WATER RESOURCES REGULATION:

KEY ISSUES AND PRINCIPLES

DRAFT DISCUSSION DOCUMENT

MARCH 2010

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1. INTRODUCTION

This discussion document is intended to provide a starting point for the development of a Water Resources Regulatory Strategy. It has been developed based on the findings of a current WRC study, 'Towards regulation of Water Resources Management in South Africa', and on work done by the Department to develop an integrated regulatory approach for water services and water resources[1]. The study funded by the Water Research Commission has already resulted in a 'Survey of Approaches to Water Resources Regulation', and will still deliver reports on the use of regulatory impact assessment in the water resources sector, assessment of institutional principles relating to the functions and division of roles and responsibilities for regulation in South Africa, an easy reading guide to water resources regulations and a short policy brief. The project will be completed by October 2010.

This discussion document is intended to spark debate and discussion leading to the development of a water resources regulatory strategy. It is not a draft regulatory strategy. It deals briefly with the role of regulation in integrated water resources management, what regulation is, the policy framework for water resources regulation, some principles for water resources regulation, the 5 key elements of water resources regulation, regulatory tools, regulatory impact assessment, institutional arrangements, relationship to other strategy documents, key challenges and conclusions.

REGULATION AS PART OF INTEGRATED WATER RESOURCES MANAGEMENT

It is widely recognised that the water resources challenges facing the world today will need to be solved through improved water resources management. There are a number of pillars to improved water resources management, of which regulation is one. Other key elements of the water resources management framework include infrastructure operation, maintenance and development, monitoring and assessment, research, and appropriate institutional design. Regulation is, however, a key part of the IWRM armoury, and one which will gain increasing importance as the stress on South Africa's limited water resources increases.

While a number of water resources regulatory instruments already exist and are in use in South Africa, such as water use licencing, deteriorating raw water quality in many areas and high levels of water theft, *inter alia*, indicate the failure of current regulatory practices to adequately address the water resource challenges. There are a number of issues that must be addressed in ensuring an effective and implementable water resources regulatory framework. This discussion document sets out some of these key issues, and some key principles, as an initial step in the development of a water resources regulatory strategy.

A Water Services Regulatory Strategy has already been developed and is in the process of being published. The development of a Water Resources Regulatory Strategy will complement this strategy

[1] An introductory chapter for regulating the water sector in South Africa. Protecting the public interest through the effective regulation of water. DWA. Draft 2: January 2009;
Development of an Integrated Regulatory Framework For the Water Sector. Draft for Discussion Purposes Only. Report on Possible Regulatory Options and Models for the Water Sector. DWA. March 2009

to ensure that regulation of the entire water value chain is covered effectively. While water resources and water services regulation are very different, and require different tools and approaches, there are some points of interface that require a consistent approach across the entire value chain – economic regulation being the prime example.

The focus of water resources regulation is the efficient, sustainable and equitable use of a scarce natural resource, while the regulation of water services is focused more on the efficient and equitable delivery of reliable, safe drinking water, the safe removal of contaminated water and human excreta. Water resources regulation covers a suite of activities pertaining to the use of or impact on raw water and water resources, as shown in figure 4. Water services regulation deals very specifically with the management of treated water and effluent. Both water services and water resources regulation require the regulation of state entities that perform key functions in this area; the core business of these entities, however, are profoundly different, and they are governed by different legislation and mandates. Effective economic regulation – the regulation of the price of water – however, should be seen in the context of the total value chain from source to discharge, and as such should be seen in a comprehensive picture across both water services and water resources. This is the only area in which water services and water resources regulation should be truly integrated.

TABLE 1: REGULATORY SIMILARITIES AND DIFFERENCES BETWEEN WATER SERVICES AND WATER RESOURCES

	Water Resources	**Water Services**
Policy framework and legislation	Constitution and Bill of Rights White Paper on a National Water Policy for South Africa National Water Act National Water Resources Strategy	Constitution and Bill of Rights Strategic Framework for Water Services.Water Services Act Water Services Regulatory Strategy
Economic regulation	Raw water pricing	Treated water pricing including free basic water
Technical regulation	Abstraction, discharge, storage including dam safety, water quality, ecological and basic human needs reserve, water allocation reform; etc	Drinking water quality; access to services; reliability; minimum standards; effluent removal and treatment, discharge quality
Governance regulation	CMAs and WUAs	Water Boards, Water Services Authorities, private service providers
Compliance monitoring and enforcement	Directives, courts, ability to take action and reclaim costs;	Intergovernmental Framework Relations; Directives, Courts as last resort

It is important to note that the South African model of locating water services and water resources regulation in one department is unusual in terms of international practice. Research done in the development of a draft integrated strategy for water regulation shows that, internationally, water resources regulation is typically dealt with by environmental departments or agencies while water services regulation is often dealt with by an independent regulator, or a range of departments often at local or provincial/state level. For example, in Zambia, water services are regulated by the National Water Supply and Sanitation Council (NWASCO), established in October 2000, regulates

urban WSS service provision, while water resources regulation falls under the Department of Energy and Water Development. Similarly, in Ghana, the Public Utilities Regulatory Commission is responsible for economic regulation of urban water supply and sanitation, while the Water Resources Commission regulates water resources.

WHAT IS REGULATION?

According to Picciotto and Campbell, "At its most general level, [regulation] refers to the means by which any activity, person, organism or institution is guided to behave in a regular fashion, or according to rule. In principle, reference can be made to the regulation of any kind of social behaviour… In the context of socio-legal studies, the concept has two main advantages. First, it leaves a useful ambiguity over the extent to which such regular behaviour is generated internally or entails external intervention. Secondly, it embraces all kinds of rules, not only formal state law."[2]

As shown in figure 1, a regulatory framework for water resources therefore consists of a great number of players and processes, some falling within what can be described as a formal regulatory process, i.e. regulation as practiced by the state, and some falling within a more informal regulatory process, for example through the media, community pressure groups, consumer behavior and so on.

While it is important to understand this broader picture and the roles and mandates of the various players within this picture, the key focus of this discussion document is on the more formal regulatory processes of the state, relating to policy development, legislation, organisations, and instruments for implementation.

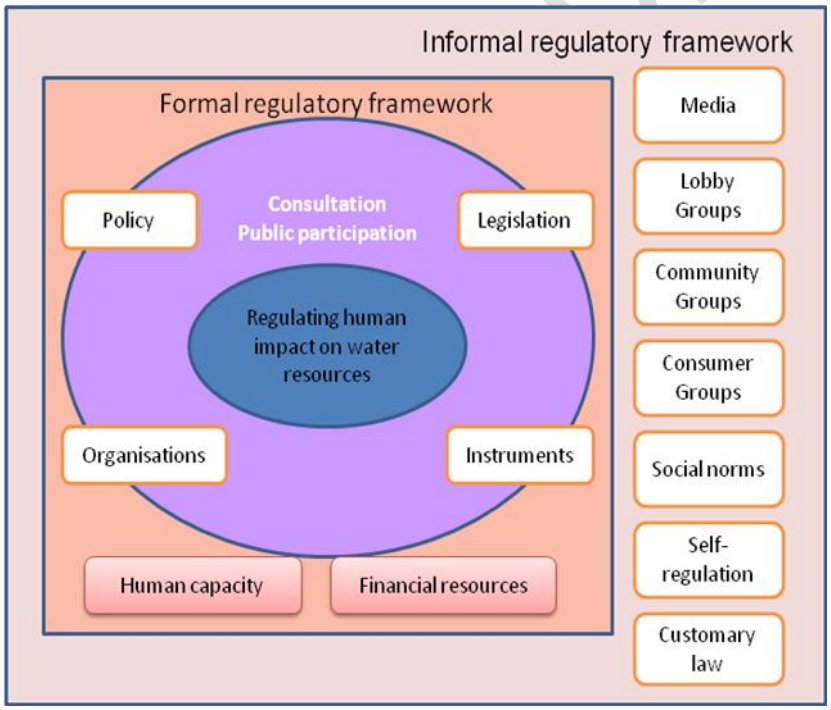

FIGURE 1: ELEMENTS OF A WATER RESOURCES REGULATORY FRAMEWORK

[2] Picciotto, Sol and Campbell, David (eds). New Directions in Regulatory Theory. Blackwell publishing. 2002. p1

None-the-less, the informal regulatory processes are also important in ensuring sustainable management of our national water resources, particularly in the face of limited state capacity, and the possible synergy between formal and informal processes is an area that must be explored.

THE POLICY FRAMEWORK

The policy framework for water resources regulation is provided by the Constitution, the Bill of Rights, and the White Paper on a National Water Policy for South Africa (1997). The White Paper states that "While describing the rights of our people to a just and fair society, the Bill of Rights also establishes the framework within which regulation and allocation of water can take place." The Bill of Rights states that everyone has the right of access to sufficient water, to an environment not harmful to their health or well-being, and that corrective action can be taken to address the results of past injustices or discrimination.

The White Paper continues by stressing that "The governance of water use has always, in a constitutional sense, been subject to the notion that the Government retains the right to regulate the country's economy and the nation's future, by reserving to itself the responsibility of determining the proper use of the country's natural resources." This implies the right of the government to regulate the proper use of the country's water, in support of the national objectives of the government.

This is given depth by the statement in the White Paper that "...the national Government has a duty to regulate water use for the benefit of all South Africans, in a way which takes into account the public nature of water resources and the need to make sure that there is fair access to these resources. The central part of this is to make sure that these scarce resources are beneficially used in the public interest...."

In giving form to the public trust function enshrined in the White Paper, the Government must manage (and in the context of this document, regulate) water resources in a manner that:

- "guarantees access to sufficient water for basic domestic needs;
- "makes sure that the requirements of the environment are met;
- "takes into account the interconnected nature of the water cycle - a process on which the sustainability and renewability of the resource depends;
- "makes provision for the transfer of water between catchments;
- "respects South Africa's obligations to its neighbours; and
- "fulfils its commitment as custodian of the nation's water." [3]

The political, economic, social and environmental context of South Africa is different from other parts of the world, due largely to the need to redress the racial discrimination of the past and to address the massive inequities in the society. As a result, the national objectives in the South African context, as defined in the Medium Term Strategic Framework 2009 - 2014 are:

- halve poverty and unemployment by 2014
- ensure a more equitable distribution of the benefits of economic growth and reduce inequality
- improve the nation's health profile and skills base and ensure universal access to basic services
- improve the safety of citizens by reducing incidents of crime and corruption

[3] White Paper on a National Water Policy 1997

- build a nation free of all forms of racism, sexism, tribalism and xenophobia.

In order to give effect to these strategic objectives, the following priority areas have been identified by government:

- more inclusive economic growth, decent work and sustainable livelihoods
- economic and social infrastructure
- rural development, food security and land reform
- access to quality education
- improved healthcare
- the fight against crime and corruption
- cohesive and sustainable communities
- creation of a better Africa and a better world
- sustainable resource management and use, and
- a developmental state, including improvement of public services.

A water resources regulatory strategy must, therefore, support these priority areas, and most particularly, those relating to:

- more inclusive economic growth, decent work and sustainable livelihoods
- rural development, food security and land reform
- the fight against crime and corruption
- creation of a better Africa and a better world
- sustainable resource management and use, and
- a developmental state, including improvement of public services.

Thus the water resources regulatory strategy must be essentially transformational, in terms of contributing to the transformation of the South African society and economy, while also managing a limited natural resource in such a way that it's use is sustainable. These approaches are captured in the White Paper and the National Water Act under the concepts of equity, efficiency and sustainability.

Principles for Water Resources Regulation

There are a number of principles, drawn from both international experience and South African policy mandates, which underpin a water resources regulatory framework, as shown in figure 2. These principles are also cognisant of the fact that environmental goods such as raw water are regulated for different reasons from other goods. Environmental goods are regulated to prevent the tragedy of the commons. They are also regulated to ensure that the costs and benefits derived from the use of water are equitably distributed and that the poor don't bear the costs (environmental or economic) of the environmental exploitation by wealthier sectors of the economy.

The principles for water resources regulation can be separated into two categories. The first are policy principles which are drawn from the policy enshrined in the Constitution, national development objectives, and the White Paper, and which guide the objectives and purpose of the regulations. The second are operational principles which serve to guide the regulatory framework at the operational level.

A brief description of each of these principles is presented here for clarity.

POLICY PRINCIPLES:

Equitable: According to the White Paper, 'Equity implies a concept of fairness which allows for different practices in the management of water in response to different social, economic, and environmental needs." The White Paper defines three aspects that make up this concept of equity: equity in access to water services, equity in access to water for productive purposes, and equity in access to the benefits derived from water;

Redistributive: The White Paper recognises the need to reallocate water use rights to ensure that historical inequities in access to water for productive purposes on the basis of race and gender are addressed. This is in line with national objectives in terms of inclusive economic growth, rural development and poverty eradication, since water reallocation can, in particular, be used to benefit the rural poor.

Non-discriminatory: While water resources regulation must be based on the principles of equity and redistribution because of the need to address historical discrimination in South Africa, regulation of water resources must also be done in a manner that is non-discriminatory outside the clear framework of corrective action.

Adaptive: South African water resources management is faced with a number of drivers of change, both short term and longer term, such as droughts and floods, climate change, demographic and economic change. The regulatory approach must be able to adapt to changing circumstances as needed.

Transparent: Transparency is a core principle of good water resources management, including water resources regulation, and is necessary to build the legitimacy of and trust in the regulatory system by those being regulated or benefiting from regulation;

Aligned with government objectives: The regulatory approach must be aligned with the broader objectives of government, and with other regulatory initiatives and approaches adopted by government in other sectors.

OPERATIONAL PRINCIPLES

Implementable and Appropriate to Available Resources: The regulatory strategy must be implementable in the particular institutional, financial, political, social and hydrological context of South Africa. South Africa has limited human, institutional and financial capacity for the implementation of water resources regulation, and as such, the strategy must be tailored to be delivered within the existing resources, with the potential to expand as needed and as resources increase.

Low transaction costs: South Africa is a developing country, and requires strong social and economic development. The transaction costs of water resources regulation should not be so high as to prevent what the Constitution calls 'socially justifiable sustainable development'. The cost of doing business is cited as a barrier to new business development in many developing countries, and it is important that water resources regulation does not add unnecessarily to this burden.

Necessary: Within the context of limited regulatory capacity, it is critical that the regulatory strategy focuses on those aspects of water resources use and management that are *necessary and important* to regulate, rather than attempting to regulate all possible water resource related activities.

Participatory: Considerable benefits have been observed from the involvement of key stakeholders in the design and implementation of water resources regulation, and this is an appropriate model to follow in South Africa, particularly since state resources are limited and can only achieve so much.

Clear roles and mandates: Clear regulatory roles and mandates are necessary for a number of reasons. Firstly, they avoid gaps and overlaps between institutions involved in water resources regulation. Secondly, they ensure that those being regulated can understand clearly the legal mandate of the institution carrying out the regulatory actions.

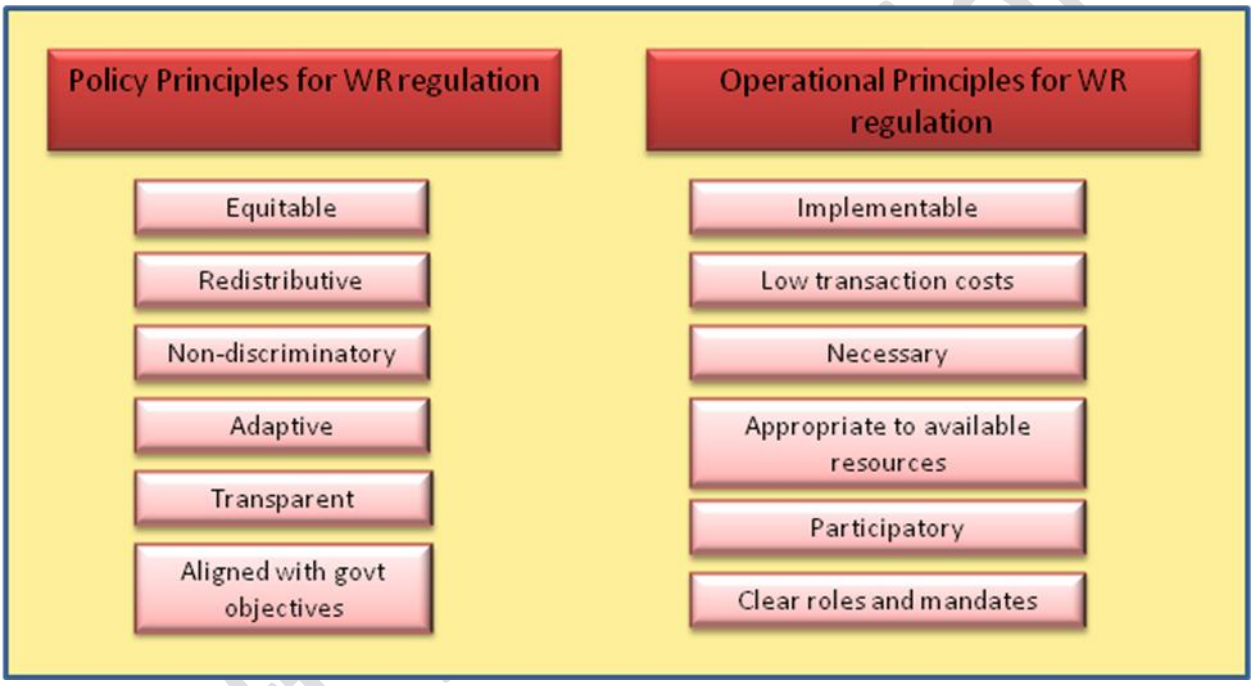

FIGURE 2: PRINCIPLES FOR WATER RESOURCES REGULATION

Agreement by regulatory bodies and stakeholders on the fundamental policy and operational principles underpinning water resources regulation will assist in the development of a coherent strategy with the support and buy-in of the wider water sector and water user communities.

THE WATER RESOURCES REGULATORY CHAIN

There are a number of players active in water resources regulation in South Africa. Figure 3 maps the key players and their relationships, and indicates the nature of the regulation being implemented by DWA and CMAs. While CMAs will be responsible for technical regulation mainly, i.e. regulating the actual use of water to meet certain objectives, DWA will be responsible for regulating water use of international and strategic importance, ensuring CMAs regulate water use effectively, regulating the water pricing elements, and regulating CMA governance. This means that DWA will, at least in the interim, be responsible for technical, economic and governance regulation. The decision on institutional arrangements for economic regulation may change DWA's responsibility in this regard, as indicated on figure 3.

The regulatory chain begins with Parliament, which creates the legislation on which any regulatory mandate is based, and which in entitled to request reports on the implementation of that legislation. Any amendments to legislation require the engagement and approval of Parliament.

Another element of the regulatory framework that is critical in both interpretation of the regulatory mandate and enforcement, are the courts, including the Water Tribunal. There is currently some discussion about the establishment of water and environmental courts to ensure appropriate skills and understanding for the handling of water-related court cases.

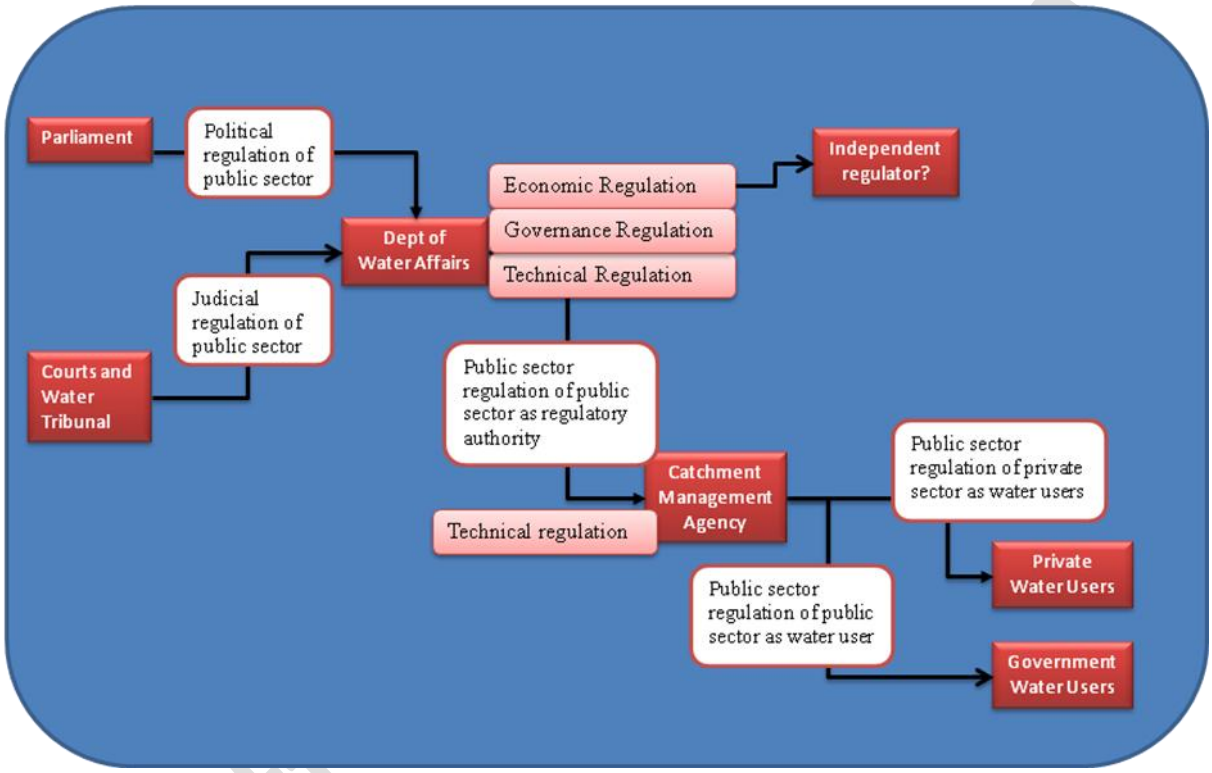

FIGURE 3: THE WATER RESOURCES REGULATORY CHAIN

KEY ELEMENTS OF WATER RESOURCES REGULATION

There are 5 elements to water resources regulation that should be addressed individually because of the different approaches, purposes and activities associated with each. These five elements are: policy development and articulation, economic regulation, technical regulation, governance regulation, and compliance monitoring and enforcement. Each of these elements is discussed briefly below.

The term governance regulation has been coined to refer to the regulation of the governance functions of subsidiary institutions, such as CMAs and WUAs. There are three elements to the regulation of these institutions – the one relates to economic regulation, largely related to regulating the price of water; the second relates to the regulation of their technical performance e.g. are they meeting reserve requirements or international requirements; are they issuing licences in accordance with national policy and procedures, etc. The third relates to ensuring that water management

institutions accountable to the department meet their legal and fiduciary responsibilities of good governance. This latter is referred to as governance regulation.

Within each of these elements, the national and water related policy objectives outlined earlier in this document above must be addressed, so that a matrix of types of regulation and objectives can be formed, as outlined in figure 3 below. Thus addressing poverty, race and gender transformation, sustainable economic development, etc must be addressed in each of the regulatory elements.

FIGURE 4: MATRIX OF REGULATORY ELEMENTS AND OBJECTIVES

POLICY DEVELOPMENT AND ARTICULATION

The first step in effective regulation is the development and articulation of a clear regulatory policy. In South Africa, this regulatory policy is well articulated through the White Paper on a National Water Policy for South Africa, and the National Water Resources Strategy (currently under review), as well as broader national policy objectives such as job creation, poverty eradication and rural development. What is lacking at this point is the translation of the policy into a targeted, costed strategy and implementation plan.

Key issue:

- Translation of water resources regulatory policy into a clear, targeted, costed and implementable strategy and plan.

ECONOMIC REGULATION

Economic regulation is focused on the regulation of "business" issues which are critical for institutions involved in the water value chain. The objective of economic regulation is to ensure that

services are provided in an efficient, fair, and sustainable manner, while bearing in mind social and economic priorities set out by the policy makers (both at national and local government levels).

The main objectives of economic regulation can be broken down into three elements:

- To protect customers from authorities abuse of their monopoly power and from political interference,
- To protect water management institutions from politically driven decisions, and
- To enable the public sector to carry out long-term policy objectives.

A key element of water resources economic regulation is the regulation of raw water tariffs. Currently, there is a conflict of interest with the DWA determining the raw water pricing strategy and setting the raw water tariffs, while also being the infrastructure developer and operator and the management body that spends the revenue from those tariffs. Currently DWA is the player and referee where raw water tariffs are concerned. The biggest concern in this regard relates to the substantial infrastructure portion of the tariff.

The question in this regard is whether DWA is able to regulate the setting of tariffs effectively when it is also setting those tariffs for raw water.

Figure 5 below shows the various charges imposed in the water chain. It is important that there is a regulatory process that deals with pricing across the entire chain so that the downstream impacts of decisions on, for example, the raw water price, can be factored into price impacts at the water services level.

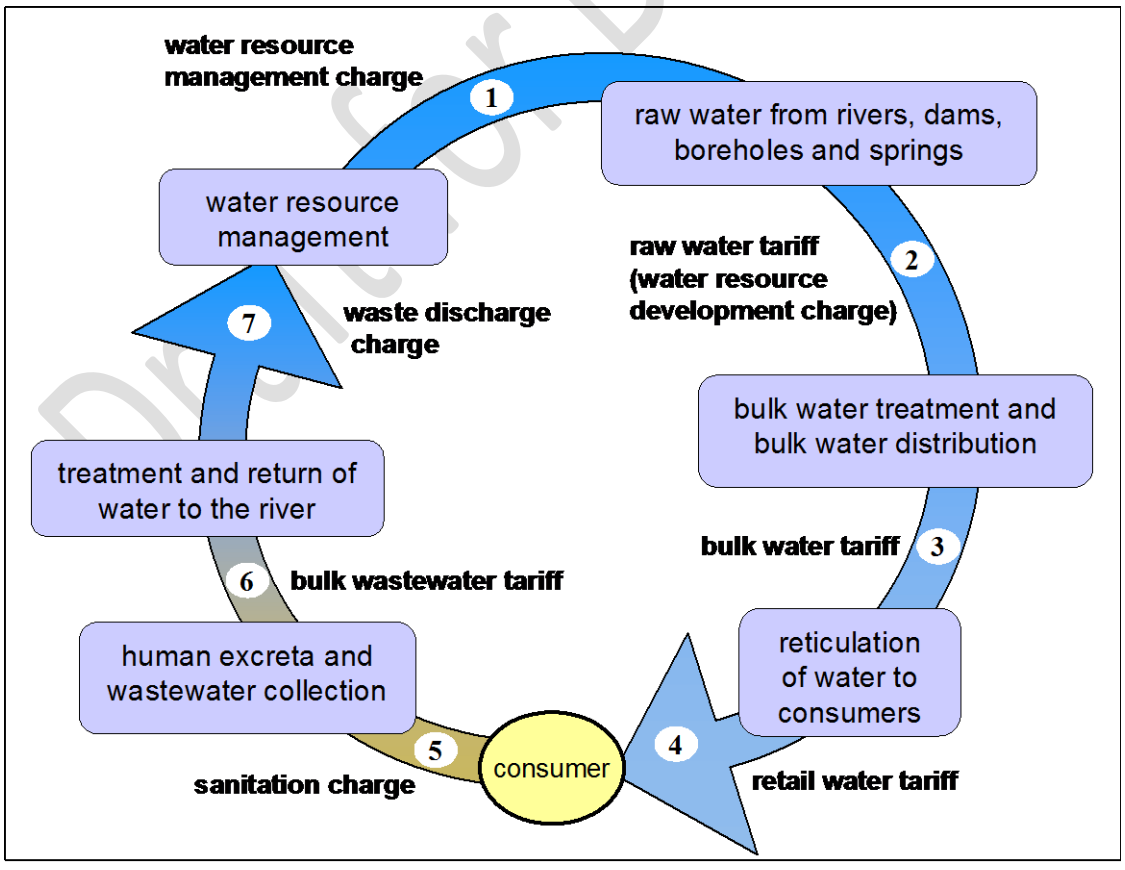

FIGURE 5: WATER COST AND PRICING CHAIN

Minister Collins Chabane announced earlier this year several Key Outcomes defined by government. One of these is the creation of "*an independent water regulator to implement price regulation*". This clear statement by government should now be taken forward the further investigation, consultation with stakeholders, and consultation with the Presidency on suggestions that have been made regarding the possible creation of one economic regulator for the country.

Whether an independent regulator is created, or economic regulation continues to sit with the DWA, it is critical that one economic regulatory framework is created that deals with the entire water value chain, including both water services and water resources, particularly since the price of raw water is a major driver in the price of potable water.

WHAT IS SUBJECT TO ECONOMIC REGULATION?

Resource conservation charge (not shown in diagram): All water users are potentially subject to a water resource conservation charge: "All water use, wherever in the water cycle it occurs, will be subject to a resource conservation charge where there are competing beneficial uses or where such use significantly affects other users" (National White Paper on Water Policy.) This is also referred to as an "economic charge" which is applied to the value of the resource itself, independently of any costs incurred in managing the resource or developing and maintaining infrastructure necessary to make the water available at the point of demand.

This charge can be determined administratively, in which case it should be subject to review by the regulator (a body independent of the institution setting the charge), or be determined through a willing buyer – willing seller trading mechanism (subject to regulatory oversight).

Water resource management charges: Catchment management agencies and/or DWAF (where acting as a proto-catchment management agency) set catchment management charges. These charges, which are set in terms of the Raw Water Pricing Strategy (a gazetted government policy document), should be subject to regulatory review.

Water resource development charge: Agencies operating water resource infrastructure (at present DWAF, TCTA and some municipalities, in the future possibly the NWRIA, if established) sell water to other agencies. Prices are set by DWAF in terms of the Raw Water Pricing Strategy. Where DWAF owns and operates infrastructure, this pricing should be subject to an independent regulatory review.

Bulk water tariffs: At present: Water boards and some municipalities sell bulk water to other municipalities. In future, the proposed regional bulk water utilities will sell bulk water to municipalities. Bulk water prices should be subject to regulatory review with the regulator acting independently of the shareholder.

Retail water and sanitation tariffs: Water services authorities set retail water and sanitation tariffs. These tariffs should be subject to regulatory review.

Waste discharge charge: All activities polluting the water resource may be subject to a waste discharge change. Waste discharge charges should be subject to regulatory review.

Key issues:

- **No formal economic regulation at present**. No part of the water sector is currently subject to formal economic regulation (rate of return analysis, efficiency analysis, and economic incentives).
- **Capacity**. Application of economic regulation requires high-level financial, economic, technical expertise and experience. Government is constrained in its ability to attract the necessary skills and experience to undertake formal economic regulation in the water sector.
- **Understanding economic regulation for water resources**. Economic regulation must take into account revenue requirements based on an understanding of operating costs, the regulated asset base and the allowed rate of return on these assets. Further work needs to be done in this regard.
- **Full value chain**. Economic regulation, to be effective, needs to be applied to the full value chain in water services (raw water infrastructure, bulk supply, retail, wastewater collection and wastewater treatment).
- Conflict of interest with DWA setting and approving raw water tariffs with no independent review.

TECHNICAL REGULATION

Technical regulation refers to the regulation of human behavior on water resources, in order to achieve the mandate of the Bill of Rights, the objectives of the White Paper, and to contribute to achieving national development objectives.

Key regulatory functions in this regard include the allocation and reallocation of water, the protection of aquatic ecosystems for use, and managing and controlling effluent discharge. However, the complexity of water use in the country results in an equally complex regulatory picture, as is indicated in figure 4 below. This figure indicates the points at which regulation might be required in the water use cycle, with those on the yellow side of the figure falling specifically under the ambit of water resources regulation.

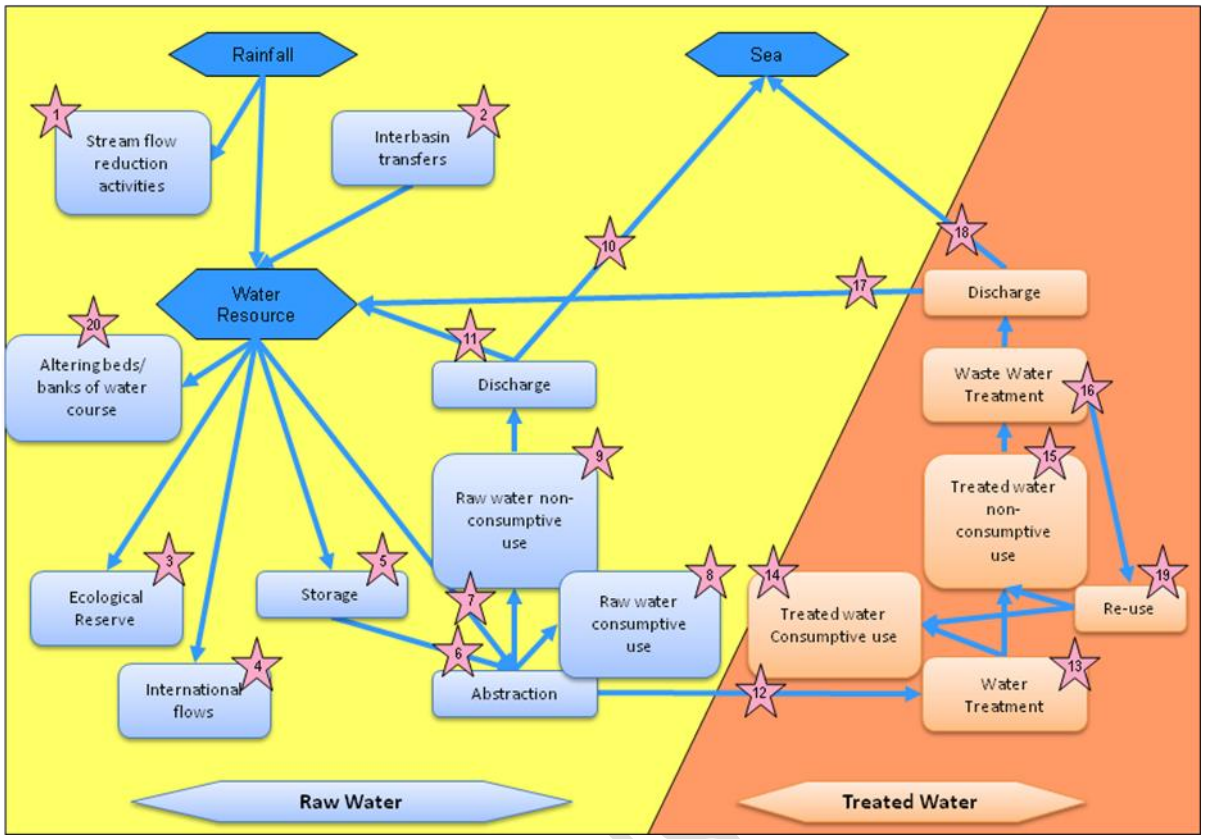

FIGURE 6: POINTS OF POSSIBLE REGULATION IN THE WATER USE CYCLE

When CMAs are up and running most of the technical regulation (but not all) will be performed by them. Part of the DWA technical regulation process at that point will be to ensure that technical regulation as performed by the CMAs meets national standards, policy and objectives. However, it will take some years before CMAs are fully established and functional, and in the interim, DWA will be performing much of the technical regulation on the ground.

This raises some challenges in terms of oversight of the performance of technical regulation. Currently, for example, there is a possible conflict of interest in DWA both setting and implementing the reserve, or for setting and evaluating dam safety on state owned dams. It is very difficult for an organisation to hold itself accountable for the failure to achieve its targets, and currently there is no regulatory mechanism for holding DWA accountable for meeting the legal requirements regarding the reserve, dam safety or equitable distribution for that matter. When CMAs are in place, they will be responsible for ensuring implementation of the reserve, and DWA will be in a position to regulate this. In the absence of a decision on continuing with CMAs, regional offices are, *de jure,* the CMA and will need to be actively delegated CMA functions to be able to create this clear delineation of responsibilities until such time that a decision is made about the establishment of CMAs. Currently, however, the conflict of interest can be seen in the very poor achievements in meeting ecological requirements and redistributing access to water.

Several points emerge from this issue. One is that the technical regulator must be held accountable for performance of its regulatory function. This can be done through DWA regulating the performance of CMAs, or, if DWA is to continue to perform the technical regulation of water resources (such as water quality regulation, protecting the reserve, allocating water, etc)

accountability for performance of these functions must reside somewhere. This does not imply the need for an independent regulator, but rather suggests that the courts, Parliament, the Water Tribunal, NGOs, and other civil society bodies have a more active role to play in this regard.

Key issues:

- Lack of capacity;
- Unclear roles and responsibilities within DWA;
- Lack of progress on the establishment and capacitation of CMAs to perform their regulatory functions which inhibits capacity development and results in DWA as player/referee in relation to the protection of the reserve;
- Lack of establishment of the NWRIA which leaves DWA as the player/referee with regard to issues of operation and maintenance of state dams, and safety of state dams;
- Development, revision and application of more appropriate tools such as more effective use of general authorisations, simpler and quicker licencing procedures, more effective use of economic incentives (e.g. waste discharge charging system), voluntary agreements, community based regulation, etc;

GOVERNANCE REGULATION

Effective regulation of state owned entities requires the appropriate separation of the roles of custodian, policy maker, shareholder, supporter and regulation. The roles and accountabilities of DWA and others need to be redefined and made clear and unambiguous in this regard.

The current model for water resources regulation in the country sees most of the technical regulation functions being performed at the water management level by Catchment Management Agencies. This approach allows for flexibility relating to local conditions, as well as greater involvement by stakeholders in general water resources management processes and decision-making. However, the CMAs, or any other local regulatory body, such as a Water User Association will need to be regulated by national government (through the DWA) to ensure that:

- They are performing their functions adequately and efficiently and are providing appropriate value for money;
- They comply with relevant national legislation and corporate governance best practice in terms of fiduciary and legal responsibilities.

The Minister also needs effective tools to regulate other water management institutions for which she is legally accountable, such as the TCTA and the WRC.

Experience from the regulation of water boards has shown the need for the Minister to be able to intervene to ensure effective and corruption free governance of these institutions. She is given the authority do so by the National Water Act. The regulation of the governance function of water management institutions is closely related to the issues of economic regulation and the two may be dealt with under similar institutional arrangements.

Key issues:

- Capacity;
- Lack of separation between government's role as sole shareholder and regulator;
- Lack of clarity in terms of governance responsibility of Board and regulatory responsibility of DWA.
- Effective instruments and practice to ensure good corporate governance of water management institutions;

COMPLIANCE MONITORING AND ENFORCEMENT

A key requirement for effective regulation is that it is underpinned by strong compliance monitoring and enforcement capability. Those that break the law must be held accountable and sanctioned for such practice. Unfortunately current water resources regulation compliance monitoring and enforcement is generally poor, primarily due to:

- Understaffing and underfunding,
- Fragmented approaches
- Slow decision making
- Lack of focus
- Confused roles
- Inconsistency of approach.

The CM&E functions of DWA will need to be structured and aligned to the regulatory framework and will require substantial strengthening, capacity and resources.

A critical element of this is ensuring effective monitoring, data collection and assessment, and the taking of appropriate action based on the results.

Compliance is strongly influenced by a number of features, including whether the regulation is seen as legitimate by those being regulated. Regulations perceived to be legitimate are more likely to be complied with than those lacking legitimacy. This includes legitimacy of the content of the regulation, the distributional effects, the process of making the regulations, and the process of implementation of the regulations. Perception of fairness of implementation, and people's experience of how they have been treated by the regulatory authority, is a critical part of the recognition of legitimacy and the response to regulations.

Compliance is also strongly dependent on relationship between the economic benefits of breaking the regulations and the economic consequences of any sanctions that might be applied if non-compliance is detected. The likelihood of non-compliance being detected and acted on is an important part of people complying with regulation. Action against transgressors is not currently sufficient to create this confidence amongst water users and citizens.

Whatever regulatory instruments are used, some form of enforcement of those instruments will be required, be it ensuring compliance with command and control requirements, or ensuring payment

for actual water use, or ensuring the accuracy of information provided. In all cases, failure to conform to the required regulatory actions must see sanctions being imposed. The sanctions can vary, considerably.

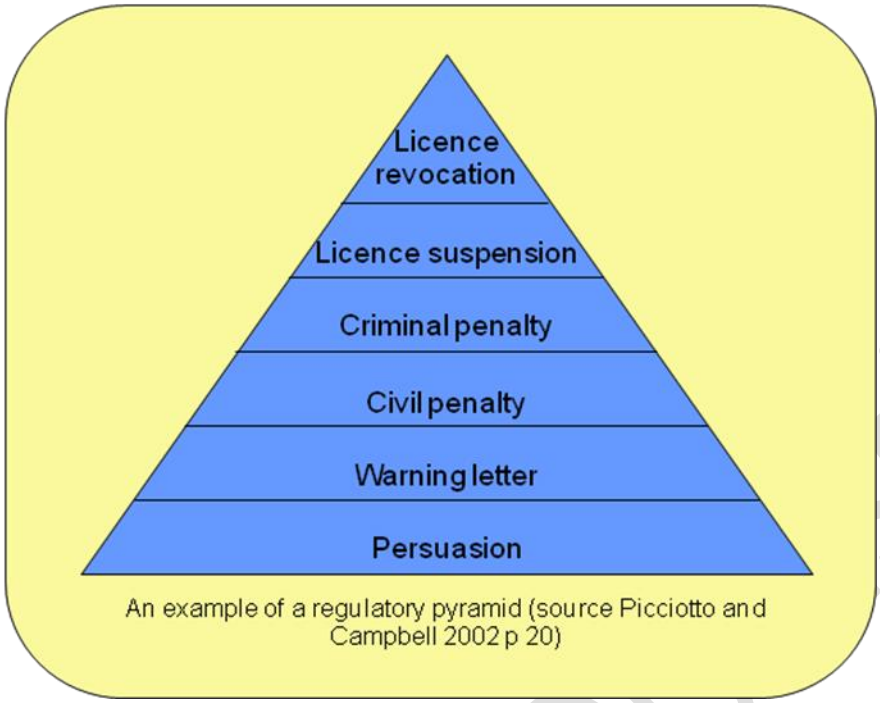

FIGURE 7: A PYRAMID OF ENFORCEMENT RESPONSES (PICCIOTTO AND CAMPBELL 2002)

A hierarchy of possible sanctions can be imposed by the regulator, starting from persuasion, which is the least cost method of achieving compliance. If this fails, a ladder of enforcement action is necessary, as demonstration in figure 7.

Perhaps the biggest challenge in the arena of enforcement is the issue of capacity, and there is little agreement internationally on whether any particular instruments require less capacity than others to enforce. It is, therefore, more appropriate where capacity is limited to target regulation carefully than to try to find regulatory approaches that require less capacity to implement.

Key issues:

- Lack of capacity from inspectors to legal officers;
- Lack of effective and targeted CME strategy aligned to available capacity
- Poor alignment with other regulatory agencies such as DEA and PDEAs;
- Weak enforcement tools, particularly in relation to local government
- Limit on sanctions (e.g. fines) is too low to act as a real deterrent in many cases

REGULATORY TOOLS AND PROCESSES

There are a wide range of instruments that can be used for water resources regulation. Once again, however, these should be differentiated according to the nature of the regulation, since the tools used for economic, technical and governance regulation are very different.

THE STEPS INVOLVED IN REGULATING TARIFFS

The generally accepted steps required for regulating tariffs are as follows:

- **Determine methodology** to be used to determine prices, such as rate-of-return or incentive-based price-paths and price-caps. This needs to be quite detailed. Examples of guidelines produced are available from the National Energy Regulator of South Africa. A draft guideline for the application of rate-of-return regulation to water boards has also been developed (prepared for the Water Research Commission).
- **Determine parameters** to be used in the methodology, such as allowed cost of capital and price indices.
- **Review tariff proposals**. Review price increases. This requires an assessment of the extent to which the methodology has been followed as well as a substantive assessment of the content of the proposal for reasonableness and accuracy.
- **Make a determination of the price (approve the tariff)**. Make a ruling on the price increase allowed, or the price-path to be followed for the next period.
- **Publish tariffs**.

TOOLS FOR TECHNICAL WATER RESOURCES REGULATION

There are a range of tools that can be used by the state to achieve effective technical water resources regulation. Historically, the state has relied largely on the command-and-control approach through licences and permits. However, there are moves towards introducing other tools, such as economic incentives (such as the waste discharge charging strategy) and voluntary accords or agreements. The key challenge in the selection of appropriate regulatory tools is to choose those that meet the capacity constraints of the country, but that still deliver the desired outcomes.

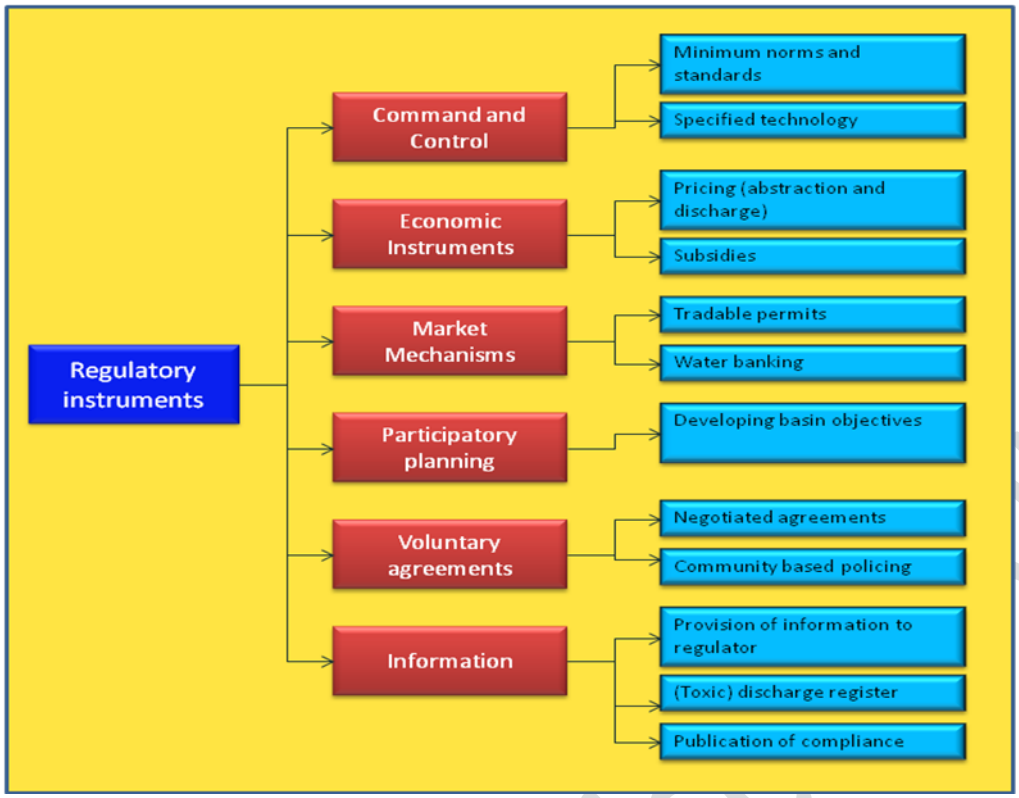

FIGURE 8: POTENTIAL REGULATORY INSTRUMENTS FOR WATER RESOURCES REGULATION

INITIAL ASSESSMENT OF THE APPLICATION OF TECHNICAL REGULATORY INSTRUMENTS IN SOUTH AFRICA

There are a number of regulatory instruments available for technical regulation of water resources, with different resource requirements, benefits and disbenefits. Not all of these instruments can be applied to *all* water resources functions. Table 1, below, sets out an initial assessment of the applicability of various categories of instruments to the key technical water resources regulatory functions. This section does not deal with economic or governance regulatory tools.

No.	Regulated activity	Legislative framework	Institutional responsibility	Purpose	Category of potential instruments
1	Stream flow reduction activities	NWA, Schedule 1; General Authorisations; Licenses	DWA, to be delegated to CMA	Protection of water resources for use Conservation and protection of water resources	CAC[4] – licenses, general authorisations; VA EI - pricing MM – trading Planning Information
2	Interbasin transfers	National Water Resources Strategy	DWA		Planning
3	Ecological reserve/ resource protection	NWA, Reserve determinations, classification of water resources, determination of resource quality	DWA, to be partially delegated to CMA DEA, conservation authorities, PDEAs	Protection of water resources for use Conservation and protection of water resources	Planning - reserve determination; classification of water resources; VA

[4] CAC – Command and Control; VA – Voluntary Agreements; EI – Economic Instruments; MM – Market Mechanisms;

No.	Regulated activity	Legislative framework	Institutional responsibility	Purpose	Category of potential instruments
		objectives NEMA			
4	International flows	NWA, International Agreements	DWA		Planning - international agreements
5	Storage	NWA, Licences, general authorisations NEMA	DWA, DEA	Control of water use Public safety	CAC – water use license or GA, dam safety permit; EI – water pricing MM – trading VA
6	Abstraction (from dams)	NWA, Schedule 1; General Authorisations; Licences	DWA to be delegated to CMAs	Control of water use Protection of water resources for use Conservation and protection of water resources	CAC – water use license, GA, or schedule 1 EI – water pricing MM – trading VA Information
7	Abstraction (from water resources)	NWA, Schedule 1; General Authorisations; Licences	DWA to be delegated to CMAs	Control of water use; Protection of water resources for use; Conservation and protection of water resources	CAC – water use license, GA, or schedule 1 EI – water pricing MM – trading VA Information
8	Consumptive raw water use	NWA, Licence conditions, general authorisations water conservation regulations;	DWA to be delegated to CMAs	Water use efficiency	CAC – water use license, GA, or schedule 1 EI – water pricing VA Information
9	Non-consumptive raw water use	NWA, water conservation regulations; License conditions, general authorisations	DWA to be delegated to CMAs		CAC – water use license, GA, or schedule 1 EI – water pricing VA Information
10	Discharge of raw water (marine outfall)	NWA, License conditions, general authorizations NEMA	DWA to be delegated to CMAs; DEA	Marine protection – quality Re-use of water	CAC – water use license, GA, or schedule 1 EI – pricing VA MM – trading Information
11	Discharge or raw water (to water resources)	NWA, License conditions, general authorisations	DWA to be delegated to CMAs	Resource protection Re-use of water	CAC – water use license, GA, or schedule 1 EI – pricing VA MM – trading Information
12	Abstraction for water supply	NWA, License conditions, general authorisations or abstraction agreement with DWA	DWA to be delegated to CMAs		CAC – water use license, GA, or schedule 1 EI – water pricing VA MM – trading Information
13	Water treatment (potable)	Minimum standards, regulations	DWA, DoH, WSA	Public safety	CAC – minimum standards
14	Consumptive use of treated water	NWA regulations; municipal by-laws; municipal tariffs	DWA, WSA	Water use efficiency	CAC – by-laws EI – stepped tariffs Voluntary agreements
15	Non-consumptive use of treated	NWA regulations; municipal by-laws, municipal tariffs	DWA, WSA		CAC – by-laws EI – stepped tariffs Voluntary agreements

No.	Regulated activity	Legislative framework	Institutional responsibility	Purpose	Category of potential instruments
	water				
16	Waste water treatment	NWA License conditions, general authorizations, discharge standards; WSA – training standards; minimum requirements for staff?	DWA, WSA	Resource protection Public health	CAC – minimum norms and standards, water use license VA
17	Discharge (of treated water) to water resources	NWA, License conditions, general authorisations; minimum standards	DWA	Resource protection Public health	CAC – water use license, GA, or schedule 1 EI – water pricing (not implemented yet) MM VA Information
18	Discharge (of treated water) to sea	NWA, License conditions, general authorisations; minimum standards; NEMA	DWA, WSA, DEA	Marine protection Public health	CAC – water use license, GA, or schedule 1 EI – water pricing (not implemented yet) VA MM Information
19	Re-use of treated water	NWA, License conditions; Municipal by-laws	DWA, WSA	Water use efficiency	CAC – by-laws EI – stepped tariffs VA
20	Altering beds and banks of water course	NWA, License conditions	DWA to be delegated to CMAs	Resource protection	CAC – water use license Planning

REGULATORY IMPACT ASSESSMENT

The Presidency is planning to require a regulatory impact assessment to be conducted for the introduction of any new regulation. While this has not yet become mandatory, DWA will need to prepare for this and to address, in the water resources regulatory strategy, how regulatory impact assessments will be conducted in the sector to ensure that the regulatory approach and the choice of particular regulatory activities and tools are best designed to achieve the desired outcomes. The WRC currently has a project running that will be doing some research in this regard, with results available by September 2010. A particular challenge in this regard to is to ensure that the regulatory approach is truly transformational and brings positive impacts to those living in poverty, in particular.

INSTITUTIONAL ARRANGEMENTS

The institutional arrangements for water resources regulation in South Africa are relatively complex. Firstly, there is a long chain of regulatory players, as shown in figure 4. The role of the courts, the Water Tribunal and Parliament are often not sufficiently recognised in this chain.

Parliament plays a critical role in water resources regulation by establishing the legislation that provides the department with its legal mandate to regulate water use. In this regard, Parliament also has an oversight role in terms of ensuring that the aims of the legislation are being achieved. Any amendments to legislation in order to enhance the effectiveness of water resources regulation require the approval of Parliament in a legislative amendment.

The courts, and the Water Tribunal, influence regulation through binding rulings that give interpretation both to the meaning of legislation and regulations, but also to the methods used to implement regulation. It is worth noting that a recent WRC review of cases heard by the Water Tribunal indicates that the Department lost most of the cases brought to the Tribunal, mainly on administrative grounds rather than on substantive policy grounds. This suggests significant administrative weaknesses on the part of the Department that must be addressed.

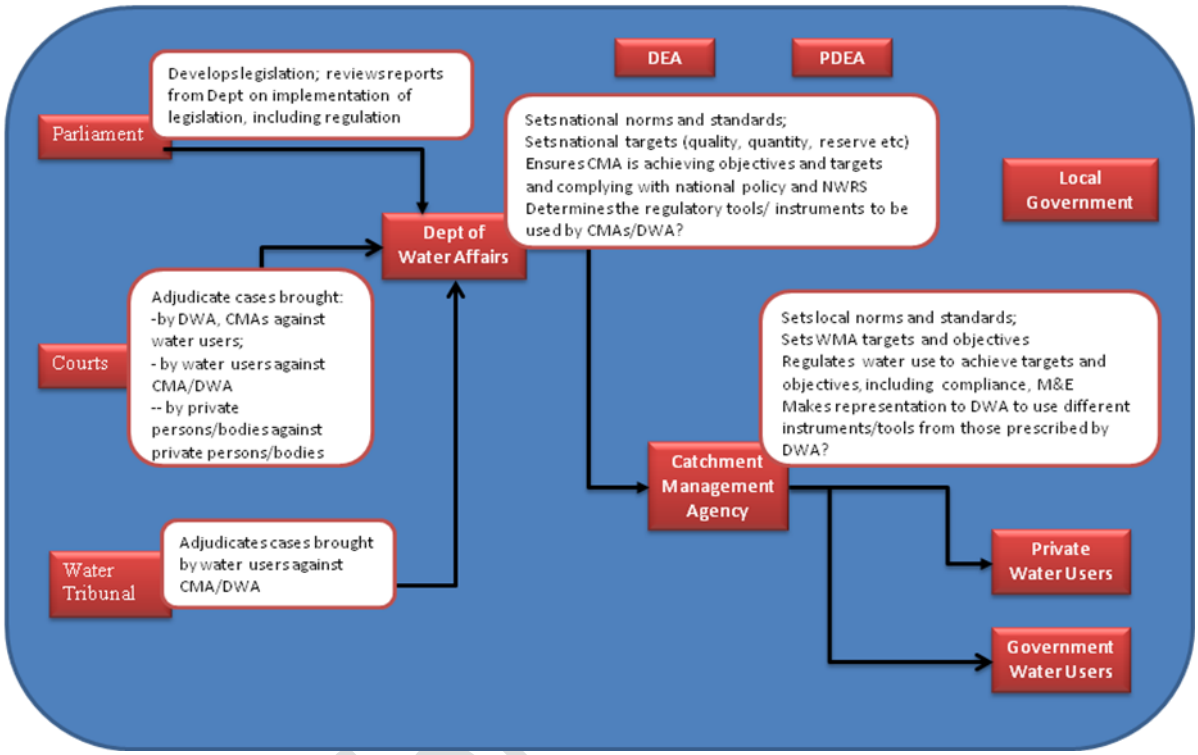

FIGURE 9: ROLEPLAYERS IN THE WATER RESOURCES REGULATORY CHAIN IN SOUTH AFRICA

Water resources regulation in South Africa is currently very weak. This can be seen through the high levels of illegal water use, and deteriorating water quality. There are a number of reasons for this, including major issues of capacity. However, there is also a question of whether the appropriate institutional arrangements are in place. There are, in this regard, two ends of a continuum that can be identified: retaining the regulatory functions within the department and establishing CMAs, or creating an independent regulator whilst the department continues with the management functions of the resource as is happening now. These two options are discussed briefly below.

THE "STATUS QUO +" OPTION.

This option is premised on the assumption that the current regulatory frameworks (policy, legislation, institutional arrangements, mandates and functions) are essentially adequate and that the real need is to implement existing regulatory provisions more effectively. The "+" focus is therefore specifically directed at ensuring that the regulatory institutions are established, capacitated, and held accountable for fulfilling their respective regulatory mandates. This would require, inter alia, the establishment and capacitation of a regulatory branch in DWA, to deal with all the identified regulatory functions, including the technical, economic and governance regulatory functions. This will enable a certain degree of separation of the DWA regulatory role from the

support, planning, monitoring, policy development and standards setting roles and management. It will also provide for more focused regulation.

At the same time, CMAs should be established and capacitated as a priority so that the Minister can delegate regulatory authority and mandates for technical regulation of water resources and governance regulation of water user associations to these institutions. The recent DWA Benchmarking Report makes it clear that a key impediment to effective water resource regulation is the fact that the institutions that are intended to undertake important regulatory functions do not exist or lack the capacity to do so where they do exist.

While this option will enable some improvements in water resources regulation, it will not enable alignment with best practice in terms of conflicts of interest and role separation and clarification.

AN INDEPENDENT REGULATOR

There has been considerable discussion about the possible need for an independent regulator, particularly within the water services sector, but, by extension, in the water resources sector as well. This discussion has been driven, at least to some extent, by the conflict of interest regarding the determination of raw water tariffs by the department. While a great deal of the international discourse around the independent regulator has focused on the issue of water services regulation, the role of 'independent' environmental agencies such as the EPA in the USA or the Environmental Agency in the UK is part of the discourse around regulatory models for water resources.

However, the recent international review conducted by DWA made a case for thinking about regulation not in a static sense (e.g. an independent regulator or not) but rather in a dynamic sense. That is, given current circumstances, how can regulation be improved and how can and should regulatory institutions evolve? This thinking is based on the benefit of hindsight, since experiments in setting up independent regulators from scratch have often been unsuccessful. Consequently, thinking about how regulatory systems and institutions should evolve has changed.

What the international review did make clear is that the choice of regulatory model should be informed by the political and institutional context of individual countries. It is also possible that the preferred institutional model may well be different for economic regulation and for technical and governance regulation.

In any discussion on possible institutional arrangements for water resources regulation, three key issues must be taken into account – how to use limited financial and human resources most effectively to deliver the desired results; what arrangements are most suitable for the specific needs of the South African context; and finally, how to align or even possibly integrate the technical elements of water resources and environmental regulation in particular.

RELATIONSHIP TO OTHER STRATEGIES

A water resources regulatory strategy cannot stand on its own. There are a number of other documents that it must align with. Generally, it must be based on the requirements of the White Paper for a National Water Policy for South Africa, and must respond to the key government and water sector objectives as mentioned previously.

More specifically, it is critical that it is fully aligned with the National Water Resources Strategy which is currently under revision. This revision process allows a window of opportunity to insert into the NWRS any issues pertaining to the water resources regulatory strategy that may be required. By its nature of being an overarching strategy, the NWRS will only contain the key points of the regulatory strategy. The detailed strategy should be contained in a separate document.

Two other regulatory strategies with which the water resources regulation strategy must be aligned are the Water Services Regulatory Strategy and the regulatory strategy of DEA for environmental regulation. Consultation with the relevant roleplayers is, therefore, critical in the development of the water resources regulatory strategy.

KEY CHALLENGES AND CONCLUSION

A water resources regulatory strategy will need to have clarity and agreement on key principle issues discussed above and to grapple with some of the key challenges facing the sector in terms of effective water resources regulation. Some of the most significant challenges are outlined briefly below.

TRANSFORMATIONAL REGULATION

Water resources regulation in South Africa operates in a different context from many other countries, in that there is a profound transformational element to it. This has implications for the types of tools that are used, and how they are applied. It is critical for a regulatory strategy to address this issue and how best water resources regulation can contribute to achieving the transformational objectives of the country.

Insufficient work has been done on the distributional impacts of water resources regulation in developing countries, and there is a great deal of work to be done in this regard to ensure that the water resources regulatory strategy and tools adopted in South Africa support poverty eradication, sustainable economic growth, and race and gender transformation, not only in design, but in actual implementation.

CAPACITY, CAPACITY, CAPACITY

While existing regulatory mandates exist, in particular under the NWA, these have not been fully implemented largely because of a lack of capacity, both in DWA and at the level of CMAs that have either not been established or do not yet have the capacity to implement the existing regulatory activities.

Mechanisms for improved alignment and cooperation with other government departments such as DEA and the provincial DEAs in particular need strengthening to streamline implementation and regulatory accountabilities and capacities.

Institutions that have important regulatory mandates such as CMA's have either not been established or where they have been, they lack the institutional capacity to give effect to the key regulatory functions/decisions, in these instances DWAF therefore self regulates. This has a profound and material impact on regulatory credibility and effectiveness. The establishment of

CMAs should be fast-tracked to assist the clarification of roles and responsibilities, the increase in regulatory capacity and avoidance of the player/referee scenario where possible.

A key challenge is that regulatory expertise and skills are not readily available in the country and DWA is not likely to easily attract and or retain the appropriate skills. In this regard, learning from the experience of other departments, such as DEA, and developing a formal programme to develop the necessary skills will be critical to the success of water resources regulation in the country.

INSTITUTIONAL ARRANGEMENTS

The issue of capacity is closely aligned to the issue of institutional arrangements. As has been discussed previously in the document, there are currently conflicts of interest within DWA which militate against effective water resources regulation. The development of appropriate capacity for regulation should take place within an appropriate regulatory framework that can deal effectively with economic, technical and institutional regulation, and, importantly, can ensure robust compliance and enforcement.

CONCLUSION

A number of issues and challenges have been raised in this discussion document. Discussion and engagement on these issues by key players and stakeholders in the water resources sector should inform the development of an effective and implementable water resources regulatory strategy which responds simultaneously to the challenges of being a water scarce country, and the need to use water for equitable and transformative socio-economic development.