

Water Quality Management Policies and Strategies for South Africa

A Review of the Water Quality Management Institutional Arrangements for South Africa



Water Resource Planning Systems

Water Quality Planning

**WATER QUALITY MANAGEMENT POLICIES AND
STRATEGIES FOR SOUTH AFRICA**

**A REVIEW OF THE WATER QUALITY
MANAGEMENT INSTITUTIONAL
ARRANGEMENTS FOR SOUTH AFRICA**

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DOCUMENT INDEX

Reports as part of this project:

WATER QUALITY MANAGEMENT POLICIES AND STRATEGIES FOR SOUTH AFRICA		
REPORT SERIES	REPORT TITLE	DWS REPORT NUMBER
1. PROJECT REPORTS/SUPPORTING DOCUMENTS		
1.1	Inception Report	P RSA 000/00/21715/1
1.2	Literature Review	
1.2.1	A Review of the Water Quality Management Policies and Strategies for South Africa	P RSA 000/00/21715/2
1.2.2	A Review of the Water Quality Management Institutional Arrangements for South Africa (Inaugural Report*)	P RSA 000/00/21715/3
1.2.3	A Review of the Water Quality Management Instruments in South Africa	P RSA 000/00/21715/4
1.3	Water Quality and Water Quality Management Challenges in South Africa	P RSA 000/00/21715/5
1.4	Water Quality Glossary	P RSA 000/00/21715/6
1.5	Stakeholder Consultation and Communication Strategy	P RSA 000/00/21715/7
1.6	Stakeholder Consultation and Communication Audit Report	P RSA 000/00/21715/8
1.7	Capacity Building Strategy	P RSA 000/00/21715/9
1.8	Capacity Building Audit Report	P RSA 000/00/21715/10
1.9	Technical Close-out Report	P RSA 000/00/21715/11
2. POLICY REPORTS		
2.1	Water Quality Management Policy - Edition 1	P RSA 000/00/21715/12
2.2	Water Quality Management Policy - Edition 2	P RSA 000/00/21715/13
2.3	Summary of Water Quality Management Policy	P RSA 000/00/21715/14
3. STRATEGY REPORTS		
3.1	Integrated Water Quality Management Strategy - Edition 1	P RSA 000/00/21715/15
3.2	Integrated Water Quality Management Strategy - Edition 2	P RSA 000/00/21715/16
3.3	Summary of Integrated Water Quality Management Strategy	P RSA 000/00/21715/17
4. POLICY INTO PRACTICE REPORTS		
4.1	Implementation Plan - Edition 1	P RSA 000/00/21715/18
4.2	Implementation Plan - Edition 2	P RSA 000/00/21715/19
4.3	Monitoring and Evaluation Framework - Edition 1	P RSA 000/00/21715/20
4.4	Water Quality Management in the Department of Water and Sanitation: Organisational Design	P RSA 000/00/21715/21

***This Inaugural Report serves as an initial report, used for discussion purposes, and will be updated during the Project, with the final, Edition 1 Report produced at the end of the Project.**

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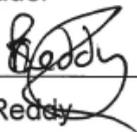
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EXECUTIVE SUMMARY

For many years there has been a considerable amount of effort placed upon developing our understanding of the science behind Water Quality Management (WQM), and this has been critically important in creating the frameworks for how we should think about the governance of the resource. This then guided the shift from only managing via end-of-pipe standards towards a receiving water quality approach, for example. This has in turn guided the development of the various management instruments that are required to support our management initiatives, which in turn has started to influence and shape the various institutional roles and responsibilities.

As with the development of the science behind water quality management, there has been a period of development with regards to the concepts of governance. The importance of Integrated Water Resource Management (IWRM) in policy and legislation has surfaced the importance of governance as a central theme without which implementation may not be effectively realised. Equally important has been the developed understanding that in thinking about water resource management, one can no longer think purely about how we develop a resource to meet an array of demands, but rather we have to think more strategically about how water supports the economy and environment. This requires a more multi-disciplinary approach and is complex in nature.

As a key subset of IWRM, Integrated Water Quality Management (IWQM) requires a connectivity with the management of water quantity and with broader aspects of ecosystem health. With the legal and policy imperatives to give effect to IWRM, this requires of us that we engage with institutions (governmental and public entities etc.) towards cooperative governance and with a range stakeholders and interested and affected partners that provide a supportive base for more collective initiatives.

Over the years the Department has played multiple roles and the national water policy specifically introduced a range of institutional arrangements to shift the Department away from a mode of centralised control towards decentralised management. This enables the Department to move away from a more operational focus towards that of sector leader that provides the policy and oversight.

The NWRS (Edition 2) outlines the approach to see 9 CMAs established and to see the DWS transform to a Department that develops policy and regulates performance. Whilst there is a way to go in this process a number of key steps have been achieved to date towards the establishment of the remaining 7 CMAs.

The challenges of water quality management do not only fall with the water sector and key socio-economic development sectors also have role to play. Therefore, there is a need to explore in more detail the implications of a revised water quality management policy and strategy on the broader regulatory framework.

TABLE OF CONTENTS

Page No

DOCUMENT INDEX	I
APPROVAL	III
ACKNOWLEDGEMENTS.....	VI
EXECUTIVE SUMMARY	IX
TABLE OF CONTENTS.....	X
LIST OF FIGURES	XII
LIST OF TABLES	XII
LIST OF ACRONYMS	XIV
1. INTRODUCTION	1
1.1 Background.....	1
1.2 Context for the Report	1
1.3 Purpose of the Report	2
1.4 Outline of the Report	2
2. PERSPECTIVES ON GOVERNANCE.....	3
2.1 Governance as a ‘Wicked’ Problem.....	5
2.2 Towards Decentralised Governance	7
3. INSTITUTIONAL ARRANGEMENTS FOR WQM IN SA.....	11
3.1 Introduction	11
3.2 Integrated water quality management.....	12
3.2.1 Phases of IWQM.....	12
3.3 Institutional arrangements for Integrated Water Quality Management.....	14
3.3.1 DWS.....	15
3.3.2 Process to decentralise to CMAs	17
3.3.3 CMAs.....	17
3.3.4 Functional evolution of the CMA	18
3.3.5 Water Boards and Regional Water Utilities	21
3.3.6 Other Government Departments.....	23
3.3.7 Local Government	23
3.4 Risks in the Decentralisation Process.....	24
3.4.1 Complexity of the project	24
3.4.2 Spheres of Government.....	24
3.4.3 Stakeholder acceptability	24
3.4.4 Delegation of powers and functions	24
3.4.5 Financial management.....	25
3.4.6 Climate change and natural disasters	25
3.4.7 Human Resources	25
3.4.8 Organisational Technologies	25
3.4.9 Risk management.....	26

4.	INSTITUTIONAL ROLES	27
5.	CONCLUSIONS	31
6.	REFERENCES	33
	ANNEXURE 1.....	35

LIST OF FIGURES

Figure 1:	Key dimensions of a governance framework	4
Figure 2:	The importance of formal/informal institutions and state/non-state actors within various governance models.....	9
Figure 3:	Four phased integrated water quality management process.....	13
Figure 4:	DWS Operating structure	15
Figure 5:	Generic CMA structure.....	21
Figure 6:	Government departs that impact upon water quality (grey) and are impacted by poor water quality (pink)	23
Figure 7:	Key institutional relationships related to water quality management	27

LIST OF TABLES

Table 1:	Definition of governance by organisation.....	3
Table 2:	Nature of wicked problems.....	5
Table 3:	Key principles to enable governance.....	6

LIST OF ACRONYMS

Abbreviation	Meaning
CMA	Catchment Management Agency
CMS	Catchment Management Strategy
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
IWQM	Integrated Water Quality Management
IWRM	Integrated Water Resource Management
NWA	National Water Act (Act 36 of 1998)
NWRS	National Water Resource Strategy
RQO	Resource Quality Objective
SWPN	Strategic Water Partners Network
WARMS	Water Authorisation and Regulation Management System
WDCS	Waste Discharge Charge System
WQM	Water Quality Management
WMA	Water Management Area
WRM	Water Resource Management
WUA	Water User Association

1. INTRODUCTION

1.1 Background

All too often when undertaking studies that involve highly technical dimensions of water resource management the focus tends to fall to those central technical aspects. For many years there has been a considerable amount of effort placed upon developing our understanding of the science behind water quality management, and this has been critically important in creating the frameworks for how we should think about the governance of the resource. This then guided the shift from only managing via end-of-pipe standards towards a receiving water quality approach, for example. This has in turn guided the development of the various management instruments that are required to support our management initiatives, which in turn has started to influence and shape the various institutional roles and responsibilities.

The falling of these various “dominoes” has been important and as a result a more holistic picture of the entire governance framework is starting to emerge. This is not to say that we have all the answers and that there is no room for improvement. In fact, it is the opposite that holds true and is a critically important part of the adaptive management regime that South Africa utilises. Hence, we need to implement in order to try, test and learn, and by so doing to improve what we do in future.

As with the development of the science behind water quality management, there has been a period of development with regards to the concepts of governance. The importance of Integrated Water Resource Management (IWRM) in policy and legislation has surfaced the importance of governance as a central theme without which implementation may not be effectively realised. Equally important has been the developed understanding that in thinking about water resource management, one can no longer think purely about how we develop a resource to meet an array of demands, but rather we have to think more strategically about how water supports the economy and environment. This requires a more multi-disciplinary approach and is complex in nature.

1.2 Context for the Report

As a water scarce country, with considerable variability in both the quantity and quality of resources there is significant pressure to manage water resources in a sustainable manner. The vagaries of climate change together with the important need to develop our economy places added emphasis on our governance regime.

Since, the promulgation of the National Water Act (Act36 of 1998) (NWA) there has been a slow, but progressive shift in the governance arrangements which has largely been focused around the establishment of Catchment Management Agencies (CMAs) and Water User Associations (WUAs). Importantly, as these institutions are established there has been a progressive transfer of relevant powers and duties over time and with developed capacity.

As emphasised earlier, there has been much learned during the various institutional processes and this has required some changes in approach as time has progressed. Whilst,

there have been views of frustration at the time taken to make institutional and governance adjustments, many will understand that initiatives that have such a sector-wide governance impact normally take time and number of iterations before stabilising. This means that such institutional processes are inherently fuzzy, and somewhat messy during certain stages, but this is normal and can ultimately result in better outcomes due to the richness of the discovery period. The stages of uncertainty can have impacts upon staff, and staff morale, as well create some confusion as to roles and responsibilities. Hence, during these intensive institutional restructuring periods there can be accusations of institutions not performing adequately, or even failing to perform.

A key consideration, during the discussion on roles and responsibilities is the growing recognition that the Department of Water and Sanitation (DWS) and its various public entities cannot undertake all that is required to ensure that we manage resources sustainably. The development of the UN CEO Mandate work on collective action has been a front-runner in recognising the role that corporate business can play in sharing water risks. This has been instructive and will provide direction for future partnerships in order to jointly manage water resources.

1.3 Purpose of the Report

This part of the Literature Review feeds into the broader Component 2 of the project that provides an assessment of the current situation and provides insights that guides the development of the policy, strategy and implementation plan. In particular, whilst this report provides inputs into some of the policy considerations (because we want policy to be pragmatic), it most importantly provides input into the strategy and implementation plan as vehicles towards delivery of the policy.

1.4 Outline of the Report

This report briefly looks at the various governance challenges that exist within the water resource management (WRM) context and then looks at the institutional arrangements that underpin this governance regime. The report outlines some of the key institutional challenges and opportunities that exist noting that there is still some state of flux with regard to DWS and its various public entities.

2. PERSPECTIVES ON GOVERNANCE

The interpretation of what constitutes governance is still evolving internationally and continues to be a topic of discussion. This is due in part to the fact that circumstances vary considerably as well as the fact that societal norms and standards also vary and influences how we interpret what we mean by the term.

Since the 1990s, with emergence of IWRM, many institutions and organisations have developed their own definitions of governance. When examining these definitions one sees how differing dimensions are distilled out. So for example, some definitions focus upon the exercise of power and authority, whilst others focus in on processes and decision-making. Others focus upon the rules or laws and institutions, whilst other definitions indicate the understanding that governance and management should be as interchangeable. It is also interesting to note that some definitions describe what governance should be rather than defining what it is. **Table 1** provides an overview of the definitions.

The fact of the matter is that there has been much attention given to this because of its relative importance.

Table 1: Definition of governance by organisation

Definition	Organisation
Governance refers to the institutional arrangements which shape actors' decisions and behaviour, including the exercise of authority within groups or organizations (such as firms or nations).	Adaptive governance
Governance is the exercise of political, economic and administrative authority in the management of a country's affairs at all levels. It comprises mechanisms, processes, and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations, and mediate their differences.	United Nations Development Programme (UNDP)
Governance means the process of decision-making and the process by which decisions are implemented, or not implemented.	UNESCAP
Governance means rules, processes and behavior that affect the way in which powers are exercised at the European level, particularly with regard to openness, participation, accountability, effectiveness and coherence.	Commission of the European Communities
Governance consists of the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them.	The World Bank
Governance is about the institutional environment in which citizens interact among themselves and with government agencies/officials.	Asian Development Bank (ADB)
Governance encompasses the values, rules, institutions, and processes through which people and organizations attempt to work towards common objectives, make decisions, generate authority and legitimacy, and exercise power.	Canadian International Development Agency (CIDA)
Governance is the process whereby societies or organizations make important decisions, determine whom they involve and how they render account.	Institute on Governance
Governance is the process or method by which society is governed.	International Institute for Environment and Development (IIED)
Governance is the process through which governments, sometimes but not always in association with the private sector and civil society, perform their functions.	WRC (L Jonker)

Rather than being focused on the wording of a definition, what is more valuable is to understand the various dimensions that are required as part of a broad governance framework. These are reflected in **Figure 1**, below.

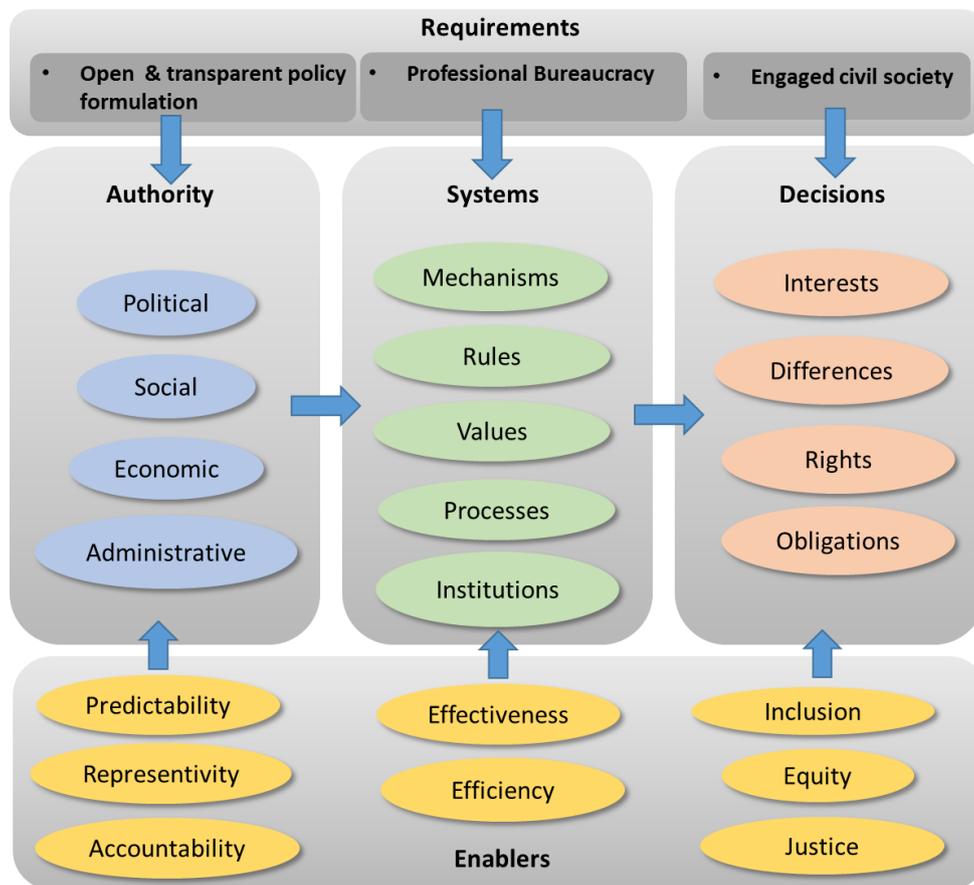


Figure 1: Key dimensions of a governance framework

This is in many ways self-explanatory, however, there are still some issues that require clarity. For example, many still confuse governance with government. These should not be conflated. In thinking about the governance framework for water quality management it is not only government's responsibility to give effect to this governance framework, private business and civil society all have a key role to play.

To this end the concept of cooperative governance becomes equally important. The South African Constitution requires that all spheres of government and organs of state work cooperatively in the national interest. Due to the complexity of water governance this typically requires the engagement of national, provincial and local government, noting that they have differing lenses on the water sector. The challenges that have been experienced in terms of fostering cooperative governance have been many and require redress if we are to manage water resources sustainably. These challenges include:

- capacity and requisite skill sets;

- stretched financial resources;
- unclear institutional mandates; and
- ineffective regulatory authority to ensure actions are taken.

Similarly the notions of good governance are not the same from context to context. Many of the institutions that have defined governance over the years have pointed out that it is dynamic and evolves with time.

2.1 Governance as a ‘Wicked’ Problem

Governance addresses issues where it is often unclear where responsibilities lie and where traditionally no one sphere of government, agency, institution, or group of individuals has sole jurisdictional responsibility, such that problem solving capacity is widely dispersed and few actors or decision-makers can accomplish their mission alone. In a pluralistic society, therefore, natural resource management policy problems are what Rittel and Webber (1973) refer to as ‘wicked’; namely, problems that ‘defy efforts to delineate their boundaries and to identify their causes, and thus expose their problematic nature’. The nature of ‘wicked’ problems is tabulated below.

Table 2: Nature of wicked problems

Inherent properties	Involves	Requires coordination and cooperation across the horizontal and vertical dimensions of policy and institutional systems and structures incl:
cannot be definitively described	large and multifunctional spatial areas	horizontally across administrative boundaries
are persistent, complex, non-linear and irreversible and involve long time scales	substantial institutional and organisational fragmentation	horizontally between agencies and departments within the same level of government when management components of a single natural system is fragmented between them;
socially constructed and often disputed	require enduring and resourced collective responses across interdependent public, private and community sectors	horizontally between government and non-government stakeholders who affect, or are affected by, natural resource management; and
no optimal solutions or solutions with definitive and objective answers.	poor understanding of roles and responsibilities and mandates	vertically when responsibility for management of the processes of an ecological or spatial natural unit rests with different levels of government and/or private actors.
levy enormous costs and have broad consequences (social, economic, environmental)	no centralised system to channel funds for action and mitigation	vertical and horizontal accountability between users and regulatory bodies.

It is important to consider in more detail some core principles for governance of natural resources. In the post-apartheid South African context, the principles of participation,

legitimacy, fairness and equity are particularly important from a transformation perspective, while transparency, accountability, coherency, responsiveness, integration, predictability, direction and performance are important from the perspective of creating well-functioning institutions and processes (systems) for governance of resources. The table below elaborates on each of the principles.

Table 3: Key principles to enable governance

Principle	Elements of the Principle
Participation	All citizens, both men and women, should have a voice – directly or through intermediate organizations representing their interests – throughout processes of policy and decision-making. Broad participation hinges upon national and local governments following an inclusive approach.
Transparency	Information should flow freely within a society. The various processes and decisions should be transparent and open for scrutiny by the public. Processes, institutions and information are clear and directly accessible.
Equity	All groups in society, both men and women, should have opportunities to improve their well-being.
Accountability	Governments, the private sector and civil society organizations should be accountable to the public or the interests they are representing.
Coherency	The increasing complexity of natural resource issues, appropriate policies and actions must be taken into account so that they become coherent, consistent and easily understood.
Responsiveness	Institutions and processes should serve all stakeholders and respond efficiently to changes in demand and preferences, or other new circumstances. Needs of all stakeholders are taken into account.
Integrative	Natural resources governance should enhance and promote integrated and holistic approaches.
Ethical considerations	Natural Resources governance has to be based on the ethical principles of the society in which it functions, for example, by respecting traditional water/land rights and preventing corruption.
Predictability	There should be predictability of the political and administrative governance system, in that all role players know the rules and accept that these will be applied consistently.
Legitimacy	Integrity and commitment: Rigorous, fair and thorough. Authority and representivity: There should be a democratically mandated authority. Legitimacy: The authority operates within its mandate.
Direction	Strategic vision: Broad and long term perspectives on good governance.

Principle	Elements of the Principle
Performance	<p>Effectiveness and efficiency: Needs are met while making best use of resources.</p> <p>Capacities: All stakeholders have capacities to engage in governance.</p> <p>Financial sustainability: Processes are cognisant of resources available.</p> <p>Subsidiarity: Power and decisions rest at the lowest appropriate level.</p> <p>Resilience: The governance regime is flexible and adaptive.</p>
Fairness	<p>Equity: Costs and benefits are considered and equitably shared.</p> <p>Rule of law: Legal frameworks are fair and enforced impartially. Human Rights and cultural practices are respected</p> <p>Do no harm: Local livelihoods are not adversely affected.</p> <p>Effective and appropriate conflict resolution: There is recourse to impartial judgment in the case of conflict.</p> <p>Access to justice: Legal assistance is available to all stakeholders.</p>

Noting the difficulty, of dealing with such complex ‘wicked’ problems it is clear that new approaches need to support the development of governance frameworks that encourage and support adaptation as our social and natural systems inevitably continue to evolve and change. The need to bring decision-making processes closer to users has resonance when one considers this complex array of principles.

2.2 Towards Decentralised Governance

The complexity of managing water quality will increasingly require adaptive approaches as the pressures upon the resource mount. In reflecting upon how governance frameworks could or should adjust, it is useful to reflect upon the changes in governance frameworks that have taken place to date.

Up to the 1970’s governance regimes were dominated by hierarchical, “top-down” governance models that were largely supportive of large commercial agriculture and industrialised development. Although, with respect to the management of water resources, there were progressive developments in our understanding of hydrology, this period was known as being the golden age of dam construction. Governance approaches were strongly focused on command and control approaches based around the issuing of permits or licenses. As noted by Holling and Meffe (1996) such command and control approaches assume that we can manage against well-defined limits that are understood and linear in nature. However, as Holling and Meffe (1996) and Tollefson et al., (2012) rightly note, our world and our natural resources are indeed complex, non-linear and often poorly understood and so the outcomes are often problematic on a socio-economic or environmental scale.

In the 1990's there was realisation that changes were needed in our governance models to address the deepening environmental problems and, in some instances, natural resource crashes. In order to give effect to the principles of IWRM, there were numerous policy and legislative revisions to support more integrated approaches, and which most significantly resulted in adjusted governance models towards decentralisation (Anderson and Ostrum, 2008).

The South African National Water Policy (Department of Water Affairs and Forestry (DWAF), 1997) and the NWA are aimed at giving effect to IWRM. Therefore, the policy and act call for the establishment of CMAs and WUAs, for a range of planning instruments that are focused upon joint and integrated planning, for sustainable development of the resource, for a range of approaches to support and give effect to societal redress, and uses public participation as a cornerstone to all processes. However, the implementation of this policy and law has been slow and extremely problematic. Anderson and Ostrum (2008) provide a range of other examples that equally reflect mixed outcomes from the drive to decentralise.

It has been argued, earlier in this report, that the challenges faced with the existing governance model in South Africa are that there is limited accountability, that regulatory frameworks are ineffective and that there is still insufficient engagement with society (civil and corporate) in the governance of water resources. These find resonance with the findings of other studies such as Neef (2009), Lankford and Hepworth (2010), Pahl-Wostl, Lebel, Knieper and Nikitina (2012) and Tollefson *et al.*, (2012).

Lebel, Anderies, Campbell, Folke, Hatfield-Dodds, Hughes and Wilson (2006) interestingly note that often the challenge with decentralisation is that whilst local institutions are accountable to a central authority (and so provide information up), the accountability back down to the local institutions is not reciprocated causing a governance disjuncture. The resultant lack of information at local levels is problematic. In terms of regulation, Anderson and Ostrum (2008) indicate that often not enough control is handed over to local institutions and users to enable improved resource management. It is also noted that often stakeholder engagement does not move into the realm of inclusive decision making, with stakeholders often just being informed (*ibid*).

The drive towards more a decentralised model has taken place slowly, but studies have shown that such institutional processes do indeed require the time and iterative adjustments (Blomquist, Dinar and Kemper, 2005). There is renewed process to establish CMAs and the ring-fencing of Proto-CMA staff, within each of the Provincial Offices has been a significant step forward. Most significantly, the realisation within the water sector of the value that can be added from stewardship styled partnerships will define the governance model for the near future. These partnerships recognise that collective action can bring about a shared ownership of the various water risks and can have significant impact upon the governance of specific problems. The success of the Strategic Water Partners Network has been a case in point.

Interestingly, these partnerships do allow stakeholders to more fluidly enter and exit the governance regime as needed. This helps to prevent governance spaces from becoming too cluttered, and to have focused attention when and where needed, in a more adaptive manner. These approaches start to shift the way we view governance from being monocentric more towards polycentric approaches.

Polycentricism is social system of many decision centres having limited and autonomous prerogatives and operating under an overarching set of rules (Aligica and Tarko, 2012).

The overriding feature that makes polycentric models attractive to managing natural resources in an uncertain future is that they have the ability to self-correct and adapt (Pahl-Wostl, 2009; Aligica and Tarko, 2012). If we note that ultimately no perfect governance system exists (Anderson and Ostrum, 2008) and as such they attempt to address the need to collectively tackle complex resource challenges, then the ability to act swiftly from lessons learned becomes imperative. With the uncertainties of climate change, economic and social stability, as well as political unrest linked to service delivery, it becomes absolutely essential to have a governance model that is adaptive in a way that typical hierarchical centralised government cannot be. Of course, much of this is related to the degree of formality and the importance of state actors within the governance system (see **Figure 2**).

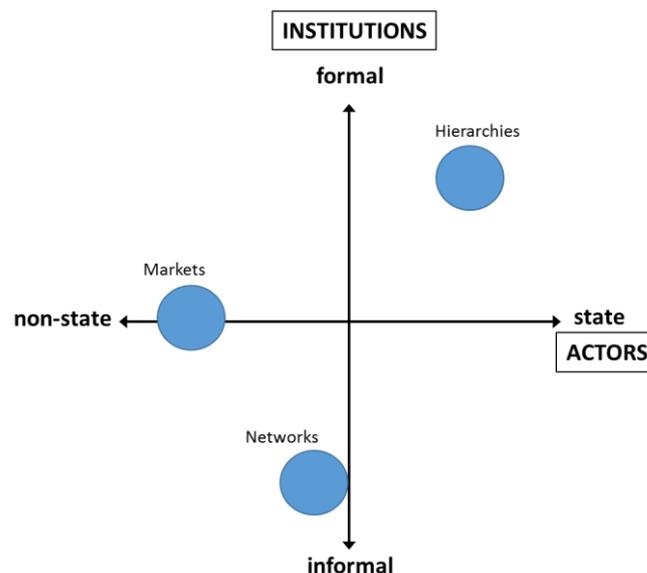


Figure 2: The importance of formal/informal institutions and state/non-state actors within various governance models (Pahl-Wostl, 2009)

This starts to indicate the importance of partnerships and less formalised structures such as catchment forums, that can adapt timeously to the issues at hand. The exchange of information becomes critical to ensuring the success of such polycentric systems. This information exchange enables shared learning, which is not only a key part of the day to day functioning of the system, due to its complexity, but equally is invaluable in providing the ready knowledge to be able to adapt to changing circumstances

3. INSTITUTIONAL ARRANGEMENTS FOR WQM IN SA

3.1 Introduction

The complexities of managing water resources are multiple and requires a well-articulated and effectively implemented institutional framework. The NWA is founded upon the principles of IWRM which requires that we manage our resources sustainably (to support current and future needs), equitably (to support redress and upliftment) and optimally (to maximise the benefit that is obtained). This requires a range of institutions and organisations to develop the policy frameworks and the strategic intent, to operationalise implementation plans, as well as to monitor and oversee via a range of administrative and regulatory systems.

Since the promulgation of the NWA, there have been a number of iterative processes to address both the institutional frameworks, as articulated in the policy and legislation, and organisational aspects to improve the way in which processes and procedures are supported and driven. Hence, we have experienced efforts to affect the institutional frameworks through the establishment of CMAs and an Institutional Reforms and Realignment programme that suggested shifts in the overall framework to better serve the needs of the country. Whilst, organisationally we have experienced changes in the structure of the Department to affect improvements in the way that strategy is driven through structures and systems.

It is important to note that the restructuring mantra that “form follows function follows strategy” is indeed valid, and that whilst the strategy with regards to water resource management remains in some form of flux this will continue to create uncertainties at both institutional and organisational levels. To date the National Water Policy for South Africa (DWA, 1997) largely remains relevant with some adjustments made during the policy review process of 2013. From a water quality management perspective the revisions in policy do have some impacts upon how we may consider institutional and organisational aspects, although as has been realised through the last 15 years, the real impact of adjustments in policy and strategy may only be realised with time and iterative testing of approaches.

From an institutional perspective, this is not unusual. Blomquist, Dinar and Kemper (2005) note that in order to embed basin scale institutional arrangements that there is indeed a need to utilise some form of trial and error in order to find the most appropriate institutional solutions. This certainly applies to organisational aspects too, as it takes time for management actions to be realised as observable effects, from which we can make further improvements (Blomquist *et al.*, 2005). For those who have worked in, or with, civil service, it is well understood that with new policy and legislation begins a somewhat lengthy process of trying to determine how best to give effect to these instruments.

Rightly, and in support of this institutional reality, the NWA allows for a phased and progressive establishment of water management institutions, particularly CMAs and WUAs. It should be expected, therefore, that this phased and progressive institutional development process will result in periodic shifts and adjustments to functional responsibilities of the DWS, and hence, resulting in shifts in the structure.

In order to understand institutional and organisational aspects we firstly need to look at the broad function.

3.2 Integrated water quality management

As a key subset of IWRM, Integrated Water Quality Management (IWQM) requires a connectivity with the management of water quantity and with broader aspects of ecosystem health. With the legal and policy imperatives to give effect to IWRM, this requires of us that we engage with institutions (governmental and public entities etc.) towards cooperative governance and with a range stakeholders and interested and affected partners that provide a supportive base for more collective initiatives.

Whilst there are aspects of IWQM that require more collaborative and cooperatives approaches that potentially reap rewards from collective action, there is also the need for more regulatory approaches some of which is more “command and control” in nature. This is, therefore, institutionally complex and requires of us to fully understand the various roles and responsibilities of institutions and stakeholders across the scope of IWQM noting that these shift across the phases of IWQM.

3.2.1 Phases of IWQM

The 2006 DWA project towards the resource directed management of water quality provides a useful description of the phases that management of the resource require (**Figure 3**). These phases are as follows.

- *Plan:* resource objectives and catchment strategies (including plans) are developed, based on catchment assessment and visioning processes.
- *Do / Implement:* effect is given to the strategies through source directed controls and related instruments, according to a clear decision making hierarchy.
- *Check:* water resources are monitored and the effects of the strategies (i.e. success or failure) are assessed.
- *Act:* objectives, strategies and decisions are reviewed and adapted according to the needs and conditions within the Water Management Area (WMA).

Planning takes place over a range of scales from national though to local and need to take into consideration the following issues:

- interconnectivity with other associated planning instruments,

- the various challenges that exist due to misalignment between water management area and provincial and municipal boundaries,
- differences in planning cycles and objectives, and
- even differences in the types of information that is required in undertaking assessment studies.

The visioning process is critical across the range of planning instruments and does require some alignment when one considers plans across differing scales. This in itself requires institutional interactions to develop this alignment. The determination of the resource class, the Reserve and the Resource Quality Objectives (RQOs) are foundational to the planning process and provide, together with the vision, direction in terms of our management intent. This intent is developed with an understanding of the possible future scenarios that may occur and which enables us to not plan with a “blindfold” over our eyes. These are all captured in differing planning instruments, depending on the scale at which we are planning. Fundamentally important, is the development of the Catchment Management Strategy (CMS) which is developed by each CMA. There is a legal requirement for alignment between each CMS and the National Water Resource Strategy (NWRS).

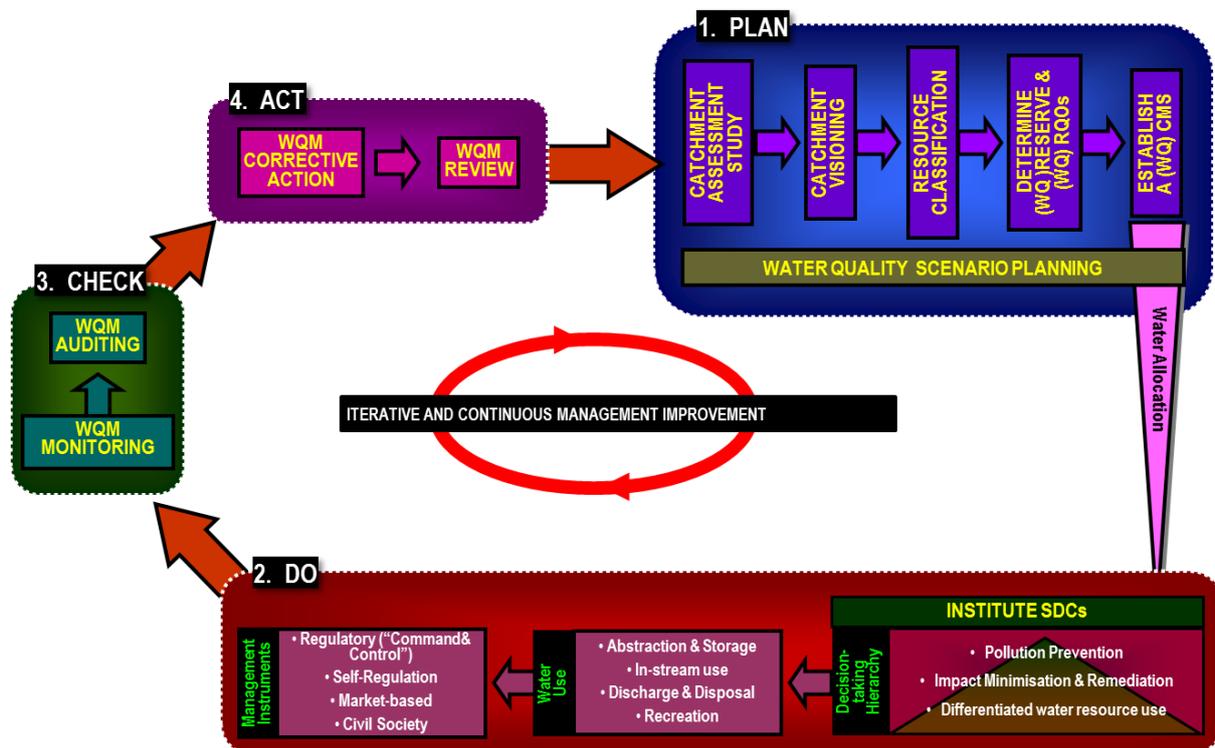


Figure 3: Four phased integrated water quality management process (DWA, 2006).

Abbreviations: WQ = Water Quality, WQM = Water Quality Management, RQOs = Resource Quality Objectives, RWQOs = Resource Water Quality Objectives, SMOs = Source Management Objectives, (WQ) CMS = WQM Component of the Catchment Management Strategy, SDCs = Source Directed Controls)

The plans (NWRS, CMS and potentially sub-catchment plans) are given effect through the implementation (or “Do”) phase of the cycle. Water use authorisations are informed by a hierarchy, that is informed by the precautionary principle and that aims to prevent certain pollution, to minimise impacts of other pollutants and accepts that we can allow a certain level of water use. These are in effect Source Directed Controls and is supported by a range of management instruments.

The check process requires a range of monitoring dimensions from the actual monitoring of the efficacy of our planning instruments through to the monitoring of the resource itself and compliance monitoring to ascertain adherence to license conditions.

The final part of the process is to “Act” upon the findings of the monitoring process and to make adjustments in approach towards corrective actions.

This is an adaptive management cycle and does require differing institutional actors to play roles at each stage of the process. Without clarity as to roles and responsibilities, this process can become disjointed, if not drawn out and lengthy. This ultimately has implications on socio-economic development as well as environmental protection, and the need to find a balance between them. At the same time, we are also starting to understand that by being more adaptive in terms of enabling key partnerships (through forums or through Public Private Partnerships) we can enable a more innovative and adaptive management approach.

3.3 Institutional arrangements for Integrated Water Quality Management

In reflecting upon institutional arrangements it is important to distinguish between the roles of “custodianship” as laid out in the national water policy (DWAF, 1997) and the need to develop policy and regulation to support national objectives, from the role of implementing policy and regulation and putting in place the various systems and procedures to support this implementation.

Over the years the Department has played multiple roles and the national water policy specifically introduced a range of institutional arrangements to shift the Department away from a mode of centralised control towards decentralised management. This enables the Department to move away from a more operational focus towards that of sector leader that provides the rules of the game and oversees how the game is played.

Of course, the challenge has always been that this is not like switching lights on and off, but rather requires this phased and progressive approach as we shift some functions away from the DWS to CMAs, and which then requires movement of staff and the requisite systems to support CMA functioning.

3.3.1 Department of Water and Sanitation

The roles and responsibilities of DWS will increasingly focus upon policy and regulation as the CMAs are established. As the sector leader, it is important for DWS to focus on sector coordination as well as an overarching oversight role in terms of the various public entities that account to the Minister.

The operating structure of the Department (**Figure 4**) reflects these core functional areas as:

- policy, legislation and strategy;
- information;
- planning;
- regulation; and
- external institutions.

The National Water Resources Infrastructure function is a ring fenced function supporting resource development.

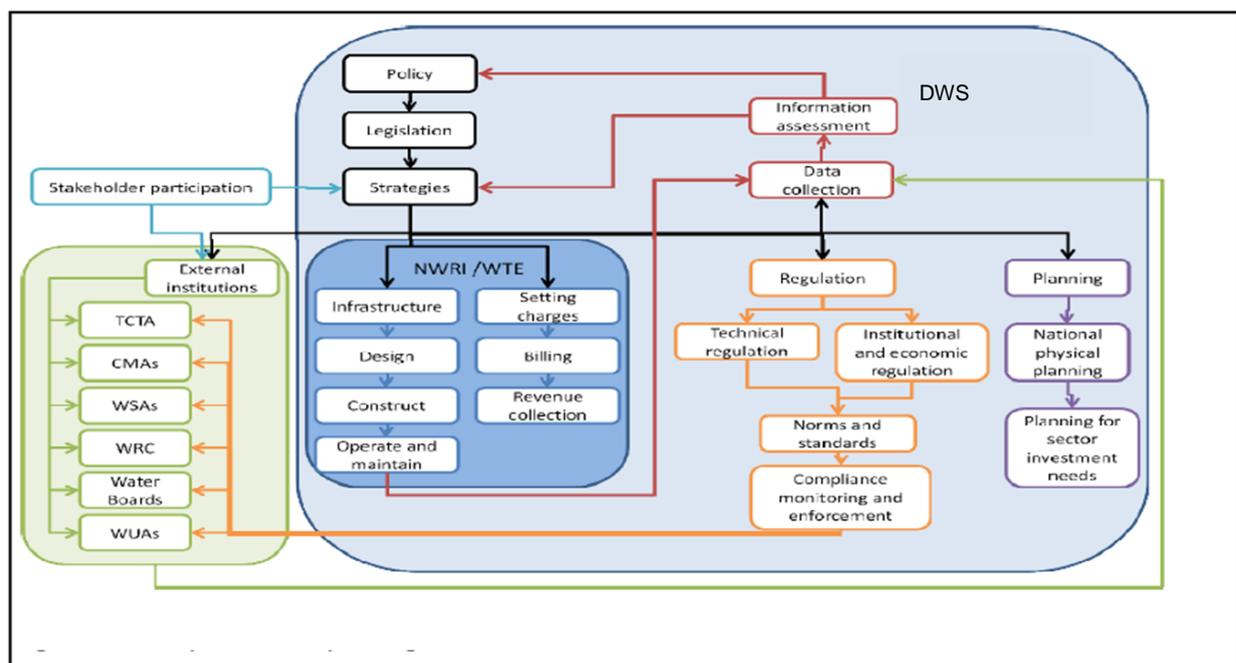


Figure 4: DWS Operating structure

These functions have been translated into an organisational structure. The Department undertook a significant restructuring process in 2003/4 in order to improve its ability to implement the NWA. Since then there have been adjustments as we continue to “do-check-act”. This adaptive management approach is useful in terms of enabling continuous improvement, but that does come at the price of some uncertainty that can be disruptive to staff.

What is important to note is that there are a considerable range of functions that are spread across the Branch structures that do impact upon the WQM function. These include the following functions.

- **Strategy coordination:** promotes the coherent development of WRM policies and strategies.
- **Integrated water planning:** ensures national water availability (including of adequate quality) through integrated planning.
- **Water ecosystems management:** develops and implements measures to protect the environment and includes both Resource Directed Measures and Source Directed Controls.
- **Water use authorisation:** enables and coordinates the authorisation of water use across the country.
- **Water monitoring and information:** develops, coordinates and maintains national water monitoring and information systems.
- **Compliance monitoring:** ensures compliance to water authorisations across all sectors.
- **Enforcement:** compels those that transgress to comply with legislation.
- **Institutional oversight:** ensures an enabling environment for the establishment, governance and oversight of local, regional and national institutions.

The Branch: Provincial Management is responsible for the Provincial Offices and coordination and support functions that provides a bridge between the various Head Office line functions and the Provincial Offices. Core functional areas for the WQM function are as provided below.

- **Water use administration:** coordinates water use licensing in all provincial offices.
- **Provincial Offices:** ensures that the implementation of policy, strategies, regulations and programmes by DWS and other institutions.
- **Monitoring and Evaluation:** manages the monitoring and evaluation reporting from the provinces.
- **Proto-CMAs:** ring-fenced unit that will act as the CMA until the CMA is fully established

3.3.2 Process to decentralise to CMAs

The establishment of CMAs has taken far longer than originally surmised. This is to some extent because of the complexities of undertaking such an institutional restructuring process for a national Department were underestimated. This is indeed complex and has implications in terms of financial aspects, in terms of operational aspects and continuity in this regard, as well implications for staff. The process has therefore been iterative to allow for correction as well as phased to enable progressive and constructive development.

At this stage, the Provincial Offices have established ring-fenced Proto-CMAs which will act as the CMA prior to establishment and which will transfer into the CMA to provide the new institution with an immediate and experienced capacity base.

Line functions at Head Office are currently performing their functions as they normally would, however, once the CMA is established and the CMA begins its progressive development, there will be a phased delegation of powers and duties over time and as they develop capacity.

3.3.3 CMAs

Chapter 7 of the NWA makes provision for the progressive establishment of CMAs and states the purpose of establishing a CMA is to assign or delegate water resource management to the regional or catchment level and to involve local communities in the decision-making processes.

Broadly, the initial role of a CMA is articulated in the Act as:- i) managing water resources in a WMA, ii) co-ordinating the functions of other institutions involved in water related matters and iii) involving local communities in water resource management. Further functions are then to be assigned or delegated to the CMA as it evolves.

The first stage following the establishment of the CMA is about creating **legitimacy** within the WMA, during which relationships are developed between the CMA, other water management institutions (WMI) and stakeholders in the WMA. The CMA undertakes the critical role of advising on, and coordinating water resource management, and developing the CMS. This stage is about building relationships, and establishing credibility and legitimacy within the WMA. The CMA assumes a number of initial functions, as defined in Section 80 of the NWA:

- to investigate and advise interested persons on the protection, use, development, conservation, management and control of the water resources in its water management area;
- to develop a catchment management strategy;
- to co-ordinate the related activities of water users and of the water management institutions within its water management area;
- to promote the co-ordination of its implementation with the implementation of any applicable development plan established in terms of the Water Services Act, 1997 (Act No. 108 of 1997) (WSA); and

- to promote community participation in the protection, use, development, conservation, management and control of the water resources in its water management area.

In order to perform these functions, the CMA has some inherent powers under the NWA:

- the powers of a natural person of full capacity (Section 79(1));
- a range of powers related to planning and conducting the routine administrative and organisational business of the CMA (Schedule 4); and
- powers to make and recover charges in terms of the Minister's pricing strategy for water use charges to cover their costs in executing (at least) the initial functions (Section 84(1)).

Following the legitimisation of the CMA, a phase of **consolidation** is entered into during which the CMA is focused on building capacity and strengthening the organisation to undertake its water resource management functions. This implies strengthening of systems within the organisation, including fiduciary management and governance of the CMA, and the establishment of stable information and implementation systems. Additional water use management functions are delegated to the CMA. Proto-CMA staff, possibly seconded to the CMA during the legitimisation phase, are now transferred to the CMA as a coherent business unit, with the requisite infrastructure and budget. The CMA (led by the Governing Board and CEO) should compile its comprehensive business plan. This must also link to the DWS timeframes for establishing water use charges (under the Pricing Strategy).

The final phase during the evolution of the CMA is the delegation or assignment of **responsible authority functions** as contemplated in sections 73 and 63 of the National Water Act. The majority of water resource management and implementation roles and responsibilities are undertaken by the CMA, which assumes the role of Responsible Authority. The relationship between the CMA and DWS is well established, and the systems and processes within and between these institutions are stable. Under Section 73(1)(a) of the NWA, the Minister can assign the powers and duties of a responsible authority to a CMA. The most significant of these are the powers and duties related to authorisation of water use and the issuing, review and amendment of licences. In Section 63 of the NWA, there is provision for the delegation of powers and duties vested in the Minister, rather than assignment. However, the Minister is prohibited from delegating certain powers under Section 63(2). In addition to providing the legal basis to the CMA performing its functions in its WMA, the NWA also allows the CMA to perform functions outside its WMA, under the condition that this does not impinge on the execution of its functions or detrimentally affect other water management institutions.

3.3.4 Functional evolution of the CMA

The functions that the CMA will perform fall into three categories and are informed by the NWA, as described below:

- initial functions as described under the National Water Act (S80);

- inherent functions conferred on a CMA under the National Water Act; and
- other functions that may be delegated or assigned to the CMA by the Minister.

Some functions, such as water resources planning and monitoring, will be split between DWS and the CMA, and clarity is needed on which elements will be performed by DWS and which by CMAs to prevent gaps and overlaps.

This section describes briefly the powers and functions of a CMA when it has achieved full functionality. It also sets out those functions that will remain with DWS.

There are some functions on which the Minister has discretion with regard to delegation, and there are certain functions which the Act prohibits the Minister from delegating. For example, the Minister may not delegate the power to make regulations, authorise a water management institution (WMI) to expropriate land, appoint a member of the Water Tribunal or the governing board of a CMA.

The policy position underpinning this functional analysis is that CMAs will, in due course, perform most of water resources management functions, and that DWS will only retain those strategic and national level functions. Thus, in determining whether a function should be delegated to a CMA, the following issues should be considered.

- The spatial scale at which the function must be performed, in particular national or regional multi-WMA functions should not be delegated, while WMA or local functions should be.
- The significance of the potential impact of the function.
- The capacity to perform the function, which would include a plan to build that capacity for the delegation, rather than the need to demonstrate existing capacity.
- The principle that a water management institution cannot regulate or audit itself.

Based on these principles, and the identification of those functions that a CMA would not perform, the water resources management functions may be delegated and performed by a fully functional CMA are outlined below

Develop Policy & Strategy

The formulation of policy and legislation will remain a DWS function, to which a CMA would provide input. At the strategy level, a CMA is responsible for the development of a catchment management strategy, as well as financial and business planning for the organisation.

DWS will continue to:

- develop legislation, methodology and guidelines to enable WRM;
- develop the national water resources strategy, the pricing strategy; and institutional roles and responsibilities; and

- determine the water resources class, as well as the Reserve and RQOs in resources of national significance

In some cases, DWS may delegate the determination of the Reserve and resource quality objectives (RQOs) to the CMA for those resources that are not considered to be of national significance.

Regulate Water Use

A fully functional CMA will perform most of the responsible authority functions in relation to authorising and enforcing water use, and setting and collecting water use charges. However, DWS will retain authorisation and allocation of water for strategic purposes, inter-WMA transfers and where the CMA is the proposed water user.

The CMA will now be responsible for water use registration, validation and verification. DWS will, however, maintain the national WARMS database and CMAs will have to provide the information to DWS for this.

Establish, Support and Regulate Institutions

DWS will remain responsible for the establishment, support and regulation of CMAs, WUAs that manage government waterworks or have government guaranteed loans, and any national level bodies such as the Trans Caledon Tunnel Authority (TCTA) and the Water Research Commission (WRC). DWS will also be responsible for inter-WMA coordination and conflict resolution.

A CMA may establish, regulate and support water management institutions that have been specified in its catchment management strategy, such as water user associations, as long as these do not manage government water schemes or have government guaranteed loans. The CMA is obliged to coordinate water related activities of institutions and ensure community participation in WRM within the WMA.

Monitoring and planning

DWS will remain responsible for the development of the national information monitoring system, and for monitoring of water resources at those points defined as part of a national monitoring system. This is necessary to maintain national level monitoring and assessment of the state of water resources. The actual monitoring may be outsourced or delegated to a CMA.

Each CMA will be responsible for any additional monitoring of water resources that is necessary for the implementation of the catchment management strategy in their water management area and for assessment and evaluation based on this monitoring.

DWS will remain responsible for national water resources planning, including the determination of allocable water per water management area. The CMA will plan for the allocation and management of water within the allocable water determined by DWS. The CMA may prepare reconciliation scenarios for its area of jurisdiction, but will need to coordinate this carefully with DWS to avoid duplication.

The CMA will be responsible for the water resource rehabilitation, emergency interventions and disaster management. The latter entails being responsible for issuing flood warnings within the WMA, with DWS issuing flood warnings with inter-WMA impacts or implications. Similarly, drought rules will be determined and implemented by the CMA.

In considering the functional dimensions, a generic organisational structure for a CMA is as reflected in **Figure 5** below.

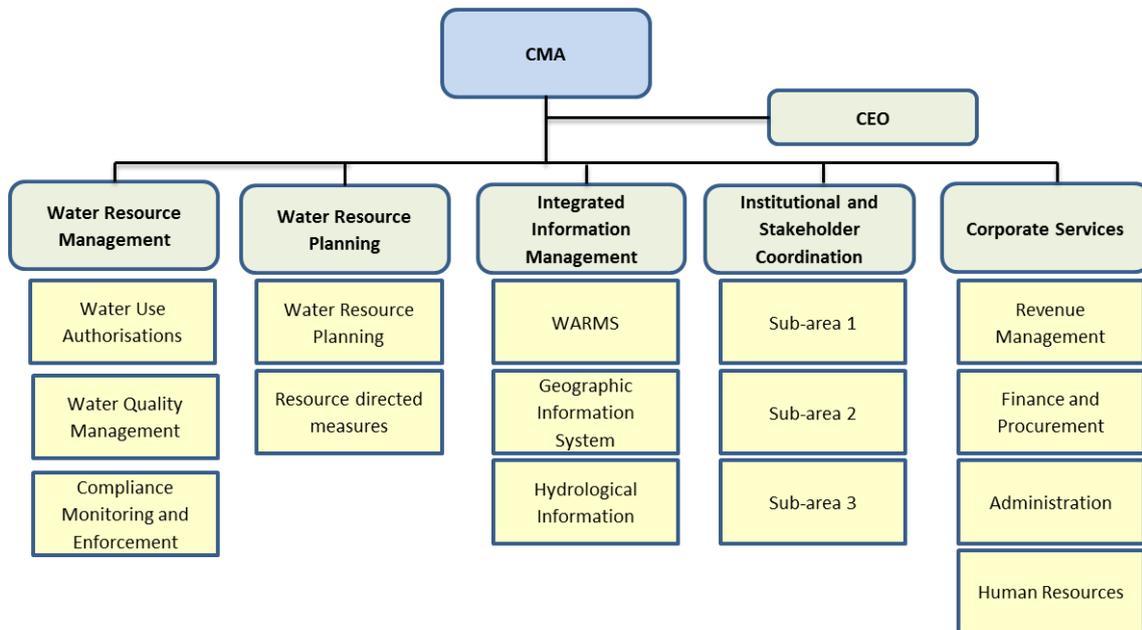


Figure 5: Generic CMA structure

It is important to note the split between the planning functions from the more regulatory functions under water resource management.

3.3.5 Water Boards and Regional Water Utilities

Water Boards core business is the sale of bulk water to municipalities. Interestingly from a water quality perspective, the primary activities does include a mandate to treat wastewater, but only Umgeni Water owns and operates a wastewater treatment works.

Water boards may (and do) carry out secondary activities. The WSA does stipulate that these secondary activities may not jeopardise a water board’s primary function. Water boards may undertake secondary activities in terms of contracts with municipalities both inside and outside their designated service areas. Similarly, they could enter into contractual arrangements with CMAs to support in terms of water resource management activities.

To date some of the Water Boards have provided support through undertaking monitoring of catchments as well as through the active engagement the catchment management forums. These activities have been valuable to the sector in that they have provided additional capacity where the existing capacity (at DWS Provincial Offices) had been stretched.

The Institutional Reforms and Realignment (IRR) programme noted the disparities between Water Boards and recognised that there is a need to provide institutional support to those are less well capacitated. Some Water Boards service areas that have a weak revenue base that really prevents the institution from expanding and improving its levels of service. Therefore, the IRR programme noted four primary drivers for change:

- The weak performance in the management of water supply and sanitation services by many municipalities compromises the extension of services to those without services, and results in (or threatens to result in) unreliable and unsafe services.
- There are some gaps in the existing institutional and financial framework related to responsibilities for water resources development at the local and regional level, and for regional bulk services outside of the existing water board service areas.
- There is merit to an approach which creates greater alignment and integration between water resources and water services infrastructure through the vertical integration of systems.
- There have been (and currently exist) governance and performance-related problems for some of the existing water boards.

As a result, the IRR programme has put forward the concept of Regional Water Utilities (RWU) and this has been reflected in the recent National Water Policy Review.

- The **primary activity** of regional water utilities will be to manage *regional infrastructure* including financing, project development and on going operations and maintenance. Regional Water Utilities can also engage in secondary and tertiary activities. Legislation will need to be changed to state that such regional infrastructure will not be a local government responsibility and will fall under the responsibility of the Minister of Water and Environmental Affairs.
- **Secondary activities** are defined as development and management of local infrastructure that would, under normal circumstances, be the responsibility of water services authorities, in the case of potable water, and water user associations, in the case of non-potable water.
- **Tertiary activities** are defined as:
 - Structured interventions to build capacity in low capacity municipalities, with management contracts being one means of achieving this. This intervention is motivated firstly by the developmental objective of getting water to poor households in rural areas and, secondly, by the fact that bulk water supply arrangements cannot be successful if sound retail arrangements are not in place.
 - Ad hoc interventions in support of water services authorities, building on what is happening currently, where RWUs support municipalities with a range of

services such as O&M contracts for parts of infrastructure systems, scientific services, advice etc.

- Services to CMAs to assist them with sampling, testing, meter reading, billing etc.
- Services to DWS.

These will be done on the basis of payment for services (cost recovery) and competitive bidding.

3.3.6 Other Government Departments

As the development of the revised WQM policy progresses it will be increasingly important to engage with the various Departments that impact upon or are impacted by water quality issues (**Figure 6**).

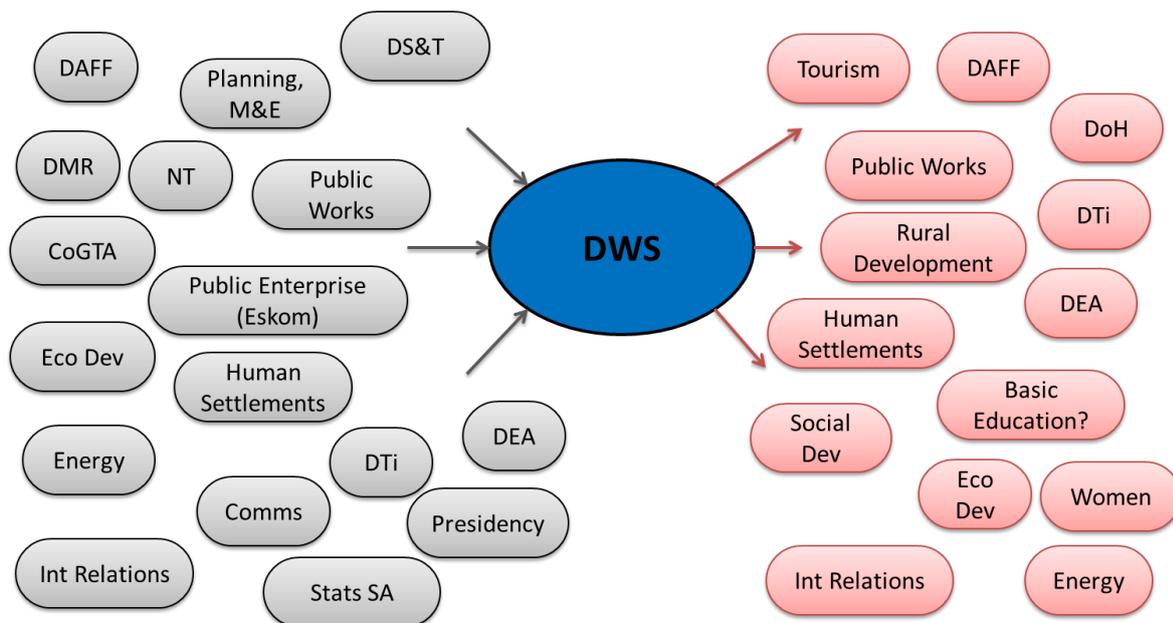


Figure 6: Government departs that impact upon water quality (grey) and are impacted by poor water quality (pink)

Noting that the water quality challenges of the country cannot be managed by the DWS alone, the need for these various Departments to engage on how they will support an improved management regime becomes critical.

3.3.7 Local Government

The challenges of local government are well documented and often can be distilled to financial and technical capacity. Nonetheless, the municipal environment has a significant impact upon the water quality, as well as broader environmental matters. It is therefore of some importance that not only is local government engaged in the development of the water

quality management policy and strategies, but that they become part of the solution in addressing these issues.

3.4 Risks in the Decentralisation Process

Given an understanding of the nature of the initiative and the purpose of establishment of the CMAs, it is useful to articulate some of the key implementation risks. Managing these risks becomes a central function of the CMA and of DWS in its oversight and regulatory role.

3.4.1 Complexity of the project

Many of the water management areas are complex and are already under water stress. Ongoing management of the resource will require balancing the needs of highly vocal and well-resourced sectors with poor, marginalized and water deprived communities. Management will require a high level of technical skills and understanding, as well as social and economic analysis capacity, and the ability to drive transformation in the water sector in the catchment with a particular focus on redress and meeting the needs of poor communities. These are technically challenging issues for a new institution and it will take time to develop legitimacy.

3.4.2 Spheres of Government

Both Local and Provincial Government have a key role to play in ensuring effective water management in water management areas. The boundaries of water management areas do not coincide with the political boundaries of provincial and local government, and the CMA will need to expend considerable effort to ensure effective relationships with relevant local authorities and provincial departments, and to ensure a proper understanding of the role, boundaries and purpose of the CMA. Buy-in, coordination and cooperation between the three spheres of government are pre-requisites for achieving optimal water management.

3.4.3 Stakeholder acceptability

The CMA establishment puts forward a new “business model” based on a public entity for water resources management. In addition to government, it is key that this new model is accepted by stakeholders, both current water users and would-be water users across the area of jurisdiction. This takes time and effort, and ultimately budget.

3.4.4 Delegation of powers and functions

The service delivery relates to the rate at which water resources management functions are delegated to the CMA. The risk is that the capacity may not be in place to implement these delegations, and so the transfer and recruitment of staff and building of capacity must be done in a way that aligns with the need to implement delegations.

However, there is a further risk that the delegation of the final functions to the CMA may take too long, particularly the delegation of the power to authorise water use and for billing and

revenue collection. An agreement should be put in place between DWS and the CMAs regarding the timeframes and requirements for the final delegation of functions to each CMA.

3.4.5 Financial management

There are a number of dimensions associated with the financial viability risk. The most critical include the inability to collect water use charges as a result of either poor legitimacy of the CMA, inadequate systems and capability on the part of DWS prior to this function being delegated, or the CMA after delegation. The willingness to pay by stakeholders is a critical risk. The issue of affordability is also pertinent, in relation to user groups such as resource poor farmers. Poor revenue collection will mean that the operating costs of the CMA will need to be recovered from a small base of users and as such there is the potential for higher charges that could worsen the cycle of affordability and debt collection.

3.4.6 Climate change and natural disasters

Climate change and disasters such as droughts and floods are significant risks that could impact on the water availability and safety within a water management area. In particular the effect of climate change could lead to changing water use patterns, reduced availability and allocation of the resource, and lower ability-to-pay amongst users as enterprises become marginal. Mitigation of this risk through augmentation is limited and accordingly this risk should be quantified and considered carefully in the strategic planning of the Agency.

3.4.7 Human Resources

The human resources risk is fairly critical and has a major impact on the CMA's ability to undertake its functions effectively. There are a number of sub risks associated with the human resources risk area. These include taking transfer of de-motivated, demoralised staff from DWS, the inability to attract and develop appropriately skilled staff and the inability to retain these staff once they have been developed. A key concern is that the market for appropriately skilled WRM staff will become more competitive as other CMAs are established.

3.4.8 Organisational Technologies

The technology risks relate to the integrity of the data to be handed over by DWS. Data of poor integrity may impact on the CMA's ability to undertake its WRM functions effectively, on its financial viability and on the credibility of the CMA. Other concerns around organisational technology relate to the adoption of DWS systems, by the CMA, and the suitability or appropriateness of this technology to the CMA, given its smaller scale.

3.4.9 Risk management

It is critical that the CMA builds its relationship with relevant institutions and stakeholder bodies in the water management area. Strong stakeholder relationships, participatory planning and management, and strong governance will go a long way to reducing a number of the risks raised above. Ultimately, the management of risk will be dependent on strong governance arrangements for the CMA. The role of DWS in regulating and overseeing the performance of the CMA will also be important in this regard. DWS has considerable experience in the oversight of 15 Water Boards, the WRC and the TCTA, and will draw on this experience to ensure effective oversight and regulation of the CMA.

4. INSTITUTIONAL ROLES

Whilst we have argued that the CMAs will utilise catchment forums and partnerships with corporate business (and others) to foster a more engaged catchment management regime, there will still be a requirement to engage with the various spheres of government. This is important in that there are a range of activities that fall under the ambit of these government departments that are critical to the management of water quality. These are reflected in **Figure 7**, below.

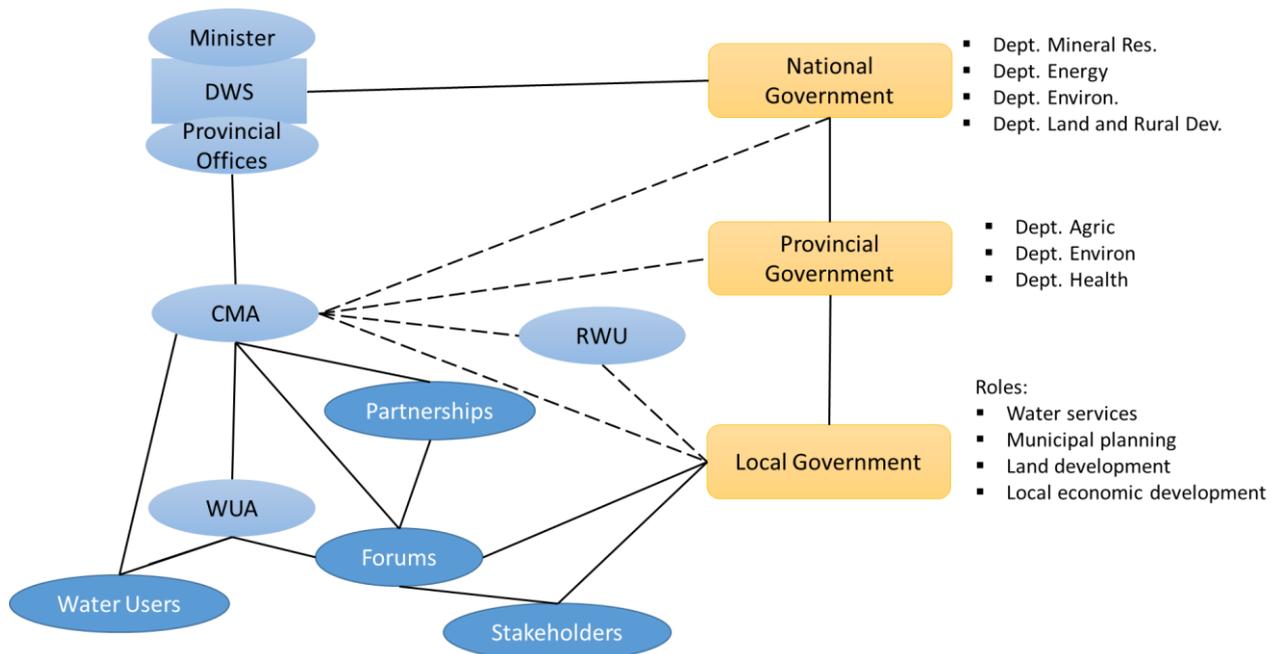


Figure 7: Key institutional relationships related to water quality management (after DWA, 2006)

The relationships between national, provincial and local government departments are indeed complex with the DWS and CMAs having limited authority and with much resting on the requirement of the Constitution to foster cooperative government. However, when the CMA embarks on key water resource management activities these departments will understand the benefits to themselves in creating alignment. These relationships are largely structured around:

- resource directed measures and the setting of the Class, Reserve and RQOs,
- water resource planning and the development of such instruments as the Catchment Management Strategy,
- water use authorisations and the requisite compliance monitoring and enforcement, and

- information management activities that provide the necessary data and information to enable water resource management.

The roles and relationship will transition as the CMAs are established and develop capacity. These four functional focal points will be the responsibility of DWS until such time that the CMA takes up these functions broadly against the following time frames (Annexure 1 provides more detail).

- Year 1-2: Development of the Catchment Management Strategy.
- Year 3-4: Strengthened information management.
- Year 5 onwards: Water use authorisations and some Resource Directed Measures.

The setting of the class is a consultative process and requires inputs from national, provincial and local government, as well as other interested and affected parties such as water users and forum representatives. At this stage these processes are being managed by the DWS largely through the Proto-CMAs.

The development of the Catchment Management Strategy is a CMA function as part of the initial functions that the CMA takes up on establishment. The NWA stipulates that the strategy must take into consideration any national or regional plans that are relevant as well as any development plan that falls under the ambit of the WSA. In effect this means that the strategy must take into account the Integrated Development Plans, the Water Services Development Plan and the Provincial Growth and Development Strategy. With this in mind it will be important to engage national, provincial and local government actors together with water users, forum members, and civil society. The development of the Catchment Management Strategy is a fundamental piece of work for the CMA, and the development of its legitimacy.

Although the water use authorisation function is understood as a responsible authority function, and would only be delegated after 5 years, the CMA will start facilitating the licensing process once it has developed its Catchment Management Strategy. This will support the CMAs growing competency in the information management arena and so management of systems such as the Water Authorisation and Regulation Management System (WARMS) will become important during this phase. Even while the DWS is signing off on authorisations, the CMA will play a key role in undertaking the consultation processes that are required. This will require engagement with users as well as other Government actors such as Department of Environmental Affairs, Department of Mineral Resources, Provincial Departments of Agriculture and so forth. This will require engagement with their own legislative requirements as laid out in laws such as the Environmental Conservation Act (Act 73 of 1989), the Conservation of Agricultural Resources Act (Act 43 of 1983) and the National Environmental Management Act (Act 107 of 1998). This will require cooperation with other key enforcement units, as well as the compliance monitoring and enforcement units in DWS. This will also require the establishment of some alignment in the issuing of directives

with other management and control mechanisms in the water management area. Close cooperation with other national and provincial Departments will be important.

Monitoring takes place at various levels and the actors vary accordingly. In terms of institutional monitoring perspectives, with a focus on institutional compliance, the DWS will play a key role in monitoring the CMAs, whilst the CMAs have role to monitor the WUAs and forums. The CMAs will need to monitor water users and as such the CMA will engage with local government, WUAs, forums, partnerships and individual users.

In terms of national strategies regarding sustainability development and climate adaptation strategies, the Department of Environment Affairs will be a key actor, that both DWS and the CMA will engage. The DWS has developed a Water Sector Climate Adaptation Strategy that will need to interface with the countries National Adaptation Strategy. Engagement with DEA will be critically important.

5. CONCLUSIONS

Since the promulgation of the NWA there has been a gradual shift in the institutional frameworks towards the establishment of CMAs. Although the process was far slower than has been mapped out by the Team for the Implementation of the NWA in 2002, which had estimated that all 19 CMAs would be established by 2012, much has been learned and in fact the complexity of this institutional transformation was significantly underestimated.

The NWRS (Edition 2) outlines the approach to see 9 CMAs established and to see the DWS transform to a Department that develops policy and regulates performance. Whilst there is a way to go in this process a number of key steps have been achieved:

- The DWS has restructured to establish a branch focused upon policy and planning, as well as a branch focused upon regulations.
- The Provincial Offices have formally established the Proto-CMAs with an Acting Chief Executive Officer. These are ring-fenced for transfer to the CMAs once established.
- The Department has developed business cases for a number of the CMAs in order to obtain approval from National Treasury and Department of Public Service Administration to establish these public entities and to have them listed in the schedules of the Public Finance Management Act (Act 1 of 1999).
- The two functional CMAs have now been delegated responsible authority functions and this is proving a valuable testing ground to assess where the challenges lie. The initial delegations that were provided to the CMAs were not sufficient and it was realised that the CMA could not perform some of its inherent functions with additional delegations. These issues have been resolved and lessons have been learned. Financial challenges exist and improvements in the efficiency of collection of water use charges need to be realised. The Waste Discharge Charge System (WDCS) needs to be implemented. Systems challenges are being addressed and were historically focused upon access to the WARMS system. Newer systems are now being designed with the CMAs in mind. Capacity and skills remain a challenge as the structure and focus of the Proto-CMAs is not the same as that of the CMAs. Possibly more needs to be done in this regard.

The challenges of water quality management do not only fall with the water sector and key socio-economic development sectors also have role to play. Therefore, there is a need to explore in more detail the implications of a revised water quality management policy on the broader regulatory framework. This will be undertaken in the next work period and the findings of this strategic assessment will be captured, from an institutional perspective, in Edition 2 of this report. In addition, once the draft policy and strategy are developed, this report will be revised to capture the various nuances of that policy and strategy.

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ANNEXURE 1

INITIAL, INHERENT OR DELEGATED / ASSIGNED FUNCTIONS OF CMAS

Powers and functions under the National Water Act to be performed by CMAs as initial, inherent or delegated/assigned functions		
SCHEDULE	FUNCTIONS	Time Frame
INITIAL AND INHERENT FUNCTIONS		
INITIAL FUNCTIONS		
Chapter 2: Water Management Strategies		
Part 2:S8	Establishment of Catchment Management Strategy	On Establishment of the CMA
NWA, Chapter 7; S 80 (a)	<p>1. Investigate and advise</p> <ul style="list-style-type: none"> • Authorization of water use <ul style="list-style-type: none"> ○ Receive license applications and advise users (ito CMS) ○ Advise users/institutions on implications of CMS for water use ○ Advise DWA on license applications or WMA authorization issues ○ Advise DWA and users/stakeholders on demand management, compulsory licensing process and on restrictions or directives on water use • WR Studies and investigation <ul style="list-style-type: none"> ○ Conduct and commission studies on water resources • Planning <ul style="list-style-type: none"> ○ Advise DWA on WMA issues in NWRS and national processes ○ Advise users/institutions on implications of CMS/NWRS for water resource development • Resource directed measures <ul style="list-style-type: none"> ○ Advise DWA on classification of resources (&RQO) ○ Advise DWA on reserve determination ○ Advise users/institutions on implications of CMS/RDM • Information <ul style="list-style-type: none"> ○ Provide available WR and other information to stakeholders ○ Requires maintenance of information systems (based on those in DWA) • Disaster management <ul style="list-style-type: none"> ○ Advise DWA and other institutions on the management of floods, droughts and pollution incidents. 	On Establishment of the CMA
NWA, Chapter 7; S 80 (b)	<p>2. Catchment Management Strategy</p> <p>The CMA is responsible for the development of a CMS. The following will form part of the CMS:</p> <ul style="list-style-type: none"> • Conduct, commission, participate in investigations and studies to support management decisions for strategy development <ul style="list-style-type: none"> ○ Requires maintenance of information systems aligned to DWA • Develop management strategies <ul style="list-style-type: none"> ○ WRM/reconciliation <ul style="list-style-type: none"> ▪ Allocation plans 	

	<ul style="list-style-type: none"> ▪ WQ management plans <ul style="list-style-type: none"> ○ Institutional development ○ Participation and empowerment ○ Information management and WMA monitoring • Stakeholder consultation strategy <ul style="list-style-type: none"> ○ Participation structures ○ Formal consultation (gazetting, etc.) 	
NWA, Chapter 7; S 80 (c)	<p>3. Institutional Co-ordination</p> <ul style="list-style-type: none"> • Coordinate activities of water users according to CMS • Foster cooperative governance (particularly local government) • Coordinate WMI (particularly WUA, Water Boards ito WRM) • Institutional development of stakeholders 	On Establishment of the CMA
NWA, Chapter 7; S 80 (d)	<p>4. Coordinate CMS implementation with WSDP implementation</p> <ul style="list-style-type: none"> • Coordinate and align CMS and WSDP development • Cooperative governance with LG water services, in terms of WS-WRM interaction and WSDP implementation 	On Establishment of the CMA
NWA, Chapter 7; S 80 (e)	<p>5. Stakeholder Participation</p> <ul style="list-style-type: none"> • Establish and manage structures to enable stakeholder participation • Consult with stakeholders about WRM decisions • Promote awareness and empower stakeholders to participate 	On Establishment of the CMA
INHERENT FUNCTIONS OF THE CMA UNDER THE NWA		
S 15.	<p>Giving effect to any determination of a class of a water resources and the resource quality objectives</p> <p><i>This is premised on the CMA having the powers to take any action that will impact on the class of a resource</i></p>	On Establishment of the CMA
S 18	<p>A CMA must give effect to the Reserve as determined in terms of this Part when exercising any power or performing any duty in terms of this Act</p> <p><i>This is premised on the CMA having the powers to take any action that will impact on the class of a reserve</i></p>	
S 19	Prevention and remedying effects of pollution	On Establishment of the CMA
S20 (4) (d)	The CMA may give verbal or written instructions to a responsible person on measures to be taken regarding an emergency incident. A verbal directive must be confirmed in writing within 14 days.	On Establishment of the CMA
S20 (6) – (9):	The CMA may take remedial action and claim for the costs of that remedial action.	On Establishment of the CMA
S25(3):	Preparation of an annual report containing details of transfers of water entitlements under S25 (1) or (2)	On Establishment of the CMA
S57(2):	Application of pricing strategy: making of charges within a specific water management area and payable directly to the CMA	On Establishment of the CMA
S79:	General powers and duties of CMAs	On Establishment of the CMA
S82(2):	Recommendation by members of the governing board of members to be appointed as chairperson and deputy chairperson	On Establishment of the CMA

S82(5):	Establishment of committees, including an executive committee and consultative bodies	On Establishment of the CMA
S84(1):	Funding of CMAs: A CMA may raise any funds required by it for the purpose of exercising any of its powers and carrying out any of its duties in terms of this Act.	On Establishment of the CMA
S85:	Documents relating to litigation: A CMA must provide to the Director General copies of all pleadings, affidavits and other documents in possession of the CMA relating to any proceedings instituted against the CMA	On Establishment of the CMA
S86	Delegation of powers by CMA	On Establishment of the CMA
S124	Appointment of authorised person	On Establishment of the CMA
S135	Ownership of waterworks on land belonging to another	On Establishment of the CMA
S136:	Transfer of personal servitudes	On Establishment of the CMA
S145(1):	Duty to make information available to the public	
S155:	Interdict or other order by High Court – CMA may apply to the High Court for an interdict against a person who has contravened the Act	On Establishment of the CMA
S159:	Effect of delegation: Delegation of a power does not prevent the exercise of that power by the person who made the delegation; delegation may be made subject to conditions;	On Establishment of the CMA
SCHEDULE 4 OF NWA MANAGEMENT AND PLANNING OF WATER MANAGEMENT INSTITUTIONS		
Part 1: Governing Board		
Schedule 4(1)	Functions and powers of governing board	On Establishment of the CMA
Schedule 4(3)	Appointment of CEO by Board	On Establishment of the CMA
Schedule 4(3)	Removal of CEO by Board	On Establishment of the CMA
Schedule 4(9)	Convening meetings of the Board	On Establishment of the CMA
Schedule 4(10)	Notices of meetings.	On Establishment of the CMA
Schedule 4(15)	Minutes of Board meetings	On Establishment of the CMA
Schedule	Participation in meetings	On Establishment

4(16)		of the CMA
Schedule 4(17)	Resolutions without meeting	On Establishment of the CMA
Schedule 4(18):	Execution of documents	On Establishment of the CMA
Schedule 4(19):	Appointment of committees by the Board	On Establishment of the CMA
Schedule 4(20):	Power to regulate its own proceedings subject to Part 3 of Schedule 4	On Establishment of the CMA
Part 4: Institutional Planning		
Schedule 4(2)	Preparation of business plans by the Board	On Establishment of the CMA
Schedule 4(2)	Submission of business plan to Minister	On Establishment of the CMA
Schedule 4(25)(3)	Board to consult with Minister and revise business plan according to changes agreed between it and the Minister	On Establishment of the CMA
Schedule 4(26):	Board to inform Minister of significant events that might prevent or materially affect achievement of the objectives of the institution	On Establishment of the CMA
Part 6: Records and reporting		
Schedule 4(32):	Board must ensure proper financial records and accountability	On Establishment of the CMA
Schedule 4(33):	Preparation and submission of annual report to Minister and tabling in Parliament	On Establishment of the CMA
Schedule 6: Water Tribunal		
Part 2: Lodging and hearing of appeals and applications		
Schedule 6(5)(3):	A CMA against whose decision or offer an appeal or application is lodged must within a reasonable time - (a) send to the Tribunal all documents relating to the matter, together with the reasons for its decision; and (b) allow the appellant or applicant and every party opposing the appeal or application to make copies of the documents and reasons.	On Establishment of the CMA
Function of CMA to be assigned or delegated by Minister		
Chapter 3 Protection of Water resources		
Part 2: Classification of water resources and resource quality objectives		
S13	Determination of reserve and resource quality objectives for those resources that do not have a high protection class or are not of national significance	Fully functional CMA within 5 years of establishment
Part 3: The Reserve		
S16	16, In some cases, DWA may delegate the determination of the Reserve in	Fully functional

	those resources that do not have a high protection class (eg. Class I).	CMA within 5 years of establishment
Chapter 4: Use of Water		
S22(3)	<p>Once the CMA has been delegated the responsible authority functions in relation to authorising water use is may use S22(3) to dispense with the requirement for a licence if it is satisfied that the purpose of this Act will be met by the grant of a license, permit or other authorization under any other law.</p> <p><i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorization function</i></p>	Fully functional CMA within 5 years of establishment
S22(3)	<p>Once the CM A is the responsible authority is may choose to combine licence requirements into a single licence requirement with other government departments.</p> <p><i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i></p>	Fully functional CMA within 5 years of establishment
S22(4):	<p>a responsible authority may promote arrangements with other organs of state to combine their respective licence requirements into a single licence requirement</p> <p><i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i></p>	Fully functional CMA within 5 years of establishment
S22(5):	<p>A responsible authority may, subject to section 17, authorise the use of water before -</p> <ul style="list-style-type: none"> (a) a national water resource strategy has been established; (b) a catchment management strategy in respect of the water resource in question has been established; (c) a classification system for water resources has been established; (d) the class and resource quality objectives for the water resource in question have been determined; or (e) the Reserve for the water resource in question has been finally determined. <p><i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i></p>	Fully functional CMA within 5 years of establishment
S24	Licences for use of water found underground on property of another person	Fully functional CMA
S(25):	<p>Transfer of water use authorisations</p> <p><i>On condition that the transfer takes place within national regulations and within the boundaries of the CMA</i></p>	After CMS has been developed within 3years of establishment
S30	<p>A responsible authority may, if it is necessary for the protection of the water resource or property, require the applicant to give security in respect of any obligation or potential obligation arising from a licence to be issued under this Act.</p> <p><i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i></p>	Fully functional CMA

S35	:Verification of existing water uses <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	Fully functional CMA within 5 years of establishment
Part 4: Stream flow reduction activities		
S36(2):	The Minister may, by notice in the Gazette, in relation to a particular area specified in that notice, declare any activity (including the cultivation of any particular crop or other vegetation) to be a stream flow reduction activity if that activity is likely to reduce the availability of water in a watercourse to the Reserve, to meet international obligations, or to other water users significantly.	After CMS has been developed within 3years of establishment
Part 5: Controlled activities		
S38	Declaration of certain activities as controlled activities <i>Within the boundaries of the WMA only</i>	After CMS has been developed within 3years of establishment
Part 6: General Authorisations		
S39	: General authorisations to use water <i>Within the WMA boundaries only</i>	After CMS has been developed within 3years of establishment
Part 7: Individual applications for licences		
S40(3):	A responsible authority may charge a reasonable fee for processing a license application which may be waived in deserving cases <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	Fully functional CMA within 5 years of establishment
S40(4):	A responsible authority may decline to consider a licence application for the use of water to which the applicant is already entitled by way of an existing lawful water use or under a general authorisation. <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	Fully functional CMA within 5 years of establishment
S41	S41 Procedure for licence applications: <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	Fully functional CMA within 5 years of establishment
S42:	Reasons for decisions <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	Fully functional CMA within 5 years of establishment
Part 8: Compulsory licences for water use in respect of specific users		
S43	Compulsory licence applications <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	Fully functional CMA within 5 years of establishment

S44	Late applications <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	Fully functional CMA within 5 years of establishment
S45	Proposed allocation schedules <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	After CMS has been developed within 3years of establishment
S46	Preliminary allocation schedules <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	After CMS has been developed within 3years of establishment
S47	Final allocation schedule <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	After CMS has been developed within 3years of establishment
Part 9: Review and renewal of licences, and amendment and substitution of conditions of licences		
S49	Review and amendment of licences <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	Fully functional CMA within 5 years of establishment
S50	Formal amendment of licences <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	Fully functional CMA within 5 years of establishment
S51(1):	Successors in title <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	Fully functional CMA within 5 years of establishment
S52 (2), (3), (4):	Procedure for earlier renewal or amendment of licences <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	Fully functional CMA within 5 years of establishment
Part 10: Contravention of or failure to comply with authorisations		
S52	Rectification of contraventions <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorization function</i>	Fully functional CMA within 5 years of establishment
S54	Suspension or withdrawal of entitlements to use water <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	Fully functional CMA within 5 years of establishment
S55	Surrender of licence <i>This function does not need to be delegated to a CMA but is automatic along with the delegation of the water use authorisation function</i>	Fully functional CMA within 5 years of establishment
Chapter 5: Financial provisions		

S59(3)(b):	Restriction of the supply of water to the water user from a waterwork or the restriction or suspension of the authorisation to use water until charges have been paid <i>For charges made under S57(2)</i>	After CMS has been developed within 3years of establishment
S60(2):	issuing of a certificate stating the amount of unpaid water charges and any interest due <i>For charges made under S57(2)</i>	After CMS has been developed within 3years of establishment
Part 2: Financial assistance		
Chapter 6: General powers and duties of Minister and Director General		
Part 1: Delegations, directives, expropriation, condonation and additional powers		
S63(3)	Delegation of a delegated power and function to another person where the delegation by the Minister allows this	After CMS has been developed within 3years of establishment
S64:	Expropriation of property <i>Where authorised by the Minister in writing</i>	Fully functional CMA within 5 years of establishment
S65:	Expropriation for rehabilitation and other remedial work <i>For functions that fall under the CMA</i>	Fully functional CMA within 5 years of establishment
S66:	Condonation of failure to comply with time period <i>For functions falling under the CMA</i>	After CMS has been developed within 3years of establishment
S67:	Dispensing with certain requirements of the Act <i>Where this has been authorised under S67(1)(c)</i>	After CMS has been developed within 3years of establishment
S68:	Intervention in litigation	In the first two years of the CMA's establishment
Part 3: Powers relating to catchment management agencies		
Chapter 8: Water User Associations		
S92	Procedure for establishment of water use associations <i>Where the WUA does not have government owned infrastructure or government guaranteed loans</i>	In the first two years of the CMA's establishment
S95	Directives to water user associations <i>Where the WUA does not have government owned infrastructure or government guaranteed loans</i>	In the first two years of the CMA's establishment
S96	: Disestablishment of water user association	In the first two

	<i>Where the WUA does not have government owned infrastructure or government guaranteed loans</i>	years of the CMA's establishment
S97(1)(b); (4) S97	Winding up affairs of disestablishment water user association <i>Where the WUA does not have government owned infrastructure or government guaranteed loans</i>	In the first two years of the CMA's establishment
Chapter 11: Government Water Works		
S109	Acquisition, construction, alteration, repair, operation and control of government waterworks <i>In relation to all government waterworks pertaining to monitoring infrastructure for the CMA requirements only</i>	After CMS has been developed within 3years of establishment
S110	Consultation and environmental impact assessment <i>In relation to government waterworks pertaining to monitoring infrastructure for CMA requirements only</i>	In the first two years of the CMA's establishment
S111	Financing of government waterworks <i>In relation to government waterworks pertaining to monitoring infrastructure for CMA requirements only</i>	After CMS has been developed within 3years of establishment
S112	Water from government waterworks <i>For all water use other than strategic water use within the WMA</i>	After CMS has been developed within 3years of establishment
S115	Disposal of government waterworks <i>For all government waterworks pertaining to monitoring infrastructure for CMA requirements only</i>	After CMS has been developed within 3years of establishment
Chapter 14: Monitoring, assessment and information		
Part 2: National information systems on water resources		
S141(b)	Provision of information	After CMS has been developed within 3years of establishment
Part 3: Information on floodlines, floods and droughts		
S145(2)	Establishment of an early warning system <i>In relation to issue pertaining within the WMA only</i>	After CMS has been developed within 3years of establishment
SCHEDULE 3: POWERS WHICH MAY BE EXERCISED AND DUTIES TO BE PERFORMED BY CMAS ON ASSIGNMENT OR DELEGATION (SECTIONS 72, 73 AND 151(1)(L))		
Schedule	Power to manage, monitor, conserve and protect water resources and to	After CMS has

3(2)	<p>implement catchment management strategies.</p> <p>A catchment management agency may</p> <ul style="list-style-type: none"> (a) manage and monitor permitted water use within its water management area; (b) conserve and protect the water resources and resource quality within its water management area; (c) subject to the provisions of the Act, develop and operate a waterwork in furtherance of its catchment management strategy; (d) do anything necessary to implement catchment management strategies within its water management area; and (e) by notice to a person taking water, and after having given that person a reasonable opportunity to be heard, limit the taking of water in terms of Schedule 1. 	been developed within 3years of establishment
Schedule 3(3):	Catchment management agencies may make rules to regulate water use	After CMS has been developed within 3years of establishment
Schedule 3(4)	CMA may require establishment of management systems	In the first two years of the CMA's establishment
Schedule 3(5):	CMA may require alterations to waterworks	In the first two years of the CMA's establishment
Schedule 3(6):	CMA may temporarily control, limit or prohibit use of water during periods of water shortage	In the first two years of the CMA's establishment