source-directed controls

Pollution can be remedied or even better prevented at the source and therefore the second measure of resource protection in the policy were source-directed controls, which aim to control what was done to the water resources so that the resource protection objectives were achieved (DWA, 1997:31). These include source reduction measures that aim to reduce or eliminate the production of potential pollutants that could harm our water resources.

Policy indicated that efforts to introduce source control would be strengthened, through permits and standards, and through changes in technologies and land-use, with the final aim of getting as close as possible to a situation in which no discharge of pollutants into our water occur (DWA, 1997:31).

Chapter 4 of the NWA (36:1998) contains provisions on *Source Directed Controls* (SDC) (South Africa, 1998). These deal with the regulation of water use. SDC focus on managing the quality and quantity of water entering a water resource with the primary purpose of ensuring

that the objectives that had been set for the water resource (typically defined by the management class and RQOs) were achieved (DWAF, 2006). SDC include regulatory mechanisms, such as water quality standards for waste water, waste water discharges, pollution prevention, and waste minimisation technologies. Additionally, progressive implementation of self-regulation was encouraged. Economic incentive mechanisms were also to be implemented (DWAF 1997).

The authorisation of a water use (through a licence) was an important SDC.

7.4.3 Water use efficiency

The policy indicated that present use of water was often wasteful and inefficient. Greater attention was to be given to the efficient use of water since, with so much demand, there was little incentive to transport water along distances to one set of users if that means depriving others (DWAF, 1997:26). A formal framework for promoting water use and efficiency in industry, recreation and ecotourism needed to be developed and the framework for water use in mining required further development and specific attention (DWAF, 1997:35).

The policy made particular note of the importance of ground water, as demand on these resources was rapidly growing throughout the country due to the limited surface water resources and the need to develop local resources optimally (DWAF, 1994:30). The Department, at the time, had embarked on a groundwater characterisation and mapping programme to overcome this, although the programme needed to be accelerated (DWAF, 1994:30).

The policy indicated that limiting the use of water resources must be part of South Africa's development strategy (DWAF, 1997). Consideration would also be given to the control of activities that could have serious impacts on water resources but over which water managers currently had no direct control, such as radioactive pollution, and the disposal and importation of hazardous wastes (DWAF, 1997:32).

It must also be recognised that there could be environmental and social costs of water use and resource development, which were not reflected in the water price (DWAF, 1997:37). In pursuit of the objectives of water management, it was widely agreed that the setting of the appropriate price for a natural resource, such as water, could be an effective mechanism to achieve its efficient and productive use (DWAF, 1997:36).

According to reports by the recently formed Strategic Water Partners Network (SWPN), "water demand in South Africa would rise by 52% within the next 30 years, while the supply of water was sharply declining; if current trends of leakage from aged and poorly maintained municipal infrastructure and the loss of wetlands persist, this growth in demand would intensify competition for water resources across all sectors of the economy." And, if no urgent action was taken, South Africa would experience a 17% gap between water demand and supply by 2030, equating to a water shortfall of 2.7 billion cubic metres (McKinsey and Company, 2010).

The NWRS2 states that the DWA would develop guidelines to assist water services institutions to develop appropriate WDM strategies and programmes. The DWA was also developing

Reconciliation Strategies, of which WCWDM forms an integral part in balancing supplies and demands (DWA, 2013b). Through these studies, targets to reduce the demand would be set for all the major demand centres, and WCWDM has been identified as the first step to be implemented in all other towns.

In addition, the NWRS2 indicated that apart from the targets set through the Reconciliation Strategies, the President had set a national target to half water losses by 2014.

7.4.3.1 **Water conservation**

The policy indicated that water conservation programmes could be far better investments than financing new dams, new tunnels and pumping stations, and new weirs and pipelines. Conservation programmes could both increase water supply (by, for instance, controlling land use practices) and manage demand (for instance, through the application of appropriate tariffs) (DWAF, 1997:2)

The policy advocated the development of appropriate tools and methodologies (such as demand management, water use audits, fitting of water-efficient domestic fittings, pre-payment metering, the promotion of best available industrial technology in industry, strategic environmental assessments, and environmental impact assessments) to ensure the success of water conservation (DWAF, 1997:35). The collection and analysis of data and the circulation of information would also be very important (DWAF, 1997:35).

Finally, policy specified that to improve water use and promote conservation, communication and educational activities were very important (DWAF, 1997:35).

The NWA defined conservation in relation to a water resource as the *efficient use and saving of water, achieved through measures such as water saving devices, water efficient processes, water demand management, and water rationing*. Section 6 of the NWA mandated that the national water resource strategy must set out the strategies, objectives, plans, guidelines and procedures of the Minister and institutional arrangements relating to the water conservation within the framework of existing relevant government policy and set out principles relating to water conservation and water demand management. Water use authorisations all need to address water conservation measures (South Africa, 1998).

The NWRS2 defined water conservation as *the minimisation of loss or waste, the care and protection of water resources and the efficient and effective use of water* (DWA, 2013b). A priority for the water sector in the next 5 years will be water conservation and water demand management (DWA, 2013b). Two objectives will be to achieve significant water savings by all sectors through the implementation of appropriate water conservation and water demand management measures to meet the social and economic needs of South Africa both now and in the future (DWA, 2013b).

Water conservation was defined in the NWRS2 as *the minimisation of loss or waste, the care and protection of water resources and the efficient and effective use of water*. The country has committed, in the NDP, to:

- practise water conservation to ensure sufficient water for equitable economic growth and to support the achievement of the national developmental goals. Thus, all sectors of the

economy needed to prioritise water conservation in their development plans (NDP imperative, Presidency, 2012).

- develop between 2012 and 2015 a dedicated national water conservation and water demand management programme, with clear national and local targets for 2017 and 2022, and sub programmes focused on municipalities, industry and agriculture, should be developed (NDP imperative, Presidency, 2012); and
- put in place measures to halve water losses by 2014 (State of the National Address, 2010 and NDP imperative). This did not only mean addressing water losses in municipal water systems, which were estimated to be in the region of 1000 million m³ (25% of water supplied), but also in irrigations systems, which were estimated to had water losses of between 35-45% (DWA, 2013b). Extensive irrigation areas were frequently supplied from long canal systems that need refurbishment. Inadequate repairs and maintenance result in unacceptable water losses, mainly through leakage. In some cases, more than 60% of the available water was lost (DWA, 2013b).

Water conservation was thus the conservation and management of available water supplies. Interventions could include:

- water loss reduction activities;
- water resource conservation; and
- water resource quality management activities.

The policy was however weak in water conservation practices and should in future be expanded to address this emerging water issues.

7.4.3.2 Water demand management

According to the policy, unless there was a good understanding of water use in the sector, it would be difficult to design appropriate programmes to promote better utilisation (DWAF, 1997:33). The White Paper indicated that serious efforts must be made to manage the demand for water rather than simply attempting to supply it (DWAF, 1997:41).

The NWRS2 defined water demand management as the adaptation and implementation of a strategy or a programme by a water institution or consumer to influence the water demand and usage of water in order to meet any of the following objectives: economic efficiency, social development, social equity, environmental protection, sustainability of water supply and services and political acceptability (DWA 2013b).

The planning unit in the DWS conducted reconciliation studies to reconcile demand and supply in combination with different future scenarios for some key water supply areas. Some results from the Reconciliation Strategies were an assessment to determine the potential reduction in demand (and associated savings), which was conducted for all the municipalities in the Integrated Vaal River system (DWA, 2013b). Each of the municipalities were given a targeted saving, based on the individual assessments. The total potential saving for the Vaal River system amounted to about 200 million cubic metres - 15% of the system input volume to be achieved by 2015. This study also indicated that about 95% of the potential savings would have to be achieved by the “big four” (the City of Johannesburg, City of Tshwane, City of Ekurhuleni metropolitan municipalities and Emfuleni Local Municipality) (DWA, 2013b).

8 WATER SERVICES POLICY REVIEW

This section of the report reviews the water supply and sanitation policies (White Paper for Water Supply and Sanitation (1994) and the White Paper on Basic Households Sanitation (2001)) of the country, the Water Services Act (South Africa, 1997) and the Strategic Framework for Water Services (DWAF, 2003), which was the implementation mechanisms for these policies and legislation. The policy, legislation and strategy were reviewed under the SIA heading of institutional aspects, economic imperatives, social intents and environmental objectives.

8.1 INSTITUTIONAL WATER SERVICES POLICY INTENTIONS

8.1.1 Water services entities and institutions

8.1.1.1 Role of the Minister of Water Affairs and Sanitation

The White Paper on Water Supply and Sanitation (1994) indicated that as custodian of this precious resource, the Department of Water Affairs and Forestry (DWAF) had the national responsibility of ensuring that both the needs of people and of the economy that sustains them were effectively met (DWAF, 1994:1). The Department of Water Affairs and Forestry's goal, according to the White Paper, was to end the inequity in access to basic water supply and sanitation services. This Department would be responsible for water resource management, for monitoring and regulating functions and specifically to ensure that an enabling environment for community-based water supply and sanitation development was maintained.

Section 73 of the Water Service Act indicated that Minister and thus the Department of Water and Sanitation may:

- a) acquire a water services work and could transfer or dispose of any water services work belonging to the National Government;
- b) construct, operate, alter or repair any water services work with the permission of the relevant water services institution;
- c) contract with any person to perform any work which the Minister was authorised to perform under this Act;
- d) act as a water services provider under contract or approval only if the relevant water services authority was unable to provide the water services;
- e) provide water services in emergency situations;
- f) perform the functions of a water services authority or water board;
- g) levy tariffs for water services provided by him or her;
- h) issue guidelines to water services institutions on performing their functions in terms of this Act;
- i) issue model conditions for the provision of services for use by water boards and water services committees;
- j) prescribe measures to be taken by water services institutions to conserve water;
- k) prescribe how any matter arising out of the repeal of any law by this Act must be dealt with, to the extent that this Act or any other law did not sufficiently provide for it; and
- l) on good cause, extend any time period provided for in this Act.

8.1.1.2 Role of the Department of Water and Sanitation

Earlier policy intent for national government – White Paper on Water Supply and Sanitation (1994)

The first water-related policy in the country, the 1994 White Paper on Water Supply and Sanitation, focused on the policy intents to build a single, national department to manage and regulate water supply and sanitation in the country. The policy focused largely on the formation of the DWAF and supporting organisations. At the time, local government responsibility for water supply and sanitation had not yet been operationalised, with the DWAF envisaged to fulfil this role until this devolution occurred. The early policy thus assigned national government responsibility to form the new DWAF (DWAF, 1994:2), particularly the Chief Directorate of Community Water Supply and Sanitation (CWSS) in the DWAF. Whilst the DWAF, up to 1994, focussed solely on the management of water resources, this opened a totally new dimension in the DWAF. The purpose of the CWSS in the DWAF was (DWAF, 1994:2):

- Ongoing operation of potable water supply systems;
- Planning of expansion of services (with provincial government) in keeping with policies in the White Paper;
- Promotion of investments to achieve expansion of services;
- Development of the organisations need (local and regional) to achieve the goals of the government, as outlined in the RDP; and
- Monitoring and regulation of water supply and sanitation activities.

The top priority for the new government after 1994 was to provide access to water and sanitation for the millions of South Africans left without such services during the apartheid years. As Muller summarised it (Muller, 2013):

This was a total mobilisation of all available resources at a scale that was not seen before in the country and it was achieved because of the following elements in place:

- Sound policies with practical roots
- Total political commitment and alignment by all with national policy
- A technical strong department (DWAF) that was used as the readily available implementing agent- redirect focus from water resources to water services and create a special dedicated unit.
- Clear roles and responsibilities
- Substantial budgetary allocations
- Sufficient technical skills and use of the available skills- also those that were in the rural areas and had a sound understanding of the situation and need of rural people.
- Planning received priority
- Spare bulk system capacity was available as several of the large water systems were well designed with excess capacity
- Marketing and branding was good
- Quick wins were taken

The policy rationale for a central Government department for water supply and sanitation was to ensure the smooth integration of all the previous homeland staff, functions, and budgets into one national department and to transform and democratise the Water Boards that were operational at the time (DWAF, 1994:9). The process of integration of ex-homeland staff started with the appointment of an Interim Management Team (IMT) of four officials to drive the amalgamation process, as well as the ongoing provincial operations. For example, in Mpumalanga Province it was the previous KwaNdebele and Kangwane staff that had to be integrated with the DWAF staff in the Nelspruit office to form a new regional (provincial) office of the DWAF. Some of the oldest water boards, such as Rand Water Board, had their own legislation and this had to be repealed and replaced by new legislation for all water boards now incorporated into the new Water Services Act (See Chapter 6 of Act 108 of 1997).

The function of central government, in accordance with the policy, was to:

- create an environment within which locally based organisations could plan, construct and manage their own services – including local government institutions. These principles were fully captured in the Water Services Act (See e.g. section 2: “main objects of Act” in WSAAct 1997);
- play a supportive function in the area of training, information dissemination, and technical and managerial assistance (international experience) (DWAF, 1994:7). The 1994 WP appeared in the International Drinking Water and Sanitation Decade, which ran from 1981 to 1990 and was followed by the MDGs in the period 2000 to 2015. Throughout this period South Africa kept track of international events, as well as resolutions at the United Nations (UN). The DWAF also created a fully-fledged unit to deal with international relations;
- ensure the distinction between the functions and responsibilities of the National Government and the Provincial Governments were clearly defined (DWAF, 1994:10) This was legislated in the WS Act, for example the issue of intervention as legislated in section 63 of the WS Act; and
- enable people to take their development destinies in their own hands – it was the intention of Government to create the enabling environment necessary to ensure that all South Africans had access to acceptable levels of water supply and sanitation (no easy road) (DWAF, 1994:8) as legislated in section 3 of the WS Act. Policies were indeed implemented and the necessary budgets provided to enable this daunting task. South Africa did very well in this regard and had already achieved the MDG target for access to water and was on track to achieve the sanitation target.

The policy envisaged that government would have two organisational structures for the execution of water supply and sanitation activities in the country (DWAF, 1994:26):

- statutory institutions, such as Water Boards (DWAF, 1994:27). The policy set out an “expanded role of water boards”, which in effect meant they had to move beyond supplying bulk water to industry and municipalities, and supply water and sanitation services to all communities in their areas. All water boards started after 1994 to implement water and sanitation projects as implementing agents of the DWAF; and
- a network of supporting second tier institutions, which would cover the entire territory of the nation (DWAF, 1994:24). The role of these second-tier institutions was to support organised local government, as well as communities, where effective local government had not yet been established (DWAF, 1994:27). They were to respond to demands from

the communities, as well as act directly to ensure that the minimum standards established by national Government were achieved (DWAF, 1994:27). They were also to act as bulk regional suppliers of water where appropriate (DWAF, 1994:24). See section 1.1.4.4 for full details on the Local Water Committees intended here as policy (DWAF, 1994, p 27).

The location of existing regional offices of the DWAF was catchment based in accordance with the requirements of their water resource management functions (DWAF, 1994:26). The scope of these activities suggests that new, specialised regional offices would be required to undertake this role (DWAF, 1994:26). These would be located, where appropriate, usually in the provincial capitals to accommodate the need for liaison with provincial governments on issues of planning and operation (DWAF, 1994:26). The pre-94 DWAF offices were established along catchment boundary lines and as implementation of the policy position, 94 of these offices were restructured along provincial boundaries (for example the Vaal regional office became the Gauteng office and a new office created in Kimberley for the Northern Cape). Some regional offices were also physically relocated to the new provincial capitals, e.g. Polokwane and Mafikeng.

The water supply and sanitation offices would be the executive arm of the Department except where Water Boards were established (DWAF, 1994:24). When this occurs, the regional offices would continue to play a role in the planning of new services, the allocation of central Government funds and the monitoring and regulation of service provision (DWAF, 1994:24). This policy was implemented by using water boards as the implementing agents for execution of projects with funds from the DWAF.

The White Paper on Water Supply and Sanitation assigned the DWAF national responsibility to:

- provide supervision (DWAF, 1994:9) – the department was responsible for water resource management, for monitoring and regulating functions and specifically to ensure that an enabling environment for community based water supply and sanitation development was maintained (DWAF, 1994:9) This policy intent was practically implemented through a comprehensive and ongoing restructuring process running over several years within the DWAF to create dedicated units, amongst others, for monitoring and regulation as well as for specific functions that need to ensure sustainable water supply and sanitation (Water Services);
- support the development of local government and not to usurp its functions (DWAF, 1994:11). The support function in the DWAF was strengthened but also distinguished or separated at “arm’s length” from the regulation function. The Strategic Framework for Water Services (SFWS) devoted a whole chapter to detail strategies for this support function;
- ensure that the closest cooperation be maintained between the Department and the Provinces given their joint interest in the development of the capacity of local government to provide (DWAF, 1997) services on an equitable and efficient basis (DWAF, 1994:10). This policy intent was implemented by mandating the DWAF regional offices (provincial offices) to build strong relations with the respective provincial governments, and the DWAF regional heads represented the DWAF in specific provincial government structures. The DWAF either participated in provincial development forums led by the

Premier's office or created specific water forums under the DWAF leadership (See section on specific legislated processes such as monitoring (section 62 of the WS Act) and Intervention in terms of section 63 of the WS Act);

- support institutional development at local level, as well as provide financial and technical assistance for the physical development of water supply and sanitation services (DWAF, 1994:9) Budgets and technical support such as planning, linkages with WR planning and funding for bulk were all components of such support (See section on Guidelines below for full details of support tools for water institutions).

The DWAF was tasked in the 1994 White Paper on Water Supply and Sanitation with building the capacity to establish national policy guidelines, a national water supply and sanitation development strategy, the formulation of criteria for State subsidies, the setting of minimum services standards, and monitoring and regulating service provision (DWAF, 1994:10). The Chief Directorate for Water Services was created to execute all these functions and a formal organisational structure created to give effect to these matters as listed.

Central Government was tasked in the policy to **ensure that all citizens had access to adequate basic services**, and to promote a supportive and enabling environment for community-based development (DWAF, 1994:34). National government in accordance with the policy would need to work closely with Provinces to assist local authorities where necessary to ensure both (1) that adequate services were developed, and (2) that water quality was not compromised through inadequate or ineffective waste treatment (DWAF, 1994:32).

The 1994 White Paper indicated that national government was responsible for:

- providing national water supply and sanitation policy, guidelines and standards,
- monitoring and auditing progress in water supply and sanitation;
- working in close co-operation with the Department of Health in policy formulation, planning, implementation and monitoring (DWAF, 1994:32).
- developing a joint strategy involving the Department of Water Affairs and Forestry, the Department of Health and the Provincial Governments (DWAF, 1994:33).
- The non-alignment of sanitation policies could be a cause of confusion amongst role players. Role players require certainty on matters such as tariff policy, free basic services policy, eligibility for funding, policies guiding the development of bylaws and policies regarding health, hygiene and environmental matters (DWAF, 2001:16). A review would be undertaken of municipal bylaws to ensure compliance with regulations regarding sanitation under the Water Services Act and regulations regarding waste water standards under the National Water Act (DWAF, 2001:16). An important function of the co-ordinating structures discussed in the next section would be to ensure that the policies of the different national government departments and the different spheres of government were aligned (DWAF, 2001:16).

8.1.1.3 **Provincial Government**

The policy intent on the role and function of the provinces was that these organisations would perform Schedule 6 functions in terms of the Constitution, particularly the development of local government (DWAF, 1994:34), provincial government shared the responsibility for assuring

service provision, specifically through the promotion of effective local government (DWAF, 1994:10).

The policy also made Provinces responsible for playing a supporting function to municipalities to achieve their objectives and to ensure that local municipalities perform effectively (DWAF, 2001:21). This supporting function could be performed in a number of areas, including financial, human resource and technical support (DWAF, 2001:21). The primary roles of the province relating to this policy were thus to (DWAF, 2001:21):

- monitor legislation through the National Council of Provinces (DWAF, 2001:22);
- ensure compliance with national policy and norms and standards, (DWAF, 2001:22)
- develop enabling provincial legislation and norms and standards (DWAF, 2001:22);
- coordinate regional planning (DWAF, 2001:22);
- promote integrated development and inter-departmental coordination (DWAF, 2001:22);
- monitor progress (DWAF, 2001:22).

Furthermore, certain provincial departments, such as the provincial departments of environment, local government, education, health and housing were the implementation arm of their national counterparts (DWAF, 2001:22).

8.1.1.4 **Water Boards**

At the time of development and implementation of the water policies, effective local government was not established in all areas of the country. The moral and political demand for water was however immediate (DWAF, 1994:11). The policy intent was thus tabled that, where necessary and appropriate, a second tier of institutions (such as Water Boards) would be established to provide bulk or regional water supplies and wastewater disposal services to local authorities (DWAF, 1994:9). Water Boards were thus considered by the policy as the primary agent of the DWAF in the development of water supply and sanitation services at a regional level (DWAF, 1994:24). The Minister of Water and Forestry in 1994, the late Minister Kader Asmal, had the vision of “wall to wall” water boards for South Africa - this was clear from the intention to “establish water boards where they do not exist at present (DWAF, 1994). Provisions for the establishment of new water boards were legislated in the WS Act, 1997 (See Chapter 6 and especially section 28 of the WS Act). A handful of new water boards were established, such as Ekangala and Bushbuckridge in Mpumalanga, and Amatole Water in the Eastern Cape.

Schedule 1 of the Water Service Act mandated the manner of establishment of board members, the roles and functions. Members of a water board, according to the Water Services Act, were appointed for a period of office determined by the Minister, which could not exceed four years (South Africa, 1997).

The policy indicated that the functions of Water Boards need to be redefined to include supplying water to local communities where there was no local authority, and to include sanitation (DWAF, 1994:25). The policy proposed that the scope and function of existing Water Boards be reviewed to extend their capacity to serve a wider population (DWAF, 1994:20). Where no local authority exists, these Water Boards would be democratised and rationalised and their mandate extended to address the mandate of sanitation and provision of services

direct to consumers (DWAF, 1994:34). In addition, Water Boards would need to support communities in the development and operation of small local water supply systems where bulk supply systems were inappropriate (DWAF, 1994:25). The role of the water boards, based on the policy, was thus to be of two types (DWAF, 1994:24):

- Firstly, they would continue to supply potable water directly to organised communities and, where appropriate, to individual consumers. This could also include the provision of sanitation services where appropriate (DWAF, 1994:24). This policy principle was entrenched in the WS Act by coining two types of functions, namely the “primary activities” of water boards as prescribed in section 29 of the WS Act.
- Secondly, they would perform a support role. They would assist in the establishment of statutory Local Water Committees and in the training of the committees to manage their own water supplies and sanitation services (DWAF, 1994:24). Assistance would take the form of technical, administrative, and training assistance to Local Water Committees and to Local Authorities (DWAF, 1994:24). This supporting role was expanded and included in the secondary functions of water boards, legislated as “other activities”, in section 30 of the WS Act. For example, one of the ‘other activities’ listed in section 30 was “providing management services, training and other support services to water services institutions.”

In addition, the policy indicated that there was also the opportunity to hand over certain Government water schemes to Water Boards who would take over financial responsibilities from the DWAF (DWAF, 1994:20). The possibility that this could be done in a manner that would generate savings, which could be applied elsewhere in the sector, should be investigated. This policy was implemented after the DWAF subsequently drafted a transfer policy setting out a clear strategy for this process and providing for interim subsidies to smooth out the financial implications of such transfers.

Water Boards were required to function as self-financing, non-profit, state owned utilities as described in the WS Act under the authority of the Minister of Water Affairs and Forestry (DWAF, 1994:20 and 24). The WS Act provided for a substantive list of parameters when water boards were executing their functions, including that they must strive to be financially viable (section 34(1)(c) of the WS Act) The WS Act also define in section 34(2) what was meant to be financially viable, such as to “repay and service its debts” (section 34(2)(a) and “recover its capital, operational and maintenance costs” as listed in section 32(20)(b).

New Water Boards need to be established where they do not exist (DWAF, 1994:25). Provisions for the establishment of new water boards was legislated in both the National Water Services Act and the National Water Act (South Africa, 1997; 1998).

It took considerable time and effort for a new water board to become fully functional and there was mixed results in the performance of the new boards. They were certainly not an immediate tool that could be ready to run with the immediate demands post-94, and other tools had to be used, such as the Build Operate Train and Transfer (BOTT) capital program.

Establishment of a new water board (Water Board) in the country was by the Minister through the Gazetting of establishment, showing the name, or approve a change of its name, and determine or changed its service area. The disestablishment of a Water Board was also through this gazetting procedure.

The Minister had established and disestablished a number of Water Boards since the promulgations of the two Acts. The country initially had 15 WBs across the country (Figure 39), but these had been rationalised to 12 in 2012 and later to 9 (see details below). According to the DWA (2013c), these 12 Water Boards supplied a total bulk potable water volume of approximately 2.46 billion m³/annum, (some 57% of the total domestic supply), had a total fixed asset value of R19.6 billion, and a total operating cost of R5.6 billion per annum. Figure 39 shows that not all municipalities could depend on Water Boards for regional bulk water supply infrastructure as their range of operation was limited.

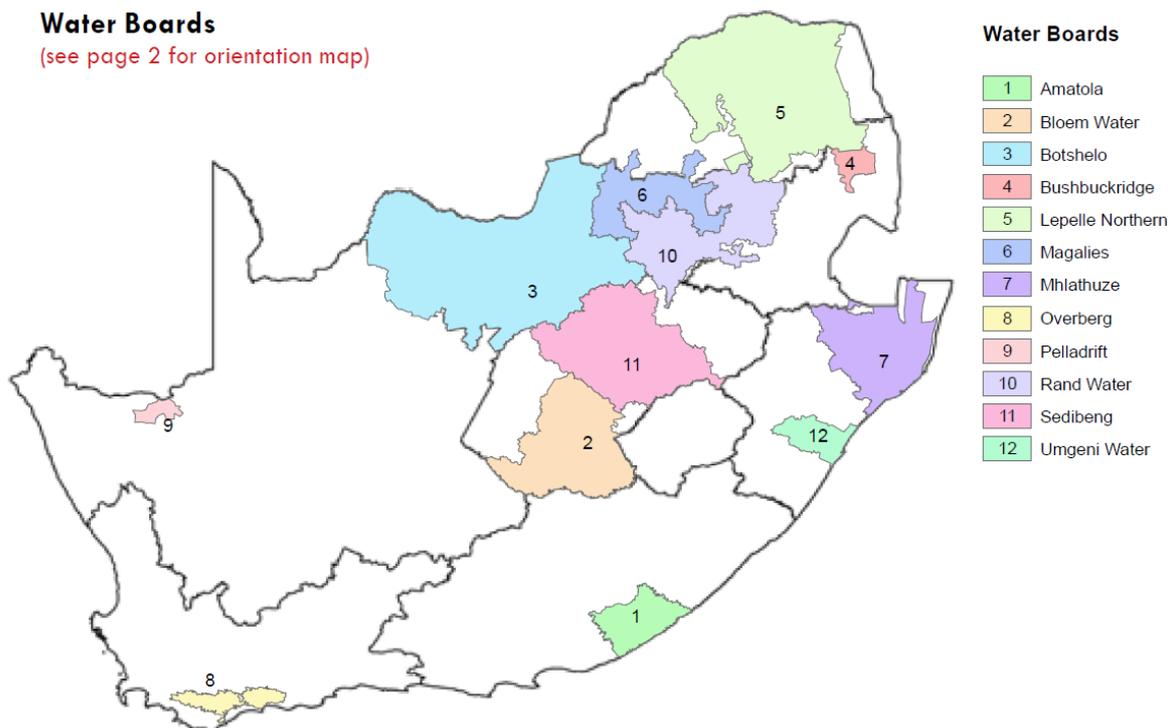


Figure 39: Coverage of South Africa's 12 Water Boards in 2012 (taken from DWA, 2013c)

The impact of Water Boards has been limited in certain areas of the country, as the area of the Water Board did not necessarily target those areas of the country with the greatest water service's needs. At the same time, a review of state-owned water boards in the country indicated that only a few of these were financially viable – due largely to debtors and size problems. According to the reporting on the DWS Strategic Plan (2015) the Department reported that a *total of R3.5 billion was owed to the water boards by municipalities as at the end of February 2015. This was of great concern to the Department and had been the subject of much discussion in government. Inter-governmental mechanisms had been employed to resolve disputes. The debt had a negative impact on the operations of the water boards* (<https://pmg.org.za/committee-meeting/20891/>). The Institution Reform and Realignment of the DWS had recommended that the 12 Water Boards be realigned and reduced to 8 by March 2016 (DWA, 2013c).

Based on the above-mentioned proposals and concerns related to water boards in the country, the Minister of Water and Sanitation formally disestablished 6 of the original 15 Water Boards in the country (see Table 14) and the expansion of the jurisdiction of 4 Water Boards.

Table 14 Current State of Reform of Water Boards in South Africa

Disestablishment			
Name		Date	Assumption of operations
Ikangala Water Board		23 January 2009 (Gazette No. 35)	
Alban Coast Board		26 February 2010 (Gazette No. 139)	
Namakwa Water Board		8 April 2011 (Gazette No. 312)	
Botshelo Water		1 April 2014 (Gazette No. 239)	The operations of Botshelo Water were incorporated into Magalies Water and Sedibeng
Bushbuckridge Water		1 April 2014 (Gazette No. 241)	
Pelladrift Water Board		15 October 2014 (Gazette No. 810)	
Expansion of operational area			
Amatole Water Board		12 March 2010 (Gazette No. 188)	Extension to include Nlambe Municipality
Sedibeng Water Board		8 April 2011 (Gazette No. 311)	
Magalies Water Board		1 April 2014 (Gazette No. 243)	Extension to include the Modiri-Molema district municipality area previously served by Botshelo Water.
Rand Water		1 April 2014 (Gazette No. 240)	Extension to include the upper Vaal and the entire area of Mpumalanga province as well as the service area of Bushbuckridge

The 2015 operational area of the 9 WATER BOARD in the country area is shown in Figure 40.

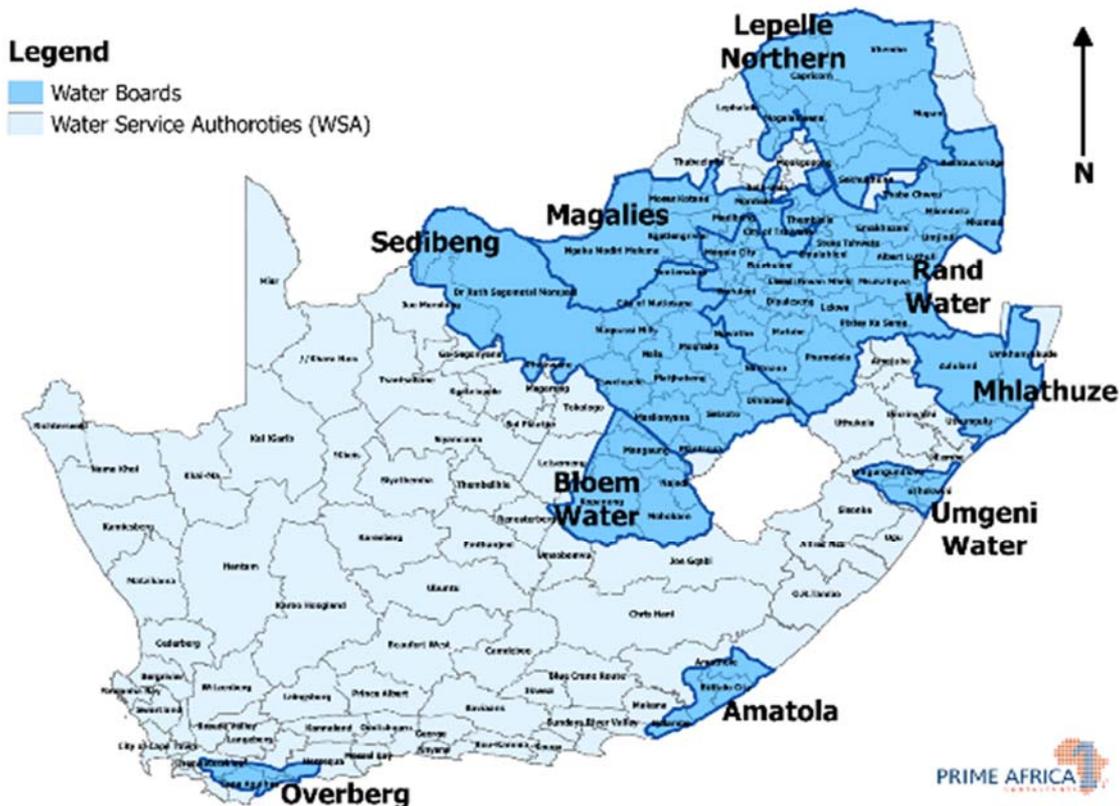


Figure 40: Current operational area of Water Board in South Africa

There were still vast areas of the country where no WATER BOARD exist to support WSAs and where there were significant water supply and sanitation backlogs. Of note was the old Transkei areas of the Eastern Cape, the central areas of KZN and the eastern area of the North-West province, all of which had shown high number of indigent households and great need for water supply infrastructure in 2013 (Figure 41). The reform of Water Boards was ongoing.

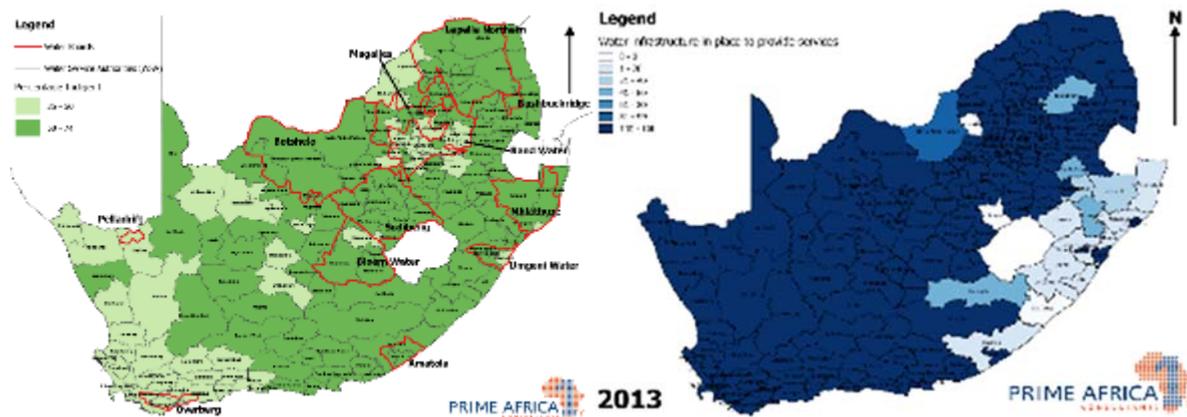


Figure 41: Left: WSAs in the country with high levels of indigent households (dark green) and Right: WSAs in the country which had low levels of water services infrastructure (lighter blue)

The Department of Water Affairs (DWA) Institutional Reform and Realignment Initiative had also raised the possibility of restructuring Water Boards into Regional Water Utilities, (RWUs) with provincial boundaries, to improve efficiency and do away with non-viable Water Boards. According to the DWA (2013b), the RWUs would:

- provide regional water resource infrastructure;
- provide regional bulk water supply infrastructure;
- provide local water supply infrastructure on behalf of municipalities;
- support municipalities in ‘mostly rural’ areas to build water services operational systems and management capacity through management contracts under a national support programme.
- support municipalities with ad hoc services, based on negotiation with individual municipalities.

The role and structure of Regional Water Utilities were still under discussion, but in 2012 recommendation was for 9 RWUs across the country (Figure 42).

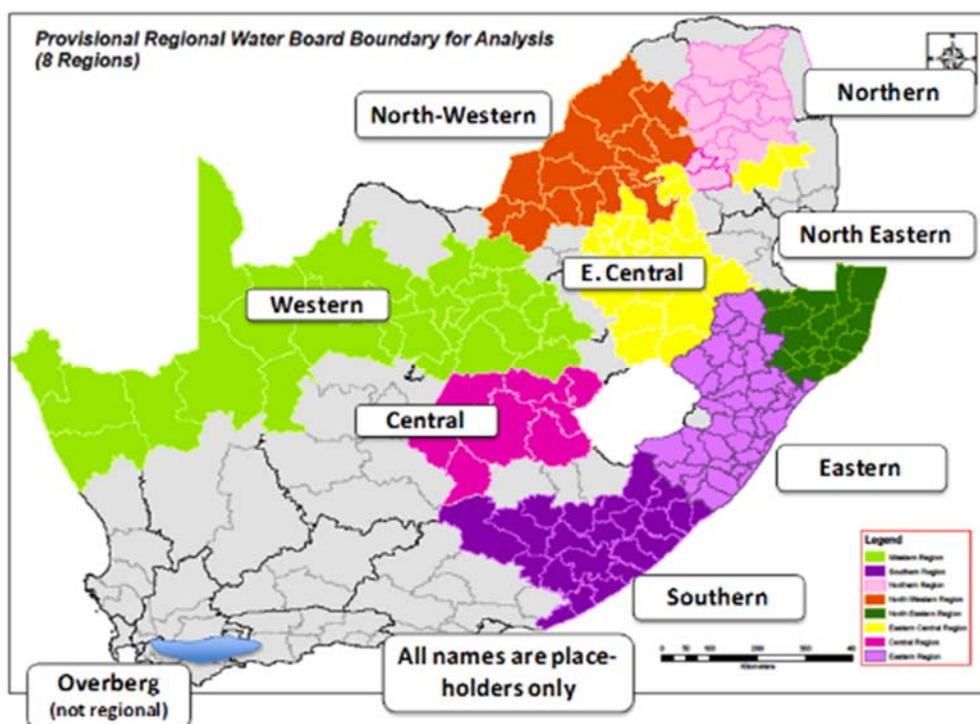


Figure 42: Proposal for RWU in South Africa as of 2012 (DWA, 2013c)

In support of the need for RWU in the country, the 2013 National Water Policy Review included the policy positions that:

The Minister was responsible for regional bulk infrastructure, including master planning and its functioning.

The functions of the Regional Water Utility would be to plan, build, operate, support and maintain regional bulk infrastructure.

Regional Water Utility institutional arrangements would be appropriate to the area of operation.

A Regional Water Utility must be established based on clear principles such as financial sustainability and clear funding mechanism and clarity on requirements for addition fiscal support to build, operate and maintain regional bulk infrastructure in the area of need

The Minister could issue a directive for a Regional Water Utility to address water infrastructure development and/or maintenance needs in an area.

8.1.1.5 Local government

Local government was charged in the NWP with the responsibility to: "... make provision for access by all persons residing within its area of jurisdiction to water, sanitation [and other services] ... providing that such services and amenities were rendered in an environmentally sustainable manner and were financially and physically practicable" (DWA, 1994:10). The role of Local Government was thus the implementation, operation and maintenance of

services to residents/consumers, supported by national and provincial government (DWAF, 1994:9, 12 and 34).

Policy indicated that local responsibility for implementation and management of sanitation services also lies with the local authority (DWAF, 1994:12 and 15). This role was to implement the policy intent of addressing sanitation backlog in a sustainable manner by (DWAF, 2001:21):

- creating a demand for sanitation improvement through health and hygiene awareness programmes (DWAF, 2001:21);
- identifying local sanitation improvement needs (DWAF, 2001:21);
- prioritising these needs (DWAF, 2001:21);
- planning within the IDP/WSDP process to respond to these needs, including the need for health and hygiene awareness and for sanitation services, together with the needs for other services as an integrated package of services, where appropriate aligned with the development of the Integrated Sustainable Rural Development Strategy (ISDRS) nodes (DWAF, 2001:21);
- aligning their budgets to achieve the planned objectives (DWAF, 2001:21);
- ensuring that sufficient and appropriate human resources were available to execute the plan including the development of building skills within the community (DWAF, 2001:21);
- implementing the plan (DWAF, 2001:21);
- monitoring and reporting on the results; and (DWAF, 2001:21)
- ensuring sustainability (DWAF, 2001:21).

The policy also indicated that the municipality, through its Environmental Health Practitioners, was responsible to promote health and hygiene awareness and to monitor the health of its communities (DWAF, 2001:21). The municipality was similarly responsible for ensuring an environmentally safe approach to sanitation and for monitoring the impact of the sanitation process on the environment (DWAF, 2001:21).

The Water Services Act introduces the **water services authority**, defined as any municipality, including a district or rural council as defined in the Local Government Transition Act, 1993 (Act No. 209 of 1993), responsible for ensuring access to water services and a **water services provider** which was defined as means any person who provided water services to consumers or to another water services institution, but did not include a water services (South Africa, 1997).

The SFWS indicated that a WSA may provide water services themselves and/or contract external water services providers to undertake the provision function on their behalf. Water services authorities were responsible for securing, from the DWAF (or CMAs where established and where this function was delegated), licenses to abstract water from, and to discharge wastewater to, the water resource. A WSA had primary responsibility for ensuring the provision of water services, more specifically the WSA had the following roles and responsibilities:

- **Ensuring access** – ensure realisation of the right to access, particularly basic water services, subject to available resources.

- **Planning** – prepare water services development plans to ensure effective, efficient, affordable, economical and sustainable access which promote sustainable livelihoods and economic development.
- **Regulation** - regulate water services provision and water services providers within their area through the enactment of by-laws and the regulation of contracts.
- **Provision** - ensure the provision of effective, efficient and sustainable water services either by themselves or through a contract with an organisation to provide the service.

The SFWS also indicated that the WSA had a universal service obligation to ensure that all people living within their jurisdiction were progressively provided with at least basic water services.

The SFWS indicated that a local water services provider was those that provide water services to (or on behalf of) only one water services authority, while a regional water services provider are water services providers that operate regional infrastructure (crossing water services authority boundaries) and provide water services to (or on behalf of) more than one water services authority. A WSP had the following role and responsibilities in the water services institution:

- **Provide water services** - provide water services in accordance with the Constitution, the Water Services Act and the by-laws of the water services authority, and in terms of any specific conditions set by the water services authority in a contract.
- **Effectiveness and efficiency** - provide water services in an effective and efficient manner, striving to meet and exceed recognised best-practice benchmarks.
- **Consumer charter** - must publish a consumer charter which was consistent with by-laws and other regulations, was approved by the water services authority, and includes the duties and responsibilities of both the water services provider and the consumer, including the conditions of the supply of water services and payment.
- **Consumer relations** - communicate the contents of the consumer charter with all consumers to whom they provide services.
- **Consumer friendly billing** - present consumers with accounts which are clear and easy to understand.
- **Business plan** - develop a business plan.
- **Duty to provide information** - provide information concerning the provision of water services as reasonably requested by the Minister, the DWAF, the national water services regulator, the relevant province and consumers.

Water Service Authorities

Chapter 3 of the Water Service Act outlines the role and responsibility of a WSA, which was to progressively ensure efficient, affordable, economical and sustainable access to water services to all consumer and potential consumers in their jurisdiction, subject to (South Africa, 1997):

- a) the availability of resources;
- b) the need for an equitable allocation of resources to all consumers and potential consumers within the authority's area of jurisdiction;

- c) the need to regulate access to water services in an equitable way;
- d) the duty of consumers to pay reasonable charges, which must be in accordance with any prescribed norms and standards for tariffs for water services;
- e) the duty to conserve water resources;
- f) the nature, topography, zoning and situation of the land in question; and
- g) The right of the relevant water services authority to limit or discontinue the provision of water services if there was a failure to comply with reasonable conditions set for the provision of such services.

Section (4) of Chapter 3 of the Act indicated that the water services authority could not unreasonably refuse or fail to give access to water services to a consumer or potential consumer in its area of jurisdiction but could impose reasonable limitations on the use of water services.

Water Services Institutions (WSAs and WSPs) now cover all geographical areas of South Africa. Figure 43 demonstrates the jurisdiction of WSAs in the country, with some areas of the country (i.e. Western Cape, Northern Cape, Mpumalanga and Free State) where WSAs were Local Municipalities, other areas of the country were a mix of District and Local Municipal WSAs (North West, Eastern Cape and Limpopo), while the remainder (Kwa-Zulu Natal) the WSAs were largely District Municipalities. All the Metros were WSAs.

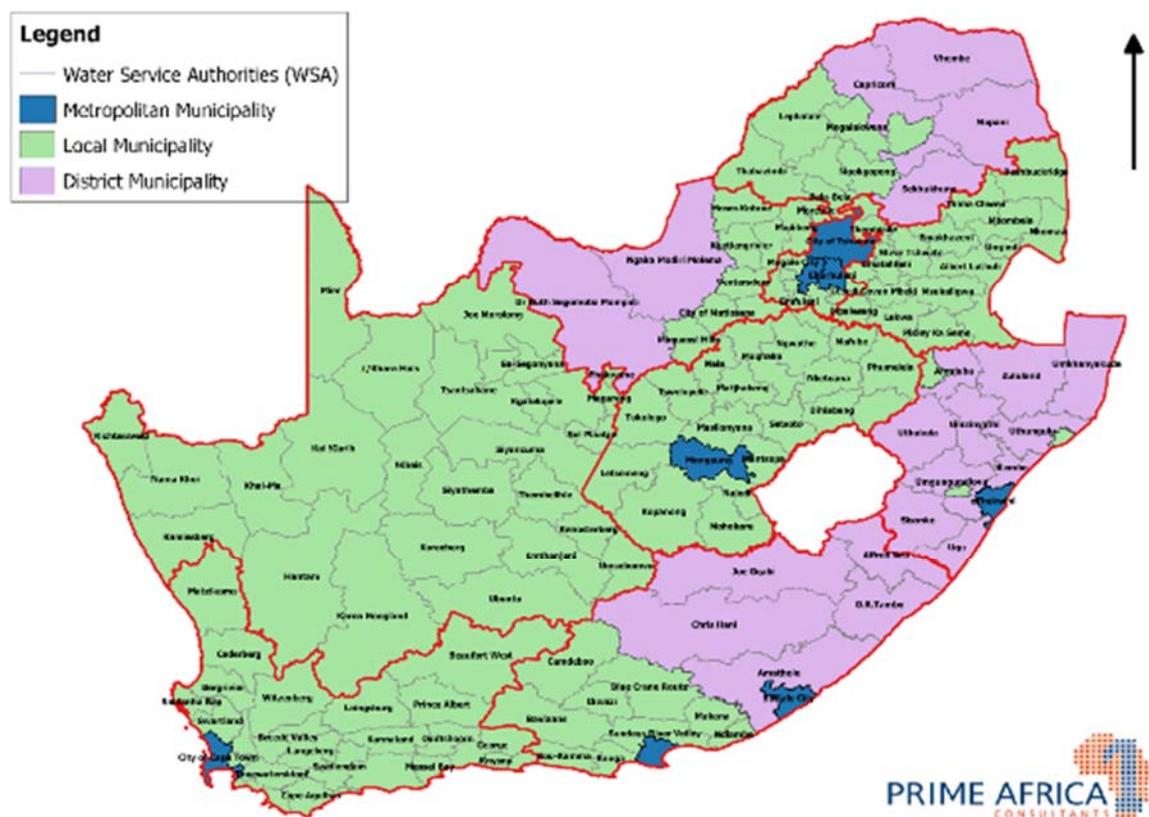


Figure 43: Authorization of LMs, DMs and Metros as Water Service Authorities (2015)

The structuring of WSAs in this manner had significant implication to the successful provision of water services, firstly, from a financial sustainability perspective, and secondly, from a human resource skills and capacity perspective.

The Water Services Act required that the WSA, in ensuring access to water services, consider alternative ways of providing access to water services; the need for regional efficiency; the need to achieve benefit of scale; the need for low costs; the requirements of equity; and the availability of resources from neighbouring water services authorities. The Water Services Act also places conditions under which water services were provided (South Africa, 1997). The WS Act:

- a) may place limits on the areas to which water services would be provided according to the nature, topography, zoning and situation of the land in question;
- b) may provide for the limitation or discontinuation of water services where a consumer fails to meet his or her obligations to the water services provider, including-
 - a) a failure to pay for services; or
 - b) a failure to meet other conditions for the provision of services;
- c) may place an obligation on a payment defaulter-
 - (i) to pay a higher deposit;
 - (ii) to pay a reconnection fee after disconnection of water services;
- d) may require a payment defaulter to pay a higher tariff for water services, where that defaulter gains access to water services through a communal water services work and the provision thereof cannot be disconnected or limited without other consumers being prejudiced;
- e) may provide for the general limitation or discontinuation of water services where-
 - (i) national disasters cause disruptions in the provision of services; or
 - (ii) sufficient water was not available for any other reason;
- f) may include an option to retain limited access to at least basic water supply or basic sanitation for a consumer whose water services were to be discontinued; and
- g) must be accessible to consumers and potential consumers.

The primary municipal planning instrument in the Water Services Sector was the Water Services Development Plan (WSDP). All Water Service Authorities (WSAs) were required to develop a 5-year WSDP, which had to be updated on an ongoing basis (DWA, 2013c). In planning water services to people in their jurisdiction, the Water Services Act indicated that a WSA would need to develop a draft water services plan for the area under its jurisdiction within a year of promulgating of the WSA, as part of the process of preparing any integrated development plan in terms of the Local Government Transition Act, 1993 (Act No. 209 of 1993). Every draft water services development plan needed contain details:

- a) of the physical attributes of the area to which it applies;
- b) of the size and distribution of the population within that area;
- c) of a timeframe for the plan, including the implementation programme for the following five years;
- d) of existing water services;
- e) of existing industrial water use within the area of jurisdiction of the relevant water services authority;

- f) of existing industrial effluent disposed of within the area of jurisdiction of the relevant water services authority;
- g) of the number and location of persons within the area who were not being provided with a basic water supply and basic sanitation;
- h) regarding the future provision of water services and water for industrial use and the future disposal of industrial effluent, including-
 - (i) the water services providers which would provide those water services;
 - (ii) the contracts and proposed contracts with those water services providers;
 - (iii) the proposed infrastructure necessary;
 - (iv) the water sources to be used and the quantity of water to be obtained from and discharged into each source;
 - (v) the estimated capital and operating costs of those water services and the financial arrangements for funding those water services, including the tariff structures;
 - (vi) any water services institution that would assist the water services authority;
 - (vii) the operation, maintenance, repair and replacement of existing and future infrastructure;
- i) of the number and location of persons to whom water services cannot be provided within the next five years, setting out-
 - (i) the reasons therefore; and
 - (ii) the time frame within which it could reasonably be expected
- j) that a basic water supply and basic sanitation would be provided to those persons; and
- k) Of existing and proposed water conservation, recycling and environmental protection measures.

The Water Services Act required that the Draft WSDP was shared with the public for comment, as well as the Minister, the relevant province, and all neighbouring water services authorities. The WSA could adopt the WSDP after considering all comments received.

Data taken for the DWS/WRC Report on the Impact Assessment of the SFWS demonstrated that the WSDP process of WSAs was currently in the 2011-2016 cycle (Sustento Development Services, 2015). However, as Figure 44 from the same SFWS Impact Assessment shows, at least 12 WSAs had not yet submitted WSDPs for the 2011-2016 cycle by could 2015. Of the WSAs that had submitted documents for the current cycle, 133 WSAs had a Draft WSDPs, 8 had Interim WSDPs, 9 WSAs had WSDPs that had been adopted, and 1 WSA had an annually reviewed WSDP. Hence, 80% of WSDPs in 2015 were still in Draft format, despite almost being at the end of the 2011-2016 WSDP period.

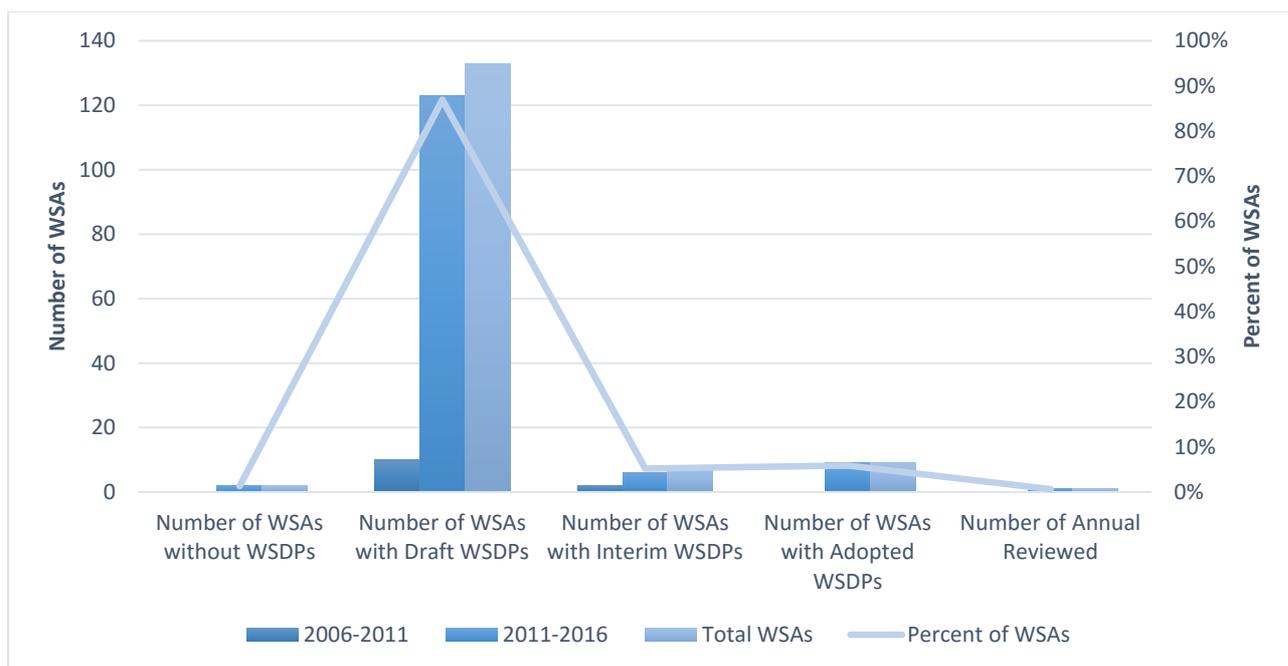


Figure 44: Status of the Water Services Authorities WSDPs in South Africa (data source: DWS WSDP website – May 2015).

The Water Services Act required that a WSA must report, within four months after the end of the financial year, on the implementation of its development plan during each financial year. The report must be made available to the Minister, the Minister for Provincial Affairs and Constitutional Development, the relevant Province, and every organisation representing municipalities having jurisdiction in the area of the water services authority. The WSDP indicated how a WSA plans to provide universal access to water services, including the eradication of historical backlogs within its area of jurisdiction (DWA, 2013c).

Data from the Impact Assessment of the SFWS indicated that the Non-Financial Census of Municipalities, conducted annually by StatsSA captures data from municipalities on whether they had submitted their WSDP or not, shows that 58% of WSAs had submitted their WSDPs report for the previous year, at the time of the census in 2013 (Figure 45). This was a lower percentage from the number of WSAs that had submitted a WSDP annual report in the 2006 census.

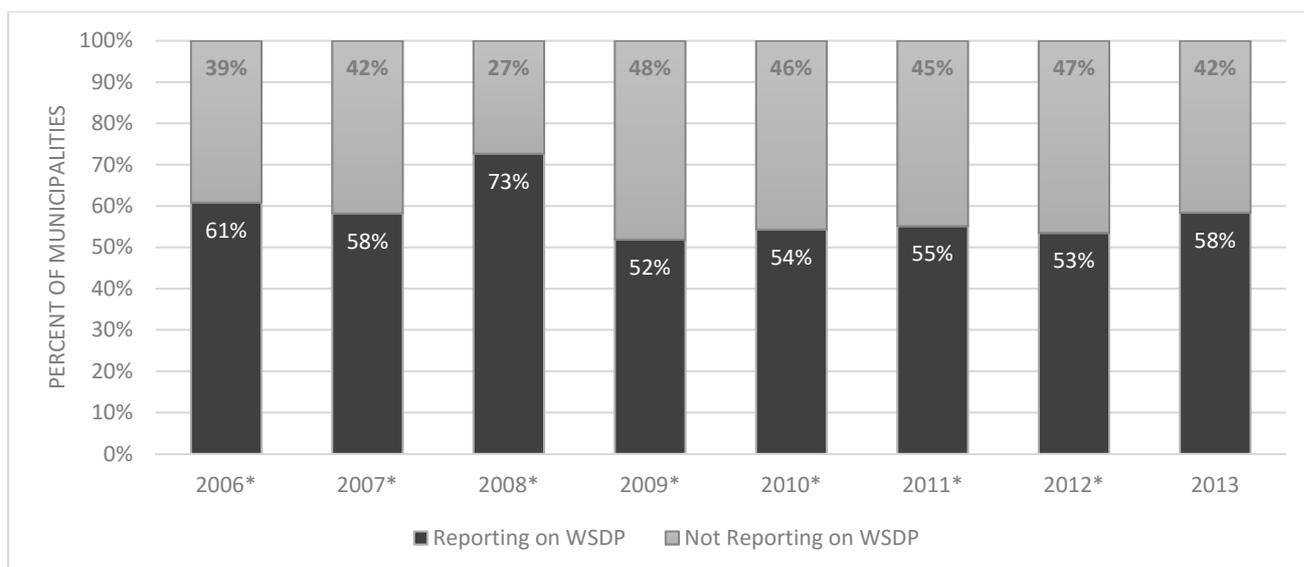


Figure 45: Percent of WSAs that had submitted WSDPs for the previous year (data source: Non-financial Census of Municipalities; StatsSA 2006- 2013)

In performing its function of ensuring universal water service provision, a WSA could perform the functions of a water services provider itself; and could (i) enter into a written contract with a water services provider; or (ii) form a joint venture with another water services institution, to provide water services. The WSA was required to first consider public section water service providers before entering into a contract with a private sector water services provider. The Minister could provide model contracts to be used as a guide for contracts between water services authorities and water services providers.

When the WSA acts as the WSP, the WSA must manage and account separately for those functions.

A recent review of WSP-WSA relationships in the country, conducted by Harris and Vermeulen (2011) showed a whole range of WSP institutional arrangements were operating within the water services sector of South Africa. Table 15 below summarises some of the arrangements, or combinations thereof, allowed for in terms of South African legislation:

Table 15: Summary of WSA-WSP institutional arrangements (taken from Harris and Vermeulen, 2011)

Water Services Authority	Water Services Provider	Details	Example
Municipality A	Municipality A	Services unit or department within a municipality,	<ul style="list-style-type: none"> • Cape Town • eThekweni • Ugu DM, • Buffalo City LM • Mogale City LM • Saldanha Bay LM • Dihlabeng LM
Municipality A	Municipality B (bulk and/or reticulation)	contract between the WSA and the other municipality as WSP	<ul style="list-style-type: none"> • Chris Hani DM • Mopani DM • Sekhukhune DM • Amathole DM

Water Services Authority	Water Services Provider	Details	Example
Municipality A	Municipal Utility	WSA was both shareholder and contracting agency of the Utility	<ul style="list-style-type: none"> Maluti-a-Phofung Water, Johannesburg Water ERWAT
Municipality A	Multi-jurisdictional Utility	WSAs were both shareholders and contracting agencies	<ul style="list-style-type: none"> uThukela Water
Municipality A	Water Board	Water Board provided bulk water and/or reticulation	
Municipality A	Community-based Organisation	CBO WSP was situated within a defined community, contracted to provide services where the specific functions and tasks were outlined in the contract.	<ul style="list-style-type: none"> Chris Hani DM remained the only DM with extensive CBO WSP arrangements
Municipality A	Private Sector	Different types of contacts could be entered into with the private sector ranging from concessions and BOTs to lease and management contracts.	<p><u>Concession contracts:</u></p> <ul style="list-style-type: none"> Queenstown, the Greater Nelspruit Concession (now within the Mbombela LM WSA) Dolphin Coast Concession (now within the iLembe DM WSA). <p><u>Management support contracts:</u></p> <ul style="list-style-type: none"> Uzinzo Services (for Maluti-a-Phofung LM) Johannesburg Water Management (JOWAM – for the City of Johannesburg). <p><u>Lease contracts:</u></p> <ul style="list-style-type: none"> Stutterheim (Amatole DM Amahlali LM), Fort Beaufort (Amatole DM, Nkonkobe LM).
Municipality A	Joint municipal/national owned utility	Utility was jointly owned by national and local government	No examples in the 2011 research study
Municipality A	Other arrangement	Other arrangements also exist, but their continued functioning in the new legislative framework needs to be reconsidered	<ul style="list-style-type: none"> Midvaal Water Company, a non-profit (Section 21) Company (providing bulk potable water to Klerksdorp, Orkney and Stilfontein since 1954), but was not responsible for sanitation services.

The RPMS captured data on whether *Contracts and Service level agreements were in place with all appropriate service delivery role-players (WSP's, internal etc.)*. Figure 46 showed that 61% of WSA in 2011/12 had internal or external contracts and service level agreements in place. However, a significant number (93 or 21%) of WSAs did not have any agreements in place in 2011/12.

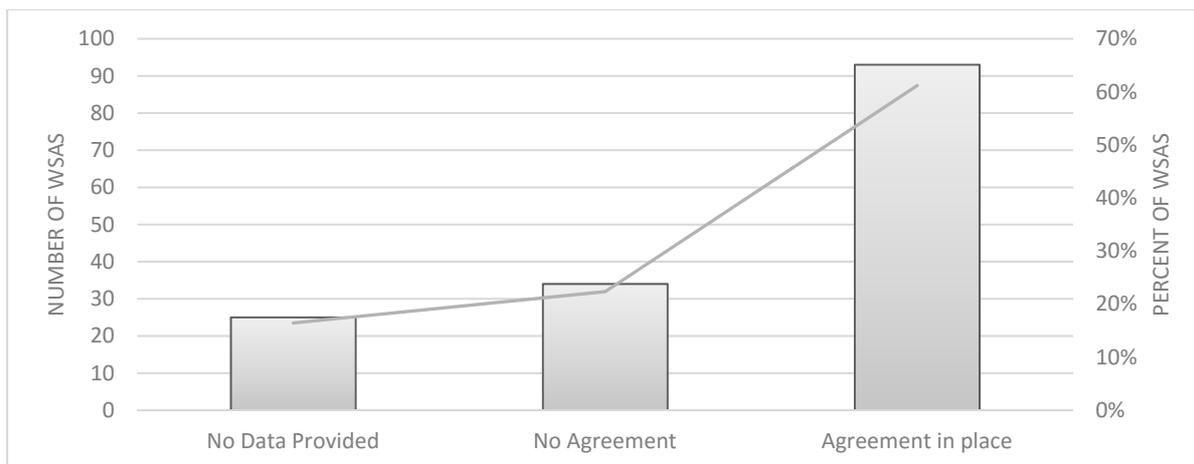


Figure 46: WSAs with contracts and service level agreements in place with all appropriate service delivery role-players (WSP's, internal etc.) (data source: RPMS, 2011/12, DWA (2012a))

On a provincial basis, Figure 47 showed that the results were varied, with all WSAs in Gauteng having *Contracts and Service level agreements in place with all appropriate service delivery role-players (WSP's, internal etc.)*, while only 35% of WSAs in the Free State had similar contract in place. Having no contracts of service level agreement in place hinders the WSA to manage performance, particularly of external WSPs. Contracts were legal agreements the WSA could utilise to hold itself and its WSP to account for poor performance. No agreements in place were an indication of poor business practice and could impact significantly of the functioning of the WSA.

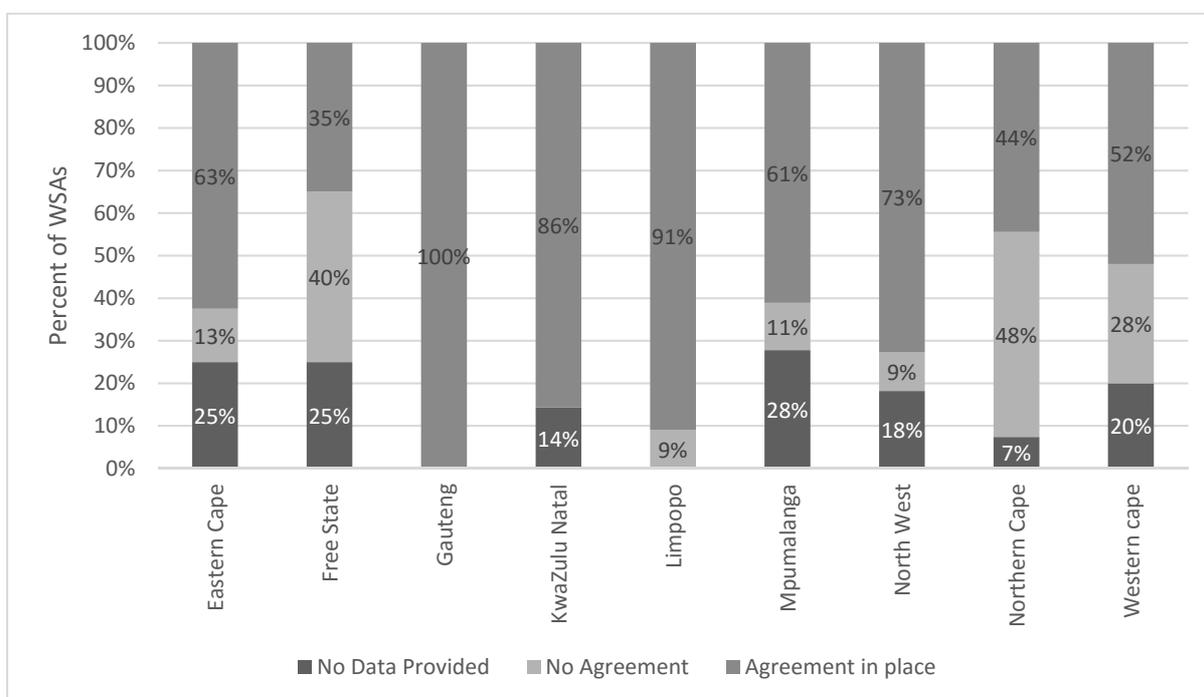


Figure 47: WSAs, by province, with contracts and service level agreements in place with all appropriate service delivery role-players (WSP's, internal etc.) (data source: RPMS, 2011/12, DWA (2012a))

The Water Services Act legislated that every WSA must also make by-laws that contain conditions for the provision of water services, and must provide for at least:

- a) the standard of the services;
- b) the technical conditions of supply, including quality standards, units or standards of measurement, the verification of meters, acceptable limits of error and procedures for the arbitration of disputes relating to the measurement of water services provided;
- c) the installation, alteration, operation, protection and inspection of water services works and consumer installations;
- d) the determination and structure of tariffs;
- e) the payment and collection of money due for the water services;
- f) the circumstances under which water services could be limited or discontinued and the procedure for such limitation or discontinuation; and
- g) the prevention of unlawful connections to water services works and the unlawful or wasteful use of water.

The SFWS set the target of by-laws being promulgated in every water services authority by 2005. Stakeholders in SFWS Impact Assessment study (WRC Project 2415) highlighted that the challenge in the sector was not in the compiling of water services by-laws by WSA but rather with implementation and enforcement of these by-laws (Sustento Development Services, 2015). The DWAF (2009) assessment of the water services sector did not totally concur with this perception as only 72% of WSAs had Water Services by-laws in place by 2009, and only approximately three-quarters of WSAs had financial by-laws, such as Water Services Tariff By-laws and By-laws for Debit Collection and Credit Control (DWAF, 2009). Hence, studies showed that compilation of by-laws was still a challenge in the water services sector in 2009. Stakeholders also perceived by-laws as insufficiently stringent to curtail unacceptable behaviours of consumers and to ensure compliance of consumers to local and national water services norms, standards and policy (Sustento Development Services, 2015).

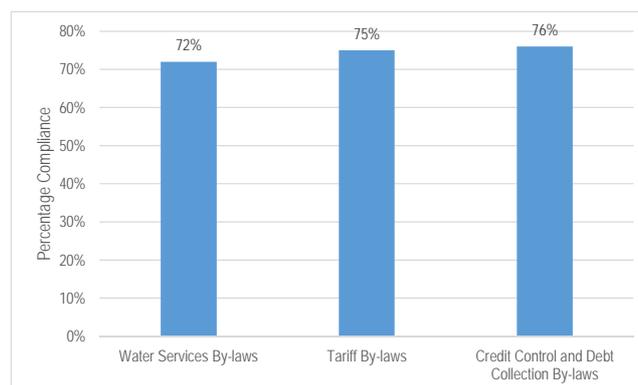


Figure 48: Compliance of WSAs to SFWS Target 14: Water Services By-laws were in place (adapted from DWAF, 2009).

Figure 49 showed that, nationally, just over 70% of WSAs had approved by-laws in 2011/12 and a further 10% had draft by-laws (Sustento Development Services, 2015). At least 3% of WSA did not have any by-laws developed in 2011/12 and a further 15% of WSA did not report on the KPI during the RPMS assessment (Sustento Development Services, 2015). These

results concurred with the 2009 results of a DWAF assessment, which indicated that at that time, 69% of WSAs had Water Services by-laws in place. The same report showed approximately three-quarters of WSAs had financial by-laws, such as Water Services Tariff By-laws and By-laws for Debit Collection and Credit Control (DWAF, 2009).

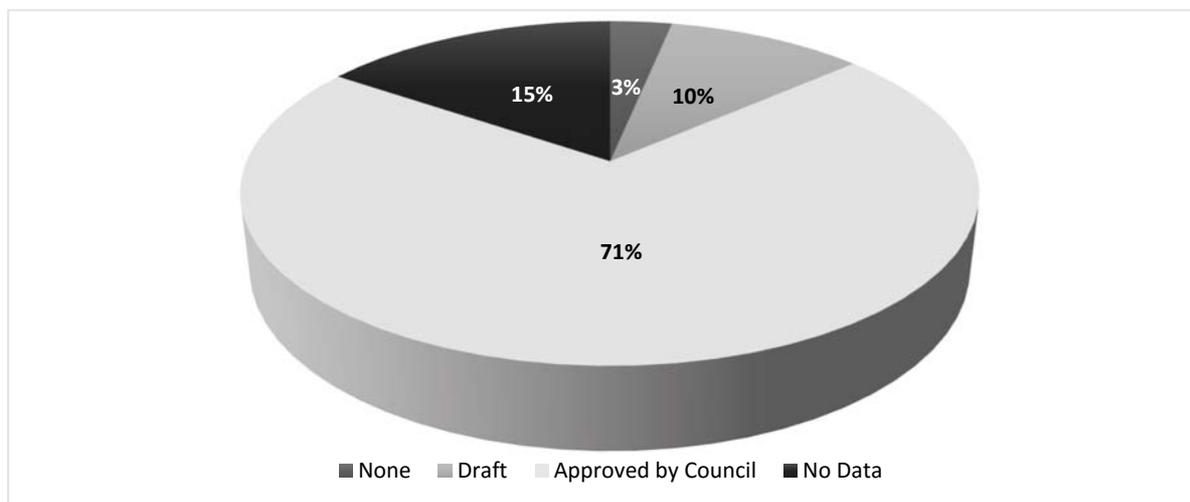


Figure 49: State of relevant water service by-laws in WSAs in 2011/12 (data source: DWS RPMS; 2012, DWA (2012a))

Figure 50 shows the 2011/12 provincial situation of WSAs by-laws (Sustento Development Services, 2015). The status of by-laws in the WSAs in the Free State and Mpumalanga were low, with 40% of Free State and 44% of Mpumalanga WSAs having approved by-laws (Sustento Development Services, 2015). The remaining WSAs in the Free State had by-laws that were in draft format (35%) or did not report (25%) the status of these by-laws in the RPMS assessment of 2011/12 (DWA (2012a)). Of the remaining WSAs in Mpumalanga, a moderate percentage (11%) had no by-laws, while a further 22% had draft by-laws, or did not report this KPI in the RPMS assessment. Almost all (>90%) of WSAs in KZN and Gauteng had by-laws approved by council, while most of the remaining WSAs had the by-laws in draft format (Sustento Development Services, 2015).

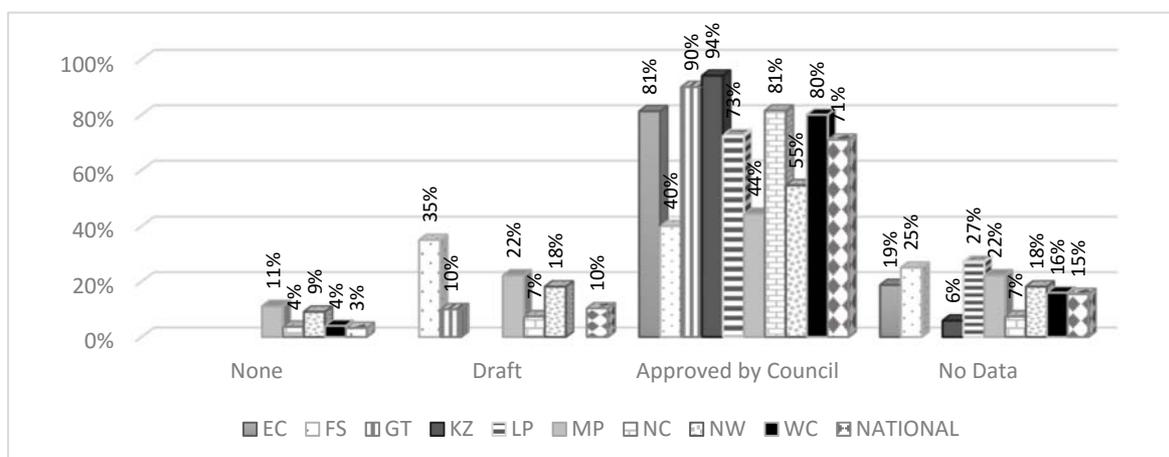


Figure 50: Percent of WSA (2011/12) in each province which had the relevant water service by-laws in place (data source: RPMS, 2011/12, DWA (2012a))

The WSA, according to the WS Act must monitor the performance of water services providers and water services intermediaries within its area of jurisdiction to ensure that they were meeting standards and norms and standards for tariffs were complied with; any condition set by a water services authority under sections; any additional standards set by a water services authority, for water services intermediaries were complied with; and any contract was adhered to (South Africa, 1997).

Section 63 of the WS Act mandated that if a water services authority had not effectively performed any function imposed on it by or under this Act, the Minister may, in consultation with the Minister for Provincial Affairs and Constitutional Development, request the relevant Province to intervene in terms of section 139 of the Constitution. If, within a reasonable time after the request, the Province:

- a) had unjustifiably failed to intervene; or
- b) had intervened but had failed to do so effectively, the Minister could assume responsibility for that function to the extent necessary-
 - (i) to maintain essential national standards;
 - (ii) to meet established minimum standards for providing services; or
 - (iii) to prevent that Province from taking unreasonable action that was prejudicial to the interests of another province or the country as a whole.

After assuming responsibility for a function, the Minister could issue a directive to the water services authority to perform that function effectively, if the water services authority fails to comply with that directive, the Minister could intervene by taking step to facilitate the performance of the relevant function, including giving financial, managerial, and technical advice and assistance, or by taking over that function.

Water Services Providers

Similar to the WSAs, the Water Services Act of 1997 introduces in Chapter 4, the roles and responsibility of water services providers. (Water Boards as discussed above are in effect water service providers). WSAs were required to approve water services providers operating in the area of jurisdiction, for a limited period and could be subject to conditions (South Africa, 1997).

The WSP was required by the same Act to provide the WSA with information concerning the provision of water services as could reasonably be called for by (South Africa, 1997):

- a) the water services authority having jurisdiction in the area in question;
- b) the relevant Province;
- c) the Minister; or
- d) a consumer or potential consumer.

Water Service Intermediaries

The Water Services Act introduced an additional role player to the water services sector, that of a water services intermediary, which are registered with the WSA and actioned through the municipal by-laws (South Africa, 1997). The specific responsibility of water services intermediaries was to provide water services of a quality, quantity and sustainability to the

minimum standards prescribed by the Minister and any additional minimum standards prescribed by the relevant water services authority. The intermediary was managed through a contract and if they fail to perform its functions effectively, the WSA could direct the water services intermediary to rectify its failure. If the water services intermediary fails to rectify its failure, the WSA could action written submission, followed by a hearing on any submissions received, and finally take over the relevant functions of the water services intermediary. The WSA then had a number of options, (a) appoint another water services institution to act on its behalf in performing the functions of a water services intermediary in terms of subsection or (b) as soon as a water services intermediary was in a position to resume its functions effectively, the water services authority must stop exercising the powers and performing the duties on the intermediary's behalf.

The SFWS indicated that a water services intermediary was a contract between the WSA and the consumer (for example an employment or property lease contract) whose main purpose was not the provision of water services. Water services authorities could require intermediaries to register with the authority and could regulate water services provided by intermediaries in terms of municipal by-laws.

Farmers were employers and were responsible for the housing and related services of their employees living on the farms. Farmers were therefore intermediaries and were responsible for the provision of (at least) basic water services to farm workers and their families living on their farms. Water Services Authorities was responsible to ensure that this was implemented and must ensure that it was addressed in their by-laws and adhered to.

The water intermediary function had only limited application in South Africa. A case study of implementation of this role is shown in Box 1.

Box 1: Intermediary role played by the Royal Bafokeng Administration in water services provision (taken largely for Thornhill and Selepe, 2010)

Rustenburg Local Municipality (RLM) was faced with a unique situation as the Royal Bafokeng Administration (RBA) operates legally within certain areas of the RLM jurisdiction. RBA did this within the context of the Constitution of South Africa, thus the Royal Bafokeng Nation was 'universitas persona'. The Royal Bafokeng of South Africa was a traditionally governed community of 150,000 people living in 29 villages, who own 1,200 km² of land in the North-West Province of South Africa. Under this land lies part of the world's largest platinum reserve, the Merensky Reef. Royal Bafokeng Administration was a water intermediary in that it purchased water in bulk from Rand Water Board and Magaliesburg Water and then provided subsidised (60%) water to the entire Royal Bafokeng nation. The Royal Bafokeng Administration had installed meter readers for all the households. The informal settlements situated within the Royal Bafokeng Administration's jurisdiction also benefit from the water allocation for the Royal Bafokeng nation. The RBA thus assumed the role of water supply within the communal land owned by the Royal Bafokeng nation.

Local Water Committees (LWCs)

Early (1994) policy indicated that it was unlikely that effective local government would be established in all areas for some time. As a result, the policy advocated that the Minister of Water Affairs and Forestry be empowered to establish statutory Local Water Committees

(LWCs) to undertake the task of local water supply and sanitation implementation, operation and maintenance (DWAF, 1994:15, 25 and 34).

The policy intent on the functioning of the LWCs was that they would be governed by regulations, which would be drafted in consultation with the then Department of Provincial Affairs and Constitutional Development and with the Provincial MECs for Local Government, as well as with representatives of community-based organisations (DWAF, 1994:25). The objective of the regulations would be to encourage and empower communities, not to entangle them in endless bureaucracy and impossible requirements (DWAF, 1994:25).

The policy encouraged the registration of those communities, which had already advanced substantially with local water or development committees and forums, under the new regulations, rather than create new parallel and inevitably conflicting structures (DWAF, 1994:25).

The policy envisaged that these LWCs, as statutory bodies, would:

- own materials and plants;
- trade on a non-profit basis;
- enter into approved loans; and
- carry out the business of providing water supply and sanitation services to their communities (DWAF, 1994:25).

These LWCs would be financially accountable to the community they represent, and to the Government as statutory bodies (DWAF, 1994:25).

The policy advocated that the Department of Water Affairs and Forestry and its agents support the LWCs to carry out their functions, by providing training, capacity building, planning advice, technical assistance and construction supervision (DWAF, 1994:25).

The policy stressed that these LWCs would be temporary and would ultimately be integrated into local government structures, when these were established and were competent to perform the function of service provision (DWAF, 1994:25). Chapter 7 of the Water Service Act mandated the manner in which local water services committees were to be established and disestablished, indicating that the Minister, by gazetting, could establish a water services committee, giving the name or approved changed of name and the service area or changed thereof and the power of the LWC in the Gazette.

The role of the local water committee had become redundant as a result of the establishment of WSA across all areas of South Africa. The SFWS concurs with this, indicating that *the Water Services Act made provision for the establishment of water services committees to undertake the tasks of the water services authority where there was a failure of local government. No water services committees were formed in the period 1997 to 2002. This provision was now obsolete and would be removed from the relevant legislation. (Water services committees should not be confused with community-based organisations, which could act as water services providers in some rural communities, operating with the agreement and support of the relevant local government. The latter were also sometimes known as water committees (DWAF, 2003).*

8.1.1.6 National Public Water Utility

According to the policy, the relative success of regional public utilities – the Water Boards – in providing bulk water services had raised the question of whether the establishment of a national water utility to manage the national infrastructure would not be appropriate (DWAF, 1997:50). Transferring the functional component of raw water resource development and operation to an organisation managed on business principles could be feasible since most of the large catchment development and inter-basin transfer projects already operate on a cost-recovery basis and were financially viable (DWAF, 1997:50). The functions of such a utility could include the planning and development of national water resource infrastructure, its operation and financing (DWAF, 1997:51).

Policy indicated that this route would only be followed if a more detailed study shows that it would give clear public benefits (DWAF, 1997:51). While it must allow for the self-sufficient development and efficient operation of the main national water resource infrastructure, it should not reduce the ability of the State to promote projects of high social priority, nor should it undermine the ability of the Government to formulate policy, monitor, and regulate the sector (DWAF, 1997:51).

The National Public Water Utility was not legislated in either of the Water Acts.

The IRR Strategic Framework indicated that *the policy recognised the strategic importance of these national water resource infrastructure assets and took the view that a public entity would ensure that these assets were financially ring-fenced and would promote better management through a comparative advantage in attracting and retaining skills and an enhanced level of financial accountability and transparency. It was envisaged that the public entity would be responsible for the planning, development, operation, maintenance and financing of national water resources infrastructure assets. The policy recommended that a detailed study be undertaken to assess the public benefits of the proposed institution. It was important to note that the proposed model did not reduce the ability of government to promote and implement projects that had a high social priority, nor did it undermine the ability of government to formulate policy, monitor and regulate the sector* (DWAF, 2008). The same Framework indicated that *there could be political ambivalence with respect to the establishment of a national public entity for the management of water resources.*

This was a topic of many studies and discussions could be summarised as follows:

- Various studies on restructuring conducted by the DWAF, as well as some of the institutional reform studies, included investigations into the so-called national water management agency.
- Such a national water management agency was not legislated in the NWA of 1998.
- At some later stage a bill was drafted and ready to be submitted for the parliamentary process and then it was stalled due to reasons not fully known.
- Arrangements include:
 - the Water Trading Entity (WTE) within the DWS, as the NWA of 1998 made provision for cost recovery on services rendered by the department to water users. The main functions of the WTE were to be development, operation and

- maintenance of specific water resources infrastructure, and managing water resources in specific water management areas.
- the Trans-Caledon Tunnel Authority (TCTA) was a state-owned entity (SOE) specialising in project financing, implementation and liability management. It was responsible for the development of bulk raw-water infrastructure. It also provided an integrated treasury management and financial advisory service to the department, water boards, municipalities and other entities that were linked to bulk raw-water infrastructure. The TCTA was primarily responsible for off-budget projects.

The National Development Plan (NDP) of 2011 (South Africa, 2011) recommended, in order to achieve the goals for water between 2011 and 2013, that *“a National Water Resource Agency must be established (by 2013) that would develop and manage large economic infrastructure systems”*. The NWRS2 supported this proposal and states: *“It was recognised that the Water Trading Entity was not the most appropriate or efficient institutional arrangement for managing national water infrastructure. Thus, the intention was to establish an alternative and appropriate National Water Resources Infrastructure institutional model for developing, financing and managing national water infrastructure”* (DWA, 2013b).

8.1.1.7 National Water Advisory Council

The White Paper on Water Supply and Sanitation introduced a National Water Advisory Council to the water sector. The purpose of the National Advisory Council was to play an important role in advising on priorities, monitoring progress, and ensuring that equity was achieved. The Council was required to have, as part of its membership, people from communities, which are unserved, and people who understand the difficulties of sustainable development in our particular South African circumstances (South Africa, 1994). On 15 November 1994 the National Water Advisory Council was established and a call was made for nominations from the public for suitable persons to serve on the Council (Conning and Sherwell, 2004).

It was not uncommon that each incumbent Minister had his/her own way of involving the water sector and NGOs, and through the years a SA Water Caucus was also established (circa 2005) that represented a broader group of civil society organisations and NGOs. The SA Water Caucus functioned in addition to the former Water Advisory Committee appointed in terms of sector 99 of the NWA (South Africa, 1998). In practice, this Water Advisory Committee was sometimes labelled the Water Advisory Council.

In 2003 the SFWS introduced the Water Services Sector Leadership Group (WSSLG), a national forum representative of sector partners (DWAF, 2003). Its purpose was to guide the water services sector, to facilitate the building of a well informed and organised sector, and to promote sector collaboration and effective coordination of water services (DWAF, 2003). A conscious decision was made to not formalise this body, the group instituted from representatives of key organisations in the water sector such as Eskom, AgriSa, SALGA, WRC, etc. Whilst the Water Advisory Committee would advise the Minister on certain topics, this WSSLG would be consultation meetings between the DWAF officials and professionals from sector bodies.

8.1.1.8 Provincial Water Liaison Committees

To ensure effective formal communication and liaison between the Department and the Provinces, the Provincial Water Liaison Committees had to be established. These were formal statutory bodies established under existing legislation. The functions of the Provincial Water Liaison Committees include liaison with the Department, the identification of priorities and critical areas of need, and advising on the implementation of the Reconstruction and Development Programme as it relates to water supply and sanitation (DWAF, 1994:10).

The SFWS indicate that various structures had been established in provinces for the purpose of coordination. Provincial liaison committees (PLCs) provided a forum for liaison between the DWAF and other provincial departments with respect to water-related matters. They identify priorities and advise on the implementation of water and sanitation services investments. Provincial Sanitation Task Teams (PSTTs) had been set up in each province, composed of representatives from provincial departments and municipalities, to coordinate the provincial sanitation effort. Successful coordination depended on active participation and cooperation rather than on the form of the coordination structure. Provinces and regions could establish coordination mechanisms that were appropriate to their particular needs.

Water services authorities played a central role in these forums where the purpose was to assist in the decentralisation and transformation of the water services sector. Various task teams had been established, including ones for transfers, planning and project selection, institutional development, and the PSTTs mentioned above. These were responsible for implementation and were accountable to the sector forum. Provincial strategies would assist the water services sector to take responsibility for planning, implementation, and monitoring of the water services component of the municipal infrastructure grant.

8.1.1.9 Private Sector and NGOs

Policy highlighted that all sectors of South African society would have to be involved in partnership with the government, particularly those where the resources and skills of the country had been vested in the past (DWAF, 1994:13). The Private Sector and NGOs thus had a major role to play in serving the public sectors (DWAF, 1994:34).

The policy intent was that the private sector represents a vast resource that could be harnessed to contribute to the implementation of the policy in a variety of areas including (DWAF, 1994:13):

- **Capital investment:** the policy intent was that while the development of innovative proprietary products was welcomed, where these were cost effective and meet community needs, developers were advised to prove their products in realistic field situations before attempting to market them more widely.
- **Operation and maintenance:** the policy intent was that (1) full scale privatisation was not considered to be an option in those areas of South Africa for which the Department had responsibility, (2) private sector could provide services where these could be in the public interest and where this approach was supported by the community concerned. However, the policy intents were that in no case would contracts that undermine the functions or authority of any tier of the legitimate government be supported, and the building of local administrative, technical and managerial capacity would be a major criterion in assessing

proposals. The Department was tasked with developing a more detailed policy both for its own use as a contractor and regulator and in order to fulfil its role as adviser to other agencies. This policy intent was legalised in various sections of the WS Act; firstly, by creating and legalising two distinct functions, namely the water services authority (WSA) and the water service provider (WSP). Secondly, assigning the sole responsibility for water services to the water services authority (see section 11 of the WS Act), which in effect means that a private sector company or a NGO could never be the WSA for any municipal area or any community, but could be appointed by the WSA to be the WSP for such an area or community.

In 2001 by means of secondary legislation, a set of regulations was issued by the then Minister that prescribes the way in which a contract between WSAs and WSPs should be set up. These regulations prohibit the selling of assets to a WSP, in other words it prohibits the outright privatisation in regulation 11(a) of these regulations. The implementation of this policy intent was quite important as many of the large multi-national organisations showed interest after 1994 to take over water services in South Africa. However, these organisations wished to select the most lucrative water service interventions. The policy advice given to municipalities by the DWAF was sound, namely to only consider such contracts if the private sector operating company would be willing to take over both the well-developed (previous white suburbs) as well as the less developed poorer areas (previous black townships). The Nelspruit (now Mbombela) concession was a good example of this policy put into practice where the private sector company had to enter into a single contract for the total municipal area that included the well-developed Nelspruit town as well as the surrounding townships of Tekwane, Entokozweni and Kanyamazane.

Further practical support was provided in the form of a model contract drafted as a joint project between the DWAF, the South African Local Government Association (SALGA) and the South African Association of Water Utilities (SAAWU) representing the water boards.

It was important to note what the Strategic Framework for Water Services (SFWS) (DWAF, 2003) says about private sector involvement, private operation and privatisation: *“While privatisation was an emotional and very much political issue in South Africa, the private sector had played and would continue to play an important role in water services. The challenges facing us were simply too big to be addressed by government alone. We would however, not sell our public water services infrastructure to the private sector but this was no obstacle to the private sector getting involved in a whole range of activities. (Minister Kasrils, address to the African Investment Forum).*

In terms of the RDP, it was Government's intention to put the community first, to ensure transfer of control to the local level, to make the community the client. The policy advocated that engineers and other professions, including in the private sector, would thus have to adapt to serving non-expert clients. Private sector firms that wished to participate in programmes of service delivery were unlikely to succeed if they approach communities with a paternalistic or “upliftment” paradigm (DWAF, 1994:14). This policy intent was not formally legislated but was strongly implemented in the DWAF, for example through the creation within the new Chief Directorate of Water services a Directorate for Institutional and Social Development (ISD) – focussing strongly on both ensuring that communities were engaged during project

implementation phase, as well as building strong new institutions to support the water institution.

The policy also advocated that public agencies should be served by a strong private and NGO sector (DWAF, 1994:9). It recommended that government, at various levels, and NGOs should work together, with the role of NGOs to be determined by the communities in which they work. The DWAF made strong efforts in implementing this policy by establishing formal mechanisms, such as the provision for the establishment of advisory committees in the National Water Act (NWA) Act 36 of 1998. (South Africa, 1998).

The Strategic Water Partnership (SWPN-SA) was one of South Africa's most innovative public-private civil-society sector partnerships, making progress that would not have been possible. A cornerstone of the SWPN-SA was developing innovation that leverages the strength and expertise of the department, the South African private sector, civil society, and expert organisations.

In 2013, additional investors contributed to the SWPN-SA, including Anglo American, BHP Billiton, Eskom, Nestlé, Sasol, South African Breweries and the 2030 Water Resources Group. The New Partnership for Africa's Development Business Foundation's role as secretariat had proved important and had facilitated continued dialogue among members within the working groups on projects.

8.1.2 Policy Instruments

The development of the water and sanitation policies required a shift in the manner in which water was managed. New approaches to water management were needed (DWAF, 1997:33).

8.1.2.1 Water Services Regulations

The 1994 White Paper had relatively weak inclusion of regulations, referring only to regulation of Local Ward Committees, the role of provincial government in monitoring; regulation of groundwater, and assigning the national Department with responsibility for water resource management, for monitoring and regulating functions, and specifically to ensure that an enabling environment for community-based water supply and sanitation development was maintained (DWAF, 1994:12)

The Water Services Act covered regulation under issues such as national standards (section 9), as well as norms and standards for tariffs in section 10. Chapter 6 and 7 (sections 28 to 61) dealing with water boards and water intermediaries also stipulated how these institutions must be regulated. Arguably the key regulatory section in the WSAAct was section 62 which compels the Minister to "*monitor all water services institutions*". Lastly the issues such as intervention (section 63) and offences in section 82 were legislated as another two critical regulatory tools.

The Water Services Act (WSAAct) also indicated, in Section 82, that no person could (South Africa, 1997)-

- a) continue the wasteful use of water after being called upon to stop by the Minister, a Province or any water services authority;
- b) unlawfully and intentionally or negligently interfere with any water services work;
- c) intentionally utilise water services, use water or dispose of effluent in contravention of section 6 or 7;
- d) intentionally obstruct any person exercising or attempting to exercise any right of entry and inspection of property under section 81;
- e) fail or refuse to give information, or give false or misleading information when required to give information in terms of this Act; and
- f) fail to provide access to any books, accounts, documents or assets when required to do so in terms of this Act.

Any person who contravenes subsection (1) was guilty of an offence and liable, on conviction, to a fine or to imprisonment or to both such fine and imprisonment.

Related to water services, national government would only intervene, in terms of the Constitution, where there was lack of local capacity (DWAF, 1994:34). The Constitution empowers national Government to intervene through legislation or such other steps (DWAF, 1994:10). In the case of this intervention, central government could assume responsibility for essential water functions of local government, with this done in such a way as to support the development of local government to proceed with its own affairs under provincial supervision

Any person who contravenes any of these provisions of the Act was guilty of an offence and liable, on the first conviction, to a fine or imprisonment for a period not exceeding five years, or to both a fine and such imprisonment and, in the case of a second or subsequent conviction, to a fine or imprisonment for a period not exceeding ten years or to both a fine and such imprisonment.

8.1.2.2 Monitoring and evaluation

The 1994 White Paper indicated that whilst devolving implementation of water supply and sanitation to the lowest level possible, national government should retain the important function of the monitoring, auditing and reporting of the sector (DWAF, 1994:26). The policy in this White Paper was aimed at opening up the arena for as many participants in the development of basic water supply and sanitation services, which would necessitate the need to monitor and regulate their performance (DWAF, 1994:26). These policy intentions were legislated in the WS Act (South Africa, 1997) and the NWA (South Africa, 1998):

The policy required the DWAF to regulate and monitor the performance of the water services sector. Progress in the performance of the sector was tracked and reported via the assessment of the cumulative risk status of treatment systems (Green Drop incentive-based performance certification). The Department was honoured to receive international recognition in terms of Environmental Engineering Excellence for the Blue Drop and Green Drop Certification programmes from the American Academy for Environmental Engineers. This academy was affiliated to the International Water Association.

The South Africa's drinking-water quality matched best international practice and the South African National Standard for Drinking Water Quality (SANS 241) follows the guidelines set out by the World Health Organisation. (WHO).

To address water use efficiencies at municipal level a third certification process was added, namely the "No Drop", as an incentive to regulate water losses from October 2013 onwards.

Stakeholders involved in the DWS/WRC Impact Assessment of the SFWS indicated that the introduction of the Green Drop (GD) and Blue Drop (BD) incentive-based performance regulation process was a positive introduction to the water services sector during the phase of implementation of the SFWS. The Green Drop regulation programme was established by the then Department of Water Affairs (now Department of Water and Sanitation) in 2008 to regulate the performance of the WSAs in managing their wastewater treatment works and addressing compliance to national water services norms, standards and policies. Green Drop rewarded excellence in the management of wastewater from source, in sewer networks, its treatment at wastewater works and its final discharge to the receiving environment by assessment of these wastewater treatment components against Green Drop criteria. Similarly, the Blue Drop certification system was introduced to the water treatment sector by the DWA in 2008. Stakeholders involved in this assessment of the impact of the SFWS indicated that both incentive-based performance management systems had a positive influence on the day-to day water and wastewater management activities of the WSA, providing tools such as Green Drop Improvement Plans and Water/Wastewater Risk Abatement Plans that guided daily activities and interventions. WSAs had also ring-fenced financial and human resources to ensure the meeting of GD and BD criteria and improving these scores over time.

The DWA (2013b) also indicated that *the National Water Services Regulation Strategy was adopted and the Blue and Green Drop incentive based regulatory processes were conceived. These have been implemented with a visible improvement in drinking water and waste water quality. Much has been done to assist local government to effectively deliver on its mandate.* The monitoring of sector performance (including conformity to national norms and standards) and monitoring compliance with (and relative performance with respect to) national policies were addressed through these Blue Drop; Green Drop and RPMS performance systems.

8.2 ECONOMIC AND FINANCIAL WATER SERVICES POLICY INTENTIONS

The early (1994) water supply and sanitation policy had a significant focus on the economics and financial aspects of water. It mentioned in at least 3 principles to this end, namely:

1. water had economic value - service provision must reflect the growing scarcity of good quality water in SA in a manner that reflects their value and did not undermine long term sustainable and economic growth (policy principles DWAF, 1994:8)
2. equitable regional allocation of development resources – limited resources available to support the provision of basic services should be equitable distributed among regions, taking account of population and level of development (policy principles DWAF, 1994:8)
3. the user pays – central principle to ensure sustainable and equitable development, as well as efficient and effective management.

The financial landscape at the time of compilation of the 1994 White Paper did not expect the value of foreign grant funds for water supply and sanitation programmes to be particularly significant in terms of total Government expenditure (DWAF, 1994:20). The Department of Water Affairs and Forestry was however, tasked with actively developing relationships with external funders with a view to identifying possible areas of financial cooperation (DWAF, 1994:20). Of particular interest was the potential to use concessional finance to fund the more economically viable schemes undertaken by the Department (DWAF, 1994:20).

The key foreign grant funds that were available to South Africa at the time of the implementation of the policy and legislation was through the Masibambane Programme. Masibambane – meaning let's work together – was a multi-annual, multi-faceted Water Services Sector Support Programme, a partnership between (at the time) the Department of Provincial and Local Government (DPLG), the South African Local Government Association (SALGA), the European Union (EU) and its member states, the Swiss Government, and Ireland Aid. The overall objective of the programme was...*to improve the quality of life of poor communities by improving their access to adequate, safe, appropriate and affordable basic water supply and sanitation services provided by effective, efficient and sustainable institutions that were accountable and responsive to those whom they serve* (Everett et al., 2007). The ultimate aim of the programme was to support the decentralising of provision of water and sanitation services to local government institutions. The Programme was a Sector Wide Support Approach to provision of water supply and sanitation by the players in water sector, namely national and provincial government, municipalities, civil society, donors, water utilities, and the private sector (Deloitte Consortium, 2004). The Masibambane Programme made a positive contribution to the implementation of the SFWS in that it provided a large, single, coordinated platform for the sector to share experiences, report progress and coordinate efforts. Meetings of the Masibambane Programme usually involved representatives from an array of government organisation involved in implementation of the SFWS, including local, provincial and national sphere of government. Funding for the Maisbambane Programme unfortunately came to an end in 2011/12, with this sector coordination and cooperation being largely lost to the water services sector of the country.

As indicated in the discussion on the role of the private sector, policy did not expect that full privatisation, involving the sale of water supply and sanitation infrastructure, was likely to yield significant sums of money (DWAF, 1994:20). The policy did however, explore the notion of a National Water Bond (DWAF, 1994:20). The objective of these Water Bonds would be to enable the smaller institutions in the water supply and sanitation sector to gain the advantages of scale and access to expertise to raise “cheaper” money whilst ensuring an attractive return for investors (DWAF, 1994:20).

8.2.1 Charges and Tariffs

The policy of the Department was that all consumers of potable water must contribute to the cost of their water supplies (DWAF, 1994:21). Provision of essential basic water supply and sanitation services should be at a cost that was affordable both to the household and to the country as a whole (introduction). If Government was providing subsidies, it too could wish to establish certain tariff structures (DWAF, 1994:21).

Uniform tariffs were not recommended by the policy due to the effects on poor households (DWAF, 1994:21). Rather the policy of sliding tariff scales, which required some form of metering, was endorsed by the DWAF. The basic approach identified three separate tariffs:

- *A life-line or social tariff.* - this was to cover basic human needs. The quantity shall not exceed 25 litres per capita per day (lcd). The tariff shall be set so as to cover only the O&M costs (DWAF, 1994:22)
- *Normal tariff.* This was for normal use. The quantity shall not exceed 250 lcd and shall be provided at cost (operation and maintenance plus capital) including the losses incurred through the life-line tariff.
- *Marginal tariff.* Water consumption exceeding 250 lcd would be charged for at marginal cost defined as the present-day cost of the latest or next augmentation scheme (DWAF, 1994:22).

According to the policy, if a poor community was unable to afford to pay for both the construction and operation costs of schemes provided by Government, a social tariff covering only the operating expenses would be charged for the minimum level of service, which was a communal water source (DWAF, 1994:21). Communities would have to pay for their operating and maintenance costs to ensure both equity and sustainability (DWAF, 1994:21). Such rates needed to be set at local or regional level with the full participation of all interested parties. In the case of communal services provided by the Local Water Committee where the average usage was unlikely to exceed the basic level, residents could pay a uniform life-line tariff as described above (DWAF, 1994:23).

Where communities or individuals wished to upgrade or improve their water supply or sanitation services to a higher level than the basic services described in this White Paper, the policy stipulated that this cost would be fully paid by the individual or community (DWAF, 1994:23). Depending on the nature of the upgrade and the local circumstances, the improvements could be paid for through a connection fee, the ongoing tariff, or a combination of both. The provision of alternative forms of credit would be considered to assist consumers who would not otherwise be able to afford the connection fees (DWAF, 1994:23). The Department was tasked to support and assist local governments, Local Water Committees, Water Boards and Provinces to arrange financing where communities chose higher levels of service than the minimum levels, or where communities could afford the finance costs.

For higher levels of service, the policy was that the full cost of supply would be charged (DWAF, 1994:21). Provided the costs were covered, the tariff could be charged as a fixed monthly levy, a charge per volume of water received, or direct payment by the community towards the operation, fuelling and maintenance of their water supply (DWAF, 1994:21). This policy would apply immediately in the case of new schemes (DWAF, 1994:21).

The Water Services Act mandated that a water services institution must, when setting tariffs for water services provided to consumers and other users within its area of jurisdiction, differentiate, where applicable, between at least the following categories –

- a) water supply services to households;
- b) industrial use of water supplied through a water services work;
- c) water supply services other than those specified in paragraphs (a) and (b);

- d) sanitation services to households;
- e) discharge of industrial effluent to a sewage treatment plant; and
- f) sanitation services other than those specified in paragraphs (d) and (e).

In 2001, the regulations for the norms and standards in respect of tariffs for water services came into effect (Otterman et al., 2013). These Norms and Standards state that a water services institution must, when determining its revenue requirements on which tariffs for water services were based, take into account at least the need to, amongst others, ensure that all households had access to basic water supply and basic sanitation (DWAF, 2001b).

The various charges in the pricing chain accumulate to the end user / consumer tariff (Otterman et al., 2013), including:

- the DWA sets its raw water price in terms of the Water Act and National Pricing Strategy for Raw Water Use Charges;
- Water Boards set bulk water prices in terms of the Water Services Act and prices were (in effect) approved by national government; and
- municipal tariffs were approved by local councillors in terms of a local tariff policy which must comply with nationally defined norms.

In setting a pricing strategy for water use charges, the Minister was required to (a) consider the class and resource quality objectives for different water resources; (b) consider incentives and disincentives; and (c) must consider measures necessary to support the establishment of tariffs by water services authorities in terms of section 10 of the Water Services Act, 1997 (Act No 108 of 1997), and the use of lifeline tariffs and progressive block tariffs.

The water services assessment report by the DWA (2013) indicated that many municipalities had introduced a block tariff system for domestic, industrial and commercial water charges (Table 16). The lowest block tariff for domestic water use was on average R2,74, much lower than the commercial (R7,31) or industrial (R7,98) equivalent, as this tariff was subsidised for poor households through the Local Equitable Share.

Table 16: Average block tariffs in the water sector in 2011/12 (taken from DWA, 2013c)

AVERAGE WATER TARIFFS			
Tariff	Component	Amount	Average 2011/12 tariff
Raw Water	Water Resource Management Charge	R0.02 per kl	R 1.37 per kl
	Water Research Fund Levy	R0.04 per kl	
	Water Resource Infrastructure Charge	R1.30 per kl	
Bulk Water			R5.41 per kl
Municipal Water	Domestic	0 to 6 kl	R2.74 per kl
		6 to 20 kl	R6.85 per kl
		20 to 60 kl	R8.83 per kl
		Over 60 kl	R10.98 per kl
	Commercial	0 to 6 kl	R7.31 per kl
		6 to 20 kl	R8.18 per kl
		20 to 60 kl	R9.49 per kl
		Over 60 kl	R10.68 per kl
	Industrial	0 to 6 kl	R7.98 per kl
		6 to 20 kl	R 8.61 per kl
		20 to 60 kl	R9.85 per kl
		Over 60 kl	R10.85 per kl
Municipal Sanitation			R100 per month

Note: 1 kl = 1 m³

Research by the DBSA indicated that since 2001, the DWAF had regulated the application of a rising-block tariff system to promote equitable access to water for all (Smith, 2009). In 2006, the DWAF undertook a survey of the block tariff system in 236 municipalities, finding that 183 (78%) municipalities had already implemented three or more rising-block tariffs. Despite this relatively good level of compliance, the DWAF (2008) indicated that most of the municipalities were not reporting on the criteria used in setting their tariffs, which made it difficult to assess whether the cost elements critical for sustainability, such as a budget item for the refurbishment of infrastructure, were actually included in the tariffs.

The Benchmarking Study of the WRC and the SALGA (2014) supported this concern, indicating that the national average water income collected by WSAs from households in the country was R1,116 per household per annum (or R93/month) (based on 130 datasets – 86% of WSAs). The report indicated that many municipalities did not *have cost reflective tariffs in place, and thus revenues from tariffs do not cover operations and maintenance costs and/or debt service and depreciation costs (indication of whether the municipality has the capacity to invest in infrastructure without the grants given by government)*. The same study indicated that less than 30% of WSAs felt strongly that the water tariff covered 100% of the cost of water provision in their jurisdictions (SALGA and WRC, 2014).

8.2.2 Water and sanitation job creation and economic growth

According to the sanitation policy, sanitation improvement programmes, especially those promoting on-site systems, had considerable job creation potential through the use of local materials, products, suppliers, contractors, and the use of labour-intensive techniques. Such

programmes should be supported by the Department in conjunction with the National Public Works Programme (DWAF, 1994:16).

According to the DWS Strategic Plan for 2015, Water Boards alone had created a total of 10,959 jobs in 2014/15 and an estimated 17,355 were anticipated to be created in 2015/16 (<https://pmg.org.za/committee-meeting/20891/>).

The NWRS2 indicated that *a critical aspect of infrastructure development was the obligation and commitment to create jobs. Direct job creation takes place through the development, operation and management of water infrastructure, while indirect job creation flows from the associated water supplies to economic activities such as mining, manufacturing, power generation and agriculture. Investment in infrastructure development could create employment for local workers and provide skills development and work experience at a number of levels, from the highly technical jobs to manual labour, particularly where labour-intensive construction methods are used. The operation and management of water infrastructure also offers opportunities for job creation* (DWA, 2013b).

The DWS had committed in the NWRS2 to promotion *the creation of temporary and sustainable job opportunities on the construction, operation and maintenance of all water infrastructure projects*. Particular attention will be given to maximising the real benefits of employing labour-intensive methods of construction (DWA, 2013b). The South African Institution of Civil Engineering (SAICE) and the WRC were tasked in the NWRS2 to assist the DWS in further investigating the potential for the use of labour-intensive construction methods to create temporary and sustainable job opportunities (DWA, 2013b).

8.2.3 Subsidies

The policy of Government was that services would be self-financing at a local and regional level, with the only exception being poor communities that were unable able to afford basic services. In such cases Government would subsidise the cost of construction of basic minimum services. Operating, maintenance or replacement costs would not be subsidised (DWAF, 1994:18). This required substantial revision of policy since Government grants or "subsidies" were never provided in the water sector (DWAF, 1994:18).

Although a Government subsidy scheme for the provision of basic water supply and sanitation services had not been finalised, the policy framework for these subsidies was that they would:

- be made available to communities that cannot otherwise afford minimum water supply and sanitation services;
- only cover the cost of minimum services provision and would not cover operating and maintenance costs;
- other subsidies provided by the Department of Water Affairs and Forestry would be phased out, particularly in respect to operation and maintenance costs, except in cases where subsidies were required in the public interest such as for the protection of the environment;
- normally be paid to local authorities or statutory Local Water Committees, rather than direct to a service provider; and

- be determined locally by the actual cost of providing basic services.

In order to establish the financial implications of this policy framework, the policy specified that a national water supply and sanitation development strategy need to be completed in the near future, which would provide greater detail of the extent of a national programme in terms of both numbers of households to be served and the cost of supporting such service provision.

In urban areas, the policy was that the cost of internal services and reticulation within a township's boundaries were generally considered to be part of the development costs of the property. There were however the additional costs of connector, bulk and treatment services, which were not considered as part of the internal services and were therefore not covered by the housing subsidy. A key concern of the water sector was to ensure that provision was made for these costs. This was an instance where, although such issues were essentially the concerns of local authorities, the Government and Water Boards, who were bulk suppliers, would have to be involved in addressing the problem (DWAF, 1994:19).

The DWAF was to give high priority to rural areas of the country, with the policy being that a basic minimum service could be subsidised by the Government, within the constraints of finances available to the State. A basic principle was that the communities should normally be the channel for such subsidies, through either a Local Water Committee or local government agency, although the implementing agent could be a Water Board or any other agent chosen by the Committee and approved by the Department (DWAF, 1994:19).

In marginal areas the norm was that such communities were entitled to basic services as were any other citizen. Investment beyond basic services would however be related to the development potential of the area and the resulting ability of the local people to support higher levels of service (DWAF, 1994:20).

Policy indicated that the role of the DWAF, as regulator and monitor of the sector, would be to advise the appropriate financial authorities on the adoption of such plans from the perspective of achieving comprehensive provision of basic services (DWAF, 1994:19).

The Basic Human Needs Reserve water resource allocation right per person in South Africa was thus 25 litres per person per day (lcd) for every person in the country. Despite the BHNR being a 'reserved' water quantity for each individual in South Africa, there was a cost to providing 25 litres of potable water to each individual in a municipality (Pollard et al., 2002). Provision of these 25 litres was the responsibility of local government and the 'cost' associated with providing this minimum water supply service falls within the municipal budgeting and financial management systems.

The SFWS indicated that the subsidy would be allocated in a way that benefits all consumers in the same circumstances equally. The subsidies available in the water services sector were discussed in section 6.5.4 of this report.

Section 5.5.1 above discusses the water supply and sanitation subsidy in South Africa and the number of individuals benefiting from the Free Basic services subsidy.

8.2.4 Polluter pays

The White Paper on Household sanitation mandated that policy principal of "the polluter pays" must be upheld (DWAF, 2001:16). The key policy intent was therefore the polluter pays principle (DWAF, 2001:12). This principle required that any polluters of water must pay for the cost of cleaning up the impact of their pollution on the environment (DWAF, 2001:12).

Any reduction of receiving water quality should have a value assigned to it and the source of pollution charged accordingly. Users causing pollution should in addition be charged for costs incurred in cleaning up or removing pollution, or for repairing associated damage (DWAF, 2001:16). Where sanitation-related pollution originates from poor communities, alternative means could be sought to pay for those externalities, but steps should be taken to prevent further cases of pollution or contamination (DWAF, 2001:16). This did not however absolve any community decision-making body from exercising care in the choice of a sanitation system where the environmental consequences were predictable and could be minimised (DWAF, 2001:16).

8.3 SOCIAL WATER SERVICES POLICY INTENTIONS

The social intent principles included in the policy documents include that (DWAF, 1994:34):

- development and provision should focus on vulnerable groups such as the indigent, disabled, children, women, etc.;
- development should be demand driven and community based; and
- communities should take ownership of services provided to them.

In March 2013, key findings from all the Human Rights Commission's engagements on water supply and sanitation included that:

- there was a lack of a human rights-based approach to the delivery of water and sanitation services. This relates to the principles of transparency and public participation, in the delivery of basic services and access to information;
- there was a disproportionate impact on vulnerable groups, including women, children and people with disabilities. For instance, the Commission found that women were impacted as the main caregivers and people with disabilities had to use services that did not cater for their needs; and
- farm workers were unable to access water and sanitation mainly because they live on privately owned land. People in farming communities raised the concern that they were reliant on the landowner for the provision of basic services.

8.3.1 Development focused on vulnerable groups

The South Africa Gender Policy Framework was authorised by Chapter 2 (Bill of Rights) of the Constitution of the Republic of South Africa, Act No. 108 of 1996 and the National Policy Framework on Women's Empowerment and Gender Equality, 2000. The policy was also guided by the Batho-Pele principles of service delivery. It thus locates women empowerment in the context of local government and housing and emphasising the province-specific challenges and needs in pursuit of enhancing and improving the Department's service delivery

with an emphasised focus on women as amongst the previously disadvantaged/marginalised groups in society (Cooperative Governance and Traditional Affairs, undated). The policy further recognises gender imbalance manifested in the unequal power relations, access to and control over resources, and related aspects that continues to pose a threat to gender transformation (Cooperative Governance and Traditional Affairs, undated).

The policy and legislation was relatively weak related to vulnerable groups and provision of water supply and sanitation to these groups.

8.3.1.1 **Women, Water and Sanitation**

Both the Water Services Act of 1997 and the National Water Act of 1998 do not mention gender at all.

In January 1996, the South African government ratified the Convention on the Elimination of all Forms of Discrimination against Women (CEDAW) Agreement that outlines minimum standards for governments to meet and ensure an end to gender discrimination and to promote gender equality.

South Africa was faced with many challenges. To achieve a society free of racism and sexism the country needed to undergo a paradigm shift with regard to how resources were allocated and how people relate to each other. The challenges facing South Africa had been translated into national priorities. All of these priorities had compelling gender dimensions that needed to be addressed if the country was to advance towards gender equality. The key challenges include:

- Access to basic needs such as education, housing, welfare, fuel and water had also been influenced by unequal gender, race and class relations. The inequality of power between women and men had inevitably led to the unequal sharing of resources such as information, time and income as well (Gender Policy Framework, 2000).
- Access to basic resources such as water and fuel had improved since 1994, but women's control over these resources was still not satisfactory. The lack of infrastructure in the rural areas still acts as a barrier for women to gain easy access to basic resources (Gender Policy Framework, 2000).

The Gender Policy Framework integrated gender into the broader strategic agenda of local government in order to achieve equitable and sustainable development and service delivery for women and men (Gender Policy Framework, 2000). The benefits of the implementation of this Framework are the following:

- Social and Economic empowerment of women.
- Mainstreaming gender in local government strategic and planning agenda.
- Eradication of violence against women in communities.
- Meeting the needs of men and women through service delivery.

In September 1997, the Heads of State of the Government of the Southern African Development Community (SADC), including South Africa, signed a declaration committing their governments and countries, inter alia, to:

- embedding gender firmly into the agenda of the SADC Programme of Action and Community Building Initiative;
- promoting women's full access to and control over productive resources;
- repealing and reforming all laws and changing social practices which subject women to discrimination;
- making quality reproductive and other health services more accessible to women and men; and
- protecting and promoting the human rights of women and children.

The vision of the SFWS was that water services institutions in South Africa reflect the cultural, gender and racial diversity of the country. Through the institutional reform process, assisted by the support framework, water services institutions needed to be transformed in order to ensure effective, efficient and sustainable services provision, and taking cognisance of the need to reflect the cultural, gender and racial diversity in South Africa. The DWS/WRC Impact Assessment of the SFWS found that, in Figure 51, both nationally and within the provinces, municipalities were still male dominated at a managerial level. The percentage of managerial positions in municipalities held by males was in some cases, nearly triple the percentage of positions held by females. Over 70% of municipal manager positions across the provinces were held by males, with female-held manager positions in the region of 17-34% in 2013. This did not reflect the national average where females dominate population numbers in the country and after 20 years of gender mainstreaming in national policies and strategies, females seem to have made limited in-roads into managerial positions in local government. One could assume that although this data was for all the municipalities, the water supply and sanitation sector of the municipality may follow a similar pattern of low representation of women in managerial positions.

The percentage of municipal manager positions held by males had however declined in all the provinces between 2006 and 2013, and there had been a corresponding, although still low, increase in the percentage of female held manager positions.

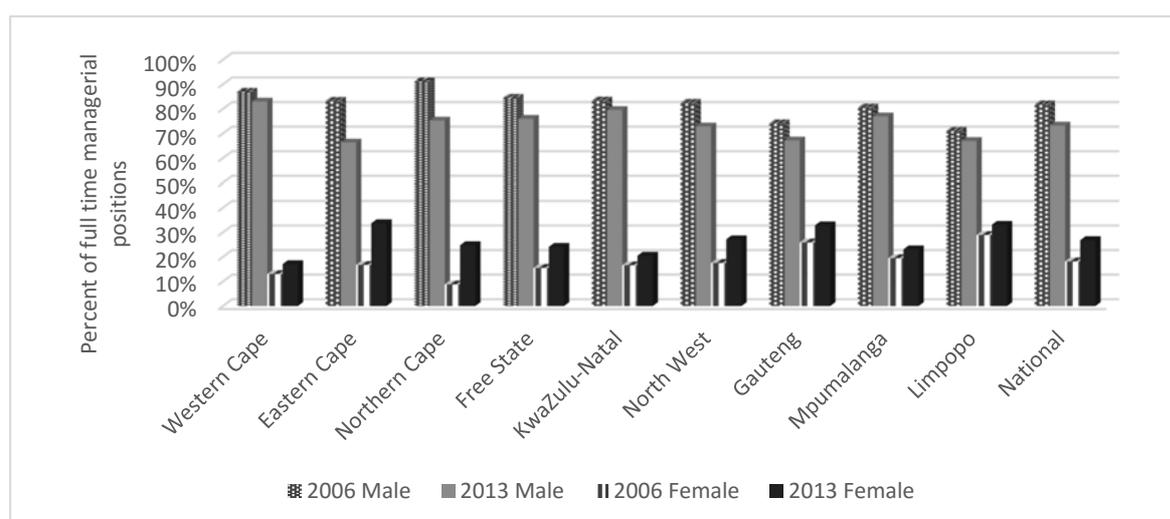


Figure 51: Percent of male and female held manager positions in municipalities across the provinces of South Africa (data source: Non-financial Census of Municipalities, various year)

Municipal councillors, elected public representatives (local councillors), were the political face of a municipality. According to the Handbook for Municipal Councillors, the broad mandate of local government officials was to promote development of local government and facilitate socio-economic development at the local municipal level (Paradza et al., 2010). Councillors were the interface between the citizens they represent and the municipal officials who design and implement development policies (Paradza et al., 2010). Whilst not directly involved in service delivery, councillors play an essential role as the interface between residents and the municipal administration (Paradza et al., 2010).

The DWS/WRC Impact Assessment of the SFWS found that, as shown in in Figure 52, elected councillors of municipalities were also still male dominated in 2013, with more than half of councillors being male. Only the Western Cape, KZN and Limpopo Province demonstrated an increase in female councillors since 2006. Councillors play an important role in service delivery, particularly in oversight of municipal service delivery. It was important that these councillors were representatives of their population and understands the particular role of women in water supply and sanitation services. More women councillors representing women’s priorities in water service delivery could assist with better service delivery at a municipal level.

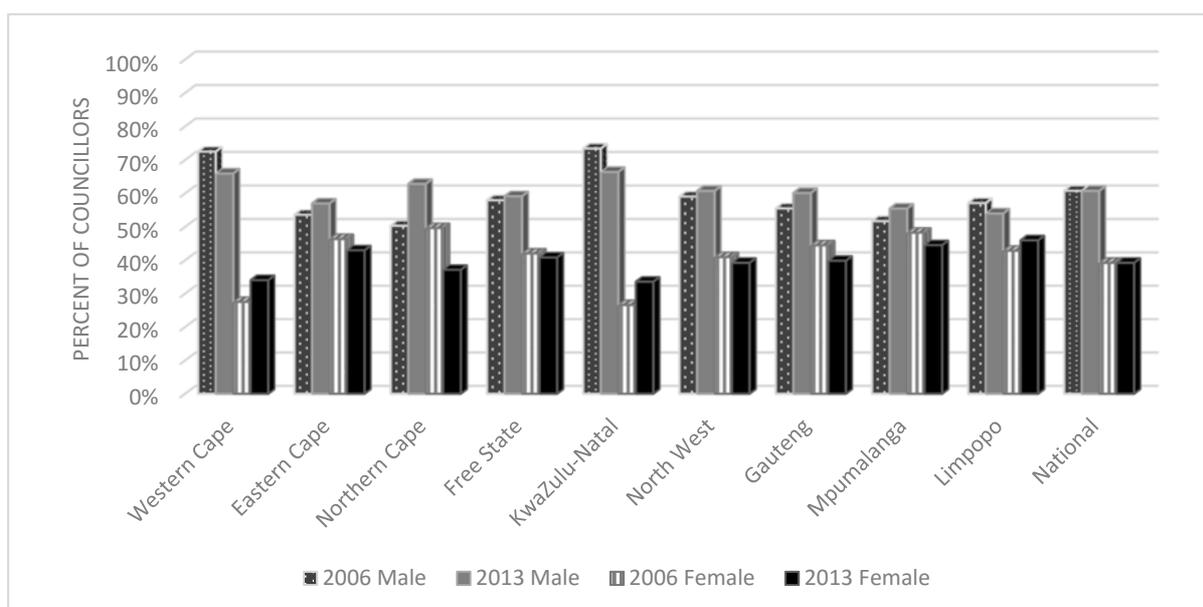


Figure 52: Percent of female/male councillors in municipalities in the provinces of South Africa (source: Non-financial Census of Municipalities, various years)

Women often bear a household’s water and health burden resulting from the absence of, or poor, water supply and sanitation services. Water collection, storage and management have been seen as a women’s responsibility, as well having to care for the family when ill as a result of poor water supply and sanitation services. Gender equity and mainstreaming were key to a successful water sector. The needs and responsibilities of women and men in relation to water services and sanitation were often different. Women thus need to play a meaningful role at all levels in consultations, planning, decision making and, in the operation, and management of water services.

The SFWS had the intent that every effort be made to ensure the adequate and meaningful participation of women in consultation forums. At the same time, municipalities were required to undertake gender-sensitive health communication. The SFWS thus anticipated that gender participation would be equitable in the planning and implementation of water supply and sanitation projects, and that implementation of these projects would also be gender sensitive.

In South Africa, research had shown that both gender equality and access to basic water services were complexly interlinked objectives of poverty alleviation and sustainable development. Women also played an important role in environmental protection and management (UNDP, 2006). Hence, empowering them to play a leadership role in the water services sector would facilitate sustainable environmental development.

In 2007, the then Department of Water Affairs (DWA) announced that the emphasis in the water services sector had been shifted beyond the provision of services to give expression to the new theme of “Water for Growth and Development” (DWA, 2009). The focus of this new theme was to ensure that the provision of water services meets both economic and social priorities. For example, the provision of basic water services was a means of empowering women.

Gender equity in water supply and sanitation would include that both male and female headed households in the country had equitable access to a basic water supply. The DWS/WRC Impact Assessment of the SFWS found that South African households were still largely male headed, with approximately 60% of households indicating a male headed household in the StatSA General Households Survey (GHS) between 2003 and 2013.

The same study found, Figure 53, that a decreasing percent of male and female headed households had, between 2003-2013, reported having no access to a basic water supply facility. Male headed households without access to a basic water supply facility had decreased from 7,5% of these households in 2003 to 4,6% of households in 2013, an overall decrease of 2,9% (or 38,4 % improvement) of households. Female headed households, according to GHS, had seen a decrease in the percent of households without access to a basic water supply facility from 13,7% in 2003, to 8,5% in 2013. The female headed households without access to a basic water supply facility had thus decreased by 3,6 % over the period (showing a 38,7% improvement), but a higher percentage female headed households than that of male headed households still lacked access to improved water supply. Since a higher percentage of female headed households did not have access to basic water supply, these households were using unprotected water sources or had to travel greater distance to collect safe water for the households.

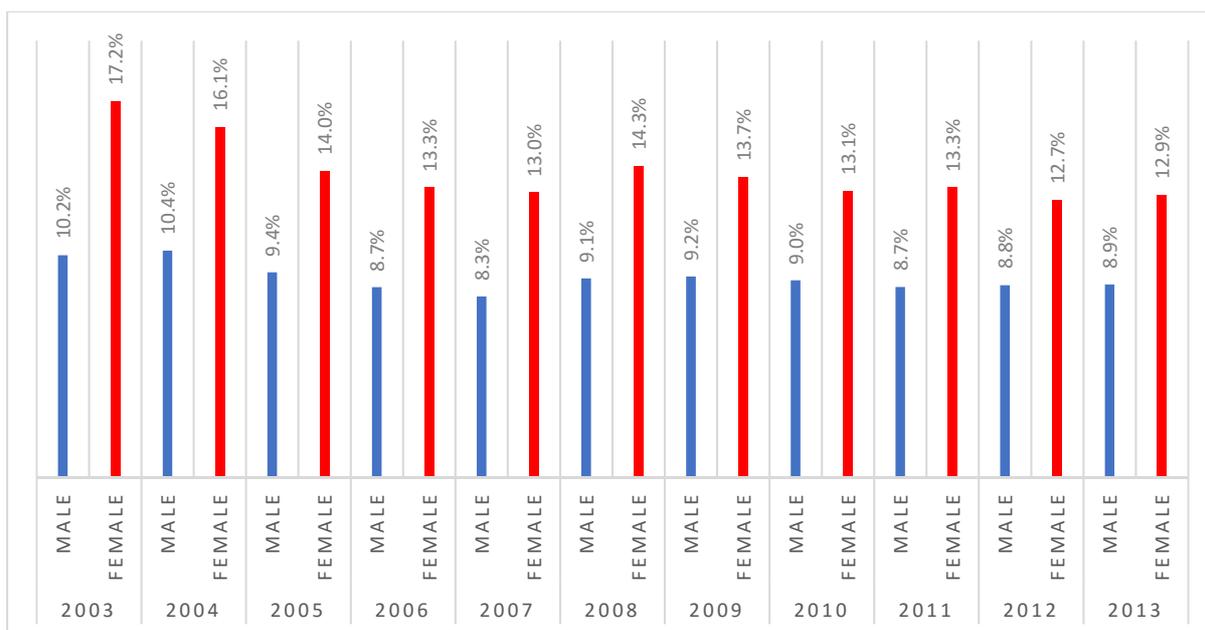


Figure 53: Percent of male and female headed households without access to basic water supply facilities

A similar picture emerged for access to basic sanitation facility, with both male and female headed households showing greater access to basic sanitation between 2003 and 2013 (Figure 54). Male headed households, like access to basic water supply, had a lower percentage of households without access to basic sanitation when compared to female headed households. By 2013, the percentage of male headed households without access to basic sanitation services had decreased from 29,7% from 2003 to reach 19,8% of households. Progress with delivery of basic sanitations service to female headed households had been faster, with backlogs decreasing from 44,4% of female headed household in 2003 to 24,9% of female headed households in 2014. This was a 44% improvement in the indicator from 2003. However, at least 24,9% of female headed households did not have access to this vital service, as compared to 19,8% of male headed households.

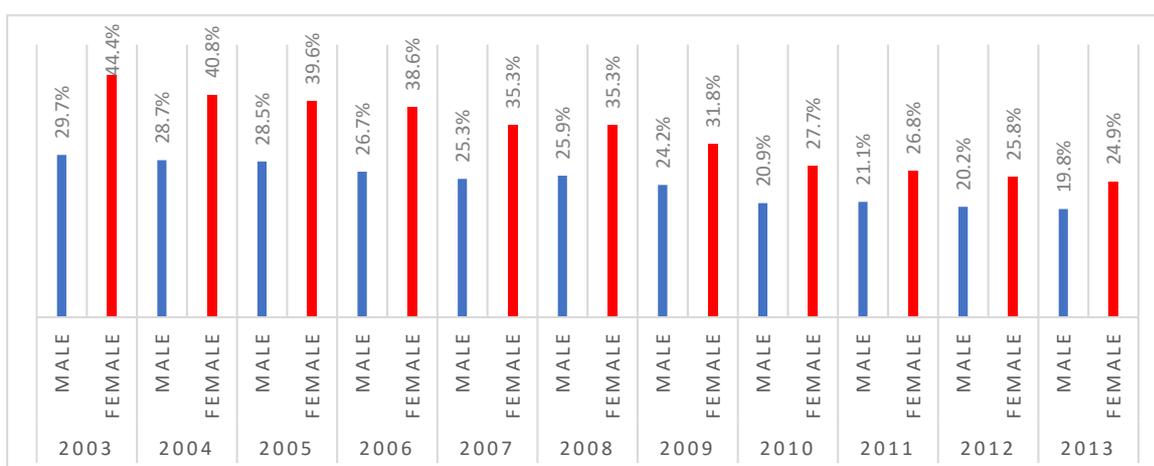


Figure 54: Percent of male (top) and female (bottom) headed households' access to basic sanitation

The definition of a basic water supply was that the water source must be within 200 meters of the households. Hence one of the levels of water supply in South Africa was a communal tap within 200 meters of a household. As the country proceeds with delivery of basic water supply services to households, it would be expected that the distance which households with off-site water sources had to travel to collect the water would decrease, i.e. more households would have indicated that their off-site water source was within 200 meters of a household.

The DWS/WRC Impact Assessment of the SFWS found the progress made between 2003 to 2013, in ensuring that there was equity in male and female headed households access to a water source within 200 meters of the households, that a much lower percentage (53%) of female headed households had a water source within 200 meters of a household in 2013, as compared to 65% of male headed households. Male headed households with water supply further than 200 m had decrease from 50,2% of households in 2003 to 35,3% of households in 2013, an improvement of 29,7% in this indicator. Female headed household, although having a higher percent of households with a water supply further than 200m, had decreased the number of household with water supply further than 200m, from 52,2% of households in 2003 to 47,4% of households in 2013, a 38,3% improvement in this indicator.

StatsSA recently also reported that where water must be collected, female members of the household were more likely than male members to be responsible for the task. The data from this reported confirmed that, whatever the distance, a larger proportion of female than male members of the household were likely to be involved in water collection (StatsSA, 2014). The difference in the likelihood of male and female members collecting water was smallest when the water was collected from less than 100 metres from the dwelling. When the water source was very distant (a kilometre or more), female members of the household were almost twice as likely as male members to collect water.

8.3.1.2 Women and the Environment

Given the large proportion of women in rural areas who were dependent on natural resources and who were affected by poverty, access to these resources was a gender issue. In a large measure, women struggle to get water, wood and fuel, as well as access to mineral and other resource rights (Gender Policy Framework, 2000:16).

The initiatives taken by the Department of Water Affairs and Forestry to include women in its planning and implementation strategies had been welcomed. Afforestation programmes, dam building projects and all other environmental programmes had attempted to take into account the specific needs of women (Gender Policy Framework, 2000). The Department's regulations stipulate that 30% of the representatives on all water boards and other water committees must be women. There are, however, several limitations presented (Gender Policy Framework, 2000):

- Water schemes had tended to favour houses that were easy to connect to water supplies. This had disadvantaged poor rural women who live far away from water supplies.
- There were few training and empowerment programmes to prepare women as managers and custodians of natural resources.
- Environmental impact assessments had not paid enough attention to the impact of policies and practices on all women.

- Few women were involved in making decisions aimed at the creation of a healthy and sustainable environment.

-

8.3.1.3 **Women and Human Rights**

South Africa has a Constitution that entrenches non-sexism and non-racism in the Bill of Rights. It recognises primarily, that human rights were inalienable; they apply to all human beings. South Africans understand that the enjoyment of human rights was the most basic requirement and standard for the enjoyment of all human life. To this end South Africa had enacted legislation and ratified international and regional instruments aimed at the protection and promotion of women’s rights as human rights (Gender Policy Framework, 2000:19).

These rights fall into two broad categories: socio-economic rights, and political and civil rights. Socio-economic rights mean rights dealing with basic necessities such as housing, health, water and food (Gender Policy Framework, 2000:19).

8.3.1.4 **Children, Water and Sanitation**

Both the Water Services Act of 1997 and the National Water Act of 1998 do not specifically mention children.

Policy intents relating directly to children and child-headed households and people living with disabilities (PLWD) were limited in these Acts.

Literature shows that inadequate sanitation greatly affects learners’ school attendance, with girls being the most affected and resulting in many early dropouts. In South African schools, the situation was appalling (NEIMS, 2011). Table 17 below, shows the number of schools with no sanitation facility and water supply.

Table 17: Number of schools with no sanitation facility and water supply (taken from NEIMS, 2011)

Sanitation Facilities in South African Schools	Water Supply in South African Schools
• 913 schools with no sanitation facilities	• 2,402 schools had no water supply
• 11,450 schools still using pit latrine toilets	• 2,611 schools had unreliable water supply

Table 18 shows the case of Mahlodinela Primary School in the Sengatane Village.

Table 18: The impact of the sanitation crisis (case of Mahlodinela Primary School in Sengatane Village, Limpopo)

	Impact	Testimony
Education	A 6-year-old boy (Michael Komape) fell into a pit toilet and died at a school in Limpopo. The child had gone to relieve himself during break time and did not return to class.	“We were battling on matters of school sanitation. We can’t run away from the truth. There were only pit toilets at the school. The young boy’s death was a “very unfortunate situation.” [Phuti Seloba, Spokesperson Limpopo Department of Education] ⁴
Health	Death due to drowning in pit latrine. Ventilated improved pit latrine solutions had been deemed acceptable solutions for the sanitation crisis.	Data shows that pit and ventilated improved pit latrines were ineffective and pose potential health implications, and even death as in the case of 6-year-old boy Michael Komape.
Dignity	Many of the pit toilets don’t even have doors.	The poor conditions of this school’s toilets go far beyond a child’s dignity and human rights.
Safety and Security	“To get to the toilets where little Michael met his fate, pupils had to walk past nine other uncovered toilet holes.”	“If my child had not used that toilet, he would not have died,” said the child’s mother. ⁵

The DWS/WRC Impact Assessment of the SFWS found that according to StatSA General Households Survey just under 1% (90-100 thousand) households in the country were headed by child 18 years or younger. In 2013, 83,8 % of these households had access to a basic water supply, which was however an improvement on the 77,7% of childheaded households in 2009 (Figure 55).

⁴ <http://www.enca.com/south-africa/grade-0-learner-dies-after-plunging-school-pit-toilet>

⁵ <http://www.news24.com/SouthAfrica/News/Limpopo-pupils-put-off-by-horrific-conditions-20140116>

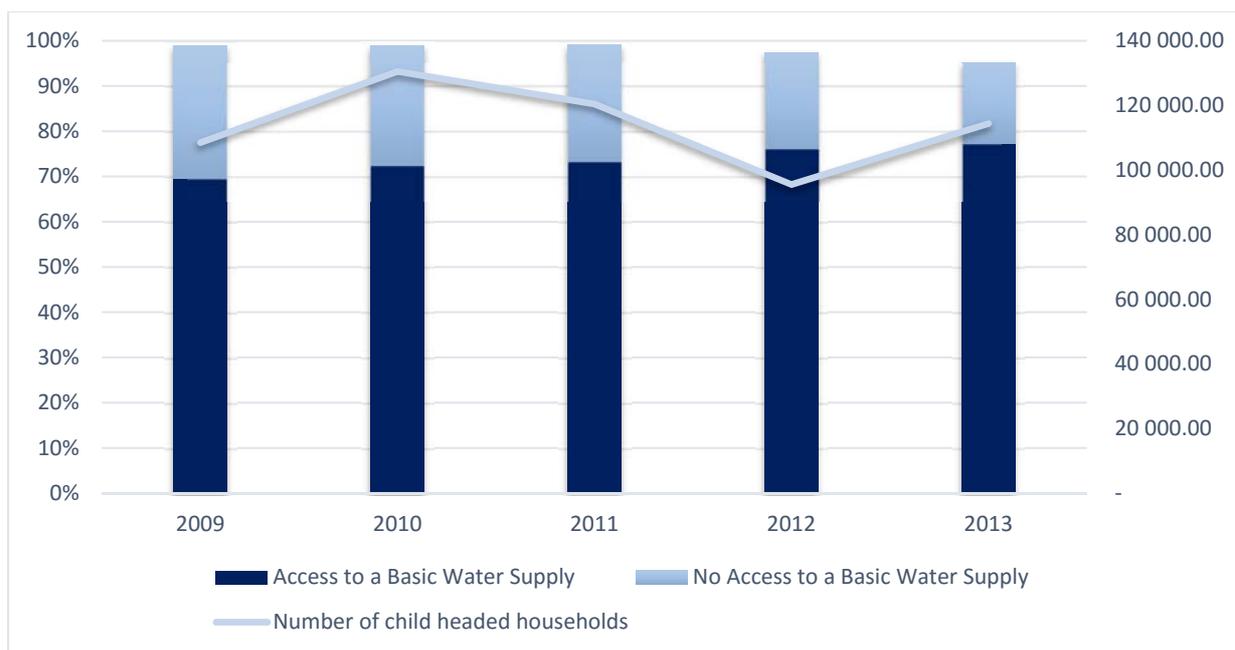


Figure 55: Percent of child headed households with and without access to a basic water supply

With reference to access to basic sanitation, a much lower percentage of child headed households had access to a basic sanitation service with only 57% of child headed households having access in 2013 (Figure 56). However, the GHS did show a positive trend in access to basic sanitation services by these households between 2009 and 2013.

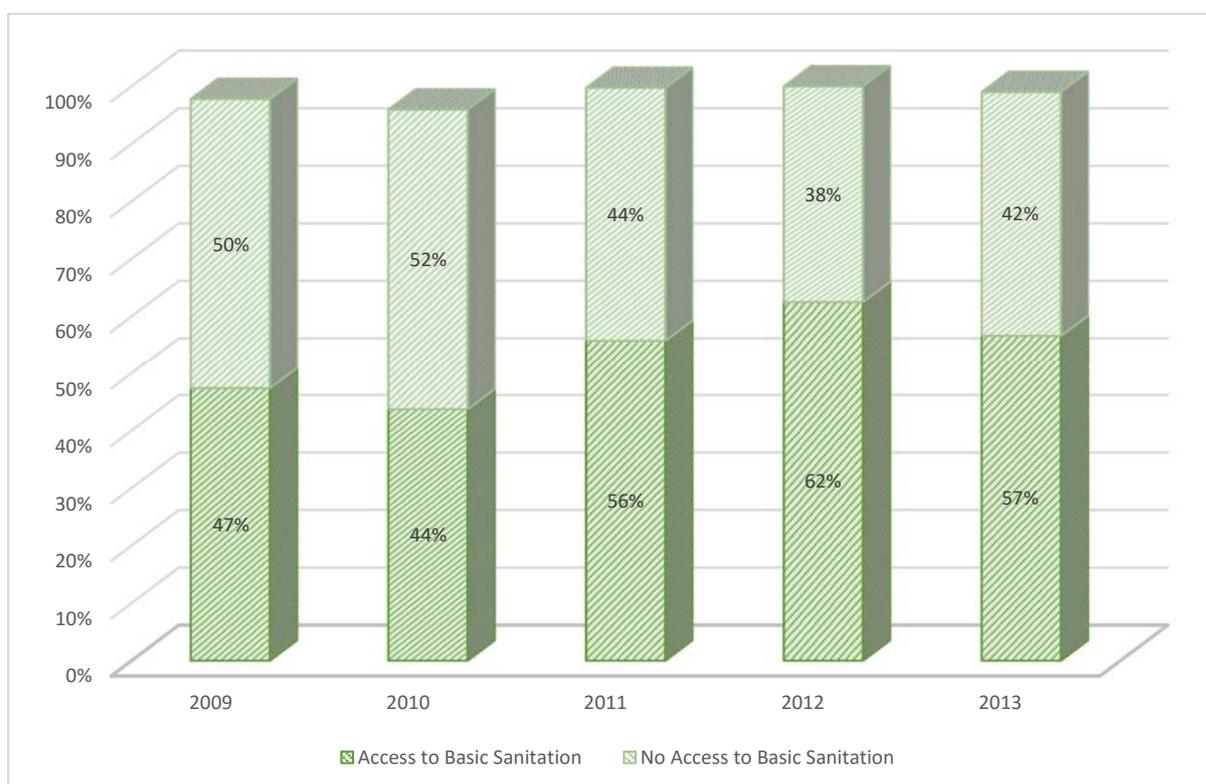


Figure 56: Percent access of child headed households to basic sanitation

Perhaps more concerning was that only a small percentage of the child headed households had access to water in the dwelling, with the majority accessing water from a yard tap or public tap. This implies that these households had to collect water from these sources and thus may had to carry heavy containers of water to their households (Figure 57). However, the number of child headed households with access to water supply within the dwelling had increased from 13% in 2009 to 16,6% in 2013. Child headed households without access to a basic water supply within 200m of the household rely on a range of water sources, with the highest percentage, 5% in 2013, relying on rivers, streams or flowing water sources.

Similarly, the same study, Figure 58, showed that only approximately a quarter of child headed households had access to a flush toilet during the GHS periods. There had however, been a positive increase in the percentage of households that had access to improved pit toilets (VIPs) with a related decline in the use of unimproved pit toilets over the same period. What should be of great concern is the 9% (in 2013) of child headed households that indicated in the GHS that they did not have access to a toilet facility, which could be interpreted as open defecation being the practice in these households.

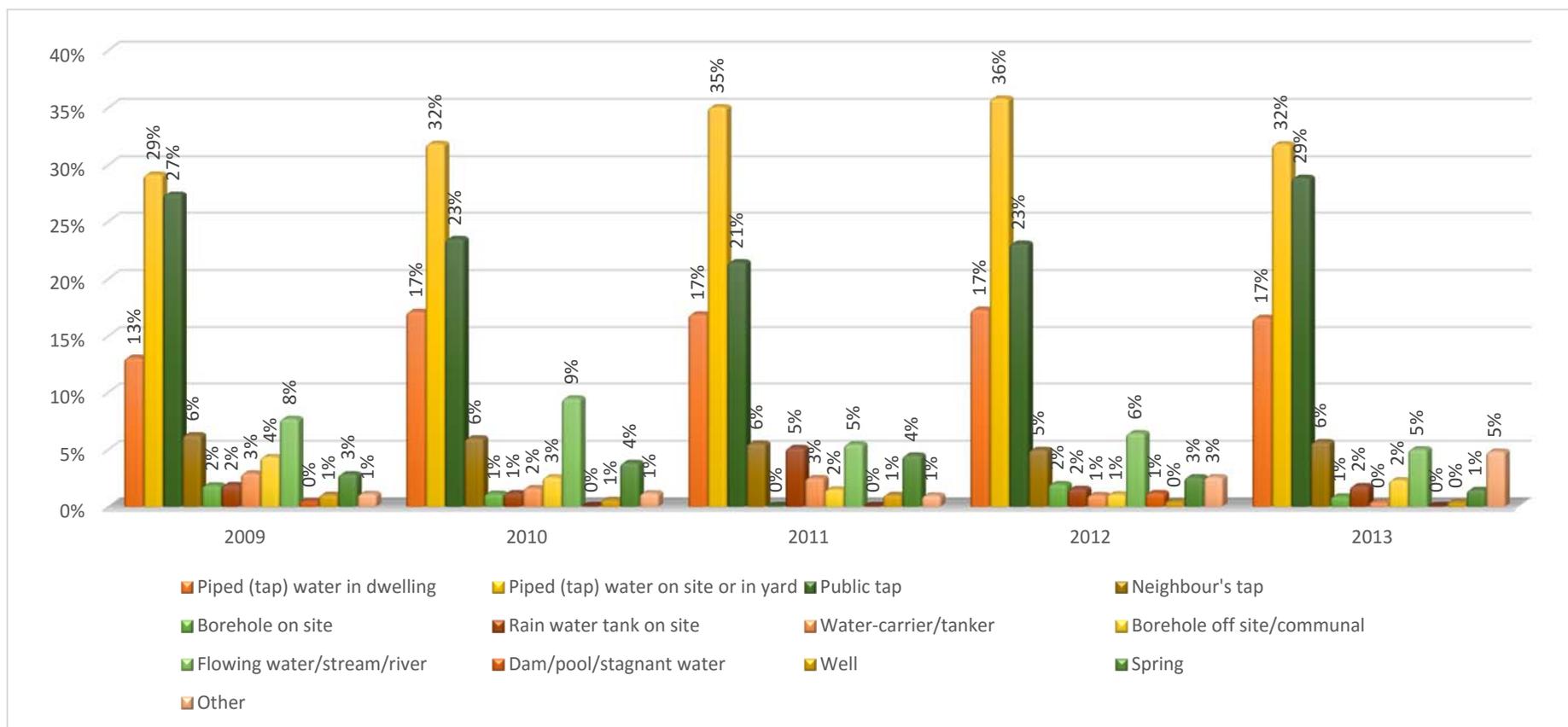


Figure 57: Child headed household's access to water supply, by type

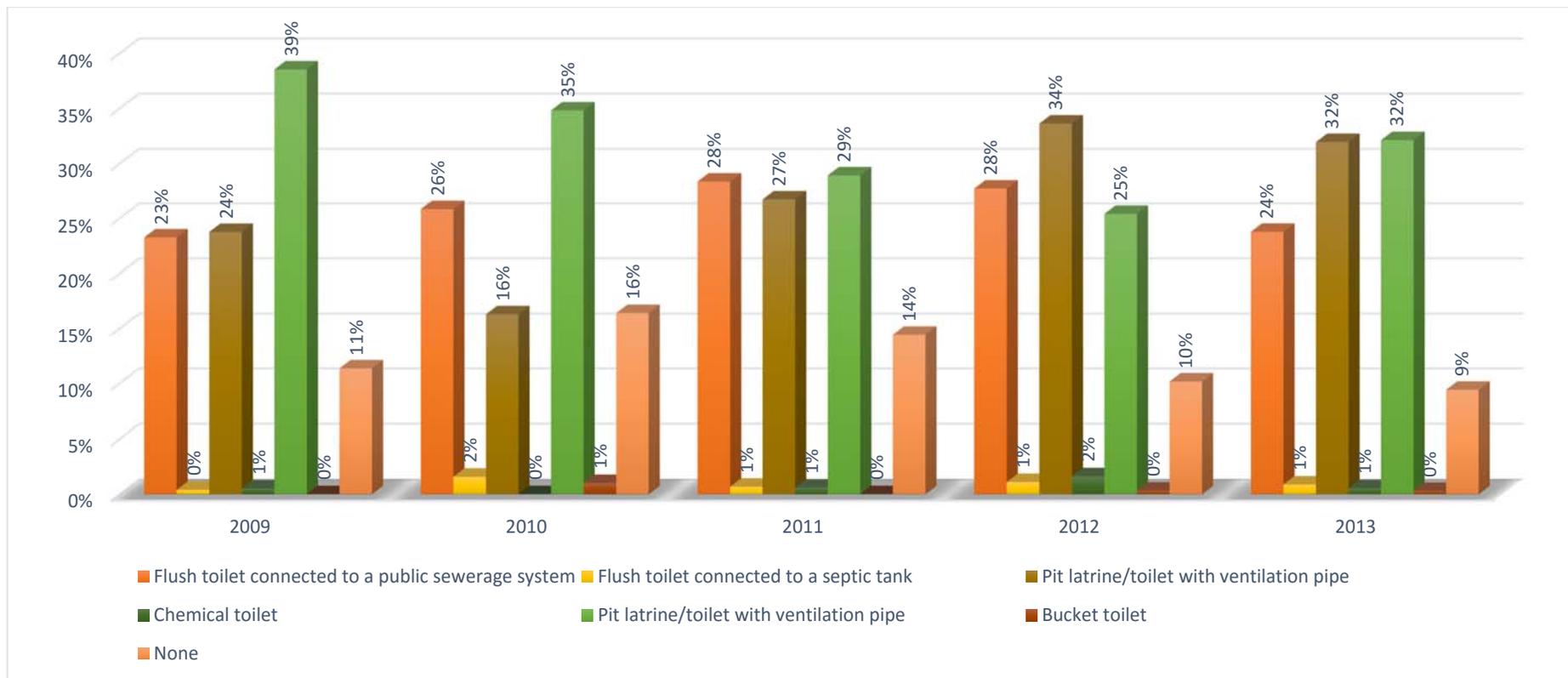


Figure 58: Type of sanitation facility which child headed households had access to (source: StatsSA GHS, various

8.3.2 Demand driven sanitation development

The purpose of the National Water Act was to ensure that the nation and its water resources were protected, used, developed, conserved, managed and controlled in ways that take into account, amongst other factors, (DWAF, 1998:18):

- meeting the basic human needs of present and future generations;
- promoting equitable access to water;
- redressing the results of past racial and gender discrimination;
- promoting the efficient, sustainable and beneficial use of water in the public interest;
- facilitating social and economic development;
- providing for growing demand for water use; and
- protecting aquatic and associated ecosystems and their biological diversity;

and for achieving this purpose to establish sustainable institutions and to ensure that they had appropriate community, racial and gender representation (DWAF, 1998: 18).

Access to sanitation is a universal human right. Therefore, sanitation improvement must be demand-responsive and supported by an intensive health and hygiene programme (Tissington, 2011). For example, improved sanitation facilities do not only help lower mortality and morbidity rates, but also improve learning and retention, and reduce stunting.

Utilising a sanitation solution that was non-polluting, safe and had a zero-discharge system, and that would not cause either ground water contamination or the breeding of water-borne diseases, should become the norm because the impact of inadequate sanitation on the health of the poor was significant in terms of the quality of life, and the education and development potential of communities (Tissington, 2011).

Furthermore, it has been shown that if a sustainable sanitation solution was used to solve the 23 million people sanitation crisis in South Africa, approximately 350 billion litres of water per annum would be saved.

8.3.3 Community-based provision

Community-based (rather than contractor-based) approaches that focus on sanitation improvement for people were encouraged by government (City of Cape Town, 2008; DWAF, 2002). Although contractor-driven approaches offered speedy delivery, community-based approaches were more likely to ensure long-lasting benefits with significant positive implications for community health and local economic development (Netshiswinzhe and Eales, 2002). Policy stated that projects would be implemented using a community-based approach. The highest priority would be given to those communities that face the greatest health risk due to inadequate sanitation and who cannot afford to meet their own requirements (City of Cape Town, 2008; DWAF, 2002).

Community participation was identified as a key requirement for the success of the implementation programme. Projects were to be demand driven by the community, as demonstrated by the community's willingness to assist in project implementation. Where possible, projects were to be

implemented without the use of external contractors to facilitate the upliftment of the local economic situation (City of Cape Town, 2008; DWAF, 2002).

The Gender Policy seeks to address the gender imbalances within the Department and the different communities that benefit from the services provided the Department ranging from housing through the key services at local government such as the provision of water, electricity, roads and sanitation infrastructures and many other that directly on the improvement of the quality and status of life of women (Cooperative Governance and Traditional Affairs, undated).

According to the South African Human Rights Commission (SAHRC), the Presidency, through the Department of Planning, Monitoring and Evaluation (DPME), would engage with existing government multi-department structures that deal with water and sanitation to ensure the necessary coordination and oversight in relation to the provision of water and sanitation (SAHRC, 2014). Government needed to engage in meaningful consultation with communities and officials need to understand and be responsive to differential impacts of Government policy and practice. This would entail addressing vulnerability to violations arising from discrimination and prejudice based on race, sex, gender, class, disability, age, sexual orientation and other factors (SAHRC, 2014).

South Africa, during the implementation phase of the SFWS, had not performed well in the areas of community and public participation in decision-making related to water supply and sanitation. A World Bank Policy Brief on Water indicated that South Africa, in our focus on meeting national and international targets to improve access to services, had *largely abandoned inclusive approaches to service planning, delivery, and oversight, in favor of highly centralized approaches where citizens' role was essentially passive. An implicit assumption was that standardized approaches to technology choice and service levels would enable economies of scale, but practice had proved otherwise* (World Bank, 2011). With the devolution of the implementation role to local municipalities in 2001-2003, and the focus on addressing the SFWS, public participation in the water supply and sanitation decision-making had largely disappeared. Decisions on water supply and sanitation service levels, which were provided in various areas of the country, were made by WSAs, with little participation and engagement with the affected beneficiary or communities. South Africa had experienced a number of social protests in recent years, with protesters often citing the lack of accountability of government officials, along with the absence of public participation, as factors that further aggravate their service delivery complaints (Karamoko, 2011).

The SFWS indicated that civil society also had an important role to play in, amongst others, planning, monitoring and advocacy. A vibrant and durable democracy was seen as being necessary for a strong civil society. Government committed to promoting the active involvement of civil society in the provision of sustainable and affordable water services, in research and in other related activities. This was to be done through:

- engaging civil society organisations in policy development, research and advocacy, and assisting with planning, implementation and management of programmes and projects at community level;
- supporting the development of capacity in civil society organisations;
- encouraging civil society organisations to help monitor sector performance at all levels;
- engaging civil society organisations in creating a link between government and local communities; and
- engaging capacitated community-based organisations to manage water services projects at the local level, where appropriate.

Despite these intents of the SFWS, the Masibambane II Programme, in the review of the sector in 2007 indicated that there had been *no significant progress on increasing the meaningful participation of CSOs in the delivery of water and sanitation services since the MSBI evaluation and the mid-term review findings. There continues to be different interpretations of who constitutes civil society organizations, their role and how their participation in the delivery of water and sanitation services was monitored* (Everatt et al., 2007). The Finance Agreement between parties in the Masibambane II programme *envisaged that 25% of the EU funds would be channelled through civil society structures (equivalent to R100m) but the total expenditure channelled through civil society structures was reported as R42m*. The review did however indicate that CSOs contributed to national policies related to service delivery.

8.3.4 Water Services Training and Capacity Building

Policy intents relating directly to training and capacity building were limited in the Water Acts (i.e. Water Services Act (1997); National Water Act (1998)).

The SFWS indicated that capability building through education, training and skills development would form a major component of support to the sector. The skills development strategy for the sector would take into account the need to accelerate and expand formal and structured training and education programmes, particularly related to planning, implementing, operating and maintaining water services infrastructure; specialist skills required in the sector and management capacity requirements. The SFWS assigned responsibility to the DWAF, together with the Local Government, Water and related services Sector Education Training Authority (LGWSETA), of leadership and coordination of education, training and capacity building in the water services sector.

The SFWS envisaged education and training institutions, such universities, Technikons, colleges and the National Community Water and Sanitation Training Institute (NCWSTI), non-government organisations and private organisations, offering water-related courses, training needs analysis, applied research, development of course curricula and training materials, and implementation of capacity building, training and educational activities.

Stakeholders in this impact assessment study indicated a challenge with training and capacity building in the sector. There were numerous reports outlining the weak capacity of the sector to perform assigned roles and responsibility. According to the 2011 Infrastructure Report Card produced by SAICE, in *waste water infrastructure - which comprises 850 municipal treatment plants throughout South Africa there was a worrying lack of wastewater monitoring in many plants due to lack of trained personnel*. Similarly, the SALGA and WRC (2013) benchmarking report indicated that a national average of 0.26 engineers per 100 000 capita (118 WSAs) was determined, indicating a *chronic shortage of municipal engineers in South Africa*. The same study indicated that 53% responding WSAs indicated that they did not have senior technical management with the appropriate skills, while 49% of the responding municipalities indicated not having the appropriate number of staff (SALGA and WRC, 2013).

Despite the widely recognised capacity and skills challenge in the sector, the training and education opportunities to address this challenge were limited. However, the EWSETA did offer a Water and Sanitation Learnership in:

- Water Treatment Process Operations

- Community Water, Health and Sanitation Facilitation (Educator; O&M; NVC)
- Community Water, Health and Sanitation Promotion (Sanitation Builder)
- Community Water, Health and Sanitation Promotion (Sanitation Construction Business Owner; Community Sanitation Builder)
- Community Water, Health and Sanitation Promotion
- Water and Wastewater Reticulation Services
- Water and Wastewater Treatment Process Control Supervision
- Water Treatment
- Waste Water treatment.

3.5 ENVIRONMENTAL WATER SERVICES POLICY INTENTIONS

The Department of Water Affairs and Forestry's policy on the environment was based on the unity and indivisibility of all aspects of human life and the environment in which human development occurs (DWAF, 1994:28). It was therefore a contradiction to talk of sustainable development from the perspective of service provision without ensuring that the environment from which the resource was derived was protected and sustained (DWAF, 1994:28).

The aim of water quality management by the Department was to ensure the fitness for use of our water resources for domestic, industrial, agricultural and recreational purposes on a sustainable basis while protecting the ecological integrity of the water environment (DWAF, 1994:31). A comprehensive water quality management policy had been developed by the Department that embodies the principles of pollution prevention, a precautionary approach and a receiving water quality objective that would meet user requirements (DWAF, 1994:31).

Early policy indicated the need to fully understand the impact of inadequate sanitation services on a variety of sectors (DWAF, 1994:32). These include the impact on the water resources of the country, particularly water quality, and the impact on the health and well-being of the population (DWAF, 1994:32). For this reason, both sanitation services and economic activities, which could pollute water and render it unfit for use, must be controlled (DWAF, 1997).

An important element of both water supply and water resource management was the establishment of a culture of conservation and the introduction of stringent demand management strategies to reduce water usage and the stress on resources (DWAF, 1994:29).

The SFWS indicated that one of the key purposes of the Institutional Realignment and Reform of the water sector was to improve the efficiency of water use so as to ensure the wise use of South Africa's scarce water resources through appropriate demand management and conservation initiatives. As a result, all water services institutions must develop an appropriate water conservation and water demand management (WDM) strategy. The WDM strategies developed by water services authorities must be reflected in the water services development plan (WSDP). WDM strategies should be based on the following principles:

- Water institutions should strive to supply water in an efficient and effective manner, minimising water losses and promoting WDM to their consumers.
- Consumers should not waste water and should strive to use water efficiently.
- WDM should be considered as part of the water resources and water services planning process.

Considering that the biggest water users were the metropolitan and some large municipalities, and that the biggest savings could be achieved by these municipalities, the focus had been on the largest metropolitan and larger municipal areas, while smaller rural municipalities where new grant funding, such as the Municipal Water Infrastructure Grant was available, were not ignored Water Resource Strategy.

Policy also indicated the need for the environment to be protected from the potentially negative impacts of developing and operating sanitation systems (DWAF, 2001:12). There was also a need for an environmentally sound approach to providing sanitation services and to address the need to protect surface and ground water resources from sanitation pollution through integrated environmental management practices (DWAF, 2001:4). The impact of different sanitation options must be weighed against the impact of unimproved sanitation practices (DWAF, 1994). The risk of groundwater and surface water pollution must be assessed and options considered that include the costs of alternative water sources or water treatment versus alternative methods of sanitation provision (DWAF, 1994) to ensure that sanitation systems were designed, constructed and operated in such a way that contamination caused by sanitation systems was restricted to acceptable levels throughout the life cycle of the system, regardless of the chosen technology option (DWAF, 2001:9). An aim of the 2001 national sanitation policy was to promote the environmental sustainability of sanitation systems (DWAF, 2001:9).

In his State of the National Address in 2010, the President committed South Africa to reduce water losses by 2014. This target was unfortunately not achieved (SALGA, 2014). The SFWS had the imperative *of improve efficiency of water use so as to ensure the wise use of SAs resource through appropriate water demand and conservation.*

The SFWS had as one of the principles of tariff setting that economical, efficient and effective use of resources were encouraged, the reduction of leaks and unaccounted-for water reinforced, the recycling of water was extended, and other appropriate environmental objectives were sustained.

Figure 59 showed the No Drop data of water losses for the provinces and nationally between 2008 and 2013. The Western Cape recorded the lowest levels of water losses at 16% in 2013, an improvement from the 20,7% water losses recorded in 2008. The Limpopo provinces recorded the highest levels of water losses at 50,3% in 2013.

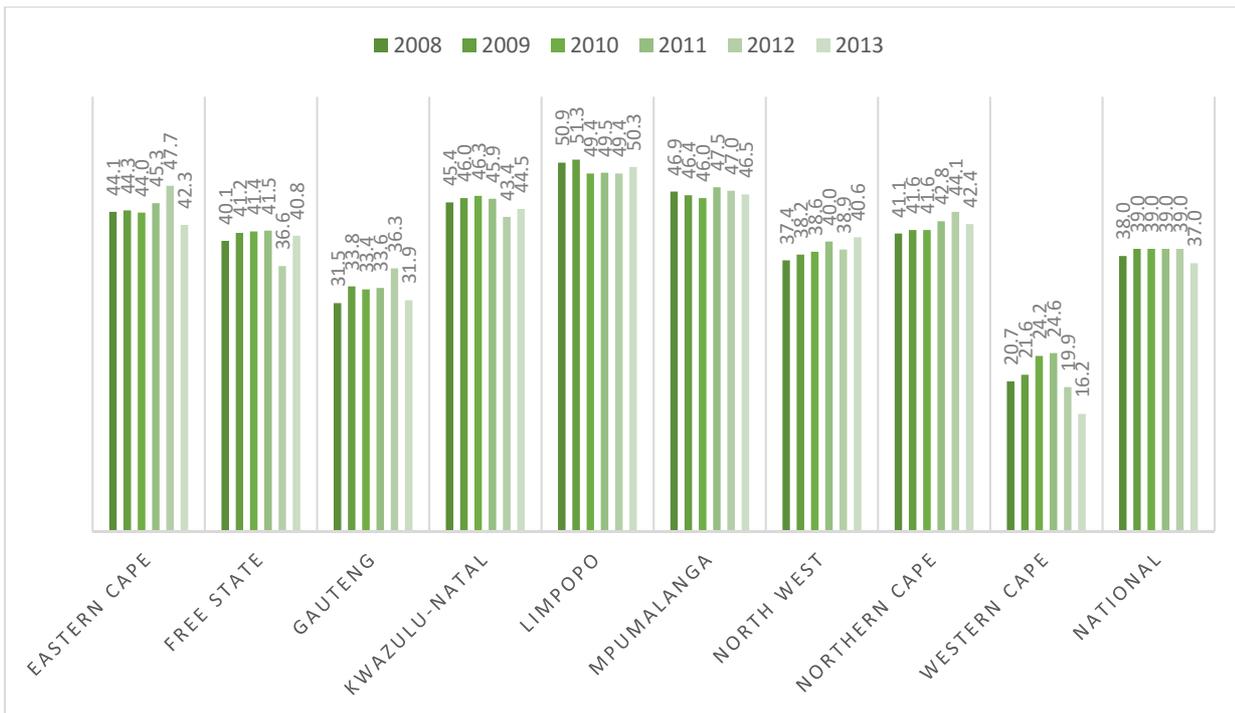


Figure 59: Percent water loss between 2008 and 2013 (data source: DWS No Drop)

The SFWS indicated that WC/WD strategy should at least include means of:

- Supplying of water in an efficient and effective manner
- Minimising water losses
- Promoting water demand management to consumer
- Ensuring consumers not waste water and use efficiently

Mackenzie et al. (2012), in an assessment of non-revenue water, indicated that *Very few municipalities can provide a comprehensive WC/WDM strategy that set targets, intervention programmes and budget requirements. The lack of information from 55% of the municipalities indicates that more than half of the country's municipalities are not even aware they have a problem. As part of the National Water Audit, support should be given to municipalities on the development of WC/WDM strategies, which can then be rolled-up to provincial and national strategies. In this regard, the WRC has just released its WDM Strategy Scorecard Model, which was an ideal tool for assisting water suppliers in developing a simple and pragmatic WDM strategy.*

The recent “Green Drop” report indicated that of 914 water supply systems assessed, 41% scored less than 50%. Similarly, 55% out of 821 wastewater treatment works were in a collapsed state. Waste Water Treatment Works in South Africa were generally in a poor condition and many were over capacity, which would increase the environmental health risk, and available water resources were at their limit, and climate change would worsen the situation, yet there was an increased demand for waterborne sanitation versus dry sanitation. Poor maintenance of reticulation systems, pumping stations and sewage-purification works could cause serious pollution with associated health risks, especially in remote areas close to streams and rivers (DWA, 2012b).

On site sanitation systems provided in mostly rural areas were relatively robust but inadequate provision was made for pit emptying. Improved arrangements with respect to national entities, catchment management agencies and water boards were proposed for the water institutions responsible for infrastructure with a replacement asset value estimated at R 968bn (DWA, 2013c).

A number of measures had been implemented by the DWA in the past years in order to improve the protection of water resources and ensure their sustainability. 2,660 ground water sites were monitored to assess the protection of ground water resources and 1,509 gauging sites were monitored for effective management of water resources (DWA, 2012b).

The performance of environmental management functions was assigned to municipalities through Schedule 4 and 5 of the Constitution. Problems arose, however, in the execution of these functions where fundamentally, there was weakness in the fiscal system in relation to financial allocations to municipalities to perform these functions^{††}.

^{††} Good Environmental Governance In Local Government: A Practice Brief on Environmental and Climate Change Governance for South African Municipalities. SALGA Issue 1 of 3., March 2014

9 FUTURE CONSIDERATION OF WATER POLICY IN SOUTH AFRICA

The structuring of the policy in the manner applied in this report provided some indication of areas in the policy that demonstrated gaps or weakness. The gaps and weakness in this policy review were thus determined from the review itself, as well as from a series of workshops, which were conducted for both this study and the DWS/WRC Impact Assessment of the SFWS. The future policy challenges need to be addressed within the future national and international landscape that has seen the recent development.

Firstly, in 2012-2013 South Africa released the National Development Plan (NDP), which was to be implemented in the medium-term through the Medium Term Strategic Framework (MTSF) 2014-2019. The NDP indicated that one of the challenges in a water-scarce country will be to pay greater attention to the management and use of these resources. Although water supply and sanitation services, which were directly dependent on the adequate management of water resources, remains a priority these services will need to be provided in an effective and sustainable management framework to safeguard community health, development and economic activity. The NDP thus envisages that by 2030, effective management of water and the services derived from it will support a strong economy and a healthy environment. To realise this goal the country's development will:

- Need to reflect an understanding of available water resources
- Ensure effective water planning that cuts across different economic sectors and spheres of government.
- Ensure that all main urban and industrial centres have a reliable water supply to meet their needs,
- Need to become increasingly efficient in agricultural water use to
- Ensure natural water sources will be protected to prevent excessive extraction and pollution

The NDP provided the development path for South Africa until 2030, but highlighted the following challenges in the water resources and services sector of the country:

- a) Implementing broader water-resource policies that address **equitable allocation and protection** of the resource remains a challenge.
- b) **Water restrictions** due to drought have been limited in recent years but the threat remains due to delays in investment in infrastructure and a failure to moderate growth in demand.
- c) **Backlogs in service provision** in rural areas remain and there was pressure to upgrade urban service levels, which will require further investment.
- d) There are serious concerns about the **ability of the current water administration** to cope with emerging challenges.
- e) The available pool of experienced water **engineers and scientists** was shrinking rapidly.
- f) **Administrative failures and the absence of enforcement** indicate that management quality was deteriorating and institutional memory was being eroded.
- g) **Delays in issuing water licences** are affecting economic activity, with new farmers also affected as the administration fails to reallocate water rights in areas where demand exceeds supply, as provided for in the National Water Act (1998).

A number of key intentions and targets formed part of the NDP, including that (Presidency, 2012):

- The NDP made a firm commitment to achieving minimum standards of living which can be progressively realised through a multi-pronged strategy. A minimum living standard was defined by the plan to include water and sanitation.
- Gender: Social, cultural, religious and education barriers to women entering the job market should be addressed. Concrete measures should be put in place and the results should be evaluated over time. Access to safe drinking water, electricity and quality early childhood education, for example, could free women from doing unpaid work and help them seek jobs.
- The NDP has also committed the country to ensuring that all people have access to clean, potable water and there was enough water for agriculture and industry, recognising the trade-off in the use of water.
- The country will also need to reduce water demand in urban areas to 15% below the business-as-usual scenario by 2030.
- By 2030, it was envisaged that effective management of water and the services derived from it will support a strong economy and a healthy environment.
- Before 2030, all South Africans will have affordable, reliable access to sufficient safe water and hygienic sanitation. Service provision arrangements will vary in different parts of the country, with different approaches adopted for densely built-up urban areas and scattered rural settlements. However, alternative solutions such as community based management, local franchising or the use of regional water utilities will be allowed if they would be more effective.
- A comprehensive management strategy including an investment programme for water resource development, bulk water supply and wastewater management for major centres will be developed by 2012 and be reviewed every 5 years.
- Complete phase 2 of the Lesotho Highlands water project by 2020.
- Create regional water and wastewater utilities, and expand mandates of existing water boards (between 2012-2017).
- Agriculture and Agro-processing: Substantial investment in irrigation infrastructure, including water storage, distribution and reticulation through the country where the natural resource base allows, as well as in water-saving technology. A 50% increase in land under irrigation would cost R40 billion in off-farm infrastructure over a 10-year period.

The NDP also indicates that the Department of Basic Education has committed itself to eradicating 496 inappropriate structures, providing basic water to 1 257 schools, providing basic sanitation to 868 schools and providing electricity to 878 schools in the 2012/13 financial year (Presidency, 2013). To meet these commitments, the department will have to (Presidency, 2013):

- Find ways to deliver infrastructure and services more efficiently and cost-effectively
- Improve the quality of information used for planning.

The NDP Envisages: related to water resources and services (taken from the Presidency, 20130

By 2030, it was envisaged that effective management of water and the services derived from it will support a strong economy and a healthy environment. The country's development will reflect an understanding of available water resources and effective water planning that cuts across different economic sectors and spheres of government.

All main urban and industrial centres will have a reliable water supply to meet their needs, while increasingly efficient agricultural water use will support productive rural communities.

Natural water sources will be protected to prevent excessive extraction and pollution.

Water will be recognised as a foundation for activities such as tourism and recreation, reinforcing the importance of its protection.

Where rivers are shared with other countries, South Africa will ensure that it continues to respect its obligations.

Before 2030, all South Africans will have affordable, reliable access to sufficient safe water and hygienic sanitation. Service provision arrangements will vary in different parts of the country, with different approaches adopted for densely built-up urban areas and scattered rural settlements.

Local governments will retain responsibility for ensuring service provision in their areas and, in many cases, will continue to manage the services directly. However, alternative solutions such as community-based management, local franchising or the use of regional water utilities will be allowed if they would be more effective.

Authorities responsible for water-resource management will coordinate their activities with local service providers, and monitor and support them

To ensure economic growth in the country, the NDP recommends managing, monitoring and protecting South Africa's water resources in a sustainable with effective administration, evolving water-resource management and prioritisation.

The NDP recommended the following strategies to address the above challenges and intents:

- **National Water-Resources Infrastructure Agency:** to undertake large investments in regional systems, perhaps modelled on the South African National Roads Agency Limited
- **Reduce demand.** achieve an average reduction in water demand of 15 below baseline levels in urban areas by 2030. Detailed targets have been set for different areas.
- **Manage agricultural use better:** the farming sector will have to increase its water efficiency to improve production and allow for water to be transferred to new users in water scarce areas, to compensate for the expansion of irrigated agriculture, which has high job-creation potential. The Commission proposes a dedicated national programme to provide support to local and sectoral efforts to reduce water demand and improve water-use efficiency.
- **Investigate water reuse and desalination:** a regional approach to wastewater management may be required in certain areas. Water infrastructure investment should include projects to treat and reuse water, selected on their merits. Research into water reuse and desalination and the skills to operate such technology should be developed.

The NDP recommended the following actions to improve management, use and conservation of South Africa's water resource:

- Enhance management capacity
- Finalise institutional arrangements (i.e. water management area; user involvement mechanism etc.)
- Review existing water allocations in areas where new users are seeking access
- Strategic planning decisions are needed on general economic and social development in priority areas
- Invest in support to economic uses of water
- Policy was needed to guide investments to support rural development – balancing costs and social benefits
- Funding to municipalities should be guided by norms and standards for basic water supply and sanitation services
- Flexible approaches in rural municipalities which lack financial and technical capacity
- Assess the need for an independent economic regulator – functions; costs; benefits

Secondly, the MTSF, which reflected the commitments made in the election manifesto of the governing party, including the commitment to implement the NDP, was published in 2013 (Presidency, 2013). The MTSF sets out the actions Government will take and targets to be achieved over this timeframe. The MTSF indicates a focus on ensuring that municipalities provide and properly maintain an adequate core set of basic services including water and sanitation. The central focus of the MTSF was on ensuring sustainable and reliable access to these basic services, particularly in weaker municipalities that have the highest unmet demand for basic services (Presidency, 2013). Where municipalities lack technical capacity, regional utilities or alternative institutional mechanisms should be used so that basic services are not compromised. Key institutional targets for the MTSF included (Presidency, 2013):

- An increase in the level of public trust and confidence in local government from 51% in 2012 to 65% in 2019, as measured by the IPSOS survey.
- An improvement in overall municipal audit outcomes, with at least 75% of municipalities receiving unqualified audits by 2019.
- Citizen participation in local government processes will continue to be promoted. A long-term approach will be taken to skills development and capacity building for the local government sector. Institutional problems will be addressed to improve the quality of municipal administrative and management practices including human resources and recruitment practices, supply chain and financial management, and anticorruption initiatives (Presidency, 2013).

The MTSF also indicated that *government was committed to improving access to housing and basic services, including the provision of approximately 1.495 million housing opportunities, the upgrading of informal settlements, and the expansion of access to water, sanitation and electricity* (Presidency, 2013). Full access to affordable and reliable water and sanitation was envisaged before 2030 by the NDP. Where municipalities lack technical capacity, regional utilities or alternative institutional mechanisms should be used so that basic services are not compromised. To this end the MTSF set the targets of (Presidency, 2013):

- A 5% increase in bulk water resources commissioned in comparison to 2014;
- Increase in the percentage of households with access to a functional water service from 85% in 2013 to 90% by 2019.

- Increase in the percentage of households with access to a functional sanitation service from 84% in 2013 to 90% by 2019, including elimination of bucket sanitation in the formal areas.

Thirdly, internationally, the Sustainable Development Goals (SDGs) have been adopted. This suite of SDGs would also require a shift in national targets for the water supply and sanitation sector in South Africa, as well as updating and changing of monitoring frameworks and systems for the sector.

Table 19: Proposed water supply and sanitation SDGs (UN, 2015)

GOAL 6 Ensure availability and sustainable management of water and sanitation for all		
Water supply	6.1	By 2030, achieve universal and equitable access to safe and affordable drinking water for all
Sanitation and hygiene	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
Water quality	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
Efficiency	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
IWRM	6.5	By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
Water-related ecosystems	6.6	By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
Capacity	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
Participation	6.b	Support and strengthen the participation of local communities in improving water and sanitation management

Based on these and other new developments in the water sector, recommended policy amendments and changes are outlined in this document. Key policy position recommendations included in the document are positions outlined in Section 10 of this document.

10 RECOMMENDED WATER POLICY ADDITIONS

The gaps and challenges in the water resource policy would be determined through the stakeholder engagement included in this research. However, a number of gaps and challenges had already emerged in the research, including the following:

10.1 WATER RESOURCES POLICY CONSIDERATIONS

10.1.1 *International water obligations*

The current policy and legislations focus on the role, function and formulation of the 'bodies' who were responsible for the management of international water obligations. The policy and legislations should be reviewed to align with new development in international water management, particularly with reference to international conventions which South Africa was signatory too and related to new SADC policy on the international water management.

10.1.2 *Awareness and education on wise water use*

Water conservation and demand management would in future become crucial water management practices in South Africa. In line with the needs for stronger policy and legislation on sanitation hygiene and end user education, the policy needs stronger positions on wise water use and education. This would provide policy support for the NWRS2 intent of addressing the challenge of many South Africans not being aware of the scarcity of water in the country and that if water was not well managed, there will not be enough to meet all the demands. The NWRS2 indicated that people need to value water much more and use it more efficiently (DWA, 2012b). Effectively people need to recognise water as a valuable resource. There was a need to invest in technologies and communications that will improve the way that water was used and managed in the country. Reaffirming, reinforcing and expanding the wise water use policy intent would go a long way to support the NWRS2 interventions to ensure the value of water was recognised.

Similarly, the NWRS2 indicates a need to conduct awareness on re-use and recycling activities and interventions in the country and campaigns to ensure that all water institutions and water users understand the water-related climate change issues and how to respond to them (DWA, 2013b).

The White Paper for a National Water Policy has the policy intent *to improve water use and promote conservation, communication and educational activities are very important. The National Water Conservation Campaign has already been established for this purpose and its research and pilot project activities need to be further strengthened and integrated into the work of the Department.* The focus of the policy was largely of building the water sector skills and capacity through formal education process. Water wise awareness and promotion was largely absent in the policy.

10.1.3 Water scarcity and security in the water resource sector

Water security had been defined by Grey and Sadoff (2007) as “the reliable availability of an acceptable quantity and quality of water for health, livelihoods and production, coupled with an acceptable level of water-related risks”. A number of studies had estimated that the demand for South Africa’s water was outstripping supply. Figure 60 shows a number of models that demonstrate this gap and project the gap into the future. Many of these reports indicated that South Africa faces major challenges in future in ensuring sustainable water supply in the face of a drying climate and rising demand for water.

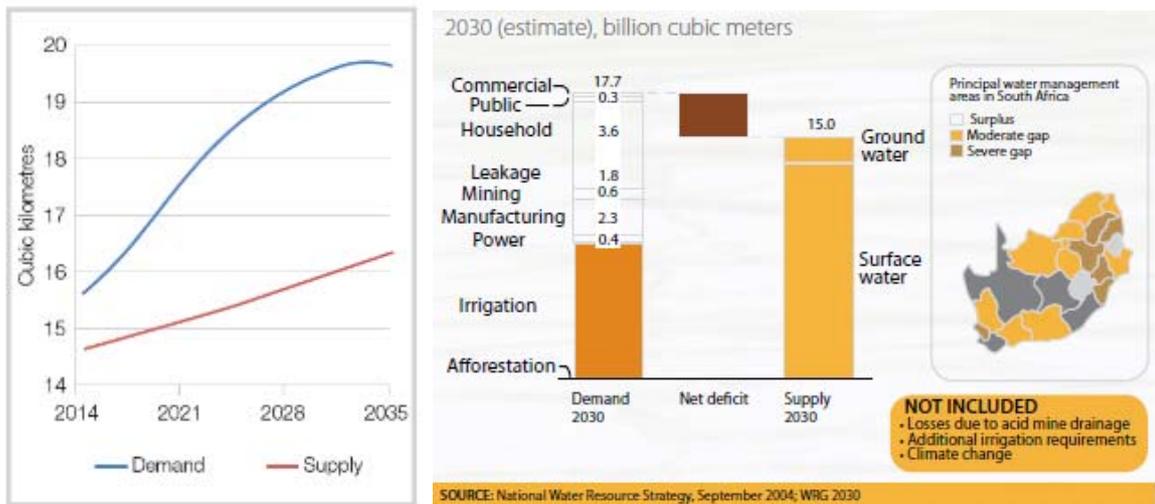


Figure 60: Water security models for South Africa (left) ISS (2014) and In South Africa, under the current efficiency levels, there will be a supply–demand gap of 17% in 2030 (taken from DWS, 2004).

In response, South Africa would need to adjust current water policy and legislation to provide national leadership in water reform. As South Africa visions future water policy and legislation, water security and safeguarding thereof would need to be an important component of the policy and legislation. The policy needs to focus and expand efforts to ensure water security, such as reduce, re-use, recycle and recovery practices.

The opportunity for the country, through policy and legislation, was how to transform the water sector to address and minimise the growing space between supply and demand.

Options that South Africa could consider to address water security in future could include policy positions such as those taken by Australia to secure water in future (Australian Government, 2010):

- **Sustainable Rural Water Use and Infrastructure:** The Australian government had committed significant funds to rural water use and infrastructure projects to improve the efficiency of water use on farms and in irrigation delivery systems, including addressing leaks in irrigation systems, minimising evaporation loss from systems and ensuring better use of available water – all seen as crucial to the policy position of reducing water use in rural areas of the country

- **Buying back water entitlements:** The Australian government had taken the policy position and had thus allocated significant funds to purchasing water entitlements to help restore the health of important rivers, wetlands and floodplains. The Australian Government was buying back permanent water entitlements directly from irrigators in order to restore the balance between water for human use and for the environment. As well as buying water directly from individual farmers, groups of farmers working with their irrigation water provider could lodge proposals for selling water entitlements collectively.
- **Returning water to the environment:** The water entities, which had been acquired by the Australian government, become part of the environmental water holdings of the country and were used to benefit the environment.
- **Securing urban water supplies:** Australia expects its cities and towns to face some of the big challenges in securing their water supplies as a result of extended drought and projected growth in demand. The already-emerging impacts of climate change add further urgency to this task. The position of the government was to reduce reliance on traditional rain-fed water sources in these urban centres, through wastewater recycling, stormwater harvesting and desalination projects around the country. Individuals in the country could also access government funding for their water conservation efforts, such as for installing rainwater tanks and greywater systems.
- **National Water Market System:** The Australian government was also introducing a number of reforms intended to improve water management nationally. An example of this was the National Water Market System. Under the National Water Market System Australia was investing funds to develop a faster, more efficient and nationally focused water market system, which would support interstate water trade.

The NWRS2 has significant activities and interventions to address future water security in the country in South Africa. The NRWS2 advocated:

- Balanced and sustainable use of water resources;
- Protection of water resources was necessary for securing ecosystem services for economic development and growth and protection of human and animal health;
- The efficient use of water was important in preserving water resources and ensuring availability to achieve the South Africa Vision 2030;
- The need to strive for efficiency from source to tap and back;
- The need to achieve significant water savings by all sectors through the implementation of appropriate water conservation and demand management measures;
- Water quality was a fundamental consideration in water resource management;

Future policy positions need to address both the manner in which to conserve water and available water supply, and the address management of water demand. Various mechanisms were available for these, namely:

- Water leak detection and reduction of water losses (water conservation)
- Management of water pollution and conservation of water quality (water conservation)
- Sound land use practices i.e. clearing of alien species (water conservation)
- Regulation of water resources through water use licences, water quality regulations; etc. (water conservation).

On the demand side, policy would need to address positions on:

- Demand management by municipalities and in the irrigation sectors;
- Use of groundwater resources for mixed water resource utilisation;
- Re-use of grey water and wastewater
- Appropriate technologies such as rainwater harvesting; desalination etc.
- Sound operation and maintenance of water supply and sanitation schemes
- Effective monitoring and compliance enforcement of water demand management imperatives
- Effective regulation of water demand
- Tariffs that reflect the true value of water and encourage demand management.

The 1997 White Paper does not explicitly mention water security but did have the limited policy position that *water conservation programmes may be far better investments than financing new dams, new tunnels and pumping stations, new weirs and pipelines. Conservation programmes may both increase water supply (by, for instance, controlling land use practices) and manage demand (for instance, through the application of appropriate tariffs)* (DWA, 1997:35) and that *water conservation and sustainable, “justifiable economic and social development” are promoted* (DWA, 1997:11).

From a demand management perspective, the policy position was *the development of appropriate tools and methodologies (such as demand management, water use audits, fitting of water-efficient domestic fittings, pre-payment metering, the promotion of best available industrial technology in industry, strategic environmental assessments, and environmental impact assessments) will be vital to the success of water conservation* (DWA, 1997:35).

The 1994 White Paper focused on security of supply for human needs and was more expansive on water conservation and demand management, taking the position that in a *semi-arid country such as South Africa, different users are increasingly having to compete for water resources. This could lead to the long-term degrading of limited sources of water which will be difficult if not impossible to rehabilitate. An important element of both water supply and water resource management was the establishment of a culture of conservation and the introduction of stringent demand management strategies to reduce water usage and the stress on resources.*

Moving into an era of growing water scarcity, with urbanisation and population growth, climate change and developmental growth of the country, the water policy should be more explicit and expansive on water security imperatives for the country.

10.1.4 Adaptation to Climate Change

Climate change was, at the time of the study, not addressed in the water policies of the country. This placed limitations to the NWRS2 climate change objectives and interventions, including (DWA, 2013b):

- Reduce the vulnerability and enhance the resilience of communities, people, enterprises and ecosystems, to water-related impacts of climate change, particularly for those groups most at risk.
- Improve and enhance water resources management processes to build the required resilience and adaptive capacity.

- Integrate climate change considerations into short-, medium- and long-term water planning processes for water resources and water services.
- Implement the best catchment and water management practices to maximise the degree of water security and resource protection under changing climatic conditions.
- Enhance the human, legal, regulatory, institutional, governance and financial resources and capacity to assist with the effects of climate change on water.
- Undertake focused monitoring and research to ensure the efficacy of water adaptation approaches over the long term.
- Ensure inter-linked climate and hydrological modelling tools that represent the complex interrelated natural systems.

Countries have begun to include climate change in their water policy, including the following:

Swaziland

The policy intent of the 2009 National Water Policy for Swaziland indicated that sustainable development and management of water resources shall take cognisance of likely effects and impacts of climate change (MNRE, 2009:43).

India

The policy intent specified that planning and management of water resources structures, such as dams, flood embankments, tidal embankments, etc., should incorporate coping strategies for possible climate change (Ministry of Water Resource, 2012). The acceptability criteria in regard to new water resources projects also need to be re-worked in view of the likely climate change. Given the above, the National Water Policy of India further made recommendations on the following issues:

- Adapting to climate change;
- Enhancing water availability;
- Water demand management through efficient water use practices;
- Water pricing;
- Conservation of river corridors, water bodies, and infrastructure,
- Project planning and implementation;
- Management of floods and droughts;
- Water supply and sanitation;
- Institutional arrangements;
- Trans-boundary rivers;
- Database and information system;
- Research and training needs;
- Preparation of a plan of action by the National Water Board based on the National Water Policy.

10.1.5 Information management and dissemination

The NWRS2 has a strong focus on monitoring, evaluation and information systems in the water sector, indicating the following:

- The need to collect accurate data on all aspects of water management.
- The coverage of water data and information was inadequate in some areas; for example, insufficient groundwater monitoring points with an inadequate spatial distribution in some areas.
- Reporting about the availability and use of water was also not sufficiently covered with regard to water, accounting on how water supply was balancing demand to meet transformational imperatives.
- Data sharing between stakeholders in the water sector was insufficient, resulting in information needs not being satisfied as well as they could be.
- An urgent need for a well-designed, coordinated and managed programme for collecting, assessing and disseminating data and information on water recorded by all entities in the water sector, including state departments, provincial governments, municipalities, water management institutions and Water Services Authorities and -providers, as well as by other water users.

The 1997 White Paper has relatively strong policy positions on monitoring and reporting, with this challenge in the water sector perhaps being one of implementation of the policy and Act, rather than a need for additional policy positions.

10.1.6 Water for mining and industry

The policy intent of the 2012 National Water Policy for Botswana says water allocations supporting industry and mining must be integrated within the national management framework to ensure water resource sustainability and maximize benefits in the national interests (MMEWR, 2012: 22).

The policy intent of the 2009 National Water Policy for Swaziland says Swaziland shall allocate water for industrial development, which included manufacturing, mining, tourism, afforestation and navigation at economically viable and sustainable terms (MNRE, 2009: 24).

The NWRS2 for South Africa indicates, related to mining and industry:

- a) The successful integration and implementation of WCWDM into operations and the creation of a water-wise business culture should be prioritised within the industrial and mining sectors. The implementation of demand-side management, among others, will contribute to the sustainable utilisation of water and reducing unnecessary abstraction of water.
- b) All sectors, agricultural irrigation schemes, local government, industry, mining and power generation should monitor and report, on a regular basis, on water loss and water efficiency improvements, such as water balances and measures implemented.
- c) New WUAs may be established for any purpose; for example, mining, recreational purposes, use of groundwater, irrigation or multi-sectoral use.
- d) Seawater was a vast source of water available to communities along the coast line. Desalination would be required to render the seawater fit for human consumption and for the spectrum of commercial, industrial and mining uses of water.
- e) Treatment of mining/industrial effluents to allow for recycling on a facility moving towards a zero-effluent discharge target.
- f) Research attention will be paid to the following areas:

g. Acid mine drainage and other saline mine waters

h. Mining and industrial process effluents

South African water policies were, at the time of the study, relatively silent on water for mining and industry. The 1994 White Paper only highlights the importance of water for production in the manufacturing industry, power generation, mining and agriculture (DWAF, 1997). The 1997 White Paper highlights the value that mining, manufacturing and power generation sectors contributes to the economy, utilising much less water than agriculture - suggesting according to the policy that it would not be in the interest of national prosperity to unnecessarily constrain industry's access to water (DWAF, 1997). The 1997 White Paper also focusses on the need for a formal framework for promoting water efficiency in industry and in the mining sector (DWAF, 1997). Mines and manufacturing industry would be encouraged to promote their own programmes to meet the standards which would be set, monitored and enforced by Government (DWAF, 1997).

10.1.7 Water, food and energy

The energy challenges in South Africa in recent years and the use of water in the energy sector has highlighted the need to link these two resource sectors in the country. Current water policy does not make the link between water and energy and thus has no explicit policy positions on this.

The NWRS2 however, did introduce water for energy, indicating that the energy sector, including Eskom, the national power generator, was highly dependent on reliable supplies of water for the generation of electricity (steam generation and cooling processes). An elaborate and sophisticated network of water transfer and storage schemes has been developed specifically to support this sector and ensure high levels of reliability. Conversely, the water sector was highly dependent on a constant and reliable supply of electricity to move or transfer water. This priority will be supported in the manner that responds to imperatives of development, within appropriate regulatory provisions and resources. Stakeholders will be mobilised and engaged to secure the future of the economy in terms of all strategic water use elements (DWA, 2013b).

The NWRS2 indicated that the DWA will work with the Department of Energy (DOE), the Department of Public Enterprises (DPE) and Eskom to ensure the integration of medium- and long-term planning for the development of energy and water resources (DWA, 2013b). The promulgation of policy positions on the water-energy nexus could support the NWRS2 efforts related to energy and water.

Stakeholders involved in this review of water policy indicated the following challenges and recommendations related to addressing the food-energy-water nexus in water and sanitation policy:

GAPS	RECOMMENDATIONS
<ul style="list-style-type: none"> • Food, energy and water stakeholders have different mandates and are regulated by different departments and legislation – this leads to challenges in integration and collaboration. • The DWS policy does not necessarily harmonise with energy and food legislation and policy in the country. • Information gaps hinder the harmonisation of the sectors, i.e. gaps in water allocations hinder informed decision-making on new food and energy interventions and water authorisations for these. • Policy positions are needed based on scenarios that allow for various options in response to dealing with the food; energy-water nexus in the country. 	<ul style="list-style-type: none"> • Water should be seen by policy as a catalyst to development of the other sectors and for transformation in the country • Water in policy should create an enabling environment to address the mandates of the other sectors • Policy visions/goals of the water and other sectors need to be aligned to maximise impacts • Implementation of energy-food-water interventions need to be integrated efforts • Capacity and skills need to be address in policy to ensure implementation of these energy-food-water activities • Water policy needs to consider and be aware of other sector policy and interventions/needs • DWS policy should consider other sector legislation, especially where commonalities exist • Department should consider development of combined policy, visions and implementation mechanisms

A number of countries have introduced energy into their water policy, including the following:

Botswana

The policy intent of the 2012 National Water Policy for Botswana indicated that water must be applied efficiently and at a cost that permits the attainment of energy supply security for all sectors of the economy to support the foundations for sustainable economic development and diversification (MMEWR, 2012:24).

Swaziland

Swaziland was host to a number of watercourses, many of which were not suitable for large-scale hydro-electric power generation. The production of electrical power was of paramount importance to the nation to achieve energy security. The policy intent of the 2009 National Water Policy for Swaziland was that Swaziland shall promote and prioritize the generation of hydro-electric power at mega and micro generation levels to enhance energy security (MNRE, 2009:24).

10.1.8 Groundwater management and use

The South African water policy had limited positions on groundwater, largely focussing on the need to collect information and data on groundwater for the sound management of the resource. The 1997 White Paper did indicate that *the information contained in allocation licence registers and obtained through the development and groundwater permit systems should be organised to contribute to resource development, monitoring and assessment and efficient catchment management* and the need for groundwater to be managed with surface

water. The policy did however take the position that *the general approach will initially be to refrain from making formal allocations except where there was clear evidence that groundwater abstraction was impacting negatively on other water users and on the environment*. With better knowledge and information on groundwater resources in the country, different policy positions could perhaps be adopted by the country.

Groundwater use and development, according to the policy must be within the imperatives of the Catchment Management Plan of the area. The policy positions are:

- To facilitate the development and management of this important resource, there will be a requirement to register new wells (to provide technical information for planning as well as for monitoring water use). To ensure compliance with general requirements, and to protect the public, registration of drillers will also be considered. Finally, where groundwater users are in conflict or the environment was threatened, sensitive areas may be declared where notice of intention to drill will be required.
- Groundwater use must be carried out in the context of an adequate catchment management plan, based on an understanding of the sustainable yield of the local groundwater sources. In sensitive areas, approval of drilling may thus include operating conditions to protect other users as well as the resource itself.

These policy positions largely addressed planning and new development of groundwater resources, but did not address the use of boreholes by many households in areas of the country. The policy would perhaps benefit from a position on regulation of these boreholes and the need for municipal by-laws to address this issue. This would support the NWRS2 groundwater objectives and interventions of *promoting the use of groundwater on a larger scale. The focus was on supplying water mainly for household use in remote rural areas, where levels of water services are often unacceptable, as well as in other situations where groundwater can contribute to the reliability of supply for domestic and other uses. These situations will be addressed through the implementation of recommendations from the Reconciliation Strategies and from the All Towns Strategies, where attention will be given to comprehensive water resource planning and development and to agriculture-related development programmes* (DWA, 2013b).

The NWRS2 also recognised the need for conservation of groundwater resources, advocating that *rehabilitating and maintaining intact buffers and groundwater recharge areas was a high-priority intervention for improving water security in production landscapes, which are characterised by land uses such as agriculture and urban areas* (DWA, 2013b). Groundwater aquifers can provide safe storage of water for use, if they are protected and not over-abstracted or polluted, for example, by untreated effluent and acid mine drainage (DWA, 2013b).

10.1.9 Wetlands and Estuaries

Wetlands have been highlighted in the NWRS2 as crucial to water management and development in the country. However, water policy was silent on this water resource. Wetland research and knowledge has grown significantly since the development of the initial water policies of the country and it could perhaps be an opportune time to develop (like for

groundwater) policy positions on this resource, as well as for estuaries in the country. The NWRS2 indicated, related to wetlands (DWA, 2013b):

- The need for protection of the buffers surround wetlands to stabilise banks, trap sediments and filter out pollutants, thereby sustaining water quality and protecting aquatic habitats and associated biota.
- The need for a combination of proactive measures for maintaining healthy wetlands, together with remedial interventions focused on past degradation.
- The need to manage the quality of the water resource and protect the ecosystems through the waste discharge charge system, as an instrument to improve the quality of the degraded rivers wetlands and aquifers.

10.1.10 Water Stewardship

According to the Alliance for Water Stewardship, stewardship entails taking care of a resource we do not own, using approaches that focus on the management of public goods - freshwater resources. Water stewardship was based on the premise that we are all accountable for the sustainable management of those resources and are, therefore, based on collective responses. The Alliance for Water Stewardship defines water stewardship as:

“The use of water that was socially equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process that involves site and catchment-based actions. Good water stewards understand their own water use, catchment context and shared risk in terms of water governance, water balance, water quality and important water-related areas; and then engage in meaningful individual and collective actions that benefit people and nature.”

Key to water stewardship, according to stakeholders that participated in this water policy review, was the need to manage water resources to ensure that these water resources are sustainable. Stewardship requires that the water conservation and demand management policy, which was already in place or which has been recommended in this document, be implemented and adhered to, i.e. compliance needs to be enforced. Water stewardship may not only require implementation of water policy and enforcement of compliance but also alignment of strategies internally and with other institutions in the sector. Water stewardship will also require significant behaviour change in the water sector, specifically in terms of empowerment of water sector stakeholders and increasing their awareness of water stewardship.

10.1.11 Mixed water use

South Africa was largely dependent of surface water for water supply. Alternative water sources do require investigation and mixes of various water sources should be addressed in policy. Particular attention was required related to the use of groundwater, and the re-use and recycling of water as a source. Exploration of alternative water supply such as desalination needs to be explored, with the cost and benefits of these clearly understood. Policy should consider positions on how to address mixed water use and changing perceptions and behaviours related to these, i.e. end-user education and awareness

campaign. Policy should also focus on research and development needs related to mixed water use.

10.2 WATER SUPPLY AND SANITATION POLICY CONSIDERATION

Through the NWPR of 2013, read in conjunction with the SFWS, many of the water supply challenges in the country have already been addressed. However, like the sanitation policy challenges, there are still areas in the water supply policy that could be expanded and reinforced. This section of the report was taken from the SFWS Impact Assessment Study (WRC Project 2215):

10.2.1 Ensuring Water Security

In South Africa, water demand was expected to increase significantly over the next 30 years. This demand was expected to be driven largely by population and economic growth, which in turn can lead to substantially increased water requirements for agricultural and industrial uses. The increasing demand by the growing middle class in the country will also impact, with South African's already demonstrating a higher than international average water consumption rate. A recent WRC study by McKenzie et al. (2012) found that the litres/capita/day water use in the country, based on usable data sets for total water supplied and the total population served in each Municipality, averaged consumption per individual per day of 235 litres, well above the world average (Figure 61).

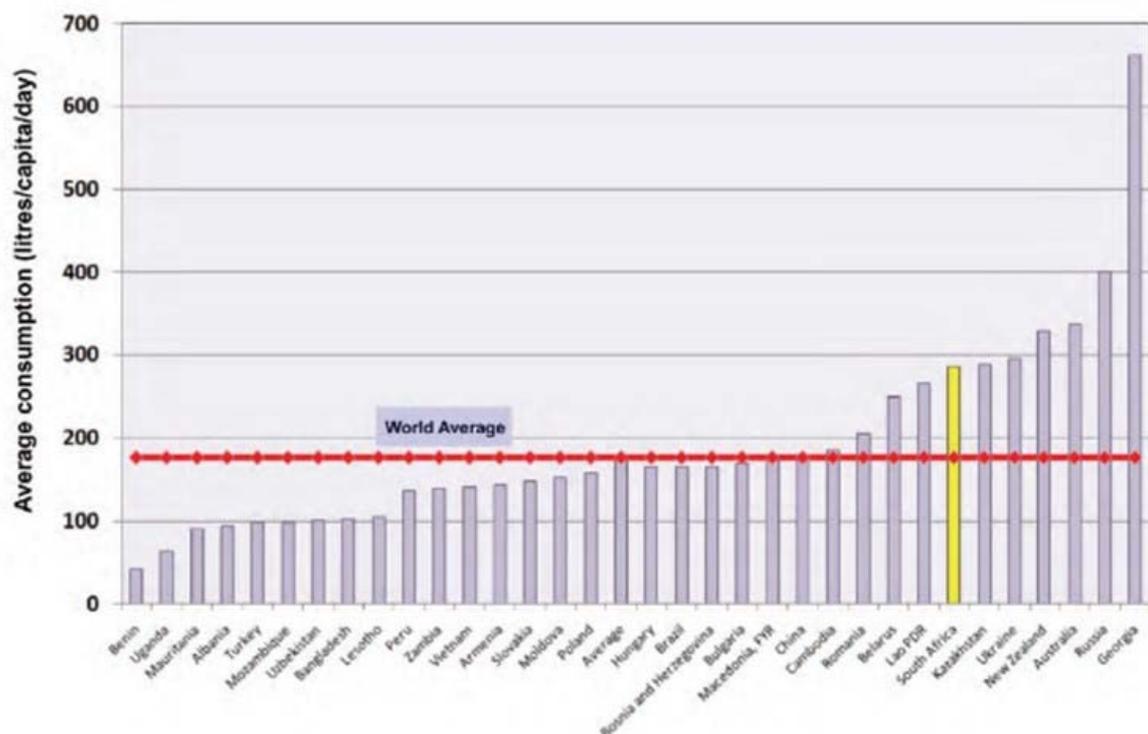


Figure 61: Water consumption (litres per capital per day) in South Africa as compared to other countries (taken from McKenzie et al., 2012)

This increasing demand on water resources was expected to be compounded by a likely decline in water supply, given the current trends of poor usage habits and physical and commercial water losses in the country. South Africa was losing up to 37% of its drinking water through leaking pipes, dripping taps and illegal water usage. It was anticipated that a water supply-demand gap of 17% will exist in South Africa by 2030. This gap was critical, and if sustainable socio-economic growth was to be realised for the country, such a gap has to be dealt with decisively in the immediate future.

Policy needs to provide a clear definition of water security, and to outline the constituents thereof. This will allow future water supply and sanitation strategies to target objectives that ensure the aspects required for water security. Similarly, a clear and precise definition of water security and its aspects will facilitate ease of monitoring, evaluation and reporting of progress on ensuring water security for the citizens in the country.

A review of definitions of water security by international organisation, found that these definitions of water security had three aspects (requirements) in common, namely:

1. **Accessibility** to water services (right to water supply and sanitation) and **availability** of certain required **quantities** of water at acceptable **quality**
2. Water required for **multiple uses** including for basic human needs, food production, health, sustainable livelihoods, economic development, aesthetic uses
3. Water required for protection and sustaining of **ecosystems**.

In addition to these, the UN Water (2013) advocates the following aspects for water security in the water supply and sanitation sector:

4. Collection and treatment of **used water** to protect human life and the environment from pollution
5. The ability to cope with **uncertainties and risks** of water-related hazards, such as floods, droughts, pollution (amongst others)
6. **Good government and accountability**, and due consideration of the interests of all stakeholders through: appropriate and effective legal regimes; transparent, participatory and accountable institutions; properly planned, operated and maintained infrastructure; and capacity development.

Each of these water security aspects are discussed in more detail below, relating each to current water policy and future water policy positions.

10.2.1.1 **Right to water supply and sanitation**

Recommended Policy Position Additions/Changes

A policy positions on basic sanitation to ensure *that all of the needs of each person are met*. This requires a policy position on sanitation provision to indigent, aged, children and other vulnerable groups.

Hygiene facilities must be available for handwashing and other hygiene requirements at toilets and latrines, water storage areas and food preparation area.

A sanitation facility must be designed at a location that allows physical access of the user (incl. aged, children and persons with disabilities) to the facility at all times.

Water outlets and sanitation facilities must be placed within, or in the immediate vicinity of, each household, workplace, educational and health institution, as well as any other place where people spend significant amounts of time.

Sanitation facilities must be safe to use and must effectively prevent human, animal and insect contact with human excreta, to ensure safety and to protect the health of users and the community.

Sanitation requires that individuals are able to afford to pay for their water and sanitation services and associated hygiene.

Sanitation facilities must be culturally acceptable to the user

Motivation for Policy Addition or Change

This United Nations resolution on the human right to basic water supply and sanitation obligated States to maximise resources, as quickly and effectively as possible, to fully realise the human rights to water and sanitation. Progressive realization of this international human right does not only refer to progressively increasing the number of people that have access to water and sanitation (i.e. universal access), but also progressive improvement in the general levels of services to current and future generations (UN Special Rapporteur, 2014).

For South Africa to realize this human right to a basic water supply and sanitation, requires that all citizens enjoy this right based on the 5 criteria of quality, accessibility, availability, affordability and acceptability, shown in in the rights-based pyramid in Figure 62 (SIDA, 2013).

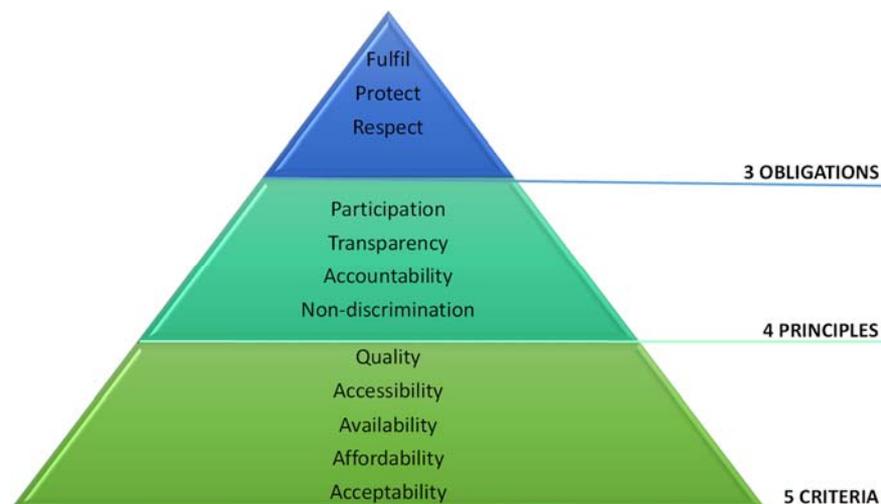


Figure 62: Requirements to realize the human right to water and sanitation (taken from SIDA, 2013)

According to the UN Special Rapporteur report, all human rights impose three types of obligations, namely they must (UN, 2015):

- **Respect human rights:** requiring that no individual was prevented from enjoying their human rights to water and sanitation;
- **Protect human rights:** preventing a third party from interfering with the right to water and sanitation;
- **Fulfil human rights:** ensuring that the conditions are in place for all individuals to enjoy the rights to water and sanitation.

These obligations need to be entrenched in the South Africa water supply and sanitation policy and legislation.

Water supply and sanitation policies also need to include the 4 principles of the human right to water supply and sanitation; (1) participation; (2) transparency; (3) accountability and (4) non-discrimination (UN, 2015).

The question remains, does the South African policy and legislation adequately address all the obligations, principles and criteria required to address the human right to basic water supply and sanitation? From the perspective of the criteria required, the policy needs to adequately address the aspects of:

Availability of water and sanitation:

Availability of water and sanitation requires that individuals have facilities that meet their needs now and, in the future, addressing four components of availability:

- 1) *A sufficient and continuous water supply* for personal and household's uses
- 2) *Sufficient number of sanitation facilities* to ensure that **all of the needs of each person are met.**

These two aspects of available are adequately met in the current water policy through the definition of basic water supply and sanitation services, which was highlighted in the policy as:

Basic water supply was defined as:

- **Quantity (sufficient):** 25 litres per person per day (DWAF, 1994).
- **Availability (continuous):** The flow rate of water from the outlet should not be less than 10 litres a minute and the water should be available on a regular, daily basis.

Basic sanitation was defined as:

- No definition provided in the policy – South Africa has however, addressed the definition of a facility and service in the SFWS. The current National Review of Sanitation Policy was addressing these issues.

The third aspect of the availability criteria of the human right to basic water and sanitation was that *hygiene facilities* are available for handwashing and other hygiene requirements at toilets and latrines, water storage areas and food preparation area. Current water supply and sanitation policies do not address this aspect of the criteria, hence a policy position on this was required.

Finally, the availability criteria of the human right to basic water and sanitation requires the availability of water, sanitation and hygiene facilities and services at health and educational institutions such as schools and clinics, detention centres such as prisons, and workplaces, markets and other public places. The current policy was weak on this aspect of hygiene and

requires a policy position related to the aspect of availability – currently being addressed by the NSPR 2015 (DWS, 2016).

Physical accessibility of water and sanitation:

The basic human right to water and sanitation services, according to the UN, must be accessible, including too vulnerable groups, such as children, older persons, persons with disabilities and chronically ill people. This component of realising the human right to water and sanitation was linked to two aspects:

- Facility designed at a local level to allow *physical access* -water and sanitation facilities must be designed at a location that allows physical access of the user (incl. aged, children and persons with disabilities) to the facility at all times.
- Facility *close to the user*. Water outlets and sanitation facilities must be placed within, or in the immediate vicinity of, each household, workplace, educational and health institution, as well as any other place where people spend significant amounts of time.

Both these aspects of the physical access criteria are addressed by the current policy definition, namely, through the definition of basic water supply that includes, in a policy position from the National Water Policy Review of 2013, that *a basic water supply facility was defined as the infrastructure necessary to supply potable water to a formal connection at the boundary of a stand or site of a public institution (school, clinic, hospital etc.*

A recent assessment by the WRC of moving household up the sanitation and water supply ladder found that the *financial implications for the local municipality of increasing the level of water supply from a RDP standard to a yard level water supply with dry sanitation were marginal, yet the benefits remain significant. However, metering all yard connections increases the cost significantly, hence the municipality would need to decide on more cost-effective strategies to control consumption – either with a soft approach, such as training and education, or technical approaches, such as flow and pressure control.* The study demonstrated that to address the current backlogs of households to the first step up the ladder would cost R7730 per households, while moving households to the second step on the ladder of yard taps would cost an additional R3520 per households (Table 20).

Table 20: Estimated cost for moving households up the water supply ladder (taken from WRC, 2013)

Water ladder step		Per household cost (R)
Starting level of service	Ending level of service	
No service	Standpipe, communal taps, VIP latrines	7 730.68
Standpipe and communal taps	Yard taps and VIP latrines	3 520.44
Yard taps	House connections, waterborne sanitation	15 972.99

The physical access and close to user criteria of the human right to *sanitation* are not currently address in the policy – a policy position was requiring related to this.

Quality and safety:

The basic human right to water and sanitation services, according to the UN, requires that quality and safety of water and sanitation services, to protect the health of users and the general public. Releasing this component of the right to water and sanitation would include the following aspects:

- **Water supply must be potable:** water must be of a quality that was safe to use for human consumption (drinking and the preparation of food) and for personal and domestic hygiene.
- **Safe and hygiene sanitation:** sanitation facilities must be safe to use and must effectively prevent human, animal and insect contact with human excreta, to ensure safety and to protect the health of users and the community. Ensuring safe sanitation further requires hygiene promotion and education, to ensure that people use toilets in a hygienic manner.

The requirement for the basic human right to water was that water be potable – this criterion was already address in the South Africa policy, which defines a basic water supply as **(quality)** *once the minimum quantity of water was available, its health-related quality was as important in achieving the goal of a water supply adequate for health. The quality of water provided as a basic service should be in accordance with currently accepted minimum standards with respect to health-related chemical and microbial contaminants. It should also be acceptable to consumers in terms of its **potability** (taste, odour and appearance)* Error! Bookmark not defined.. However, the safe and hygiene sanitation was not adequately addressed in the policy. The policy does not provide a definition of sanitation (although the SFWS does this) – a policy position was required on the requirement for a sanitation facility being safe to use and effectively prevent human, animal and insect with human excreta, etc. The NSRP 2015 was addressing these criteria of the human right to sanitation (DWS, 2016).

Related to safe sanitation requiring hygiene promotion and education to ensure that people use toilet in a hygienic manner – the policy does address this requirement to some extent, although not sufficiently. The sanitation policy indicates that *the national responsibility to support regional and local efforts requires the development and dissemination of appropriate programmes for promotion, training, and health and hygiene education* (DWAF, 1994). The policy mandates that *sanitation improvement encompasses an entire process, aimed at the home and the individual, which must include health and hygiene education as well as improving the physical infrastructure of toilet facilities, water supply and disposal of domestic waste water* (DWAF, 1994). The policy position on hygiene education and wise water use requires expansion and greater clarity – this was currently being addressed through the NSRP 2015.

Affordability:

Realizing the human right to water and sanitation requires that individuals are able to afford to pay for their water and sanitation services and associated hygiene. There was an obligation to provide free services or subsidised services to poor individuals who cannot afford to pay for the service.

These criteria related to the human right to water and sanitation were currently being addressed in the water supply and sanitation policy of the country, with the National Water Policy Review (2013) providing the policy positions that:

- a) Free basic water supply will be provided to only indigent households.
- b) The free basic water supply applies to the provision of a minimum of 25 litres per person per day
- c) The Minister may attach conditions to the provision of free basic water.
- d) The DWA will provide norms and standards for provision of free basic water supply to indigent households.

Similarly, policy positions for sanitation are being addressed in the NSPR (DWS, 2016).

Acceptability, dignity, privacy:

Realising the human right to water and sanitation requires that the services was acceptable to the users and meets the human rights criteria of providing dignity and privacy (UN Special Rapporteur, 2014). To address this component of the human right to water, water must be of an acceptable odour, taste and colour to meet all personal and domestic uses, while the water facility must also be acceptable for the intended use

The requirement for a basic human right was already addressed in the South African policy, which defines the quality of a basic water supply as *it should also be acceptable to consumers in terms of its potability (taste, odour and appearance)* (DWA, 1994).

Related to the criteria that the human right to sanitation includes acceptably, dignity and privacy in sanitation, the UN Rapporteur indicates that the sanitation facilities must be culturally acceptable to the user. This aspect of sanitation rights is currently not addressed policy and requires a policy position.

10.2.1.2 Water for Multiple Uses

The second aspect for ensuring water security was that of ensuring that the water required for multiple uses, including for basic human needs, food production, health, sustainable livelihoods, economic development, aesthetic uses, are available to all citizens in the country.

Recommended Policy Positions

The free basic water supply applies to the provision of a minimum of 50 litres per person per day to indigent households
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Upgrade of communal rural water supply systems to a facility at the boundary of the yard should make provision for a minimum of supply of 50 litres per person per day.

Motivation for Policy Addition or Change

Moriarty et al. (2004) argue that *a proportion of water for productive use (as part of a household allocation) should be included in rights-based allocations. This argument was based primarily on principles of equity and poverty alleviation, recognising that meeting basic income needs was as vital for the poor as meeting other basic needs. It was also underpinned by the hypothesis that a proper economic evaluation of water use will show that small-scale productive uses were generally more economically important than others because of the vital role they play in supporting and stabilising the livelihoods of the poor.*

Practitioners in the sector confidently suggest that a norm in the range of 50-200 l/c/d (litres per capita per day) for household water supply would be both adequate and sustainable from a water resources point of view (Moriarty et al., 2004). This figure concurs with Soussan et al. (2002) who showed levels of productive water use in villages to range from 23 to 40 l/c/d above the amount used for basic needs (21 to 22 l/c/d), totalling between 44 and 62 l/c/d for both domestic and productive uses. Future water supply and sanitation strategies need to explore means of providing water for multiple uses to households in the country.

The policy has already taken a position of ensuring water quantities closer to the household, namely to the boundary of the property. The next step was to increase the Free Basic Water component from 25 l/c/d to be in the region of quantities outlined above.

Ensuring Water Required for Protection and Sustaining Ecosystems

Although ensuring water security through allocation of water for protection and sustaining ecosystem was a resource related component of water security, it impacts on, and was impacted by, the water supply and sanitation sector. Ecosystems provide multiple benefits (services) that are essential for sustainable development (WWAP, 2012). Many of the benefits (services) are directly resultant from having access to and use of water. Change in the health of ecosystems will result in a change in the overall benefits provided by these ecosystems and are thus an indicator of whether we are in or out of balance with water. South African policy, as part of the need to ensure water security in the country, now and in the future, needs to recognise that ecosystems do not consume water – they supply and recycle it – and water taken from ecosystems unsustainably reduces their ability to deliver the benefits we need ecosystems to provide (WWAP, 2012).

Ecosystems are thus essential to sustain the quantity and quality of water that was available for people and the environment (UN Water 2013). Maintaining the integrity of these ecosystems was crucial to ensuring that human water needs can be addressed, including domestic, agricultural, energy and industrial water use, and for ensuring that the ecosystems water needs can be sustained, including protecting the water-provisioning services they provide (UN Water 2013). Water contributes to poverty alleviation in a variety of ways, these include; improving water supply and sanitation; enhanced health and resilience to disease; improving productivity and output; helping to provide more affordable food and working against the impacts of climate change and environmental degradation (WWA 2009).

Current water policy in South Africa addresses the water required for protection and sustainability of ecosystems through the Ecological Reserve, one of only two Constitutional rights to water in the country. The White Paper on Water Supply and Sanitation *mandates that the Department of Water Affairs and Forestry's policy on the environment was based on the unity and indivisibility of all aspects of human life and the total environment in which human development occurs. It was therefore a contradiction to talk of sustainable development from the perspective of service provision without ensuring that the environment from which the resource was derived was protected and sustained. In this regard the "indivisibility" of water as a natural resource was clearly evident - each activity or call on the resource has an impact and an effect. The environment should not therefore be regarded as a "user" of water in competition with other users, but as the base from which the resource was derived and without which no development was sustainable. Protection and conservation of the natural resource*

base was therefore imperative. The concept of water as having economic value should therefore be extended to it also having intrinsic environmental value (DWAF, 2004).

The policy further outlines that a crucial element of both water supply and water resource management was the establishment of a culture of conservation and the introduction of stringent demand management strategies to reduce water usage and the stress on resources.

South African water-environmental issues related to water security are largely implementation focussed, as policy was very clear on this relationship and the need to recognise the relationship between water-environment-socio-economic systems. Future interventions in the country will need to focus on wise planning of water resources, evaluation of availability and needs in a catchment, possible reallocation or storage expansion, more emphasis on minimising water demand, a better balance between equity and efficiency in water use, ensuring adequate legislative and institutional frameworks and the rising financial burden of ageing infrastructure.

10.2.2 Collection and Treatment of Used Water to Protect Human Life and the Environment from Pollution

Recommended Policy Positions

Wastewater should be considered as a valuable resource in the overall water budget of the country.

A strong economic case for sanitation and water re-use should be made, with the benefits (internal and external) quantified.

Define water re-use access rights and the powers of those entitled to the allocate rights.

An integrated framework to manage water supply, storm water, wastewater, nonpoint source pollution and water re-use should be adopted

Wastewater reclamation⁷ and re-use should be included into sustainable development, climate change adaptation and integrated water resources management strategies in South Africa

Various re-use options should be considered in the design and operation of water supply and sanitation systems. Design standards for reuse must be provided.

Communities must determine the most appropriate and cost-effective wastewater treatment solutions based on local capacities and re-use options

Stakeholders should be involved in re-use interventions from the planning to the operation of the systems - multi-stakeholder platforms should be utilised to facilitate dialogue, participatory technology development, innovation uptake and social learning.

Ensure financial stability and sustainability of water re-use by: –

- Linking waste management with other economic sectors for faster cost-recovery, risk reduction and sustainable implementation.
- Developing mixed public/private, public/public sector solutions for investment, service delivery, and operation and maintenance.
- Considering social equity when defining cost-recovery mechanisms.

⁷ Wastewater that has been treated to a level that was suitable for sustainable and safe re-use (DWA, 2013b).

Motivation for Policy Addition or Change

South Africa has limited fresh water resources. Hence careful disposal of waste and protection of health from contaminated water sources was a vital policy principle required for water security in the country. While collection and treatment of used water was imperative to ensure the health of the public and water resources in the country, it will not be sufficient in future to just collect and treat used water. Growing demands on water resources from increased urbanisation and climate change, will necessitate a shifted in thinking – from seeing ‘wastewater’ as a drain on resources to seeing it as an economic and environmental opportunity (Carriger, 2009). Better management of wastewater would contribute to a solution to water scarcity as well as water pollution. Sewage, household grey water and wastewater can potentially be a water, fertilizer and energy source when treated and re-used. Treated effluent can replenish water courses or be re-used directly for many purposes.

These positions are however, insufficient for the future needs of wastewater management in the country. Future policy will need to address the water re-use issue in the country, to ensure safe and sustainable re-use of wastewater. Policy must address issues such as:

- Making a strong economic case for sanitation and water re-use: the benefits (internal and external) need to be quantified (Carriger, 2009). According to market insights from Global Water Intelligence (see GWI, 2005), half of the world’s major industrial companies and one quarter of major cities will consider water re-use in the decade from 2005 to 2015 (OECD, undated).
- Changes in the manner in which wastewater was managed in the country will impact on the water availability in the systems. By increasing re-use of treated wastewater, wastewater volume that enter the water resources and thus water available to downstream users will be reduced. Improvements in wastewater treatment can also reduce water supply if the treated wastewater was transferred from its original point of use.
- Ensuring safe re-use: it was important that re-use regulations and guidelines are developed and enforced, ensuring that access to treated wastewater was dependent on compliance with these regulations and guidelines. Guidelines for wastewater treatment and use of reclaimed water should be:
 - 1) realistic in relation to local conditions (epidemiological, socio-cultural and environmental factors);
 - 2) affordable; and
 - 3) enforceable.
- Public outreach and education programs, including school curricula: an essential component in water re-use programs. Transparency, information sharing and involvement of water (re)users and local communities in the decision-making process will also ensure greater acceptance of re-use projects.
- Systems need to be adapted to users’ needs and may require behaviour change: stakeholder participation was crucial to success.
- Incentives for re-using treated wastewater are helpful where water users can choose among different water sources. Incentives can be combined with monitoring to ensure compliance with incentive programs and safe use.

Water policy, both water supply and sanitation policies, needs to address the water use and re-use issues.

10.2.3 The Ability to Cope with Uncertainties and Risks of Water-Related Hazards, such as Floods, Droughts, Pollution (Amongst Others)

Recommended Policy Positions

An ecosystem-based approach should be adopted in the planning, design, implementation, operation and management of water and wastewater systems. This approach must harness the capacity of ecosystems as water infrastructure to improve resilience and deliver multiple water-related benefits, thereby addressing risk.

Recognise that water-related services provided by ecosystems are analogous and complementary to those provided by conventional, engineered water infrastructure.

Capital and operating costs of physical water supply and sanitation infrastructure must reflect the costs and benefits of loss/gain of ecosystem services.

Disaster risk management (and in particular risk assessments) needs to be an integral component of water supply and sanitation development plans. The approach needs to incorporate development mechanisms (such as national public investment planning systems, social protection, and national and local infrastructure investments) to reduce risks and strengthen resilience.

Risk-informed growth and development pathways that minimise increase in exposure and vulnerability need to be adopted in the country.

Social and economic measures that enable the absorption of loss, minimise impact and recovery need to be strengthened resilience in the country.

Responsibilities and action to address risk and uncertainty in the water supply and sanitation sector need to be aligned and clear across stakeholders and institutions.

Motivation for Policy Additions or Changes

Water security in South Africa would be achieved if all individuals, organisations and resources have the ability to cope with uncertainties and risk of water-related hazards. The ability to cope with uncertainties and risk in the country was currently varied in the water sector. However, it was generally poor, being reactive rather the proactive.

Policy currently does not address risk and uncertainty in the water supply and sanitation sector. Adaptation policy are needed, focusing on strengthening the capacities of environmental monitoring, early warning and disease surveillance and – importantly – promoting cooperation with relevant stakeholders in risk management, such as local government water managers themselves. This should go beyond compliance with the risks usually identified, to include those associated with climate change.

Risk commonly refers to an adverse event or the consequence of a decision (UN Water, 2012).

Uncertainty was often used in connection with the term risk (sometimes even interchangeably). The most widely held meaning of uncertainty refers to a state of mind characterized by doubt, based on a lack of knowledge about what currently exists or what will or will not happen in the future. It was the opposite of certainty, which was a conviction about a particular situation (Bogardi and Kundzewicz, 2002; Morgan and Henrion, 1990 and Pindyk, 2007 in UN Water, 2012 (UN Water, 2012).

It was impossible to fully predict how well any water resource system will perform in the future. However, the more the South African water sector understands about the uncertainties and risks, now and in the future, the more effectively we can plan, design and manage water systems to reduce the risk and uncertainty in the sector.

A key mechanism for reducing risk and uncertainty in water resource was to reduce pressures on ecosystems. Pressures on water resources decrease ecosystem resilience and thereby increase ecosystem-related risks and uncertainties (UN Water, 2012). This implies that ecosystems can serve to reduce uncertainty, help manage risk, and achieve increased benefits from water security and water quality enhancement, recreation, hydropower, navigation, wildlife and flood control. History has also shown that many risks associated with water arise through management that was blind to the ecosystem changes it drives, and their consequences for humans.

Reducing the direct human demand for water and improving water use efficiency will also reduce pressures on water, and thereby increase the sustainability of ecosystems, the delivery of ecosystem benefits, and therefore reduce risk (UN Water, 2012). According to UN Water (2012), identifying opportunities to proactively manage ecosystems to reduce uncertainty and manage risk involves a three-step process:

- a) *Identify the water management objectives as opposed to focusing on infrastructure (e.g. objectives are water storage or clean water, not dams or treatment plants).*
- b) *Explore what ecosystems offer in terms of meeting the identified management objective(s) (e.g. storing water, reducing pollution), including through their conservation and/or restoration.*
- c) *Reduce the uncertainties and risks involved in decisions by considering all ecosystem services directly involved or potentially impacted by various management options. This includes valuing multiple co-benefits, and examining trade-offs between them to determine desirable courses of action*

The use of natural infrastructure to protect water supplies, will be vitally important in the water supply and sanitation sector in future.

10.2.4 Good government/governance and accountability, and due consideration of the interests of all stakeholders

Recommended Policy Positions

Clearly allocate and distinguish roles and responsibilities for water policymaking, policy implementation, operational management and regulation, and foster co-ordination across these responsible authorities. Clarity was required related to the roles and responsibility of the sector department and WSA-WSP roles and responsibility in the water supply and sanitation sector.

Manage water at the appropriate scale(s) within integrated water resource systems to reflect local conditions, and foster co-ordination between the different scales.

Water policy needs to be coherence with and cross-sectorally, co-ordinating with policies for the environment, health, energy, agriculture, industry, spatial planning and land use

Adapt the level of capacity of responsible authorities to meet the complexity of water challenges in their jurisdiction and to address the competencies required to carry out their duties

Produce, update, and share timely, consistent, comparable and policy-relevant water and water-related data and information, and use it to guide, assess and improve water policy

Ensure that governance arrangements help mobilise water finance and allocate financial resources in an efficient, transparent and timely manner

Ensure that sound water management regulatory frameworks are effectively implemented and enforced in pursuit of the public interest,

Promote the adoption and implementation of innovative water governance practices across responsible authorities, levels of government and relevant stakeholders

Mainstream integrity and transparency practices across water policies, water institutions and water governance frameworks for greater accountability and trust in decision-making

Encourage water governance frameworks that help manage trade-offs across water users, rural and urban areas, and generations

Promote regular monitoring and evaluation of water policy and governance where appropriate, share the results with the public and make adjustments when needed

Motivation for Policy Additions or Changes

The UN Water (2012) indicates that a key component of ensuring water security in a country was good governance and accountability through:

- appropriate and effective legal regimes;
- transparent, participatory and accountable institutions;
- properly planned, operated and maintained infrastructure; and
- capacity development.

Water governance was a complex issue that involves a wide range of skills, institutions and actors. Coping with future water challenges raises not only the question of “what to do?” but also “who does what?”, “why?”, “at which level of government?” and “how?” (OECD, 2015). Policy responses will only be viable if they are coherent, if stakeholders are properly engaged, if well-designed regulatory frameworks are in place, if there was adequate and accessible information, and if there was sufficient capacity, integrity and transparency (OECD, 2015).

The OECD Principles on Water Governance outline a number of policy principles that should be considered to ensure good governance in the water supply and sanitation sector. Many of these principles concur with governance policy gaps and challenges that stakeholders identified in the Impact Assessment of the SFWS, namely:

- a) Specify the allocation of roles and responsibilities,
 - a. across all levels of government and water-related institutions in the water supply and sanitation sector, there was a need to link these roles and responsibilities to those in the water resource sector to avoid conflict and duplication in fulfilling mandates.
 - b. in policy-making, especially priority setting and strategic planning;
 - c. in policy implementation especially financing and budgeting, data and information, stakeholder engagement, capacity development and evaluation;

- d. in operational management, especially service delivery, infrastructure operation and investment; and
 - e. in regulation and enforcement, especially tariff setting, standards, licensing, monitoring and supervision, control and audit, and conflict management;
- b) Help identify and address gaps, overlaps and conflicts of interest through effective coordination at and across all levels of government.

There was a need for future water supply and sanitation strategies to provide greater clarity on the roles and responsibility of:

- The Dept. of Water and Sanitation (particularly related to sanitation); the Dept. of Cooperative Governance and Traditional Affairs and National Treasury – related to regulation of water supply and sanitation;
- The Dept. of Health, the Dept. of Water and Sanitation and WSAs – particularly related to implementation, monitoring and reporting of hygiene education and wise use of water;
- WSA and WSPs – greater clarity of these relationships was necessary, with the WSA-WSP roles and functions needing lucidity. This will minimise function duplication and conflicts. The DWS and the WRC should consider the development of a ‘best practice’ guideline for the WSA-WSP structures and relationships, indicating which option could be utilised in which situation/environment.

Future water policy needs to encourage coordination mechanisms to facilitate coherent policies across departments, public agencies and levels of government, including cross-sectoral plans. The water policy needs to foster coordinated management of the use, protection, conservation and management of water resources, taking into account policies that affect water availability, quality and demand (e.g. agriculture, forestry, mining, energy, fisheries, transportation, recreation, and navigation) as well as risk prevention.

Future water policy also needs to consider providing incentives and regulations to mitigate conflicts among sectoral strategies, bringing these strategies into line with water management needs and finding solutions that fit with local governance and norms.

Good governance of the water supply and sanitation sector will require (OECD, 2015):

- a) the identification and addressing of capacity gaps to implement integrated water resources management, notably for planning, rule-making, project management, finance, budgeting, data collection and monitoring, risk management and evaluation;
- b) matching the level of technical, financial and institutional capacity in water governance systems to the nature of problems and needs;
- c) Encouraging adaptive and evolving assignment of competences upon demonstration of capacity, where appropriate;
- d) Promoting hiring of public officials and water professionals that uses merit-based, transparent processes and are independent from political cycles; and

- e) Promoting education and training of water professionals to strengthen the capacity of water institutions as well as stakeholders at large and to foster co-operation and knowledge-sharing

There was a need in future water policy to ensure that key regulatory functions are performed across public agencies, dedicated institutions and levels of government, and that regulatory authorities are endowed with necessary resources, in a manner that was coordinated, transparent, non-discriminatory, participative, and easy to understand and enforce. Regulatory tools (evaluation and consultation mechanisms) need to be developed and implemented to ensure a quality of regulatory processes in the water supply and sanitation sectors, and to make the results accessible to the public, where appropriate. Enforcement rules, procedures, incentives, and tools (reward and penalties) also need to be clear, transparent and proportionate to promote compliance and achieve regulatory objectives in a cost-effective way.

The water supply and sanitation sectors would benefit from a comprehensive stakeholder mapping of public, private and non-profit actors who have a stake in the outcome or who are likely to be affected by water-related decisions, as well as their responsibilities, core motivations and interactions. The stakeholder mapping would facilitate the promoting of non-discriminatory participation in decision-making across people, especially vulnerable groups and people living in remote areas - empowering local authorities and users to identify and address barriers to access quality water services and resources and promoting rural-urban co-operation including through greater partnership between water institutions and spatial planners.

Future water supply and sanitation policy needs to refocus on the Constitutional imperative of participation and engagement with citizens. Citizen and community engagements in water and sanitation service delivery are key for ensuring sustainability and accountability in the water supply and sanitation sector. Failure to involve all stakeholders in planning and operation of water supply, sewage and sanitation systems could lead to a lack of appreciation of problems faced by water, sewage and sanitation services deliverers in operating and maintaining the systems. Citizens and communities need to be pivotal role-players in the sector and be included in the entire water value chain in the country. Water and sanitation policy and strategies need to recognise citizens and communities as customers, requiring the highest level of service to these customers – no matter what level of socio-economic status of the citizen or community.

Crucial to the development of future water supply and sanitation policy is the need to develop, in parallel, an effective and efficient monitoring, evaluation and reporting framework. The framework needs to be implemented concurrent to the policy and strategy to ensure that the sector can report success, gaps, challenges and adjustments required at any point in time during the implementation of the strategy. The framework should thus be able to report, at any point in time, the progress and performance of the sector in addressing the strategic imperatives and intents. The water supply and sanitation policy sector needs to:

- a) promote dedicated institutions for monitoring and evaluation that are endowed with sufficient capacity, appropriate degree of independence and resources, as well as the necessary instruments;

- b) develop reliable monitoring and reporting mechanisms to effectively guide decision-making;
- c) assess to what extent water policy fulfils the intended outcomes and water governance frameworks are fit for purpose; and
- d) encourage timely and transparent sharing of the evaluation results and adapting strategies as new information become available.

10.2.5 *Minimising Water Scarcity*

10.2.5.1 Recommended Policy Positions

Encourage and manage water for increased economic efficiency of water use. WSA; WSPs, consumers and other stakeholders in the water supply and sanitation sector must strive for efficiency in water utilization – from extracting water from the water resource, along the value chain and discharging back into the resources

Solutions that maximize the supply of water and minimize demand are essential and must be encouraged and support in future water activities in the country.

Water saving, through interventions such as rainwater harvesting; grey water use; water efficient technologies; low flush toilet etc. should be supported and encouraged, particularly in new developments and economic interventions.

Quality of water resources and the maintenance of these must be a priority in water supply and sanitation activities and interventions.

Measurements of water use with a meter are essential and users must pay for water based on actual water use.

WSAs must bill customers based on their actual water use and for the full cost of water supply and sanitation provision.

WSAs-WSPs must detect and repair leaks in municipal water systems.

Interventions and activities which reuse treatment wastewater should be encouraged and prioritized. Installing water-efficient products and employing efficiency practices should be encouraged and prioritized, particularly in new developments and new economic interventions.

Water systems must promote water demand management and conservation through consumer rebate/incentives and education programs.

Water-saving irrigation practices must be implemented, particularly through field practices, management strategies, and system modifications.

10.2.5.2 Motivation for Policy Additions or Changes

As the human population grows, the demand for limited water resources grow as well. It was projected that by 2025 water scarcity will affect nearly two-thirds of all people on the planet (Figure 63).

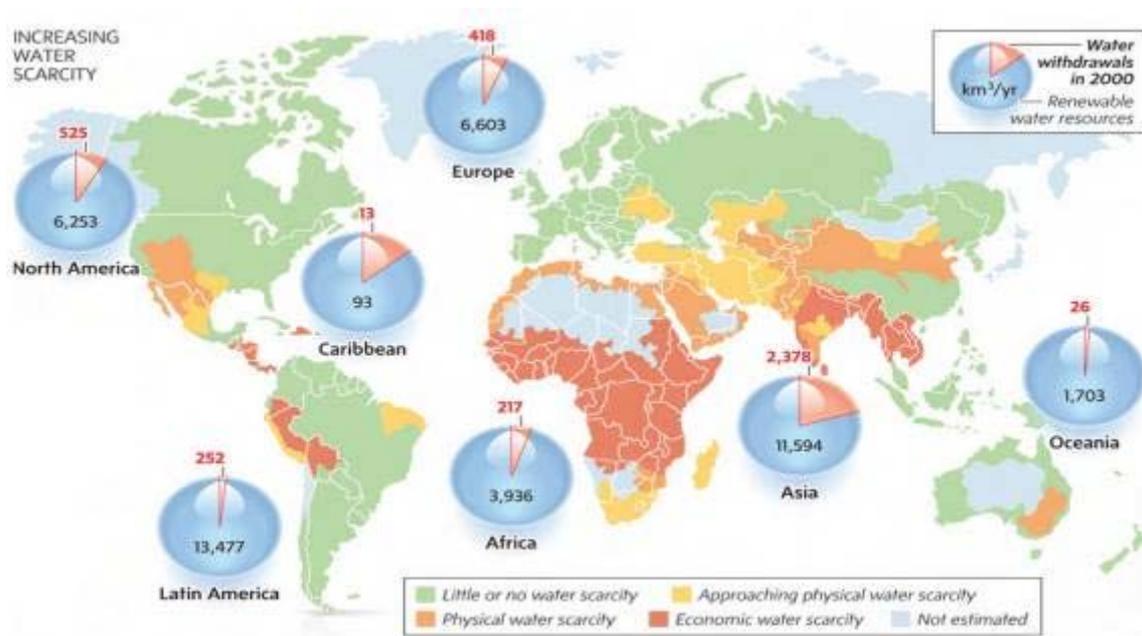


Figure 63: Water scarcity predictions for 2025 (taken from Mittelstaedt (2009))

Figure 63 estimates that by 2025 South Africa will be approaching physical water scarcity. Business as usual in the water services sector was thus not an option for the country. Addressing this predicted water scarcity issue will require an intersectoral and multidisciplinary approach to management of water in the country, ensuring coordinated development and management of water and related resources to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. Integration of the water sector will need to take into account water development, supply, use and demand, and to place the emphasis on people and the ecosystems that sustain them.

According to the 2010 Water Resources Group, the challenge for many countries was to find ways to close the gap between the projected future water demands, the current supply, and future available supplies in a way that meet their development objectives in a cost-effective way, at the same time as protecting people and ecosystems (Boelee, 2011). To minimise water scarcity in the country, policy will need to address water use, conservation and management from both the perspective of reducing pressure and demand on water resources, and from the perspective of conservation of the resources.

On the demand side, enhancing the productivity of water use in all sectors was paramount to successful programmes of water scarcity alleviation (UN Water, 2012). From the water resource conservation perspective, protecting and restoring the ecosystems that naturally capture, filter, store and release water, such as rivers, wetlands, forests and soils, was crucial to increasing the availability of water of good quality.

Policy, strategies and plans that will be needed to address future water scarcity will involve a combination of the core ways of matching water supply with demand (WRG, 2009):

1. Expanding supply: - this option was becoming prohibitively expensive in South Africa, particularly when expanding supply through dams and storage of water.
2. Increasing the productivity of existing water use: This entails producing the same output with less water as well as increasing productivity while keeping water usage the same.
3. Reducing demand by shifting the economy towards less water-intensive activities using:
 - a. Allocative efficiency: based on the notion of optimal distribution and optimal productivity, incorporates both the second and the third options, which are both demand oriented.
 - b. Regulatory instruments: - establish a legal framework of laws, rules, and standards (such as water quality and supply standards), which was used to guide and incentivize users and service providers in their duties and obligations, and possibly punish non-compliance.
 - c. Awareness and capacity building instruments: - encourage self-enforcement and social regulation in areas such as water conservation, best practices, and responsible behaviour in an effort to promote cultural change, typically through voluntary compliance.

Each of the above has advantages and disadvantages and each requires different expertise and timescales for implementation. The appropriate mix was likely to vary markedly depending upon the socio-economic, political and environmental conditions prevailing in a country (GWP, 2003). Sustainability was an important issue for any water solutions going forward.

According to the UN-system, the response to water scarcity requires *collaboration; the sharing of joint visions and policy principles; and joint action in assisting countries to address the issue. A major challenge in addressing water scarcity in countries successfully was the institutional fragmentation of responsibilities in the water development sector* (UN, 2006).

The current White Paper on Water Supply and Sanitation does address some aspects related to minimising water scarcity in the country, indicating that the *protection and conservation of the natural resource base was therefore imperative. Even the simplest and smallest of projects thus requires attention. The concept of water as having economic value should therefore be extended to it also having intrinsic environmental value* (DWAF, 1994). The White Paper takes the policy position of both water supply and water resource management in the country encouraging a culture of water conservation and introducing stringent demand management strategies to reduce water usage and avoid additional stresses and pressures on water resources. At the same time, the policy indicates that water scarcity was often more a case of poor management of water supply systems than the physical lack of water. Hence the policy of the Department was that crises, such as drought, need to be managed and coordinated on an interdepartmental basis because multiple resources are needed to support affected communities.

10.2.6 ***Economic and Financial Efficiency***

10.2.6.1 **Recommended Policy Positions**

Recognizing that water resources and water supplies have economic value

User and polluter pays principles will be implemented, regulated and enforced in the water supply sector

Wise water use education was part of the basic water supply subsidy and financial implementation must be monitored.

Economic regulation will be applied throughout the water value chain.

The Minister will provide norms and standards for water tariffs.

Water pricing should be a tool to optimise water use

Water tariffs should include a water conservation and demand management charge

10.2.6.2 **Motivation for Policy Additions or Changes**

Due to the range of different institutions involved in the water value chain, economic regulatory approaches and mechanisms were different and/or applied differently for the different types/categories of water service institutions. Efficiencies in water pricing and tariffs and water supply were also insufficient and require strong policy, regulation and monitoring.

The White Paper for Water Supply and Sanitation (DWAF, 1994) indicated that the policy of the Department was that all consumers of potable water must contribute to the cost of their water supplies. However, in poor communities, which were unable to afford to pay both the construction and operation costs of schemes provided by Government, a social tariff covering only the operating expenses would be charged for the minimum level of service, which was a communal water source. This policy imperative was reflected in the Free Basic Water Services subsidy. The policy also indicated that for higher levels of service, the full cost of supply would be charged.

Uniform tariffs were not recommended by the policy due to effects on poor households. Rather the policy of sliding tariff scales, which require some form of metering, was endorsed by the DWAF. The basic approach identified three separate tariffs:

- A life-line or social tariff: - this was to cover basic human needs. The quantity shall not exceed 25 lcd. The tariff shall be set so as to cover only the O&M costs
- *Normal tariff*. This was for normal use. The quantity shall not exceed 250 litres per capita per day and shall be provided at cost (operation and maintenance plus capital) including the losses incurred through the life-line tariff.
- *Marginal tariff*. Water consumption exceeding 250 litres per capita per day would be charged for at marginal cost defined as the present-day cost of the latest or next augmentation scheme.

Policy thus address water tariffs adequately, it was the efficient application and regulation of these tariffing systems that are important. The structuring and setting of these tariffs was also an issue, as WSAs may not be able to indicate the true cost of providing water supply and thus their tariffs are not reflecting the full cost of water supply. Water pricing was first and foremost a financing mechanism that generates revenues that could be used to maintain, renew and extend the infrastructure, (when and where appropriate). In other words, water pricing could reduce the burden on consumers for new infrastructure.

The water supply and sanitation policy in the country did not address the issues of water pollution and payment by the perpetrator of this pollution. It was however, address in Principle 16 of the 1997 White Paper on a National Water Policy for South Africa, which mandates that *water quality management options shall include the use of economic incentives and penalties to reduce pollution; and the possibility of irretrievable environmental degradation as a result of pollution shall be prevented* (DWAF, 1997). The principles of ‘polluter pays’ needs to be address in the water supply and sanitation policy, as well as implemented in this sector. Regulation of the ‘polluter pays’ principles also needs to be clarified and then actually executed by the water regulator. This would also support the NWRS2 requirements that Acid Mine Drainage (AMD) must be managed and treated and the polluter-pays principle must apply where mines still have an identifiable owner.

Similarly, the NWRS2 indicated a need to conduct awareness on re-use and recycling activities and interventions in the country and campaigns to ensure that all water institutions and water users understand the water-related climate change issues and how to respond to them (DWA, 2013b).

10.2.7 Operation and Maintenance in the Water Supply Sector

10.2.7.1 Recommended Policy Positions

Free basic water supply promotes sustainable access to a basic water supply service by subsidising the ongoing operating and maintenance costs of this service. WSAs must be transparent about the allocation of funds for the operation and maintenance of water supply and must report on the implementation on an annual basis.

The planning of capital expenditures must also be integrated with the associated operation and maintenance requirements and expenditures.

10.2.7.2 Motivation for Policy Additions or Changes

A recent review of the local government grant system by National Treasury (National Treasury et al, 2014) indicated that *several issues were established as undermining efficient asset management of municipal infrastructure, such as the lack of credible asset management plans and non-prioritisation of renewal and maintenance expenditure. In the case of the renewal it was recognised that this relates directly to the grant system: since the establishment of the current local government system, grants have largely focused on the extension of basic services to all citizens as per the Constitution’s Bill of Rights. This emphasis on backlog eradication has, with good motives, incentivised municipal investment in new infrastructure that connects previously un-serviced areas to water, sanitation, electricity or roads networks. However, the conditionality of many grants restricts municipal investment to building new*

infrastructure rather than make cost-effective investments in rehabilitating, upgrading or replacing existing infrastructure. This persistent extension of a municipal asset base can undermine sustainable asset management practices particularly if there was not also targeted investment in economic infrastructure that boosts the rate-base. Social infrastructure investment may not be matched by a corresponding increase in own revenues, via tariffs and rates, to fund the operations and maintenance of a new infrastructure asset.

Furthermore, over-engineering of grant-funded capital projects can also undermine the sustainability of municipal infrastructure.

Under-expenditure in maintenance and under-investment in rehabilitation in the water services sector remained a significant challenge in South Africa. This has resulted in the deterioration of assets over time and a breakdown in services provision.

Water services provision in the country needs to be in accordance with sound business principles within a sound subsidy framework. Sound business principles and subsidy framework include adequate spending on maintenance and replacement of assets and income (including subsidies) which covers expenses.

10.2.8 Reduce, Re-Use and Recycling of Water Supplies

10.2.8.1 Recommended Policy Positions

Reduction, re-use and recycling of water in water supply systems must be encouraged and incentivized

Investing in water recycling schemes in response to drought and other risks must be encouraged

Protecting the public and the environment from any risks which arise for water reuse and recycling systems must be an imperative

Education and outreach are critical to advancing water recycling. Active public education programs to raise awareness and to help overcome any public concerns about the safety and quality of recycled water must be implemented

Barriers to water recycling technology, funding and regulations must be minimised.

10.2.8.2 Motivation for Policy Additions or Changes

The re-use of water in South Africa only accounted for approximately 14% of total water use (DWA, 2013b). Policy does make mention of wastewater collection and recycling, indicating that:

- There are a number of areas where policy will be formulated and where national guidelines are required. These areas include guidelines on waste recycling and beneficiation, and the siting of treatment and disposal works to ensure that they are environmentally acceptable and accessible,

- The Department will work closely with Provinces to assist local authorities where necessary both to ensure that adequate services are developed and to ensure that water quality was not compromised through inadequate or ineffective waste treatment.
- Water recycling was re-using treated wastewater for beneficial purposes such as agricultural and landscape irrigation, industrial processes, toilet flushing, and replenishing a ground water basin/aquifer (referred to as ground water recharge)⁸.

A number of options are available for water recycling in the water supply sector, including:

- Onsite recycling and re-use: - examples are when an industrial facility recycles water used for cooling processes or production purposes. A common type of recycled water was water that has been reclaimed from municipal wastewater, or sewage.
- Recycled water was "grey water": - includes re-usable wastewater from residential, commercial and industrial bathroom sinks, bath tub shower drains, and clothes washing equipment drains. Grey water was re-used on-site, typically for landscape irrigation.

Recycled water can satisfy most water demands, as long as it was adequately treated to ensure water quality appropriate for the use. Appropriate regulations for the re-use and recycling of water supplies in South Africa are needed. It was important to note, both in policy and strategies, that the encouragement of increasing reuse and recycling of water can lead to the complex questions of how to regulate owners and operators of recycled water schemes, including major water utilities, local municipalities, or private businesses. A major challenge was how to design regulatory approaches that protect both public health and the environment, while balancing multiple objectives, such as enhancing competition, meeting water security objectives, protecting the environment, and reducing red-tape related to the re-use and recycling systems.

Re-use and recycling of wastewater for various purposes was often driven by the need to reduce the discharge of nutrients, pathogens and other contaminants in wastewater into receiving water courses. The policy objective of protecting the environment (as well as avoiding health impacts) must be an imperative in future policy.

The sanitation policy gaps and challenges had chiefly been identified through the stakeholder engagement on the WRC Project K5/2415 related to the Impact Assessment of the SFWS and through the current National Sanitation Policy Review which was being conducted by the DWS. Further work will need to be done to establish if these challenges are policy gaps, knowledge gaps or mainly implementation challenges.

10.2.9 Integrated planning of water and sanitation

The 1994 water supply and sanitation policy did not explicitly mention the need for integrated planning water supply and sanitation, but does allude to this in the policy position that planning may include items such as:

- an assessment of possible water sources and supply schemes, either local or from a bulk supply,

⁸ Taken from <http://www3.epa.gov/region9/water/recycling/>

- assessment and choice of level of service by the community,
- planning of a community sanitation programme and community public health awareness campaign,
- assessment of the cost implications and the availability of finance beyond the state subsidy for basic services if the community chooses a higher level of service,
- planning for labour-based construction,
- planning of tariff structures,
- planning for the LWC to operate and maintain the system and to employ suitable local water care staff,
- planning and review of the governance capacity of the LWC (DWAF, 1994).

This policy also mandates that all stakeholders need to participate and be involved in the planning of water supply, sanitation and hygiene interventions.

The 1997 White Paper on a National Water Policy for South Africa does however explicitly mandate the need for integrated planning, indicating that the complexity of the sector *calls for a complex and integrated approach to water management* (DWAF, 1997). The policy goes on to indicate that the *range and variety of issues which affect or are affected by water management show how important it was to address it in an integrated manner. Quality can only be managed jointly with quantity; economic considerations must be weighed together with social and environmental ones; groundwater has to be managed with surface water, and international water allocations cannot be considered in isolation from the domestic context. Nor can water management easily be separated from other activities.*

Provision of sanitation in South Africa was particularly fragmented and uncoordinated, largely due to the vast array of institutions involved in provision of this service. Situations arise of beneficiaries receiving subsidised services from both the municipal grant and through the low-cost housing programmes, provision of services to households and institutions without consideration of impacts on municipal sewer and sewage systems, and provision of different levels of services in the same areas of jurisdiction. The sector needed to plan for all sanitation and wastewater flows and not only basic sanitation.

Policy positions are required or need strengthening related to:

- Integrating planning of water and sanitation from local to national levels.
- Strong communication of all sectors in addressing this integrated planning.
- Planning information should be widely and freely available for facilitate informed integrated planning (i.e. information should be further shared with people).
- A multiple water use approach should be the focus of this integrated planning

10.2.10 Appropriate Water Supply and Sanitation Technology

National government supports the development and dissemination of appropriate and environmentally friendly technology in the provision of affordable and reliable water and sanitation services to all South Africans. This will assist water services authorities to examine the full suite of options available before deciding on a particular technology for delivery of water and sanitation.

A commonly accepted definition of appropriate technology was “technology that was appropriate to the environmental, cultural and economic situation it was intended for.” An appropriate technology, in this sense, typically requires fewer resources, as well as lower cost and less impact on the environment (CSIR, 2008). Appropriate technology simply means any technology that makes the most economical use of a country’s natural resources and its relative proportions of capital, labour and skills, and that furthers national and social goals. Fostering appropriate technology means consciously encouraging the right choice of technology, not simply letting someone make the decision for you. Whether a technology will be considered appropriate depends on:

- accessibility for the people using the technology;
- functionality of the technology;
- quality of the technology;
- sustainability (economic, financial, social and ecological);
- manageability; and
- enabling environment (Co-Create 2004).

Stakeholders highlighted a number of challenges with the choice of technologies during the DWS/WRC Impact Assessment of the SFWS implementation, including:

- The focus on providing a service determined by settlement type. This led to consumer perceptions of inequality in the sector, with rural areas receiving communal taps and VIPs as basic services while urban and peri-urban consumer received flush toilets and yard or household taps. These were not necessarily the most appropriate technologies in these areas as beneficiaries did not participate in the technology choice and the technology was therefore not necessarily the most culturally accepted option.
- Technology chosen without due consideration of available resources, particularly water resources, for the ongoing operation of the technology.
- Planning of schemes and systems without consideration of environmental issues in the pre-feasibility and feasibility stages of planning.
- Environmental contamination due to inappropriate choice of technologies.
- Compliance standards dictating the technology choice. For example, sophisticated activated sludge systems were selected due to the need to comply with discharge standards.

Some of these challenges were outlined in a WRC research study that assessed the appropriateness of the technology choices of a selected number of municipalities (van der Merwe-Botha and Quilling, 2012). The results of the study indicated that, in these municipalities, the general trend was towards the replacement of low- to medium-level technologies (such as oxidation pond systems) with more sophisticated wastewater treatment technologies. Activated sludge plants in these municipalities were set to increase from 61% of systems to around 78% of municipal wastewater works in future (van der Merwe-Botha and Quilling, 2012) (Figure 64). Opting for higher-level technologies was not inappropriate per se, however a municipality needs to be equipped to sustainably manage such advanced systems, specifically with regard to skills and financial resources (van der Merwe-Botha and Quilling, 2012).

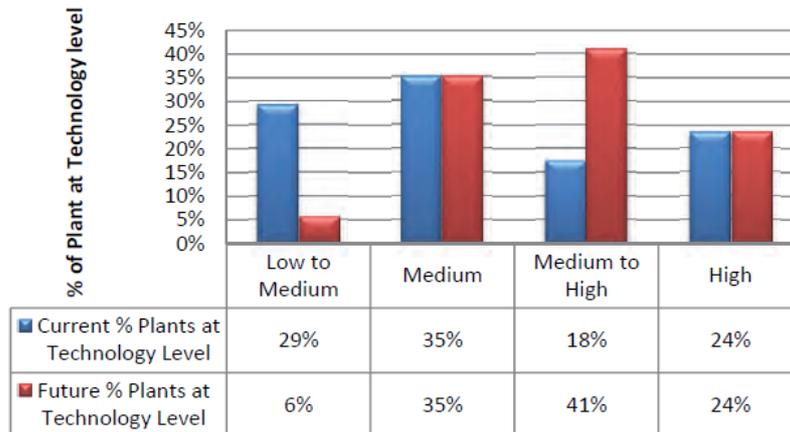


Figure 64: Technology level trends of known planned upgrades' in selected municipalities (taken from van der Merwe-Botha and Quilling, 2012)

Another WRC study by Tyers and Mbathalt (2010) indicated that in the majority of the rural geographic areas in South Africa, sanitation delivery interventions were focused on providing a dry on-site ventilated improved single pit toilet system – which tended to fill up in five to eight years. Emptying of these pits remained a challenge, with these toilets most often needing to be relocated or abandoned when full. The study concluded that the *utilisation of such an inappropriate and “un-serviceable” design could lead to the development of a “second generation” sanitation backlog in South Africa.*

Similarly, research by the WRC indicated that *it was clear that quite often available capital budgets were being utilized on the delivery of inappropriate technologies, due to municipal decision makers and project managers lacking the correct experience and expertise in order to anticipate the ongoing operations and maintenance requirements of these systems, as well as the consequences of tolerating construction errors during the implementation phase. It should be clear that any on-site system which was implemented will at some point need to be desludged, and that any off-site wet system will require the availability of water and connection to a relevant waste water treatment facility.*

The SAICE Infrastructure Report Card for South Africa 2011 indicated that *most sanitation facilities were not compliant with appropriate technical design standards; hence they were built in a manner susceptible to quick failure and extreme maintenance difficulties. Secondly, there was a consistent lack of communication with users on why and how to use these facilities, compounding maintenance problems. One example of these problems was the fact that many sanitation facilities lack hand washing facilities and/or do not impress the importance of hand washing to users. This simple, avoidable problem threatens all hygiene improvements and restrictions of disease achieved through proper sanitation. It has been suggested that hand washing alone acts as a quasi-vaccine, cutting diarrheal deaths almost in half. Other problems include a lack of privacy and security issues at sanitation facilities, which cause people not to use them.*

The 1994 water and sanitation policy indicated that *the Ventilated Improved Pit toilet (VIP), if constructed to agreed standards and maintained properly, provides an appropriate and adequate basic level of sanitation service. Adequate basic provision was therefore defined as*

one well-constructed VIP toilet (in various forms, to agreed standards) per household. The 1997 White Paper focussed on appropriate methods, tools and mechanisms for tariff setting, incentives, water use management and water conservation intentions.

The SFWS has the vision of “All people living in South Africa have access to an appropriate, acceptable, safe and affordable basic water supply and sanitation service”.

Water services authorities have a responsibility to ensure that all people living within their jurisdiction are progressively provided with at least basic water services (the first step up the ladder). This includes people living on private land (for example, farm dwellers) and others who are provided services by intermediaries. Wherever practical and sustainable, water services authorities are expected to plan for and provide higher levels of service (stepping up the ladder).

The SFWS has the vision *that national norms and standards are development and implemented to protect the social and economic interests of all consumers, especially poor and vulnerable households, and to protect the environment.*

These two SFWS goals related directly to appropriate technology water services and are thus reviewed concurrently.

GOAL 1: All people living in South Africa have access to an appropriate, acceptable, safe and affordable basic water supply and sanitation service.

GOAL 3: Water and sanitation services are provided:

- Equitably (adequate services are provided fairly to all people)
- Affordably (no one was excluded from access to basic services because of their cost)
- Effectively (the job was done well)
- Efficiently (resources are not wasted)
- Sustainably (services are financially, environmentally, institutionally and socially sustainable); and
- Gender sensitively (taking into account the different needs and responsibilities of women and men with regard to water services and sanitation)

A finding from a 2009 WRC report on basic sanitation services was that across case studies of sanitation types in different provinces in South Africa, “there was no single type of sanitation that fared uniformly well.” There are a number of problems around sanitation infrastructure and technology options:

- Sanitation facilities are not compliant with appropriate technical design standards and are built in a manner susceptible to quick failure and extreme maintenance difficulties.
- Lack of clarity with regard to sanitation standards and appropriate technical options at the local level.
- Lack of adequate sanitation provision in informal settlements, particularly newer settlements and those not in the pipeline to be upgraded in terms of the UISP.
- confusion over differing technical options for urban, peri-urban and rural areas;

- lack of bottom-up planning, proper consultation and participation by communities as well as consistent lack of communication on why and how to use facilities, which compounds maintenance problems;
- lack of buy-in and use of infrastructure from communities, especially with regard to the use of alternative technologies;
- neglect of health and hygiene education, which negates the impact of sanitation provision on improved health outcomes;
- lack of privacy and security issues at sanitation facilities, which causes people not to use them;
- poor or non-existent sanitation facilities in many rural clinics and schools throughout the country,
- insufficient O/M of existing infrastructure, particularly around the emptying of VIPs in rural areas;
- lack of clarity around responsibilities for the emptying of full VIPs.

Stakeholders involved in this policy review attributed some of the appropriate technology problems in the country to issues such as the following:

- Misinterpretation of the definition of a “basic” services – this has led to inappropriate technologies being provided as a basic service.
- The take-up of ownership of the technologies has been weak – leading to inappropriate operation and management of systems and thus technology

To address some of the above concerns, stakeholders indicated the need to:

- Focus on research, development and implementation of appropriate technologies for the entire water value chain.
- Appropriate technologies need to consider:
 - Provision of water supply and sanitation at a large scale;
 - Consider water for multiple-purposes
 - Recognise the need to ensure the water balance
 - Should not be discriminated by socio-economic status or settlement type
 - Should be environmentally and human safe
 - Should be designed for recycling and safe re-use.
- Future settlement planning and developments need to focus on appropriate technologies.
- The sector needed to consider appropriate technologies, such as water storage for future water use.
- Appropriate technologies must in future consider financial considerations of the technology provided.
- ‘Smart’ appropriate technologies need to be explored and promoted within communities – including consideration of incentives for take-up of these ‘smart’ appropriate technologies.
- Enforcement of appropriate technology policy positions and regulations needed to be a focus in future in the water sector – enforcement of meeting efficiency standards require for appropriate technologies i.e. SANS standards.
- Research of appropriate technologies and development of local technologies and market for these technologies was needed.

- End-user education needed to focus on the promotion of appropriate technologies and the acceptance of these.
- Appropriate means of dealing with water measurement and control needed to be developed and implemented.

Settlement type and patterns have important implications for the type of toilet technologies that were suitable, affordable and sustainable in a given settlement area. SALGA (2008) indicated *that technology choice was heavily influenced by the carrying capacity of the physical environment. In dense settlements, off-site waste management was the norm, with excreta conveyed by water to waste treatment facilities. Yet there were many densely settled areas where the supply of water, or the reliability of water supplies, cannot support flush toilets. Equally, a settlement might be too far from existing bulk infrastructure to allow for a swift connection into existing infrastructure with treatment capacity; or be too small or remote to make this technically, institutionally or financially feasible; or simply be too poor to fund the operating costs of this type of service without extensive subsidies. Debates over levels of service had badly skewed thinking around appropriate sanitation technologies.*

10.2.11 Free Basic Sanitation

Providing free basic sanitation (FBSan) services to all South Africans places a significant burden on the state and on the WSA's, especially where individuals are able to afford these services. Equitable access to sanitation services should target FBSan supply to the neediest, indigent individuals. Placing limitations on beneficiaries of FBSan would facilitate provision of these services to these indigent individuals, facilitating a high level of services where affordable and sustainable to the WSA.

10.2.12 Sanitation Service provision on privately owned land

There was no policy position outlining provision of sanitation to indigent people residing on private land. South Africa had the intent of addressing the "universal service obligation", which was to ensure provision of at least a basic level of sanitation service to all residents, including residents living on privately-owned land. This included people living on commercial farms and game parks, mining land, church-owned land, traditional land and industrial-owned land (Tissington, 2011). All indigent people were obligated to ensure hygienic and sanitary practices were maintained in order that provision was feasible.

The provision of services on privately-owned land was becoming increasingly significant in various sectors, including water services, electricity and health services. For example, there was an estimated four million South Africans residing on privately owned land (mostly commercial farming land) in 2011 (DWA, 2011). It was yet to be determined how many of these people do not have access to a basic level of water service.

10.2.13 Sanitation Services for backyard dwellers

Backyard dwellings were one of the largest housing sub-sectors in South Africa (SALGA, 2011). The sector successfully provided accommodation to non-qualifiers for subsidised housing, migrants or temporary workers not seeking home ownership, and any other households wishing to rent but who cannot afford formal rental accommodation available (SALGA, 2011). According to SALGA (2011) 25% of all South Africans now rent and informal

rental markets create accommodation opportunities for almost two thirds of all households not able to access formal accommodation (SALGA, 2011). The quality and size of backyard dwellings vary greatly. Many units—although informal—are adequate, but some backyard households had inadequate access to services and safety (SALGA, 2011). SALGA, (2011) indicated that close to half of all backyard structures do not have formal dwellings with access to basic services. Sanitation policy currently provided no guidance on provision of this service to backyard dwellings in the country.

10.2.14 Sanitation Services to Informal settlements

Populations living in irregular urban settlements experienced the same suite of interrelated problems: they had no access — or limited access only — to basic services, and they had no security of tenure. Their situation was precarious as they usually belong to the poorest segment of the urban population (Durand-Lasserve, 2006). Providing adequate privately 'owned' sanitation in growing urban informal settlements poses a specific sanitation challenge (Tissington, 2011). A 2010 report by DWA indicated that *arguably, this was the single greatest challenge facing the water and sanitation sector in South Africa. The latest data shows that between one and two million households live in informal settlements in South Africa. High settlement densities, insecurity of tenure and complex community dynamics make planning and implementing standard infrastructure solutions difficult, if not impossible. The willingness to explore new delivery models, together with careful planning, reflective learning and engagement with local communities were need.*

10.2.15 Emergency Sanitation

Sanitation policies did not address this issue. Temporary Relocation Areas (TRAs) - sometimes called transit camps – had been established by some municipalities to shelter people who had been affected by an emergency, e.g. fire, flood, eviction. In the *Joe Slovo* eviction case, the Constitutional Court ordered the relocation of residents of Joe Slovo informal settlement to Temporary Relocation Units (TRUs) in Delft, stipulating the standards of the TRUs (Tissington, 2011) as being *situated within reasonable proximity of a communal ablution facility; make reasonable provision for toilet facilities, which could be communal, with waterborne sewerage; and make reasonable provision for fresh water, which could be communal.*

10.2.16 Provision of sanitation to vulnerable groups

Many individuals in South Africa were excluded as they were not able to access and use safe sanitation facilities (Water Aid, 2011). These categories of people include those who were socially and economically marginalised or excluded, and those who cannot use standard designs. For example, women, children, older people, pregnant women, people living with disabilities or with HIV/AIDS or other chronic illnesses, and geographically marginalised populations in remote areas.

10.2.17 Public Institution Sanitation

Due to the dual implementation of sanitation services, with household provision being the responsibility of Water Service Authorities (WSAs) (including the wastewater treatment works) and provision at public institutions being the responsibility of various national departments,

situations had occurred where public institutional sanitation was planned and implemented without consultation with the WSA. This had resulted in sanitation services being provided to schools, clinics etc. without consideration/planning for these additional connections to the WSA managed wastewater treatment works. The policy and strategy does not currently address sanitation in public institutions, or privately-owned institutions, such as crèches and day-care centres; churches; old age homes.

10.2.18 Bulk Sanitation Infrastructure and Establishment and Functions of a Regional Sanitation Utility

Current arrangements of the water management institutions were limited in the effective development and management of Regional Bulk Infrastructure. Water Boards, originally envisaged by the SFWS (2003) to fulfil this role, were largely considered to be regional water service providers. The DWS currently does not have an institution that is able to implement Regional Waste Water Infrastructure provision. Regional Water Utilities could fill this gap in the sanitation institutional arrangement, with the Regional Water Utility fulfilling the role of building, operating, maintain and supporting Regional Bulk Sanitation Infrastructure.

10.2.19 National Sanitation Advisory Committee

The sanitation sector of South Africa was guided by the National Sanitation Task Team (NSTT), which was formed in 1995 to coordinate sanitation interventions by national departments. In 2001, in order to achieve greater alignment between sanitation and other municipal infrastructure programmes, the NSTT was re-established as a working group reporting to the Municipal Infrastructure Task Team (MITT), with the DWAF as the coordinating department. However, with the shift of sanitation to the Department of Human Settlements (DHS), this advisory structure dissolved. The NSTT was in 2015 re-established and would guide and support the sector in future. Coordination across disciplines and sectors was paramount.

10.2.20 Sanitation Regulations

While local government was mandated to provide water and sanitation services, the national department of water and sanitation was responsible to perform the function of the national regulator, in conjunction with relevant stakeholders, including citizens. There had been a lack of clarity on the national institutional framework around basic sanitation, particularly as the DHS took over the National Sanitation Programme from the DWA in 2009. This had resulted in a lack of regulation at the national level.

10.2.21 Hygiene and End-user Education

It had been shown in many studies that ongoing health promotion and hygiene education would have a positive impact on environmental integrity, lower health costs and reduce health risks and could also reduce operation and maintenance costs, ensure long-term sustainability of sanitation service provision (Tissington, 2011). Despite having extensive knowledge of the importance of sanitation health and hygiene (H&H) training in South Africa and having sector-specific tools and methods to support these programmes, research and reviews of sanitation programmes had shown that H&H training in the country was weak and often non-existent. H&H training was often carried out in a haphazard manner, with little planning or focus.

Current gaps in policy, as well as institutional confusion over roles and responsibilities, had meant that this aspect of sanitation had often been neglected. Clarifying roles and responsibilities around ongoing health and hygiene education was critical to ensuring that attention was given to this area (Tissington, 2011).

10.2.22 Solid waste and greywater management in sanitation service provision

Refuse was currently a component of the definition of sanitation – defined by the White Paper on Basic Household Sanitation (2001) as “*the principles and practices relating to the collection, removal or disposal of human excreta, household waste water and refuse as they impact upon people and the environment. Good sanitation included appropriate health and hygiene awareness and behaviour, and acceptable, affordable and sustainable sanitation services.* Like sanitation, South Africa had large backlogs in collection of waste in rural areas and informal settlements. This was largely due to difficulties in road access and long travel distances require to collect waste from these area (CSIR, 2011). Local government struggles to meet their legal mandate of providing at least a weekly waste collection service to all households (CSIR, 2011). However, sanitation policy does not currently outline a definition or position related to refuse or solid waste.

10.2.23 Effluent management

Inadequate treatment of human excreta would result in pollution of South Africa’s water resources. This would result in an increasing cost of treatment of water for drinking purpose. Current sanitation policies are largely focussed on basic sanitation service provision, which mainly addresses dry sanitation facilities. Future sanitation policy must address all aspects of sanitation in the country, including aspects of both dry and waterborne sanitation facilities. Hence a definition of the components of waterborne systems were required. Water Quality Monitoring could be linked productively as reporting did not yet result in actions and supportive responses to ongoing and increasing pollution as a consequence of poor informal settlement sanitation.

10.2.24 Urban Sanitation

Sanitation policy had a strong focus on basic sanitation services and provision of these to poor households in the country. The provision of sanitation services to the non-indigent and urban/peri-urban households in the country was largely not addressed in the policy. Policy positions related to provision of urban sanitation to both indigent and non-indigent households were required.

11 NATIONAL SANITATION POLICY REVIEW (2016)

This research study recommended a number of policy amendments that were required for the sanitation sector of South Africa (See Section 10 above). Table 21 summarises these recommendations. Noting these recommendations and the outcomes of the study on the Impact of the Strategic Framework for Water Services (WRC Project K5/2415), the DWS and the WRC embarked on a review of the national sanitation policies in the country, culminating in the National Sanitation Policy (2016).

A rapid review of the National Sanitation Policy (2016) indicated that the policy focusses on 7 pillars required to ensure hygienic, sustainable, equitable and efficient sanitation services (Figure 65).

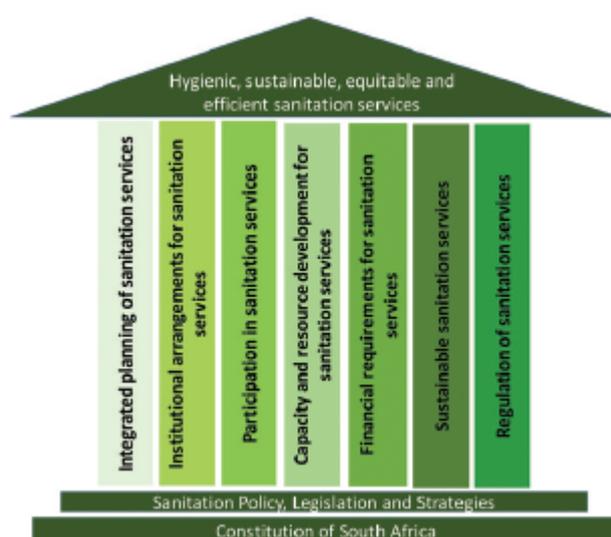


Figure 65: Pillars of sustainable services (taken from DWS, 2016)

The seven pillars of the national sanitation policy review, articulated the recommendations from this study shown in Table 21 into 32 Policy Positions that address gaps in the current sanitation policy. It should be noted that the National Sanitation Policy (2016) had the purpose of addressing the gaps in current policy, with all the policy positions in the 1994; 1997 and 1998 policy that are not address in the 2016 policy still remaining valid. Table 21 shows how the recommendations from this research study were articulated into the 32 policy positions in the National Sanitation Policy of 2016.

Table 21: Indication of the linkages between recommendations emanating from this study and the National Sanitation Policy (2016)

Sanitation policy recommendations from this study	Sanitation policy position category included in the National Sanitation Policy (2016)
Ensuring water security	<ul style="list-style-type: none"> Policy Position 1: Universal Access to Sanitation in Human Settlements Policy Position 2: Free Basic Sanitation
Collection and treatment of used water	<ul style="list-style-type: none"> Policy Position 26: Reduce, reuse, recycle, recover and reclamation in the sanitation sector
Coping with uncertainties and risk	<ul style="list-style-type: none"> Policy position 4: Emergency sanitation Policy position 5: Sanitation during disaster

Sanitation policy recommendations from this study	Sanitation policy position category included in the National Sanitation Policy (2016)
Good governance and accountability	<ul style="list-style-type: none"> • Policy position 6: Roles and responsibilities of DWS • Policy position 7: Roles and responsibility of CoGTA • Policy position 8: Roles and responsibility of WSAs • Policy position 9: Roles and responsibility of WSPs • Policy position 10: South Africa's international sanitation obligation • Policy position 11: Roles and responsibility of CBOs/NGOs and the community • Policy position 13: National water and sanitation advisory committee • Policy position 18: Human resources and skills in sanitation services • Policy position 19: Research and innovation for sanitation services • Policy position 30: Sanitation services norms and standards • Policy position 31: Incentive-based regulation of sanitation services • Policy position 32: Regulation through monitoring and evaluating information systems • Policy position 33: Enforcement of sanitation regulations
Minimising water scarcity	<ul style="list-style-type: none"> • Policy position 25: Grey-water management in sanitation service provision • Policy Position 26: Reduce, reuse, recycle, recover and reclamation in the sanitation sector • Policy position 27: Effluent management
Economic and financial efficiency	<ul style="list-style-type: none"> • This is one of the pillars of the policy including the policy positions: • Policy position 21: Economically and financial sustainable sanitation services • Funding models of sanitation services • Policy position 23: Funding operation and maintenance of sanitation service • Policy Position 2: Free Basic Sanitation
Operation and maintenance	<ul style="list-style-type: none"> • Policy position 28: Operation and maintenance • Policy position 23: Funding of operation and maintenance of sanitation services
Reduce, re-use and recycling	<ul style="list-style-type: none"> • Policy position 25: Grey-water management in sanitation service provision • Policy Position 26: Reduce, reuse, recycle, recover and reclamation in the sanitation sector
Integrated planning	<ul style="list-style-type: none"> • This is one of the pillars of sanitation service provision and is address through policy position 1-5
Appropriate technology	<ul style="list-style-type: none"> • Policy position 24: Appropriate sanitation technologies • Policy position 16: Ownership of sanitation services • Policy position 29: Labour intensive sanitation services provision
Free Basic Sanitation	<ul style="list-style-type: none"> • Policy Position 2: Free Basic Sanitation
Provision on privately owned land	<ul style="list-style-type: none"> • Policy Position 1: Universal Access to Sanitation in Human Settlements
Provision to backyard dwellers	<ul style="list-style-type: none"> • Policy Position 1: Universal Access to Sanitation in Human Settlements
Provision in informal settlements	<ul style="list-style-type: none"> • Policy Position 1: Universal Access to Sanitation in Human Settlements
Emergency sanitation	<ul style="list-style-type: none"> • Policy position 4: Emergency sanitation
Provision to vulnerable groups	<ul style="list-style-type: none"> • Policy Position 1: Universal Access to Sanitation in Human Settlements • Policy position 17: Gender, youth and disabled in sanitation services
Sanitation in public institutions	<ul style="list-style-type: none"> • Policy position 3: Sanitation at public and private institutions

Sanitation policy recommendations from this study	Sanitation policy position category included in the National Sanitation Policy (2016)
Bulk sanitation and Utilities	<ul style="list-style-type: none"> ● Policy position 12: Bulk sanitation infrastructure and establishment and functions of Regional Water and Sanitation Utilities
National Sanitation Advisory Committee	<ul style="list-style-type: none"> ● Policy position 13: National water and sanitation advisory committee
Regulation of sanitation	<ul style="list-style-type: none"> ● This is one of the pillars of the sanitation policy, addressed through policy positions 30-33
Hygiene and end-user education	<ul style="list-style-type: none"> ● Policy position 14: Hygiene education ● Policy position 15: End-user education ● Policy position 20: Community capacity to participate in sanitation services
Solid waste and greywater management	<ul style="list-style-type: none"> ● Policy position 25: Grey-water management in sanitation service provision
Effluent management	<ul style="list-style-type: none"> ● Policy position 27: Effluent management
Urban sanitation	<ul style="list-style-type: none"> ● Policy Position 1: Universal Access to Sanitation in Human Settlements

The 2016 National sanitation policy thus consists of 7 pillars, 32 policy position categories and 208 policy positions that addressed current gaps and challenges in sanitation policy. Table 22 shows the policy positions that are outlined in the 2016 National Sanitation Policy.

Table 22: Policy positions categories and positions in the National Sanitation Policy (2016)

NSP policy positions category	Policy position
Policy Position 1: Universal Access to Sanitation in Human Settlements	1. Basic services are a human right and “Some for All”, rather than “All for Some”.
	2. Universal access to sustainable sanitation services in all human settlements. All individuals are obligated to ensure hygienic and sanitary practices are maintained in order that provision is feasible.
	3. The provision of sanitation systems which minimise the use of water resources and the negative impacts on water resources and the natural environment are required.
	4. Improving public health and addressing environmental standards for sanitation will be the two outcomes that human settlement areas must seek to ensure for citizens.
	5. Universal access to sanitation in human settlement areas need to be planned and implement as part of the holistic human settlement-wide plan.
	6. Sanitation services plans need to be aligned to other national, provincial and local development plans.
	7. Spatial Planning and Land Use Management Act, (Act No. 16 of 2013) places the responsibility on the province to ensure that the spatial and land use plans are developed by the municipalities. Sanitation infrastructure plans must consider these spatial and land use plans.
	8. Priority in planning and allocation of public funds in human settlements will be given to those who are presently inadequately served with sanitation, including those with access to systems that require extension; have access to aging infrastructure or infrastructure that requires replacement and those that are unserved.
	9. Sanitation should be integrated into programmes for the provision of other basic needs. The co-ordination of the various public and private organisations involved in the planning and delivery of basic services is therefore essential.
	10. Recognising the pivotal role that the public and private institutions play in the provision of sanitation services. Integrated planning of sanitation services and human settlements is crucial.
	11. Sanitation services provision and regulations must be a coordinated effort by local government, Dept. of Water and Sanitation, Dept. of Health and other institutions responsible for provision of sanitation (i.e. Dept. of Education; Dept. of Human Settlements etc.)
	12. A Water Service Authority has a responsibility to ensure that sanitation services are provided to individuals living on privately and traditionally owned land.

NSP policy positions category	Policy position
	<p>13. The use of the grants to provide basic sanitation services to households on private and tradition land is supported.</p> <p>14. Reaffirming the MIG position that in order to address the needs of farm dwellers; MIG funding can be used to provide basic services to indigent households living on private land, without servitudes, subject to certain conditions. One of these conditions is that the landowner must make an appropriate contribution to the capital cost.</p> <p>15. Operation and maintenance and capital development of sanitation services on privately owned land remains the responsibility of the property owners.</p> <p>16. Ownership of sanitation assets provided on private land may pass into the hands of the person owning the land in the following circumstances (1) where an “on-site” sanitation facility is provided to a household; and (2) where assets are required for services to consumers served by a water services intermediary who owns the land on which the consumers reside and where that intermediary has made an appropriate contribution to financing the cost of the assets.</p> <p>17. Municipal by-laws must address sanitation services to backyard renters. Recognise the SALGA recommendation that bylaws could regulate sub-letting, the enforcement of maintenance standards and allow for a system of penalties if landlords did not follow the rules. Municipalities should consider incentive based regulations. These are also relevant to controlling unsuitable uses of back yard structures, such as polluting industries occurring within residential areas.</p> <p>18. Sanitation service specifications for new developments will include specifications for addressing excess capacity as a result of growth in informal rental, planning of separate services for tenants and separate metering for each rental unit and household.</p> <p>19. Property owners who rent to backyard dwellers are considered to be an intermediary in sanitation service provision and are responsible for provision and maintenance of this service.</p> <p>20. The property owner must declare to the WSA any additional sanitation systems.</p> <p>21. Interim basic sanitation services should be provided in temporary informal settlements. These sanitation services should be appropriate, affordable, and practical in accordance with a progressive plan that addresses both land tenure and basic services.</p> <p>22. Where permanence of informal settlement is recognised, local government is obligated to ensure access to basic sanitation services.</p> <p>23. Sanitation services should be provided in informal settlements in consultation and with participation of the community.</p> <p>24. Community engagement process and mechanisms should be utilised in order to promote in situ upgrades of sanitation services in informal settlements</p> <p>25. Community-based planning, implementation and operation and maintenance of interim informal settlements sanitation solutions is encouraged.</p> <p>26. Labour-intensive provision of sanitation in informal settlements is encouraged. Alignment with Expanded Public Works and Community Works programmes should be pursued to support labour-intensive sanitation provision.</p>
Position 2: Free Basic Sanitation	<p>1. FBSan refers to the cost associated with the ongoing operation and maintenance of any type of sanitation system as well as the ongoing Hygiene Education. Free Basic Sanitation will be targeted to indigent households.</p> <p>2. FBSan provides support of water for flushing of waterborne systems and for ongoing operation and maintenance of on-site systems.</p> <p>3. FBSan should be provided as part of the basket of social services available to support and assist indigent households.</p> <p>4. The determination of beneficiary households should be based on targeting approaches by WSA's.</p>
Position 3: Sanitation at Public and Private Institutions	<p>1. All public and private institutions are responsible to provide sanitation services. Sanitation services at these institutions must include hand washing facilities, hygiene and End-user Education as well as the collection, removal and disposal of wastewater.</p> <p>2. All public and private institutions are responsible to provide sanitation services.</p> <p>3. Provision of sanitation services at public and private institutions must recognise the role of local government and the planning, construction and altering of sanitation services to public and private institutions must be done with prior consent of the WSA (local authority), as required by other regulatory requirements.</p>
Position 4: Emergency	<p>1. Emergency sanitation services should be limited to very short-term interventions that last a few days to a few weeks, depending on the nature and duration of the emergency situation.</p> <p>2. Emergency sanitation services must be appropriate to the emergency situation.</p>

NSP policy positions category	Policy position
	<ol style="list-style-type: none"> 3. Emergency sanitation services will be provided to reflect the vulnerabilities, needs and preferences of the affected population. 4. Key risks to public health need to be identified in consultation with the affected population. 5. WSAs can access assistance through grants to respond rapidly to sanitation emergencies. 6. Where appropriate, users, communities and their leaders should be involved in the management and maintenance of emergency sanitation services. 7. Provision of sanitation in emergency situations must be a coordinated effort and budgeted for between all spheres of government and private institutions.
Position 5: Sanitation during Disasters	<ol style="list-style-type: none"> 1. Affected communities must be provided access to at least an interim sanitation services during disasters. 2. During disaster affected communities must be engaged and consulted in planning and implementation of sanitation services to identify culturally and socially acceptable interventions which will be effective and sustainable. 3. Disaster risk management (and in particular risk assessments) needs to be an integral component of sanitation development plans. Risk-informed sanitation planning that minimise increase in exposure and vulnerability need to be adopted. 4. Key risks to public health need to be identified in consultation with the affected population. 5. Responsibilities and action to address sanitation services in a disaster need to be aligned and clear to all stakeholders and institutions. 6. Designing, building and maintaining sanitation systems must include simple modifications to address disasters.
Position 6: Role and Responsibility of the Department of Water and Sanitation	<ol style="list-style-type: none"> 1. The sanitation role and responsibility of the DWS is: <ul style="list-style-type: none"> · The management of water resources, · The development and revision of national sanitation services policies, · The development and oversight of all legislation impacting on sanitation services (including the setting of national norms and standards), · The co-ordination with other national departments on sanitation-related policy, legislation and other sector issues, · National communication related to sanitation services, · To develop policy with regard to international sanitation issues, · To establish national policy guidelines, · To develop national water and sanitation strategies, · The authorisation of waste discharge, · The formulation of conditions for State subsidies, · The development and enforcement of regulations, including monitoring sanitation sector performance (including conformity to national sanitation norms and standards) and making regulatory interventions (to improve sanitation performance and/or to ensure compliance) · The setting of minimum sanitation services standards, · To provide support to other spheres of government, · To intervene where there is a lack of capacity to provide safe and hygienic sanitation services, and · To provide advocacy and guidance to the sanitation sector

NSP policy positions category	Policy position
	<p>2. In compliance with the Intergovernmental Relations Act (No. 13 of 2005), DWS will fulfil the above mandated by:</p> <ol style="list-style-type: none"> a) taking into account the circumstances, material interests and budgets of other governments and organs of state in other governments, when exercising their statutory sanitation services powers or performing their statutory sanitation services functions; b) consulting other affected organs of state in accordance with formal procedures, as determined by any applicable sanitation legislation, or accepted convention or as agreed with them or, in the absence of formal procedures, consulting them in a manner best suited to the circumstances, including by way of <ol style="list-style-type: none"> i. direct contact; or ii. any relevant intergovernmental structures; c) co-ordinating their sanitation actions when implementing sanitation policy or legislation affecting the material interests of other government; d) avoiding unnecessary and wasteful duplication or jurisdictional contests in the sanitation sector; e) taking all reasonable steps to ensure that they have sufficient institutional sanitation services capacity and effective sanitation services procedures <ol style="list-style-type: none"> i. to consult, to co-operate and to share sanitation services information with other organs of state; and ii. to respond promptly to requests by other organs of state for consultation on sanitation services, f) co-operation and information sharing; and participating <ol style="list-style-type: none"> i. in intergovernmental sanitation services structures of which they are members; and ii. in efforts to settle intergovernmental sanitation services disputes.
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Position 7: Role and Responsibility of Department of Co-operative Governance and Traditional Affairs</p>	<ol style="list-style-type: none"> 1. CoGTA has the following significant responsibilities related to sanitation services: <ul style="list-style-type: none"> · Regulating of the local government: municipal systems act (act 32 of 2000) and the local government: municipal structures act (act 117 of 1998). · Requiring water services authorities to undertake integrated development planning. Water services development plans need to be integrated with the integrated development planning process as set out in the municipal systems act. · Allocating funds to local government including the local government equitable share, the municipal infrastructure grant and the capacity building grant. · Regulating municipal affairs and interventions (together with provincial government and the relevant sector departments) in the case of municipalities not performing their sanitation services mandates. · Working with DWS, establishing appropriate conditions for the municipal infrastructure grant and monitor compliance with these conditions. · Providing support to local government to address their sanitation services mandate, co-ordinated with DWS and provincial government. 2. CoGTA will support the development and implementation of comprehensive infrastructure and maintenance plans in municipalities, with at least 7% of sanitation operational budgets going to maintenance of infrastructure. This will include infrastructure audits. 3. CoGTA will develop and implement real-time systems to monitor sanitation service delivery interruptions. 4. CoGTA will provide institutional support to improve sanitation expenditure, to target sanitation backlogs and to ensure municipalities acquire relevant skills for sanitation infrastructure management.

NSP policy positions category	Policy position
Position 8: Role and Responsibility of the Water Services Authority	<p>1. Water Services Authorities have the following responsibility:</p> <ul style="list-style-type: none"> · Implementation of the Municipal Systems Act (Act 32 of 2000) and Water Services Act (Act 108 of 1997) provisions. · Prepare sanitation plans such as WSDPs etc., aligned to national sanitation planning. · Ensure the realisation of the right to access to sanitation services, particularly basic sanitation services, subject to available resources. This includes people living on privately-owned land, in recognised permanent informal settlements and vulnerable groups and others who are provided services by Water Services Intermediaries. Wherever practical and sustainable, Water Services Authorities are expected to plan for and provide higher levels of service. · Ensure the provision of effective, efficient and sustainable sanitation services. The provision of sanitation services also includes communication activities related to, amongst other things, Hygiene Education, end-user education and the wise use of water. · Develop an asset management strategy, a maintenance and rehabilitation plan and a register of sanitation services assets and must then put in place a system to manage these assets. · Provide information concerning the provision of sanitation services as reasonably requested by the Provincial or National governments, end-users and / or organisations. · Develop an appropriate institutional structure to adequately respond to key WSA functions and responsibilities. · Account, as per the Municipal Finance Management Act (No. 56 of 2003), to the province and National Treasury for resource allocation (financial, human etc.). · Provide sanitation hygiene and end user education.
	<p>2. Water Services Authorities have a right but not an obligation to accept industrial, agricultural and mining wastewater within their area of jurisdiction.</p>
	<p>3. Water Services Authorities must adhere to the following requirements in a transparent manner and in close contact with end-users:</p> <ul style="list-style-type: none"> · Sanitation services must be designed, planned and implemented to consider operations and maintenance requirements and to reduce the environmental impact of unmanaged grey-water, human excreta and wastewater disposal. · Sanitation services must be appropriate and minimise impact on and use of water resources. Wsa should strive for systems which utilise minimal water resources. · Sanitation technologies which consider settlement types. · Geo-hydrological testing before use of on-site groundwater sources or on-site sanitation services. Exceptional situations may require independent review and advice. · Technology choices must be appropriate and affordable. · Roles and responsibility for payments for operations and maintenance must be clear. · Only appropriate sanitation technologies must be adopted. · The quality of all building materials used for construction must be durable and fully compliant with the requirements, norms and standards · Local availability of materials and skills must be part of the choice of technology or construction method. The design of sanitation services facilities must maximise the use of local resources. · Sanitation technology selection should include resources to develop the necessary local institutional capacity to manage the day to day and future operational needs. In some circumstances there may be considerable merit in engaging a sanitation services provider to carry out certain functions on behalf of a local authority. Government does encourage local authorities to consider various options in this regard. · Social and cultural practices and preferences should be considered in the selection of appropriate sanitation technology.
	<p>4. WSA must have the billing systems in place to raise sufficient revenue for sanitation services.</p>
	<p>5. WSA must ensure sufficient funds are transferred for a WSP to perform the agreed functions.</p>
	<p>6. WSA must regulate all aspects of sanitation services provision locally.</p>
	<p>7. The WSA is accountable to its citizens.</p>
	<p>8. Sanitation services planning by WSAs should be in conjunction with municipal Environmental Health Practitioners, as well as other stakeholders and departments involved in the sector.</p>

NSP policy positions category	Policy position
Position 9: Role and Responsibility of the Water Services Provider	<ol style="list-style-type: none"> 1. A WSP has the following role and responsibilities in the water services institution: <ul style="list-style-type: none"> · Provide water services in accordance with the constitution, the water services act, municipal system act and the bylaws of the water services authority and in terms of any specific conditions set by the water services authority in a contract. · Provide water services in an effective and efficient manner, striving to meet and exceed recognised best-practice benchmarks. · Publish a consumer charter which was consistent with by-laws and other regulations, approved by the water services authority and that includes the duties and responsibilities of both the water services provider and the consumer, including the conditions of the sanitation services and payment. · Communicate the contents of the consumer charter with all consumers to whom they provide services. · Present consumers with accounts which are clear and easy to understand. · Develop a business plan for sanitation services. 2. Provide information concerning the provision of sanitation services as reasonably requested by the Provincial or National governments, end-users and / or organisations 3. Where an external Water Services Provider fails to meet its contractual obligations, the consequences and remedies must be provided for in terms of the contract with the WSA. During the course of conflict resolution sanitation services must not be interrupted. 4. Where a Water Services Provider fails to meet its obligations with respect to the end user, the end user has recourse to the Water Services Authority. Where this is ineffective, the end-user has recourse to the national water services regulator.
Position 10: South Africa's International Sanitation Obligations	<ol style="list-style-type: none"> 1. National standards for sanitation will be developed to reflect the legal content of the human right to sanitation. Standards will follow international guidelines such as those of the WHO, taking into account existing service levels and local context such as settlement types and the availability of water resources. 2. National standards for sanitation must ensure that basic sanitation facilities can be safely used and provide targets for the collection, treatment and disposal or safe reuse of sewage and other faecal waste. 3. South Africa will pursue achievement of the SDGs, focussing sanitation services provision on ensuring sustainability. The sanitation SDGs are supported, including: <ul style="list-style-type: none"> · Achieving 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 · Improving 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 <p>Globally</p> <ul style="list-style-type: none"> · substantially increasing 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 · expanding 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 · Supporting and strengthening the participation of local communities in improving water and sanitation management 4. Information on the standards and targets set by national and local governments must be available to the public, in an accessible format and language that is easy to understand. 5. Sanitation strategies will be devised to reach the most disadvantaged individuals and groups and remove discriminatory practices. 6. The government of South Africa will continue to honour its commitment and international obligations to WASH. 7. The government of South Africa will continue to honour its international obligations and commitments, which include the Sustainable Development Goals, the recommendations of the World Summit on Sustainable Development and the United
Position 11:	<ol style="list-style-type: none"> 1. The participation and use of CBOs and NGOs in the provision of sanitation is encouraged

NSP policy positions category	Policy position
	<p>2. Promoting the active involvement of civil society, CBOs and NGOS in the provision of sustainable and affordable sanitation services, in research and in other related activities. This will be done through:</p> <ul style="list-style-type: none"> · Engaging civil society organisations, NGOS and CBOs research and advocacy, and assisting with planning, implementation and management of programmes and projects at community level; · Supporting the development of capacity in civil society organisations NGOs and CBOs; · Encouraging civil society organisations, NGOS and CBOs to help monitor sector performance at all levels; · Engaging civil society organisations, NGOS and CBOs in creating a link between government and local communities; · Engaging capacitated community-based organisations to manage water services projects at the local level, where appropriate; and · Assisting in the mobilisation of funds for non-government and community-based organisations where appropriate.
Position 12: Bulk Sanitation Infrastructure and Establishment and Functions of Regional Water and Sanitation Utilities	<p>1. Reaffirming the policy position that the Minister is responsible for Regional Bulk Infrastructure, including master planning and infrastructure functionality.</p> <p>2. Bulk sanitation infrastructure is defined as regional infrastructure, covering large areas and addressing more than one WSA.</p> <p>3. The Minister must direct a Regional Bulk Utility to provide some or all bulk sanitation services provision in their jurisdiction.</p> <p>4. The functions of the Regional Water and Sanitation Utility include Bulk Sanitation Services</p>
Position 13: National Water and Sanitation Advisory Committee	<p>1. The Minister may establish a National Water and Sanitation Advisory Committee to provide, amongst others, policy advice; ensure that equity is achieved in sanitation services, advice on appropriate and acceptable sanitation technologies using appropriate technology criteria, feed into sanitation strategies and the updating of national sanitation norms and standards.</p> <p>2. The committee will have, as part of its membership, sanitation experts, people who come from communities which are un-served and who understand the difficulties of sustainable development, national, provincial and local government representatives, NGOs, Civil Society and other role players in the sanitation sector.</p>
Position 14: Hygiene Education	<p>1. Hygiene Education should be an ongoing activity during the implementation of a programme for a basic sanitation services provision, including at a minimum, a visit to the household pre-construction; during construction and at completion of construction of the sanitation facility.</p> <p>2. Hygiene Education must be an ongoing programme, post construction and must focus on promoting good hygiene behaviour. Hygiene messages, information and education must be developed hand in hand with provision of sanitation facilities and must be targeted at all levels such as:</p> <ul style="list-style-type: none"> · Personal Hygiene: such as washing hands after going to the toilet or changing the nappies of babies and before the preparation of food. · Household Hygiene: keeping the home clean, particularly those areas where food is stored and prepared and ensuring that food and drinking water is kept covered and uncontaminated. · Environmental Hygiene: such as safe solid waste storage and disposal. · Community Hygiene: vectors do not respect household boundaries. To achieve improved public health, the whole community must be mobilised to work together for better health and a cleaner environment. · Community Participation: The involvement of the community and local leadership structures in all aspects of programmes is important to ensure their relevance and acceptability. <p>3. Sanitation Hygiene Education will include rural, peri-urban and urban areas of the country.</p> <p>4. WSA should engage with municipal Environmental Health Practitioners for the provision of Hygiene Education.</p> <p>5. Hygiene Education must have special focus on vulnerable individuals and groups affected by chronic disease.</p>

NSP policy positions category	Policy position
Position 15: End-user Education	<ol style="list-style-type: none"> 1. End-users are responsible for: <ul style="list-style-type: none"> · Their own behaviour relating to good hygiene practice; and · Operating and maintenance of their sanitation infrastructure, within the framework of Free Basic Sanitation. 2. It is the responsibility of each community to safeguard hygiene and to reach consensus as to the sanitation system, within the available resource of the WSA that is affordable and acceptable to the majority. 3. The improvements that can be made to existing systems will be promoted as part of the education process, and consideration should always be given to the potential for upgrading any option. 4. End-users must participate in sanitation services conceptualisation, planning, design, implementation, operation and maintenance of all sanitation projects, including at an institution level. 5. Sanitation grants must be allocated to ensure equitable access to basic sanitation for all end-users. Awareness of grant allocation must be provided. 6. Awareness of greywater management must be provided to end-users. 7. The development and use of participatory methods is encouraged. 8. The right of the end-users of access to basic sanitation services comes with a corresponding responsibility, namely, to use sanitation services responsibly and with due care and to pay for services provided over and above services provided in terms of the Free Basic Sanitation policies. 9. Hygiene and user-education and awareness must be part of a comprehensive user-education programme with appropriate linkages to ensuring water conservation and demand management, gender mainstreaming, mainstreaming of HIV and AIDS and solid waste disposal options with particular regard for management of menstrual waste are critical and must be implemented as a minimum requirement alongside any institutional sanitation project or programme.
Position 16: Ownership of Sanitation Services	<ol style="list-style-type: none"> 1. End-users provided with sanitation facilities, through the grant programmes, must take ownership and responsibility for them 2. All end-users must be aware of the ownership responsibility linked to the sanitation services provision 3. Sanitation services provision must include awareness campaigns on ownership and long-term sustainable operation of the system
Position 17: Gender, Youth and Disabled in Sanitation Services	<ol style="list-style-type: none"> 1. Sanitation service provision must focus on enabling women to play a meaningful role at all levels in consultations, planning, decision making and in the operation and management of water services. 2. Recognising women as central in the provision, management and safeguarding of sanitation services 3. Specific needs of women and the vulnerable must be considered in sanitation services provision. 4. Providing physical access to sanitation is essential for the safety and dignity of women and girls. 5. Gender balances approaches are encouraged in sanitation plans and sanitation services provision. 6. Design and location of sanitation systems must consider the needs of women and vulnerable groups. 7. Use of local women organisations in the operation and maintenance of sanitation services is encouraged. 8. Integrating women into existing sanitation development process through targeting their needs is essential. 9. Partnerships between local government, local women's groups and the private sector should be forged to overcome technical and financial barriers to women accessing urban sanitation. 10. Sanitation services must be provided to be safe, accessible, hygienic and appropriate for disabled and vulnerable individuals.
Position 18: Human Resource	<ol style="list-style-type: none"> 1. Regulations for sanitation skills and professionalising of the sanitation sector will be developed by the Minister. 2. All spheres of government will develop effective human resources plans for sanitation services, including succession planning.

NSP policy positions category	Policy position
	<ol style="list-style-type: none"> 3. Retention strategies will be strengthened and the induction of professional entrants is encouraged. 4. Level of sanitation knowledge will be elevated in the public sector to encourage the building of the capacity and skills of the sanitation environment. 5. Sanitation Education, training and skills development to be provided within the National Qualifications Framework. 6. Capability building through education, training and skills development must form a major component of support to the sector. The skills development strategy for the sector will take into account the need to accelerate and expand formal and structured training and education programmes. 7. Capacitating of NGOs, CBOs and communities to conduct end-user and Hygiene Education is encouraged 8. National and provincial departments will assist in the training and support of community-based hygiene educators for sanitation services.
Position 19: Research and Innovation for Sanitation Services	<ol style="list-style-type: none"> 1. Research and innovation in the sanitation sector is supported 2. Focus will be on developing the skills and capacity to conduct research and innovation required to address current and future sanitation sector needs 3. R&I capacity will focus on minimising resource use and impacts and maximise reduce, reuse, recycling and reclamation 4. R&I of appropriate sanitation service technology will be strengthened
Position 20: Community Capacity to Participate in Sanitation Services	<ol style="list-style-type: none"> 1. End-user involvement is essential in the sanitation services sector. 2. Water Services Authorities need to develop capacity to be able to involve end-user in the sanitation decision-making processes. 3. Capacity must be built in the local government, NGO, CBO and community to participate in the provision of sanitation services. 4. The use of local skills and expertise in the provision of sanitation services is encouraged. 5. WSAs must ensure that skills are developed to provide Hygiene Education. Where skills already exist, these must be developed further to suit the needs of the specific programme. 6. Gender participation, training and capacity building in sanitation services must be mainstreamed. Focus must be on building capacity and skills at a technical and managerial level.
Position 21: Economically and Financially Sustainable Sanitation Services	<ol style="list-style-type: none"> 1. Recognising that sanitation has economic value 2. User and polluter pay principles will be implemented, regulated and enforced. Regulations, national and local, must be developed for the polluter pays principle. 3. Hygiene and end-user education must be part of the basic sanitation subsidy and financial implementation must be monitored. 4. Sanitation revenue allocations must be priorities for sanitation services provision. 5. Economic regulation will be applied throughout the water and sanitation value chain. 6. Water Services Authorities are responsible to ensure that the provision of sanitation services is financially sustainable (enabling the on-going operation of services and adequate maintenance and rehabilitation of assets). 7. WSAs must ensure financial stability by cost recovery for sanitation services. Social equity must be considered when defining
Position 22: Funding Models of Sanitation Services	<ol style="list-style-type: none"> 1. WSAs must assess what level of subsidy (overall) they are able to provide on an ongoing and sustainable basis for sanitation. Appropriate technical solutions must be based on these levels of subsidy, while considering settlement type and resource limitation. 2. Local subsidy framework must target the public benefit provided by the subsidy, target the poor and must be equitable, sustainable, efficient and transparent. 3. Innovative models and mechanisms for dispersment and use of sanitation subsidy will be explored. DWS, in concurrence with National Treasury and CoGTA, will provide guidelines for sanitation subsidy models and mechanism.
Position 23: Funding	<ol style="list-style-type: none"> 1. Free basic sanitation promotes sustainable access to a basic sanitation services by subsidising the ongoing operating and maintenance costs of a basic sanitation services.

NSP policy positions category	Policy position
	<ol style="list-style-type: none"> 2. WSAs must be transparent about the allocation of funds for the operation and maintenance of sanitation systems and must report on the implementation on an annual basis. 3. Water services authorities must allocate sufficient maintenance to maintain the sanitation services infrastructure and related systems adequately. The planning of capital expenditures must also be integrated with the associated operation and maintenance requirements and expenditures. 4. WSAs must give priority to financial resources required for the safe and hygienic emptying of on-site sanitation facilities.
Position 24: Appropriate Sanitation Technologies	<ol style="list-style-type: none"> 1. Criteria for appropriate sanitation technology will be developed and will be considered in the water use authorisation application. Communities, local government and national department (such as Dept. of Human Settlements) will be consulted and will participate in the process of developing these criteria. 2. Human settlement appropriate sanitation technologies which minimise natural resource use and negative impacts are encouraged. 3. Limited water resource availability should inform appropriate technology selection. 4. Implementation of alternative, appropriate technology will be within social, environmental and economic constraints. Settlement and geographic situation will also be considered. 5. Appropriate sanitation technology need to be sensitive to people with special needs, children, the elderly and women. 6. Appropriate sanitation technology must encompass waste management systems. 7. Decentralised sanitation systems are encouraged. 8. A formal process for certification and accreditation of appropriate sanitation technologies will be developed. 9. The Minister will, in concurrence with National Treasury, provide incentives to encourage utilisation of resource efficient sanitation infrastructure in human settlement areas. 10. The Minister will have developed regulations for new development to use greywater in waterborne sanitation systems, minimising impacts on water resources.
Position 25: Grey-water management in sanitation service provision	<ol style="list-style-type: none"> 1. Management of grey-water is encompassed in sanitation services provision. The Minister will set conditions in the water use authorisation to ensure the good management of grey-water. 2. Hygiene Education must include management of grey-water. 3. Grey-water recycling by decentralised and centralised systems is encouraged. 4. The Minister will provide norms and standards for grey-water management. 5. Use and management of grey-water in a safe and sustainable manner is required. Greywater management within property boundaries is the responsibility of the property owner, while greywater management outside property boundaries is a WSA responsibility. 6. DWS will provide guidelines for greywater management.
Position 26: Reduce, reuse, recycle, recover and reclamation in the sanitations sector	<ol style="list-style-type: none"> 1. Sanitation provision must emphasise the need for the conservation of water resources and the use of appropriate technologies which are environmentally sustainable. 2. Sanitation services should be provided based on the principles of minimising the use and impacts on natural resources. 3. Where economically viable and sustainable, the liquid, solid and gaseous constituents of wastewater and excreta end products should be used, reused and recycled for further environmental benefits particularly in energy generation. 4. The return of treated wastewater to a source other than the water resource requires special motivation. This will require a water use authorisation. 5. The Minister will develop regulations for the use, re-use recycling and recovery of the liquid, solid and gaseous constituents of human wastewater and excreta. This may require approvals in terms of the National Environmental Management Waste Act (No. 59 of 2008). 6. The Minister may attach reduce, reuse, recycling and/or recovery conditions to a license application. 7. WSAs must undertake the management of sludge in accordance with the Water Management Series of Minimum Requirements (version 2: 2008) as developed by the Department of Water and Sanitation. The regulatory requirements of sludge management must also be adhered to. 8. Human settlement areas should aspire to 100% safe disposal of wastes on a sustainable basis. 9. Human settlement wastewater and storm water drainage must be managed safely locally. 10. Recycle and reuse of treated wastewater for non-potable applications in human settlement areas should be implemented wherever possible. 11. Where appropriate, priority must be given to sanitation technologies which minimise use of natural resources.

NSP policy positions category	Policy position
Position 27: Effluent management	<ol style="list-style-type: none"> 1. Polluter pays principle, particularly related to effluent discharge from municipal wastewater treatment works. Similarly, the principle is applied to wastewater from industry, agriculture, mining and other sectors in the country. 2. Effluent management infrastructure and technology must meet appropriate technology criteria as determined by norms and standards. Technologies must be approved before being released into the sanitation market. 3. WSAs may set standards for industrial agriculture, mining waste which they will accept. 4. Standards for effluent discharge must be enforced. Skills and capacity to implement and enforce these standards must be developed and supported. 5. Local involvement in the safe and hygienic management of on-site sanitation facility emptying and the transport of sludge is encouraged.
Position 28: Operation and Maintenance	<ol style="list-style-type: none"> 1. A WSA must develop an asset management strategy, a maintenance and rehabilitation plan and a register of sanitation services assets and must put in place a system to manage these assets. This plan must be based on the principle of preventative maintenance in order to ensure, as far as this is practical, that damage to assets is prevented before it can occur. 2. A WSA must ensure sufficient resources to ensure effective operation, timely maintenance, refurbishment and upgrading of sanitation systems in their jurisdiction. 3. A WSA must ensure that the maintenance and rehabilitation plan is part of the Water Services Development Plan and that this plan is implemented. Assets must be rehabilitated and/or replaced before the end of their economic life and the necessary capital funds must be allocated for this purpose. 4. All sanitation services must be designed to consider their operations and maintenance requirements and reduce the environmental impact of unmanaged grey-water, human excreta and wastewater disposal. 5. Public-private partnerships (PPPs) are encouraged for the operation and maintenance of sanitation services. PPP contract norms and standards will be provided by DWS. 6. All aspects of sound, efficient, effective and sustainable operation and maintenance of infrastructure need to be addressed. 7. Use of local resources to conduct operations and maintenance at a household level is encouraged. 8. Responsibility for carrying out refurbishment and maintenance of sanitation services at private and public institutions remains with the institution.
Position 29: Labour Intensive Sanitation Services	<ol style="list-style-type: none"> 1. Labour intensive sanitation services provision in human settlements is encouraged. Alignment with Expanded Public Works and Community Works programmes should be pursued to support labour intensive sanitation services provision. 2. The use of local labour, material and solutions in provision of sanitation services is encouraged.
Position 30: Sanitation Services Norms and Standards	<ol style="list-style-type: none"> 1. The Minister will, in concurrence with the Department of Human Settlements, provide norms and standards for resource efficient sanitation infrastructure for new developments in human settlement areas. 2. The Minister will provide norms and standards: <ul style="list-style-type: none"> · for basic sanitation services to households on private land. · for basic sanitation services to households in informal settlements. · for sanitation services at public institutions. · to protect the social and economic interests of all end-users, especially indigent and vulnerable households and to protect the environment. · for sanitation tariffs. · for appropriate, alternative technologies. · for the operation and maintenance of sanitation systems in all settlement types. 3. Government, civil society, public and private institutions and the public will develop these norms and standards in a cooperative manner, using bottom-up approach which takes into account the needs, expectations and insight of all end-users. 4. All sanitation services norms and standards must be complied with.

NSP policy positions category	Policy position
Position 31: Incentive-Based Regulations of Sanitation Services	<p>1. National regulation of sanitation services will extend to:</p> <ul style="list-style-type: none"> • Norms and standards regulation: monitoring compliance with (and relative performance with respect to) national policies and national minimum norms and standards. These are not only technical standards. • Economic regulation: includes the approval of investment plans and tariffs. • Contract regulation: ensuring that all contracts established between Water Services Authorities and Water Services Providers conform to national regulations. Oversight of the management and enforcement of contracts, including support related to dispute resolution and interventions in terms of the contract. • Incentive-based regulations: encouraging and supporting local government to perform their mandated function of universal access to sanitation services in a hygienic, efficient, effective and sustainable manner.
	2. Linkages between sanitation services regulation and water resources regulation are licensing and regulation of water use and licensing and regulation of wastewater discharge.
	3. An enforcement mechanism to ensure compliance and legislative reform around the Regulations Relating to Compulsory National Standards and Measures to Conserve Water (General Notice 22355 of 8 June 2001) published in terms of section 9 of the Water Services Act, will be developed by the Department of Water and Sanitation.
	4. The Department of Water and Sanitation will promote incentive-based regulation and acknowledging excellence in sanitation management along the entire value chain.
	5. Water Services Authorities are accountable to their citizens for the effective delivery of sanitation services.
	6. WSAs must ensure that sanitation services are provided within its area in conformity with national policies, norms and standards.
	<p>7. Water Services Authorities must regulate all aspects of sanitation services provision locally. More specifically, the scope of regulation extends to:</p> <ul style="list-style-type: none"> • By-laws that set out the general rights, duties and responsibilities of water services providers, intermediaries, water services agents and end-users with respect to sanitation services. Water services authorities need to promulgate and enforce bylaws providing for the regulation of industrial (trade) wastewater (volumes & quality) discharged into municipal systems, package plants, decentralized systems, vacuum tank discharges and spillages into the environment. • Where a water services authority contracts with an external water services provider, the water services authority will regulate the water services provider by contract. Contracts must be consistent with national norms and standards. All contracts are subject to national regulatory oversight. • Water services authority must monitor the performance of all external water services providers within its area of jurisdiction to ensure compliance with national norms and standards and with the contract. • Water services authorities must regulate (in terms of the contract) the investments, tariffs and operating efficiency of local external water services providers (economic regulation).
	<p>8. The overall objective of regulation is to protect end-user and public interests by:</p> <ul style="list-style-type: none"> • ensuring compliance with minimum national norms and standards; • ensuring good performance and the efficient use of resources; and • ensuring good practice.
	9. Regulations for emergency sanitation will be formulated.
	10. The Minister will provide effluent management conditions, regulations, norms and standards.
	11. Regulations for polluter pays principle will be developed and enforced.
Position 32: Regulation through Monitoring and Evaluation and Information System	1. Effective regulation of the sanitation sector must be underpinned by strong compliance monitoring and enforcement capability.
	2. An integrated National Sanitation Information System will be implemented and managed to monitor, report, evaluate and regulate the entire sanitation sector of the country.
	3. The National Information System will build on existing report systems.
	4. The National Information System will be coordinated and aligned with information management systems of DWS, National Treasury, CoGTA and other government agencies.

NSP policy positions category	Policy position
	<p>5. The Water Services National Information System, the following broad categories of monitoring and evaluation will be required from Water Services Authorities and Departments:</p> <ul style="list-style-type: none"> • implementation of delivery programmes to eradicate the sanitation backlog; • adherence to norms and standards in the construction, operation and maintenance of sanitation facilities; • the allocation, application and management of funds; • the involvement of communities, NGOs and CBOs, use of local resources and job creation initiatives; • the impact of sanitation improvement programmes on the health of communities; • involvement of women and other vulnerable groups; and • compliance with the integrated environmental management approach and the environmental impacts of sanitation services. <p>6. The Minister will provide regulations for appropriate sanitation technologies.</p>
Position 33: Enforcement of Sanitation Regulations	<p>1. The Minister, in consultation with CoGTA and SALGA, will develop an effective formal reporting mechanism of the water services function from Local Government, which allows the Minister the means within the legal framework to take corrective steps in case of serious malpractice or negligence affecting effective water resource management in the country.</p> <p>2. The Minister will apply the water use authorisation mechanism to set conditions for waste water management. It will be enforced strictly to ensure appropriate low-resource use sanitation solutions in low, middle and high income settlements.</p> <p>3. A proposed waste discharge charge and a water resource charge based on the “polluter pays” principle will be enforced.</p> <p>4. Appropriate mechanisms will be created to make sure that there is procedural fairness in all allocation decisions and the development of appropriate dispute resolution mechanisms will make sure that the new system meets all the requirements of administrative justice.</p> <p>5. Where a water services authority fails to conform to legislative requirements, DWS must:</p> <ul style="list-style-type: none"> ○ request compliance: if the request failures in achieving WSA compliance, failure to comply can be published (“name and shame”) or DWS (together with National Treasury, CoGTA and provincial government as appropriate) may apply financial pressure on the water services authority through the retention or holding back of capital funds (as contemplated in the Public Finance Management Act and the Division of Revenue Act). ○ Where this fails or in cases where it is deemed serious enough to warrant direct intervention, DWS could intervene (together with National Treasury, CoGTA and provincial government as appropriate). ○ If, despite all efforts, the local authority refuses to comply (or is negligent in compliance), DWS may resort to legal action. <p>6. DWAF will develop an intervention strategy which conforms to the policy</p> <p>7. In line with NEMA, the process of speedily, cheaply and transparently resolving differences or disagreements will be mediation.</p> <p>8. The Minister may appoint an independent panel, based on the conditions that he/she deems necessary, to advice on a dispute/s.</p> <p>9. Where mediation does not resolve the matter, parties may refer the matter to arbitration.</p>

12 CONCLUSION

South Africa was internationally recognised for its progressive and innovative water policies and legislation. It has been more than 20 years since these instruments were developed and implemented, making it an opportune time to review these and amend policy to address future needs and imperative. Policy needs to ensure a successful and sustainable water future in the country. Innovative policy positions were required for the water resource, water supply and sanitation sector of the country to address pressing issues, such as water security, water scarcity, climate change, demand management (reduce; reuse; recycle and recover) and weakness in current policy such as unclear roles and responsibilities, community participation; integrated planning, operation and maintenance of systems and financial efficiency. South Africa could maintain international recognition of its policy, through the development and implementation of innovative and progressive policy positions to address these gaps and challenges. This would require a shift in the focus of policy, while still maintaining core intents, such as universal access and address water services backlogs; Free Basic Services; and water to support economic and household's development in the country. Policy needs to look towards the future and the potential challenges and needs of the sector – policy must be proactive to future needs and not only reactive to current issue.

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