Administered Prices

WATER

A report for National Treasury

ROLFE EBERHARD

Preface

This report was prepared for National Treasury to support its assessment of administered prices in South Africa. The objective of the study was to assess the processes involved in setting prices in regulated industries. By evaluating the efficiency, effectiveness and analytical rigour of the regulatory processes involved in setting prices for the services involved, an assessment can be made of the likelihood that the resultant tariffs approach efficient levels. Volume I of the report sets out the main findings and recommendations with supporting information relating to the individual sectors included within the scope of the study provided in a summarised form. Volume II contains more detailed sectoral reports, covering individual review of the water, electricity, telecommunications, transport, health and education sectors.

The report does not offer a detailed quantitative assessment of the performance of the regulatory regime, and is largely based on in-depth interviews and documentary analysis. The authors would like to thank the interviewees for their cooperation and valuable insights. Although much care was taken to provide a correct reflection of the opinions expressed, the authors remain entirely responsible for any inaccuracies.

CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS

CMA	Catchment management agency
DPLG	Department of Provincial and Local Government
DORA	Division of Revenue Act 5 of 2002
DWAF	Department of Water Affairs and Forestry
ES	The local government equitable share
kl	kiloliter (one thousand litres)
IG	Municipal infrastructure grant
NT	National Treasury
WSA	Water services authority
WSP	Water services provider

EXECUTIVE SUMMARY

Institutional framework

There are many different players in the provision of water and sanitation services in SA. The water sector does not have a distinct or independent regulator.

Department of Water Affairs and Forestry (DWAF)	▪ Custodian of water resources and overall policy maker and regulator (there is no independent regulator) ▪ Oversees the activities of all water sector institutions ▪ Responsible for national/international resource planning and allocation ▪ Licenses water use and discharges and collects abstraction and discharge fees ▪ Manages water resources infrastructure (for example, dams) and also some water services infrastructure
Catchment Management Agencies (CMAs)	▪ Water resource planning and management at the catchment level (where CMAs are not established, DWAF fulfils these functions)
Water Services Authorities (WSAs)	▪ Provision of water services within their appointed areas. Includes metropolitan municipalities, many district municipalities and authorised local municipalities. May contract out service provision to external water services providers.
Water Services Providers (WSPs)	▪ Operational water provision and/or sanitation services (as a bulk or retail service)
Water Boards (WBs)	▪ Regional or bulk water services providers (sell water to, or accept wastewater from, other water services providers). As WSPs, the Boards are accountable to WSAs; as organs of state, the Boards are owned, controlled and regulated by DWAF and National Treasury (NT) under the terms of the Water Services Act, 1998 and the Public Finance Management Act, 1999.

In this setting, ministerial discretion is high, although actual involvement is low as DWAF, which reports directly to the Minister, is both the sector policy maker and regulator.

A key characteristic of the sector is the diversity of WSPs in terms of both *scale* and *type*: a water services provider could serve one small rural community, one or more towns, a large metropolitan area or a whole region; it might be a community-based organisation, a local municipality, a district municipality, a public utility (owned by local and/or national government), or a private organisation.[1] The sector is further characterised by public ownership and control (at the national and municipal level) and limited participation by private companies. Where there is private participation, for example, the Dolphin Coast and Nelspruit concessions, the ownership of the water services assets has remained in public hands.

[1] This is not an exhaustive list of possible arrangements.

Regulatory framework

There is a marked absence of any formal economic regulation of water tariffs throughout the water cost chain and no formal economic regulatory function exists in any part of the water sector. Self-regulation is evident in a number of instances: that is, the same institution both *sets* the tariff level and *regulates* the tariff level.

The final charges paid by water service end-users incorporate a number of different elements that are themselves regulated in different ways and by different entities. As a consequence, it is extremely unlikely that the end charges bear any systematic relationship either to costs or to the achievement of wider social objectives that are of key importance in setting water charges. The following is a brief overview of the prices involved in the water activity chain:

Water resource prices	▪ Apply to water supplied by government water schemes (GWSs) and other water management institutions which include CMAs and water user associations (WUAs) ▪ Separated into two basic components: o The *water resources management charge* (intended to cover the costs of catchment management activities) Set by CMAs (or DWAF where there is no CMA). Tariff should be cost-reflective but there is no formal regulation of costs or the charge. o The *water resources development charge* (reflecting DWAF's broader water resource pricing strategy) Set by DWAF. Tariff policy requires a 4% real return on the depreciated *current* value of assets (to be implemented progressively from a low base). This policy is considered by some to imply extraction of monopoly rent by DWAF at the expense of the WSAs and to be an abuse of its self-regulatory status. The evidence suggests that the charge is still at below full cost recovery level, however. DWAF's overall water resource pricing strategy is aimed at moving towards tariffs which recover the full economic costs of providing raw water from the resource, whilst maintaining subsidies for poorer consumers and emerging farmers. DWAF is both price setter and regulator (for its own schemes) and has an incentive to increase prices, although in practice actual prices are in many cases set below the rate allowed by the policy. There are no incentives to cut costs or improve efficiency.

Bulk water tariffs	▪ Prices for bulk water provided by water boards are set by water boards themselves, subject to ministerial approval. o Bulk tariffs set inconsistently by WBs and with a lack transparency o No explicit policies exist although a draft guideline has been developed by DWAF. Charges generally cost-plus but there is no formal economic regulation of prices, and no guidelines for allowed costs, rate of return etc exist. There are no incentives to cut costs or improve efficiency. o Main constraint in practice is DWAF's insistence that charges changes should, if at all possible, be consistent with government inflation targets. WBs required to justify larger increases in terms of promotion of contribution to key objectives (social equity, financial sustainability, water demand management, direct costs of augmentation) as well as the impact of changes in demand projections. ▪ Prices for bulk water provided by other agencies, such as WSAa, also not formally regulated. Where WSAs manage their own bulk supplies, costs (and price) are subsumed in their retail tariffs. Where WSAs provide bulk water to other WSPs, price and other terms are negotiated between the parties.
Water services tariffs (retail prices)	▪ High level principles for tariff setting are included in Municipal Systems Act and the Water Services Act o Tariffs to be cost based and take into account equity and sustainability considerations, and principles of proportionality; o All forms of subsidy should be fully disclosed ▪ Little guidance provided on the practical application of these principles ▪ Significant risk that pressure from municipalities to constrain charges increases below inflation has resulted in final charges being progressively squeezed to below full cost recovery level (i.e. below the level necessary to enable full maintenance of infrastructure). Incentives to improve efficiency tend to result in sub-optimal investment.

The table below summarises the responsibilities for tariff setting in the water activity chain.

Responsibilities for tariff setting

Tariff / charge	**Responsibility for setting tariff and source of authority**	**Responsibility for regulating the tariff and comments**
Water resource management charge. (Recovers the costs of water resource management[2].)	Catchment management agency in terms of National Water Act. DWAF (where there is no catchment management agency)	DWAF. DWAF. (Self-regulation.)
Water resource development charge (also called raw water infrastructure tariffs).	DWAF in terms of the national water resource pricing strategy (but only for DWAF owned schemes).	DWAF. (Note: raw water tariffs are also implicitly set by WSAs and water boards where these manage raw water systems.)
Bulk water and wastewater tariffs. (Recovers the cost of conveying and treating bulk water and wastewater.)	Negotiation between water board and water services authority in case of a water board. Water services authority where bulk function undertaken itself, or by an entity owned by the water services authority. Negotiation between water services authority and external provider of service.	DWAF. (Direct regulation of water boards). Water services authority. No regulation.
Retail water tariff and sanitation charges. (Includes the bulk water and wastewater tariff and recovers the retail costs.)	Water services authority in terms of the Water Services Act and Municipal Systems Act.	Water services authority (self-regulation).
Waste discharge charge. (A water resource charge based on the "polluter pays" principle.)	Catchment management agency in terms of National Water Act.	DWAF. Where there is no catchment management agency, DWAF both sets and regulates tariff (self-regulation).

[2] Includes evaluating and issuing licences, monitoring water resource quality against the water resource objectives, detecting and prosecuting unlawful use, promoting water conservation and demand management and removing and managing alien vegetation.

Conclusions

1. Individual water charges vary widely across South Africa. Due to the large number of links in the water supply chain that are regulated in different ways and by different entities, final charges are unlikely to be cost reflective.
2. Regulatory incentives for cost reductions and for efficient prices are weak at all levels of the activity chain. The absence of an independent regulator is problematic with highly opaque regulatory relationships currently in place.
3. Strong municipal and broader political pressure to limit retail water tariffs leading to a cost squeeze, which generally translates into insufficient investment and under maintenance. In this case *low* prices are not an efficient outcome and above-inflation increases would be economically efficient and promote better and more reliable service in the long run.
4. Efficient regulation and any reliable assessment of pricing efficiency likely to depend above all on ring-fencing of water operations at local authority level from other local authority activities so that better information can be made available
5. Consideration should be give to the establishment of an independent regulator in the short term. Alternatively, regulatory capacity could be development within DWAF and moved to an independent regulator later. The advantages and disadvantages of each approach need to be more fully considered prior to making a decision.

THE WATER SERVICES SECTOR IN SOUTH AFRICA – AN OVERVIEW

Water services refer to water supply and sanitation services and include regional water schemes, local water schemes, on-site sanitation and the collection and treatment of wastewater. In 2001, there were 44.8 million people living in South Africa, all of whom use domestic water services of some kind, but about 11.2 million people (25%) did not have access to adequate water services and 18.1 million people (41%) did not have adequate sanitation services. Water and wastewater services are also essential for businesses and industries and efficient provision of these services can help to promote economic development and the eradication of poverty.

Organisations involved in water services include the following:

- The **Department of Water Affairs and Forestry** is responsible for policy and regulation of the sector and also currently operates some water resource infrastructure (such as dams), bulk water supply schemes and retail infrastructure (providing services directly to consumers). Other national government departments and provincial government also play an important role in supporting the water services sector.
- **Municipalities** operate some local water resource infrastructure (such as dams and boreholes) and bulk water supply schemes, supply water and sanitation to consumers (households, businesses and industries) and operate wastewater collection and treatment systems.
- Government-owned **water boards** currently operate some water resource infrastructure, bulk potable water supply schemes (selling to municipalities and industries), some retail water infrastructure and some wastewater systems.
- **Community-based organisations** run some small water schemes in rural areas.
- **Publicly or privately owned companies** provide some water services. For example, Johannesburg Water is a water utility wholly owned by the City of Johannesburg. The direct involvement of privately owned companies in the operation of water services in South Africa has been limited to date. Where this has occurred, for example, the Dolphin Coast and Nelspruit concessions, the ownership of the water services assets has remained in public hands.
- Other role-players include any organisation providing water services, all **consumers** and **households** using water services, all **employees** in these organisations and their related representative structures, education and training institutions, professional bodies, contractors, non-government organisations, the manufacturing industry and other organisations involved in supporting activities such as research and development, and training and education.

An estimate of the overall size of the water services sector in South Africa is given below:

	DWAF	Water boards	Municipalities	Total
Assets (R billion)	40	11,2	± 50 [a]	± 100
Investment (R billion pa)	1,2	1,0	2,8	5 [b]
Turnover (R billion pa)	1,7	3,5	6,8	10 [c]
Staff numbers	21 700 [d]	8 000	± 40 000 [e]	± 70 000
Volume (million kl pa)				4 600 [f]

Notes: a) No reliable data available. b) Estimates. c) Does not add up due to double counting. d) Includes all staff. e) Water related staff only. f) Urban, rural, mining and bulk industrial (National Water Resources Strategy, 2002).

Of the total water use in the urban, industrial and domestic sectors, 72% is urban, 12% is rural and 17% is mining and bulk industrial water use.

1. INTRODUCTION

The purpose of this paper is to review the processes that are involved in setting prices within the water sector in South Africa and, in particular, to assess the pricing incentives at work in the sector. The scope of the enquiry is focused on water services prices (water supply and sanitation services) but also extends to water resource pricing (including the activities of water resource management, water abstractions and wastewater discharges). The paper has been based primarily on desk research, drawing on available written documents. The principal written source materials are set out in the reference section. Definitions of key terms used are given in Appendix 2.

2. THE INSTITUTIONAL FRAMEWORK

This section summarises the main institutions responsible for aspects of water and sewerage service provision or its oversight, or for management of water resources and the water environment. It also sets out the principal relationships between the different bodies.

The **Department of Water Affairs and Forestry** (DWAF) is the custodian of the water resource and overall sector leader, policy maker and regulator. DWAF oversees the activities of all water sector institutions and is responsible for water resource planning at the national and international levels and for decisions related to inter-catchment transfers and international allocations of water. DWAF licenses water use and discharges and collects abstraction and discharge fees. DWAF managers water resources infrastructure (for example, dams) and also some water services infrastructure. The latter are being transferred to water services authorities.

Catchment management agencies are being established in all catchment management areas and are responsible for water resource planning at the catchment level and for water resources management activities in these areas. Where CMAs are not established, DWAF fulfills these functions.

Water services authorities (all metropolitan municipalities, many district municipalities and authorized local municipalities) have the constitutional responsibility for the provision of water services within their areas of jurisdiction. They may undertake these activities themselves and/or contract an external water services provider to undertake these activities on their behalf. Where a water services authority engages an external water services provider, this must be done in terms of a *service delivery agreement*.

Water services providers are the agencies that assume operational responsibility for providing water and/or sanitation services either as a bulk or a retail service. Where Water Services Authorities undertake any of these services, they are a water services provider. Where water services providers provide services to other water services providers, this must be done in terms of a *service delivery agreement*. Where water services providers provide retail services to consumers, they must do so in terms of a *customer charter* and *consumer contract*.

Water boards are regional or bulk water services providers, that is, they sell water to, or accept wastewater from, other water services providers. Water boards may also provide retail water services directly to customers on behalf of water services authorities. Currently, water boards are somewhat of an anomaly within the institutional framework. Water boards are water services providers and hence are accountable to water services authorities (who have constitutional responsibility for the provision of water services). However, water boards are organs of state, owned, controlled and regulated by DWAF and National Treasury (NT) in terms of the Water Services Act of 1997 and the Public Finance Management Act of 1999. Tensions arise from this dual accountability and these need to be addressed.

A key characteristic of the institutional framework is the diversity of institutions with respect to both the scale of provision and the type of service provider. With respect to the *scale* of the provision of services, a water services provider could serve one small rural community, one or more towns, a large metropolitan area or

a whole region. With respect to the *type* of water services provider, a water services provider might be, for example, a community-based organisation, a local municipality, a district municipality, a public utility (owned by local and/or national government), or a private organisation.[3]

The two key pieces of legislation relevant to the water sector are as follows:

- The **Water Services Act** 108 of 1997, which will be amended once the White Paper on Water Services has been completed.
- The **National Water Act** 36 of 1998.

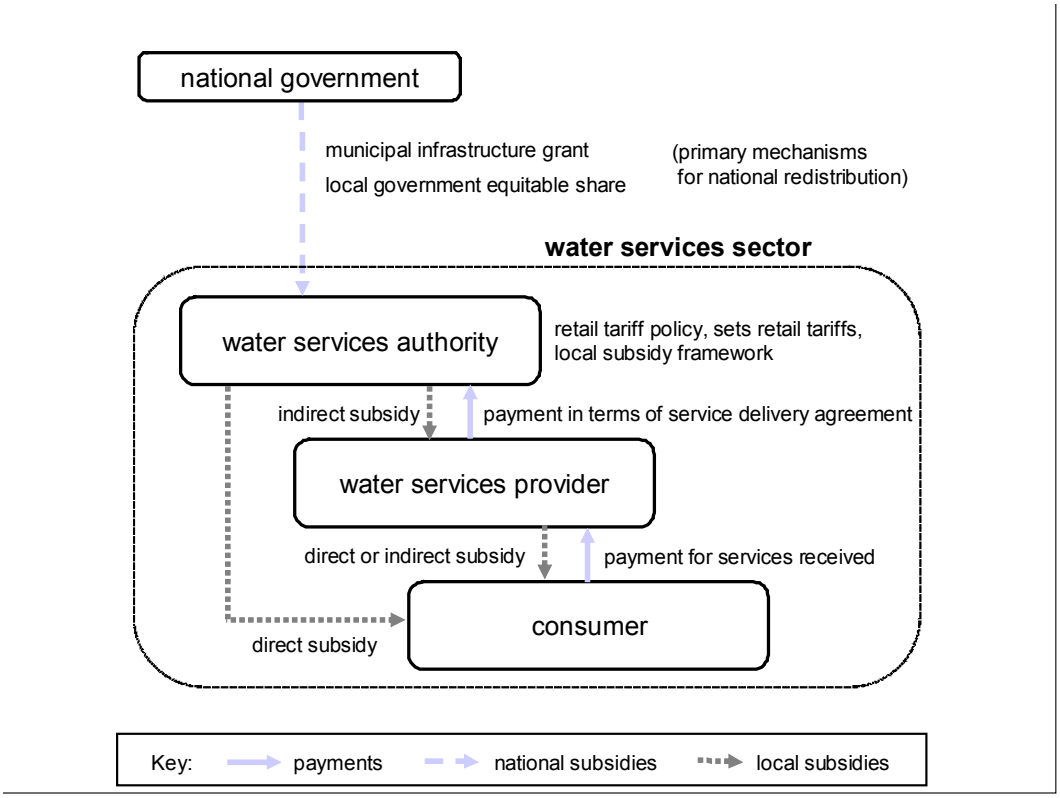
A full list of legislation pertinent to the water sector is given in Appendix 1.

[3] This is not an exhaustive list of possible arrangements.

3. THE FINANCIAL FRAMEWORK

The financial framework for the water services sector is shown in Figure 1.

Figure 1: The financial framework



Subsidies for infrastructure investment for basic municipal services are provided by national government through a new **municipal infrastructure grant** (MIG) as well as various other temporary capital grants such as the Consolidated Municipal Infrastructure Programme which will be consolidated into this grant. These are conditional grants, which make a significant contribution to infrastructure spending on basic services infrastructure in municipalities. (The specific nature of the MIG conditions are still to be developed.) National government grants account for approximately 57% of capital spending by municipalities on water services.

Subsidies for operating costs (to support the provision of affordable basic services to poor households) are provided by national government through the **local government equitable share** and various other temporary operating grants which are to be consolidated into the equitable share (how significant in overall costs?). This is an unconditional grant. This grant accounts for about 12% of total operating income from water services in municipalities.

These two subsidy mechanisms are the primary redistributive mechanism in the water services sector.

The discretion with respect to how the municipal infrastructure grant (MIG) and equitable share are allocated between basic services is primarily at the local level although the MIG is a conditional grant. There is thus local discretion (at the water services authority level) for the establishment of a **local subsidy**

framework for the provision of water services. However, national policies and strategies such as the free basic water policy can be influential. Subsidies are typically applied to support the provision of basic services to households (both in the form of capital subsidies to support investment in basic services and operating subsidies to assist with the ongoing operating costs of providing basic services. These are essentially social subsidies. If the subsidies were properly targeted and appropriately used, these subsidies would not distort the prices of services in general and would impact only on the prices of basic services. However, this will depend on how tariffs are applied. **Retail water tariff policy** and the setting of retail tariffs for water services are the responsibility of the water services authority and these are discussed in more detail in the following section.

Where a water services authority contracts with external water services providers in terms of a concession or lease contract, then the water services provider may make payments to the water services authority in terms of this contract. For example, payment may be made for the right to the concession. A public utility may also make payments to a water services authority in terms of service delivery agreement. Such a payment could be based on a rate of return on asset, for example.

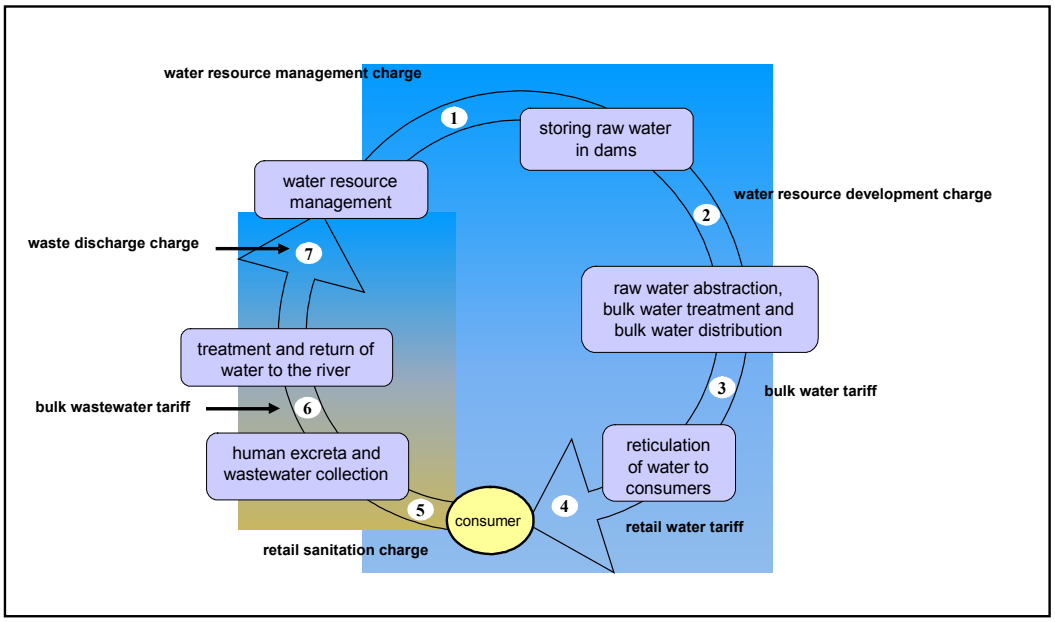
4. THE PRICING FRAMEWORK

The framework within which prices are set is described in this section. An assessment of the *influences* on prices is presented in the following section.

4.1 The Cost and Pricing Chain

The structure of the full cost of water supply and sanitation services and the related tariffs and charges is shown in Figure 2.

Figure 2: Water cost and pricing chain



4.2 Tariff Policy

Responsibility for tariff policies

The responsibilities for developing tariff *policy* are set out in Table 1.

Table 1: Responsibilities for tariff policy

Scope	Responsibility	Source of authorisation	Policies
Water resources	DWAF	National Water Act and Cabinet memorandum.	National water resource pricing strategy.
Raw water prices of DWAF schemes	DWAF	National Water Act and Cabinet memorandum.	National water resource pricing strategy.
Raw water prices of water services authority and water board schemes.	Water services authorities	National Water Act.	Typically collapsed in tariff policy for retail water (in case of WSAs) and policy for bulk water (in case of water boards).
Bulk water services provided by water boards	DWAF	Water Services Act	DWAF draft guideline (see Appendix 4).
Water services (bulk and retail)	Water services authorities	Water Services Act and Municipal Systems Act	National norms developed by DWAF. Individual policies developed by WSAs.

** Note that there are potential incompatibilities and/or differences between policies for raw water schemes owned by DWAF, water boards and water services authorities.*

National water resource pricing strategy

DWAF's water resource pricing strategy is based on the following principles:

Social Equity, which is focused on redressing the imbalances of the past with respect to:

- Inequitable access to basic water services at affordable tariffs within municipal areas, by facilitating a conditional subsidy on raw water cost where stepped tariffs are introduced; and
- Inequitable access to water for productive use purposes by subsidising tariffs for emerging farmers for a limited time period.

Ecological Sustainability, which requires:

- Safeguarding the ecological reserve;
- The ecological management of the catchment;
- Water quality protection; and
- Water conservation and demand management;

Financial Sustainability aimed at generating adequate revenue for funding the cost related to:

- The management of water resources; and
- The operation, maintenance and refurbishment of existing schemes

Economic Efficiency, which aims to:

- Promote the efficient allocation and beneficial use of water: water should be priced at its opportunity cost; and
- Provide for administrative as well as market-related measures to achieve this goal.

The pricing strategy deals with water supplied by government water schemes (GWS) and other water management institutions which include catchment management agencies (CMAs) and water user associations (WUAs). The tariffs are separated into two basic components: the *water resources management charge* (which is intended to cover the costs of catchment management activities) and the *water resources development charge*.

The strategy is aimed at moving towards tariffs which recover the full economic costs of providing raw water from the resource. However, poorer domestic consumers and emerging farmers will continue to be subsidised and the cost-reflective tariffs will be phased in over time.

For *municipal water supply* systems served by government water schemes the intention is to move to full cost recovery including a real rate of return on assets of 4% per annum. Annual increases to move to this level are proposed at the level of the production price index plus 10%. This pricing strategy was implemented in 1998.

For *irrigation water for commercial farmers* supplied from government water schemes, the intention is to recover full operating and maintenance costs in the short term and full financial costs (including depreciation) in the medium term.

Looking beyond the tariffs charged from government water schemes, the National Water Act provides for trading in water rights. A policy to enable transactions to take place between existing and prospective water use entitlement holders has been developed. However, the mechanisms for implementing this are not yet in place yet.[4]

The key elements of the strategy are summarised in Appendix 5.

Bulk water tariff policies

No explicit policies exist for bulk water tariffs. A draft guideline has been developed by DWAF for the setting of tariffs by water boards. This guideline is attached as Appendix 4 (in full). The guideline is very vague and has little practical import.

Water services tariff policies

Tariff principles that need to inform tariff policies for water services are given in both the Municipal Systems Act as well as the Water Services Act. Key principles are summarised here:

- Tariffs should be applied equitably and fairly;
- The amount individual users pay for services generally should be in proportion to their use of that service;

[4] See Bate and Tern, 2002, 'The cost of free water', published by the Free Market Foundation, and Nieuwoudt *et al*, 2003, 'The value of water in the South African economy – a review', draft report for the Water Research Commission.

- Water and sanitation tariffs for domestic use should be pro-poor in their orientation, that is, they should seek to ensure that a minimum *basic* level of water supply and sanitation service is affordable for all households;
- Tariffs must reflect all of the costs reasonably associated with rendering the service;
- Tariffs must be set at levels that facilitate the financial sustainability of the service, taking into account subsidisation from sources other than the service concerned;
- The economical, efficient and effective use of resources, the recycling of waste, and other appropriate environmental objectives must be encouraged;
- A tariff policy may differentiate between different categories of users, debtors, service providers, services, service standards, geographical areas and other matters as long as the differentiation does not amount to unfair discrimination; and
- All forms of subsidies should be fully disclosed.

National norms and standards for water services tariffs are set out in the Draft White Paper on Water Services and the Section 10 regulations under the Water Services Act. Key policies set out in the Draft White Paper have been extracted and are given in Appendix 3.

4.3 Setting and Regulating Price Levels

The responsibilities for setting water and sanitation tariff levels are summarised in Table 2.

Table 2: Responsibilities for tariff setting

Tariff / charge	Responsibility for setting tariff and source of authority	Responsibility for regulating the tariff (and comments)
Water resource management charge. (Recovers the costs of water resource management[5].)	Catchment management agency in terms of National Water Act. DWAF (where there is no catchment management agency)	DWAF. DWAF. (Self-regulation.)
Water resource development charge (also called raw water infrastructure tariffs).	DWAF in terms of the national water resource pricing strategy (but only for DWAF owned schemes).	DWAF. (Note: Raw water tariffs are also implicitly set by WSAs and water boards where these manage raw water systems.)
Bulk water and wastewater tariffs. (Recovers the cost of conveying and treating bulk water and wastewater.)	Negotiation between water board and water services authority in case of a water board. Water services authority where bulk function undertaken itself, or by an entity owned by the water services authority. Negotiation between water services authority and external provider of service.	DWAF. (Direct regulation of water boards). Water services authority. No regulation.
Retail water tariff and sanitation charges. (Includes the bulk water and wastewater tariff and recovers the retail costs.)	Water services authority in terms of the Water Services Act and Municipal Systems Act.	Water services authority (self-regulation).
Waste discharge charge. (A water resource charge based on the "polluter pays" principle.)	Catchment management agency in terms of National Water Act.	DWAF. Where there is no catchment management agency, DWAF both sets and regulates tariff (self-regulation).

[Source: Draft Water Services White Paper]

[5] Includes evaluating and issuing licences, monitoring water resource quality against the water resource objectives, detecting and prosecuting unlawful use, promoting water conservation and demand management and removing and managing alien vegetation.

The main points to note about the responsibilities for setting tariffs are the following:

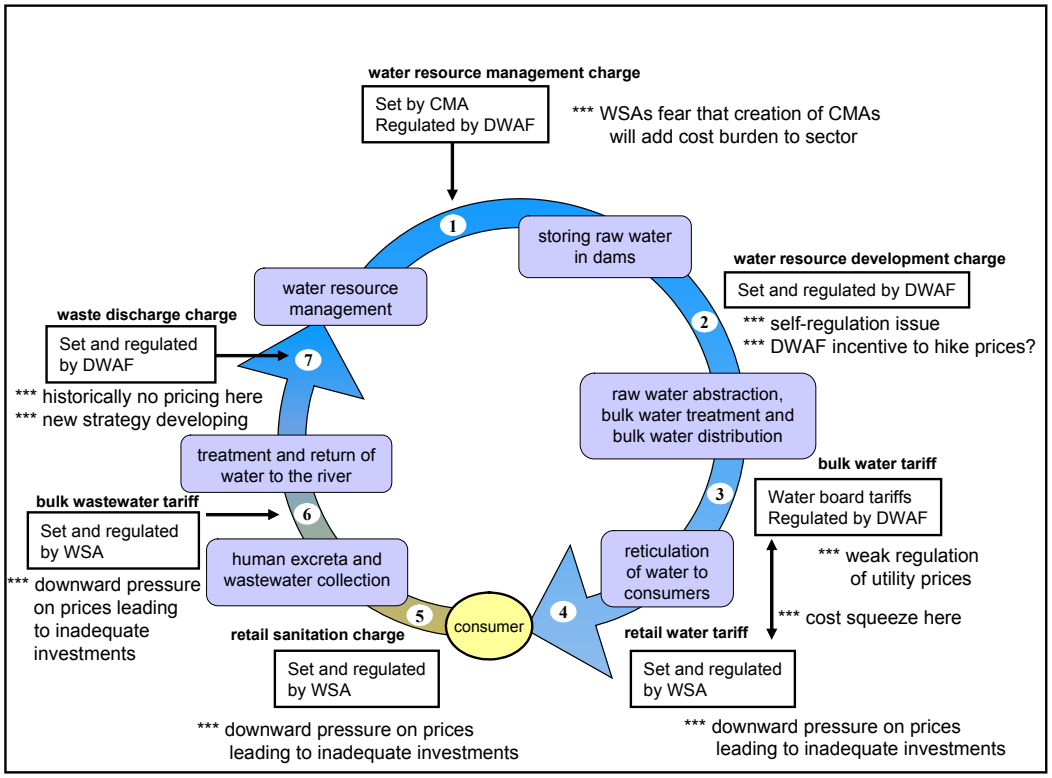
- In a number of cases there is self-regulation. That is, the same institution both *sets* the tariff level and *regulates* the tariff level;
- There is a marked absence of any formal economic regulation of water tariffs throughout the water cost chain: no formal economic regulatory function exists in any part of the water sector;

5. CURRENT PRICING PRACTICES AND INCENTIVES

5.1 Qualitative Assessment of Pricing Incentives

The key pricing incentives operating within the water sector are illustrated in the pricing map given in Figure 3.

Figure 3: Map of pricing incentives



The **water resources management charge** is set by catchment management agencies (or DWAF where there is no CMA) in terms of the DWAF water resource pricing strategy. This is a relatively new charge and is based on costs (that is, the charge should equal the actual costs incurred). At present, this charge is not very significant in relation to the water resources development charge (see below). However, there is a perception and fear among water services authorities that the establishment of catchment management agencies will increase the costs of water resources management significantly and hence result in large increases in this charge. This charge is applied to all water users (but subsidized in the case of emerging farmers).

Basis of pricing: Cost recovery. The tariff should equal costs but there is no formal regulation of the costs or the charge.

Pricing incentives: CMAs have incentives to increase prices, but the charge is typically insignificant in the context of the full cost chain (especially for industrial and urban water). Little incentives to cut costs or improve efficiency.

Price level: Typically a few cents per kl.

The **water resource development charge** is set by DWAF in terms of its own water resource pricing strategy. The tariff policy requires a 4% real return on the depreciated current value of assets (to be implemented in a progressive manner starting from a low base). (Rate of return regulation is typically based on historical

costs, that is, actual investments.) There is a perception among water services authorities that this policy will give rise to an "economic rent" and is therefore an unfair pricing practice. There is also a perception that water services authorities are being exploited because DWAF has an important incentive to increase its revenues (as DWAF is reportedly under financial pressure) and that DWAF is both the regulator and operator in this instance with the resultant game-keeper and poacher problem. However, actual pricing evidence reported in the following section suggests that, if anything, DWAF's water resource development charges are still much lower than they should be if the strategy were to be implemented comprehensively.

Basis of pricing: Rate of return on assets (cost plus).

Pricing incentives: DWAF is both price setter and regulator (for its own schemes). DWAF has an incentive to increase prices but in practice actual prices are set below the rate allowed in the policy in many cases. No incentives to improve efficiency. Pressure to reduce costs may arise from resource constraints.

Price level: Typical tariff is 30 c/kl but can be both much smaller (a few cents) or much higher (for example around 100 c/kl for water from the Vaal River System supplying Gauteng).

Bulk water prices (in the case of water boards). Prices are set by water boards (where these services are provided by water boards). The minister must approve water board tariffs (but there are no explicit criteria and little transparency). Draft guidelines for setting tariffs have recently been developed (see Appendix 4). These guidelines are vague and are unlikely to have any practical effect on their own. There also make an erroneous linkage to inflation. Water boards are required to submit business plans with proposed tariff increases included as part of the business plan. Historically, the process of approving water board tariffs appears to have been relatively informal. In the last two years, more formal guidelines relating to the submission of business plans have been developed (DWAF, October 2002). An appraisal and approval committee, including representatives of the Minister of Water Affairs and Forestry and the Minister of Finance, and a panel of experts to assist the committee have been proposed. However, no formal basis for the evaluation of tariffs has been developed and it is not clear how the committee or panel of experts will appraise water board tariff proposals. In some cases, water services authorities are able to expert pressure on water boards to restrain tariff increases.

Basis of pricing: Cost-plus. No formal economic regulation of prices, no guidelines for allowed costs, rate of return etc.

Pricing incentives: Water Boards have incentives to increase prices. This incentive effect is moderated where stronger customers are able to negotiate. There is inadequate economic regulation of Water Boards by DWAF. Little incentive to cut costs or improve efficiency.

Price level: Typical tariff (excluding raw water tariff) is around 100 c/kl but can be both smaller or higher. The combined raw and bulk water tariffs can account for 50% or more of total costs.

Bulk water prices (other than water boards). Where water services authorities manage their own bulk supplies, these costs are directly incorporated into their retail prices. Where water services authorities provide bulk water services to

other water services providers, the conditions and price is negotiated between the institutions. There is no formal regulation of either of these two cases.

Basis of pricing. Cost-plus. No clear regulation of prices, no guidelines for allowed costs, rate of return etc.

Pricing incentives. Dependent on negotiations. Little incentive to improve efficiency. Incentive to cut costs arises from budget pressures on municipalities.

Price levels. As above.

Retail water and sanitation prices (where the water services authority provides services itself). This is the dominant situation in South Africa at present. The water services authority sets tariff policy, sets tariffs and provides services. Tariff increases must be agreed to by the municipal council on an annual basis. There is a downward pressure on prices often resulting in a cost squeeze on maintenance expenditure and the capital programme. Although in most cases the effects of this on infrastructure is not very noticeable, a continued trend could result in a significant deterioration in water services assets of time and constrain the ability of water services providers to deliver and expand services.

Basis of pricing. Cost-plus. No clear regulation of prices, no guidelines for allowed or required costs, rate of return etc.

Pricing incentives. Downward pressure on prices as a result of consumer and political pressure. Price decisions are made by Council. Price increases typically restricted to inflation or less whereas actual costs (often as a result of inputs costs of bulk and raw water purchases) might be increasing at a higher rate than inflation. Incentives to cut costs tend to result in suboptimal investment.

Price levels. Typically in the region of 100 to 200 c/kl (for retail water component only, excluding raw and bulk water costs), but can be higher or lower.

Retail water and sanitation prices (where there is an external water services provider owned by one water services authority). There is only one case of this in South Africa, namely Johannesburg Water. The water services authority sets the tariff policy and service delivery targets (as client). The water service authority specifies a required return on investment (as shareholder). The water services provider provides services in terms of a service delivery agreement (contract). The water services provider must balance its own social goals and mandate (delivery of services) with its economic and financial objectives (getting an appropriate return on its investment). This model of provision has resulted in operating efficiency gains (through a management contract). However, it is not clear at this stage what the incentive effects have been on prices. The development of the economic regulation function of the Contracts management unit of Johannesburg City Council is still in its infancy (see PDG, 2003).

Basis of pricing. Cost-plus. No clear economic basis for regulation of prices, no guidelines for allowed costs, rate of return etc.

Pricing incentives. Downward pressure on prices as a result of consumer and political pressure but moderated by service delivery agreement which should agree on a price path.

Price levels. In the region of 200 c/kl (for retail water component only, excluding raw and bulk water costs).

Retail water and sanitation prices (where there is an external water services provider owned by more than one water services authority). There is only one example of this mode of provision in South Africa, namely the Uthukela Water Partnership. This organization is still in its infancy. In this mode of provision, each water services authority enters into a service delivery agreement with the water services provider (a municipal entity). The shareholder function is diluted between water services authorities which could result in less direct influence by the shareholder and a more arm-length professional management. However, accountability to consumers is also weakened in this mode. The specific incentive effects on prices will vary from case to case depending on the details of how the mechanism is set out and how the balance of forces works out.

Basis of pricing. Cost-plus. No clear economic basis for regulation of prices, no guidelines for allowed costs, rate of return etc.

Pricing incentives. Downward pressure on prices as a result of consumer and political pressure but moderated by arms length professional management. Few incentives to improve efficiency.

Retail water and sanitation prices (where there is an external water services which is privately owned with a lease contract.) There is only one small example of this in South Africa. The price is determined through competitive tendering at the commencement of the contract with clear rule for how prices are revised during the contract.

Basis of pricing. By competitive tender and contract.

Pricing incentives. Competition for market. But option of renegotiation during contract. Outcome dependent on efficacy of contract management.

Retail water and sanitation prices (where there is an external water services which is privately owned with a concession contract). There are only a few examples of this in South Africa. The price is determined through competitive tendering at the commencement of the contract with clear mechanisms established for the process for price reviews during the contract. Concession contracts are typically of a long term nature. The water services authority and concessionaire often have conflicting incentives with respect to the tariff. Typically there is little transparency in the tariff review process. The outcome for tariffs will very much depend on the detail of implementation and balance of forces between the water services authority and the external water services provider. Although a large body of international literature exists on this topic, South African experience is limited.

Basis of pricing. By competitive tender and contract.

Pricing incentives. Competition for market at start. Adjustment as per contract and negotiation. The outcome is dependent on the efficacy of contract management. The goals and incentives of the concessionaire are different to those of the water services authority (the principle-agent problem) and problems of information asymmetry exist, that is, the concessionaire knows more than the water services authority which makes effective regulation of the contract difficult.

Bulk wastewater prices. Same sets of incentives apply as for bulk water prices depending of the specific institutional model.

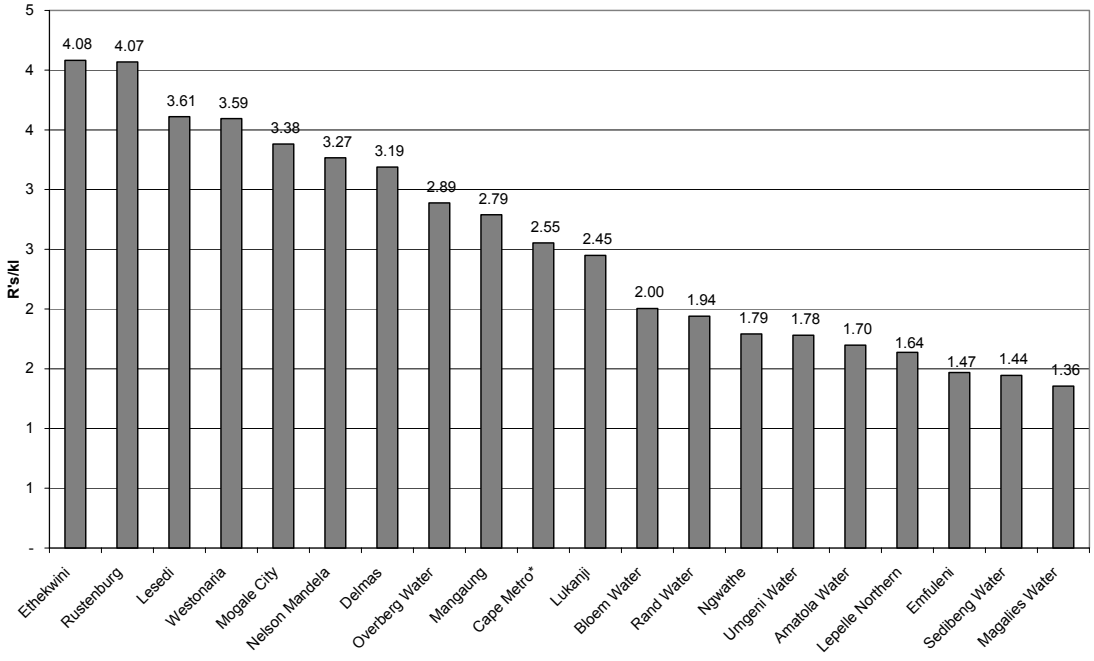
Effluent charges (discharges to the environment). These are to be governed by a new Waste Discharge Charge System. If well implemented, these should exert the appropriate incentives on polluters. It is too early to evaluate these incentives.

5.2 Illustrations of Incentive Effects

Prices vary due to differences in underlying cost structures. It is important to note the range in prices in the water sector across the sector. This is appropriate because the cost of supply water varies a great deal depending on local and regional conditions.

An illustration of the range of average retail and bulk water prices in South Africa is given in Figure 4.[6] These in turn reflect the diverse underlying cost structures of raw water costs shown in Figure 5. Whilst these cost differences also reflect differences in efficiencies, the divergence in costs arising from physical cost factors is likely to exceed the divergence in costs arising from differences in efficiency. However, this cannot be known for certain without detailed analysis which is not available.

Figure 4: Average retail water and bulk water prices are diverse - an illustration



Water resource development charges. Notwithstanding the fears of water services authorities, it appears that water resource development charges have not, in many cases, increased in line with the stated strategy.[7]

Water resource tariffs are made up of two components: the water resource management (WRM) charge and the water resource development charge.

DWAF keep a book of tariffs for all the government water schemes for which it is responsible – a total of 144 schemes in 2002/03. Figures from these books have been captured for the current year, three years ago and five years ago. Figures

[6] Source: PDG (2003) from the Rand Water Tariff Survey.

7 Source: Adapted from PDG (2003)

for schemes where there is a five-year record of tariffs have been used to provide a sample of current tariffs for water abstracted from a river or dam and of tariff trends over the five years. This is done separately for irrigation water and water used for municipal purposes.

Figure 5: Water resource tariffs for municipal use (c/kl)

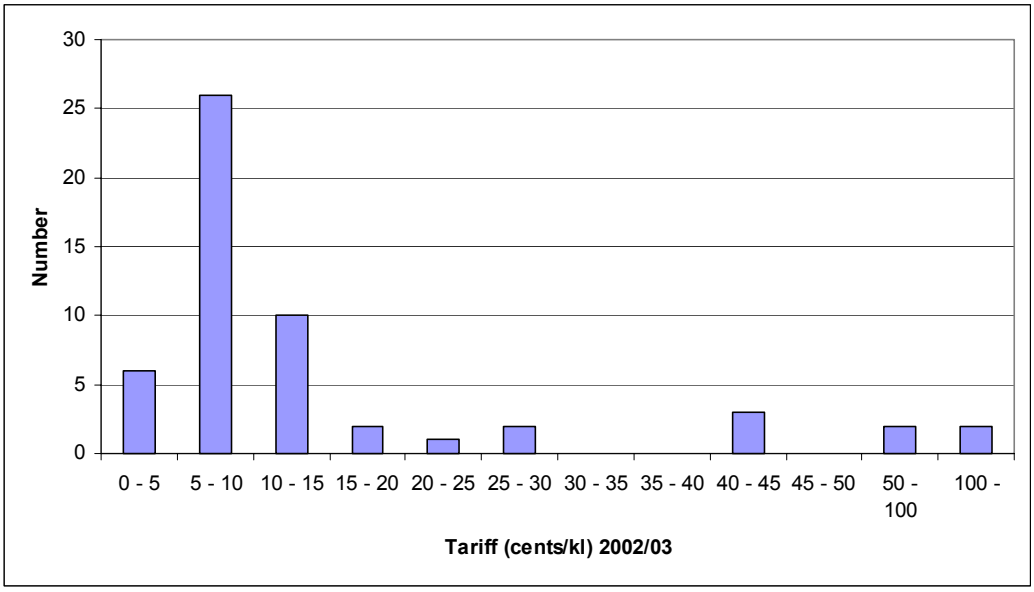
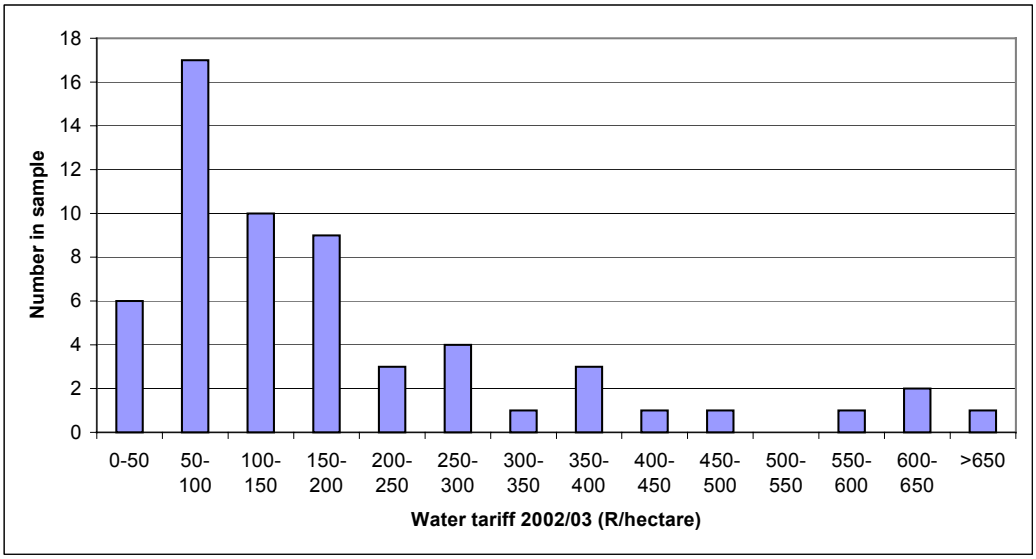


Figure 6: Water resource tariffs for irrigation use (Rands per hectare)



Where water resource tariffs for municipal use are higher (more than 40 c/kl), these are likely to be for the larger schemes serving the larger cities in South Africa. This is because these schemes are both more costly and likely to be more recent (due to the higher growth in water demand in the larger urban areas compared to other areas). Smaller schemes serving smaller towns are, in general, likely to be both older and less costly but there are exceptions to this.

It is the intention of DWAF is to move to full cost recovery tariffs for the use of water resources. The actual trends in this regard have been analysed, with the

results shown in Figure 7 and Figure 8. (The sample sizes are 55 and 62 schemes respectively).

Real increases (adjusted for inflation using the CPI) over five years are as follows:

- Irrigation water: 0.2% per year;
- Municipal water: 0.9% per year.

These figures are based on unweighted averages. In the case of municipal water the unweighted average could be misleading because large real increases have been applied in the case of big schemes supplying metropolitan areas.

Figure 7: Trends in water resource tariffs for municipal use

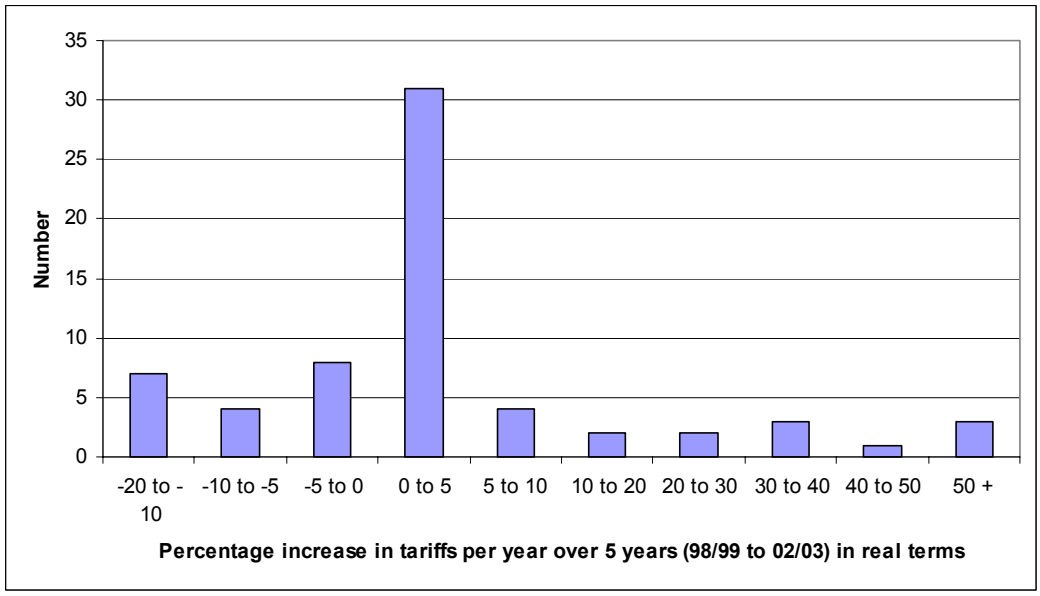
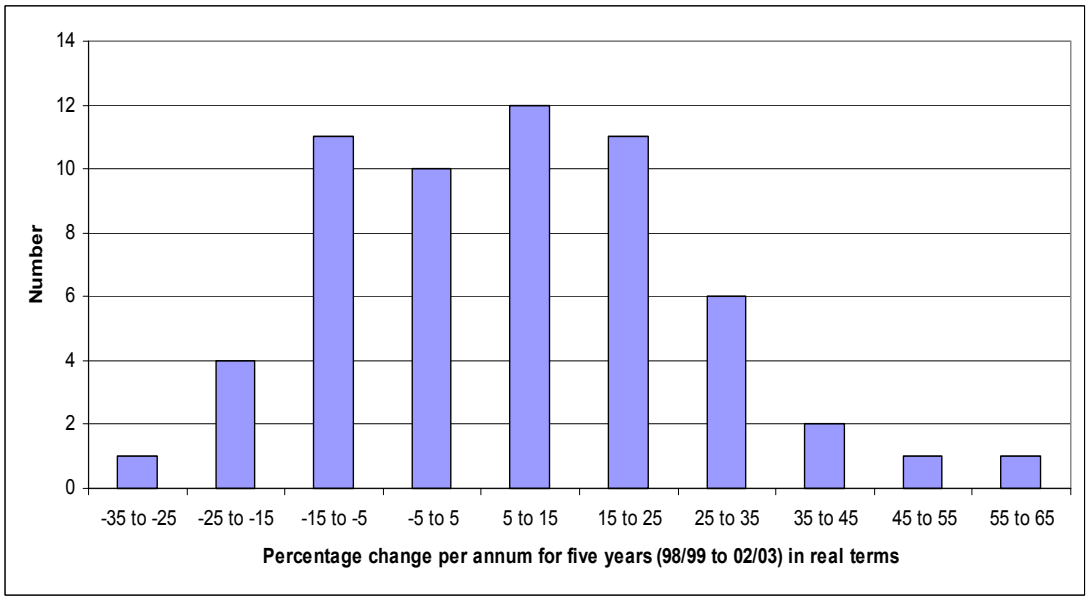


Figure 8: Trends in water resource tariffs for agricultural

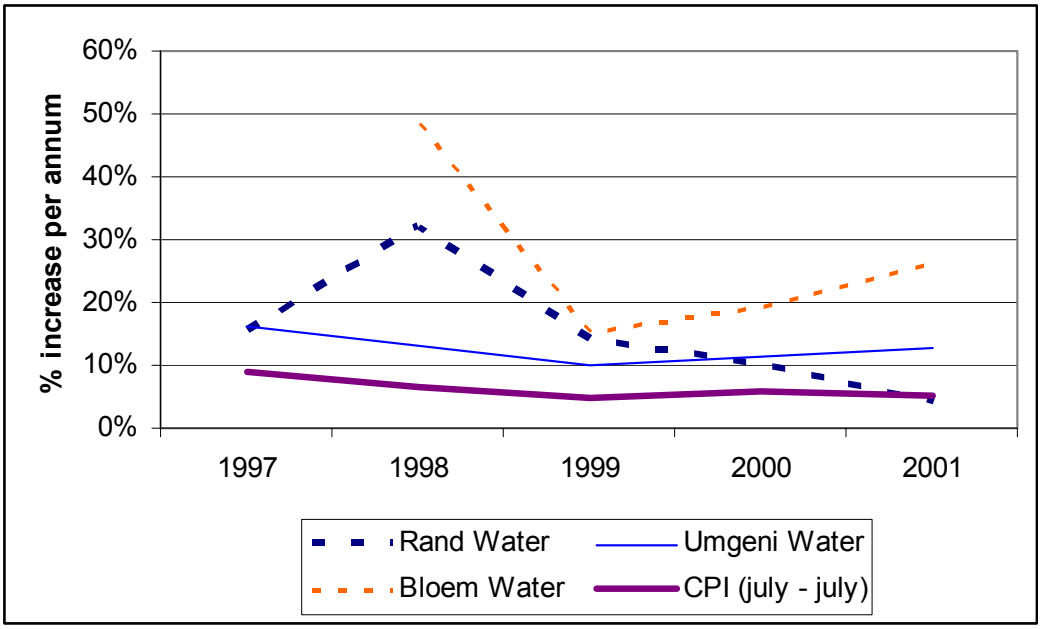


Based on the information from this analysis it is evident that water resource tariffs are not, in many cases, increasing substantially in real terms, in contrast with the

policy discussed earlier in this report which is to move towards full cost recovery tariffs. This implies that raw water tariffs for water supplied from many government water schemes are generally still far too low and that the policy is not being consistently or coherently applied.

Bulk water prices. Bulk water tariffs are most relevant where bulk supply is provided by a difference agency to the retail water services provider. Annual nominal increases in bulk water tariffs for three water boards are shown in Figure 9 compared to CPI.

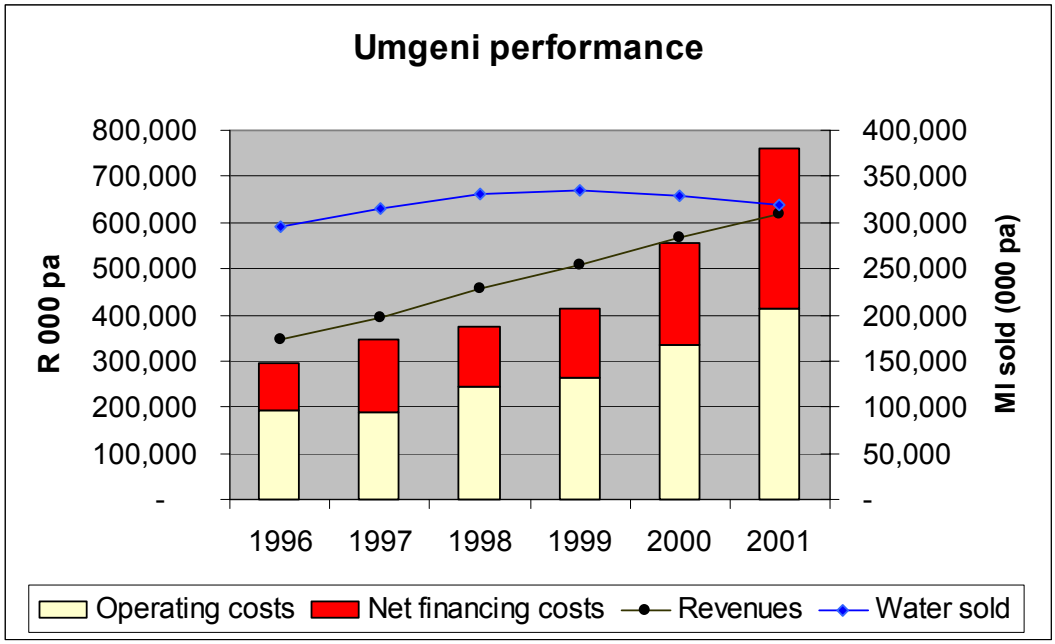
Figure 9: Trends in bulk water tariffs for selected water boards



Together, these three water boards account for more than 80% of the bulk water supplied by the 15 water boards in South Africa. Tariff increases for these three water boards have all consistently and substantially exceeded inflation during the period 1997 to 2001 (with the exception of Rand Water in 2001). Rand water faced significant real increases in the raw water tariff as a result of the implementation of the Lesotho Highlands Water Project.

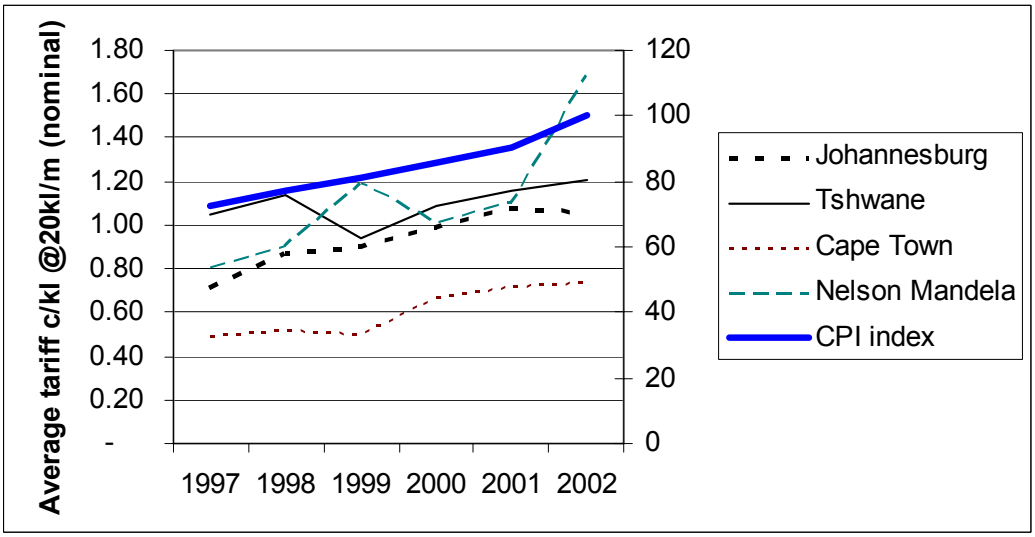
The financial performance of Umgeni Water is shown in Figure 10. Higher than inflation tariff increases are partly the result of significant increases in finance costs arising from poor financial management practices and controls as well as optimistic water demand projections. This is clear evidence of regulatory failure.

Figure 10: Umgeni Financial Performance



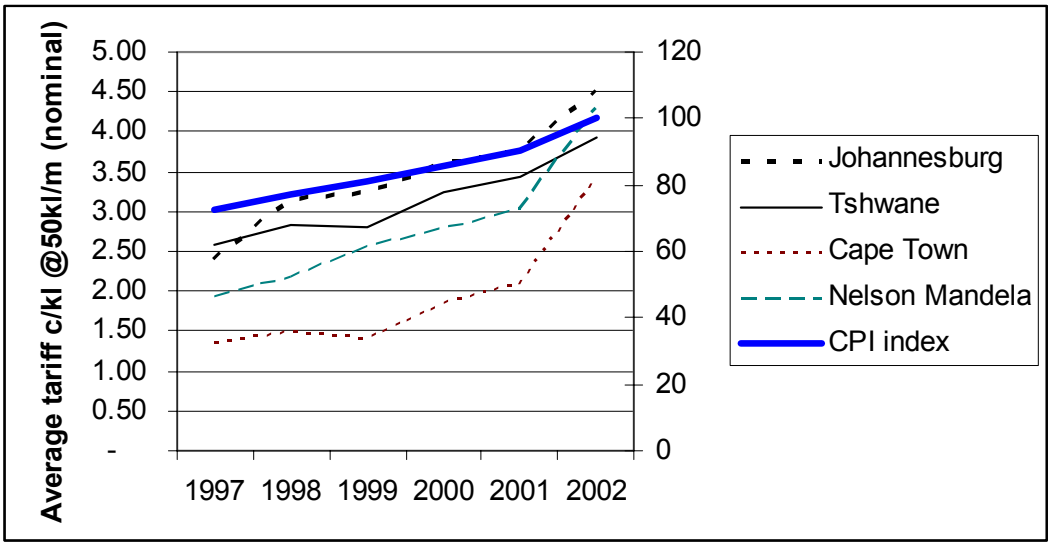
Retail water prices. Retail water tariffs for households consuming 20 kl per month and 50 kl per month are shown below together with the rate of change in the tariffs compared to the CPI. All are in nominal terms.

Figure 11: Average domestic retail tariffs for 20 kl per month (nominal)



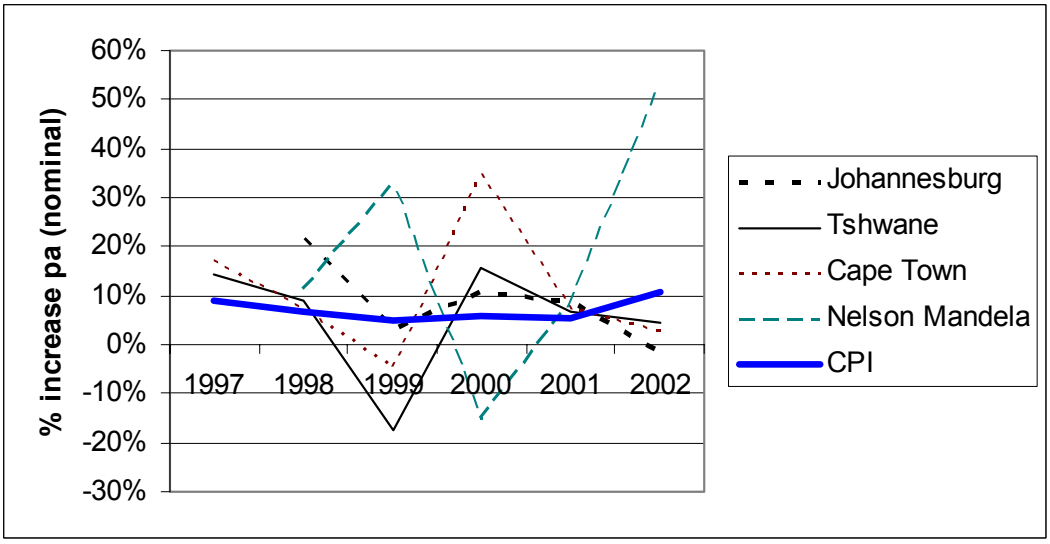
Water tariffs in the major cities for a modest water consumption of 20 kl per month are reasonably low (less than R1.20 per kl with the exception of Nelson Mandela). However, tariffs have been reasonable unstable over time in some cities.

Figure 12: Average domestic tariff for 50 kl per month (nominal)



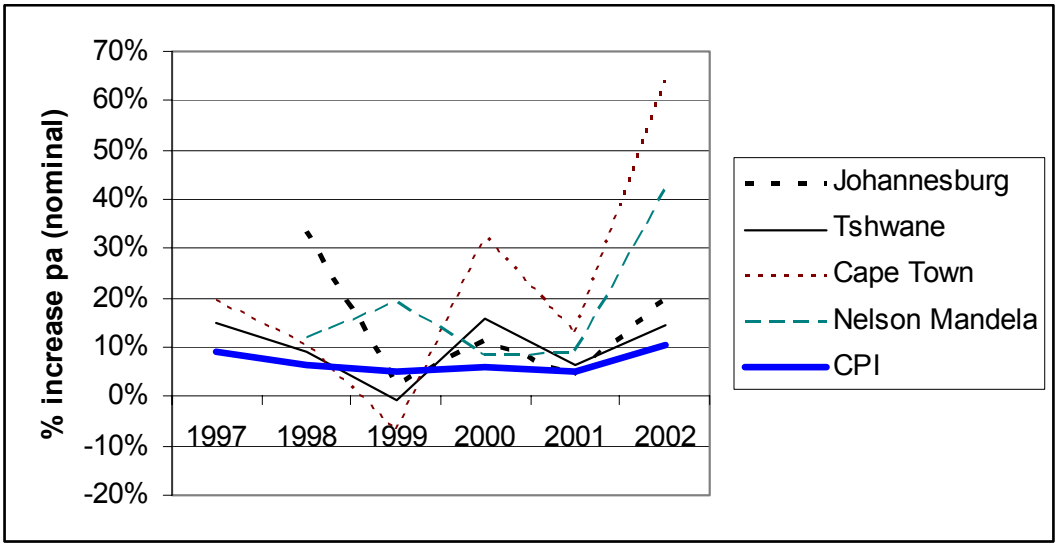
Water tariffs for domestic consumption of 50 kl per month are much higher (Around R3 to R4 per kl). These tariffs have increased sharply and at rates well above inflation in most cities. This is as a result of pressure to balance the books while at the same time providing low cost water to poor households.

Figure 13: Rate of nominal change in average household tariffs for 20 kl per month



The unstable nature of the tariff increase in the lower range of consumption is evident from the above graph, implying a lack of consistency in the application of tariff polcies.

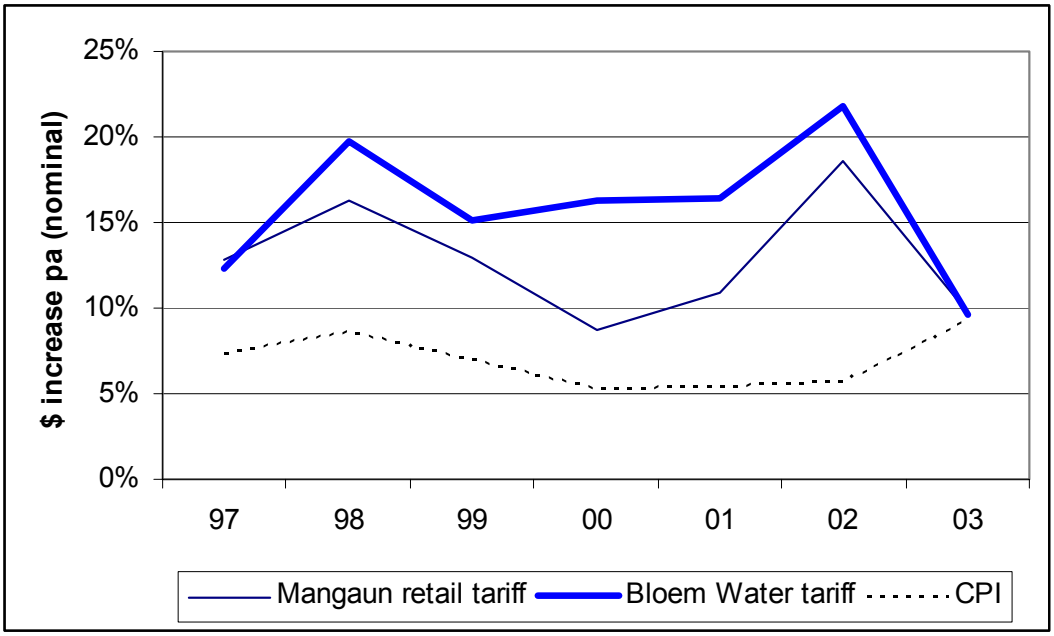
Figure14: Rate of nominal change in average household tariff for 50 kl per month



The significant tariff increases for households consuming 50 kl per month is evident from the above graph.

The impact of water board tariff increases on retail tariff increases is evident from the example given below for Mangaung (Bloem Water is the Water Board).

Figure15: Nominal bulk and retail tariff increases in Mangaung



6. REFORM INITIATIVES

Important reforms are taking place, or are envisaged, in the water sector. Two key policy documents are of particular importance in this regard, these being:

- The current draft White Paper on Water Services; and
- The Water Policy White Paper (April 1997).

Key legislation associated with these policy documents includes:

- The Water Service Act 108 of 1997 which will be amended once the White Paper on Water Services has been completed; and
- The National Water Act 36 of 1998.

A full list of legislation pertinent to the water sector is given in Appendix 1.

The new White Paper on Water Services (currently in preparation) sets out the following key policy initiatives of direct relevance to water pricing:

- An institutional reform process to rationalise and improve the effectiveness of water services provision. This will be built around a bottom-up process (recognising the constitutional responsibility of water services authorities for water services provision) but with national leadership and oversight. The reform process will pay particular attention to appropriate institutional arrangements for regional schemes and seek to resolve the current tension in the accountability of water boards.

  The white paper makes a commitment to the development of a national institutional reform process to be approved by cabinet by June 2004. This strategy will address key issues such as the decision-making process and ownership arrangements.

- The development of a stronger regulatory framework for water services, with particular attention to be given to strengthening the national regulatory function and with a view to the possible establishment of an independent water services regulator in future.

  The white paper makes a commitment to the development of a regulatory strategy, which includes a stronger emphasis on economic regulation.

- Increased emphasis on efficiency, sustainability and financial viability.

In addition, the draft White Paper envisages a modified financial policy framework reflecting the consolidation of national government funding to local government through the equitable share, the municipal infrastructure grant and the capacity building grant. The key effect of this will be reduced direct control by national government of expenditure in the water services sector.

The local government elections in 2000 represented the final phase in the local government transformation process that commenced in 1993. It is now possible for local government to assume full operational responsibility for water and sanitation services as provided for in the Constitution of the Republic of South Africa (Act 108 of 1996). This means that the role of the Department of Water Affairs and Forestry (DWAF) will change from being a direct provider of water services to being a sector leader, supporter and regulator. The 2002 Division of Revenue Act created the impetus for phasing out DWAF's role in the direct operation of water services.

While the new policy and institutional framework represents an important step in the right direction, it remains open to question whether it will on its own prove sufficient to address the pricing issues highlighted in this report. Much will depend both on the details of policy and on the way that it is implemented in practice. Particular concerns include the fact that, as a regulator, DWAF will be responsible for overseeing the price setting behaviour/performance of an extremely large number of entities. This is likely to stretch its resources. Ultimately, retail tariff setting will continue to rely on the effort and expertise of individuals working in local government (water service authorities). There are serious issues concerning whether staff working at this level will possess – or have access to – the skills and information required to set appropriate tariffs.

The difficulties facing those responsible for setting tariffs at the water services authority level are increased by the fact that the water operations are not ring-fenced from other local authority activities. This lack of separation means that reliable data on water finances will not generally be available and that cross-subsidies from (or, potentially, to) other local authority activities will be largely hidden.

The commitment to institutional reform set out in the white paper is credible. However, the outcomes of the reform cannot be anticipated before hand as these will depend largely on the extent to which the respective interests of water boards and water services authorities are balanced. DWAF, as owner of the water boards has a critical role to play in this regard.

DWAF's policies with respect to regulation are still rather vague at this stage. Although there is a commitment to strengthening regulation, much will depend on the nature of the regulatory strategy development and the extent to which this is supported in terms of political will and resources. There is no explicit commitment to the setting up of an independent regulatory function, but only a commitment to investigate whether or not this would be a good idea.

7. CONCLUSIONS

The final charges paid by water service end-users incorporate a number of different elements, which are themselves regulated in different ways and by different entities. As a consequence it is unlikely that the end user charges bear a systematic relationship costs. The following paragraphs summarise the key conclusions with respect to each of the main categories of water charge.

Water resource management charges are currently self-regulated by DWAF in areas where it fulfils the role of catchment management agency. Where CMAs are in place, DWAF again holds regulatory responsibility in this case regulating charges set by the CMAs. The regulatory approach is in both cases an informal one and it follows that the incentives for efficient pricing are likely to be weak. However, the water resource management activity typically represents a small component of the full water cost chain and the associated charge is a correspondingly small proportion of the end-price.

Water resource development charges are also self-regulated by DWAF and incentives for efficient pricing are weak. The policy requires a 4% real return on revalued (current) depreciated assets.[8] It can be argued that this is an inappropriate economic rent because the rate of return for regulated public infrastructure is typically based on actual historic investment and not the replacement cost of this investment. However, it appears from the available evidence that the policy is not being fully implemented in practice (PDG, 2003). It is probable that in some areas prices are inappropriately high while in other areas prices are inappropriately low. No definitive conclusion is possible, however, as no independent audits of actual costs and how these relate to prices have been undertaken.

Bulk water tariffs for water boards are poorly regulated by DWAF and incentives for the efficient pricing of bulk water are weak. There is no formal economic regulation of bulk water tariffs and little transparency in the tariff review process. The draft guidelines put out by DWAF note that "at present there is inconsistency and lack of transparency in the process of bulk water services tariff setting by water boards. This has led to cases where water boards' biggest customers, local authorities, were not in agreement with tariff increases as they felt they were unwarranted and unjustifiable and contributing towards stifling economic growth and equity." DWAF's draft guidelines are themselves vague, however, and make an erroneous linkage to inflation and provide no practical guidance (see Appendix 4). This weakness is recognised in the draft Water Services White Paper but, as noted above, it remains to be seen whether these proposals will be sufficient to address the deficiencies inherent in the current approach.

Retail water tariffs are regulated by water services authorities (local government). In general, it appears that the incentives for efficient pricing of retail water services are weak. There may be exceptions to this where prices are determined through competitive tender (for example, in a lease contract). It is probable that retail prices are, in many instances too low. However, little is really known about the efficiency of retail water services prices. Very few water services

[8] The assets are valued at full replacement cost (at current prices) less that portion of the asset that has been "used up". In other words, if the normal and expected life of a piece of infrastructure is 30 years (from installation), and the asset is 10 years old, then the full replacement cost of the asset would be depreciated by a third to arrive at the depreciated current value of assets.

providers have ring-fenced accounts and hence it is not even possible to determine the actual costs of water services provision in most cases. Where accounts are ring-fenced, as is the case for Johannesburg Water for example, there is no formal approach to economic regulation. In most cases, there is inadequate capacity to regulate effectively.

Because of the diversity of schemes and institutional arrangements, the actual economic effects of the lack of efficient pricing are likely to be different in different cases. It is therefore hard to draw general conclusions in a more definitive manner without more detailed study.

8. RECOMMENDATIONS

The principal recommendations suggested to address the issues identified above are summarised below.

1. **Scheme-based pricing**. It is appropriate that water prices reflect the underlying costs of provision. There should be no move toward uniform prices for water beyond the boundaries of a scheme (or group of inter-related or complementary schemes).
2. **Regulation of water resource development charges**. The implementation of water resource development charges appears to be inadequate. The independent regulation of these charges should be considered, at least as a medium term goal. The creation of a national water resources infrastructure agency (which has been mooted) may solve the gamekeeper-poacher problem.
3. **Bulk water pricing**. There is a need for improved economic regulation of bulk water prices. This should be some form of incentive-based regulation which is underpinned by a rate of return analysis. In the first instance, DWAF could undertaken this function. However, it is likely to be more effective if undertaken by an independent regulator. Much more detailed guidelines for the setting of bulk water prices need to be developed.
4. **Retail water pricing**. Whilst prices for modest water users in major urban areas have been contained as a result of the introduction of free basic water policies and inclining block tariffs, the costs of water for larger users have increased sharply. There should be better regulatory oversight of retail water pricing to ensure cost-reflectivity, transparency and consistency in the application of pricing to consumers. In this first instance, this regulator oversight should concentrate on the larger urban areas. The first step would be to require metropolitan municipalities to properly ring-fence there water and sanitation businesses and to significantly improve reporting. The second step would be to develop detailed guidelines for efficient pricing. The third step would be to regulate the pricing of water services in cities through independent regulation.
5. **Institutional reform**. Institutional reform in the water services sector should concentrate initially on those areas where significant improvements in operational efficiency can be obtained. This should be accompanied by improved economic regulation of major regional and metropolitan water services providers. The commitments made in the water services white paper must be carried out. The national institutional reform strategy must be development as a matter of priority. This strategy must address the issues of decision making, timing and ownership.
6. **Economic regulation**. There is a general need for the strengthening of economic regulation of water throughout the water chain. However, economic gains through more efficient investments and pricing are likely to be realised most cost-effectively by concentrating initially on the economic regulation of the major water boards and water services providers serving the large or significant urban and industrial areas in South Africa. Where water services are provided through contracts, particular attention should be given to the financial component of these contracts to ensure that appropriate incentives for efficient pricing are build in. The commitments to strengthened economic

regulation made in the water services white paper must be carried out. These commitments should be reflected in the regulation strategy which should address the regulatory issues in much more detail.

7. **Who should regulate?** As part of the regulation strategy, DWAF should undertake a detailed objective study on the desirability (or not) of an independent regulator for water services. This study should ideally be undertaken sooner rather than later and should address the strategic issues of whether or not such a regulator should be established immediately, or whether regulatory capacity should first be developed within DWAF and an independent regulator created later (if at all).

REFERENCES

Bate and Tern. 2002. The cost of free water. Free Market Foundation.

DWAF. 2003. Draft White Paper on Water Services.

DWAF 2002. Draft guidelines for the preparation and evaluation of water board policy statements, business plans, shareholder compacts and annual reports. Draft 2. October 2002.

DWAF. 2002. National water resource pricing strategy, contained in the National Water Resource Strategy.

DWAF. 2002. National water resource strategy. Draft.. August 2002.

DWAF. undated. Draft guidelines for bulk water services tariff setting by water boards.

Nieuwoudt *et al*, 2003. The value of water in the South African economy – a review. Draft report for the Water Research Commission.

National Treasury. 2003. Inter-governmental fiscal review.

Palmer Development Group. 2003. Overview of the water sector. Report prepared for National Treasury as input into the inter-governmental fiscal review. April 2003.

Palmer Development Group. 2003. Assessing water supply and sanitation resource flows: an application for South Africa. Prepared for the Water Supply and Sanitation Programme and the World Bank. June 2003.

Palmer Development Group. 2003. Economic regulation of water services: models for South Africa Municipalities. Phase 1 report. Prepared for the Water Research Commission. April 2003.

APPENDIX 1: LIST OF RELEVANT POLICIES AND LEGISLATION RELATING TO WATER SERVICES

White Papers

- White Paper on Basic Household Sanitation – September 2001
- Draft White Paper on Municipal Service Partnership – April 2000
- South Africa's National Housing Policy – March 2000
- White Paper on Environmental Management Policy – April 1999
- White Paper on Local Government – March 1998
- Transformation of the Health System White Paper – April 1997
- Water Policy White Paper – April 1997
- Water Supply and Sanitation Policy White Paper – November 1994

Legislation

- The Division of Revenue Act 5 of 2002
- The Draft Health Bill, 2001
- The Local Government Financial Management Bill, 2000 (in Parliament)
- The Local Government: Municipal Systems Act 32 of 2000
- The Public Finance Management Act 1 of 1999
- The Local Government: Municipal Demarcation Act 27 of 1998
- The Local Government: Municipal Structures Act 117 of 1998
- The National Water Act 36 of 1998
- The Water Services Act 108 of 1997
- Intergovernmental Fiscal Relation Act 97 of 1997
- Local Government Transition Act 97 of 1996
- The Constitution of the Republic of South Africa Act 108 of 1996
- The Health Act 63 of 1977

APPENDIX 2: DEFINITIONS

Industrial wastewater	Wastewater arising from mining, manufacturing, electricity generation, land-based transport, construction or any related activities.
Industrial water	Water used for mining, manufacturing, generating electricity, land-based transport, construction or any related purpose.
Municipal infrastructure grant	A proposed consolidated grant from national government to support investments in municipal infrastructure.
Sanitation services	The collection, removal, disposal or treatment of human excreta and domestic wastewater, and the collection, treatment and disposal of industrial wastewater where this is done by or on behalf of a water services authority. This includes all the organisational arrangements necessary to ensure its provision including, amongst others, appropriate health, hygiene and sanitation-related awareness, the measurement of the quantity and quality of discharges where appropriate, and the associated billing, collection of revenue and consumer care.
Service delivery agreement	A contract between a water services authority and a water services provider for the delivery of municipal services, or between water services providers.
Water board	Water services providers, which are organs of state and whose primary function is the provision of bulk water services to other water services institutions.
Water resources	Any water resource as defined in the National Water Act 36 of 1998.
Water sector	Includes both water resources and water services.
Water services	Water supply services and/or sanitation services, or any part thereof.
Water services institution	A water services authority, water services provider.
Water services authority	A water services authority is any municipality that has the executive authority to provide water services within its area of jurisdiction in terms of the Municipal Structures Act 118 of 1998.

Water services provider	Any person who: has a contract with a water services authority or another water services provider to sell water to, and/or accept wastewater for the purposes of treatment from, that authority or provider (*bulk water services provider*); and/or has a contract with a water services authority to assume operational responsibility for providing water services to one or more consumers (end users) within a specific geographic area (*retail water services provider), or* A water services authority which provides either of the above the services itself.
Water supply services	The abstraction from a water resource, conveyance, treatment, storage and distribution of potable water, water intended to be converted to potable water and water for industrial or other use, where such water is provided by or on behalf of a water services authority, to consumers or other water services providers. This includes all the organisational arrangements necessary to ensure its provision including, amongst others, appropriate health, hygiene and water-related awareness, the measurement of consumption and the associated billing, collection of revenue and consumer care.

APPENDIX 3: TARIFF POLICIES FOR WATER SERVICES

(Source: Draft water services white paper)

Water and sanitation tariff policies – water services authorities

Water and sanitation tariff policies must be developed by water services authorities. These must conform with the following policies and requirements.

Revenue requirements. When determining the revenue requirements for water services, a water services institution must take into account at least the following: realistic operating and maintenance costs (including any relevant and applicable overheads, charges and levies), interest costs, depreciation charges, a reasonable rate of return on assets (where appropriate), a contribution to the general municipal rates fund (where appropriate), provisions for bad debt and other future costs, and the cash needs to maintain a financially viable and sustainable operation over time less available and secure operating subsidies from the water services authority (arising from the local government equitable share and any other appropriate sources).

Costs associated with provision of basic water and sanitation services. All water services authorities must plan to provide all households with at least a basic level of water supply and sanitation service. In the first instance, national government subsidies in the form of the municipal infrastructure grant and the local government equitable share should be used to assist in the provision of these services. Taking these sources of subsidy into account, any additional costs associated with the provision of basic water supply and sanitation services (including the implementation of free basic water supply and sanitation policies) must be taken into account in the revenue requirements outlined above.

Rehabilitation and system expansion costs. The costs of rehabilitating the system and expanding the system as necessary must be taken into account.

Maintenance costs. The allocation of funds for maintenance must be sufficient to adequately maintain the water services infrastructure and related systems.

Contribution to the rates and general fund. This contribution must be limited to less than ten percent of gross revenue from the sale of water. No levy may be placed on sanitation charges.

Consumer categories. Retail water and wastewater tariffs shall distinguish between at least three categories of consumers: domestic, industrial9 and other.

Differentiation by levels of service. Retail water and wastewater tariffs shall distinguish between significantly different levels and standards of service provided and between at least the following: a communal water service (water services provided to more than one household), where a controlled (limited or restricted) volume of water is supplied to a household, where an uncontrolled volume of water is supplied to a household (that is, the volume of water supply is not limited for all practical purposes), where a household is connected to a sewer and where a household is not connected to a sewer.

Water tariffs for uncontrolled volumes of supplies. All connections providing an uncontrolled volume of water supply shall be metered and tariffs shall be applied in proportion to water use, support the viability and sustainability of water

[9] See definitions of industrial water and industrial wastewater given in Appendix 2.

supply services to the poor (where feasible), discourage wasteful or inefficient use and where appropriate take into account the incremental costs that would be incurred to increase the capacity of the water supply infrastructure to meet an incremental growth in demand.

Tariffs for industrial and other non-domestic consumers. Water and sanitation tariffs for industrial and other categories of consumer shall at least recover the full costs of the service provided, taking into account any external costs and benefits (externalities) associated with the provision of the service as well as where appropriate take into account the incremental costs that would be incurred to increase the capacity of the water supply and wastewater infrastructure to meet an incremental growth in demand.

Subsidies for basic water services. Where subsidies for water services are applied, these shall be prioritised for the provision of basic water supply and sanitation services in terms of the free basic water and free basic sanitation policies and specifically where communal water services, controlled-volume (restricted) water supplies and sanitation facilities not connected to a sewer are provided.

Tariffs during water restrictions. Water services authorities may implement special tariffs during periods of water restrictions to promote water conservation and demand management.

Norms and standards. The regulations setting out norms and standards for tariffs will be revised and updated to be consistent with the policies in this white paper.

Regulation. Where appropriate, DWAF will exercise a regulatory oversight role over water services authorities with respect to the setting of tariff levels for water services.

Guidelines. DWAF will develop guidelines on the development of water and sanitation tariff policies and on setting tariffs. These will include guidelines for determining a reasonable rate of return on assets for the appropriate circumstances.

Sample tariff policies. DWAF will develop a set of sample water and sanitation tariff policies reflecting best practice which can be used by water services authorities.

Water and sanitation tariffs – external water services providers

Where water services are provided by an external water services provider, the following policies apply:

Conformity with water services authority tariff policy. The tariffs must comply with the tariff policy of the water services authority as applicable.

Contents of contract. The method of determining the tariff and the mechanisms for tariff review and dispute resolution must be clearly set out in the contract (service delivery agreement) between the water services authority and the water services provider.

Disclosure. There must be full disclosure to the water services authority of the tariffs applied and the calculations used in determining the tariffs.

Where an external water services provider is an organ of state, the following additional policies apply:

Notification of tariffs. The tariffs must be published and made available to National Treasury and DWAF.

Consultation. Tariffs may only be increased after the Minister of Water Affairs and Forestry (in the case of water boards and any other organ of state whose primary activity is the provision of water services), the relevant water services authorities and organised local government have been consulted.

Regulation. DWAF will exercise a regulatory role over tariff levels in the case of external water services providers.

APPENDIX 4: DRAFT GUIDELINES FOR BULK WATER SERVICES TARIFF SETTING BY WATER BOARDS DEPARTMENT OF WATER AFFAIRS AND FORESTRY

(The guidelines are reproduced here in full.)

Introduction

The Department of Water Affairs and Forestry has been under increasing pressure to regulate water utilities in their tariff setting in order to protect the interest of the consumer and promote equity and economic development in the process.

At present there is inconsistency and lack of transparency in the process of bulk water services tariff setting by water boards. This has led to cases where water boards' biggest customers, local authorities were not in agreement with tariff increase as they felt they were unwarranted and unjustifiable and contributing towards stifling economic growth and equity.

In developing guidelines for tariff setting, the Department wants to achieve consistency; accuracy and transparency in how water board structure their tariffs.

The guidelines do not apply to reticulation tariff setting. Where a water board is doing reticulation on behalf of a water services authority, the water board must follow bylaws made by the authority in terms of Section 21(1)(d), which contain conditions for the provision of water services and provide the determination and structure of tariffs in accordance with Section 10.

Discussion

Section 73(1)(h) of the Water Services Act, 1997 states that the Minister may issue guidelines to water services institutions on performing their functions. In terms of Section 10, the tariffs may differentiate on an equitable basis between different types of users, water services and geographic areas, taking into account the socio-economic and physical attributes of each area. The Minister may place limitations on surpluses or profits and the use to which the income generated by these charges may be put. The norms and standards for tariff setting are aimed at achieving social equity, financial sustainability and water demand management.

In setting tariffs water boards must consider government's inflation targets and strive to keep tariff increases below inflation. If tariffs at or above inflation are proposed the water board should state reasons for that considering factors such as the promotion of social equity, financial sustainability, water demand management, direct costs of augmentation as well as the impact of changes in demand projections. Similarly increases, which are not specifically provided for in contracts entered into in terms of Section 32 (b) of the Water Services Act, will in future be scrutinised.

Recommendations

It is recommended that the following be taken into account in the setting of tariffs.

Financial Sustainability

Tariffs should reflect costs that the board incurs in providing that service and costs incurred in augmenting supply managing demand or other capital investment

programmes. If there are levies that are built into the tariff the water board should state that and furnish reasons for imposing such a levy.

Water Demand Management/ Water Conservation

Water is a scarce resource in South Africa and government policy through initiatives like Water Services Development Plans is aimed at promoting the efficient use of water and water conservation. This does not necessarily mean a higher tariff but it encourages water institutions to find innovative ways of ensuring proper uses of water such as step tariffs. The current proposed planning protocol requires that water conservation and water demand management be implemented as the first option rather than the augmentation of existing water resources.

Social Equity

South Africa is characterised by huge disparities between the affluent and the poor. On the one hand there are areas where communities do not have access to adequate water to meet their health and hygiene needs while on the other hand, other areas have high levels of service and often use water for luxury and recreational purposes. When setting tariffs water boards should take cognisance of this reality and try to bridge the gap so as to achieve social equity through a tariff that promotes efficient use of water while not discouraging use of water for health and hygiene purposes.

Economic Development

An increase in the price of water normally has an effect on production costs of many industries, which is then carried to consumers. Tariffs should be set so as to promote economic development and not stifle it.

Requirements of Consumers

Water boards should set tariffs after full consultation with their major consumers, in most instances the local authorities and industry. This consultation should include disclosure of the water board's costs as well as establishing the impact of different demand projections, which will affect their tariffs. Local authorities work on a budget whose timeframe must be respected and they need to make necessary provisions for water increase. Consultation should ensure that this and other consumer's interests are addressed and that consumers are adequately informed of the proposed tariff increase. Consideration must be given to establishing a mechanism to guide the setting of tariffs in service provision agreements.

Tariff Projections

Water boards should provide five-year projections of water tariffs in their Business Plan including sensitivities to levels of demand and other variables. Failure to provide advance information on proposed tariffs as required in terms of Section 40 (20) of the Act may result in such tariffs being challenged by water users. As raw water costs make up a sizeable portion of the tariff, DWAF will endeavour to provide raw water costs in time for water board to make accurate and timely projections.

Conclusion

The provision of these guidelines on the setting of bulk water services tariffs is aimed at enabling water boards to comply with the requirements of the Water Services Act and ensure that tariffs are in line with Governments policy of

achieving social equity, financial sustainability and water conservation within water services.

APPENDIX 5: DWAF WATER RESOURCE PRICING STRATEGY – KEY ELEMENTS

Sector	Resource management charge	Resource development & use of wws charge	Economic charge	Phasing in of financial charges
Municipal	Full cost recovery Basic human needs conditionally subsidised	GWS: Depreciation; ROA; O&M WMI's: full cost recovery Basic human needs conditionally subsidised for supplies from GWS and CMA Schemes	GWS excluded Auctions Renewable Licences	WRM charge introduced fully after registration of water use in WMA (from 2001) PPI + 10% annual increase until target development charge is achieved on GWS. Thereafter increase limited to inflation.
Industrial / Mining / Energy	Full cost recovery	GWS: depreciation; ROA; O&M WMI's: Full cost recovery	GWS excluded Auctions Renewable licences	As for the municipal sector
Stream Flow Reduction Activities (Forestry Sector and others to be declared)	Full cost recovery of allocated costs. Note: Costs of Dam Safety Control and Working for Water Programme not allocated to the forestry sector.	Not applicable, except where negotiated for new development	Auctions Renewable licences	Introduced after full registration of existing water use has been accomplished in a particular water management area (from 2001)

Sector	Resource management charge	Resource development & use of wws charge	Economic charge	Phasing in of financial charges
Irrigation	Commercial farmers Full cost recovery of allocated costs 90% subsidy on Working for Water programme Emerging farmers As above, but subsidised for a 5 year period on GWS	Commercial farmers GWS: Cost recovery initially i.t.o negotiated agreement on existing GWS. Depreciation plus O&M is target on existing GWS and for existing development on new GWS. Full financial cost recovery for new development on GWS WUAs: Full financial cost recovery Emerging farmers GWS: O&M subsidised for a 5 year period on existing and new GWS Depreciation plus O&M is target on existing and new GWS WUAs: Subsidies available on capital cost	Stepped tariffs on existing GWS Auctions Renewable licences	Commercial farmers Existing agreement to be maintained until March 2001 Depreciation charge to be phased in on GWS from April 2001 i.t.o new agreement WRM charge introduced after registration of water use in WMA (2001) Emerging farmers GWS: Charges phased in on equitable basis after registration Outside GWS: WRM charge introduced fully after registration