LITERATURE REVIEW ON PRICING AND DEBT MANAGEMENT FOR WATER SERVICES

Report to the

Water Research Commission

by

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This report is the first report of a series of three reports that investigated pricing and debt management within municipalities. The reports consist of the following:

- Report 1: A Literature review on Pricing and Debt Management of Water Services (WRC Report No. 1811/1/10)
- Report 2: A Gap Analysis on the state of Water Services Debt Management (WRC Report No. 1811/2/10)
- Report 3: Recommendations towards Pricing and Debt Management in Water Services Delivery (WRC Report No 1811/3/10).

The information contained in report 1 should be considered in conjunction with the other reports.

EXECUTIVE SUMMARY

BACKGROUND AND RATIONALE

Cost recovery for basic municipal services including water has not always been the policy of national and local government in South Africa (McDonald, 2002: 20). Apartheid's policies of separate development ensured that municipal services were delivered along racial lines, with black South Africans receiving inferior and inequitable services, or no services at all (Smith and Green, 2005: 435).

User fees, tariffs and property rates charged by the apartheid regime, had little relevance to the marginal cost of providing them. During the 1970s and 1980s, white suburbs and industries received per capita infrastructure investments on par with or even higher than most European and North American countries through heavy government subsidies (McDonald, 2002: 20).

Black townships and 'Bantustans' also received subsidies for municipal services, although smaller in relative and absolute terms than those of white areas.

During the apartheid period, rates and rent boycotts were used as a form of political protest action against the regime. Despite boycotts, the apartheid government continued to provide services in fear of political fallout for not doing so, hence there was a *de facto* subsidisation of township services (McDonald, 2002: 20).

The post apartheid South Africa however continued to witness non-payment of municipal services and researchers alludes to number of contributing factors to this phenomenon. Cost recovery has only been isolated as an explicit and widespread policy objective in the mid 1990s after the end to apartheid.

Consistent with prevailing prescriptions from international development agencies, a Water Supply and Sanitation White Paper, (1994: 21) called for the recovery of at least the recurrent (operation and maintenance) costs of water services through direct user charges. The subsequent Strategic Framework for Water Services (SFWS), approved by Cabinet on 17 September 2003, set out as part of its goals, the equitable, affordable, effective, efficient, gender sensitive and sustainable provision of water services to all people living in South Africa. Cost recovery initiatives should in accordance with the SFWS, balance the rights and responsibilities in terms of provision and reasonable use of basic water services to ensure sustainability and safeguard the financial viability of the water services provider.

The International Conference on Water and the Environment (ICWE), from which emerged the Dublin Statement, provided the major input for water to the United Nations Conference on Environment and Development held in Rio de Janeiro in June 1992.The fourth guiding principle of the Dublin statement recognizes that water has an economic value in all its competing uses and should be recognized as an economic good and also that it is vital to recognize the basic right of all human beings to have access to clean water and sanitation at an affordable cost.

The equity concept in water use and management has been recognized as a central theme in the debate on water issues discussed at the global level, notably in the sixth edition of the United Nations Commission for Sustainable Development (UNCSD, 1998), in the Ministerial Declarations of the Hague (2000) and Bonn (2001), and in the definition of the Millennium Development Goals (UN, 2000), (UNDESA, 2003: 326).

Arguments for and against cost recovery in water services have been presented in a number of studies throughout the world. In a bid to develop guidelines on pricing and debt management for municipalities, cost recovery strategies employed by various authorities and utility companies are first studied.

METHODOLOGY

This report presents a literature review of key concepts and variables that affect pricing, debt management and cost recovery for water services.

SUMMARY OF MAJOR RESULTS AND FINDINGS

The results and main findings emanating from the study are as follows:

- The problem faced by the water sector in general is that prices and tariffs are almost universally below the full cost of supply. This implies that there are inefficiencies in the water sector and that prices need to be raised.

- Recovering reasonable water supply costs from consumers in accordance with the SFWS, aims to ensure sustainability of water provision. This requires a combination of strategies carefully crafted to consider the following aspects:

    - Investment choices in terms of ownership of assets, planning, asset management, maintenance and rehabilitation, financing and use of grants, etc.;
    - Choices related to the use of the local government equitable share;
    - Tariff policy and the setting of tariffs;
    - Credit control policies and revenue management;
    - The contract (service delivery agreement) between the water services authority and an external water services provider, specifically the service obligations and the financial conditions of the agreement.

- In order to comply with the principle of social acceptance, the WHO's recommended affordability threshold of 7% of total household income should not be exceeded.

- Many South African municipalities either do not have indigent policies or are in the process of drafting such policies. Municipalities with indigent policies in place do not set out clear implementation and targeting strategies, aimed at the poor.

- An extensive review of various studies on water demand price elasticity revealed that the demand for water services is inelastic.

- Community participation and involvement in real decision-making matters is a major determinant for cost recovery for municipal services.

- The Free Basic Water (FBW) Policy stipulates that each person is entitled to 25 litres of free water per day. This puts South African FBW provision in terms of water service levels between a high and low level of health concern.

- The following challenges hinder the effective implementation of the FBW policy in South Africa:

- Local government capacity;
- Financial issues (e.g. available revenue sources, cross-subsidisation levels);
- Technical issues (e.g. difficulty in controlling and measuring the amount of water supplied);
- Poor communication of policy/processes. Unless communication is handled properly there is a risk that FBW might be construed as a "free for all". FBW cannot be implemented overnight and communication should, therefore, not create unnecessary expectations.

- Eliminating doorstep calling to customers implies that many companies or WSAs knowingly or not, default their debt collection to the post office. Although this is seen as a quick win on head count and on credit control activity, many customers ignore their mails. For this reason the recovery cycle is allowed to grind on relentlessly, and largely becomes a pointless paper chase.

- Prepaid water, though successfully implemented in other parts of South Africa, have recently attracted more negative publicity, as illustrated in the following happenings:

  - The boycott of prepaid water meters in Orange farm extension 4;
  - Unexplained failure of prepaid water meters in Klipheuwel, Cape Town, despite the fact that research findings showed that residents had a positive attitude towards them;
  - A historic and groundbreaking judgment whereby the Johannesburg High Court declared that the City of Johannesburg's forcible installation of prepaid water meters in Phiri (Soweto) is both unlawful and unconstitutional.

- Case studies revealed that the implementation of "draconian" measures (e.g. cut-offs, removing of water meters and water pipes, intermittent supply of water, pre-paid meters) only registered short-lived gains in terms of cost recovery. The longer term effect of these measures led to enormous inefficiencies in the use of water by residents.

- Understanding the community's cultural issues, engaging in meaningful communication between role-players and joint decision making is cited as a recipe that could improve cooperation amongst role-players as well as improved payment practices.

- Although poverty is a reality in South Africa, cynics suggest that there are many free riders that are pleading poverty when in fact they can afford to pay. The high incidence of non-payment of services encourages non-payment even by those who can afford to pay.

- Although spreadsheets of debtors are a tool of the credit control trade, they are not a credit control strategy. Good billing and collection strategies, which include a clear life cycle of the recovery path, need to be put in place as a matter of urgency. Doorstep calling, though labor-intensive, has produced successful results which include the following:
  - Timely intelligence on changes in liability and "gone aways";
  - Certainty of continuing liability;
  - Changes in individual circumstances such as "can't pay";

- Exceptional circumstances such as ill health;
- Customer education on what to expect;
- Difficult and doubtful debts surfaced early enough to be pursued.

- Technology (e.g. meter reading and billing) should be used to compliment social and institutional aspects in a bid to recover costs for water services as well as influence demand through water demand and conservation measures.

GUIDELINES ON PRICING AND DEBT MANAGEMENT FOR MUNICIPALITIES

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1 INTRODUCTION

1.1 Background

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Arguments for and against cost recovery in water services have been presented in a number of studies throughout the world. In a bid to develop guidelines on pricing and debt management for municipalities, cost recovery strategies employed by various authorities and utility companies are first studied.

1.2 Regulatory and legal framework

The Water Services Act, 1997 (Act No.108 0f 1997) and the Municipal Systems Act, 2000 (Act No.32 of 2000) are the two primary pieces of legislation that require municipalities to have by-laws in respect of specific matters and specifies matters to be addressed therein: Water Services Act, requires water services by-laws whilst the Municipal Systems Act, requires tariff by-laws, credit control and debt collection by-laws.

Water resource management and protection, provision and access to water supply amongst other things are covered by the National Water Act (Act No. 36 of 1998) as well as the Water Services Act.

Other relevant legislations and regulatory framework include:

- Strategic Framework for Water Services (SFWS), (DWA, 2003), which replaces the Water Supply and Sanitation White Paper, 1994.
- Municipal Finance Management Act (Act No. 56 of 2003) and Public Finance Management Act (Act No. 1 of 1999) for sound and sustainable management of financial affairs.
- The National Credit Act, Act No (34 0f 2005)
- Debt Collectors Act, 114 of 1998
- Debt Collectors Act, Act No (114 of 1998)

1.2.1. Municipal Finance Management Act

Various clauses within the Municipal Finance Management Act, (Act 56 of 2001) apply to the pricing of infrastructure and the cost recovery for service rendered by Local Municipalities. Under the MFMA the following clauses should be considered or adhered to:

- **Clause 41** – Monitoring of prices and payments for bulk resources
- **Clause 42** – Price increases of bulk resources for provision of municipal services and specific sub-clause 42 (3) (b) (ii) is of importance to local authorities where “steps taken by the organ of state to improve its competitiveness or efficiency in order to reduce cost” is relevant to this investigation.
- **Clause 43** – Applicability of tax and tariff capping on municipalities – tax and tariff restrictions from National Treasury on Local Municipal level has a direct impact on Local Authorities to raise funds to firstly recover actual service delivery costs and to pay for bulk services received.

1.2.2. National Credit Act

The purpose of the National Credit Act is “to promote and advance the social and economic welfare of South Africans, promote a fair, transparent, competitive, sustainable, responsible, efficient, effective and accessible credit market and industry, and to protect consumers”, with the main emphasis being on the protection of the consumers.

In terms of the NCA specific clauses should be adhered to when service providers consider, applying interest to late payments, taking legal action against defaulters, restrict access to services, blacklisting consumers, increased deposit payments for poor track records, etc.

Local Municipalities have adopted and applied the abovementioned legislative requirements and in doing so, have developed pricing and debt management policies/buy laws which outlines the steps and actions to be taken regarding bad debt or costs recovered for service rendered. The pricing and debt recovery policies of the individual municipalities as pilot projects will be considered in the next phases of this study. These bad debt/cost recovery by-laws or policies are applied on a local municipal level in order to recoup the operational costs incurred by the local authority to render the service to the communities under its jurisdiction.

(a) Judgments

Existing developmental guidelines and quota provisions determines that all indigent households should have access to free basic services. Until recently the free water quota to households was 6 kl. This 6 kl equates to 25 litres per person per day for a household size of 8 individuals. Recently however this quota provisions enforced by Local Authorities was challenged by a Bloemfontein High Court judgment, which stated that the 25 litres per person per day is inadequate, and should be increased to 50 litres.

The judgment further stated that the blatant installation without consent of pre-paid meters by Local Municipalities is unconstitutional and should be terminated with immediate effect. This judgment is currently under appeal and should the appeal succeed, it will become a judgment, which should be implemented by all local municipalities. By enforcing this judgment, Local Municipalities will have to re-adjust budget allocations towards free service delivery which will have to be recouped by other means or by the increase of unit tariffs, which threaten affordability levels and the socio-economic fabric of the community.

2 THEORETICAL FRAMEWORK TOWARDS COST RECOVERY IN WATER SERVICES

Prior to the development of a framework towards cost recovery in water it is required to understand the economic characteristics of water. Water provision is sometimes seen as a public good due to the fact that this service is provided by government. This may be incorrect as public goods must comply with the following criteria (Bailey, 1995: 30):

- Non-excludable – it is not possible to prevent the use of the water for those who do not pay for it.
- Non-rival in consumption – one person's consumption of water does not affect another person's consumption of water.

Historically, however, water usage was based on the user pay principle, which excluded many people from access to water. This implies that water had the features of private goods. Recent trends with regard to free basic water provision resulted in water services developing public good characteristics.

International studies concluded that water charging methodologies can be judged in terms of seven objectives (Bailey, 1995: 351):

- Financial – to raise sufficient revenue to cover operating costs, finance investment programmes and to provide reasonable rates of return.
- Economic – allocating water services to customers in order to maximise economic welfare.
- Equity – this provides for a situation where customers in similar circumstances pay similar tariffs and where differences tariffs properly reflect relevant differences in circumstances.
- Simplicity and comprehensibility – so that customers can appreciate what determines their tariffs and what influences them.
- Public health – avoiding charging systems that endanger health and the environment.
- Environmental protection – this is aided by charges that create incentives to conserve water.
- Economic development – ensuring that water provision can accommodate economic development.

It is important to understand the objectives of any cost recovery framework in South Africa.

2.1 Water pricing methodologies

2.1.1 Concepts Relevant to Water Pricing

Urban water supply services have at least four features that affect the manner in which water services are provided to the community. Firstly, water services have characteristics of "natural monopolies", that is, significant infrastructure is required to store, treat and deliver water. Much of this infrastructure may be provided at least cost if it is provided by a single business and without duplication of infrastructure. However, a consequence of this is that there is a lack of competition in service delivery, and a lack of competitive incentives for efficiency in provision of the services.

Secondly, market-determined prices are often not reflecting the relative scarcity of water resources, especially in water scarce countries such as South Africa. Under “normal” (read economic market conditions of supply and demand) market conditions, resources that are capable of being traded would attract a price that reflects the scarcity of the resource relative to demand. However, urban water supplies have historically been treated as “community resources” that are reserved for urban use and that are not traded in markets. As such, prices for water most often only reflect the infrastructure and operational costs incurred in the provision of water services, but do not necessarily reflect the scarcity of water at particular locations to the extent that this might exist.

Thirdly, provision of water services is often characterised by environmental impacts – most of which are classed as “externalities”. These are impacts that are not automatically factored into water supply, water consumption and wastewater disposal decisions because they are costs borne by society that are not reflected in costs incurred by the water businesses and the prices charged for the services. For example, the effect of extraction of groundwater on local ecosystems is a common external cost arising from the use of groundwater resources – a negative externality

Finally, water services are regarded as essential services, both in terms of ensuring ready and affordable access to these services and requiring the use of these services for reasons of public health.

Government or regulatory intervention (remember South Africa does not have a water regulating authority) in the setting of prices for water services may therefore be necessary to achieve multiple policy objectives such as:

- Delivering water services at prices that reflect the cost of providing the services;
- Enhancing the efficiency of service delivery in the absence of a competitive market through incentive-based pricing mechanisms that allow water providers to recover the costs of efficient service delivery and earn a commercial rate of return on capital;
- Providing signals to water users of the relative scarcity of water supplies – which may arise due to infrastructure constraints or limited water supply – so that relative scarcity is taken into account in demand and consumption decisions;
- Reflecting the net cost of environmental externalities, with the aim of either recovering costs associated with meeting environmental standards, or reducing consumption of water so as to avoid future environmental impacts and costs;
- Setting tariff structures to meet policy objectives relating to the accessibility to clean water and the affordability of water (the free water policy of the SA Government is a case in point).

It should be noted that the pursuit of these objectives may involve trade-offs. The overall goal, however, should be one of economic efficiency, including efficiency in achieving distributional and social policy objectives, to the extent that this is possible given administrative practicalities, requirements for revenue stability, customer acceptability and transparency.

2.1.2 Pricing methodologies

International research has shown that the following water pricing methodologies are generally applied (Bailey, 1995: 350-64):

(a) Rateable values

The tariff is based on a flat rate, as it is not related to the volume of water used. Water charges increase based on increases in property values. The major disadvantage with this scheme is that it fails to meet the economic and environmental objectives of charges. This

is due to the fact that it does not relate payment to the use of water, the cost of providing the water service nor does it provide any incentive to reduce wasteful use of water.

(b) A fixed standing charge per property

The standing charge is usually linked to the afore-mentioned charge and is also based on flat rate charging. It has the same disadvantages as the rateable charge.

(c) Charges based on the number of residents

This type of flat rate was charged in certain parts of Britain. It was seen as a community charge and was based on the number of adults in the household (poll tax). It did not satisfy many charging objectives and also assumed that adults consumed the same volume of water. The water usage of children was ignored.

(d) Charging based on other housing characteristics

This charge is based on the physical characteristics of the property such as floor area or number of rooms (bedrooms) or the number of water using appliances. It provides possibilities for application in high residential densities such as flats. This charging method appears expensive to administer due to information requirements. It seems as if this method does not adequately address economic and environmental objectives of the charging system.

(e) Metering and charging in accordance with volume used

This method is regarded in general as affair method for apportioning charges in relation to water use and costs. The tariffs structure is important to relating charges to marginal costs. Examples of tariff schedules include:

- **A continuous tariff schedule** – The example shows a reduction in tariff based on increased consumption (refer to figure 2.1). The opposite of this approach can also be applied by increasing tariffs according to increased usage.
- **A stepped tariff schedule** – The application of this tariff is based on separate charges for separate bands of consumption (refer to figure 2.2).

Figure 2.1: A continuous tariff schedule

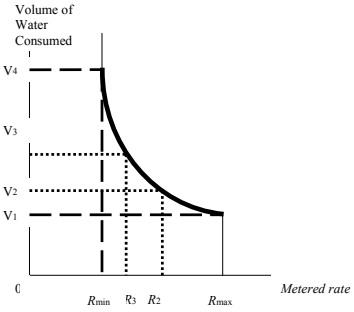
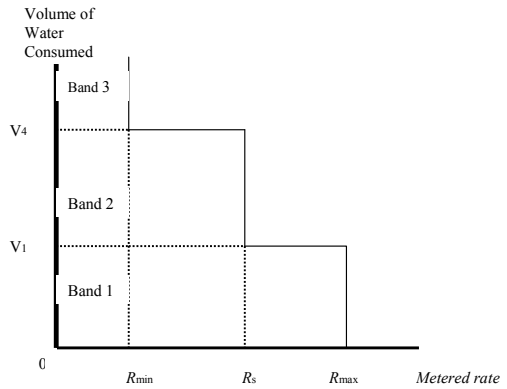


Figure 2.2: A stepped tariff schedule



(f) Infrastructure charges

Various types of infrastructure charges could be used to recover capital costs for renewal/upgrading and new water infrastructure construction. This charge has the potential to satisfy efficiency and equity goals.

The application of these charging methodologies within a South African context will be discussed hereunder.

2.2 Calculating costs and benefits

Before attempting to recover costs in water services, it is important to first understand what is meant by costs. The problem faced by the water sector in general is that prices and tariffs are almost universally below the full cost of supply. This therefore implies that there are inefficiencies in the water sector and that prices need to be raised (Rodger et al., 1998: 3).

There is ambiguity on the exact definition of full cost pricing, but for the purpose of this study, Rodger et al (1998:3) for instance defines full water supply cost as follows:

Full supply costs, full economic costs and full costs are identified and distinguished as follows:

- **Full supply costs** = Capital costs + Operation and Maintenance (O & M) costs
- **Full economic costs** = Full supply cost + Opportunity costs + Economic externalities
- **Full Costs** = Full economic costs + environmental externalities.

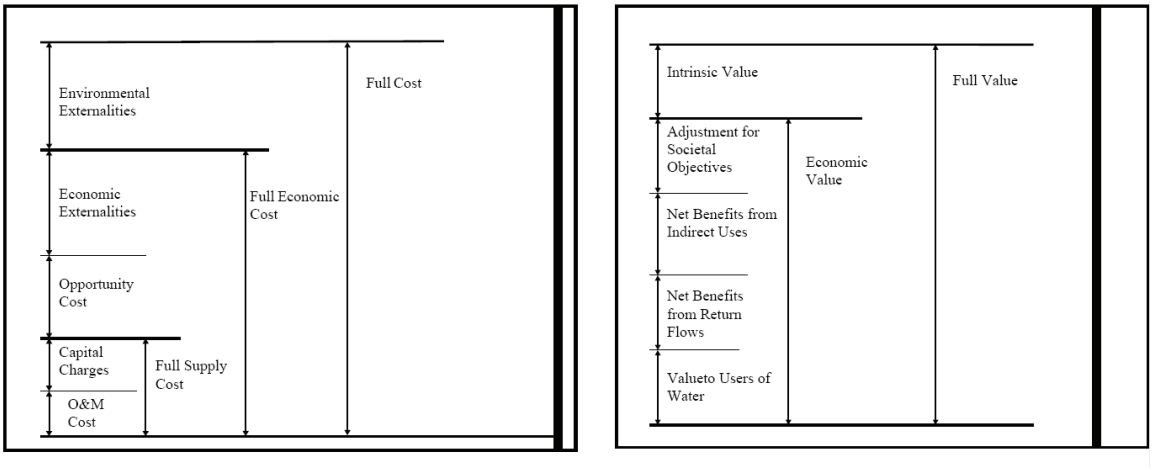
For the effective implementation of the pricing policies for water services, three more parameters that need consideration are identified, namely:

- The tariff structure
- Value of water and
- Cost of water services

Capital costs as well O & M costs can be determined with relative ease and strategies put in place to recover them. Opportunity costs, economic and environmental externalities on the other hand are not so easy to determine and hence attempt to recover these costs will not be easy.

Value of water is defined by Rodger *et al.* (1998:3) as benefits to users, benefits from returned flows, indirect benefits, and intrinsic values. Price on the other hand is the amount set by the political and social system to ensure cost recovery, equity and sustainability. The price may or may not include subsidies. Prices are therefore not determined solely by costs. Figure 2.3 below shows the concepts of full costs and value of water as defined by Rodger *et al* (2002: 3).

Figure 2.3: General principles of cost and value of water



Source: (Rodger et al., 2002: 3)

The SFWS, DWA (2003:32) identify components of full cost of water supply as follows:

Water resource development cost (raw water from rivers, dams, boreholes, and springs)

- Bulk water treatment and distribution costs;
- Retail cost (reticulation of water to consumers).

Recovering reasonable water supply costs in accordance with the SFWS, (DWA, 2003:28) from consumers to ensure sustainability of water provision, requires a combination of strategies carefully crafted to take into account amongst other things the following:

- Investment choices in terms of ownership of assets, planning, asset management, maintenance and rehabilitation, financing and use of grants, etc.;
- Choices related to the use of the local government equitable share;
- Tariff policy and the setting of tariffs ;
- Credit control policies and revenue management;
- The contract (service delivery agreement) between the water services authority and an external water services provider, specifically the service obligations and the financial conditions of the agreement.

2.3 Tariff structures, prices and affordability

Rodger et al. (2002:5), quoted Potter, (1994) asserting that water tariff can take different forms or designs and used as a powerful management tool to address specific objectives. Water-related fees can be expected to generate revenue, improve efficiency of the supply

and supplier, manage demand, facilitate economic development and improve public welfare and equity.

No one specific tariff design can address all set objectives but, the ‘‘best’’ tariff design for a particular community and situation is one which seek to strike the most desirable balance among social, political and economic objectives that are important to that particular community (Tsagarakis, 2005:4).

The following tariffs principles must in accordance with the SFWS, DWA (2003:33) inform retail tariff policies:

- 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.
- 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, especially vulnerable groups such as female- or child-headed and HIV/Aids-affected 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 subsidization from sources other than the service concerned.
- The economical, **efficient** and effective use of resources, the reduction of leaks and unaccounted-for water, the recycling of water, 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.
- All forms of subsidies should be **transparent** and fully disclosed.

Table 2.4 shows main types of tariff structures. Combinations of different cases are usually used, for example, two part raising block tariff, which comprises a fixed part and volumetric part.

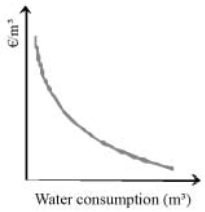
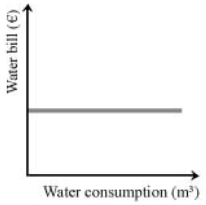
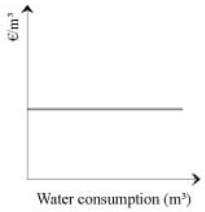
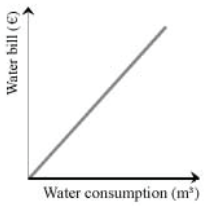
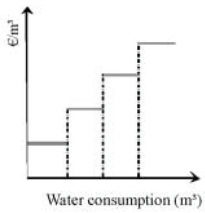
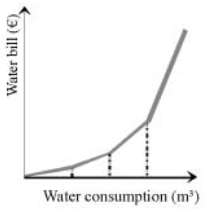
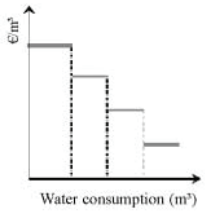
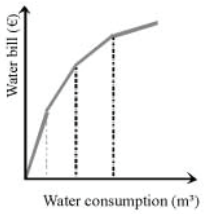
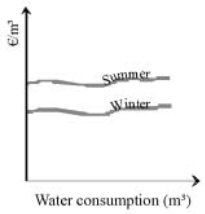
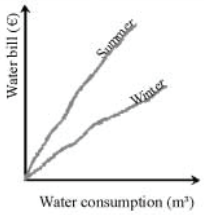
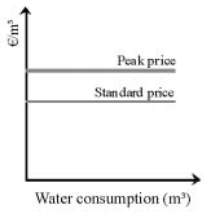
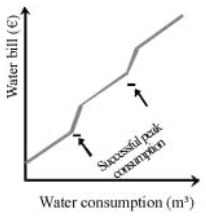
The fixed part is independent of consumption and intended to cover overhead costs, capital expenditure as well as fixed operation and maintenance costs. The volumetric part on the other hand represents the actual consumption over the billing period.

Seppala and Katko, 2003 in Tsagarakis, (2005:4) observed that there is a tendency for tariff structures to move away from decreasing block and flat rate pricing structures to volumetric and increasing block tariffs.

Time component, with peak or seasonal additional charge for consumption are some of the new tariff structures utilities are beginning to employ. This therefore implies that a price may contain one or more of the components indicated in Eq.1 below (Tsagarakis, 2005:5).

$$Water\ \mathrm{Pr}ice = f(FixedCompo\ \ nent + Volumetric\ \ Component\ + Time\ (Peak\ )Component\ \ + Other\ ) \quad \ldots\ldots(1)$$

Table 2.4: Types of tariff structures

Tariff structure	Definition	Description	Cost per m^3 consumed	Typical scheme
Fixed, blanket, one charge, uniform rate	A fixed charge is applied irrespective of the quantity consumed.	Does not require a meter, administratively simple, low economic efficiency, low equity.		
Flat, single block rate	Single price per unit charged.	Administratively simple, encourages conservation, gives the sign of water scarcity.		
Increasing, ascending block	Each consecutive block is sold at higher price per unit.	Encourages conservation, gives the signal of water scarcity, promotes equity.		
Declining, decreasing, descending block	Each consequent block is sold at a lower price per unit.	Does not encourage conservation, it applies to areas where there is plenty of water to sell.		
Seasonal pricing	A different higher price applies during the summer season. It may apply to any of the above-mentioned structures.	Encourages water conservation where seasonal demands are the target conservation efforts.		
Peak load pricing	Price may be based on: days of the month, daytime vs. night or peak time of the day. It may apply to any of the above-mentioned structures.	Advanced metering systems are required. Encourages conservation when water demand is high.		

Source: (Rodger et al., 2002:5)

2.3.1 Affordability

Socially acceptable water and sanitation tariffs according to Libhaber, the World Bank's senior water and sanitation engineer in Latin America, should not exceed payment threshold of 3 to 4% of household income, otherwise people will simply be unable to pay (Smith & Green, 2005:440).

The World Health Organization and Candessus & Winpenny (2003) put the affordability threshold at 7% and 5% of total household incomes, respectively (Smith & Green, 2005:440).

It is therefore important that before water tariff structure and prices are set, municipalities should first ascertain input cost and take into consideration, tariffs of other essential services in a bid to ensure firstly, sustainability for providing water services as well affordability threshold requirements.

There is no commonly accepted definition of poverty in South Africa. A straightforward approach to defining poor households is one based on income. Households below a certain level of monthly income can be classified as 'poor'. The equitable share of national revenue transferred to local government is based largely on expenditure as an indicator of poverty according to FBW implementation Strategy (DWA: 2002:8)

A number of affordability mechanisms including crosscutting cross-subsidisation measures, equitable tariff structures and government intervention policies are discussed later.

2.4 Price elasticity of water demand

Water demand in relation to price has been widely studied, particularly with regard to price elasticity (percentage change in consumption caused by a 1% increase in price).

An extensive review of more than 60 studies of water demand price elasticity published; show that the demand is inelastic according to Arbues *et al*. (2003), in (Tsagarakis, 2005:6).

Beecher *et al* (1994) reviewed over 100 studies for the price elasticity of demand and concluded that the most likely range for elasticity of residential water demand ranges from 0.2% to 0.4% fall in consumption while for industrial demand ranges from 0.5% to 0.8 % fall in consumption (Tsagarakis, 2005:6)

Metaxas and Charalambous (2005) concluded that water utilities cannot necessarily through an increase in prices effectively influence residential customers to use less water, to change or substitute their source of supply or accept water conservation strategies without first understanding the way people relate to water (Tsagarakis, 2005:7).

On the other hand, individuals may not take time to enquire about marginal prices or perform calculations from their water bills, but inclusion of price information on water bills (transparency in pricing) has been found to increase consumer responsiveness to price (Tsagarakis, 2005:7).

2.5 Cross subsidisation

It is observed in many countries that residential sector is cross-subsidized from a surcharge on industrial and commercial users. According to Mad hood (2006:109), this practice is questioned since it conflicts with efficiency and equity goals as it applies higher prices to those customers who in many cases are more likely to exit the system. If these large industrial users do choose to exit the system, Water Services Authorities (WSA) would lose economies of scale in water intake, treatment, and distribution and this may place residential customers at a disadvantage.

Marah *et al.*, (2003: 125), states that many authorities in South Africa claim not to cross subsidize, but indeed charging different tariffs for different parts of town, has been declared unlawful. They went further to show three ways in which one may implement different charges:

- *Residents within one part of the jurisdiction pay a flat rate, while those in another part pay for water consumed. Typically, flat rate payers pay for less than those who pay by the amount consumed.*
- *Residents who do not pay for water, and are not penalized for failing to pay – a situation common in many parts of the country – are effectively being subsidized by those who pay.*
- *The last is to use tariffs to cross subsidize. As described above, a tariff structure which charges larger users at a higher rate than low users makes it possible for the poor to have water charged at a lower rate.*

For the goal of providing basic water services to the poor, WSA's must, according to SFWS, DWA (2003:30) ensure that the costs of providing the service are covered by the local government equitable share and or through cross-subsidies within the water services authority area. These funds must be paid to the water services provider who operates the service or directly to the households. WSA's must however develop clear policies for the effective implementation of these subsidies.

2.6 Cost recovery

The concept cost recovery in this study is interpreted as an action of retrieving, in part or in full the costs associated with the provision of water as indicated in section 2.1 above.

The first question that needs to be asked before taking a closer look at cost recovery is, why recover costs?

2.6.1 Fiscal argument

Good public fiscal practice and the need to balance the books, allowing governments to reduce tax burdens and thereby attract and retain human and financial capital is one most important reason cited for seeking to recover costs (MacDonald, 2002:22).
Sustainability of services on a long-term basis is another most cited reason for cost recovery; this it is argued, will enable governments to plough back this money through infrastructure upgrades and extensions. Cost recovery is therefore seen as 'pro-poor' in that it provides fiscal basis for further service improvements and expansion which otherwise wouldn't have been possible, thereby leaving poorer marginal areas without services (MacDonald, 2002:22)

Poor revenue collection, rising input costs and downward pressure on retail water tariffs are placing many water services providers under financial pressure and are resulting in inadequate spending on maintenance and under-investment in rehabilitation. This according to the SFWS, DWA (2003:14) will result in the deterioration of assets over time and a breakdown in service provision.

Cost recovery in itself does imply costs and in a number of studies, technology and associated personnel can cost more than the revenue received especially in rural services. The relatively low consumption of water or use of electricity implies higher costs and less revenue which in the long run means programmes cannot be sustained without considerable and consistent increase in rural incomes (Hemson, 2004:6).

2.6.2 Moral argument

The moral argument's point of departure is that if one has a 'right' to a service e.g. water; one must also take the 'responsibility' to pay for it. The classic expression of this thesis is found in the South African Constitution and Bill of Rights e.g. right to have access to sufficient food and water (Bill of Rights, 1996, s27.1b).

It is also argued that, paying for services or goods received will make one to appreciate the true 'value' of the service or good, (MacDonald, 2002:24).

2.6.3 Environmental argument

It is also argued that subsidisation of water services encourages wasteful consumption of environmentally sensitive service, simply because the 'correct value' is not reflected in the price (MacDonald, 2002:25). The conclusion drawn therefore is that subsidies promote waste, whilst cost recovery promotes conservation.

2.6.4 Commercial argument

There is also an argument by some that cost recovery promotes efficiency, accountability, and transparency by providing easy to understand performance indicators. This according McDonald (2003:25) is based on two premises i.e. a financial surplus means 'success' and a deficit means 'failure'. Subsidies, it is further argued that they obscure the bottom line, making it difficult to assess service performance and thus contribute to bureaucratic sloth, mismanagement and fraud.

2.6.5 Political Arguments

Political decisions should be motivated by the broader public interest as they impact on everyone. In order to direct an understanding for political arguments it is required to differentiate between market choice and political choice. Important differences between these two markets include (Glahe and Lee, 1989: 559-60) the following:

- The difference between the amounts of information required making efficient decisions. Information requirements for private markets are more easily determined due to the fact that the exchange of information are made between individuals and are based on individual decision making. Political decisions are more complicated due to the fact that these decisions impact on everyone in the community.
- The other important difference relate to the relative effectiveness of these choices. Choices in the market are much more effective in private markets than those in political markets. When a political decision is made everyone is affected.
- Private market choices are based on individual decisions, while choices in the political market may be influenced by popular preferences.

(a) Water should be free

This political argument is based on the premise that water should be free for everyone. Although this political argument may be on the popular agenda it is important to take note of the economic implications of this choice. This argument supports the principle that water should be a public good (as opposed to a private good) as it is not possible to the prevent the use of the service for those who do not pay for it (Bailey, 1995: 30). The problem with this argument is that it the provision of free water provides an incentive for each person to become a free rider with regard to water usage. According to Bailey (1995: 30) free riders have no incentive to pay for services. The net result from the "free water" argument is that the social value of water may far exceed its cost; however consumers will still not want to pay anything to obtain it.

(b) No tariffs should be levied

This political argument is based on the same principle as the "free water" argument. It is thus deduced that the implications of this argument will be similar to those mentioned above. Consideration should also be given to the information requirements to effect such as decision.

(c) People can use as much water as they require

Although this political argument does not imply free water, it does imply unlimited provision of water. This argument contradicts the fact that water is a renewable resource and may adversely influence the sustainable use of water. According to Field (97: 23) a resource use rate that is sustainable is one that can be maintained over the long run without impairing the fundamental ability of the resource base (e.g. water) to support future generations. This implies that an unlimited usage of water may not be sustainable as it may decline to such an extent that future generations may not have enough water resources.

(d) Free basic water

Water demand management strategies in South Africa are combined with a subsidy program to achieve the goals of the National Water Act. As such, every household in South Africa is theoretically guaranteed a certain amount of free water each month (currently 76% of the population receives this service). The Free Basic Water (FBW) subsidy program implemented in 2001 provides 6 000 litres of water per month to every household. This comes out to roughly 25 litres per person per day in a household of eight and costs the government approximately 30 million Rand per year in subsidies. For the poorest households not connected to a water network, the National Water Act stipulates that community pumps be installed within 200 meters of all houses. A secondary benefit of the FBW subsidy program is that it has provided the government with the legitimacy to focus on illegal connections, something that would have been politically unfeasible had the program not been implemented. As a result, water consumption has levelled off at 1996 levels even though many more people are now being served.

Numerous arguments regarding the quantity of free basic water are made. This uncertainty has resulted some municipalities provide 12 kl (Tshwane Metro), while some only provides 10 kl (City of Johannesburg) and others 6 kl (Matjhabeng Local Municipality) In a recent court case the Johannesburg High Court instructed the City of Johannesburg to increase the free basic water supply from 25 litres per person per day to 50 litres for the residents of Phiri in Soweto (News 24, 2009).

2.7 Water conservation and demand management

Water Demand Management (WDM), an approach to meet the water demand, involves the application of selective economic incentives to promote efficient and equitable use of water as well as a number of conservation measures aimed at raising awareness on the scarcity and infinite nature of the resource.

WDM embraces a wide range of measures leading to sustainable management and these include amongst others, protection of water quality, reduction of wastage, improved allocation of water among competing users, appropriate pricing mechanisms and water conservation measures.

Activities of Water Service Provider (WSP) as well as activities of the customer or consumers constitute two main areas where water-saving technologies can be applied.

2.7.1 Activities of the WSP

According to Roy Donavon (NWCC, DWA), WSP should be encouraged to put in place a process, which will reduce system, loses to a minimum. The first priority of the WSP is to find the magnitude of the problem, isolate those areas with highest losses and then locate and repair them (Royal Society of South Africa, 1998:1).

(a) Determine unaccounted for water (UFW)

This is achieved via water balance. The reticulation system should first be broken into districts or zones, install zone meters or data loggers to record the flow into each area. Water loss is therefore obtained by subtracting authorised metered volume of water used from the total volume of water put in.

(b) Accuracy of meter readings

Errors in meter readings can lead to inaccurate results with respect to water balance and hence UFW. Proper electronic meter reading systems such as hand-held meters, touch readers, drive-by systems, automatic readers and pre-payment meters should be used to eliminate possible errors.

(c) Leakages

Types of leakages identified include:

- Background leakages (< 250 l/hour)
- Visible leakage (> 500 l/hour)
- Underground leakages

The market is replete with technological devices that can be employed in the detection of water leakages. They include ground microphones or leak-noise correlators.

Leak size is one major factor determining the total amount of water loss. Leak sizes varying from 1mm to 7mm can result in 58 l/hr to 2.360 l/hr loses.

2.7.2 Activities of the customer / consumer

The Royal Society of South Africa, in their November 1998 conferences, presented the following:

(a) Retrofitting of water efficient devices

Case examples of water saving through retrofitting with efficient devices

- **Case 1**: A family of 4 showering with a water-efficient shower for 5 minutes per person per day saves 15 liters per minute (or 105 900 liters per year). A 55% saving.
- **Case 2**: The Lennox Hotel in Boston, USA reduced its demand by 40% by replacing conventional plumbing fixtures with high-efficient fixtures in 220 rooms.
- **Case 3**: In accommodation units in the Kruger National Park, a 37% water saving and over 20% of electricity used can be achieved by changing to items such as dual-flush toilets, low flow showerheads and tap aerators. It was stated that water efficiency in a shower does not only require a restricting device to reduce flow. To ensure user satisfaction, the showerhead's design should provide smaller drops for better wetting, higher water speed for effective rinsing and focusing the water onto, not wide of the users body. Energy savings should also occur.
- **Case 4**: 50% of water was saved at Kirstenbosch Botanical Gardens in Cape Town by retrofitting with 120 dual flush toilets, 10 "Water save" urinals, numerous showerheads and aerators.

(b) Technologies available to support household water conservation

Technologies suggested for 11 areas as given below:

- ***The household meter****:* problems are encountered with individual flats, sectional developments, time-share units, and holiday accommodation units. There was also concern as to the type of meter used. A question was asked, "How will we deal with illegal connections?" Suggestions were that leak detection should be done. Some studies have been done in this regard. Nigel Drury said that incentives and disincentives were needed.
- ***In the toilet****:* Dual flush, direct/demand/ controlled flush. Cistern sizes need to be reduced. A representative from Cobra-tech stated that the size of the cistern and pan must be compatible. E.g. we cannot have a 6-liter cistern with a 14-liter pan. What was of concern was that most of these incompatible units go into RDP housing, costing the user much more in the long run. James Sleigh felt that he never experienced this problem in RDP houses. Regulations for manufacturers and imports should be tightened. Tank dams, tank bags and inserts such as bottles were also suggested.
- ***Urinals****:* Continuous flush mechanisms -be retrofitted with controlled flush devices.
- ***Baths****:* Rather showers than baths.
- ***Showers****:* High efficiency showerheads with a deep shower tray.
- ***Hand washbasins****:* Use flow restructures and aerators.
- ***Kitchen and Laundry basins****:* Use flow restrictors, aerators and swivel spray aerators
- ***Dishwashing machines***
- ***Washing machines****:* Use front loader and not top loader.
- ***Household recycling of used (grey) water****:* to flush toilets and water garden
- ***Harvesting Rainwater for Home Use****:* For use in, baths, showers, toilets, the laundry and scullery and in the garden.

In the discussion, participants agreed that local authorities should offer prizes/ incentives to the person/families with the best usage. Acceptance of pre-paid meters should be encouraged. This would allow the user to take responsibility. Pre-paid water should not be targeted towards lower class people initially, rather to the middle class.

Roy Donovan said that there would have to be an effective management system for pre-paid meters. SABS is presently producing standards to make all products water efficient. There is also a task team that is looking at water efficiency in low cost houses. It was suggested that people would only switch to water efficient goods when water prices increase. These goods should have a zero VAT rating for the next two years. Municipality representatives indicated that they are under severe financial strain and would not be able to assist users by giving them financial incentives.

(c) Technology available to support water conservation management in industry

Seven areas given below were covered:

- ***Metering****:* Importance of metering in industry was highlighted. Metering at different levels of distribution and the different types were mentioned.
- ***Leak detection****:* Available technologies should be harnessed for UFW and improving situations of water loss (see Roy Donovan talk above).
- ***Sewerage****:* It was suggested that problems occur of too little water is flushed. Equipment and pipes should be re-designed for low volumes and to facilitate flow. Water pressure and rationing should be regulated. Concern was that the SABS was not fully fulfilling their function as inspectors. They should be policing standards.
- ***Computer software for****:* Water Management and Water Education
- ***Technologies for alternative sources other than surface water****:* Groundwater, desalination, the harvesting of rainwater (from roofs, etc.). Grey water should be recycled a) for home use and b) industrial use.
- ***Water conservation in industry****:* Processes should be modernized to ensure – water productivity, recycling, sequential use, change from continuous to intermittent flows as well as leak detection and repair management.
- ***Agriculture:*** Metering and research into water efficient practices should be done.
- Recommendations were that: Processes in industry need to be modernized to ensure water productivity and efficiency. There are some systems, but these need to be properly communicated. Need improved Public Relations around water efficiency.

Possible ways for government (national, provincial and local) to promote the use of efficient technologies.

Three issues were of concern:

- *Education:* of user groups
- *The need for standard setting and control of standards*
- *Getting available technologies to consumers:* These would include three types of programmes – a) free retrofit programmes b) Subsidised retrofits c) Rebates – at source, at retailer's level, to consumers.

Recommendations were that: There is a great need for Education and PRO programmes to make users aware. Innovative programmes must be sought to get available technologies to users. Not much was added during the plenary session, except that Education of all sectors should be the priority to ensure that technologies are optimally used.

2.7.3 Measuring cost recovery

When putting strategies in place to recover cost, it is equally important to assess the extent of success or failure of such strategies. Measuring cost recovery should not only be confined to collection rates but should be broadened to measure the shift in water demand as a direct response to water demand and conservation strategies employed. A well-crafted tariff structure that covers appropriate cost is without doubt a significant determinant for the success of cost recovery in water services.

Two measures of cost recovery are considered below.

(a) Debt ratio

The 'debt ratio' is defined as a ratio of current debt to the debt that has been accumulated as a result of prior non-payment or late payment (Marah et al., 2004:42). If water bills are paid timeously, the ratio of current debt to accumulate debt will be near or equal to one ('1').

The debt ratio of one ('1') is therefore desirable as it indicates that service provider is not only receiving payment for services provided but is receiving payment timeously as well (i.e. before the next billing cycle). A debt ratio of less than one ('< 1') on the other hand signifies that proportions of current debt is rolled over into the next billing cycle or is not being paid at all.

Debt ratio as an effective cost recovery measure must be accompanied by correct and timeous billing on the part of the service provider or municipality, to the consumers.

(b) Collection rate

'Collection rate' is alternative measure of cost recovery, defined as payments as a share of billed amounts. Collection rate captures financial implications of current household behaviour, independent of historically accumulated debt reflected in debt ratios (Alence, 2002:702).

(c) Debtor Days

Debtor days are the number of days since the credit purchase or service has been invoiced and received by the purchaser where no payment has been received for the credit purchase or service delivered. "In order to sustain local governance and continued service delivery, the collection of income levied on account statements submitted to debtors (current accounts) must be realized within a turnover rate not exceeding 30 days". The latter statement is an extract from the Tshwane Collection Policy: Arrears Debtor Accounts which has been made in terms of Section 96 of the Municipal Systems Act, 2000 (Act 32 of 2000) and the City of Tshwane Metropolitan Municipality: Credit Control Bylaws of 27 February 2002.

Notwithstanding this decision the Tshwane Council only starts levying interest on all arrears in excess of 59 days. This decision could be seen by service providers as, being allowed an non-interest period of 59 days although action due to non payment will happen long before the 59 day period has been reached for defaulting on payment, whereby services would be terminated. The actual allowable debtor days by individual Local Municipalities are dependent on:

- Cash flow requirements to manage day-to-day operation and or repayment of long and short term commitments,

- Availability of cash and cash equivalents to ensure financial liquidity,

  This level of cash flow or liquidity depends directly on the income generated from service levies and the role it plays in the finances of the particular municipality and could range from 30 to 60 days. An assessment will be made of the average debtor days of the subject (pilot) municipalities in order to determine the potential reduction of debtor days once the revised debt collection policy has been implemented. Local Municipalities, which are cash dependant, should continuously strive to reduce this period to acceptable levels.

  Table 2.5 reflects the water debtor days by province for South Africa. Detailed age analyses for each province are provided in Annexure A.

Table 2.5: Water Debtor Days by Province

	Water Debtor Days Age Analysis									
	0-30 Days		30-60 Days		60-90 Days		Over 90 Days		Total	
R thousands	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Province										
Gauteng	668 964	7.61	564 457	6.42	347 975	3.96	7 208 376	82.01	8 789 772	100.00
Eastern Cape	153 333	13.14	77 563	6.65	35 163	3.01	900 472	77.19	1 166 531	100.00
Free State	111 362	8.54	71 335	5.47	54 545	4.18	1 066 909	81.81	1 304 151	100.00
Kwazulu-Natal	206 237	11.47	91 996	5.12	69 151	3.85	1 430 225	79.56	1 797 609	100.00
Limpopo	22 840	6.01	18 501	4.87	15 149	3.98	323 719	85.14	380 209	100.00
Mpumalanga	38 120	9.05	24 594	5.84	18 283	4.34	340 292	80.77	421 289	100.00
Northern Cape	9 398	6.38	9 406	6.39	4 272	2.90	124 196	84.33	147 272	100.00
North West	69 984	6.74	45 342	4.37	44 221	4.26	878 941	84.64	1 038 488	100.00
Western Cape	299 321	12.81	103 887	4.45	81 583	3.49	1 850 999	79.25	2 335 790	100.00
Total	**1 579 559**	**9.09**	**1 007 081**	**5.79**	**670 342**	**3.86**	**14 124 129**	**81.26**	**17 381 111**	**100.00**

On average South Africa has very high debtor days with more than 81% of water billed outstanding for more than 90 days. Almost all provinces show the same pattern with around 80% of amounts (revenue) outstanding for 90 days and older. It is apparent that the problem is extensive with more than R14 billion being owed to municipalities for longer than 90 days. From a cash flow perspective any business will be hard pressed to continue operating if more than 80% of its cash is tied up in debtors for 90 days and longer. In terms of municipal operations the effect of non-payment on the Operations and Maintenance budgets as well as the long term Capital budgets are clear.

2.7.4 Cost recovery determinants

According to Alence (2002:700), three broad sets of factors have emerged as important determinants of cost-recovery outcomes, namely:

- Social and institutional context
- Technical features of service infrastructure, and
- Billing and payment practices

(a) Social and institutional context

Social and institutional context includes factors such as poverty levels, historical legacies of local governance, and patterns of community involvement in service delivery (Alence, 2002:700).

A community that has a sense of interdependence and using its strength as a group to solve problems is said to have what is called social capital (Marah *et al.*, 2002:6). Social capital can also be seen in '*Ubuntu*', an underlying social philosophy of African culture to express compassion, reciprocity, dignity, harmony and humanity in the interest of building and maintaining community.

The African view of personhood denies that a person can be described solely in terms of the physical and psychological properties. It is with reference to the community that a person is defined. The importance of the community in self-definition is summed up by Mbiti, 'I am because we are, and since we are, therefore I am' (Nussbaum, 2003:21). Cost recovery as a means to deliver welfare to a community can tap on this African philosophy as a vehicle to get the community to pay for water services.

High incidence of non-payment of services encourages non-payment even by those who can afford to pay. This emulative behavior would occur as easily in white suburb as in a black township (Jonson, 1999:2). Although poverty is a reality in South Africa, cynics however suggests that there are many free riders that are pleading poverty when in fact they can afford to pay. All of us operate hierarchies of payment in which we may accord greater priority, for example, paying off mortgage bond than paying for new clothes. Understanding these payment hierarchies might shed crucial light in terms of future cost recovery initiatives (Johnson, 1999:2).

Communities, in terms of the Municipal Systems Act, are defined as part of municipality together with political structures and administration. Community participation in IDP's, Budgets, policy formulation, monitoring and evaluation of decision making and implementation are further entrenched other government policy documents including amongst other the Batho Pele principles as contained in the White Paper on Transformation of Public Service Delivery, 1997.

Popular approaches to community participation include formation and involvement of ward committees, project steering committees, community meetings as well as *imbizo's*.

Ward Committees, headed by ward councilors are formal community representative structures used for two-way communication between the council through the ward councilor and the community. In community project implementation, ward committees, in partnership with Project Steering Committees provide regular update and feedback between the community and the municipality through regular reports on project progress.

Community participation in project implementation is through the establishment of Project Steering Committees (PSC). The role of the PSC, amongst others is to bridge the gap between the external organization implementing the programme and the community. As opposed to the ward committee, the PSC is a project specific committee whilst the ward committee is a permanent structure. PSC's are made up people from within the project area and are often chaired by the municipal, district or public officials implementing the project.

Regular ward or community meetings include all ordinary people in the community or ward and afford the community an opportunity to voice their concerns and aspirations. This forms a forum from which a smaller ward committee gets its mandate.

Imbizo's are a form of road shows where government meet and listens to the people's concerns, frustrations as well as receive feed back as to the impact of various government policies implemented. Imbizo's take various forms, including to door visits and larger gatherings.

(b) Technical features of service infrastructure

Level of service, prevalence of metered connections, and use of specific technologies like pre-paid dispensers and flow regulators / restrictors are some of the determinants of cost recovery.

Case studies included in section 3 demonstrate cost recovery implications of some of the technical features of service delivery highlighted above.

(c) Billing and payment practices

Structure of tariff schedule, penalties for non-payment, incentives for payment and various aspects of costumer relations are some of the well researched aspects affecting cost recovery of water services, (Alence, 2002:700).

These aspects are also well demonstrated in the case studies in terms of their ability to encourage and also frustrate efforts of cost recovery in water services.

Automatic Meter Reading (AMR) offers technologically as well as efficient and cost effective meter reading solution. Literature is replete of such technological solutions including walk-by, drive-by, and fixed network and sub-metering.

Spreadsheets of debtors, though is a tool of credit control trade, they are however not a credit control strategy. If good billing and collection strategies are in place, water utilities can at the start of a financial year, predict roughly what will be in their bank account by the end of the financial year (Daly, 2007:26).

The life cycle of the recovery path for water utility accounts included the following:

Send the bill.

- If unpaid, send a reminder after a month.
- If unpaid, send a demand two weeks after the reminder.
- If unpaid, send a threat of legal action/disconnection two week after demand.
- If unpaid, call to establish liability within seven days of the demand.
- If unpaid, disconnect or issue a summons within the following month

The physical doorstep calling, it is claimed produced many excellent results for credit control. This provided in particular the following:

- Timely intelligence on changes in liability and 'gone aways'
- Certainty of continuing liability.
- Changes in individual circumstances such as 'can't pay'.
- Exceptional circumstances such as ill health.
- Customer education on what to expect.
- Difficult and doubtful debts surfaced early enough to be pursued.

2.8 Free Basic Water (FBW)

In terms of the Water Services Act, (Act 108 of 1997), provision was made for those people who cannot afford to pay for a basic water supply. Free Basic Water Policy clearly targets the poor and is based on this legal provision.

In an effort to remove the economic inaccessibility of water for all, President Thabo Mbeki in 2000 announced the FBW policy, providing a bridge between the need for equity and redress and the goal of economic efficiency.

The quantity of water delivered and used for households is an important aspect of domestic water supplies, which influences hygiene and therefore public health. Howard and Bartram (2003: Executive Summary) reviewed the requirements for water for health-related purposes to derive a figure of an acceptable minimum to meet the needs for consumption (hydration and food preparation) and basic hygiene. They further assert that defining a minimum has limited significance as the volume of water used by households depends on accessibility as determined primarily by distance and time, but also including reliability and potentially cost.

A summary of the degree to which different levels of service will meet requirements to sustain good health and interventions required to ensure health gains are maximized is shown in the table 2.2 below.

Table 2.2: Summary of requirement for water service level to promote health

Service level	**Access measure**	*Needs met*	**Level of health concern**
No access (quantity collected often below 5 l/c/d)	More than 1000m or 30 minutes total collection time	Consumption – cannot be assured Hygiene – not possible (unless practised at source)	Very high
Basic access (average quantity unlikely to exceed 20 l/c/d)	Between 100 and 1000m or 5 to 30 minutes total collection time	Consumption – should be assured Hygiene – handwashing and basic food hygiene possible; laundry/ bathing difficult to assure unless carried out at source	High
Intermediate access (average quantity about 50 l/c/d)	Water delivered through one tap on-plot (or within 100m or 5 minutes total collection time	Consumption – assured Hygiene – all basic personal and food hygiene assured; laundry and bathing should also be assured	Low
Optimal access (average quantity 100 l/c/d and above)	Water supplied through multiple taps continuously	Consumption – all needs met Hygiene – all needs should be met	Very low

Source: Howard and Bartram (2003: Executive Summary)

South African FBW policy is interpreted as the infrastructure necessary to supply 25 liters of water per person per day supplied within 200 meters of household and within a minimum flow of 10 liters per minute i.e. in case of communal water points. In the case of yard on house connection, the FBW policy stipulates 6 Kl of potable water supplied per formal connection per month. This puts South African FBW provision in terms of water service levels to promote health, somewhat poses between a high and low level of health concern. 50 liters per person per day as shown in Table 2.2 above constitutes an intermediate access and hence registers a low level of health concern. McDonald (2003:29) argues that

6 kilolitres of water per household per month offers little respite as many low-income households use considerably more than 6 kilolitres due to relatively high average numbers of occupants per household and also because of old and leaky apartheid-era infrastructure.

The adoption of the free basic water policy does not necessarily mean the abandonment of the principle of achieving sustainability and viability of water services. Consumption in excess of basic water supply must be paid for, while enabling free access by the poor to a basic water supply service necessary to sustain life SFWS, (DWA, 2003:29). It is also specifically stated that the basic water amount cannot be withheld due to non-payment of past accounts in accordance with the international provisions (Earle *et al.*, 2005:16).

Free services although involve a loss in revenue, they also reduce some costs; where electronic standpipes (pre-paid) have been converted to provide free water, vandalism has declined and the costs of maintenance of these metered standpipes was reduced (Hemson, 2004:6). Successes and failures of pre-paid water meters are discussed in case studies later.

Challenges for effective implementation of the FBW policy in South Africa according to Sussens and Vermeulen (2001:130):

- Local government capacity: Building capacity and putting systems in place to ensure that subsidies are allocated to correct and deserving beneficiaries, water demand management, operation and maintenance, meter and bill consumers amongst other things requires huge initiative and support.
- Financial: Each local authority is unique and therefore there is no single financial solution. Issues such as revenue sources available, cross-subsidisation levels, what broader economic effects could results from these cross-subsidisation, identification of the poor, at what level should the subsidisation be applied? These and other factors including the cost of infrastructure for new and existing schemes must be addressed.
- Technical: Means of controlling and measuring the amount of water supplied is required. This will have implications in terms of the type of infrastructure provided and dispensing technology. Implementing appropriate technology on new water schemes is one thing, but existing schemes could require retrofitting. Water loss through vandalism, unauthorised connections, leakages, could have radical effect of provision of FBW whilst those without infrastructure to receive FBW could further be disadvantaged.
- Communication of policy and process: Unless communication is handled properly there is a risk that FBW might be construed as a ‘free for all’. Local politicians, officials and community members need to be clear as to their rights and obligations. FBW cannot be implemented overnight as shown by all these challenges and as a result communication need not create unnecessary expectations.

2.8.1 Water supply service levels and their applicability to FBW

Table 2.3 below by Sussens and Vermeulen (2001:132) outlines different service levels, application as well as their suitability to dispensing FBW.

Table 2.3: Water supply service levels and their applicability to dispensing FBW

Service Description	Application	Suitability for 'free basic water'
Rudimentary systems: Hand pumps, spring protection, etc.	Rural areas that cannot feasibly be provided with reticulated systems.	With low capital and operating cost and inherent limitations on the amount which people can use this is well suited …
Communal street tap: Tape shared by a number of consumers.	While mainly used in urban areas their widest application has been in rural areas where this has been the most common service level provided under water supply programmes over the last decade.	A low cost option well suited to providing water to poorer consumers. It is seldom that consumers would use more than 6 000 l per hold/month and therefore this service level is well suited to service level targeting.
Prepaid communal street tap.	This option has been introduces recently in a number of areas with mixed results.	If up to 6 kl is to be provided free then the need for a pre-paid meter falls away as no payment is to be made.
Low-pressure trickle feed yard tank: Tank, typically 250 litters, located in yard with flow control device in tank. Permanently connected to network.	Yard tanks have a major benefit in that they provide a restricted supply at a fixed monthly charge. They also allow for a cost effective reticulation design. No bailiffs required to open manifolds, but the tank can be easily bypassed.	For a 'free basic water' policy yard tanks are an important service level as they provide a relatively high-restricted flow service level (less than 6 kl/month). Typically the tariff for the tank would be set at zero. This fits well with all the poverty relief options.
Low-pressure manually operated yard tank: A tank with a regulator at a node point on the reticulation.	Have the same benefits as the trickle feed tank with the following exception: the daily manifold opening is labour intensive. However, can't bypass tank.	As for the trickle feed tank, there is wide application for this type of service in a 'free basic water' context.
Low-pressure regulated yard tank: A tank with a regulator at a node point on the reticulation.	Similar to a yard tank but does not require opening of a manifold. Bypassing of the tank brings no benefit to the consumer and therefore is not a problem.	As for other yard tank options, this is well suited to a 'free basic water' initiative.
Medium pressure manually operated roof tank: Unregulated metered flow to tank on roof directly from reticulation.	Has limited application as a service between normal metered supply and yard tanks. Main benefits relate to saving on reticulation costs. May be a good upgrading option.	No particular benefits: needs metering, billing and credit control systems.
Medium pressure regulated roof tank: A roof tank version of the low-pressure regulated yard tank.	This option is also based on having a regulator at the reticulation node. Therefore it allows for restriction of flow without the risk of bypassing.	This is well suited to a 'free basic water' initiative. It allows a relatively high service level with limited flow volume.
Full pressure conventional house connection.	The 'yard tap' is also included under this category. This is the highest level of service but it requires an effective metering and billing system to function properly.	Generally has to be integrated with a 'free basic water' initiative. If used with service level targeting it would be assumed that those having it could pay cost reflective tariffs. If the poor have access to this service level a rising block tariff or credit system is required.
Full pressure prepaid house connection	Pre-paid metering avoids the necessity of reading meters and billing. Non-payment is not an issue but tampering can be a problem.	Most prepaid meter systems provide for rising block tariffs with a zero first block. In this case they are suited to a 'free basic water' initiative.

Source: Sussens and Vermeulen (2001:133)

2.8.2 Targeting strategies

(a) Raising block tariff

The rising block tariff i.e. where a free basic amount (or block) is provided to all water users and the next portions of water usage (or block) are charged for at increasing rates for increasing consumption. This of course only works when people have taps and meters and can be billed for consumption.

(b) Targeted credits / subsidies (indigence policy)

A slightly different version of raising block tariff is the targeted credits or subsidies used in some municipalities, where people considered “indigent” get a subsidy amount credited to their bill every month.

(c) Service level targeting

This ensures that access to water is limited to the free basic portion. The most common form of service level targeting is the communal tap system, which should be available within 200 meters from every home without water on site. People are unlikely not to carry larger quantities of water than the free basic portion. Municipalities with a high proportion of poor consumers commonly use the service level targeting approach.

Sussens and Vermeulen (2001:133), in table 2.4 below, further highlights targeting method, applicability, advantages and disadvantages as well as residential frequency distribution levels and impact of non-residential consumption on the three targeting strategies outlined above.

Table 2 .4: Targeting Strategies

	Option 1 **Rising block tariffs**	**Option 2** **Targeted credits**	**Option 3** **Service level targeting**
Description	Rising block tariff applied to residential consumers, with the first block zero. No fixed monthly charge applicable to those using below basic.	Each consumer who is selected for poverty relief gets a credit on their water account, which would typically be sufficient to cover the charge for the poverty relief amount.	Service levels, which provide a restricted flow below the basic level, are provided at no charge. Those with higher service levels pay the normal tariffs, except for poor consumers who historically have high service levels.
	Option 1 Rising block tariffs	**Option 2** **Targeted credits**	**Option 3** **Service level targeting**
Targeting method	No targeting. However, targeted fixed monthly charge may be necessary for holiday areas.	Requires a system for identifying those who require poverty relief.	Targeting takes place through selection of service level by the consumer (or authority in some cases).
Applicability	Unsuited where a high % holiday homes unless supplemented with a targeted fixed monthly charge.	Requires a billing system to be in place for all consumers.	Best suited to less capacitated municipalities.
Advantages	Consistent with current approach to use rising block tariffs. Does not require targeting. Allows 'free basic water to all'.	Suited to situations with fewer larger consumers. Simple to apply from an accounting point of view. Easy to integrate with other services where a 'free basic service' policy is being used.	Suited to municipalities with lower capacity and large proportion of poorer consumers. Typically does not require a metering and billing system for restricted flow service levels.
Disadvantages	Applicable with a relatively high % of larger consumers. Requires effective metering, billing and credit control system.	Requires a system to select those who are to benefit from poverty relief measures. Requires an effective metering, billing and credit control system.	Targeting may be poor if there is a large % of households using restricted flow services. Will only work if metering, billing and credit control system for unrestricted flow is effective.
Residential frequency distribution requirements	Typically requires 30% of residential consumers purchasing more than 20 kl/month.	Only dependent on frequency distribution if poverty relief is to be partly or wholly funded from water account.	Non relevant unless poverty relief is to be funded from income raised from consumers with metered connections (which is seldom possible)
Impact of non-residential consumption	Typically requires more than 20% of water sales to be non-residential consumers.	Only relevant if poverty relief is to be funded from non-residential consumers	Generally there are only a small proportion of non-residential consumers and it is not possible to fund poverty relief from income raised from them.

Source: Sussens and Vermeulen (2001:133)

2.8.3 Multiple dwellings

Implementation of FBW to multiple dwelling units, farm dwellers and private towns, according to FBW implementation strategy (DWA, 2002:41) can take any of the following forms:

(a) Multiple dwelling units

The following options are identified:

- *Individual metering.* Install meters for each individual household/dwelling unit in the complex. Each one then becomes a direct consumer and an intermediary is no longer involved.
- *Free allocation or credits to complexes and high-rise buildings.* Provide a free allocation of water (or an equivalent money credit) to the complex based on the number of households or dwelling units in the complex. In this case the allocation or credit will typically go to the landlord (the intermediary in this case) who may or may not distribute the credits to individual households.
- *Individual credits.* Provide (money) credits directly to individual households based on the value of the basic amount of water supplied (6 000 liters per household per day). This can only be done if the service authority or service provider has an existing direct relationship with the individual households. This arrangement could be applied through a 'consumer association' as described below for farm dwellers.
- *Flow restriction.* Installation of flow restrictors for households wishing to be restricted to the basic amount of water and charging water at cost where flow is unrestricted.
- *No implementation.* Exclude such complexes from a FBW Policy.

(b) Farm dwellers

In considering the situation on farms, those who are employed by the farmer (farm labourers) typically get free basic services, as part of their housing and this is part of an employment contract. However, with regard to farm dwellers (those who are not employed but live on the farm); the situation is more complex as the farmer often has no free services obligations to such households. In this case the options, which can be considered by a WSA, are as follows:

- The farmer is expected to provide FBW to all farm dwellers and carry the cost of this, he or herself.
- The WSA provides a subsidy per farm dweller household to the farmer based on the subsidy framework established for the WSA as a whole. Clearly this could only be done if there was a monitoring arrangement in place.
- Farm dwellers are expected to set up an association of some sort. This association would have a bank account dedicated to free basic services and the municipality would pay subsidy funds into this account. The association would then have an agreement with the farmer regarding services provision and would pay for services (partly or in full from the subsidy account) in terms of this agreement.

(c) Private towns

Organisations such as mines and Eskom often run 'private towns' for their employees but may also provide services to non-employees. The same three options apply as for farm dwellers. If there are a relatively large number of non-employee households receiving services then it will probably be best for the households to form themselves into an association and for them to control a subsidy account. Obviously it will be in the interests of the intermediary to assist in setting up such associations, with the key condition being that they do not control the bank account (DWA, 2002:42).

2.8.4 Top Customers

Local municipalities should focus on developing strategies to provide so-called top customers with "special treatment". Specific approaches could be followed to achieve this objective, which include the following:

- Special discount for early payment of service accounts
- Ensuring correctness of billing system
- Improved and continuous supply of account information (customer-care system)
- Timeous billing system
- SMS notification of service termination.

All local municipalities, when focusing on debt recovering, should pay attention to quick-wins (high- billed customers). Pareto Optimality principle (80:20) should be applied to recover account payments as well as bad debts.

3 INTERNATIONAL CASE STUDIES ON WATER PRICING AND DEBT MANAGEMENT

3.1 Introduction

A number of studies and projects focusing on pricing, cost recovery and debt management of the water services sector have been conducted by various institutions in a number of countries to date. This section is divided into case studies on water pricing and cost recovery as well as on water debt management.

3.2 Case Studies on Water Pricing and Cost Recovery

Listed below are the findings of two major studies undertaken by the World Bank and International Water Association in recent years. In addition to the findings, more information is provided on the success of a water-pricing scheme instituted by the Marin Municipal Water District in California.

3.2.1 World Bank Study

In 1997 the World Bank conducted a study on water pricing experiences across 22 countries (including Australia, New Zealand, Uganda, United Kingdom and United States of America). This study revealed the following findings:

- Water pricing is an important way of improving water allocation and encouraging users to conserve scarce resources
- Countries have different reasons for charging for water, including cost recovery, redistribution of income, improvement of water allocation and water conservation.
- Most countries are gradually turning over management responsibility of water supplies to private enterprises and non-governmental organizations.
- A large majority of countries are implementing price schemes to recover operation and maintenance costs from users, with some countries also recovering a portion of capital costs.
- The majority of countries who took part in the study favored volumetric pricing metering, thereby moving away from uniform tariffs and abolishing minimum prices.

3.2.2 International Water Association

During 2006, the International Water Association (IWA) conducted a study on sustainable cost recovery of water services. The main findings of the IWA study can be summarized as follows:

- Without sustainable cost recovery, water service systems will go into a state of decay, ultimately, resulting in an unacceptable level of service or poor water quality.
- The most important consideration in sustainable cost recovery is to achieve a level of cost recovery through a combination of water service charges and subsidies that will enable the provision of sustainable water services.
- If low cost recovery is obtained through user charges, subsidies should be earmarked for the maintenance of water system operations. These subsidies should be targeted to allow the poor to receive adequate safe drinking water and dignified sanitation.
- The costs to be recovered from water service provision include the following:
    - Internal operating costs
    - Cost of capital for new infrastructure
    - The cost of maintaining and refurbishing existing assets
- Unsustainable cost recovery could manifest in the following:
    - Tariff increases
    - Inability to do long-term planning
    - Loss of consumer confidence and respect for the service
    - Inability to attract capable human resources
    - Inability to optimize the performance of water service systems

3.2.3 The Water Pricing Scheme – Marin Municipal Water District, California

The Marin Municipal Water District (MMWD), a municipal water district serving Marin County in California resorts to a full-cost pricing system that covers the entire cost of providing water to its customers. In addition, the MMWD has created a water-recycling programme in which recycled water used for irrigation, toilets, commercial carwashes, commercial laundries and air conditioning cooling towers, is sold at a discounted price.

Revenue is collected from residential, commercial and agricultural customers following an increasing block-pricing format, with rates varying on a seasonal basis. Residential customers are billed a per-unit rate on a bi-monthly basis in addition to a service fee based on meter size. Different classes of residential customers are billed at different rates and the block schedule differs between winter and summer months.

The success of the full-cost pricing programme in Marin County, demonstrates that this method of pricing water can be effective if educating consumers about the value of water conservation and in maintaining a sustainable level of demand for water. From a policy standpoint however, it may be more difficult to institute such a programme in less wealthy communities.

3.3 International Case Studies of Water Debt Management

This section deals with international practices in water debt management. Two countries have been selected for this section, i.e. the United Kingdom and Australia.

3.3.1 Water Debt and Water Debt Management in UK

The aspects to be addressed in this section include:

- Debt position in the United Kingdom (UK)
- Industry reaction to debt, with specific reference to Ofwat

The number of households in water debt in the UK is around 4.3 million. This compares with around 1.1 million for electricity and 0.8 million for gas, despite the higher bills for energy. Also the levels of debt in the energy sector are much lower. Water debt in 2006-07 in the UK was £930 million, compared to £223 million for electricity and £179 million for gas. (Water UK website www.water.org.uk).
The costs of collecting water debt together with the loss of capital and the costs of debt write-off add around £11 to every customer's bill.

Research in 2006 showed that the debtors can be grouped as follows:

- 20% of debtors owed 70% of the total water debt
- 46% of debtors are in the highest 10% credit risk category
- 34% of debtors are likely to live in rented accommodation
- 23% of debt is 'leaver debt', where water companies cannot trace defaulting customers.
- There is also a core of high worth debtors.
- 4% of debtors have credit scores in the top 25%
- 4% of debt is accounted for by 'affluent singles and couples in exclusive urban neighbourhoods'

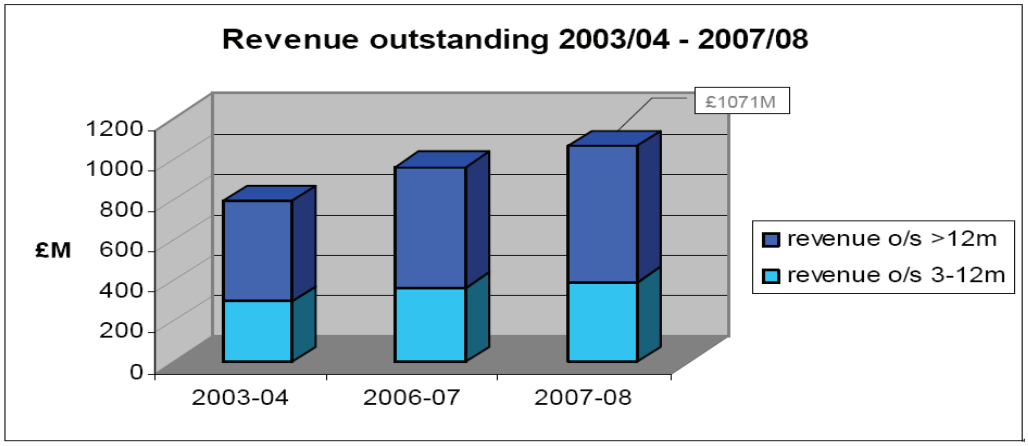
Table 3.1 provides further information on the current debt position in the UK.

Table 3.1: Current Debt Position in UK

Debt Aspect	Value £
Household revenue outstanding (>3 months)	£1071m
Household revenue written off	£104m
Number of households with revenue outstanding	5m
Household revenue outstanding (>12 months)	£674m
Operating expenditure on collection (Δ 10%)	£71m

The situation regarding revenue outstanding to Water UK is further reflected in Figure 3.1

Figure 3.1: Revenue Outstanding to Water UK: 2003-2007



The figure shows that revenue outstanding between 2003/04 and 2007/08 has risen by about 40% to more than £1 billion. An important fact in terms of the non payment is that tenants (lessee) of property account for 44% of debt in the UK.

The situation regarding water debt and water debt management in the United Kingdom can be summarised as follows:

- According to Water UK water debt is increasing in the UK (statement made at a Utility Week Consumer Debt Conference held by Water UK in October 2008).
- Water affordability is a growing issue
- The focus on debt management is to identify the liable person
- Those unable to pay will get support from the industry
- Those able to pay but unwilling needs to be sanctioned, but it is accepted that the industry will need help to achieve this.

3.3.2 Water Industry's Reaction to Debt

Water UK has seemingly adopted the following approach to water debt management:

- Providing measures to help the vulnerable and those struggling to meet their water bills
- Tackling those that can pay but do not pay – through the court service
- Lobbying for legislative change to reduce the debt burden and working with consumer bodies to improve help with water affordability

In support of the above approach Water UK has tabled a number of proposals, namely:

- Proposal 1: Adopt the "liable person approach" in Council Tax legislation for private rented properties.
- Proposal 2: Requirements for residents, owners and managing agents to supply information to the water company to identify who is the liable person for the property.
- Proposal 3: Owner liable for specific classes of properties (e.g. flats)

The industry is prepared to help those willing, but unable to pay. The same does not apply for those able but unwilling to pay.

3.3.3 Office of Water (Ofwat)

Ofwat (Office of Water) is the Water Services Regulation Authority in England and Wales. The company is the economic regulator of the water and sewerage companies in England and Wales. One of the regulatory functions performed by Ofwat is the setting of water tariffs that water supply companies may charge consumers. In this section the guidelines drafted by Ofwat for the management of water debt by the water companies are presented.

These guidelines cover what Ofwat considers to be the main debt recovery issues, detailing the various approaches which companies may take and exposing Ofwat's expectations for water company operations. They take account of the fact that companies are now more likely to make use of debt collection agencies (this is also an option that is used by South African municipalities) and court procedures such as garnishee orders and charges on property for the collection of debt, and reflect the wider range of methods used in attempting to contact customers.

(a) PRINCIPLE 1

Companies should be proactive in attempting to contact customers who fall into debt before proceeding to court action.

(i) Current practice

Water companies report that their main problem in obtaining payment is making contact with the customer. Once they have made contact it can be relatively easy to agree a payment arrangement. Some companies have developed computerised billing systems which identify customers who have a record of late payment. They use these systems to contact the customer if payment is not made promptly, to attempt to arrange payment rather than issue a claim.

Systems have been developed to analyse customers' payment habits and tailor the type of correspondence sent to customers: for example, if the customer normally pays on receiving a solicitor's letter, the company can omit one or more of the items of correspondence which it would send before that letter. Alternatively the time between letters may be shortened, as the customer is unlikely to respond to them.

Timing can be a factor in achieving contact. Companies which attempt to contact customers outside of normal office hours, (in the evenings or at weekends) and vary the times at which they try to contact any one customer report improved contact rates. Water company experience suggests that innovative approaches to debt recovery, are often most effective when they are new, and not expected by the customer. Once customers have become used to a set procedure, it becomes less effective and they are more likely to ignore reminders or letters. Customers are more likely to open a letter they receive outside of the usual recovery timetable, or to respond to an unexpected telephone call or visit. Companies should also consider whether they can use new technology to maximise the opportunities for contacting customers. This could include the use of faxes, emails or cell phone message facilities.

A strategy which can incorporate changes in the ways in which customers are contacted may be more effective in the longer term than one which remains static. Customers who are in debt may be reluctant to open mail which appears to have been sent by the water company. Companies report that customers may be more likely to open correspondence which is sent in an unmarked (i.e. no company logo), hand written envelope. A number of companies have set up in-house collection debt collection agencies, which operate under names not directly linked to the water company and use separate headed stationery. Companies report that these can be successful in establishing contact with customers.

(ii) Expectations

- Generally Ofwat would expect to see companies adhere to the following:
- Normally two prompts to contact the company sent before issuing a claim.
- Normally the first reminder sent no sooner than 21 days after issuing the bill, unless the company can show that a different timescale is justified for the individual concerned by their payment history.
- Each reminder should set out what will happen and when action will be taken if the customer fails to respond. The various actions the customer can take should be clearly set out.
- An effective debt recovery strategy will involve a combination of communication methods (telephone, mail, visiting and so on). The timing of attempted repeat visits and telephone calls will be varied where possible.
- The timing and manner of such contacts should not be oppressive or threatening, and conform to accepted good practice, such as suitable hours for attempting telephone contact.
- Any new approaches or systems should not reduce opportunities for customers to approach the company and that literature continues to encourage customers to communicate effectively with their supplier.

(b) PRINCIPLE 2

Companies should provide a reasonable range of payment frequencies and methods for all customers. The entire range of options should be properly and widely advertiser to ensure that customers can select the arrangement which best suit their circumstances.

(i) Current practice

Each company sets out the range of payment options it offers in its Charges scheme, which the Director General approves every year. This includes the methods by which customers can make payments and at which locations, as well as the frequency of installments which the company will arrange. All companies offer a variety of options, although the range available varies across the industry. We ensure through the approval of charges schemes that all companies offer at least a satisfactory range of payment options.

It is important that companies offer installments for customers who prefer to pay more frequently: usually fortnightly or weekly. Options are now available for swipe card payments run through local shop networks (such as Pay Point and Pay zone) where the customer can pay as frequently as he wishes, deciding on the amounts himself, but with set amounts to be paid off by certain dates. These options tend to be more popular among customers who need to budget for shorter periods of time; often those on lower incomes or state benefits.

Customers are more likely to make regular payments if the locations for payment are easily accessible. Companies have traditionally offered customers the chance to pay at banks and post offices, although the closure of isolated and small branches in recent years has reduced the number of available locations for payment. Local shop payment networks, such as Pay Point can offer alternatives. Many companies already offer payment options where the transaction cost is subsidised or free at selected locations.

Some companies also keep an open mind to other possibilities for payment, outside of the usual range offered, which customers may suggest. Where a customer offers to pay by a method which the company does not usually offer, the company will consider accepting the offer, in the interests of establishing a payment habit for the customer.

For customers who are in debt and in receipt of certain benefits it is possible to arrange for payments to be deducted directly from such benefits. All water companies currently offer this option. Ofwat are pressing for water payments to be given a higher priority when these arrangements are set up.

Companies currently advertise the range of payment options in a variety of ways. All companies send some form of payment option information on or with the initial bill. Some detail the full range in a separate leaflet which customers can request, or which they send to those who have fallen into debt, along with reminders or other correspondence.

(ii) Expectations

To meet this principle Ofwat would generally expect companies to:

- Review their network of payment locations at least once every two years to ensure that all customers have reasonable access to the network. They will need to take account of the number and geographical distribution of locations. The network of available locations at which the customer can pay must accommodate both rural and urban customers.
- Consider whether there are any charges for making payments at the network of locations offered and offer a reasonable range of locations at which customers can make payments free of charge. This should include frequent payments, in cash, for customers who prefer to pay weekly or fortnightly.
- Allow measured and unmeasured customers to pay at least at the following frequencies annual/half yearly/quarterly as appropriate on receipt of the bill, 6 monthly, and fortnightly/weekly.
- Offer installment payments by cheque, cash, and Direct Debit.
- Continue to offer customers who are in debt and in receipt of eligible benefits the option to make direct payments.
- Properly advertise payment options on or with the initial bill so that the customer can choose the option which bests suits his circumstances. Companies should also take advantage of further opportunities to draw customers' attention to the range of options available. They should flag options again in further correspondence sent to customers in debt, either in the text of letters or enclosing a separate leaflet. Where companies can identify an installment option which may suit a customer better than the one they currently use, they should proactively offer the option.

(c) PRINCIPLE 3

Literature and letters or notices sent to customers should be written in a non-threatening style but should clearly set out the action which the water company will take if the customer fails to make payment or contact the company.

(i) Current practice

Water companies use standard letters and notices to advise customers that they have missed an installment or failed to pay their bill. Notices set out what action the company will take if the customer does not pay within a specified time, and invite the customer to contact the company. They can also detail what the consequences of such action might be for the customer (for example a Court Judgment may damage the customer's credit rating for a number of years).

All companies are required to make a Code of Practice, approved by Ofwat, available to customers. It will set out how the company deals with customers who fall into debt. Some

companies produce this Code in the form of a customer friendly leaflet which can be used to advise the customers of their options. Standard letters are usually available for each stage of the process. Some companies have developed a suite of letters or notices applying only to domestic customers; others have letters which can apply to either domestic or commercial customers and cover the action which could be taken against each group.

Water companies make literature and correspondence available to customers in formats which they are able to use. Companies are usually able to offer customers with sight impairments large print or Braille bills where appropriate so that they are able to read their bills and notices.

(ii) Expectations

Ofwat will generally expect companies to meet this principle in the following ways:

- Letters and reminders to customers who have fallen behind with payment should be clear about what will happen if the customer does not pay. To be constructive, it is also important that they contain information about the customer's options.
- Companies will not threaten to disconnect a domestic property for non-payment, as disconnection is no longer legal. There should be no implication of action which the company could not take in relation to that customer. (For example, it would be easy for a household customer to infer incorrectly that he might be disconnected from a common notice sent to commercial and domestic properties which stated that "you may be taken to court or have your supply disconnected".)
- The customer should be given a clear indication of the length of time he has in which to act before the company takes its next step.
- If the customer is at risk of being subject to post-judgment court proceedings, the company should explain them simply and fully. Many companies are now using post-judgment proceedings or orders such as garnishee orders, charges on property, oral examination in court and attachment of earnings. Some customers may not understand the meaning of these terms and need a simple explanation of the process and consequences of the action the company proposes to instigate. They may not be aware that court action could jeopardise their credit rating in the future or that some actions may involve contacting their employer.
- If notices or letters themselves do not list the customer's options for payment arrangements, they should be accompanied by literature which does, or should clearly detail where the customer can obtain this information.
- Companies should ensure that their debt code approved by Ofwat is kept up to date, which may require approval more frequently than the maximum three-year interval.

(d) PRINCIPLE 4

When agreeing payment arrangements with customers in debt, the customer's ability to pay should be taken into account.

(i) Current practice

A payment arrangement which takes account of the customer's ability to pay is more likely to be effective in securing regular payments than one which aims to recover more money more quickly through installments which are unsustainable. Companies report that customers can be inclined to agree to payments set higher than they can reasonably afford, believing that this is more likely to satisfy the company.

When estimating the customer's ability to pay, it is important that all the customer's circumstances are looked at where possible – not just their income. Companies advise that many customers who are in debt to the water company will also be in debt to other utilities and third parties. The level of a customer's commitments to other creditors will affect their ability to pay the water company.

Ofwat recognises that finances are a personal issue and that some customers will not wish to reveal their circumstances to water company staff. However, it is important that companies make an attempt to take account of the customer's ability to pay. This could be through a telephone enquiry, if contact has been made by telephone, or an invitation in correspondence to talk through how much the customer can afford. Companies will need to train staff to make these enquiries appropriately.

Water companies often set up payment arrangements to cover current charges and work towards reducing the debt. It is not always possible to eliminate within one year the debt of someone who has had payment difficulties for some time. In these circumstances the company may take a long term view in the light of the customer's ability to pay. The level at which direct payments from benefit are being set can be a useful guide to setting an appropriate payment arrangement for some customers.

One of the aims of a payment arrangement is to enable the customer to establish the habit of making regular payments. When a number of installments have been missed, many companies cancel the payment arrangement and take action to recover the full amount due. Where the customer has multiple debts companies can advise that it may benefit the customer to talk through their situation and review their payment obligations with a debt counselor. A number of companies have established links with local Citizens Advice Bureaux and Money Advice Centres and will refer customers who appear to be in multiple debt to them for advice. Some have set up arrangements to subsidise these local offices and will communicate with them about the level of a customer's payment arrangement. They will also accept recommendations on the level of installment plan payments. Where the customer is clearly unable to pay, a referral to a charitable trust may help if one is available.

Some companies have set up incentive schemes which enable the customer to get into the habit of making regular payments. These generally involve arrangements whereby the company will either match payments made by the customer or discount part of the debt if agreed regular payments are maintained.

(ii) Expectations

To meet this principle companies will generally be expected to:

- Make enquiries as to the customer's ability to pay when setting up installment arrangements and to take account of the information given. Their records should demonstrate that this was done. Repayment levels should be realistic and sustainable given the customer's circumstances, and action taken when installments are missed should be appropriate.
- Tell the customer, where appropriate, that he or she may be able to reduce their future charges either by switching to a water meter, applying for the vulnerable group tariff or implementing some water efficiency measures. It should offer information about this.
- Where appropriate, treat the current year's charges separately from the customer's debt when setting up an installment plan. This would be in line with current National Association of Citizens Advice Bureaux guidelines which treat current bills as a higher priority than debt, but aim to ensure that current charges are paid. Where possible an installment plan will aim to ensure that the customer pays off the current

year's charges before the next year's bill is received, and pays something towards the accrued debt. Companies may need to take a long term view of the period over which customers can clear their debt, based on their knowledge of the customer's circumstances. Where possible they should try to avoid allowing the debt to increase unless they are convinced that in the customer's situation it is appropriate to accept any small amount in order to encourage a payment habit.

- Accept any reasonable offer of payment made by a customer. However, in cases where the customer has multiple debts, liaison with local advice agencies can be useful.
- Establish and maintain good relationships with local advice agencies and recommend customers consult these agencies where appropriate.
- Where a charitable trust or a restart scheme is in place, companies should tell customers about them where appropriate. Companies which do not have such schemes should consider the value of establishing them independently or jointly with other companies or utilities.

(e) PRINCIPLE 5

Customers whose accounts are managed by debt recovery agents should receive a similar level of service and care to those whose accounts remain with the water company.

(i) Current practice

It is common practice for some companies to refer the accounts of indebted customers to debt collection agencies. From this point on (which may be before or after court action is taken) the customer is unlikely to have direct contact with the water company, but will deal instead with the agency. Agencies usually work on a commission basis and it is in their interests to arrange payment installments which the customer can maintain. Some debt collection agencies offer doorstep collection services to encourage customers to make the agreed payments. The agent, rather than the water company, will now send out literature and correspondence.

Debt collection agents work under a service agreement governing the level of service customers will receive and setting out the agent's relationship with the water company. Reputable companies will operate under a Code of Practice such as that approved by the Credit Services Association. The level of access the company retains to records of contact with customers and their accounts will varies according to the service agreement between the company and the agent. Good practice allows the water company to monitor the handling of its customers' accounts and to know what payment arrangements have been made.

(ii) Expectations

To meet this principle companies who use debt collection agents are generally expected to:

- Ensure that they engage a reputable company abiding by an industry Code of Practice. The agent should be aware of the water company's own Code of Practice on debt recovery and should abide by it.
- Be able to verify that their customers are sensitively dealt with through a robust audit process. This may include regular reports from the agent on the progress of customers accounts and payments. To satisfy themselves that their customers are receiving the appropriate level of service, water companies would be expected to

hold copies of standard correspondence and literature sent by debt collection agents and ensures that these conform to the standards expected of the water companies themselves.

- Ensure that customers whose accounts have been passed to debt collection agents do not find themselves in a position where it is harder to agree payments than if they were dealing direct with the water company.
- Retain access to the management of the customer's account, should the need arise, as the debtor remains the customer of the water company. When operating best practice water companies will be able to obtain access to the customer's account and details such as the amount which a customer has agreed/been asked to pay, should they be approached direct by the customer or by third parties acting on behalf of the customer, such as debt advisers.
- Ensure that customers who are unhappy with the way the agent has dealt with them are able to raise their concerns with the water company. In some cases it may be appropriate to treat a customer's current charges separately from debt as the company may wish to agree payment terms for the current bill direct with the customers while leaving the collection of debt in the hands of the agent. The company should not normally refuse any reasonable offer of payment from the customer, unless it can show justification for doing so in the case of the individual concerned.

3.3.4 Thames Water

Thames Water is the UK's largest water and Sewerage Company, serving 13.6 million customers across London and the Thames Valley.

In order to reduce the overall level of debt and age of debt, and therefore the cost of working capital, it is important for relevant parties (utility companies in the UK and Municipalities and even the 15 Water Boards in South Africa) to understand the cost to collect debt at a detailed level for all customer types and introduce agility into the process to manage the costs down and encourage quicker payment.

Relevant parties should aim to understand (and minimise) the cost of all the processes that contribute to collecting revenue at each stage of the debt collection process from bill to cash. The customer base should be segmented and the profitability of each segment understood so that less profitable customers can be identified and the debt collection process changed accordingly for that segment.

Minimising customer debt while strengthening customer ties present several challenges to any utility. Many utilities (this is certainly the case with South African Municipalities) have a debt collection process that does not distinguish among different customer types and is limited to customer contact through traditional means, such as written correspondence and call center interactions. Debt collection is sometimes split across disparate IT systems and includes costly manual process steps. Changing any part of the process can require lengthy and potentially risky system development, with the eventual outcome uncertain.

The benefits that can be realized through debt management process improvement do however make the undertaking worthwhile. Typical benefits include:

- Cutting the cost of debt significantly;
- Reducing payment cycle times;
- Reducing the amount of non-value added work in billing and collection processes, thereby increasing efficiency and further reducing costs;
- Increasing the performance of the debt collection function, by more efficient use of outbound dialing facilities, or text messaging, for example;
- Doubling the billing and collection enquiries resolved during the first phone call.

Debt management process improvement is based upon an understanding of the cost to collect at a detailed level for all customer types and an agile debt collection process that manages the costs down and encourages quicker payment. The following 5-step approach to cost reduction has been implemented by Thames Water.

By treating customers differently according to segment and past payment behavior, Thames Water are not only able to be more efficient at the collection process, they are also providing a better service to their customers.

Step 1: Understand the cost to collect

Utilities need to identify the processes that contribute to collecting revenue and evaluate the cost of each process. A simplified debt collection process can be broken down into the following sub-processes as reflected in Figure 3.2 below:

Figure 3.2: Simplified Debt Collection Process

Each of these sub-processes will have an associated cost that must be understood. Cost reductions may be possible for each sub-process but those that can be realized with the least effort in the shortest timeframe should be tackled first.

Activity Based Costing (ABC) can be used to allocate all costs (direct and indirect) in the debt collection process and calculate a total cost of collection. The first stage maps out the high-level processes and begins to identify the real cost drivers of the business. The second stage gathers information concerning actual activities and the time spent on each activity, as well as the interactions between different departments. These activities can be joined together to form a full process map with the appropriate cost allocations.

Step 2: Segment the customer base

Segmentation helps to differentiate between customers who can't pay, who can be handled more sensitively, and customers who won't pay, who can be fast-tracked to the appropriate debt recovery process. Also, in this way, costly debt collection steps can be avoided for small debt amounts.

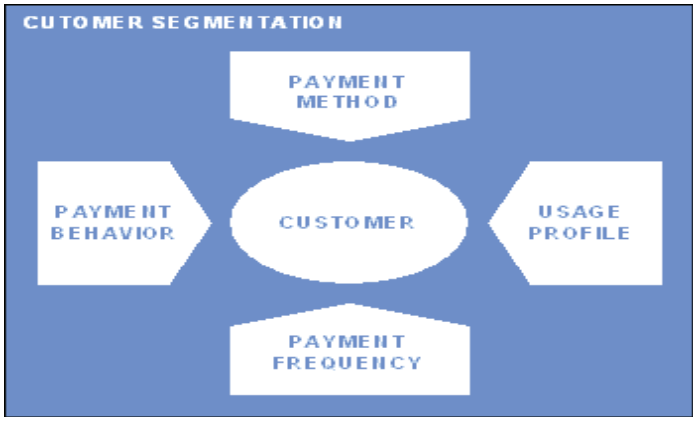
The cost to collect and thus profitability of each customer type can be used to drive segmentation and the debt collection process can be changed to fit each segment. Debt collection tactics can vary depending on a range of criteria such as payment behavior, payment method, payment frequency and usage profile, etc.

The risk profile of each customer can be understood by mapping the customer segment by its propensity to default. (See Figure 3.3) Specific initiatives, within regulatory constraints, can be applied that maximize collections in each customer segment, e.g.:

- High risk (can't pay) – prepaid meters (seemingly not allowed in South Africa)
- High risk (won't pay) – fast track to disconnection (the South African equivalent would be flow restriction measures)
- Medium risk – encourage direct debit uptake

- Low risk – payment channel cost reduction with appropriate incentive.

Figure 3.3: Customer Segmentation



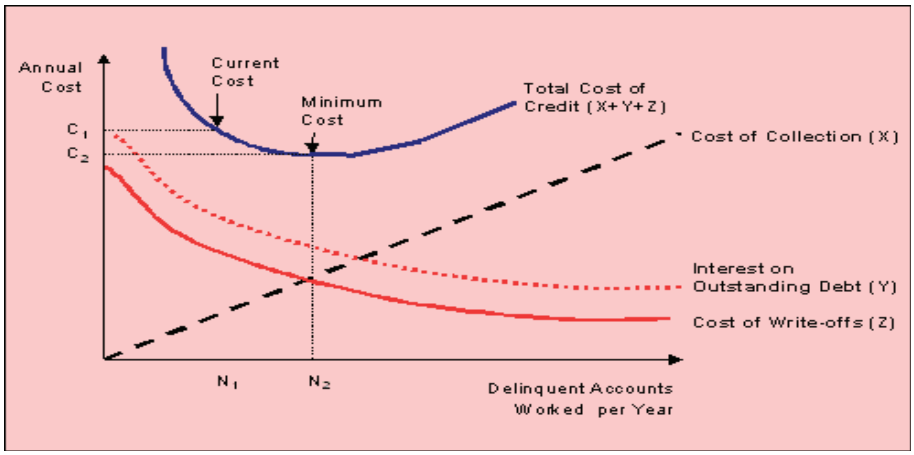
Risk assessments need to be re-applied to customers on a regular basis to ensure that changes in customer payment performance are recognized within the system and that customer risk data is up to date. Changing the process for those customers who migrate to lower risk categories through proactive segmentation can further reduce costs.

Step 3: Manage the cost to collect

Having segmented the customer base, customers who are not profitable can be identified and the cost to collect for those customer types can be managed down to a minimum. To do this, the process costs must be mapped against each segment to provide the overall cost to collect. This identifies the breakeven point for a particular customer type and, by minimizing or removing costs in the process the overall cost to collect can be reduced.

The following figure (Figure 3.4) depicts the tradeoff between the cost of collection and the savings from reduced debt. Increased debt collection that reduces the cost of write-offs and the interest on outstanding debt will usually increase the total cost of credit.

Figure 3.4: Tradeoff between Collection Costs and Savings



The total cost of credit equals the cost of collection plus the cost of write-offs plus the interest on outstanding debt. The total cost of credit has a minimum cost point and an optimal number of delinquent accounts to be worked. An efficient debt collection process will deliver the minimum cost point for an increased number of target accounts. If an organization is currently working N1 delinquent accounts per year its total cost of credit is C1. By increasing debt collection activity and working more delinquent accounts, the cost of write-offs and interest on outstanding debt will be reduced but the cost of collection will be increased. N2 is the number of delinquent accounts that provides the minimum cost point C2.

Step 4: Develop Innovative Processes

There are a number of tactics that can be adopted to introduce agility in the debt collection process. The goal is to optimise the process based on customer type or past behavior by:

- Introducing new techniques such as outbound dialing or text messaging
- Using predictive modeling to preempt behavior and maximize call center effectiveness
- Progressing through steps more rapidly for some customers
- Using collection agencies at the breakeven point
- Improving reporting across the process.

These tactics can enable management to target potential defaulters and initiate proactive contact to discuss issues with customers before problems occur.

Step 5: Review and refine the process

Debt collection process improvement is a continuous activity that must be regularly reviewed and refined. The lifetime evolution and costs of customers must be monitored on an ongoing basis to ensure that the initial benefits continue to be delivered. The actions that influence customers to pay quickly must be identified and where possible they must be moved earlier in the process for certain customer types.

Comprehensive reporting across the whole process is an important part of the end-to-end solution. Earlier write-off for non-profitable customers can also be considered by reviewing debtors on a regular basis.

3.4 Western Australian Water Utility Service Standards

3.4.1 Issues with Regard to Debt Management Practices

Hundreds of community organisations provide services to thousands of clients every year who are experiencing financial hardship and facing the prospect of water restrictions or further financial difficulties due to the unfair and insensitive debt management and customer service practices of their Water Service Provider. The resultant social cost of water restrictions and unreasonable payment demands is immense and should be of great concern to all Western Australians. The current service standards do not include any framework for Water Service Providers in relation to debt management practices. In particular, the standards in relation to Customer Service are insufficient and superficial in their current form.

A summary of issues regarding Water identified by Emergency Relief Agencies and Financial Counselors is outlined below:

- Debts in relation to water are attached to the land and current landowner rather than to the person / people who accrued the debt.
- The lack of existence or availability to the public of clear policies, procedures and guidelines in relation to the Water Corporation practices, particularly in the area of debt management, results in the removal of the right to natural justice and procedural fairness for customers who have had adverse decisions made against them.
- Lack of availability or provision by the Water Corporation of information in relation to current complaints processes either internal to the Water Corporation or via the Office of Water Regulation.
- Inconsistency between different Water Corporation Officers responses in relation to the management of outstanding debts.
- The use of water restrictions as a debt management practice is unacceptable in terms of its impact on low income families and individuals. There are often reports of families who are unable to send their children to school due to the fact that water restriction has left them without water to maintain their children's personal hygiene, washing or feeding.
- Unrealistic expectations of the Water Corporation in relation to the repayment schedule that can be maintained by those with outstanding debts. There are continual reports of the Water Corporation demanding large payment amounts that would constitute a large percentage of a person's income.
- The Water Corporation has not yet implemented participation in the Centre pay scheme, which provides a convenient, voluntary direct debit payment arrangement assisting those in receipt of Centre link benefits to maintain their payment schedule.
- Increasing referrals to Emergency Relief agencies by the Water Corporation as a debt recovery method. Water Corporation Officers are aware that Emergency Relief Agencies have, in certain circumstances, paid clients outstanding Utility bill to prevent disconnection and have informed customers with outstanding accounts of this fact. This creates an expectation by clients that Emergency Relief agencies are, in fact, able to assist in all cases, which is beyond the capacity of Emergency Relief agencies.
- In 1999/2000 Emergency Relief Agencies reported that approximately $830 000 per year was being paid by welfare agencies to Utilities to cover clients' outstanding accounts. Whilst the Utility may not see an issue in the welfare agency providing payment for the client's bill, there is significant opportunity cost to those in poverty.

In other words, the money paid to Utilities to prevent restriction or disconnection is desperately needed to feed hungry children of families living in poverty.

- Lack of information and education provided to the public regarding concession eligibility.
- Unreasonably high interest rates are applied by the Water Corporation on outstanding debts. Whilst we now understand that the Water Corporation has the power to vary or remove the interest rate, this information is not widely available and Emergency Relief agencies report that they have never seen this occur. We understand that the reduction of interest is applicable in cases of extreme financial hardship; however the power to make this decision is completely discretionary at this stage. The practice of applying unreasonably high interest and the Water Corporations failure to waive the interest in relation to debts accrued by poor families and individuals is unconscionable. This practice represents a punitive attitude towards those least able to pay and most likely to suffer as a result.
- The format and layout of bills provided by the Water Corporation is confusing for many people.
- The absence of independent meter testing impacts on the consumer's ability to be able to challenge the Water Corporation in relation to the account even where they suspect it is not accurate.
- Lack of provision of consumption bill directly to the tenant who accrued the bill where the property is a rental premises.
- Outstanding sewerage and drainage rates incurred by the owner of rental premises resulting in tenants suffering water restrictions.

Suggestions for improvement which are relevant to the development of further Service Standards include:

- The provision of easier to read billing information, including the provision of bi-monthly account statements for rates and charges other than consumption.
- Separation of sewerage / drainage account from consumption account.
- Allowance for tenants to register with the Water Corporation as the tenant of the premises and receive consumption bill directly at the property.
- Removal or reduction of interest rate on outstanding debts to the Water Corporation with the encouragement to waive interest in circumstances of hardship.
- Introduction of automatic waive or reduction of interest where debtor is a Health Care Card holder.
- Abolition of the use water restrictions as a debt management tool.
- Increased awareness of social impact of debt management practices in particular water restrictions.
- Participation in the Centre pays Scheme and any other program that enhances the ability of customers to repay their debt.
- Provision of Water Corporation policies, procedures and guidelines, free of charge, and available.
- Provision of information and education to customers regarding concession eligibility.
- Abolition of policy, which removes concession eligibility if current account not paid within the year and the outstanding debt is reconverted to the full nonrebated amount.
- Immediate cessation of practice whereby concession eligibility is cancelled for the year where the customer has been unable to pay the rebated amount in full within that year.
- Removal of the compulsion on the tenant to enter into a debt repayment schedule on deferred amounts before being eligible for rebate on the current account.

4 LOCAL CASES OF COST RECOVERY

4.1 Credit control strategies in the water industry

Daly (2007:26) writes that English water companies, after privatization of water services, abandoned the sanction of disconnection for domestic customers. Removing this most potent tool from credit control coincided almost exactly as utilities decided that doorstop calling was too labour-intensive and increases overheads. This then implied that many companies knowingly or not, defaulted their debt collection to the post office. This was seen as a quick win on head count and on credit control activity.

With customers ignoring their mails, the recovery cycle was allowed to grind on in relentless, and largely pointless, paper chase. Worse still, the number of summons increased by as much as tenfold along with the attendant associated costs. Because the machinery of County Court activity is time consuming, the debts were left in a state of suspense for periods of up to two years. It would not be far off the mark to say that 50% of summonses issued were found to be so inappropriate that they were subsequently cancelled. Debts that were previously identified within four months were now so old that they were more likely to be bad debts. This was therefore not so much 'Quick Win' as a 'Slow Loss'.

An additional burden for the industry was the move towards 'User Pays'. Many companies faced having to bill local authority tenants direct instead of the very comfortable arrangement of letting the councils collect on their behalf. Where a deal could not be struck between the utility and the council, it was not uncommon to see rises of 40% in late and non-payment for this type of customer. Daly (2007:26) says he could not believe the number of industry managers who did not spot this debt iceberg. As debts steadily rose, water companies seemed to consider the problem to be a mix of poor quality billing software, poor quality staff and declining social standards. It couldn't possibly have arisen from ignoring basic principles in managing customers and debts.

The old standby is to run off a list of debtors shortly before year-end, and chase the largest amounts. This is often a spectacular 'Quick Win' because it makes a difference at a critical time. The results are often so positive that Billing Managers adopt this as a strategy. The problem with this 'one off blitz' approach is that it does not fit a business that has thousands of seemingly small debts – they fall through the net only to resurface in the future as larger, uncollectible debts.

4.2 eThekwini Municipality

In a study conducted by Community Agency for Social Equity (CASE), on cost recovery in four South African municipalities, the following findings were documented:

4.2.1 Background

The eThekwini Municipal Area (EMA) comprises just over 3 million people. The largest share of the population is made up of Africans (65% of the population) and the second largest population group is Asians (21%) (Richards, 2003:11)

40% of the households can be classified as being poor and ultra-poor (Casale and Thurlow, 1999). Approximately 20% of households have incomes of less than R1 156pm (classified

as ultra poor) and a further 20% of households have incomes between R1 157 and R1 834. (Classified as being poor) (Richards, 2003:11).

The residents in Durban's annual Quality of Life Survey have reported unemployment and crime as priority areas of concern. Residents living in low-service areas however in all regions of eThekwini, prioritized sanitation and water provision as their most important basic household services they would like to have (Richards, 2003:11).

4.2.2 Indigent policy

At the time of CASE research, no formal indigent policy existed in the eThekwini municipality. The officials however reported that the draft indigent policy was under discussion at the time. There was however no precise date or time frames for the adoption of such a policy (Richards, 2003:11).

4.2.3 Free Basic Water

Richards, (2003:15) reported that the August 2002 Water Tariffs show that eThekwini applies a stepped tariff policy with the first 6 kl water being free to serve as a lifeline to the poor. For consumers using less than 6 kl, water is free. Thereafter a stepped tariff applies in the following way:

- Consumption > 200 l per day is charged at R5.02 per Kl (excl Vat),
- Consumption > 1 Kl per day is charged at R10.04 per Kl,

With respect to the fixed charge:

- Consumption between 200 l and 400 l per day is R27.41 per 30 days.
- Consumption > 400 l per day is R39.22 per 30 days.

Indigent households using more than 6 kl per day and who use a semi-pressure system (for example a roof tank), pay a reduced rate of R3.34 per kl up to 30 kl. Indigent households with a full pressure system do not qualify for this benefit if they use more than 6 kl per day (Richards, 2003:15).

4.2.4 Debt collection and incentive for payment

eThekwini municipality service operations as part of its revenue management, encourages payments for rates through education campaigns focusing on the importance of paying rates. These education campaigns are carried by the Community Development Workers (CDWs) who are employed on contract basis to service the council's township education campaign (Richards, 2003:17).

Punitive penalties for municipal service arrears are in accordance with the Local Authorities Ordinance. These penalties include:

- 1.5% per month penalty interest on any outstanding amount, for the first two months. Thereafter, this becomes 2% per month.
- A further 15% collection charge is payable if debt is not paid on the due date.
- A further 15% is levied when judgment is obtained against the owner and the Council embarks on the sale-in execution process.

- No action is taken however if the debt is less than R2500 and less than three years old.
- Blacklisting residents with credit bureaus and the sale of properties are other more drastic strategies employed by the Council to encourage payment for services. These have proved to be an effective measure and it is estimated that collection rates for payments are as high as 80-90% (Richards, 2003:15).

Lewis Kruger, Director of Rates, claims that although details on arrears payments are not available for the Council as a whole, payment levels in certain newly incorporated areas was recently measured, and currently stands at approximately 35% for these areas.

With respect to the poor, service charges are so minimal, that they should be able to afford them and the fear factor of being black-listed or having their homes sold provide the incentives for payment, although negative ones (Richards, 2003:15).

The municipality has implemented no specific positive incentive for payment of rates. Accounts are posted since there are too many to be hand delivered (approximately 450,000). Lewis Kruger (Richards, 2003:15).

4.3 Johannesburg Water's prepayment water system

Operation Gcin'amanzi (OGA), which means 'conserve water', is Johannesburg Water's (JW) large-scale intervention programme to address severe water problems in Soweto. The programme was initiated in July 2003 and expected to be completed by June 2008.

OGA includes a range of technical and social intervention measures aimed at reducing amongst other things, high levels of unaccounted for water (UFW), metering and billing of customers, network rehabilitation, private property leaks, and water usage habits.

Water pumped to Soweto constitutes one third of JW's purchases from Rand Water and of which 70% remains unbilled (Singh, 2003:1). Installation of prepayment water meters in OGA was a direct intervention strategy towards elimination of billing and collection barriers. Technical interventions

According to Singh (2003:2), capital works undertaken under this programme included the following:

- Ring fencing approximately 170 000 erven and creating water loss control zones for every 3 000 erven.
- Secondary reticulation upgrading: Decommissioning of badly corroded and leaking mid-block mains and laying of 208 Km of secondary water mains in road reserves.
- Leakage detection and repairs
- New house connections
- On-property plumbing repairs including fixing and replacing of leaking taps, and toilette cisterns, etc. to 170 000 erven

4.3.1 Communication and public participation

Community facilitators as well as community liaison officers conducted door-to-door campaigns and also used this opportunity to sign serve agreements with households. The labour-intensive nature of project was a major drive behind community acceptance of the project since it promised provision of job opportunities to the unemployed majority.

Local economic development interventions included spending as much as 25% of the total project cost towards local SMME's through procurement of materials and undertaking some sections of the construction work.

Community facilitators also undertook training of households in correct use of pre-paid water meters. A refresher training, one week after the installation of prepayment water meters was also undertaken as an after care exercise.

4.3.2 Results and achievements

- By June 2007, the project was 58% complete and 98 775 pre-paid meters out of a possible 170 000 were already installed.
- 116 Km of possible 208 km water mains upgrading were laid.
- R 674m out of a total budget of R1200 m was spent
- Water savings registered 80 789 Ml which in monetary value amounted to R238 m
- Water sales amounted to R 32m
- Singed service agreement with communities stands at 86%, which indicates that there is buy-in from the community

According to Singh (2003: 7), through the successful implementation of OGA, Soweto residents can look forward to lower water tariffs, once-off free repair of private property plumbing fixtures, better and more consistent delivery of water services.

4.4 Orange farm Extension 4 – Pre-paid water meters

4.4.1 Background

Orange farm is a sprawling township approximately 45 Km south of Johannesburg. According to the Coalition Against Water Privatisation (CAWP) (South Africa), (2004:13), This township was established after illegal settlement on a vacant farm by people from Soweto due to the growing housing crisis as well as people from KwaZulu-Natal who fled their province due to political violence in the 1980's.

The township is characterized by:

- Extreme levels of poverty and unemployment
- Isolation and marginalization from economic and social opportunities in Greater Johannesburg
- Low level of basic service provision and
- Civil disobedience

Installation of pre-paid water meters in extension 4 was a pilot project by the City of Johannesburg and JW and its success would see the roll out of the project to include the entire Stretford (Orange Farm Township).

The CAWP (2004:14), in a two-day workshop attended by community representatives and Anti-Privatisation Forum (APF), developed a questionnaire aimed at measuring the effects and attitudes of residents towards pre-paid water meters. Only extension 4 holds were targeted since this was the piloted area.

4.4.2 Findings

(a) Communication and community participation

Community members claim deception in the so-called consultations and public participation in the decision to install pre-paid water meters. In their own words, residents claim “Yes we were consulted – but they did not listen to us” (CAWP, 2004:14).

Community leaders in street committees, told residents that this project was a normal development and residents have nothing to worry about. The decision to install was therefore a top-down approach.

Residents further claim to have accepted the project due to desperation of need for water-borne sanitation.

According to the residents, toilette installation fee of R100 was required and those who failed to pay did not receive free toilette installations. Pre-paid water meters were however installed free of charge and this angered the community.

(b) Free Basic Water

According the CAWP (2004:20), 46% of residents interviewed confirmed that they indeed receive 6 Kl of free basic water monthly, 24% claims that they do not receive free basic water whilst 29% are unaware whether they receive free basic water or not.

20% reported that their pre-paid water meters have been broken at one point or another and as a result could not receive free basic water as promised.

(c) Water service delivery problems

Other problems reported includes vending machines that break from time to time and as a result could not buy water.

Contractors refused to repair broken water meters and claim it is solely the households’ responsibility to fix their own meters.

(d) Social impact

- Residents no longer watering their gardens
- During funerals, more water is used for cooking, washing, etc. and many friends and relatives usually come over to assist the bereaved family and water demand and use as a result is greater.
- Pre-paid water meters make feasts and other celebrations in the township difficult due to limited amount of water.
- Residents are now urging one another to destroy pre-paid water meters so that they can have free water, which according to them are life and a human right.

4.5 Cape Town

4.5.1 Background

According to the 2001 census, Cape Town have a total population size of about 2 893 246. 32% Africans, 48% Colored, 19% Whites and 1% Asians. Of the total labour force, 53% were unemployed with 47% employed (Richards, 2003:15).

Roughly 24% of households have monthly incomes of less than R800. This is well below the Household Subsistence Level (HSL) for low-income households, which is R1583-R1391 in Cape Town. Van Ryneveld, Muller and Parnell (2003) report that almost 30% of households in the city experience problems feeding their families and in informal settlements, this rises to about 71%.

4.5.2 Indigent policy

Draft indent policy submitted to council in May 2003, is based on four key components, which Van Ryneveld, Parnell and Muller (2003) outline as follows:

- *A package of services which addresses the needs of indigent people and which is affordable to the municipality as a whole. This package of services should be appropriate to those residents living in the informal settlements as well as residents in poor formal areas where the greatest impact on indigence will be made*
- *The tax, tariff and grant structure must be affordable to indigent residents and sustainable in respect of municipal revenue management. It should be financed either through the national fiscus or through cross-subsidy with other consumers in the city. Subsidization can either be built into the tax or tariff or be given in the form of a grant to poor households*
- *Administration and Enforcement is seen to be a crucial aspect of Cape Town's Draft Indigent policy. Implementing an efficient billing system is a logistical exercise, which has to be carried out efficiently and in a way acceptable and understandable to the consumer.*
- *Legitimacy: it is crucial for the policies and procedures described above to be accepted by the majority of citizens. This is especially so in the context of endemic non-payment*.

Cape Town has also developed a new indigent targeted grant, which has not been approved yet. The new scheme involves a monthly arrears reduction grant for households where water restrictors have been implemented.

The council however puts the onus on households to prove their indigence and the approval of this grant to poor households will be limited and based on the assumption that once the full package of indigent policies have been approved by Council, poor households should not fall into arrears because municipal service charges to these households will be very low (Richards, 2003:15).

As an interim measure however if households are able to come to an arrangement with the Council for the payment of their arrears, a water restrictor will be installed in their system, limiting water supply to 6000 l per month (Richards, 2003:15).

4.5.3 Free Basic Water

Cape Town has a water tariff structure, which is cost reflective. Cross subsidies are billed into household accounts and an intra-sector cross subsidy applies based on consumption levels.

All households receive a free basic allocation of 6000 litres per household per month. The tariff policy for water has been restructured into 6 steps to favour low users and discourage high users. An affordable 2nd step of R2.00 per 1000 l per household per month has been introduced. An informant noted that the cross-subsidy takes effect on households using more than 16 Kl of water per month (Richards, 2003:15). Table 3.1 illustrates the step-tariffs for water consumption:

Table 3.1: Step-tariffs for water consumption

Steps (Kl)	Tariff per Kl
0- 6	R 0
6-12	R2
12-20	R4
20-40	R5.10
40-60	R6.20
> 60	R8.00

Source: Cape Town Water Tariff (Richards, 2003:21)

4.5.4 Electronic Bailiff System

Cape Town Metropolitan Council as well as the eThekwini Metro has commenced with the installing of Electronic Bailiff Units (EBU), which consist of an irrigation timer and control valve. EBUs can be set to stagger delivery to consumers throughout a scheme automatically and are metered to facilitate leak detection. Two approaches for supply have been adopted.

- One consists of system where each household is connected directly to the EBU using a dedicated pipeline and
- The other approach has a mainline that connects a number of households to each EBU.

The testing of the EBU has predominantly been implemented in peri-urban communities where the water supply system relied on a communal tap system or a central water delivery system (water cart). A bailiff is responsible for operation of approximately 10 sets of manifolds, which are opened once a day at a set time to fill the household yard tanks.

Although this system is effective from a water usage and management perspective it can be seen by users of the system as going backward in terms of water provision. It however remains as a viable alternative to less popular systems such as the pre-paid system. From a water management point of view, the Electronic Bailiff System is effective and requires

less administrative management as the pre-paid system, which could render it more cost effective, if applied at a large scale.

It should however be noted that any system, other what the broader spectrum of South Africans are used to (credit system), will be met with a certain level of rejection. The rejective nature towards any system changes should be managed in order to see the bigger benefits that these systems could provide. This is only possible by encouraging households to pay for their services and to conduct awareness and education campaigns in a bid to simplify the provision of water services to the people.

4.6 Mangaung Local Municipality

4.6.1 Background

Manguang had 645 441 residents, 83% of whom are African, 12% White and 5% Coloured residents, according to the 2001 census. 40% of the total labour force is unemployed. 50% of households in Manguang have incomes of less than R800, which is well below the Household Subsistence Level (HSL) of low-income households (R1373-R1592) (Richards, 2003:15).

4.6.2 Indigent policy

Manguang has reportedly shifted from having a targeted 'indigent policy' to a 'pro-poor policy'. The new pro-poor subsidy policy of Manguang is to be financed partly by the Equitable Share allocation. The Equitable Share amount for the financial period 2003/4-2005/6 amounted to R188 million. (Richards, 2003:15).

4.6.3 Free Basic Water

Under the new approach, only the 'poorest of the poor' automatically qualify for pro-poor benefits. All households in Manguang, irrespective of their socio-economic status, receive 6 kl of water free (introduced in 2001).

However, households that live on properties with a value of less than R42 000 receive their sanitation and rates back as a social rebate. This will reportedly cost the municipality in the region of R40 million which is to be paid for through the Equitable Share income. Poor households are therefore exempt from municipal rates and sanitation fees. There are currently 73 650 out of 120 000 households that have a property value of R42 000 or lower. (Richards, 2003:15).

The new free basic services policy is reportedly easier to administer and involves a process of 'self-selection' for benefit qualification. No means test is necessary to qualify under this new scheme.

4.6.4 Debt collection

According to Botes, Manguang's municipal budget is very conservatively managed and debt collection policies and procedures have been streamlined. The municipality's debt has been stabilized around R500 million per year over the last few years (Richards, 2003:15).

The municipality targets the easy debtors first, including:

- Commercial clients
- Government departments and
- Affluent neighborhoods.

Richards, 2003 reports that a special debt collection unit, established specifically to deal with cost recovery in a systematic and professional way, employs a number of debt collection strategies, which include amongst others the following:

- Zero tolerance towards high-income communities and commercial and government clients.
- Repayments of service arrears structured over three months for the 'relatively poor' households and
- Repayments over 36 months for 'very poor', residents

According Richards, 2003, 80% of Mangaung revenue is generated from non-residential clients whereas household constitutes 80% of Municipality's clientele. 50% of Mangaung's 120 000 households are in arrears and only 25% of these have made arrangements to pay or are paying their arrears over 36 months. R161 million in bad debt was reported to have been written off in June 2002.

Under the previous policy (Indigent policy), which was launched in 2000, only 4000 households were registered/listed. Under the new 'pro-poor' policy, it is estimated, according to Census 2001 data, 73 650 households will qualify as poor households (i.e. those households who property value is R42 500 or less and who consume less 6 kl water per month)) and therefore benefit from the new subsidy structure (Richards, 2003:26).

Another business unit for client services has been formed to deal specifically with households who are unable to pay for the services. This business unit also encourages households to pay for their services and conducts awareness and education campaigns in a bid to take the services to the people.

4.7 Buffalo City

4.7.1 Background

The Buffalo City Municipality (BCM), according to the 2001 census, is estimated to have a population size of 701 890 and constituted as follows:

- 85% Africans
- 8% Whites
- 6% Coloureds and
- 1% Asians (Census

Of all the Africans living in Buffalo City, over 45.5% are classified as 'poor' and approximately 21% of African residents were classified as 'ultra-poor, whilst 0.2% and 0.1% of Whites respectively fall into the 'poor' and 'ultra poor' categories (Richards, 2003:26).

The HSL for the low-income group in East London is estimated at R1 244 per month and for the low to middle-income group it is estimated at R1 567.40.

More than half of Buffalo City residents have monthly household incomes slightly above or below these two HSL income lines and could therefore be classified as indigent in terms of the HSL (Richards, 2003:26).

4.7.2 Indigent policy

According to Richards, 2003, Buffalo City did not have a formal indigent policy at the time of the research, but initiative intended to assist the poor in terms of municipal services were undertaken. These initiatives included access to free basic services to the poor and a 'poor relief' policy.

Through the 'poor relief' scheme, registered households get R6 048 per month credit to their house bills. The household income of R1 500 per month would qualify a household to access the 'poor relief' scheme during 2002/03 financial year.

The 'indigent auditors' are sent to verify the extent of indigence and whether households are still entitled to receive the 'poor relief' policy benefits. Verification measures include proof of income and in case of unemployed households; an affidavit stating employment status must be supplied (Richards, 2003:28).

4.7.3 Free Basic Water

Stepped tariff system with free first 6 kl consumption free is applicable. The lowest non-free consumption rate is R3.88 per Kl and the highest is R8.61 per Kl. Communal standpipe operates on a prepaid system with first free 6 Kl consumption and thereafter, non-rising charge of R2.21 per Kl is levied. The prepaid system uses tokens, which households buy and inserts into the standpipe to receive their portion of water (Richards, 2003:29).

According to the daily dispatch (16/05/03), (Richards, 2003:29), 45% of water is lost through leakages and unregistered connections. The deputy treasurer of BCM, Deon Odendaal is reported to have claimed that 98 437 meters were read in 2003, and 141,827 accounts were sent out (Richards, 2003:29).

4.7.4 Debt collection and incentives to pay for municipal services

Accounts are sent through the post and according to BCM, every consumer receives services accounts. This fact is however disputed by Holland (Richards, 2003: 31), given the informal nature of many settlements and the haphazard street designs, numbering and naming together with possible gaps in BCM registers including unregistered water connections.

According to Richards, 2003, the South African Cities Network Peer Review of BCM Customer Care policies (2003) highlights a number of contra-indicators, which characterize BCM's customer care, these include:

- Poor customer care
- Fragmented response to queries from the public
- Residents don't know how to contact the council or their local councilor
- Frontline staff don't speak the right languages

As part of BCM's 'indigent scheme', households had to register in November 2001, to have their municipal services arrears 'parked' and any subsequent arrears that built up after July 2001, reportedly had to be paid by end of February 2002. It is reported however that massive sign-up by residents for this indigent benefit did not induce payment of municipal services afterwards (Richards, 2003: 32).

4.8 The Nelspruit Water Concession

4.8.1 Background

The Nelspruit Water Concession, the first of its kind in South Africa, is a 30-year contract between the Nelspruit Local Authority and the British-based multinational Biwater, signed in 1999 to provide water services (Smith et al., 2003:1).

Major stakeholders included financially strong Biwater, weak local authority and the impoverished township population. A closer examination of the power dynamics between these stakeholders revealed a high level of interdependence between different actors was required to make the concession work (Smith et al., 2003:1).

Historically, the Nelspruit Local Authority only catered for white and affluent residents thus it could not offer the concessionaire insights on how to deliver services to the poor and recover its costs. The township communities, according to Smith et al. (2003:1) wielded most power through their ability to make or break the concession through the following actions:

- High non-payment levels
- Resistance to Biwater's involvement
- Vandalism to infrastructure
- Intimidation of Biwater workers
- Payment boycotts

Many local authorities in South Africa are aware of the lack of capacity to regulate and monitor private sector activities and therefore moving into PPPs they become vulnerable to meeting their constitutional obligations regarding basic service delivery (Smith et al., 2003:4).

According to Smith et al (2003:5), the goal of service delivery alternatives is to build the state's capacity to deliver services through a decentralised form. This has in South Africa meant growing division of powers between regulating and providing essential services. The role of the local authority has thus been reduced to that of a service authority with the responsibility of service provision being devolved to external entity.

4.8.2 Credit control measures

The most significant service delivery challenge faced by the concessionaire, was the non-payment of services from township areas with high levels of poverty and unemployment as well as historically poor payment levels.

Strict credit control measures put in place by the concessionaire included the following:

- Water cut-offs
- Removing meters and portions of pipes to prevent illegal reconnections
- Reducing the 24-hour water supply to intermittent hours throughout the day and night
- Installing water tricklers

Community's response to these credit control measures included amongst others the following actions:

- Increased levels of illegal reconnections
- Removal of water tricklers
- Intimidation of Biwater workers

As a direct response to the intermittent supply of water, this measure of credit control led to inefficiencies in the use of water by residents leaving taps on all day for fear that they will not be home when the taps start running again. More water was therefore wasted in cases where water started running without anyone at home to turn the taps off (Smith et al., 2003:24).

Communities often complained about:

- High water bills
- Non-reflective of what households felt they consumed
- Consumption over and above the 6 Kl was also not shown on their water bills
- Failure to inform communities when installing water metres
- Harsh treatment of residents by Biwater personnel

Biwater realised the need to adopt softer approach towards non-payment, which included a combination of innovative debt management schemes, and customer care polices. The customer care policies included:

- Talk show presentations
- Radio announcements
- Flyers
- Kombis driving through the townships with loud speakers
- Community consultations

Although this helped to improve payment levels, this progress was however short-lived due to announcement of free basic water policy by the President Thabo Mbeki in 2000. The free basic water was not part of the concession agreement and nearly brought the concession to a premature closure.

Distinguishing between those who can afford to pay for services and indigent households was one critical issue affecting the concession. Approximately R1.3 million was owed to the water company by civil servants who obviously could afford to pay for water services. In an attempt to force civil servants to pay their utility accounts, the water company made arrangements with the Municipality to debit the accounts of municipal workers. This initiative is currently under discussion with the DPLG and Treasury to do the same for civil servants working at provincial and national levels of government.

The success of the Nelspruit Water Concession is based on two criteria. First, acceptance of the project by people it would serve and secondly reasonable levels of payment (cost recovery). The local politicians have an active role to play in achieving these criteria, particularly in areas that were previously disadvantaged (Smith et al., 2003:14).

Suggestions by Smith et al (2003: 25) for overcoming some of the stumbling blocks in the Nelspruit water concession included the following:

4.8.3 Communication

Focus on increasing communication among the local authority, the concessionaire and the township residents by involving service users in the process of service delivery. This will

help to promote procedural equity with distributive equity. The Nelspruit water company's approach to the service delivery problems was focused on distributive equity i.e. raising standards of service delivery in areas that were previously marginalised. This was therefore done at the expense of procedural equity i.e. not democratising decision-making process regarding water delivery (Smith et al., 2003:25).

4.8.4 Cultural issues

According to Smith et al (2003:25), the cultural realms of the service provider (i.e. the Nelspruit Water Company) and the township communities are worlds apart. Effective way of dealing of sharing information with communities must first be found. One way Smith et al (2003:25) suggests is to begin working with existing community structures as they are the vital conduits for information sharing along many other realms. Making water bills clearer so that they meet the information needs of low service users could further improve communication between the water company and the communities they serve.

The local authority must address the issue of poverty by differentiating between those who have the ability to pay and those who do not. A more micro-level research to better understand household's expenditure patterns of poor households in order to determine their required level of subsidies to ensure indigent families can maintain their access to water and sanitation must be conducted.

Lastly, the key lesson learned from the Nelspruit Concession is how to structure partnerships between the state as a service authority and Biwater as the service provider. Understanding the context and dynamics surrounding service delivery model will enable the local authority as a service authority to monitor and regulate service providers. Decentralising service delivery to an external provider must be perceived as a state-building process rather than as an opportunity for the state to rid itself of the responsibility of difficult service delivery (Smith et al., 2003:26).

5 SUMMARY OF FINDINGS

- The problem faced by the water sector in general is that prices and tariffs are almost universally below the full cost of supply. This therefore implies that there are inefficiencies in the water sector and that prices need to be raised (Rodger et al., 1998: 3).

- Recovering reasonable water supply costs in accordance with the SFWS, DWA, (2003:28) from consumers to ensure sustainability of water provision, requires a combination of strategies carefully crafted to take into account amongst other things the following:

    - Investment choices in terms of ownership of assets, planning, asset management, maintenance and rehabilitation, financing and use of grants, etc.
    - Choices related to the use of the local government equitable share
    - Tariff policy and the setting of tariffs
    - Credit control policies and revenue management and
    - The contract (service delivery agreement) between the water services authority and an external water services provider, specifically the service obligations and the financial conditions of the agreement

- For water tariffs to be socially acceptable other essential service's tariffs should be taken into account to ensure that the WHO's recommended affordability threshold of 7% of total household income is not exceeded.

- Many South African municipalities either do not have clear indigent policies as some claimed to be in the process of drafting them hence FBW is provided to all, indigent or not. Those with indigent policies in place, have no clear implementation and targeting strategies for the poor.

- An extensive review of more than 60 studies of water demand price elasticity published; show that the water demand is inelastic, (Tsagarakis, 2005:6). Beecher et al (1994) however reviewed over 100 studies for the price elasticity of demand and concluded that the most likely range for elasticity of residential water demand ranges from 0.2% to 0.4% fall in consumption while for industrial demand ranges from 0.5% to 0.8 % fall in consumption (Tsagarakis, 2005:6)

- Community participation and involvement in real decision making in matters that involve them is one major determinant for cost recovery in municipal services (social capital)

- 25 litres per person per day as stipulated in the FBW policy, puts South African FBW provision in terms of water service levels to promote health, somewhat between High and Low level of health concern. 50 litres per person per day as shown in figure 2 above constitutes an intermediate access and hence registers a low level of health concern

- Challenges for effective implementation of the FBW policy in South Africa according to Sussens and Vermeulen (2001:130) include amongst other things:

    - Local government capacity
    - Financial issues such as revenue sources available, cross-subsidisation levels, what broader economic effects could results from these cross-subsidisation, identification of the poor, at what level should the subsidisation

be applied? These and other factors including the cost of infrastructure for new and existing schemes must still be addressed.

- Technical: Means of controlling and measuring the amount of water supplied is required. This will have implications in terms of the type of infrastructure provided and dispensing technology. Implementing appropriate technology on new water schemes is one thing, but existing schemes could require retrofitting. Water loss through vandalism, unauthorised connections, leakages, could have radical effect of provision of FBW whilst those without infrastructure to receive FBW could further be disadvantaged.
- Communication of policy and process: Unless communication is handled properly there is a risk that FBW might be construed as a 'free for all'. Local politicians, officials and community members need to be clear as to their rights and obligations. FBW cannot be implemented overnight as shown by all these challenges and as a result communication need not create unnecessary expectations.

- Eliminating doorstep calling to customers implied that many companies or WSA's knowingly or not, defaulted their debt collection to the post office. Although this is seen as a quick win on head count and on credit control activity but with customers ignoring their mails, the recovery cycle is allowed to grind on in relentless, and largely becomes a pointless paper chase.

- Pre-paid water, though successfully implemented in other parts of South Africa, they have attracted more negative publicity recently for an example:

  - Boycott of pre-paid water meters in Orange farm extension 4
  - Unexplained failure of pre-paid water meters in Klipheuwel, Cape Town, although research findings showed that residents had a positive attitude towards them
  - In a historic and groundbreaking judgment, the Johannesburg High Court declared that the City of Johannesburg's forcible installation of prepaid water meters in Phiri (Soweto) is both unlawful and unconstitutional. Judge Tsoka further ordered that the limitation of free basic water to the present 6 kilolitres per household per month be set aside and that the City of Johannesburg and J W must supply Phiri residents with 50 litres per person per day

- The case studies have shown that the implementation of the 'draconian' measures like cut-offs, removing water meters and water pipes, intermittent supply of water, installations of tricklers as well as pre-paid meters, only registered short-lived gains in terms of cost recovery. The longer term effect of these measures led to enormous inefficiencies in the use of water by residents for instance:

  - Leaving their taps on all day for fear that they might not be home when water start running which in turn was a source of wasted water if taps started running and nobody was home to turn the taps off.

  - Removal of tricklers and illegal reconnections are also a source of much unaccounted for water.
  - Understanding community cultural issues, engaging in meaningful communication between all relevant stakeholders as well as joint decision making is cited as a recipe to ensure much desired cooperation to ensure payment of services by service users takes place.

- Although poverty is a reality in South Africa, cynics however suggests that there are many free riders that are pleading poverty when in fact they can afford to pay. High incidence of non-payment of services encourages non-payment even by those who

can afford to pay. This emulative behaviour would occur as easily in white suburb as in a black township (Jonson, 1999:2).

- Spreadsheets of debtors, though is a tool of credit control trade, they are however not a credit control strategy. Good billing and collection strategies, which include clear life cycle of the recovery path, need to be in place as a matter of urgency. Door step calling, though labor-intensive, has produced successful results which include:

    - Timely intelligence on changes in liability and 'gone aways'
    - Certainty of continuing liability.
    - Changes in individual circumstances such as 'can't pay'.
    - Exceptional circumstances such as ill health.
    - Customer education on what to expect.
    - Difficult and doubtful debts surfaced early enough to be pursued.

- Technology in terms of meter reading and billing as well general service delivery of water must be used to compliment social and institutional aspects in a bid to recover costs for water services as well as influencing demand through water demand and conservation measures.

6 BIBLIOGRAPHY

Alance, R. 2002. Services of successful cost recovery for water: evidence from a national survey of South African Municipalities. Development Southern Africa vd. 19, vol. 5, December 2002.

Barry, J.A, 2007. Watergy: Energy & Water Efficiency in Municipal Water Supply & Wastewater Treatment – Cost effective Savings of Water & Energy. Alliance to save Energy.

Bailey, S.J. Public Sector Economics – Theory, Policy and Practice. Macmillan.

Boone, K and Roberts, I. 2005. *A Formula for Success*, article compiled by the Profitera Group.

CAWP (SA) 2004. 'Nothing for Mahala' The forced installation of pre-paid water meters in Stretford, Extension 4, Orange Farm, JHB. Centre for Civil Society Research Report No. 16

Daly, A. 2007. Don't Just run off a list! Credit control Strategy in the Water Industry. Institute of Credit Control Management. November 2007.

DWA 2002. Free Basic Water Implementation Strategy.

DWA 2004. Water Conservation & Water Demand Management Strategy for the Water Services.

DWA 2005. Model by-laws Pack; Model Credit Collection by-laws, Model Water Services by-laws.

Earle, A. Goldin, J & Kgomotso, P. 2005. Domestic Water Provision in Democratic South Africa – changes challenges**.** Nordic Africa Institute's Conflicting Ferms of Citizenship Programme.

Eberhard, R 1999. Supply Pricing of Urban Water in South Africa. WRC

Ezingoleni Municipality. Community Participation Strategy http://devplan.kzntl.gov.za (accessed September 2002)

Field, C,F. 1997. Environmental Economics – An Introduction. McGraw-Hill International Editions.

Glahe, F & Dwight, R.L. 1981. Microeconomics – Theory and Applications. Second edition. Harcourt Brace Jovanovich Publishers.

Henson, D. 2004. Beating the Public backlog: Meeting targets & providing free basic Services. HRSC

Howard, G. & Bartream, J. 2003. Domestic Water Quality, Service Level and Health. World Health Organization

Kumwenda, M. K. 2006. Pre-paid Water Metering: Social experience & Lessons learned from Klipheuwel Pilot Project, South Africa. Department of Integrated Water Resource Management, University of Western Cape.

MacDonald, D, A. 2002. Cost recovery & the Crisis of Service delivery in South Africa. HSRC Publishers

Madhoo, Y.N 2006. International Trends in Water Utility Regimes. Department of Economics, University of Mauritius, Mauritius.

Marah, L. Donovan, M.O Maartin, R. & Doberg, D. 2004. Effective Cost recovery in changing institutional & Policy environment: Municipal demarcation, The "FBW" Policy & financially Sustainable Service Delivery. WRC

Marah, L. Martins, R.J. Alence, R & Boberg, D. 2003. Identifying examples of successful cost recovery approaches in law income, urban & per-urban Areas. WRC

Mumbai Paani. Water is our right – Not A Privilege! Say no to Pre-paid Water Meters http://valadala.org/mumbai-paani (Accessed September 2008)

Office of Water (Ofwat) 2002. *Debt Recovery Guidelines Consultation*

Republic of South Africa

1997 White Paper on Transforming Public Service Delivery

1997. Water Services Act (Act 102 of 1997)

2002. Municipal Systems Act (Act No. 32 of 200)

1998. National Water Act (Act No. 36 of 1998)

2003. Municipal Finance Management Act (Act No 56 of 2003)

1999. Public Finance Management Act (Act No. 1 of 1999)

1994. Water Supply & Sanitation Policy White Paper

Richards, R. 2003. Municipal Cost Recovery in Four South African Municipalities. Community Agency for Social Enquiry (CASE).

Rogers, P. de Silva, R. & Bhatia, R 2002. Water is an economic good: How to use prices to promote equity, efficiency & sustainability. Water Policy. 4 (2002) (1-17)

Royal Society of SA 1998. Implications of the New Water Policy: Problems & Solutions. Royal Society of SA – Working Conference. Nov 1998 (http://www.rssa.uct.za)

Smith, J. A, & Green, J.M. 2005. Water Service delivery in Pietermaritzburg: A community perspective. Water SA. Vol No 4 October 2005.

Sussens, H & Vermeulen, A. 2001. Providing free basic Water in SA. 27th WEDC Conference

Singh, N. 2003. Johannesburg Water's Prepayment Water System – Developments & Successes since the inception & Project Operation Gcin'amanzi in Soweto

Smith, L. Mottier, S & White, F 2003. Testing the limits of market-based solutions to the delivery of essential services. The Nelspruit Water Concession. Cente for Policy Studies.

Smith, L. & Hanson, S. 2003. Access t o Water for the Urban Poor in Cape Town: Where equity meets Cest recovery. Urban Studies. Vol 40, No. 8, L1517-15487, July 2003.

Tsagarakis, K. P. 2005. New directions in water economics, finance & statistics. Water Science & Technology: Water Supply vd 5 No. 6 (1-15). IWA Publishing

United Nations Department of Economic & Social Affairs (UNDESA) 2003 Recognizing & Valving the many faces of Water. UNDESA

www.water.org.uk (accessed September 2009)