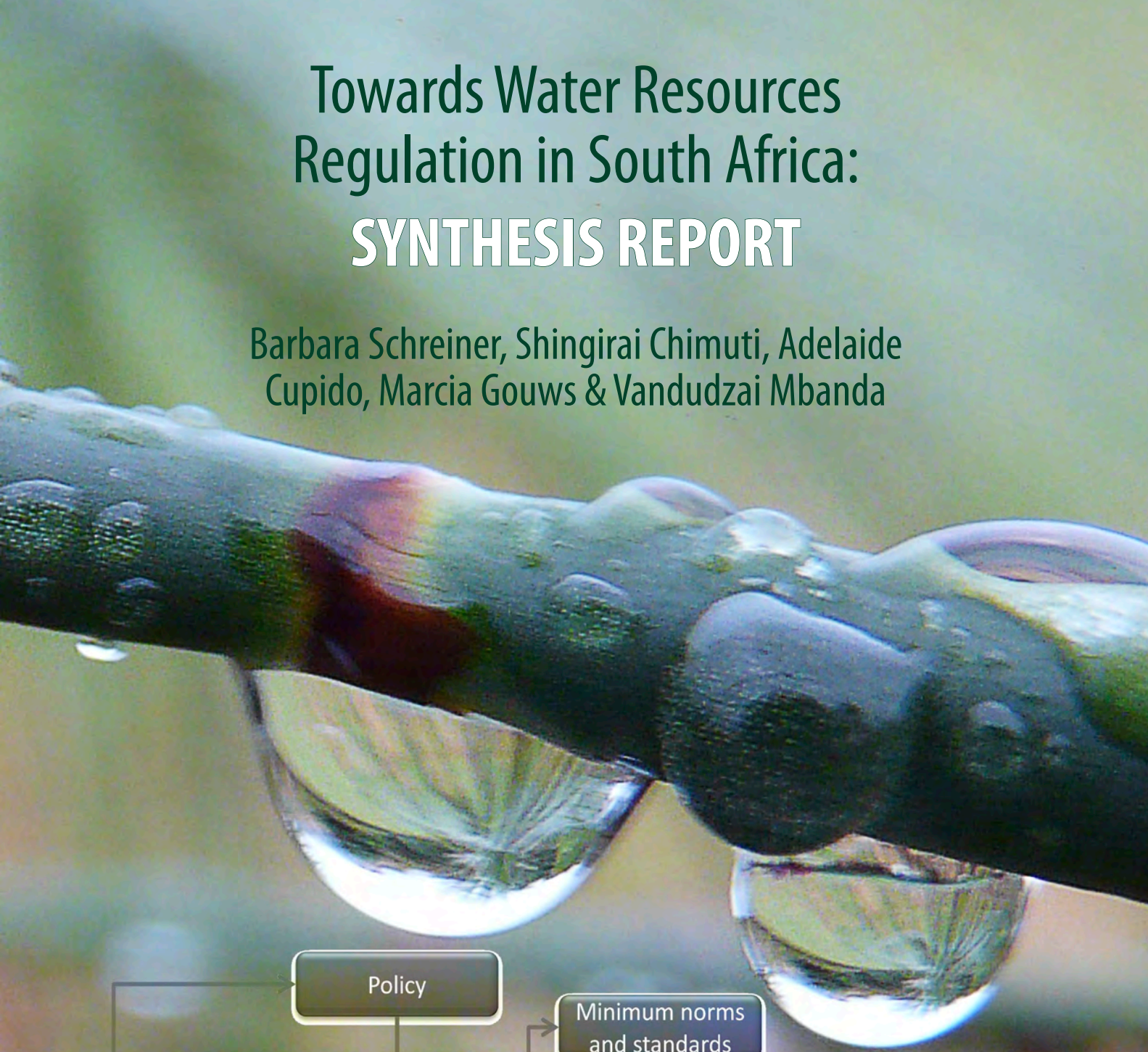
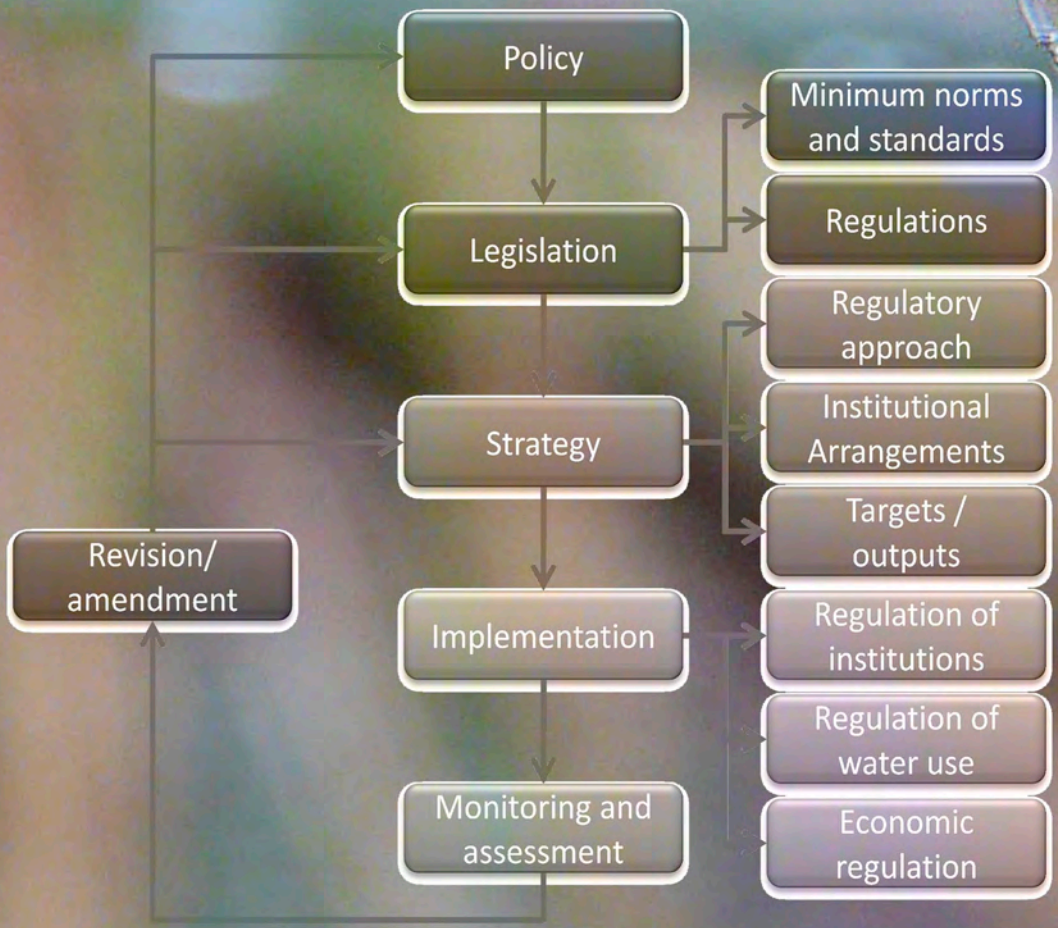
# Towards Water Resources Regulation in South Africa:

# SYNTHESIS REPORT

Barbara Schreiner, Shingirai Chimuti, Adelaide Cupido, Marcia Gouws & Vandudzai Mbanda



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# TOWARDS WATER RESOURCES REGULATION IN SOUTH AFRICA: SYNTHESIS REPORT

**Barbara Schreiner, Shingirai Chimuti, Adelaide Cupido, Marcia Gouws and Vandudzai Mbanda**

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*Towards Water Resources Regulation in South Africa. Vol 1: Survey of Approaches to Water Resources Regulation* (WRC Report No. 1842/1/11),
*Towards Water Resources Regulation in South Africa. Vol 2: Institutional criteria, functions and arrangements* (WRC Report No. 1842/2/11), and
*Towards Water Resources Regulation in South Africa. Vol 3: The use of Regulatory Impact Assessment in developing approaches and tools for pro-poor water resources regulation* (WRC Report No. 1842/3/11),



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## EXECUTIVE SUMMARY

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. While a number of water resources regulatory instruments already exist and are in use in South Africa, such as water use licensing, deteriorating raw water quality and high levels of water theft, amongst other things, indicate the failure of current regulatory practices to adequately address the water resource challenges.

This study, Towards Water Resources Regulation in South Africa, aims to support the development of an effective water resources regulatory framework in South Africa through assessing international good practice in the technical regulation of water resources; clarifying definitions, objectives and the scope of effective and transparent water resources regulation in South Africa; assessing the institutional principles and considerations that might inform roles, responsibilities and institutional arrangements; examining appropriate tools for achieving effective regulation, understanding the benefits and risks of using regulatory impact assessments and disseminating the findings of the project to relevant decision makers. The scope of the research was focused primarily on technical regulation, i.e. regulation of water use and impacts on water, not on governance or economic regulation.

This report brings together the results of three research reports arising from the study which are published as appendices to this report and are available at www.wrc.org.

### WHAT IS WATER RESOURCES REGULATION?

Regulation can be defined as "the means by which any activity, person, organism or institution is guided to behave in a regular fashion, or according to rule." [1] Under this definition, the regulatory framework for water resources consists of a great number of players and processes, some falling within the 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 behaviour, and so on.

Water resources regulation is a form of social regulation, aimed at the protection and equitable use of a common pool resource[2] – water. Within water resources regulation, however, there three different types of regulation are defined in this study:

- technical regulation,

[1] Picciotto, Sol and Campbell, David (eds), 2002: 1

[2] A common pool resource is a resource that a number of people use, but where use by one person can impact on the ability of another person to use that same resource. For example, without water resources regulation, those with more powerful pumps or more resources to build dams and weirs, and those in the upstream parts of catchments, would be able to use most of the water, leaving other people with little or no water.

- governance regulation and
- economic regulation.

Technical regulation, such as water quality or abstraction control, is related to, but distinct from the governance or economic regulation of water management and water services institutions. Technical water resources regulation refers to the control of activities that impact on a water resource.

Economic regulation, on the other hand, refers to interventions in what are considered to be market decisions, such as pricing, competition, the entry to or exit from the market, and promoting economic efficiency.

The term 'governance regulation' has been coined in this study to refer to the regulation of the governance of subsidiary water institutions, such as catchment management agencies and water user associations. This includes regulation of such matters as whether Governing Boards are operating according to statutory and best practice requirements, whether adequate financial management systems and controls are in place, and that statutory requirements relating to business plans, audited financial statements, and annual reports are met.

In addition, water resources regulation in South Africa operates in a different context from many other countries, in that there is a profound social and economic transformation requirement. This has implications for the types of tools that are used, and how they are applied. Unfortunately, not enough research has been done on the distributional impacts of water resources regulation in developing countries – that is how regulation impacts on different groups in society, and on the poor and marginalised in particular. More research is required 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 implementation.

Thus, the South African context of a highly unequal society with high levels of poverty[3] requires that water resources regulation should have a consciously pro-poor and equity-driven focus, and in order achieve this, necessary to understand the various dimensions of poverty in the country.

One of the many ways of understanding poverty is through what is called structural poverty[4]. The structurally poor lack the "minimum sufficient combination of assets" to rise above poverty. These are households that don't have sufficient assets, of whatever nature, to recover from a setback, and to generate sufficient income and food. Access to natural assets, such as water, can play an important part in reducing structural poverty, particularly, but not only, in rural areas.[5] While the provision of infrastructure is, in many cases, a critical part of enabling access to water for the poor, a regulatory approach which protects and enhances the entitlement of communities to such water is also important. This refers to water for both domestic and productive purposes and the water-dependent ecosystem services on which poor communities, households and individuals depend. These latter include wetland services, fish, building materials such as reeds, and water quality.

[3] Seekings, 2007
[4] Carter and May, 2001
[5] Reed, 2001

Even small amounts of water can provide important income support to poor households, including through activities such as ice-making, planting fruit trees, brewing beer, and supporting livestock, enabling increased income per capita per year of between around USD6 from tree planting to just under USD200 for beer brewing[6]. In general, the poorer the household the more important is the income generated through common natural resources, including wetlands and water resources[7].

The challenge in South Africa is not only one of high levels of poverty, but the degree of inequity in the country. The South African economy is one of the most unequal in the world, with a vast gap between the rich and the poor. In this context, one of the drivers of water resources regulation must be to contribute to raising the living standards of the poor and closing that gap. This approach is mandated by the principle of 'equity' in the water resources policy and legislation. In a context where certain sectors of the society have been disadvantaged for generations, equity calls for redistribution and redress, and for actions that will address the needs of the poor, close the gap between rich and poor and benefit the poor disproportionately.

Thus, in South Africa, in addition to the normal challenges of water resources regulation, there are challenges in terms of meeting social and economic redress, including, but not restricted to, redress in access to water and to the benefits derived from water. South Africa can be seen as a redistributive state[8], focused on the transformation of the economy and society. Regulation is one approach used by the South African state to achieve its redistributive objectives. Unfortunately, however, South Africa is also a weak regulatory state, and regulation in the water resources sector is not achieving its stated objectives.

## THE REGULATORY FRAMEWORK

The regulatory framework for water resources has four key elements – policy, legislation, organisational arrangements and instruments.

### POLICY AND LEGISLATION

Policy and legislation form the backbone of any regulatory framework, providing the principles, objectives, and legal approaches that can be used to regulate, in this case, human impact on water resources. The development of policy and legislation, and the interplay of different actors in shaping them, influences the nature of regulation. In this regard, it is important to recognise that the development of regulatory policy and legislation is a contested terrain, with different interest groups vying for regulatory policy to serve their interests.

There are a number of policy principles, drawn from both international experience and South African policy, which should underpin water resources regulation in South Africa.

- Principle 1: Water resources regulation must be pro-poor, equitable and redistributive
- Principle 2: Water resources regulation must be non-discriminatory
- Principle 3: Water resources regulation must be adaptive

[6] Soussan et al., undated
[7] OECD, 2008
[8] Laubscher, 2007

- Principle 4: Water resources regulation must be transparent and participatory
- Principle 5: Water resources regulation must be aligned with broad government objectives
- Principle 6: Water resources regulation must be necessary.

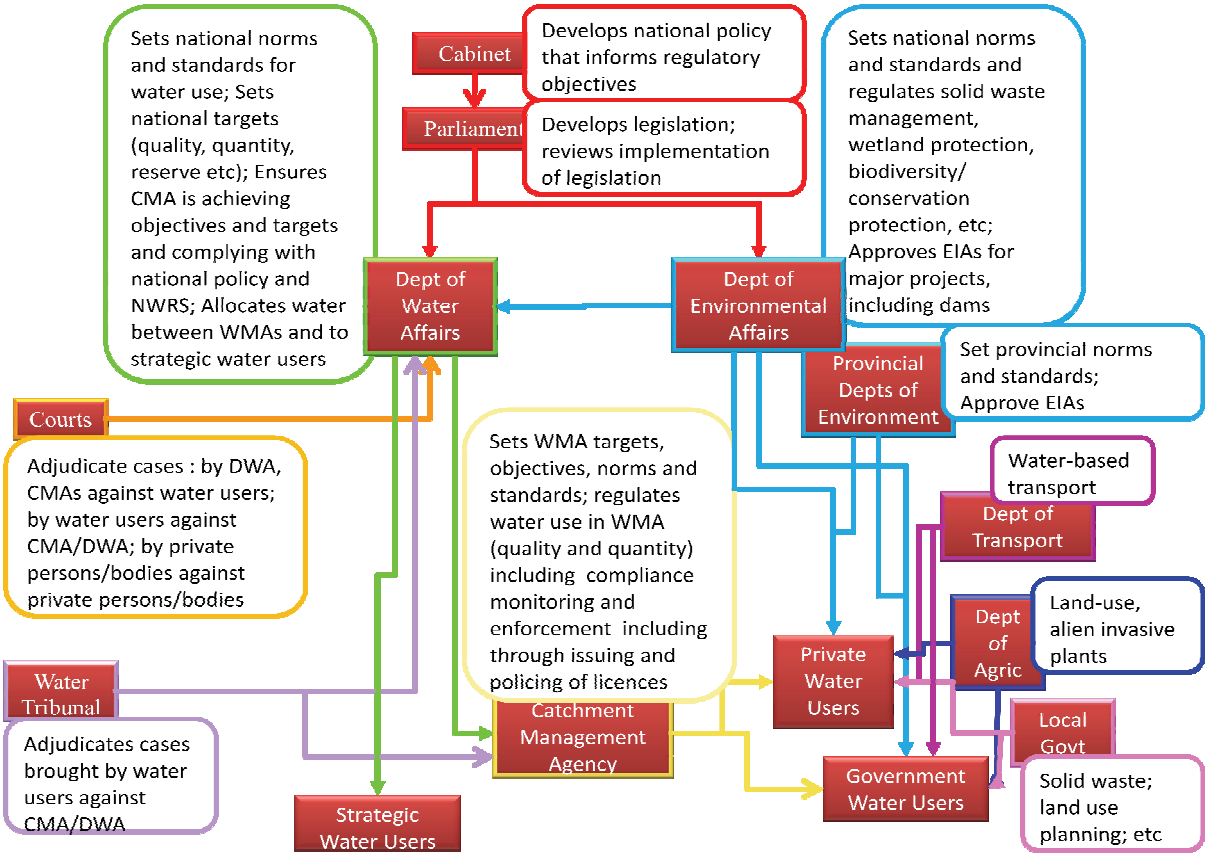
## ORGANISATIONS

There are a range of organizational issues to be considered in understanding what makes an effective regulatory framework. Despite the general support in the international discourse for basin or catchment management of water resources[9], there is no one particular model that can be recommended, and there are, indeed, questions around to what extent the establishment of river basin organisations is an effective model. Experience in southern and eastern Africa has shown the establishment of a number of river basin authorities and agencies which are, often due to a lack of financial resources, human capacity, or delegated authority, unable to perform their expected functions.

There are also differences between the organizational arrangements that regulate the formal water economy, and the structures that regulate the informal water sector through customary law. Understanding the roles, responsibilities and relationships of these organisations and structures is an important area for further research.

In understanding organisational issues for water resources regulation, it is useful to understand the current regulatory chain and the roles of the various players active in water resources regulation in South Africa. The figure below maps these key players and their relationships, and indicates the authors' interpretation of the regulatory role of the various players, both currently and in the near future.

[9] GWP, 2000




The South African Water Resources Regulatory Chain

## INSTITUTIONAL CRITERIA

While there is no one blue-print for the most effective organisational arrangements for water resources regulation there are a number of criteria that must be considered in the design of the organisational arrangements. These criteria can be categorized under four headings:

- **Responsiveness**, which includes consideration of whether the institutional arrangements best support accessibility, participation, and responsiveness to local social, hydrological and economic conditions;

- **Viability**, which includes consideration of whether the proposed arrangements are affordable, whether the transactions costs are low or too high, and whether the approach is based on making optimal use of available (limited) capacity;

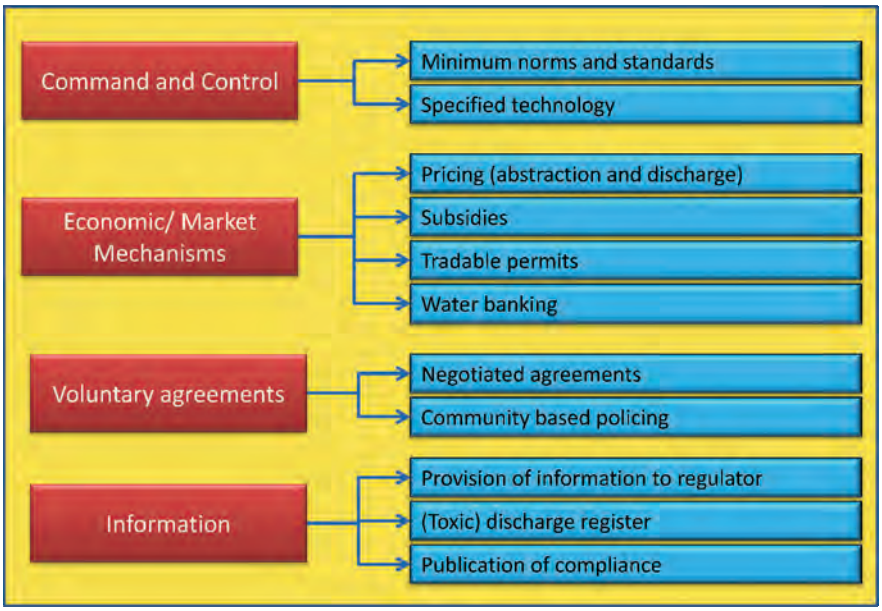
- **Institutional stability**, which includes consideration of the issues of independence, institutional alignment, mandates, transparency and accountability; and

- **Decentralisation to the lowest appropriate level**. Consideration of this criterion will, inter alia, require consideration of some of the issues raised in the previous three criteria, particularly around participation, affordability, and optimal use of available capacity.

The issues pertaining to these criteria are discussed in detail in the report. Application of the criteria and serious consideration of the aspects of each are necessary to determine the best institutional arrangements for water resources regulation in any given context.

## REGULATORY INSTRUMENTS

There are a range of regulatory instruments that can be used to achieve the objectives determined by policy and legislation. In this study, the authors identified four categories of regulatory instruments: command and control, economic and market instruments, information as regulation, and voluntary instruments such as negotiated agreements and community based policing. The figure below shows these four categories, and some examples of the more specific instruments that fall under each category.




**Four categories of instruments and examples of each category**

One of the key debates in the technical regulatory environment is whether to adopt a primarily command and control approach, or more flexible approaches that include the use of economic incentives, and co-operative or voluntary regulation. Consensus would appear to be that a combination of approaches is what is needed, since neither command and control nor the use of more sophisticated and flexible tools on their own have produced adequate results.

## COMMAND AND CONTROL

Under the command and control approach to regulation, government prescribes specific guidelines or standards that regulated parties must comply with. There are various forms that such guidelines or standards can take, such as prohibitions on certain activities, licensing of regulated activities, setting of product or technical production standards, or setting of performance standards.

Thus command and control regulation generally requires government to formulate standards, schedules for meeting the standards, permitting and enforcement procedures, and the development

of penalties for non-compliance. It has the benefit of being fairly predictable in terms of the results that can be expected[10].

However, criticisms of controls which take the form of standards and guidelines are that they can be inflexible and stifle innovation, are vulnerable to evasion, costly to implement and result in enforcement difficulties[11].

## ECONOMIC INSTRUMENTS AND MARKET MECHANISMS

While there are variations in the definition of economic instruments in the literature, UNEP (undated) offers the following definition: "a policy, tool or action which has the purpose of affecting the behaviour of economic agents by changing their financial incentives in order to improve the cost-effectiveness of environmental and natural resource management."

The merits of economic incentives are that firstly, they offer an opportunity to raise revenues for water resources regulation activities. Secondly, if applied correctly, economic incentives can prompt a change in user behaviour and assist in the attainment of management objectives without imposing a financial burden on society[12]. However, research on economic instruments has shown that they tend to impose slightly greater costs on small users than on large users, which is a concern that must be addressed if such tools are to be used.

Furthermore, regulating authorities need to guard against possible negative externalities which can arise through the use of economic instruments. For example, regulations aimed at decreasing pollution from agro-chemicals may unintentionally result in higher food prices[13]. The use of regulatory impact assessment can assist in avoiding such negative trade-offs.

Market mechanisms are premised on the ability to trade water allocations between users and uses. While there are limitations to such trade, arising from issues of physical availability and location, trading nevertheless provides an important regulatory tool, particularly in relation to driving water use efficiency and moving water to higher value uses. There are three key types of market mechanisms: water markets, water banking and cap and trade, all of which are based on the ability to trade water allocations.

## VOLUNTARY REGULATION

Voluntary regulation is an important addition to the suite of instruments that can be used to achieve regulatory objectives. There are four main types of voluntary regulation: "(i) environmental agreements negotiated between regulators and industry; (ii) public programs (administered by regulators or third parties) that individual firms are invited to join; (iii) public disclosure initiatives that collect and disseminate information on participants' environmental performance; and (iv) unilateral commitments made by firms"[14].

[10] UNEP, undated
[11] GWP, 2000; Sinclair, 1997
[12] GWP, 2000
[13] Ibid
[14] Khanna, 2001 in Blackman, 2008

While voluntary regulation is used in both developed and developing countries, there is disagreement on how effective it has been in developing countries. One view is that voluntary regulation sidesteps the challenges of weak institutions, weak legal frameworks and limited political will and relies partly on the pressure place on polluters by consumers, markets, nongovernmental organizations, and community groups and the potential for an improved profile as a result of environmental improvements[15]. However, a second school of thought is less convinced that voluntary regulation is effective in developing countries, partly because of weak regulatory and non-regulatory pressure on companies. Research suggests that the threat of mandatory regulation often pushes firms to take part in voluntary regulatory initiatives[16], so that the incentive to take part is lower with weaker mandatory regulation. And although pressure from communities, consumers, and markets can also push firms towards taking part in voluntary regulation initiatives, this pressure is also often weak in developing countries[17]. Despite this, there is evidence of such pressure having improved the regulatory performance of some firms in some circumstances.

### INFORMATION AS REGULATION

While adequate information is a prerequisite for all forms of regulation, and the exercise of all regulatory instruments, it can also be used as a regulatory tool in its own right[18]. Requiring water users to disclose information can provide a useful way for authorities to collect information. Equally, if the information is made public, such disclosure can also give the public access to the information and provide for monitoring and control both by the authorities and by public pressure. The collection of information also signals to water users that the authorities are taking their regulatory role seriously.

Information disclosure can take several forms such as certification of products, firms, processes, or management procedures, usually by independent agencies; self-certification, without independent review; or the provision of raw data to the authorities[19]. In the South African context, the Blue Drop/Green Drop certification system for municipalities has proved the regulatory value of the reporting and disclosure of information.

### ENFORCEMENT

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

### TARGETED REGULATION

There are a number of reasons why the blanket implementation of regulation on all water users is inappropriate in South Africa. Firstly, limited human and financial resources mean that the state

[15] Blackman, 2008
[16] Khanna, 2001
[17] Blackman, 2008
[18] Lopez et al., 2004
[19] Ibid

needs to take a targeted approach in order to exercise the strictest regulation on those who have the greatest impact or potential impact on water resources, both in relation to abstraction, quality, habitat destruction, and so on.

Secondly, the inequitable economic development in the country means that the transformational state should take a different approach to micro- and small-scale water users, for example, and large, established water users. The state should be protecting and supporting the water use of small users, including through strict regulation of large impact users to ensure that they don't negatively impact on small users either through high levels of pollution or through over-abstraction from water resources shared with small users as well.

## OPERATIONAL PRINCIPLES

A number of operational principles were identified to support effective water resources regulation:

- Implementable and Appropriate to Available Resources
- Low transaction costs
- Necessary
- Participatory
- Clear roles and mandates.

## USING REGULATORY IMPACT ASSESSMENT FOR EFFECTIVE REGULATION

In 2007, Cabinet approved the adoption of a gradual approach to using regulatory impact assessment (RIA). While RIA is not yet mandatory for all new regulatory processes, there are major benefits to adopting this approach. RIA is a tool that is used to describe and examine the possible costs and benefits of proposed or existing regulatory measures. It measures the impacts of the regulation on social, economic and environmental aspects[20]. As a result, an RIA gives decision-makers valuable empirical data and a structured framework within which to assess their options regarding regulation[21] and to evaluate the consequences and trade-offs of proposed, or existing regulatory practices. However, to do this effectively, there is a need to increase the capacity of developing countries, including South Africa to conduct RIAs.

An outline is provided in the report for an RIA framework to be used in the context of water resources regulation in particular. The key steps are:

- Define the problem and objectives and understand the policy context
- Identify alternatives
- Clarify the legal basis for action
- Identify affected parties
- Determine scale of impact of proposed regulation
- Assessment of costs and benefits to different groups, including vulnerable groups

[20] OECD, 2008a
[21] Rodrigo, 2005

- Compare costs and benefits of alternatives
- Consult
- Review regulation at regular intervals.

## CONCLUSION

This report has set out some of the key issues and options pertaining to water resources regulation in the context of a developing country. The consideration of literature and practice from around the world shows that the regulatory arena is no longer simply an arena of state action through the implementation of command and control regulations. The regulatory terrain has become far more complex and the suite of tools far more sophisticated in recent years.

A number of players are now involved in regulation, including government, the private sector, non-government organisations, the media, and ordinary citizens. This understanding opens a number of opportunities for new approaches to regulation that draw on the broader capacity within society. This is important in a context of limited state resources such as pertains in South Africa currently.

The state also has, now, a wide range of regulatory instruments from which to choose, of which four categories have been highlighted in this report: command and control, economic and market mechanisms, voluntary agreements, and information disclosure. What is clear from the international literature is that the most effective approach is based on a mix of these regulatory instruments, chosen according to the specific context within which they are to be applied.

It is, however, in the selection of the appropriate tools, and in the development of the appropriate regulatory policy, that significant challenges are to be found. The first of these challenges is recognizing that regulation is a site of contestation, and that there is a need to balance the competing interests that are striving to ensure that regulation serves their interests. Within this contestation for the regulatory space, it is important to recognize that bureaucrats are not neutral players interested only in serving the public interest, but often have their own links to specific interest groups and their own agendas to drive. The regulation of the bureaucracy by the legislature, by the courts, and informally by the public, is important to ensure that the regulatory policy is in the interests of the public and of national objectives. This process is hampered, however, by the informational asymmetry between bureaucrats and the legislature in particular.

The second issue is that of scale. A review of the literature has shown clearly that the issue of the scale or level at which regulation takes place can profoundly affect the outcomes. This is because different groups, and hence different viewpoints, have increased access to regulatory decision making at different spatial scales. Decisions regarding scale, therefore, are critical in the contestation for regulatory power. The issue of scale also raises the issue of how to balance regional or local flexibility with compliance to national objectives.

A third, and critical issue, is the issue of the distributional impacts of regulation. This is an area that has been given insufficient consideration, both locally and internationally and that requires further research, particularly in the South African context of massive social inequity and pressures for redistribution.

A fourth and final issue is how to ensure that the regulatory framework is aligned to the capacity to implement. Developing countries, including South Africa, suffer from lack of regulatory capacity and poor information to underpin regulation. Any regulatory framework must take these issues into account. This will require targeting regulation at areas in most need of regulation, rather than trying to address regulatory requirements across the board.

## TABLE OF CONTENTS

# 1. INTRODUCTION

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 licensing, deteriorating raw water quality in many areas and high levels of water theft, amongst other things, indicate the failure of current regulatory practices to adequately address the water resource challenges. In addressing these challenges, and ensuring an effective and implementable water resources regulatory framework, there are a number of issues that must be addressed.

In addressing these issues, however, it is important to understand the differences between water services and water resources regulation. 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. Thus water resources regulation covers a suite of activities pertaining to the use of or impact on raw water and water resources, while water services regulation deals very specifically with the management of treated water and effluent. Obviously, however, water services and sanitation impact on the water resource both at the abstraction end of the chain and the discharge end, and so there are strong interfaces between the two regulatory frameworks. Equally, both water services and water resources regulation require the regulation of government entities that perform key functions in these areas; the core business of these entities, however, are profoundly different, and they are governed by different legislation and mandates.

The Minister of Water Affairs is responsible for the implementation of the National Water Act, and therefore for the protection, development and use of the nation's water resources. The Department of Water Affairs (DWA) has been regulating water resources for many decades, through, for example, the issuing of discharge permits, the declaration of groundwater control areas, and the control of afforestation, under the 1956 Water Act. This role continued under the 1998 National Water Act in a new and extended form which included regulatory functions such as the licensing of a range of water uses including abstraction and discharge, the issuing of general authorisations, the determination and protection of the reserve, and so on. Thus the current water resources regulatory role of the department is an extension, with new policy objectives, of a function that it has executed for a long time.

The Department of Water Affairs has adopted a 'water for growth and development' framework to underpin all of their work. This approach, in the context of increasingly stressed water resources that will experience significant future pressures (from demographic changes, economic growth and climate change) provided a key sub-text for this study. To support the water for growth and

development approach, improved water resources regulation must provide certainty and stability for investment and job creation while driving a transformational approach to water allocation. Across the board, the benefits of regulation should outweigh the costs of regulation. And finally, taking into account the socio-economic context of South Africa, it is critical that water regulation is consciously pro-poor and addresses the significant challenges of inequality in the country.

Thus, an effective regulatory framework must support equitable and sustainable growth, protect the interests of the poor and the marginalized, and contribute to the transformation and democratization of South African society.

This study, Towards Water Resources Regulation in South Africa, aimed at supporting the development of such a regulatory framework in South Africa through assessing international good practice in the technical regulation of water resources; clarifying definitions, objectives and the scope of effective and transparent water resources regulation in South Africa; assessing the institutional principles and considerations that might inform roles, responsibilities and institutional arrangements; examining appropriate tools for achieving effective regulation, understanding the benefits and risks of using regulatory impact assessments and disseminating the findings of the project to relevant decision makers. The scope of the research was focused primarily on technical regulation, i.e. regulation of water use and impacts on water, not on governance or economic regulation.

This report, then, brings together the results of three research reports arising from the study:

- Towards Water Resources Regulation in South Africa, Volume I: Survey of Approaches to Water Resources Regulation;
- Towards Water Resources Regulation in South Africa, Volume II: Institutional Criteria, Functions and Arrangements; and
- Towards Water Resources Regulation in South Africa, Volume III: Examination of RIA as a tool for designing and deciding on effective water resources regulation.

These three reports are published as appendices to this report and are available at www.wrg.org.

## 1.1. WHAT IS REGULATION?

Regulation can be defined as "the means by which any activity, person, organism or institution is guided to behave in a regular fashion, or according to rule." [22] This definition is useful in the sense that is allows for regulation to be generated either internally or through external intervention, and it recognises that regulation covers a range of formal and informal rules, and does not limit regulatory activities to those of the state.

***Regulation can be defined as "the means by which any activity, person, organism or institution is guided to behave in a regular fashion, or according to rule."***

Under this definition, the regulatory framework for water resources 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

[22] Picciotto, Sol and Campbell, David (eds), 2002: 1

falling within a more informal regulatory process, for example through the media, community pressure groups, consumer behavior and so on (figure 1).

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 document is on the more formal regulatory processes of the state.

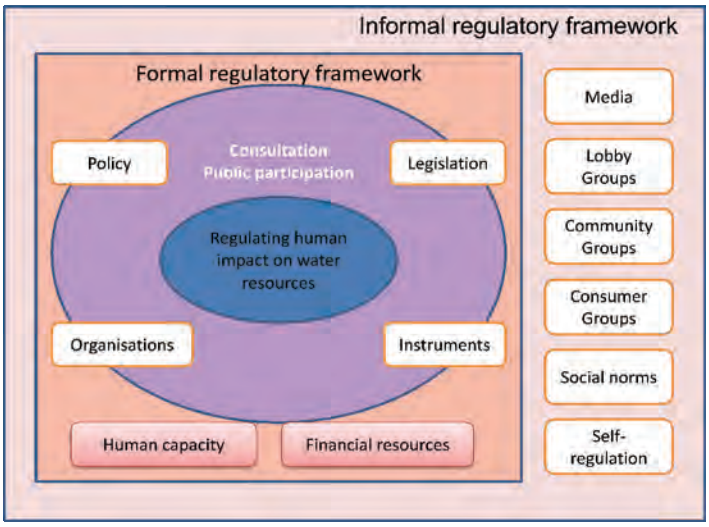



**Figure 1: Key elements of the formal and informal regulatory frameworks**

Nonetheless, it is important not to ignore informal regulatory mechanisms, firstly, because of their power to regulate how people behave, and secondly because of the need for alignment between the objectives of the formal regulatory system and informal systems for the former to work effectively. For regulation to be most effective, it should align with the norms and values of the society being regulated[23]. If it is not aligned, it requires additional state capacity to ensure compliance because compliance will have to be driven externally, rather than being internalised by those being regulated. There is an argument that water is insufficiently valued in South Africa, and that regulation therefore operates in a context where the general values do not align sufficiently with the regulatory objectives. One way of overcoming this is extensive education and awareness creation around water resources issues, to build a general appreciation of the value of water and an enabling and supportive social context for water resources regulation.

In South Africa, a great deal of water resources regulation already takes place informally, particularly at the local level where water use is often regulated by local users amongst themselves, including through customary practices. The media also plays a significant role in water resources regulation both by highlighting problems and bringing pressure to bear on the various role players to take action, and by educating the public on water related issues.

## 1.2. DIFFERENT TYPES OF REGULATION

Before moving into a discussion of appropriate instruments for and organisational issues around regulation, it is worth unpacking the understanding of regulation further. Regulation can be divided into several different categories, such as economic, social and process regulation[24]. Economic regulation is regulation that controls issues such as prices and tariffs, the quantity of goods or services to be provided, and the conditions for entry and exit in specific industries or sectors. Social regulation, on the other hand, is usually aimed at protection the environment, public health and

[23] Drummond and Marsden, 1995
[24] Gausch and Hahn, 1996: 2

safety, or public goods, and it is generally applied to a wide range of industries or sectors. Process regulation deals with the operation of the public and private sectors, and covers administrative requirements for producers and consumers.

Water resources regulation is a form of social regulation, aimed at the protection and equitable use of a common pool resource[25]-water. Within water resources regulation, however, there three different types of regulation are defined in this study: technical regulation, governance regulation and economic regulation.

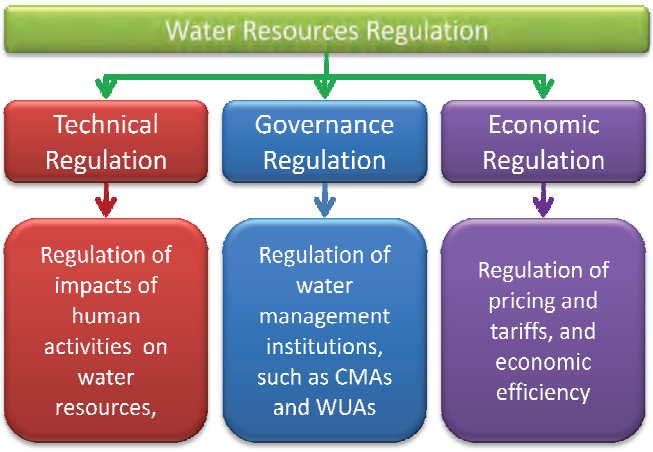



**Figure 2: Three categories of water resources regulation: technical, governance and economic**

Technical regulation, such as water quality or abstraction control, is related to, but distinct from the governance or economic regulation of water management and water services institutions. Technical water resources regulation refers to the control of activities that impact on a water resource.

Economic regulation, on the other hand, as defined above, refers to interventions in what are considered to be market decisions, such as pricing, competition, the entry to or exit from the market, and promoting economic efficiency.

The term 'governance regulation' has been coined in this study to refer to the regulation of the governance of subsidiary water institutions, such as CMAs and WUAs. This would include regulation of such matters as ensuring that Governing Boards are operating according to statutory and best practice requirements, that adequate financial management systems and controls are in place, and that statutory requirements relating to business plans, audited financial statements, and annual reports are met.

## 1.3. TRANSFORMATIONAL REGULATION

Water resources regulation in South Africa operates in a different context from many other countries, in that there is a profound social and economic transformation requirement. This has implications for the types of tools that are used, and how they are applied. Unfortunately, not enough research has been done on the distributional impacts of water resources regulation in developing countries – that is how regulation impacts on different groups in society, and on the poor

[25] A common pool resource is a resource that a number of people use, but where use by one person can impact on the ability of another person to use that same resource. For example, without water resources regulation, those with more powerful pumps or more resources to build dams and weirs, and those in the upstream parts of catchments, would be able to use most of the water, leaving other people with little or no water.

and marginalised in particular. More research is required 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 implementation.

Thus, the South African context of a highly unequal society with high levels of poverty[26] requires that water resources regulation should have a consciously pro-poor and equity-driven focus. The White Paper on a National Water Policy for South Africa, which sets the policy framework for water resources regulation, has a strong focus on the need for water resources management to contribute to equity and socio-economic development. In order achieve this, necessary to understand the various dimensions of poverty in the country.

Poverty has many different manifestations. Some people experience chronic poverty[27] which is passed down from one generation to another, so that the children of those living in poverty are also likely to live in poverty. Many others, however, move in and out of poverty over time. Even those that are defined as being 'ultra-poor', those whose "monthly adult equivalent expenditure is less than half of the poverty line"[28], move in and out of poverty over time. In a study conducted in KwaZulu-Natal in 1998, 32% of ultra-poor households were above the poverty line 5 years later[29].

One of the many ways of understanding poverty is by looking at what is called structural poverty[30]. The structurally poor lack the "minimum sufficient combination of assets" to rise above poverty. These are households that don't have sufficient assets, of whatever nature, to recover from a setback, and to generate sufficient income and food. Access to natural assets, such as water, can play an important part in reducing structural poverty, particularly, but not only, in rural areas.[31] Access to water as an asset may require the provision of infrastructure, or may require an appropriate enabling environment. While the provision of infrastructure is, in many cases, a critical part of enabling access to water by the poor, a regulatory approach which protects the entitlement of communities to such water is also important. This refers to water for both domestic and productive purposes and the water-dependent ecosystem services on which poor communities, households and individuals depend. These latter include wetland services, fish, building materials such as reeds, and water quality.

Even small amounts of water can provide important income support to poor households, including through activities such as ice-making, planting fruit trees, brewing beer, and supporting livestock, enabling increased income per capita per year of between around USD 6 from tree planting to just under USD 200 for beer brewing[32]. In general, the poorer the household the more important is the income generated through common natural resources, including wetlands and water resources[33].

[26] Seekings, 2007
[27] Aliber, 2003
[28] Aliber, 2003: 477
[29] Aliber, 2003
[30] Carter and May, 2001
[31] Reed, 2001
[32] Soussan et al., undated
[33] OECD, 2008

In addressing poverty, there are two approaches that can be taken to achieve pro-poor growth[34]. The first ensures that the growth path immediately raises the income of the poor and that growth takes place where the poor are found and in the appropriate sectors of the economy. This approach identifies where the poor are located and what factors of production they have access to that can be used in economic growth, including water.

The second is driven by redistributive public policy, such as progressive taxation and targeted government programmes to invest in the poor, either to encourage economic activity or as welfare payments.

Both of these approaches can be addressed in the regulatory framework, whether through ensuring sufficient water is available in specific locations and sectors, or by supporting redistributive approaches through, for example, subsidies and (re)allocation of water to those living in poverty.

The challenge in South Africa is not only one of high levels of poverty, but the degree of inequity in the country. The South African economy is one of the most unequal in the world, with a vast gap between the rich and the poor. In this context, one of the drivers of water resources regulation must be to contribute to raising the living standards of the poor and closing that gap. This approach is mandated by the principle of 'equity' in the water resources policy and legislation. In a context where certain sectors of the society have been disadvantaged for generations, equity calls for redistribution and redress, and for actions that will address the needs of the poor, close the gap between rich and poor and benefit the poor disproportionately. This issue is discussed further under the section on targeted regulation.

## 1.4. CHALLENGES OF WATER RESOURCES REGULATION

The regulation of water resources in developing countries, including South Africa, happens in a particularly challenging context. Part of this relates to the limited human and financial capacity for implementing regulation in a developing country, part of it relates to the need to ensure pro-poor growth and development and the need to ensure that water resources regulation supports sustainable growth and development, and part of it relates to the difficulties of regulating impacts on a complex natural system. So, water resources regulation is a complex, multi-faceted task.

Figure 4 shows the numerous points of technical regulation in the water chain, indicating the complexity of technical water resources regulation. In addition, the systems being regulated are also complex: it is difficult to predict with any accuracy what the impact of a particular action will be on a water resource, or what the status of a water resource will be at any given time, because of the fluctuations in rainfall, temperature, runoff, and the complexity of aquatic ecosystem functioning. In addition, the governance system is complex, with a number of different players having different roles and responsibilities.

[34] Klasen, 2003

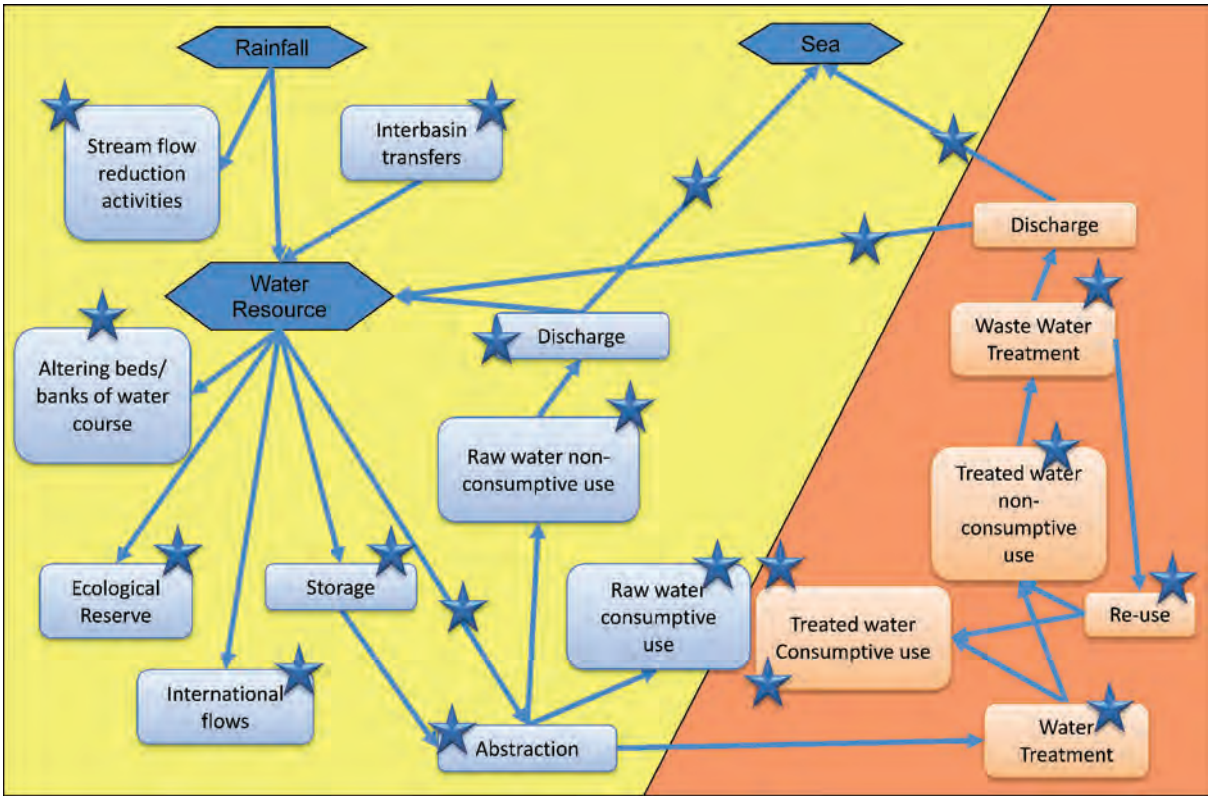



**Figure 3: Points of the regulation in the water cycle in South Africa**

As a result, the regulatory approach needs to be kept as simple as possible in order to not add unnecessary further complexity, and should be flexible and adaptable to enable water users and regulators to be innovative in meeting new challenges. However, the degree of flexibility should take into account the capacity of the administrative agency to effectively implement a flexible policy: too much flexibility can result in unfair administration of regulation, and the failure to regulate effectively.

To further complicate the picture, one can identify a formal water economy and an informal water economy[35]. The two water economies operate under a dual legal system, the formal legislative system, and customary law. These two legal systems often operate side by side, but usually without customary law being recognized in the formal legal framework. Customary law tends to operate within the informal water economy, in poorly developed rural areas, while the formal legal framework regulates the formal water economy. The informal water economy thus operates outside the regulatory reach of the state, while the formal water economy, on the other hand, falls under the regulatory control of the state. The arrangements by which the informal water economy runs are an important element of water regulation and it is important that the formal system does not undermine the effective functioning of such systems.

In South Africa, in addition to the normal challenges of water resources regulation, there are additional challenges in terms of meeting social and economic redress, including, but not restricted to, redress in access to water and to the benefits derived from water. South Africa can be seen as a redistributive state[36], focused on the transformation of the economy and society. Regulation is one

[35] Shah, 2008
[36] Laubscher, 2007

approach used by the South African state to achieve its redistributive objectives. Unfortunately, however, South Africa is also a weak regulatory state, and regulation in the water resources sector is not achieving its stated objectives.

While the development of appropriate regulatory models to achieve societal goals in developing countries poses significant challenges, the implementation of such models is equally challenging, and more consideration needs to be given to the necessary conditions for successful implementation. Some researchers argue that developing countries have focused too much on the choice of instrument for pollution control, for example, rather than focusing on the necessary preconditions for effective application of the instruments. They also argue that the role of the market and communities in regulation has been underestimated[37].

They further argue that the limited information and high transaction costs in regulation in developing countries mean that there should be a focus on ensuring integrated information systems, setting priorities, and a stronger public mandate, prior to focusing on the choice of instruments, and the premature introduction of economic instruments in particular.

There are five key features of appropriate regulation in developing countries[38]:

**Information and priorities:** Regulators need reliable data, integrated information, and clear priorities for regulation. The public, communities and markets need access to good public information on the water-related performance of water users.

**Orchestration, not dictation:** A multi-faceted strategy should be employed to achieve regulatory objectives, which could include awareness and education, public disclosure of the performance ratings of major water users, and training programs for staff of major water users.

**Community control:** Institutional arrangements should support local decision making and community involvement in the determination of standards, although this requires checks and balances to avoid regulatory capture by powerful local elites[39].

**Structured learning:** Agencies should begin with pilot projects from which they can learn and scale up, rather than launching into untested national regulatory programmes.

**Adaptive instruments:** The instruments used must be sufficiently flexible to adapt to rapid changes in the water environment, but the amendment of rules should be transparent and linked to publicly available information on water use and the status of water resources.

## 2. THE CONTEXT OF WATER RESOURCES REGULATION IN SOUTH AFRICA

This section briefly describes the context within which water resources regulation is taking place in South Africa.

[37] Afsah et al., 1996
[38] Adapted from Afsah et al., 1996
[39] Eisner et al., 2006

## 2.1. THE EVOLUTION OF WATER RESOURCES MANAGEMENT

In most countries, including South Africa, one can see an evolution of water resources management over time. Initially, the focus is on infrastructure development in order to support further economic growth. As the economy grows, and shifts from a primary economy to a secondary or even tertiary economy, the focus on supply-side management, or infrastructure development, shifts to a focus on demand-side management and increased pollution control: investment in infrastructure tails off, mirrored by an increase in regulatory intensity (see figure 4).

Interestingly, the specific historical path of South Africa has resulted in parts of the country moving from the secondary to a tertiary economy, while other parts of the country, particularly the ex-homeland areas, are still trapped in an under-developed primary economy. The need for infrastructure, is, therefore by no means exhausted in South Africa, with further infrastructure needed to serve the secondary and tertiary economy, but also to meet the needs of the under-developed areas. However, water scarcity, over-allocation, increasing demands, and high levels of pollution require increasingly strict and effective regulation.

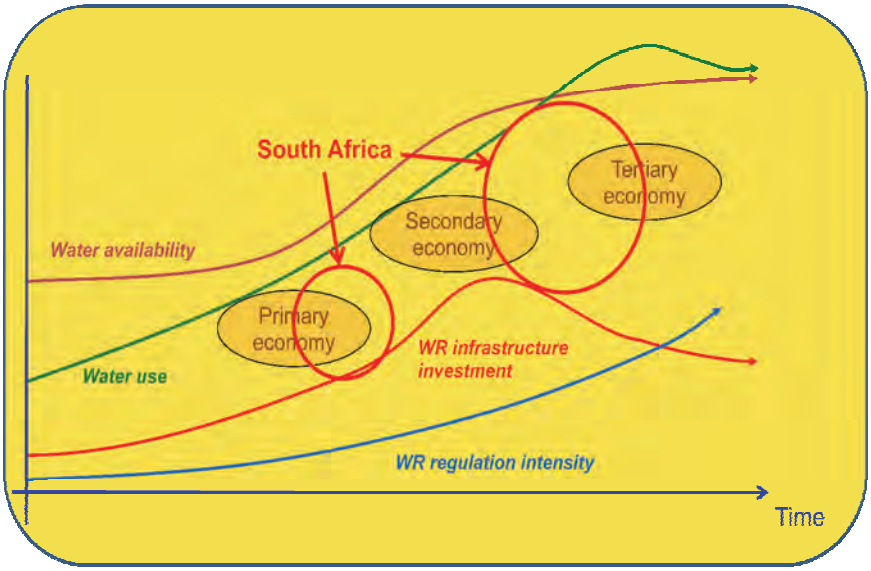



**Figure 4: The evolution of water resources management over time**

This shift means that there is an increasing need for effective water resources regulation in South Africa, regulation that can meet the policy requirements addressed in the following section.

## 2.2. POLICY IMPERATIVES

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...."

***"...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." [40]

As has been discussed, the socio-economic 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 to:

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

[40] White Paper on a National Water Policy, 1997

In order to give effect to these strategic objectives, a number of priority areas were identified by government. Water resources regulation must support all of 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 water resources regulation must contribute to the transformation of the South African society and economy, while also managing a limited natural resource in such a way that its use is sustainable. These approaches are captured in the White Paper and the National Water Act under the concepts of equity, efficiency and sustainability.

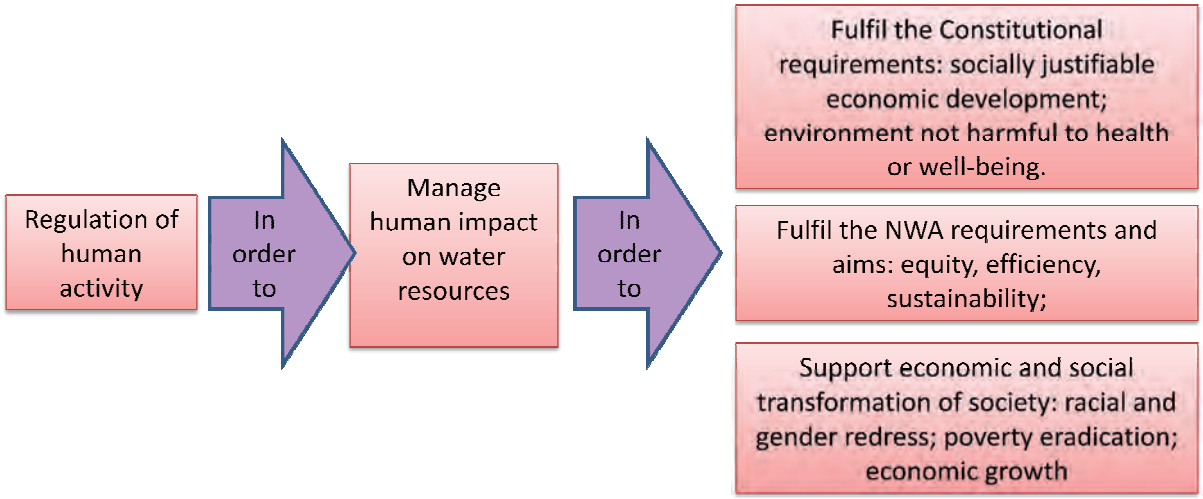



Figure 5: The purpose of water resources regulation

## 3. THE REGULATORY FRAMEWORK

Section 1 described briefly the difference between the formal and informal regulatory framework. This section describes, in more detail, four key elements of the regulatory framework – policy and legislation, organisational arrangements and instruments.

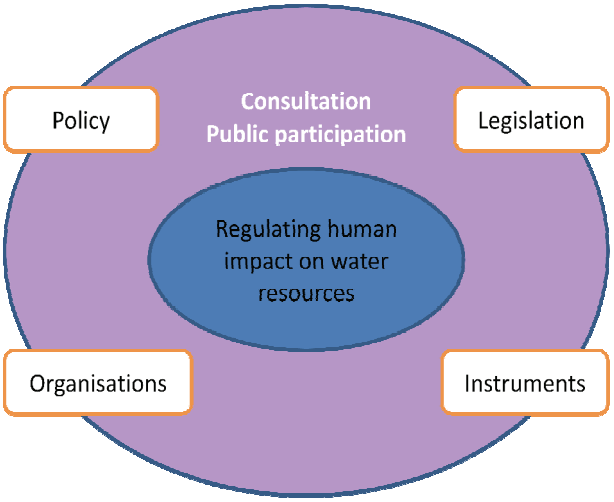



**Figure 6: Key elements of the formal regulatory framework**

## 3.1. POLICY AND LEGISLATION

### 3.1.1. POLICY FRAMEWORK

Policy and legislation form the backbone of any regulatory framework, providing the principles, objectives, and legal approaches that can be used to regulate, in this case, human impact on water resources. Thus, the development of policy and legislation, and the interplay of different actors in shaping them, influences the nature of regulation.

Where there is a particularly high degree of public interest in a subject, and where the system to be managed is particularly complex, a range of coalitions made up of interest groups, politicians and officials contest for the power to shape the regulatory terrain, including the policy and legislation. (Eisner et al., 2006). This is the current situation in South Africa, where public interest in water resources regulation is increasingly high, largely due to the deterioration of water resources and increasing media focus on the matter.

This means that the state is not in a position to use the Decide-Announce-Defend model (Williams, 2002), under which a public agency determines the need for a policy to resolve a particular problem, announces the creation of the policy, and defends it in public hearings. The development of policy and legislation requires a more open and participatory process in which stakeholders can make their views felt and be sure that their views are being taken into account.

However, a challenge still exists in that rules and regulations are usually determined by the dominant group in society[41]. In the light of the extreme inequity of South African society, consultative processes must be carefully managed to ensure that the voices of the poor and the marginalised are given fair space and that there is a conscious process to balance power relations amongst stakeholders.

### 3.1.2. POLICY PRINCIPLES

[41] Cocklin and Blunden, 1998

There are a number of principles, drawn from both international experience and South African policy, which should underpin water resources regulation in South Africa. These principles can be separated into two categories. The first are policy principles which are drawn from the Constitution, national development objectives, and national policy, 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 the policy principles is given below, while the operational principles are discussed in section 4.

**Principle 1: Water resources regulation must be pro-poor, equitable and redistributive**: 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;

The White Paper also 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.

**Principle 2: Water resources regulation must be 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. In other words, regulation must be applied fairly in all circumstances.

**Principle 3: Water resources regulation must be 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, while remaining focused on the achievement of key objectives.

**Principle 4: Water resources regulation must be transparent and participatory**: Transparency and participation are core principles of good water resources management, including water resources regulation, and are necessary to build the legitimacy of and trust in the regulatory system by those being regulated or benefiting from regulation;

Policy Principles for Water Resources Regulation
**Principle 1:** Water resources regulation must be pro-poor, equitable and redistributive
**Principle 2:** Water resources regulation must be non-discriminatory
**Principle 3:** Water resources regulation must be adaptive
**Principle 4:** Water resources regulation must be transparent and participatory
**Principle 5:** Water resources regulation must be aligned with broad government objectives
**Principle 6:** Water resources regulation must be necessary

**Principle 5: Water resources regulation must be aligned with broad 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, not only with water sector objectives.

**Principle 6: Water resources regulation must be necessary:** Over-regulation and inappropriate regulation can have significant negative impacts. Regulation should not be introduced unless it is clear that it is a necessary intervention in order to address a significant problem.

## 3.2. ORGANISATIONS

There are a range of organizational issues to be considered in understanding how to create an effective regulatory framework. Despite the general support in the international discourse for basin or catchment management of water resources[42], there is no one particular model that can be recommended, and there are, indeed, questions around to what extent the establishment of river basin organisations is an effective model. Experience in southern and eastern Africa has shown the establishment of a number of river basin authorities and agencies which are, usually due to a lack of financial resources, human capacity, or delegated authority, unable to perform their expected functions.

It is also interesting 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 for DWA on 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, urban water services are regulated by the National Water Supply and Sanitation Council (NWASCO), established in October 2000, 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.

There are also differences between the formal organizational arrangements that regulate the formal water economy, and the structures that regulate the informal water sector through customary law. Understanding the roles, responsibilities and relationships of these organisations and structures is an important area for further research.

### 3.2.1. THE REGULATORY CHAIN

In understanding organisational issues for water resources regulation, it is useful to understand the current picture. There are a number of players active in water resources regulation in South Africa. Figure 7 maps these key players and their relationships, and indicates the authors' interpretation of the regulatory role of the various players, both currently and in the near future. This latter issue pertains particularly to the role of CMAs in the regulation of water resources, where it is the authors' understanding that most technical water resources regulation, such as the issuing of policing of water authorizations, will be done by CMAs.

[42] GWP, 2000

The regulatory chain begins with Cabinet, which, guided by Constitutional requirements, sets the policy framework within which regulation must happen. Parliament, on the basis of this policy, develops the legislation that determines regulatory powers and functions. Parliament also exercises political regulation of the public sector: the public sector is accountable to Parliament for budgetary expenditure and for performance achievements against that budget and in line with government priorities and in line with the legislation passed by Parliament.

The courts, and the Water Tribunal, also have a powerful regulatory function, ruling, as they do, on the regulatory activities of DWA (and CMAs in future) when called upon to do so. It is through these institutions that water users and affected parties have legal recourse regarding actions taken (or not taken) by the state or its agencies.

At the other end of the chain, government has a regulatory relationship with private/non-governmental water users, exercising direct regulatory control over their use of or impact on raw water. In between, a range of governance regulatory relationships complete the chain – in this case, regulation of CMAs by DWA in particular.

DWA currently, and CMAs and DWA in future, are also be responsible for regulating water use by other organs of state, such as local government, other government departments, and conservation bodies. Regulatory action by the state against another organ of state carries different legal and relationship issues than similar action against a private organisation or individual.

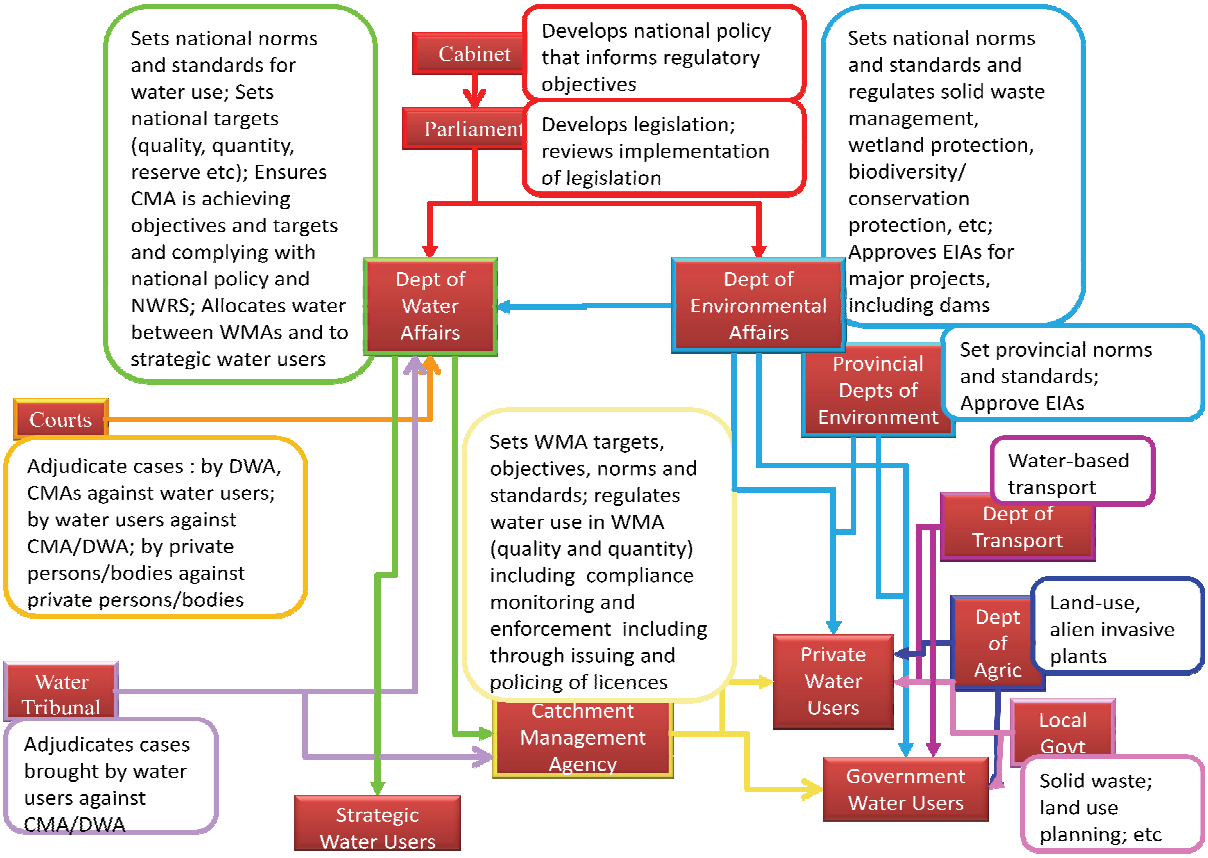



**Figure 7: The South African Water Resources Regulatory Chain**

There are many challenges in effective regulation along this chain, and throughout it a range of influences affect regulatory effectiveness, including the influences of particular groups. For example, politicians are very dependent on information supplied by the department in exercising their regulatory role. While DWA (or CMAs in future) has the time and capacity to seek information from the regulated industry, the politicians do not have this luxury. A department's control of information, therefore, allows a situation in which it, or individuals within it, can distort or hide information from Parliament, in the interests of particular groupings or individuals. This may be driven by outright monetary benefit, the potential for future employment in the regulated group, personal relationships with individuals in regulated groups, political interests or the potential for contributions to political campaigns[43]. Further, the assumption that parliament, "is a benevolent maximiser of a social welfare function is clearly an oversimplification, as its members themselves are subject to interest-group influence." [44] In order for the regulatory chain to operate effectively, therefore, transparency and equitable participation, as referred to in the section on policy principles, become extremely important.

The relationships mapped in figure 7 are only those of the direct state actors in the regulatory chain. However, the private sector, other government departments, and civil society all play a role in water resources regulation – roles that are not discussed in detail in this report.

While self-regulation and co-regulation in the private sector in South Africa have a significant impact on the broad regulatory environment, the key drivers of environmental regulatory policy are government legislation and global and local advocacy for environmental standards[45]. The state has been the key driver behind environmental legislation (and water resources legislation) since 1994, supported by vocal local and international environmental groups. However, there are also two major constraints on environmental regulation, the first being the pro-growth strategy of government, and the second being the capacity constraints of government which make implementation of effective regulation difficult. In the face of these constraints, civil society plays an active and critical role in monitoring compliance by companies[46].

### 3.2.2. INSTITUTIONAL CRITERIA

As has been mentioned, there is no one blue-print for the most effective organisational arrangements for water resources regulation. There are, however, a number of criteria that must be considered in the design of the organisational arrangements. These criteria are discussed briefly below. While the policy principles discussed earlier are ones that should be applied in all contexts, the institutional criteria discussed here should be considered, and depending on the particular circumstances and objectives, should be responded to appropriately.

The institutional criteria for water resources regulation can be categorized under four headings:

[43] Laffont and Tirole, 1991
[44] Laffont and Tirole, 1991: 1094
[45] Honke et al., 2008
[46] ibid

- **Responsiveness**, which includes consideration of whether the institutional arrangements best support accessibility, participation, and responsiveness to local social, hydrological and economic conditions;

- **Viability**, which includes consideration of whether the proposed arrangements are affordable, whether the transactions costs are low or too high, and whether the approach is based on making optimal use of available (limited) capacity;

- **Institutional stability**, which includes consideration of the issues of independence, institutional alignment, mandates, transparency and accountability; and

- **Decentralisation to the lowest appropriate level**. Consideration of this criterion will, inter alia, require consideration of some of the issues raised in the previous three criteria, particularly around participation, affordability, and optimal use of available capacity.

These four categories are discussed below.

### 3.2.3. RESPONSIVENESS

As mentioned above, the issue of the responsiveness of an institutional model involves a consideration of the accessibility of the institutional arrangements to the public and to water users in particular, the degree to which it supports effective stakeholder participation, and the degree of responsiveness to local social, hydrological and economic conditions, within an understanding of the national or provincial imperatives.

#### ACCESSIBILITY

While the issue of accessibility applies to all water users and the general public, in the context of pro-poor, transformative regulation it is particularly important that regulatory institutions are accessible to people living in poverty and to historically disadvantaged communities and individuals. This has implications for the location of offices, languages used, availability of appropriate information, and the culture of the organisation – people must feel welcome to arrive and make their needs felt and feel that they will be taken seriously. Many state institutions can be intimidating to people who are not used to engaging with them, and it is important that water resources regulatory institutions develop a culture of accessibility and openness to ensure that people with limited resources and an experience of marginalisation feel able to engage freely with these institutions.

The issue of accessibility is also influenced by the effectiveness and efficiency of organisations. People will not use or access an organisation where they feel that their queries or concerns are not being dealt with effectively or that there is a significant opportunity cost to them in dealing with that organisation because, for example, of unnecessary time delays.

#### PARTICIPATION

The need to involve stakeholders in the decision-making process has been widely cited as a critical part of integrated water resources management, and by extension, water resources regulation.

While it has largely been raised to the level of a principle, it can also be seen as a tool that serves to bring in diversity of opinion and information sources, local buy-in and support, and, ultimately, improved decision-making.

It is also a critical part of enhancing the democratisation of water resources management in general. Institutional arrangements can either facilitate or discourage easy participation by stakeholders. In the South African context, participation of stakeholders requires an understanding of the very unequal resources available to different groups, and as a result, the institutional arrangements must be particularly aimed at ensuring that the poorest and most marginalised communities are able to participate in the decision making process. As with accessibility, this has implications for institutional location, culture, and language.

| **Inform:** To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities, and/or solutions | **Consult:** To obtain public feedback on analysis, alternatives, and/or decisions | **Involve:** To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered | **Collaborate:** To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution | **Empower:** To place final decision-making in the hands of the public |
|---|---|---|---|---|

**Figure 8: Spectrum of public participation (International Association of Public Participation 2007)**

Public participation approaches can range from very limited participation to the position where stakeholders participate in or have complete control over decision-making. The degree of participation may vary depending on the nature of the issue under consideration – there are some matters on which provision of information is sufficient, and others in which collaboration or empowerment may be more appropriate. In terms of regulation, a command and control approach is likely to require less consultation than, for example, a process of voluntary regulation in which decision-making may be given to the involved parties or done in partnership with government.

A balance must be achieved between institutional efficiency and public participation, between two undesirable points – one of total secrecy in decision-making, and one of total openness where participatory processes become lengthy and cumbersome and prevent decisions being made[47].

It is also important to recognise that there are both benefits and risks inherent in consultative processes. While there is not the time or space to address these issues in detail here, two key issues that must be carefully monitored are ensuring the active involvement of the most marginalised groups, and preventing capture of the processes by particularly articulate or well-resourced groups. In this regard the state has a specific responsibility to provide a platform for marginalised groups to organise and voice their needs[48]. Without a conscious focus on empowering marginalised communities, the potential exists for stakeholder participation to be captured by powerful interests and to exclude the voices of the marginalised.

A further issue in the regulatory context, however, is the extent to which stakeholders are implementing regulation themselves, either through structures such as water user associations with

[47] Breyer, 1982
[48] Woodhouse, 1997

delegated functions, through community policing schemes, through traditional managements systems, through voluntary agreements or through self-regulation. In a context of limited state resources is it particularly important for the institutional arrangements to be effective in harnessing this non-state regulatory power.

#### RESPONSIVENESS TO LOCAL CONDITIONS

South Africa is a country of very varied geographical, social and hydrological conditions. The institutional arrangements should be able to respond to these variations in order to achieve optimal regulation in the differing contexts. It has been argued that decentralisation is the best approach to improved responsiveness to local conditions. However, it is equally important that local conditions are seen within the context of a broader national or regional view, particularly in a country such as South Africa with its complex array of interbasin transfers and international basins. Regulatory activities taken locally must align with the broader national and regional imperatives.

### 3.2.4. VIABILITY

The issue of the viability of the institutional arrangements is critical, and will determine the long-term sustainability of a particular approach. This includes consideration or whether the arrangements are affordable, both to the state and to water users, whether the costs of processes are low or too high, and whether the approach is based on making optimal use of available (limited) capacity.

#### LOW COSTS

The institutional arrangements should be such that the costs of regulation, such as the costs of applying for a water use licence, are kept low for both the clients and the institutions themselves, while still ensuring effective regulation. The costs of water resources regulation are pushed up unnecessarily by factors such as duplication of functions between institutions, slow decision-making processes, excessive information requirements and long decision-making chains. Thus, while the nominal cost of obtaining a water use licence is R114 (the amount paid to DWA with an application for a water use licence), the actual costs to the applicant include the time and money costs of completing the application form, submitting the form, revising it if required, conducting any studies including environmental impact assessments, consultation with other water users or stakeholders if necessary, following up on the processing of the licence, and, critically, the opportunity costs of long delays in the issuing of a licence. Such opportunity costs include the costs of lost income generation both to the direct water user and to the individuals that might be employed by that water user. The costs to the economy arising from delays in issuing licences or delays in addressing pollution issues because of weaknesses in institutional arrangements are orders of magnitude higher than the immediate costs to the water user of applying for a licence.

There is a critical factor in the long delays in issuing of licences which relates to the length of the decision-making chain of command. The shorter the chain of command, the swifter the processing licences can be. This relates to the issue of decentralisation that is discussed later.

#### AFFORDABLE

The issue of low costs relates, at least in part, to the issue of affordability. Any regulatory arrangements must be able to function effectively within the financial resources available, whether these resources come from the national tax based and/or from water user charges. And the services offered must be affordable to those wanting to use them. It is very important that the cost of accessing services, such as a licence to use water, does not discriminate unfairly against the poor. This is often the case where the same regulatory requirements are placed on small users and on large users. A differentiated approach, such as the improved use of general authorizations for smaller users while requiring licences for large impact users, is one way of addressing this challenge.

#### OPTIMISING AVAILABLE CAPACITY

Throughout Southern Africa the issue of sufficient capacity to implement water resources regulation effectively is a critical challenge[49]. Despite the higher economic development of South Africa relative to the other states in the region the issue of capacity is a challenge here as well. Institutional arrangements, in order to deliver an effective result, must be designed to optimise the use of existing capacity while being sufficiently flexible to expand their mandate and scope as capacity develops further. In parallel, however, it is critical to put in place proactive capacity building programmes that will enhance the effectiveness of regulation.

### 3.2.5. INSTITUTIONAL STABILITY

The issue of institutional stability includes consideration of factors such as independence, institutional alignment, mandates, transparency and accountability.

#### INDEPENDENT

The issue of independence is a much debated one in governance discourse. There are at least three aspects to this. The first relates to the concept of an 'independent regulator', the second to the degree of independence of state agencies, and the third to the separation of player and referee.

The notion of the 'independent regulator' derives in the main from the field of economic regulation, and to sectors in which the private sector is a key player and wishes to see regulation as being independent of political intervention. Many countries have established independent (economic) regulators for water services. In the water resources context, the picture is very different. Few countries have economic regulators looking at the issue of raw water pricing, and in many case the technical regulation of water resources is still seen as a core function of government.

Of concern is the track record of the current economic regulators in South Africa, in carrying out their economic regulation mandate and in their own corporate governance. This raises the question as to whether South Africa has sufficiently matured as an administrative state to have the necessary culture and skills to run effective independent regulators.

However, independence is not only an issue for economic regulation – it is a key element of the delegation of technical regulation to other bodies, including CMAs. Functions cannot be delegated to an agency without establishing some degree of independence for that body. This apparent

[49] GWPSA, 2009

independence may act as a key driver of stakeholder confidence in decision-making by the body to which functions have been delegated, particularly in a context where government departments have lost legitimacy. Thus the issue of independence is closely related to water resources regulation in a decentralised and agentised model.

A separate question relates to the issue of independence of decision-making. Funding for regulatory activities can come from two major sources – the first being the fiscus, the second being user charges. Both sources of funding apply in the agency or departmental context. The challenge in relation to user charges is the possibility of the agency (e.g. CMA) regulating in favour of large users because they are a major source of income, and paying less attention to small, marginalised and poor users who contribute little or nothing to the financial viability of the agency.

It is possible that government departments that are reliant on user charges are open to a similar bias, but in the case of government departments there is often a large budget from the national treasury as well, which reduces the impact of the water user charges and may therefore reduce the potential bias. This is an area in which further research could well be conducted.

The third issue in this suite of issues relates to the principle of the separation of roles of regulator and implementer (referee and player). The nature of any institution, and particularly a government bureaucracy, is that it is very difficult to regulate in-house activities, largely because it is difficult, if not impossible, for one part of an organisation to impose real sanctions on another part of the same organisation. As an example, the Department of Water Affairs is responsible for the regulation of dam safety for large dams in South Africa. A number of these dams are owned, operated and maintained by the same department. While the department is able to take legal action against private dam owners who fail to comply with the dam safety regulations, it is unable to take similar action against its own infrastructure branch should they fail to comply with such regulations. There is, thus, a strong rationale in support of a principle that separates regulatory and implementation functions.

## INSTITUTIONAL ALIGNMENT

For effective and efficient regulation, it is important that water resource regulatory institutions and the policies and procedures developed by such institutions are in alignment. It is also important for alignment between the direct water resources regulatory institutions and other relevant regulatory institutions such as those regulating land use, environmental regulation, and natural resource regulation in general. In South Africa, a discussion on allocation of water to the poor for productive use, for example, cannot be done in isolation from issues of access to land and agricultural support. Equally, the environmental department has an important role to play in the regulation of water-related environmental issues. Part of the alignment is to ensure that roles and functions are not duplicated, especially in circumstances where government departments and/or agencies have human resource constraints.

Effective institutional alignment links closely to issues of affordability, low costs and clear mandates. Clear mandates are necessary for institutional alignment, and will result in lower costs for the institutions and clients. If one takes the issue of monitoring systems as an example, well aligned

institutions may be able to achieve economies of scale through integrated or shared monitoring systems, whereas lack of alignment may well result in duplication and overlap of such systems.

In the South African context, there is a constitutional imperative for co-operative government which mandates that, at the very least, government departments and their agencies work together and in alignment. The challenge, however, is to give force to this in an effective way and to design both institutional structures and systems that facilitate and support such an approach.

Finally, it is important to recognise that South Africa, like many developing countries, operates within a plural legal system for water regulation: the formal legal arrangements, and the less formal customary water management systems which still operates in many rural areas and particularly in the ex-homeland areas[50]. The institutional arrangements for regulation should, ideally, align these customary and formal arrangements into one seamless system.

### INSTITUTIONAL PREDICTABILITY

While the dynamic nature of water resources and the longer term change resulting from climate change demand adaptable and flexible institutions, from the perspective of water users, a sense of institutional predictability and coherence over time is needed. Water users like to know that water use conditions and the institutional arrangements supporting water resources regulation will be stable over time. Lack of such stability may reduce investment in water infrastructure and improved technology for water use.

### MANDATE

Ideally, all regulatory institutions must have a clear mandate which is communicated to and clearly understood by those being regulated. This is important for a number of reasons:

- Compliance with regulation has shown to be better where those regulated understand and support the mandate of the regulator, be it technical or institutional regulation[51]. This reduces the need for and cost of enforcement;

- Costs are lower and efficiency higher where institutional mandates are clear and there is a clear division of roles and responsibilities, understood by all;

- Clear mandates for all institutions prevent overlap or gaps between institutions.

However, an equally critical issue in relation to pro-poor water resources regulation is the question of the actual policy mandate at various levels. For example, transformation or redistribution at the local level cannot be expected in the absence of a clear mandate for such at the national level. Reform at the local level cannot substitute for a progressive political agenda at the national level[52]. If the mandate of the central state is not overtly and clearly pro-poor, simply putting in place decentralised management or regulatory systems will not, in itself, translate into pro-poor regulation. The state, therefore, has a critical role to play in setting and driving the policy context for

[50] Malzbender et al., 2005
[51] WRC, 2009
[52] Woodhouse, 1997: 546

pro-poor water resources regulation, which includes 'establishing a political climate in which disadvantaged groups have opportunities to organise and negotiate at local level'.[53]

### TRANSPARENCY AND ACCOUNTABILITY

There is an unacceptably high level of corruption in the provision of water infrastructure and in water flows, and therefore in who gets access to water[54]. The same issues pertain in relation to the regulation of water use and the authorisation of and enforcement of water entitlements. Corruption is, inevitably, anti-poor, since the poor lack the resources to pay to corrupt decision-makers. The strongest weapon against corruption is to ensure transparent decision-making and to ensure that key stakeholders, including the poor, have a voice in the decision-making process and a role in holding water institutions accountable.

It is critical, to maintain effective, corruption free water resources regulation, that regulatory bodies are held accountable for their actions, where accountability means that they are subject to the obligation to report, explain or justify their actions. This demands that a number of elements should be present in the institutional domain, including access to information for stakeholders, and bodies to which the water resources regulator(s) must account. In the current South African value chain, this accountability is largely to the tribunal, the courts and to Parliament. However, significant information asymmetry makes it questionable to what extent this accountability is exercised effectively. It also fails the test of accountability to stakeholders and to water users who pay for the exercise of regulatory functions.

## 3.2.6. DECENTRALISATION

The issue of decentralization of regulation is a particularly interesting one. Understanding this criterion requires an examination of some of the issues raised in relation to the previous three criteria, particularly around participation, affordability, and optimal use of available capacity. There are, however, also specific issues relating to decentralization itself that must be considered.

### DECENTRALISATION

Both the international literature and the local experts interviewed largely support the decentralization of water resources management, and by implication the regulation of water resources, to the lowest appropriate level. Indeed, it is viewed as a principle of IWRM. This is based on the understanding that decentralisation will increase the democratization of water resources management, lower transaction costs and increase stakeholder participation[55].

In understanding the debate, however, it is important to clarify the concepts of decentralization, de-concentration, and agentisation.

[53] Woodhouse, 1997: 546
[54] OECD, 2008
[55] DWA, 2009

*Decentralisation* can range take place within the public administration, or through the movement of functions to decentralised parastatal or private organisations[56]. It can be done through a process of de-concentration, delegation or devolution.

*De-concentration* refers to the assignment or delegation of powers and functions to decentralised units within the central authority, such as the delegation of powers to the regional offices of DWA. These functions can be taken back at any time, and authority remains within the central authority. *Delegation* refers to a situation where functions are delegated to a separate public or private institution, and there is a transfer of authority which is not irreversible. The central authority creates the regulatory framework within which the other institution functions and while it cannot exercise the delegated functions while they are delegated to the other institution, it can withdraw the delegation as and when necessary. This is the process that would be used in the transfer of powers and functions to CMAs. *Devolution*, on the other hand, sees the complete and permanent transfer of both authority and responsibility to another body. Since this largely amounts to giving away a function, it is seldom seen[57].

In many of the discussions regarding decentralisation, the concept is conflated with the idea of establishing government agencies, usually in the form of quasi-autonomous river basin organisations, and delegating functions to them. In reality, however, it is quite possible for decentralised water resources regulation to take place within a national government department through the process of de-concentration. This approach may well achieve improved stakeholder involvement, lower transaction costs, and a better understanding of and response to local conditions. In Mexico, for example, basin level water resources regulation is done through regional offices of CONAGUA, the central water agency, rather than through independent basin authorities.

In South Africa, the same approach prevails partially in the establishment of regional offices responsible for specific water management areas. What has not been done, however, is the delegation of sufficient decision-making functions to these regional offices in a way that would make them more able to respond to basin level needs and to lower transaction costs.

The model proposed in South Africa with the establishment of catchment management agencies, (and implemented in several other countries studied, such as Zimbabwe), combines both decentralisation and agentisation, with the establishment of basin level agencies with delegated functions for water resources management and regulation.

In this picture, the decentralisation of functions to the lowest appropriate level is a *principle* of integrated water resources management. Agentisation, on the other hand, is merely one possible tool for the implementation of decentralization.

The challenge remains, however, that despite the global rhetoric about decentralization and agentisation being the appropriate approach, insufficient work has been done on examining the *actual* costs and benefits of establishing basin level agencies for delegated water resources regulation in developing countries, and to what extent the creation of such agencies has improved

[56] Jaspers, 2003
[57] Jaspers, 2003

basin management, and particularly basin management that benefits the poor. This is an area where considerably more research is required.

Furthermore, understanding the effectiveness of the decentralised agency approach requires consideration of the actual practice in developing countries. The GWP Southern Africa report on IWRM implementation[58] makes it very clear that although a number of countries in SADC have gone the route of both decentralisation and agentisation (at least on paper), implementation has fallen short because of the lack of financial and technical resources and the lack of delegation to these basin level institutions.

Thus, while the principle of decentralisation remains valid, it must be noted that Agenda 21 refers to delegation of functions to the lowest ***appropriate*** level, and that what is appropriate requires serious consideration of the human and financial constraints present in developing countries. It also requires consideration of how decentralised agencies are to be regulated to ensure good governance, good water resources management, to avoid regulatory capture at the basin level[59], and to ensure that they give force to national government imperatives such as poverty eradication. Finally, if decentralisation is chosen as an option, it requires the political commitment to ensure the actual delegation of the required powers and functions to the decentralised bodies.

In the discussion on decentralisation, however, it is critical to remember that the Minister of Water Affairs remains, by legislation, the custodian of the nation's water resources, and that there is a constitutional obligation on the Minister to ensure access to sufficient water for all, and to ensure, in relation to water, that everyone has an environment not harmful to health or well-being. As a result, although the Minister can delegate various water resources management functions to a range of institutions, she cannot delegate the ultimate responsibility of being custodian of the nation's water resources.

Water resources regulation in South Africa is currently very weak. This can be seen in 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, and particularly whether decentralization and the establishment of CMAs is the appropriate route to improving water resources regulation.

Participants in a given situation can change the power relations and the authority in that situation by changing the spatial scale at which they engage[60]. This includes altering access to resources and decision-making processes. Thus, the issue of scale is clearly political, and can profoundly influence who is included and who excluded from decision making processes, and it is a process that can be manipulated by those that have access to a range of levels of decision making.

Equally, the issue of scale is critical in making water resources decisions relating to ecological protection, flood protection and so on[61]. Does one, for example, examine such issues at the quaternary scale, or quinary, or secondary? The answers generated will be strongly influenced by the scale selected. Decisions taken at one scale may also cause unintended consequences at another

[58] GWPSA, 2009
[59] WRC, 2009
[60] Lebel et al., 2005
[61] Ibid

scale. For example, a decision to reduce the reserve requirements in one part of a river system may have severe negative impacts further downstream. Or, conversely, a decision to raise the reserve requirements downstream may impact on the amount of water available for economic use upstream.

> Munton (1995), examining the case of open-cast mining in Cumbria, in the UK, shows how the change in regulatory arrangements, namely the submission of a development application to the county rather than to national government, gave more weight to local interests and resulted in the rejection of an open-cast coal mine that may have been approved had the application gone to national government. This, he argues, reveals the "quite differing implications for claimants of altered spatial configurations of administrative power." (Munton, 1995: 282)

Research indicates that the optimal solution is to ensure that management systems consciously address issues of scale and the linkages across levels. This results in improved assessment of problems and in development more politically and ecologically sustainable solutions. Since the systems to be managed operate at a range of levels, the solutions must also function at a range of levels, and this should be consciously built into the decision-making systems. According to some researchers, this will come not from a top-down approach, or a bottom up approach, but from one that deals with all levels in a multi-level approach.[62]

A further critical point in the decentralization debate is that of the decentralization of the real authority to make decisions. Regulation cannot be responsive or effective where the agencies due to carry out the regulation are constrained by legal restrictions that prevent them carrying out their mandate[63]. This is particularly relevant in the context of decentralized regulation, where decentralized agencies require the legal, human and financial resources to operate effectively.

There is, however, a further critical tension which comes into play when decision making authority has been decentralised. In decentralized regulation there is a desire for flexible enforcement at the local level, or in order to meet local conditions, as well as a desire to meet national goals[64]. Somehow the balance between local flexibility and national standards and objectives must be maintained. There is, thus, a challenge facing central managers in policing the 'discretionary exercise of power" at the local level. As a result, historically, in the US, a set of processes were put in place, including supervision of local agents, to ensure minimum deviation from national norms.

However, the complexity of water resources regulation, and the variation in local conditions (biophysical, social and economic), require the ability for regulators to take decisions that are appropriate to those local conditions. There is, thus, much to be said for enabling decisions that are appropriate to local conditions, an approach that is contained in the South African policy position on decentralization of water resources regulation to catchment management agencies. Such decentralization and agentisation of authority then raises the question of what management and institutional regulation systems to put in place to ensure that localised decision making is in line with and supports national water resources objectives, and is not captured by local powerful interests.

[62] Cash et al., 2006
[63] Vincent-Jones, 2002
[64] Whitford, 2007

Achieving the balance between too much discretion and not enough is difficult[65]. It is even more difficult in the context of decentralized and agentised regulatory power. This is heightened when the regulatory tools used are designed to be flexible and require greater discretion from those implementing them. In this case, there are two mechanisms needed to ensure the lawful exercise of discretion, the first being limiting the exercise of discretion, and the second being reviewing how that discretion has been exercised. The first constrains the range of decisions in which discretion may be applied, the second ensures appropriate exercise of discretion by reviewing the decisions made.

In the case of decentralized regulation, the constraints on discretion must be made clear to the decentralized decision-maker (CMAs in the South African context), while a series of organisations are responsible for the review of such decisions, including DWA, the Water Tribunal, the Courts, and ultimately the parliament (see Section 3). The mechanisms for review must equally be specific, transparent and based on a clear legal mandate.

South Africa is currently moving towards the decentralization of a large proportion of technical water resources regulation to CMAs. The issues of scale and its associated impacts, the balancing of local discretion and meeting national objectives, the transfer of real decision making authority, and the review processes for decisions made are critical in making decentralization and agentisation work effectively.

## 3.3. REGULATORY INSTRUMENTS

There are a range of regulatory instruments that can be used to achieve the objectives determined by policy and legislation. In this study, the authors identified four categories of regulatory instruments: command and control, economic and market instruments, information as regulation, and voluntary instruments such as negotiated agreements and community based policing. Figure 9 shows these four categories, and some examples of the more specific instruments that fall under each category.

[65] Schoombee and McIntosh

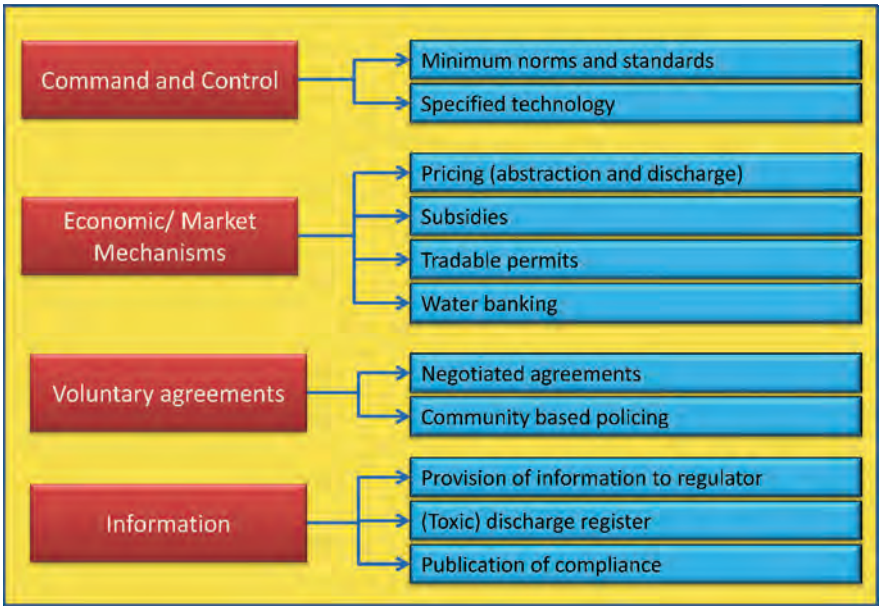



**Figure 9: Four categories of instruments and examples of each category**

One of the key debates in the technical regulatory environment is whether to adopt a primarily Command and Control approach, or more flexible approaches that include the use of economic incentives, and co-operative or voluntary regulation. Consensus would appear to be that a combination of approaches is what is needed, since neither command and control nor the use of more sophisticated and flexible tools on their own have produced adequate results. As a result, in the EU countries, there is a tendency to use a mixture of command and control, incentive and voluntary approaches[66].

Ruhl[67] argues that in the face of increasingly complex environmental challenges, including such as regulating non-point source pollution, and invasions by alien species, what he terms second generation instruments such as economic instruments must be used adaptively. Regulatory innovation must go hand in hand with adaptive management. To achieve this one needs a cyclical decision-making process based on continuous monitoring of the impact of regulation, and the adjustment of the regulatory regime based on the changing conditions. However, for regulatory agencies to be able to operate adaptively, legislatures, interest groups and the courts will need to allow them to do so, something that has not, traditionally, been the case[68].

However, the decision on whether to use command and control approaches or economic incentives is not easy. While economic instruments may be more efficient than command and control instruments, the latter, in some instances, achieve their objectives quicker. Most importantly, however, that the evidence is inconclusive on which has lower administrative costs[69].

In order to support the ability to understand the choices in relation to regulatory instruments in South Africa, the following sections outline some of the key issues and approaches under each of the four categories, and some of the pros and cons of each.

[66] Demke, undated
[67] Ruhl, 2005
[68] Ibid
[69] Harrington and Morgenstern, 2004

### 3.3.1. COMMAND AND CONTROL

Under the command and control approach to regulation, government prescribes specific guidelines or standards that regulated parties must comply with. There are various forms that such guidelines or standards can take, such as prohibitions on certain activities, licencing of regulated activities, setting of product or technical production standards, and setting of performance standards.

***Perverse incentives***

In Mexico the government handed management of aquifers to water users. Under the new legislation, users who didn't use all of their allocation in a particular year would lose the unused portion the following year. This introduced a perverse incentive which resulted in users using their full allocation even if it wasn't needed and the water was ultimately wasted. (Shah, 2008)

Thus command and control regulation involves direct regulation, monitoring and enforcement. It generally requires government to formulate standards, schedules for meeting the standards, permitting and enforcement procedures, and the development of penalties for non-compliance. It has the benefit of being fairly predictable in terms of the results that can be expected[70].

However, criticisms of controls which take the form of standards and guidelines are that they can be inflexible and stifle innovation, are vulnerable to evasion, costly to implement and result in enforcement difficulties[71].

Traditionally environmental regulation has relied heavily on command and control policies which, for example, call for polluting facilities to employ specified abatement devices or to limit emissions to levels specified by the regulating authorities[72]. Instruments of command and control are useful in that, unlike legislation, they can be drafted and amended easily and at short notice in response to changing environmental, economic or social circumstances[73]. However, recent evidence suggests that regulation by command and control has not been particularly effective in inducing facilities to adopt pollution prevention and control[74]. Some critics go suggest that technology standards and fixed performance standards are inferior to alternative approaches[75], but the literature suggests that the case for alternative approaches is not entirely overwhelming either. There is some evidence that the most successful regulation is where there is acceptance by those being regulated that the regulation is reasonable[76].

It is useful to note a difference in approach to the setting of standards in the developed and developing worlds. In the developed world, the setting of standards for environmental protection follows many years in which society progressed through a period of industrialization where resources were exploited "without much concern for environmental conditions"[77]. In the United States for instance, the environment only became a concern well after the Second World War when the country's GNP per capita had reached a stage that satisfied the basic needs of food, housing and

[70] UNEP, undated
[71] GWP, 2000; Sinclair, 1997
[72] Blackman A., 2006
[73] GWP, 2000
[74] Sinclair D., 1997; Pandey R and Bhardwaj G., 2004; Kathuria V., 2005
[75] Wiener J., 1999
[76] Rees J, 1998
[77] Johnston and Horan, 1994

jobs for most of the population[78]. This must be borne in mind when considering that in most of the developing world the chief and immediate requirement is for basic water and sanitation and conceivably, issues of environmental standards and regulation are of lesser importance. Johnston and Horan go on to describe that newly industrializing countries face internal and external pressure to curtail years of environmental degradation but are often ill-equipped for setting standards and therefore import developed world standards "without either the means of achieving them or even the faintest idea of the costs of regulating them". An example of this is Uganda's draft effluent standard which some critics considered unrealistic because it did not take into account the laboratory capacity in the country.

#### WATER RIGHTS

One of the key command and control tools for regulating water resource use (both abstraction and discharge) is that of controlling water use through a formal permitting system.

However, what may seem to be best practice may, in reality, have several drawbacks. The use of water rights, fees and formalized water user associations have not always functioned as anticipated, and is not necessarily useful where water management at the level of the small water user is still governed by informal institutions. In Tanzania, for example, the concept of "state-offered" water rights has met resistance at the grassroots level. In an environment where there are many poor water users and where abstraction structures are both complex and changing, authorities have found it difficult to accurately monitor volumes abstracted by users. In addition, because formal water rights are associated with paying water charges, in some places there has been a significant lack of local support for the idea[79].

In the South African context, water is recognised through the National Water Act as a national asset entrusted to the state. Water users are exempt from licensing requirements where the intended use is reasonably insignificant (typically for personal and domestic purposes and Schedule 1 uses). There are also cases where general authorizations may be granted, usually limited to a particular water resource or catchment, a category of people, or a defined geographic area or period of time. For all other uses, licenses are a requirement for new water uses and are granted or refused following formal application procedures, although most water is currently used under an 'existing lawful use' provision which allows the continuation of water used legally in the two years prior to the promulgation of the National Water Act. However, there is some concern that the allocations under schedule 1 and under general authorizations do not have the same legal weight as existing lawful use or licenses to use water, and that the legislation and policy needs amendment to give equal or priority status to water use by small users.

### 3.3.2. ECONOMIC INSTRUMENTS AND MARKET MECHANISMS

While there are variations in the definition of economic instruments in the literature, UNEP (undated) offers the following definition: "a policy, tool or action which has the purpose of affecting

[78] Garber, in Johnston and Horan, 1994
[79] Sokile and Van Koppen, 2004

the behaviour of economic agents by changing their financial incentives in order to improve the cost-effectiveness of environmental and natural resource management."

The merits of economic incentives are that firstly, they offer an opportunity to raise revenues for financing infrastructure and water resources management and regulation activities. Secondly, if applied correctly, economic incentives can prompt a change in user behaviour and assist in the attainment of management objectives without imposing a financial burden on society[80]. However, research on economic instruments has shown that they tend to impose slightly greater costs on small users than on large users, which is a concern that must be addressed if such tools are to be used.

Furthermore, regulating authorities need to guard against possible negative externalities which can arise through the use of economic instruments. For example, regulations aimed at decreasing pollution from agro-chemicals may unintentionally result in higher food prices[81]. The use of regulatory impact assessment, discussed in section 5, can assist in avoiding such negative trade-offs.

There are some useful points to recognize in terms of implementation of economic instruments. Firstly, economic instruments often work best when they complement other approaches such as information and communications measures, and secondly, economic instruments can be complex to design and implement. If not designed appropriately at best they fail to achieve the required objectives, and at worst, they bring negative results.

International literature and experience suggests that, often, too much faith is placed in the economic instruments themselves, and too little attention is placed on the putting in place the necessary administrative and policy contexts in which they can operate effectively.

### MARKET MECHANISMS

Market mechanisms are premised on the ability to trade water allocations between users and uses. While there are limitations to such trade, arising from issues of physical availability and location, trading nevertheless provides an important regulatory tool, particularly in relation to driving water use efficiency and moving water to higher value uses. There are three key types of market mechanisms: water markets, water banking and cap and trade, all of which are based on the ability to trade water allocations.

**Water markets** can be either formal or informal. Informal water markets often exist in water-scarce regions and in situations where the local demand for water has outpaced government delivery[82]. The danger with informal water markets (as with formal markets), is that they may encourage over-exploitation of resources. In informal water markets trades occur in the absence of enforceable contracts which may leave parties, particularly the buyer, vulnerable to exploitation. From the perspective of the government, the informal trade of water also means a potential loss of revenue

[80] GWP, 2000
[81] Ibid
[82] Thobani, 1997

which could have been utilised in infrastructure maintenance and expansion[83] or water resources management and regulation.

Formal water markets in developing countries also have their challenges, including the fact that developing countries usually suffer from weak institutional frameworks, poorly defined land rights and poor enforcement of environmental regulation – which may hamper market efficiency[84].

At the same time, private water trades are unlikely to protect environmental goods and services effectively, and state intervention is needed to ensure the protection of environmental goods and services[85].

A **water bank** is an institution that offers to buy and sell water under some set of rules regarding prices and quantities, to provide an institutional intermediary in the water market and, thereby, lower transaction costs and encourage market activity. In essence, a water bank can be viewed as a virtual reservoir, buying surplus water from users in order to release it later when the need arises, or it can be viewed as a financial bank, absorbing deposits, issuing loans and marking up water prices to cover water released to the environment and transaction costs.

***Cap and Trade in the Murray Darling Basin***

The Australian Murray-Darling Basin (MDB), overseen by the Murray-Darling Commission, is a good example of a cap-and-trade system in water resource management. The MDB has a Cap-and-Trade system for both the resource (water abstraction) and the management of salinity (salinity registers for traders). Total diversions from the River Murray have been capped at the 1993-1994 level of use. This cap has been calculated to make provision for adequate environmental flows. Any water trade within the Basin takes place within the cap and overall diversions are not allowed to exceed the total cap.

This is not to be confused with a physical water bank, which physically stores water for use at a later date. A physical water bank requires reservoirs (surface- or groundwater), close linkages with water resource systems operations to enable releases and storage, and detailed technical understanding of the hydrological system. A physical water bank is typically established at a catchment scale, reflecting the storage (banking) of water within a reservoir (or system of reservoirs) or within an aquifer.

By comparison, an institutional water bank provides legal mechanisms for the exchange of water rights, generally over a long term period (>5years)[86]. Water entitlements, and not water itself, are exchanged. The institutional water bank facilitates trade in water allocations, by connecting buyers and sellers, by facilitating trade between individuals or by taking a position in the market through purchases and sales.

Cap-and-Trade mechanisms are a further market mechanism based on the trading of water. Cap-and-Trade refers to an approach in which the use of a resource is capped, use permits are allocated up to this cap and a permit trading mechanism is established. Thus, prior to establishing tradable

[83] Ibid
[84] Kemper, 2001
[85] Miller et al,

rights, there is a determination of the total amount of water to be allocated, over what timeframe and any exceptions for unusual conditions (notably droughts). Trading is then used to ensure that the water is allocated to the highest value user within these limits.

Holders of water allocations can introduce technologies or practices that reduce their water consumption and thereby free up water to trade, or they can buy allocations from others who can reduce their own use more cheaply. In this way, Cap-and-Trade promotes a cooperative approach to achieving resource management goals.

### 3.3.3. VOLUNTARY REGULATION

Voluntary regulation is an important addition to the suite of instruments that can be used to achieve regulatory objectives. There are four main types of voluntary regulation: "(i) environmental agreements negotiated between regulators and industry; (ii) public programs (administered by regulators or third parties) that individual firms are invited to join; (iii) public disclosure initiatives that collect and disseminate information on participants' environmental performance; and (iv) unilateral commitments made by firms"[87].

Voluntary regulation is being used in both developed and developing countries. Several countries in Latin America have adopted voluntary regulation approaches. In Colombia, environmental authorities signed more than 50 voluntary agreements with industrial associations between 1995 and 2003, while in Mexico, the 1990s saw 10 agreements involving around 600 firms.

However, there is disagreement on how effective voluntary agreements have been in developing countries. One view is that voluntary regulation is a good option for developing countries because it sidesteps the challenges of weak institutions, weak legal frameworks and limited political will. According to this school of thought, voluntary regulation relies partly on the pressure place on polluters by consumers, markets, nongovernmental organizations, and community

**Indonesia's PROPER programme**

In June 1995, Indonesia introduced the first major public disclosure program in the developing world: the Program for Pollution Control Evaluation and Rating (PROPER). It is currently being revived after collapsing in the 1998 Asian financial crisis. PROPER was based on the publication of a colour rating for factories. '*Black* was awarded to facilities that made virtually no pollution control effort. *Red* facilities had made some effort but failed to meet legal standards and had insufficient reporting. *Blue* was given to facilities that met legal standards and had reasonably frequent reporting. *Green* was intended for the "proactive" companies and was awarded if pollution was significantly below legally required standards and the firm conducted good equipment maintenance, reporting, and environmental work. *Gold* would reward firms that met international standards of environmental excellence,[7] which in addition to the Green requirements implied the use of clean production technology, waste minimization, and pollution prevention activities." (Lopez et al., 2004: 7)

There was a positive response to PROPER, especially amongst the least compliant firms. There was an immediate response at the introduction of the system, with further emission reduction over the following months. The total estimated reduction in biochemical oxygen demand (BOD) and chemical oxygen demand (COD) was around 32%. (Lopez et al., 2004)

[87] Khanna, 2001 in Blackman, 2008

groups and the potential for an improved profile as a result of environmental improvements[88]. A second driver of voluntary initiatives is that they are often subsidized by the state to some extent, either through financial subsidies, or through information dissemination on pollution abatement.

However, a second school of thought is less convinced that voluntary regulation will be effective in developing countries, partly because of weak regulatory and non-regulatory pressure on companies. Research suggests that the threat of mandatory regulation often pushes firms to take part in voluntary regulatory initiatives[89], so that the incentive to take part is weaker with weaker mandatory regulation. And although pressure from communities, consumers, and markets can also push firms towards taking part in voluntary regulation initiatives, this pressure is also often weak in developing countries[90]. Despite this, there is evidence of such pressure having improved the regulatory performance of some firms in some circumstances.

Citizen[91] based regulation (sometimes called community based regulation) is a further area of voluntary regulation, where citizens, communities or residents play a critical, if non-statutory role, in policing and monitoring environmental compliance. Citizen based regulation can involve a community or group of people regulating a nearby industry or commercial water user, or it may take the form of internal community regulation of the use of natural resources.

However, research shows that poor and marginalised communities are often the hardest to keep active in community based policing programmes, suggesting that government support is necessary to ensure the ongoing engagement of poor communities with environmental monitoring and regulation programmes[92], particularly since poor communities are often the most exposed to environmental hazards. Experience from the USA, however, has some resistance from state officials to the concept[93]. The issue of keeping poor communities mobilised in terms of community based environmental monitoring is a particular challenge in developing countries where state resources are more limited and poor communities make up a much large percentage of the population.

In terms of the regulation of community resources by the community, the rules that apply to community-managed water resources are generally not written down, but experience from Zimbabwe shows that community members know and understand the rules[94]. The lack of rigid codification of the rules allows for flexibility in determining who has access to water at any given time. Interestingly, regulation and management of water resources at the community level in the case study conducted by Nemarundwe and Kozanayi was driven by social capital rather than by economic self-interest. The flexibility inherent in the rules includes fuzzy boundaries for resource use, and enabled the sharing of water resources with other communities during drought. Nemarundwe and Kozanayi argue that such local rules should not be codified into a written form

[88] Blackman, 2008
[89] Khanna, 2001
[90] Blackman, 2008
[91] While the literature generally refers to community based regulation, the concept "community" has particular connotations in South African usage, and so the term citizen has been used instead, to broaden the understanding of who might be involved in such regulation.
[92] O'Rourke and Macey, 2003
[93] Ibid
[94] Nemarundwe and Kozanayi, 2003

since their resilience as local regulatory tools is precisely based on their capacity to be adapted to changing circumstances.

### 3.3.4. INFORMATION AS REGULATION

While adequate information is a prerequisite for all forms of regulation, and the exercise of all regulatory instruments, it can also be used as a regulatory tool in its own right[95].

Requiring water users to disclose information can provide a useful way for authorities to collect information. However, if the information is made public, such disclosure can also give the public access to the information and provide for monitoring and control both by the authorities and by public pressure. The collection of information also signals to water users that the authorities are taking their regulatory role seriously.

***The US Toxic Release Inventory***

With the publication of the US Toxic Release Inventory (TRI) for the first time emissions of toxic pollutants by firms were made public, with significant impact on emissions. Hamilton (1995) notes that the TRI made information available not only to affected communities, but to journalists and investors, and it was these latter groups that affected stock prices most significantly. Konar and Cohen (1997) note that those companies who took the biggest knock to their stock prices on the release of the TRI subsequently reduced emissions more than their industry peers. However, the biggest impact was not necessarily on the biggest polluters, but rather on companies whose pollution levels were unexpected, leaving some of the biggest polluters relatively unscathed.

Information disclosure can take several forms such as certification of products, firms, processes, or management procedures, usually by independent agencies; self-certification, without independent review; or the provision of raw data to the authorities[96]. In the South African context, the Blue Drop/Green Drop certification system for municipalities has proved the regulatory value of the reporting and disclosure of information.

## 3.4. ENFORCEMENT

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

[95] Lopez et al., 2004
[96] Ibid


**Figure 10: A pyramid of possible enforcement responses (Picciotto and Campbell, 2002)**

There is a hierarchy of possible sanctions that can be imposed on non-compliant regulatees[97]. The international literature is clear that that initial step should be persuasion, which is arguably the lowest cost method of trying to ensure compliance with regulations. If this fails, however, there must be a ladder of enforcement actions moving through, for example, a formal warning letter, a directive, and civil and criminal penalties. Sanctions may include fines, the suspension of the authorization to use water, or finally the revocation of the authorisation.

Perhaps the biggest challenge in the arena of enforcement is the issue of capacity, and there is little agreement in the literature on whether any particular instruments require less capacity than others to enforce. It is, therefore, appropriate where capacity is limited to target regulation more carefully as well as to look at the capacity requirements of specific instruments.

### 3.4.1. TARGETED REGULATION

There are a number of reasons why the blanket implementation of regulation on all water users is in inappropriate in South Africa. Firstly, limited human and financial resources mean that the state needs to take a targeted approach in order to exercise the strictest regulation on those who have the greatest impact or potential impact on water resources, both in relation to abstraction, quality, habitat destruction, and so on.

Secondly, the inequitable economic development in the country means that the transformational state should take a different approach to new, micro and small scale water users, for example, and large, established water users. As part of the transformation of the economy and the reduction of inequity the state should be protecting and supporting the water use of small users, including through infrastructure provision or subsidy, technology transfer, and market support. Part of the protection of water use by small users includes the strict regulation of large impact users to ensure that they don't negatively impact on the small users either through high levels of pollution, or through over-abstraction from water resources shared with small users. Equally, the strict regulation of major impact users is necessary to protect aquatic ecosystems and to ensure the sustainable use

[97] Picciotto and Campbell, 2002

of water resources, as mandated in the act. Figure 11 captures the different actions by the state at different levels that are necessary for pro-poor water resources management.

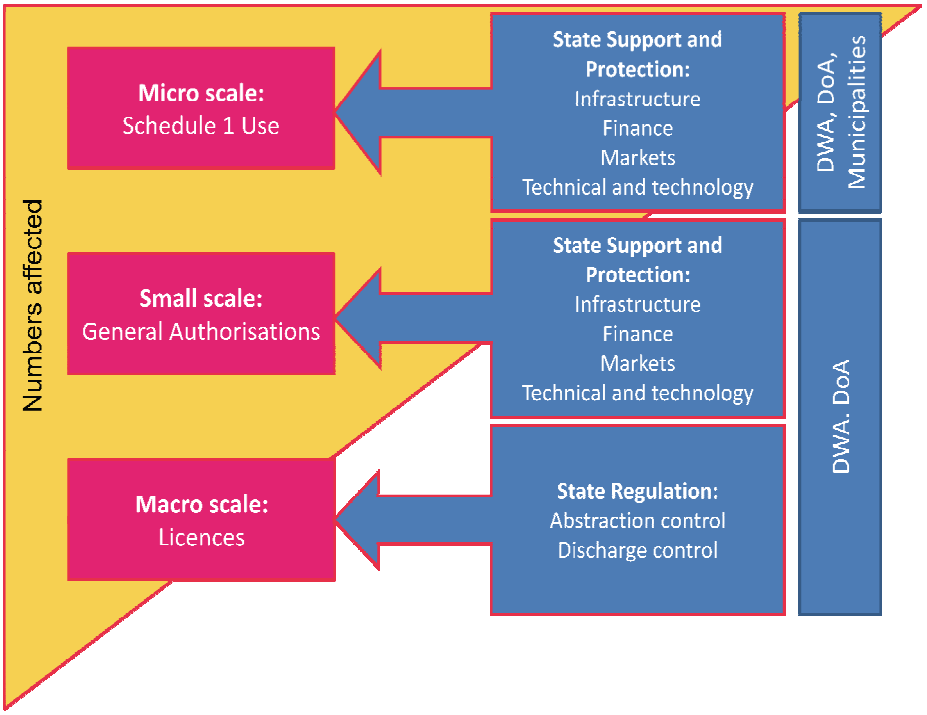
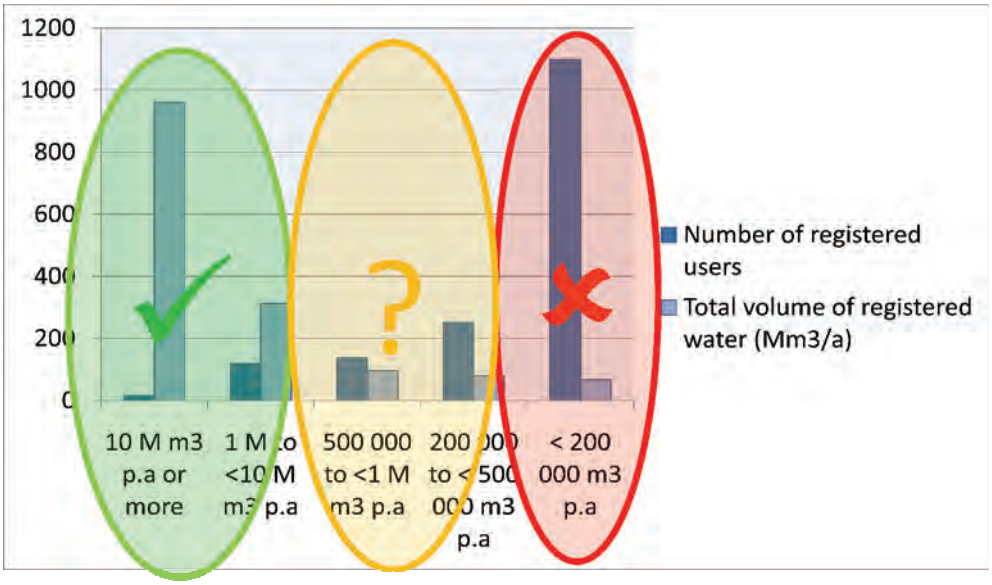



**Figure 11: Differential state actions to support pro-poor water resources regulation**

If one examines the registered abstraction in the Inkomati water management area (see figure 12) in the region of 140 water users (some of which are water user associations) use over 80% of the water. Effective regulation of this limited number of users will, therefore, result in the regulation of over 80% of water use in the water management area. Targeted regulation of these water users will, therefore, achieve the greatest impact with limited resources. In due course, regulation can shift to include a focus on lower impact users. A similar pattern can be seen in water use throughout the country, and a similar approach can be applied to regulation of discharge, regulating most strictly those dischargers with the most significant potential impact in the catchment.




## 4. OPERATIONAL PRINCIPLES

A number of policy principles for effective water resources regulation were discussed in section 3. Having looked at some of the more operational issues pertaining to water resources regulation, a number of operational principles can be identified. These are addressed briefly below.

**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 often 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 it is *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.

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.

## 5. USING REGULATORY IMPACT ASSESSMENT FOR EFFECTIVE REGULATION

In 2005 the Presidency and National Treasury commissioned a consortium to investigate the introduction of RIA in South Africa[98]. In February 2007 Cabinet approved the adoption of a gradual approach to RIA which would start with a two year piloting process. In October 2007 the Cabinet approved that the plan would be managed by the Central RIA Unit made up of the Presidency Office and National Treasury. The Departments of Trade and Industry, Justice and Communications expressed willingness to be involved in the pilot phase.

While RIA has not yet been mandatory for all new regulatory processes, there are major benefits to adopting this approach, and this section discusses why regulatory impact assessment can be used as a critical tool in effective water resources regulation.

Firstly, the international literature suggests that one should be cautious about introducing new regulation unless one is convinced it is both necessary and beneficial[99]. The understanding of the costs and benefits of regulatory policies can be very uncertain, particularly in developing countries, because of a lack of structured analysis of the potential impacts of the regulatory policy. Regulation, unfortunately, can all too easily have unintended and perverse consequences[100]. The licensing of particular activities is one area highlighted in the literature which is often aimed at transferring political, and hence financial, benefits to particular constituencies rather than actually protecting public goods[101].

Equally, there is a challenge of "tunnel vision,"[102] which is the tendency of a single department or agency to focus only on its direct mandate and to ignore the complementary mandates of other departments and agencies. This can lead to the agency ignoring the potential synergy or duplication (and hence additional costs to the regulator and regulatee) of regulation falling under different agencies.

In addition, research has shown that regulators sometimes create unnecessary regulations in order to give themselves more power, and also tend to write over-complicated regulations for the same reason[103]. This makes it difficult for ordinary people to understand the regulations, making it difficult for them to comply and easy for unscrupulous bureaucrats and intermediaries to exploit them. It is important that regulations are written in a manner that can be understood by everyone. Increased

[98] South African Insurance Institute, Undated
[99] Gausch and Hahn, 1996
[100] Ackerman and Hassler, 1981 in Gausch and Hahn, 1996
[101] Huber and Thorne, 1997; Gausch and Spiller, 1997, in Gausch and Hahn, 1996
[102] Gausch and Hahn, 1996
[103] Gausch and Hahn, 1996

transparency and analysis of the costs and benefits of regulation will contribute to reduced corruption, reduced regulatory capture, and increased legitimacy[104].

According to Gausch and Hahn, "The overall lesson is not that regulation is generally undesirable, but that it often has undesirable economic consequences. Moreover, these impacts result partly from political forces that lead to certain kinds of wealth redistribution (Stigler, 1971). While not denying such forces, we believe they can be mitigated by more sharply evaluating the consequences and tradeoffs involved in regulating before a regulatory policy is set in stone."[105]

Conducting a regulatory impact assessment is an important way to evaluate the consequences and trade-offs of proposed, or existing regulatory practices. To do this effectively, there is a need to increase the capacity of developing countries, including South Africa to conduct RIAs. The following section looks at regulatory impact assessment and how it might be useful in improving water resources regulation in South Africa.

## 5.1. WHAT IS REGULATORY IMPACT ASSESSMENT?

RIA is a tool that is used to describe and examine the possible costs and benefits of proposed or existing regulatory measures. It measures the impacts of the regulation on social, economic and environmental aspects[106]. As a result, an RIA gives decision-makers valuable empirical data and a structured framework within which to assess their options regarding regulation[107].

According to the OECD, the aim of RIA is to ensure that regulation is implemented only if it is efficient and effective[108]. Too much regulation exerts a financial burden on the government budget and burdens the private sector resulting in reduced competitiveness, thus impacting on economic growth potential. In Korea, for example, too much regulation caused reduced industrial productivity and loss of external competitiveness, causing the President in 1998 to order all ministries to reduce their existing regulation by more than 50%[109].

Too little regulation, on the other hand, may result in misuse or inefficient use of resources (particularly common pool resources such as water) and may cause some sectors of the society to suffer because of the actions of others. A good example is of a factory discharging toxic waste into a river and polluting the water. The pollution reduces the fish stock downstream and makes the water unusable for communities and users downstream. In such a situation, to safeguard other water uses, regulation either directly by limiting the level of toxic emissions or taxing the company's production may be necessary[110].

[104] Gausch and Hahn, 1996
[105] Ibid: 28
[106] OECD, 2008a
[107] Rodrigo, 2005
[108] OECD, 2009: 3
[109] Lee, 2007: 6
[110] OECD 2008b: 6

Inadequate regulation can also compromise the health and safety of citizens, workers rights and the environment[111] so that regulation is required to protect these groups. In recent decades, regulation in these three areas has increased significantly.

Inappropriate regulation, on the other hand, can put obstacles in the way of doing business, create negative perceptions and stifle economic growth[112]. For example, in 2002, there were 65 laws to comply with in order to register a business in South Africa[113]. Inappropriate regulation may have unintended consequences that actually counteract the intended outcome, or have specific negative impacts on certain sectors of the population, such as the poor. The regulatory process can be influenced by lobbying from particular groups, so that regulation serves their interests instead of those of the broader society, particularly the poor[114].

To respond to these challenges and to develop effective regulatory systems RIA is ideally based on determining the underlying regulatory objectives and identifying all the feasible policy options capable of achieving them. The alternative policy options are assessed using the same method so that policy-makers can systematically choose the most efficient and effective options using information on the efficiency and effectiveness of the different options[115]. Systematic RIA, in consultation with affected groups, should help to determine possible effects and side-effects of proposed legislation[116]. Table 1 gives one possible format of an RIA report as illustration.

Thus, generally, RIA is a comparative process that uses a range of methods such as, but not limited to, cost-benefit analysis (CBA) to analyse, identify and assess the possible impacts of regulatory proposals[117], either proposed or existing. This may include consideration of social impacts (such as effects on mortality, morbidity reductions, reductions in property loss due to accidents or measures of effects on wildlife populations), economic impacts (such as effects on employment, operating costs, international trade, global competitiveness or distribution of income) and environmental aspects[118].

[111] Hudson, 2003: 2
[112] OECD, 2008b: 4
[113] Bannock, 2002: 28
[114] OECD, 2008b: 7
[115] OECD, 2008b
[116] Jacobs, 2005a: 3
[117] OECD, 2008b
[118] Volkery, 2004: 6; Analytica, 2010: 1-2

Table 1: Format of an RIA Report used by the OECD (Source OECD (2008: 22)

| *Section Title* | *Description* |
|---|---|
| 1. Objective | Clearly state the policy objective(s) and goal of the regulatory proposal |
| 2. Problem | Describe your assessment of the nature and extent of the problem to be addressed by the regulatory proposal |
| 3. The regulatory proposal | Explain the regulatory proposal:<br>• Describe the regulations<br>• Outline the legal authority to make the regulation<br>• List the groups likely to be affected by the regulation (citizens, business and within government)<br>• Outline the enforcement regime and proposed strategy for ensuring compliance |
| 4. Analysis of Benefit and Costs | Clearly outline the benefits and costs expected from the regulatory proposal for each group;<br>• Administrative<br>• Economic<br>• Social<br>• Environmental<br>• Enforcement and Compliance |
| 5. Compare the costs and benefits | Include a table comparing the cost and benefits for each of the above categories, listing the monetary values of each or providing a description. |
| 6. Identify Alternatives | List the practical alternatives, including any non regulatory approaches that have been considered as options instead of the proposed regulatory approach. |
| 7. Compare the costs and benefits of Alternatives | Describe the benefits and costs for each practical alternative that was considered. |
| 8. Compare the alternatives with the regulatory proposal | Outline how and in what ways the identified regulatory proposal is superior to the alternatives that were considered. |
| 9. Consultation | Describe the process of consultation that have been undertaken to collect stakeholder views. List all the groups that were invited to comment on the regulatory proposal and summarise their comments. |

## 5.2. CHALLENGES IN USING RIA

Nonetheless, RIA is not without its critics in terms of its effectiveness and its ability to deliver value for money. While widely adopted (with different degrees of scope) in developed countries, in many developing countries RIA is still perceived as a costly instrument that might not produce the expected outcomes in the short term[119]. Developing countries have particular challenges in relation to understanding the impacts of proposed or existing regulation, challenges posed by the social, environmental and economic conditions specific to such countries, and challenges posed by the lack of access to good quality data. Conducting an RIA also requires 'time, institutional energy and human resources'[120]. It is, therefore, not possible to cover every aspect of regulation, or every possible impact. Some countries use RIA extensively, but other countries have chosen, because of the resource intensiveness of the process, to use the tool far more selectively. The introduction of

[119] OECD, 2008a: 26
[120] Radaelli, 2004: 12

regulatory impact assessment methodologies which require higher levels of "technical competence, resources and bureaucratic coordination[121]" than exist in the country can give inaccurate results.

In addition, RIA, incorrectly applied, may bias the results towards the interests of one particular constituency, such as the business community. A second issue, and one that pertains particularly strongly in a highly unequal society such as South Africa, is the difficulty of addressing the distributional impacts of regulatory options through RIA. Further concerns include the difficulty in measuring such factors as the value of human life, or wilderness[122]. RIA often ignores threats to other species, to biodiversity, and to other components of human welfare, such as mental health, spiritual well-being, and social stability'[123]. These concerns apply particularly to the use of compliance cost assessment and cost benefit analysis. While there are a range of tools which can address these concerns, the challenge of valuing ephemeral factors such as spiritual value, sense of place, and biodiversity still remain significant[124]. However, without an RIA the decision-maker simply has to address these issues with less information[125].

## 5.3. METHODOLOGY

Because of the practical difficulties of completing quantitative cost-benefit analyses, a range of other methods are often used to assess regulatory proposals[126]. In cases where the quantification of significant impacts that are fundamental to regulatory choice is not possible, other methodologies or variations of CBA have been suggested, such as Cost Effectiveness Analysis, Multi-Criteria-Analysis, Break Even Analysis, the Balanced Scorecard Approach, Business impact SME (Small and Medium Enterprise) tests, administrative burden tests, distributional analysis and partial analyses[127]. While a CBA would focus on the net benefits of a single project or policy, a tool such as Multi-Criteria-Analysis (MCA) evaluates the impacts of multiple policies simultaneously[128]. Cost effectiveness analysis (CEA), on the other hand, "takes the regulatory goal as a given and simply ranks different alternatives in terms of the cost of achieving the given outcome"[129].

There are different views on what the balance should be between the quantitative or qualitative elements. This is a particularly important discussion in a country like South Africa which, as a middle income country, has limits to financial and human resources, but also has a strong need to understand the impacts of regulation on, inter alia, growth, poverty eradication and the optimal use of scarce natural resources such as water. The European Commission recognises the value of both quantitative and qualitative elements of RIA but highlights that the real function of RIA is to identify the major trade-offs of regulatory choices. According to Mrs Neva Makgetla of the Department of

[121] Tschumi and Hagan Undated: 52
[122] Radaelli, 2004
[123] Thiele, 2000: 554
[124] Radaelli, 2004
[125] Ibid
[126] OECD, 2008b: 13
[127] OECD, 2008b: 14; Jacobs, 2006: 29
[128] Morimoto and Hope, 2004: 207
[129] OECD, 2008b: 18

Economic Planning[130] the South African government is focusing more on a qualitative than a quantitative approach to RIA.

It is not possible, in the scope of this report, to address all of the methodologies that can be used to conduct an RIA, or the benefits and limitations of each. However, drawing from international experience and guidelines, a broad outline of an RIA process for water resources regulation has been developed, which is outlined below. It draws from the experience and frameworks developed by the OECD, the Irish government, the Canadian government, work done for the Department of Water Affairs under the Masibambane III programme, and the specific contextual needs of South Africa.

## *RIA FRAMEWORK FOR WATER RESOURCES REGULATION*

### *DEFINE THE PROBLEM AND OBJECTIVES AND UNDERSTAND THE POLICY CONTEXT*

The initial step is to understand clearly what problem is to be addressed and what the objectives of the proposed regulation are, as well as what the existing policy position is in relation to that particular issue. Without a clear policy position, regulation is likely to be contested and unlikely to be effective.

The following checklist provides a set of questions that can be addressed in defining the problem and understanding the policy context and in determining whether there is a ***need*** for government intervention.

| **Checklist**[131] |
|---|
| What is the problem that you are trying to solve and what are the objectives of the proposed government intervention? |
| Is there a ***need*** for government intervention? How significant are the impacts (how many people are impacted, and how severely, or how severely is the environment impacted) |
| What are you trying to achieve through the intervention? |
| What/who is causing the problem/issue? Who is carrying the costs/negative impacts of the problem? |
| Who are the key players and how are they involved in the situation? |

[130] pers comm. 2010

[131] adapted from Developing Regulations: The Basic Steps and the Plain Language Approach Department of Justice and Treasury Board Ministère de la Justice et Conseil du Trésor Canada March 1998

| |
|---|
| What factors are influencing their actions? |
| Do the key players recognise that there is a problem? Do the key players recognise their role in the problem? Do they understand and accept government's objectives? Are they able to change their behaviour the way that government would like? |
| Are there any specific cultural, economic or social issues that need to be addressed in terms of their impact on different groups in society? |

### *IDENTIFY ALTERNATIVES*

There are often a range of alternative approaches which will achieve the required objectives, some with less costs to and demands on limited government resources and on those to be regulated. It is, therefore, important to examine whether regulation is the best option for addressing the problem, and if so, what kind of regulation.

At this stage, therefore, it is important to identify possible alternative mechanisms for achieving the intended objectives, such as voluntary agreements, education and awareness campaigns, and so on. Better enforcement of existing regulations might also be an option to consider. The various alternatives, including the proposed regulation, should be clearly described at this point. The description of the proposed regulation should include the date on which the regulation will expire and timeframes for review of the impact and ongoing relevance of the regulation.

The description should also include reference to any replacement of existing legislation by the proposed regulation.

### *CLARIFY LEGAL BASIS FOR ACTION*

It is important to clarify whether the legal mandate exists for the proposed action and what the extent of that legal mandate is. A regulation must be based on a section of an Act. The Act states "what" can be done and a regulation "how" it is to be implemented. Without having an empowering provision, a regulation cannot be made on that aspect and would be *ultra vires (*unlawful) and could be set aside. A regulation must be constitutional, based on a section of the Act, and within the powers of the Minister.

### *IDENTIFY AFFECTED PARTIES*

The various groups that will be affected by the proposed regulation should be identified. This will include those to be regulated, those who will benefit directly or indirectly from the regulation, and government players who may be affected by or involved in the regulatory activity. The nature of their relationship to the regulatory process should be identified. It is important to identify poor and marginalised groups in particular that might be affected by the regulation to ensure that the distributional impacts of the regulation can be properly assessed during the following phase. It may

also be important to differentiate stakeholders by gender to identify whether there are gender specific costs and benefits, and whether, for example, poor women will bear undue costs.

### *DETERMINE SCALE OF IMPACT OF PROPOSED REGULATION*

Depending on the scale of impact, the nature of the RIA to be conducted will differ. The following table, adapted from the Mexican example, suggests some ways in which the level of impact can be categorised in the South African context and what the implications might be for the level of quantification.

| **Level of impact** | **Characteristics of costs** | **Level of quantification required** |
|---|---|---|
| Low | Total annual costs to government do not exceed R50 million.<br>Negligible impact on employment and business productivity<br>Low impact (positive or negative) on water resources and environmental sustainability | No quantification required.<br>Qualitative description of costs and benefits |
| Medium | Annual costs to government of between R50 and R200 million.<br>Non-negligible impact on employment and productivity.<br>Significant impacts on poor communities or SMMEs<br>Affects some economic sectors but effects are neither substantial nor generalised.<br>Moderate (positive or negative) impacts on water resources and environmental sustainability | Quantification of costs and benefits suited to quantification.<br>Qualitative description of the rest.<br>Specific analysis of the impacts on poor communities and SMMEs |
| High | Annual costs to government greater than R200 million.<br>Generalised impact on multiple sectors of the economy, employment and business productivity.<br>Substantial impact on a particular sector, industry or region.<br>Major (positive or negative) impacts on water resources and environmental sustainability | Complete quantification of all costs and benefits. |

### *ASSESSMENT OF COSTS AND BENEFITS*

#### DESCRIBE/QUANTIFY COSTS AND BENEFITS TO DIFFERENT GROUPS

In assessing the costs and benefits, outline, either qualitatively or quantitatively depending on the results of the previous steps, the costs and benefits ***for each identified stakeholder group***, under the headings:

- Administrative
- Economic
- Social
- Environmental and
- Enforcement and compliance.

This should be done for ***each of the various alternative approaches*** identified so that they can be compared against each other.

At this stage it is also important to identify any simplified procedures for particular social or economic sectors in order to reduce the regulatory burden on them, such as small businesses.

### *ASSESS IMPACTS ON VULNERABLE GROUPS*

At this stage it is also important to identify impacts on vulnerable groups, such as small businesses and poor households and communities. This may include identifying simplified procedures for such groups or particular social or economic sectors in order to reduce the regulatory burden on them,. Due to the nature of the South African economy, it is also important to identify any contributions that the various options will make to the transformation challenges of the country. In the context of water resources regulation, the use of general authorizations may be one such approach.

### *COMPARE COSTS AND BENEFITS OF ALTERNATIVES*

A comparison of the relative costs and benefits of the various alternatives should be conducted to assess the alternative that is likely to provide the best results with the lowest costs across the range of stakeholders. In order to ensure that the regulation is pro-poor, at this point extra attention or weighting should be given to costs to poor communities or groups so that the selected alternative is one that has low costs to or negative impacts on poor communities, both directly or indirectly, and that benefits the poor disproportionately in order to contribute to relative pro-poor growth. Disaggregation of impacts within poor communities and the small business environment may be necessary to understand, for example, the impacts on sub-groups such as poor women and the ultra poor.

### *ASSESS CAPACITY REQUIREMENTS*

It is important to assess the capacity requirements to implement the proposed (or existing regulation) as the need for significantly increased capacity requirements will either add to the cost of implementation, or increase the possibility of failure of implementation. These issues must be addressed in the RIA.

### *LIST AND COMPARE TRADE-OFFS*

Once of the key elements of an RIA is to enable decision-makers to clearly understand the trade-offs involved in particular choices. Once the various costs and benefits to particular groups have been assessed, these should be analysed to give a clear picture to the decision-makers of the relative trade-offs of the various options assessed.

## *CONSULT*

It is important to consult the stakeholders identified earlier, including those to be regulated, those that may be affected by the regulation, and relevant government stakeholders. For example, when looking at water resources regulation, it may be important to check what the Department of Environmental Affairs is doing, as well as SABS, Department of Trade and Industry, Department of Mining, Department of Agriculture, and National Treasury.

Consultation with key stakeholders from an early stage will allow informed identification of alternatives to regulation and informed assessment of costs and benefits. Care must be taken, however, not to let one group of stakeholders dominate and drive the RIA in a manner that serves the interests of one particular group. Consultation should take place in all phases of the proposed RIA approach.

*REVIEW*

It is critical that the RIA process is not seen as a once off event, but that regular reviews of regulation are conducted to ensure that it is meeting its objectives effectively and optimally. To address this, the RIA process should include an appropriate level of review of the regulatory process, at least every five years.

## 5.4. LESSONS REGARDING RIA

There are a number of lessons that can be drawn from the international experience in the implementation of RIA which are relevant to South Africa and to the water resources regulatory context. This section highlights some of these lessons.

When it comes to RIA design or implementation there is no one-size-fits all method as RIA comes in many forms that reflect various policy agendas, and the appropriate design is dependent on various existing institutional and administrative traditions in different countries[132]. Some challenges in implementing effective RIA are raised briefly below.

### 5.4.1. METHODOLOGICAL CHALLENGES

Successful implementation of RIA is often constrained by lack of reliable data as well as appropriate indicators necessary to carry out RIA and facilitate the measurement of the regulatory impact[133]. Further, there is often insufficient use of evaluation techniques, and the techniques that are used, such as CBA, are not always used well[134].

The underlying principles of welfare economics which is the basis of RIA require an assessment of the impacts of a regulatory proposal to be carried out on all groups within society. However, the history of RIA implementation indicates that many stakeholders want RIA to focus exclusively on direct economic costs and benefits; excluding environmental as well as social costs and benefits[135]. This is a particular challenge for water resources regulation where there are significant environmental and social impacts to be considered.

RIA can fail to capture all of the regulatory impacts that are relevant to policy decision-making such as impacts on employment, GDP and poverty[136]. Accounting for such impacts requires sophisticated

[132] Ladegaard, 2005: 7
[133] OECD, 2008a: 26
[134] OECD, 2009: 27
[135] OECD, 2009
[136] Ibid

economic modeling which is not feasible given the scarcity of expertise and resources in most countries and particularly in developing countries.

Because of data and/or analytical limitations, the majority of RIAs fail to quantify all major costs and benefits in monetary terms. At the same time, an economic analysis should not only focus on impacts that can be measured in monetary terms but on all factors that are valued by people which include environmental, social, distributional and other impacts[137]. However, successful quantification of the costs and benefits of regulation is a challenge due to the limited availability of quantitative data and due to the challenges of quantifying ephemeral factors. "Even those countries with the most extensive experience in implementing RIA acknowledge that the proportion of RIA that manage fully to quantify benefits and costs, and produce a robust net present value result, remains relatively small"[138]. This challenge is particularly acute in developing countries where access to reliable data is very limited.

### 5.4.2. STRONG POLITICAL SUPPORT

One of the most significant impediments to an effective RIA system is indifference by the public administration, mainly because of inertia in the political environment[139]. There is need to make politicians understand that, by offering evidence based regulatory options, RIA strengthens the decision making process. Without effective training of state officials and strong political support, RIA is unlikely to be implemented effectively.

### 5.4.3. FAILURE TO QUANTIFY DISTRIBUTIONAL IMPACTS AND TO COMPARE ALTERNATIVES

According to some research, in Europe, regulatory impact assessments rarely compare alternatives and "seldom estimate costs, almost never quantify costs to businesses, do not specify benefits, and virtually never compare costs and benefits"[140]. As a result of this, the business community in Europe is said to collect its own data and conduct its own studies on the effects of new regulations

In the USA the priority has been on improving how to measure the efficiency of a regulation (costs and benefits of a new regulation to society), without giving priority to the distribution of the costs and benefits among different groups in society such as businesses, local and state governments, and consumers. There is, however, a requirement for investigation of specific impacts on small business. Evaluating distributional effects has not been at the centre of cost-benefit analyses, and is not an easy task. This, however, is a critical point for South Africa, where the issue of reducing, not increasing, the Gini co-efficient is paramount.

### 5.4.4. PRO-POOR RIA

RIA is by no means a neutral or perfect tool. Indeed, it is argued by some that RIA can be an inadequate or even misleading guide to policy making because it largely ignores the distributional

[137] Ibid
[138] OECD, 2008b: 13
[139] OECD, 2008a: 26
[140] Echeverri-Carroll and Ayala, Undated: 24

impacts of policy[141]. To make RIA pro-poor, an analysis of the positive and negative effects of regulation on prices (particularly basic commodities like food and accommodation), job opportunities, access to credit, public service delivery and the SME environment should be incorporated into the analysis[142]. This will enable an examination of how regulation may contribute to assisting the poor and alleviating poverty.

However, if policy-makers lack an understanding of the nature of the poverty that they are trying to address, then the regulation may well fail to reduce poverty and inequality[143]. A clear understanding of poverty by policy-makers is crucial in the design of pro-poor water resources regulation. Based on this understanding, regulatory impact assessment needs to be designed in a way which results in the poor benefiting disproportionately from regulation relative to the non-poor. Additionally, pro-poor regulation should result in the improvement of the welfare of different categories of the poor, with a greater focus on improving the welfare of the ultra-poor. Pro-poor water resources regulation in South Africa, whose Gini co-efficient is one of the highest in the world, must aim to alleviate poverty and reduce inequality through raising the living standards of the poor and closing the vast gap between the rich and the poor.

In this regard, there is some criticism of the OECD guidelines) which are not simply transferable to developing countries, because such countries put greater emphasis on sustainability and poverty reduction goals, whereas the main goal of regulatory policy in developed countries is the promotion of market efficiency[144]. RIA can, however, be made pro-poor by placing an explicitly heavy weighting on poverty reduction and skewing the assessment in favour of regulatory changes that assist the poor[145].

In a country in which many of the poor are female-headed households and in which there is an explicit commitment to gender equality, it is also important that RIA is able to disaggregate impacts on the basis of class and gender.

### 5.4.5. INSTITUTIONAL ISSUES

The effective use of RIA is, to some extent, dependent on selecting the appropriate institutional arrangements. Regulatory impact analysis does not only depend on producing the right numbers but also on the necessary institutional and cultural changes required to make analysis genuinely a part of increasingly complex decision-making environments[146]. According to Jacobs "delegating full responsibility to regulators without adequate oversight sacrifices RIA to the narrower incentives and mission of the regulators, while, at the other extreme, placing responsibility for RIA in an independent body isolates the analysis from the decision-making process, and renders it an academic and impotent exercise"[147]. Jacobs suggests the following institutional conditions as being important for the successful implementation of RIA:

[141] OECD, 2009: 31
[142] OECD, 2008
[143] Aliber, 2003
[144] Ladegaard, 2005: 9
[145] Ladegaard, 2005: 9; Kirkpatrick, Parker and Zhang, 2003: 14
[146] Jacobs, 1997: 22
[147] Ibid

- political support at ministerial or parliamentary level;
- establishment of clear quality standards (such as cost-effectiveness or benefit-cost tests) for regulation to be measured by RIA;
- selection of a methodology that is both flexible and administratively feasible given capacities and resources. In most cases, simplicity is more important than precision, even if only the order of magnitude of impacts can be reliably determined. In all cases, use of a few consistent analytical rules can greatly improve the quality of the analysis;
- development of an institutional structure for a RIA programme that charges regulators with primary responsibility for RIA, and places quality control with an independent oversight body empowered to establish quality standards for analysis;
- testing of assumptions through public consultation;
- integration of analysis into administrative and political decision processes, including communication of information in a coherent and systematic manner;
- development of a programme to build expertise and skills among regulators, including development of written government-wide guidance.

A critical point raised is that learning processes are a fundamental part of impact assessment systems, and that, in adopting RIA, it is appropriate to learn by doing. This learning, however, is strongly influenced by the political context, and lessons should be tailored to meet the political imperatives of the country[148].

### 5.4.6. FAILURE TO IMPLEMENT

One of the things that RIA does not appear to take sufficiently into consideration is the impact of the failure to implement regulation effectively once the regulatory requirements have been promulgated, either in legislation or as regulations. The implementation of the licensing requirements in South Africa is a case in point.

[148] Radaelli, 2004

# 6. CONCLUSION

This report has set out some of the key issues and options pertaining to water resources regulation in the context of a developing country. What the consideration of literature and practice from around the world has shown is that the regulatory arena is no longer simply an arena of state action through the implementation of command and control regulations. The regulatory terrain has become far more complex and the suite of tools far more sophisticated in recent years.

A number of players are now involved in regulation, including government, the private sector, non-government organisations, the media, and ordinary citizens. This understanding opens a number of opportunities for new approaches to regulation that draw on the broader capacity within the society. This is important in a context of limited state resources such as pertains in South Africa currently.

The state also has, now, a wide range of regulatory instruments from which to choose, of which four categories have been highlighted in this report: command and control, economic and market mechanisms, voluntary agreements, and information disclosure. What is clear from the international literature is that the most effective approach is based on a mix of these regulatory instruments, chosen according to the specific context within which they are to be applied.

It is, however, in the selection of the appropriate tools, and in the development of the appropriate regulatory policy, that significant challenges are to be found. The first of these challenges is recognizing that regulation is a site of contestation, and balancing the competing interests that are striving to ensure that regulation serves their interests. Within this contestation for the regulatory space, it is important to recognize that bureaucrats are not neutral players interested only in serving the public interest, but often have their own links to specific interest groups and their own agendas to drive. The regulation of the bureaucracy by the legislature, by the courts, and informally by the public, is important to ensure that the regulatory policy is in the interests of the public and of national objectives. This process is hampered, however, by the informational asymmetry between bureaucrats and the legislature in particular.

The second issue is that of scale. A review of the literature has shown clearly that the issue of the scale or level at which regulation takes place can profoundly affect the outcomes. This is because different groups, and hence different viewpoints, have increased access to regulatory decision making at different spatial scales. Decisions regarding scale, therefore, are critical in the contestation for regulatory power. The issue of scale also raises the issue of how to balance regional or local flexibility with compliance to national objectives.

A third, and critical issue, is the issue of the distributional impacts of regulation. This is an area that has been given insufficient consideration, both locally and internationally. This is an area that requires further research, particularly in the South African context of massive social inequity and pressures for redistribution. Further research is needed to understand what is required to achieve pro-poor regulation in the water resources sector.

A fourth and final issue is how to ensure that the regulatory framework is aligned to the capacity to implement. Developing countries, including South Africa, suffer from lack of regulatory capacity and poor information to underpin regulation. Any regulatory framework must take these issues into

account. This will require targeting regulation at areas in most need of regulation, rather than trying to address regulatory requirements across the board.

## 6.1. REGULATORY INSTRUMENTS

Four categories of regulatory instruments were identified and discussed in this report: command and control, economic incentives and market mechanisms, voluntary agreements, and information. In a developing country, the implementation capacity requirements are critical in selecting which tools to use and it is important to recognize that economic instruments do not necessarily need fewer resources than command and control instruments. Equally, voluntary agreements have been seen as requiring limited state capacity, but they don't necessarily achieve their objectives unless carefully designed.

There is, thus, no easy answer on which regulatory tools to select. From experience around the world, however, it is clear that the most effective approach is to use a mix of these instruments, determined according to context, capacity and need. The limited information and high transaction costs of regulation in developing countries mean that the focus needs to be on ensuring integrated information systems, setting priorities, and a stronger public mandate, prior to focusing on the choice of instruments and the premature introduction of economic instruments in particular[149].

There has been insufficient consideration given to the costs and benefits of the different regulatory instruments, particularly in developing countries.

## 6.2. PRINCIPLES FOR REGULATION:

Arising from the literature, a number of principles can be drawn out which provide some guidance in the development of a regulatory framework and the selection of regulatory instruments. These are:

- **Equitable** – the regulatory framework must be equitable in its application, including that the costs should be borne by the regulated, not the disorganised or the public. In the South African context there is a strong equity driver which requires that regulation should contribute to the transformation of society.

- **Implementable** – experience from developing countries in particular shows regulatory approaches that have been adopted but are not implemented either due to lack of political will or lack of capacity, ultimately rendering the regulation null and void;

- **Transaction costs appropriate to impact** – water resource regulation can attract significant transaction costs, and it is important that the transaction costs be appropriate to the intended impact of the regulation;

- **Appropriate to objectives** – experience across the world has shown regulatory approaches or instruments that have resulted in perverse responses, sometimes in direct contradiction to the intended result of the regulation. It is important that the regulatory approach is carefully considered and monitored to ensure that is achieves the desired objective. Regulatory Impact Assessment is an important tool in achieving this.

[149] Afsah et al., 2006

- **Necessary and appropriate to capacity** – regulation is imposed for a number of reasons, some of which may be masked by the ostensible reasons. In the context of a state with weak regulatory capacity, such as South Africa, it is important to focus on necessary regulation that it is within the capacity of the regulatory institutions to implement, rather than to introduce a suite of nice-to-have regulation which cannot be implemented.

- **Flexible** – in regulating a complex system, it is important that the regulatory approach be sufficiently flexible to take account of the difficulty of predicting the response of a complex system. However, a balance needs to be attained between flexibility and the need to achieve certain minimum standards, so that flexibility does not become a tool used by some to avoid meeting certain standards.

- **Transparent** – good governance calls for transparency of regulatory approaches so that the regulated, and any interested and affected parties, have access to the reasoning and the details of the regulatory approach.

- **Participatory** – the engagement of the public in the process of creating a regulatory framework is particularly important because water resources regulation operates in a complex arena where the consequences of regulatory action are uncertain[150]. A good public engagement on the proposed regulation ensures that a common understanding of the regulatory objectives and instruments is created amongst all players. However, the power dynamics between stakeholders and the scale at which the discourse happens will strongly influence the regulatory outcome.

## 6.3. CAPACITY TO IMPLEMENT REGULATION

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. A clear way forward is needed on the establishment of CMAs, their roles and responsibilities in terms of water resources regulation, and ensuring that they have sufficient finances, human resources and delegated authority to act.

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. 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.

[150] Black, 2002

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