CONTROLLING CAPE TOWN'S POOR THROUGH WATER MANAGEMENT DEVICES: THE CASE OF SAXONSEA, ATLANTIS

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Abstract

Access to water is critical for survival and well-being. Current debates on water in South Africa are dominated by the human rights and neo-liberal approaches. The human rights approach advocates for water to be treated as a public good to ensure that everyone has access to it because without water, there is no life. On the other hand, in the neo-liberal approach water is regarded as an economic good to reflect its true cost and is managed through market-based mechanisms that encourage its efficient use. The City of Cape Town installed water management devices in Saxonsea, Atlantis as a solution to water scarcity in poor households and to aid cost recovery measures. The water management devices, initiated within the neo-liberal paradigm, have been marketed as convenient tools that 'assist' users to manage their daily water consumption and thus reduce their debt. Using a human rights framework this study examined the impact of the City's water management strategies, specifically the water management devices, on selected households in Saxonsea. The impact of cost recovery policies on poor households was interrogated in the light of government's distributional and procedural equity in service delivery. The main issues arising from the study were lack of consultation, inadequate information, and perception of powerlessness. The study concludes that although water management devices have contributed to significant improvements in water saving, poor households are burdened with the responsibility of saving water. If the idea is to save water across the board, this regimen should be extended to all water users and not targeted at poor households only.

Key Words

1. Water management devices,
2. Water demand management,
3. Free basic water,
4. Human rights,
5. Neoliberalism,
6. Privatisation,
7. Water Governance,
8. Participation
9. Water law
10. South Africa

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I dedicate my work to my parents Elijah and Naume.

Declaration

I declare that **Controlling Cape Town's poor through water management devices: The Case of Saxonsea, Atlantis** is my own work, and that it has not been submitted for any degree or examination or any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

TAMSANQA MATOSE NOVEMBER 2013

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List of Acronyms

ANC	- African National Congress
CSA	- Community Service Agent
DA	- Democratic Alliance
DWAF	- Department of Water and Forestry
EMG	- Environmental Monitoring Group
FBW	- Free Basic Water
GC	- General Comment
GEAR	- Growth Employment and Redistribution
IDP	- Integrated Development Plan
IWRP	- Integrated Water Repair Project
MDG	- Millennium Development Goal
NEPAD	- New Partnerships for Africa's Development
NWA	- National Water Act
PPS	- Public-Private Partnerships
RDP	- Reconstruction and Development Programme
RTD	- Right to Development
TAM	- Technology Adoption Model
UAW	- Unaccounted Water
UNDP	- United Nations Development Program
UN	- United Nations
USC	- Utility Systems Corporation
UNCESCR	- United Nations Committee on Economic, Social and Cultural Rights
WHO	- World Health Organisation
WMD	- Water Management Device
WRC	- Water Research Commission
WSA	- Water Service Authority
WSA	- Water Services Act

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Chapter 1: Introduction

Water is important for life. Without water, life is impossible. Water scarcity issues have characterized South Africa's waterscape and therefore received attention in a bid to redress historical imbalances and at the same time, ensure its availability to all sectors of the economy (for domestic, industrial and other economic sectors). When the newly elected African National Congress (ANC)-led government came into power, it was widely expected that the lives of the majority of previously disadvantaged people would be improved and implicit in this was the provision of adequate housing, health and water services, among others. Dugard (2008:74) observes that expectations were high that water would receive high priority in the equalisation of basic services. In addition, the 'progressive legislative framework' for water services, including the Free Basic Water (FBW) policy, was designed to ensure that every household received a lifeline amount of water for basic needs. This was an acknowledgement of the need to right the wrongs of the past. These steps were not only in line with the Constitutional guarantees of the right of access to sufficient water, but also with the ruling ANC's political mandate to improve the lives of the majority of people and in the process restore their dignity. However, the need to extend water services to the majority of people conflicted with the principles of cost recovery (Earl, et al 2005). Therein lies the conflict between the human rights and the neo-liberal framework.

Dugard (2008) argues that the difference between framework and reality lies in the ascendance of the neo-liberal drive towards cost recovery, with national government delegating the responsibility for water services to under-funded municipalities. Without financial and technical support from national government, municipalities had to maximize profits and recover service-related costs, including water provision, from all areas, including poor communities. In this light, water becomes a commodity rather than a public good; hence, the preoccupation with cost recovery from poor communities. Lack of national regulation to enforce basic water standards gives municipalities the leeway to commodify water in order to be financially viable. This situation creates a tension between the right of access to water as guaranteed by the Constitution and the neo-liberal approach rooted in cost recovery.

It is in this light that the installation of water management devices (hereafter WMDs) in poor areas across the City of Cape Town (hereafter the City) has become one of the most controversial issues since the Democratic Alliance assumed power in 2006, with critics and civic organisations calling the devices 'weapons of mass destruction' (Rudin 2008:19). In 2008, the City installed WMDs in Saxonsea at Atlantis as a cost recovery measure to ensure that households used water that they could afford. Saxonsea is a suburb with 2 500 formal metered housing units.

1.2 Background to the study

The dawn of South Africa's democratically elected government brought about reforms aimed at redressing apartheid's skewed water policies, among others. Key to the reforms was the sustainable management of water resources, and the result was two important pieces of legislation: the Water Services Act (No. 108 of 1997) (WSA) and the National Water Act (No. 36 of 1998), based on principles of participation and social justice. These Acts contain provisions that require the involvement of citizens in the management of water resources. Because of its multi-faceted roles and different levels of community involvement the concept of participation is related to rights of citizenship and democratic governance. According to Schreiner, et al (2002:55), both the WSA and NWA were expected to 'redress the inequalities of racial and gender discrimination of the past; link water management to economic development and poverty eradication; and ensure the preservation of the ecological resource base for future generations'.

The study site, Atlantis, is approximately 57km out of Cape Town and its distant location is arguably best suited for pilot projects such as the installation of WMDs. There is a noticeable pattern of pilot projects targeted at poor households in outlying settlements in Cape Town. In 2001, the ANC-led City Council carried out a pilot project for pre-paid water meters in Kilo litreipheuwel, north of Durbanville, but this was abandoned in 2005 because of its perceived negative social effects (Kumwenda 2006). Similar to the WMDs, it was envisaged that the pre-paid meters would remedy the poor's water management problems and aid the implementation of the FBW policy, and therefore reduce wastage and improve cost recovery for the City. The only difference between the pre-paid water meters and the WMDs was that with the former, water was available without regulation; when the free water was exhausted, consumers had to pay to access additional water. On the other hand, WMDs are water meters that have been pre-set to dispense a specific amount of water per day, self-shut when that

amount is exhausted and restart the following morning. In this way households can access water throughout the month, notwithstanding whether this amount is adequate or not for individual household consumption.

The City installed and promoted WMDs as water saving devices that would ensure that poor households reduced their consumption to affordable levels. The replacement of conventional credit water meters with WMDs could be interpreted to symbolise a shift in the relationship between the City as service provider and the households and residents of Cape Town as water users. Critics have argued that the WMDs are in violation of the right to water enshrined in the Constitution. Section 27(1) (b) of the Constitution (Act 108 of 1996) guarantees the right of:

> Every person in the country to have access to sufficient food and water … the state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of each of these rights.

This right to water has been operationalised through the WSA, whose objectives include the provision of access to basic water and sanitation. The Act compels all water service institutions to take reasonable measures to realise this right.

While the Constitution upholds the rights of individuals to access sufficient water and food, it remains vague on the meaning of 'sufficient' water which individuals are entitled to access for their needs and gives the state an upper hand in determining the reasonable legislative and other measures. Hence municipalities such as the City introduced WMDs to deal with this notion of sufficient water. In the process, the 'lifeline' water gazetted for every household to use free of charge, became the subject of regulation through the WMDs. Gabru (2005) observes that access to sufficient food and water are components of an adequate standard of living necessary for a dignified life. Similarly, Steyn and Nikilo litreaas (2002) argue that while the right to access water as embodied in the Constitution is a socio-economic right, the major issue is how these rights can be effectively exercised and enforced.

This study examined the impact of WMDs in 230 Saxonsea households and how they have adjusted to a daily limit of 350 litres, (the equivalent of two full bathtubs), from a situation where their water was unlimited through the conventional water meter system. The WMDs

automatically switch off once the daily limit has been exhausted and dispense water the following morning.

The free basic water lifeline of 6kilo litre of potable water and 4,2kilo litre for sanitation was calculated to provide 350 litres per household of eight people. According to the City, regulated access to free basic water would ensure that residents had water on a daily basis but would not use more than they could afford to pay for. The WMDs were expected to 'assist' households to manage their water consumption (City of Cape Town 2007). As part of the Integrated Water Repair Project (IWRP), the City implemented a water-leaks repair project whose objective was to repair domestic leaks for residents free of charge to prevent water loss.

Participating households' debt would be written off after a period of six months depending on their water use. Residents whose property value was less than R200 000.00 or whose monthly income was below R3 000.00 qualified for the Indigent Grant.[1] Non-participating households were expected to settle their bills or face the consequences of debt collection by the City authorities (City of Cape Town 2007; Cape Argus 2011).

1.3 The research problem

This study sought to investigate whether water management devices (WMDs) affected poor households or were just a tool used to control their access to water. It also investigated whether this technological intervention was the solution to water problems; how it fitted into water scarcity more broadly; and whether it was just about managing water in remote locations.

The City implemented the free basic water policy and installed WMDs in poor households to ensure that they only consume what they can afford and not incur additional expenses. The incentive offered for installing the devices was debt write-off. The replacement of conventional water meters with WMDs symbolised a shift in the relationship between the service provider and the water user. The conventional water meter was based on trust: the user was expected to pay for the water used at the end of the month. Conversely, technologies such as the WMDs symbolise the mistrust between service providers and users, with regulated access that leaves no room for negotiation. Disconnection of water service is an inherent non-

[1] Indigent grant is a subsidy designed to provide additional 4 500 litres free water to indigent households over and above the free 6000 litres that all households receive per month.

negotiable feature of the WMDs although the City as describes it as 'assisting' households to save water. To this end, disconnection is seen as playing a positive role in assisting households to not use more water than they can afford. It forces the households to calculate and budget their water use carefully.

The provision of free basic water across the country was aimed at redressing imbalances in the majority black population's access to water services under the apartheid regime. While the FBW policy has been applauded as bringing relief to the poor, its implementation by local authorities is dependent on their financial ability, with the potential to leave poor households vulnerable and insecure. Rudin (2008) argues that the onslaught of water limiting technologies throughout the country's municipalities has resulted in the majority of poor households being trapped between the FBW allocation and having inadequate water for their basic needs. (Narsiah 2010; Loftus 2006) also argue further that the introduction of these technologies in poor areas betrayed the purpose of the FBW policy and is effectively about managing water consumption by the poor rather than articulating their constitutional right to water.

1.4 Objectives of the study

The main objectives of the study are:

- To explore the impact of the WMDs in the affected households and assess how their socio-economic situation has changed since the installation of the devices.
- To examine whether households' participation in the installation of WMDs was by consensus or coercion.
- To examine to what degree WMDs in their current rollout could be seen as a tool that effectively enhances water management without sacrificing democratic objectives of improving access to resources by the previously disadvantaged poor.

1.5 Research questions

Following from the above objectives, the following research questions guided the study:

1. What is the impact of WMDs on participating households and do they understand how WMDs operate?
2. What form of consultation was conducted with residents by the City, and what concerns did residents raise?
3. How did households participate in the installation of WMDs?

4. Were residents informed by City officials about water scarcity and their role in its conservation?
5. What is the impact of WMDs on South Africa's water resources management?

1.6 Study's contribution to the body of knowledge

There is evidence that mainstream economic, legal and governance tools to manage water aggravate poverty by further reducing poor people's beneficial use of water, especially in water scarce areas. For example, Schreiner & van Koppen (2001) indicate that often policies developed in the West and North are not universally applicable to situations with growing competition for water uses. Their argument is that "water management is not an end to itself but a means to eradicate poverty and guarantee basic rights" (Schreiner & van Koppen 2001:45). In addition, linkages exist between poverty and water, with the women in rural areas experiencing the drudgery of fetching water, while in urban areas, the high price of water from water vendors places women (commonly responsible for collecting water for their families) in a challenging position given the low income level.

Access to adequate water is critical for household survival and well-being. The study sought to contribute to the on-going debate on access to water as a human right, and to highlight the role and impact of technology as cost recovery tool. Technology puts a layer between the water supplier and the consumer, a situation that has the potential to alienate the two parties because of the removal of the human interface. The fact that the City 'consulted' households at the implementation stage of the project gives the impression that it decides what is good for the households, creating a potentially unequal and contentious relationship between the two parties. At the state level, the City benefits from this by having more control over the use of the water resource through the technological intervention.

1.7 Conceptual issues

Conceptually the study draws from both the human rights and neo-liberal approaches using the public participation and cost recovery lenses to assist in understanding attitudes and perceptions towards water service provision and to assess whether selective application is the answer to water scarcity and conservation.

As mentioned earlier, neo-liberal and human rights approaches dominate current debates on water in South Africa. The neo-liberal approach views water as an economic good that should be priced to reflect its true cost and managed through market-based mechanisms that encourage its efficient use. The human rights approach, on the other hand, advocates for water to be treated as a public good to ensure that everyone has access to it.

1.7.1 Arguments for the human rights approach to water

The human rights and neoliberal approaches to water are discussed in more detail in Chapter 2. The Bill of Rights in the Constitution of South Africa (discussed in Chapter 2) is considered as the cornerstone of democracy. To a large extent this study draws from the concept of human rights as espoused by the relevant instruments and bodies of the international community. An example is the 1993 Vienna Declaration and Program of Action,[2] which regard severe deprivation as an infringement of human rights.

Other international statements, including the Dublin Principle (1992), recognise the 'right to adequate clean water and sanitation service that can be accessed by all citizens within reasonable distance of their living quarters' (SAHRC 2005:14). Water should be accessible to ensure people's physical security, and should be of acceptable quality and free from pollution. Mehta (2006) observes that experiences in water privatisation have not always been poor-friendly as water companies are usually monopolies and do not face any competition. Barlow (1999) cited in Mehta (2006) argues that water is increasingly emerging as 'blue gold' for private investors, adding that its commodification could erode people's informal rights to free water. In addition Nilsson (2005) argues that the notion of water as social good is associated with the human rights perspective and with a free, heavily subsidised supply of water. Lastly, the affordability of water should not prevent people from accessing safe drinking water; neither should it compromise access to basic services such as food, health and education.

1.7.2 Arguments for the neoliberal approach to water

Critics have described neo-liberalism as an exclusionary regime. In South Africa, the arguments for water as an economic good interrogate the legislative instruments put in place to redress the historical imbalance of access to water resources by the majority of previously

[2] The Vienna Declaration states that 'the existence of widespread extreme poverty inhibits the full and effective enjoyment of human rights; its immediate alleviation and eventual elimination must remain a high priority for all international community' (paragraph 14)

disadvantaged people. One of the major issues is how the concept of water as an economic good ensures that people have access to it. Von Schnitzler (2008) argues that prepaid water meters are the capillary ends of cost recovery and are 'indicative of a larger transformation of the political terrain that rests ambivalently between late apartheid and the fruition of neo-liberal reforms in the post-apartheid period'.

The fourth principle of the Dublin Statement[3] on Water and Sustainable Development of 1992 states that water has 'an economic value in all it's competing uses and should be recognized as an economic good'. Grafton (2010) argues that higher water charges would encourage conservation of water, improve efficiency and encourage investment in improving existing supplies. In this regard, 'integrated water resources management calls for the trilogy of economic efficiency, equity, and environmental sustainability to be applied to the water sector' (Grafton 2010:126). Water prices should reflect the value of the commodity and the full cost of supply to mitigate its scarcity. However, Bond (2000) argues that the World Bank develops policies and projects that further the commodification of water, which entail highlighting its role mainly as an economic good, attempting to reduce cross-subsidisation that distorts tariffs, promoting a limited form of means-tested subsidisation, establishing shadow prices for water as an environmental good, solving problems associated with state control of water and in the process, fostering the conditions for water privatisation. Bond further criticises the World Bank for sneaking in cost recovery conditions as part of its loans to developing countries.

1.7.3 Governance and public participation

This study used governance and public participation as a lens to explore the extent of residents' participation in the implementation and installation of the WMDs. Residents' 'participation' comes in the form of accepting the installation of WMDs because of the embedded financial incentives. The nature of communication between the City and residents is important insofar as it reflects the relationship between the two parties and determines how programmes or projects are put across. The debt cancellation promise for 'participating' households comes across as coercive compliance for the implementation of the WMDs because non-compliance entails unspecified action by the service provider. In addition, an offer to repair leaks before the installation of WMDs could be interpreted as softening the

[3] The Dublin Conference of 1992 resulted in a set of four principles that highlighted and supported the commodification of water.

blow and appearing to be benevolent to the plight of the affected households. The FBW policy, as mentioned earlier, seeks to redress the historical imbalance of access to water but its implementation through technological interventions such as WMDs and prepaid water meters further entrenches the inequality to this scarce resource. This is discussed in more detail in the next chapter.

1.8 Methods and data collection

The aim of this mixed methodology study was to explore the impact of WMDs on households, the response by the City to the results of the implementation of these devices, and to assess whether this intervention was the best solution for the City and the affected households.

The advantage of using a mixed methodology is that the convergence of evidence from various sources gives a high degree of credibility, and helps with triangulation of information (Bromley 1986). For this reason information was collected from three levels: from selected households the service users), City[4] officials (the service provider) and the Ward Councillor (the policy implementer).

Questionnaires were administered to 230 households and in-depth interviews were done with 10 households. Neuman (1994) says immersion gives the researcher an opportunity to get an intimate familiarity with people's lives and culture. This enabled the researcher to observe the daily activities within the households and how the family members related to each other within the context of their environment, catching nuances that would have been difficult to detect using other research approaches.

A quantitative survey and in-depth face-to-face interviews were conducted. In this study the in-depth interviews were used to triangulate the findings of the questionnaire survey and therefore get a robust answer. The interviews provided additional information, especially for the reasons behind households' acceptance of WMDs.

[4] Policy documents from the City of Cape Town were reviewed in order to get clarity on the direction regarding water management strategy.

1.8.1 Survey of policy documents

Surveying policy documents provided clarity on other methods used in data collection. They gave clarity on the strategies used by the City and showed a clear shift to neoliberal cost-recovery strategies at both local and national levels. Collection of primary field data was complemented by the use of secondary materials in the form of reviews of relevant documentation, such legislation, official municipal documents regarding the intervention and other literature related to my research problem. The review of documents is an unobtrusive method of gathering secondary data and is useful for triangulation. Marshall and Rossman (2006) observe that the use of documents often entails content analysis, which can be conducted without disturbing the setting, and allows the researcher to determine where the emphasis lies after gathering data.

The success of the research is dependent on the integrity of the researcher and Neuman (1994) observes that in all research, opportunities for a distrustful and dishonest researcher exist but some degree of trust should be placed on the researcher. The researcher is aware that the human factor presents the problem of bias because the presence of the researcher affects the way both the researched and the researcher present themselves. Neuman (1994) says in this way the researcher takes advantage of personal insight, feelings and perspective as a human being to understand the social life under study, and at the same time guard against their own values and assumptions during the research process.

1.8.2 In-depth interviews

The advantage of the in-depth interview is that it is focused and allows the researcher and respondent freedom to explore an issue within the framework of guided conversation. During the interview process, notes were taken with permission from the interviewees so as to have backup copy for later verification.

Face to face, interviews were conducted on three levels: with the City's project manager; with the Ward Councillor for Ward 29; and with the selected households. The purpose of the interviews was to identify factors that affected the implementation of the right to water and important issues emerged from these interviews. Perceptions of water use varied from the City's and the community's point of view. Information gathering took place in two phases: interviewing the City officials in 2011 and the selected households in 2012.

1.8.3 Key informant interviews

A key informant is an individual selected for their knowledge and whose personal skills and/or position enable them to provide authoritative information and insight into what happens in their surrounding. The criteria for selection of the key informants in this community was determined by the specific role they play in the community as this would ensure that they would be able to impart information required.

In order to get the official side of WMDs intervention, face-to-face interviews were carried out with the City's Waters Services Department project manager. Because of the time consuming nature of interviews and large volumes of data that could be gathered, the small number of key informants interviewed was deemed sufficient for the study. The key informants for this research were officials within the City and at the Wesfleur office in Atlantis who have decision-making capacity and were able to provide in-depth information about the rationale behind the installation of the WMDs and how these affected the City's cost-recovery strategy. Community leaders were interviewed as they have the pulse of the community's reaction to the WMDs and how the relations between the two parties developed after the installation of the WMDs.

Marshall (1996) explains that the principle advantages of using key informants relates to the quality of data that can be obtained in a short period, compared with the time-consuming and expensive in-depth method. However, Marshall (ibid) cautions that while key informants are important to the research process, they might only divulge information that is politically correct; further, social rules may discourage the researcher from publishing potentially sensitive data that could be attributable to a particular informant. Another issue of concern is the authenticity of key informants, and the difficulty that is sometimes experienced in identifying someone who has the requisite skills rather than being self-serving and preoccupied with their social status.

1.9 Data analysis

In exploring the research questions, four main themes emerged: poverty; survival skills; helplessness or desperation; and neighbourliness (compassion).

The results are presented in two parts. The first is the quantitative analysis using the SPSS package to see the results from the questionnaire survey. While the advantage of using this

tool is that it allows for the establishment of relationships among variables, its weakness comes out when one needs to explore the reasons for those relationships (Punch 2005).

The second part of the results uses the thematic analysis to identify the common themes that emerged from the in-depth interviews done with selected households. The qualitative method was used to get in-depth answers to the survey questions, which could not be captured by the questionnaire. The two methods complement each other and give the research a rounded lens through which to view the research problem.

Three marketing analytical frameworks were used to analyse my research results. These are the technology adoption model (TAM), to establish the attitudes of water users towards WMDs technology; the confirmation/disconfirmation model, to understand the experience of water users; and the citizen as user approach, to assess the extent to which rights are advocated in policies that address the provision of economic goods.

Inquiries into people's attitudes towards and perceptions of technologies recognise that users views differ from those of the manufacturers, suppliers and policy makers (Jeffrey & Seaton 2004).

1.9.1 Research site

Atlantis, located approximately 50km from Cape Town, was an apartheid-era housing project designed to stop Coloured people's migration into Cape Town in the 1970s. The government of the day lured industrialists to locate there and provide employment for the community through generous subsidies and other incentives. However, this plan failed to take root and a national recession in 1984 rendered Atlantis uneconomic for businesses, resulting in some businesses either closing down or relocating to Cape Town. Without this economic lifeline, most Atlantis residents lost their jobs and were unable to meet their basic needs.

Saxonsea, the study site, is one of the suburbs in Atlantis. It is one of the most marginalised areas in Atlantis and is characterised by limited economic activity. Saxonsea is part of Ward 29,[5] which comprises Atlantis Town Centre, Mamre, Avondale, Sherwood, Pella Mission

[5] The City Council established 23 sub councils, which have as their base a political, community and service interface and serve 105 wards of the City. Sub councils are empowered by the Municipal Structures Act to make recommendations on any matters affecting their areas.

Station; Protea Park;[6] and Wesfleur. It is further subdivided into five sections: Pirate Town, Lapland, Die Gat, Hungry Town, and Old Traffic Section. Although none of the interviewees could confirm the origins of the section names, some residents said these could have been associated with gangsters that once operated in the area. Lapland largely comprises old RDP houses, valued at approximately R50 000 each (City of Cape Town Valuation Roll 2009); while Hungry Town, a middle-class section, has property value up to R250 000.

1.9.2 Justification of the study site

Through a tender process the City carried out a first pilot project for the installation of WMDs in Protea Park from February to July 2007. A follow-up process was carried out in Saxonsea in 2008. Other low-income areas in Cape Town, such as Crossroads, Mfuleni and Mitchell's Plain, have water management interventions installed on properties, and these were modified after the 'successful' implementation of the project in Atlantis.

1.9.3 Limitations of the study

Limited resources and time constraint did not allow for a robust use of other data gathering methods, such as focus groups, where more respondents would have been allowed the opportunity to participate in a different setting.

Because of language barriers, the researcher interviewed English-speaking households although Saxonsea is a predominantly Afrikaans speaking community. A hired research assistant provided interpreting services where respondents were not confident to converse in English. In addition, English was used for in-depth key informant interviews and it enabled the researcher to use direct quotes without the complexity of translation so as to capture subtle meanings in the original language of interaction.

Both the human rights and neoliberal approaches to access to water provide for greater debate. Although South Africa's Constitution upholds the right to water, it is the implementation of that right which poses major challenges because of external environmental influences. However, these limitations do not make the study less credible. The researcher has been aware of them and tried to find ways of minimising their impact on the quality and outcome of the research project.

[6] The first pilot project for WMDs was carried out in Protea Park

1.9.4 Ethical considerations

Human rights issues are highly politicised, requiring that great care be taken in conducting this research study. Names of household interviewees have not been divulged, nor have those of City officials that took part in the interviews, as agreed before the interviews were done.

Respondents' consent was obtained through signed, informed consent forms. It was communicated to respondents that involvement in the study was voluntary and did not attract any remuneration. The respondents were also made aware that they were free to withdraw from the interview process at any stage if they felt uncomfortable to continue. It was explained that findings of the study would be used for academic purposes only.

The importance of the study to the community was explained and respondents were assured of a high degree of confidentiality and anonymity, not only of information but of their identities as well.

1.9.5 Structure of the thesis

Whereas this chapter has introduced the study problem, objectives, questions and significance, the rest of the thesis is organised as follows:

Chapter Two discusses the theoretical framework based on current human rights and neo-liberal debates on water and the international legislation on the right to water, its non-binding status and its impact on the realisation of this right. The use of technological interventions as part of water management strategies is discussed in greater detail. The main arguments for both approaches are discussed and their differences highlighted.

Chapter Three discusses South Africa's historical perspective on the right to water using the Freedom Charter of 1955, which formed the basis of the human rights discourse. The Bill of Rights for the new Constitution of South Africa is discussed.

Chapter Four discusses the operationalisation of the right to water in the democratic South Africa, specifically the significance of the Constitutional right of every individual to have access to water, especially the urban poor. The results of the fieldwork will be discussed and

analysed in the context of the broader debates of national and local government responsibilities in the provision of adequate water.

Chapter Five continues with the analysis of the problem statement; objectives of the study; rights versus cost recovery and privatization; and participation of residents in decision-making processes that affect them.

Chapter Six summarises the main findings of the research. It also revisits the three objectives of the study and discusses how they relate to these findings.

Chapter 2: Conceptual Issues

2.1 Introduction

This chapter discusses the major arguments/debates on human rights and neo-liberal approaches to water, with the view to understanding the impact of WMDs on selected households in Saxonsea, Atlantis. Debates on water as both a public and economic good are discussed in order to understand South Africa's waterscape. Each of these conceptual concerns is discussed in turn.

2.2 Arguments for the human rights approach to water

The argument for water as a human right emphasises water's importance and the need for it to be accessible to all people without any discrimination, including that based on their ability to pay. Generally, human rights have come to be used as a measurement for judging how governments treat their citizens. In this regard, international moral codes are used to judge nations on how they uphold human rights.

Heard (1997) traces the foundation of natural rights to Hobbes, an early philosopher, whose trend of thought pointed towards religion. Heard noted that this is where the debate among the proponents of the human rights emanated, with some disputing whether religion had a role in the determination of rights. Hobbes's thinking was reinforced by Immanuel Kant in the 17th Century, who added that in a state-structured society, humans needed protection from violence against each other, and that this protection would be found in a state of nature (Heard 2007). According to Heard (1997), Kant's political ideology was derived from his moral philosophy in which he argued for the state to be organised through the imposition of, and obedience to, universal laws that in turn should respect the equality, freedoms, and autonomy of citizens. The American Declaration of Independence, and France's Declaration of the Right of Man and the Citizens (after the 1789 revolution), are two examples demonstrating the influence of the idea of natural rights, following on from Hobbesian thinking.

However, the conceptualisation of human rights has been criticised as a Western construct based on European traditions. Among others, Jeremy Bentham and Edmund Burke (both 18th Century philosophers, writing around 1790) argue that the origin of notion of natural rights in religion cannot be used as a driving force behind the determination of human rights. Instead, they argue that rights emanate from the laws of a particular society and cannot be determined universally. They further argue that because societies have different political struggles, it is not fair to apply universal human rights.

2.2.1 Human rights to water in South Africa

While the United General Assembly (1986) gives a broader context of the Right to Development (RTD), South Africa's waterscape has arguably been a contested space that has been tightly controlled by the power relations between the state and the people. This is manifested through the myriad legislations put in place by the apartheid government that resulted in skewed policies, which placed the majority blacks at the lower end of the scale in terms of service delivery and other provisions. This line of thinking translated into all spheres of life and was very significant in access to water. The colonial lawmakers tried to import laws that derived from the well-watered European environment and apply them to Southern Africa's semi-arid and varied conditions. Predictably the laws were designed to benefit the landed few that also enjoyed economic power. The majority blacks, dispossessed of their land, had no access to water for productive and economic use.

South Africa's transition into a multi-racial democracy in 1994 presented an opportunity for the new government to redress apartheid's legacy of unequal access to public goods and services. In the water sector this was done through the review of the national policy on water use and laws. Water policy reform was necessary to correct the imbalances of the apartheid era and became the focal point of the transition to democratic rule (Francis 2000). This was to ensure that dignity was restored to previously disadvantaged communities and thus improve their living standards, because without adequate water people's livelihoods would be compromised.

The new Constitution and the repealing of old legislation were direct acknowledgements that there was need for revamping to allow for equitable distribution of resources, including access to water by all people irrespective of their political or ideological persuasion. It was not a

realization but an acceptance that access to water superceded any political or power relations. The fact that access to water was part of the Constitutional reform meant that its implementation was not dependent on the benevolence of the state.

South Africa's new Constitution (Act 108 of 1996), guarantees equal access to rights, privileges and benefits while its Bill of Rights is the cornerstone of South African democracy. Section 7(1) of the Constitution indicates that the Bill of Rights enshrines the rights of all the people of South Africa and affirms the democratic values of human dignity, equality and freedom. It entrenches the fundamental human rights of every South African, and the water sector has used it as a tool to push for both accessible and affordable water (Dugard & Drage 2012). In its preamble, the Constitution proclaims the need to

> Heal the divisions of the past and establish a society based on democratic values, social justice and fundamental human rights (Constitution of RSA Act 108 of 1996:1).

Although it is undeniable that the Constitution has played an important role in ensuring improved access to water by the majority of previously disadvantaged people, it is the process of redressing inequality that is debatable, and specifically how access to water is impacted on in poor communities through the installation of water pressure control systems.

Former Mayor of Cape Town Helen Zille applauded the installation of the WMDs in poor areas such as Atlantis, as 'helping' both the City's customers to 'save water and to manage their monthly water bills and the City to manage debt' (City of Cape Town 2007). To show support for the programme, Zille had a WMD installed on her own property. While at face value it was commendable that she 'walked the talk,' in reality her situation was different from that of the affected residents because she made a choice to switch to a WMD, whereas Saxonsea residents had that decision taken on their behalf by the City because of their inability to pay their water bills. Zille's statement reflected a shift of responsibility to consumers to manage and calculate their water consumption. However, the poor are characterised as incapable of making sound judgments and therefore decisions have to be made on their behalf to enforce a change in their consumption patterns. Kabeer (2005:15) argues that political disenfranchisement; social marginalisation, cultural devaluation and economic dispossession define the condition of exclusion and marginalisation.

The installation of WMDs by the City places responsibility on affected households to manage their relations with the water service provider through the mediation of a piece of technology. The same fixation with cost recovery is not applied in 'wealthy' communities where conventional water meters are in place. Loftus (2003) observes that restrictive measures are often targeted at the poor because of their inability to pay their water bills. Bond (1996) argues that the installation of pre-paid water meters in Johannesburg's poor informal areas of Orange Farm, Alexandra and Soweto presented a challenge to the impoverished communities, adding that government's buy-in of global neo-liberal policies reproduces and amplifies class apartheid in its municipalities. He criticises the privatisation and corporatisation of basic services including water, as it does not put into context the socio-economic impact of the affected communities.

In England and Wales poor households greeted water privatisation with public outcry. Non-payment of bills resulted in massive disconnections while private water companies posted healthy profits (Drakeford 1998). Although the water companies operated under a series of terms and conditions that set out to protect the poor, the regulatory framework's priority was to ensure financial viability of the companies first and the interest of the consumers last. The public outcry through popular anti-privatisation campaigns led to its reversal not only in England and Wales but also throughout Europe (EPSU Report 2012). The argument that privatisation led to efficiency has been marred by the high prices for water which led to the companies realising high profits at the expense of their customers.

In South Africa, the key aspect that comes to the fore is the power dynamics between the city and residents; the residents and WMDs; or water service providers in the case of Johannesburg City and residents of Phiri in Soweto. The relationship between state and residents is cemented through the voting process while that with the water service providers produces a complex relationship and is mediated by the financial status of the resident as a consumer. This changes the nature of the relationship and creates distance between the two entities, hence a perceived loss of citizen influence.

Although the City provides its residents with 6,000 litres free every month as part of the implementation of the FBW policy, it went further and regulated the free water for the poor sections of the community as a way to recover costs for high levels of unpaid bills. It is this decision to install WMDs that from a human rights perspective appears to infringe on the

rights of the affected households. This study seeks to establish in what way this technological intervention curtails the dignity and freedoms of households as espoused by the Constitution. Mehta (2006) reiterates that struggles over access to water are characterised by conflicts between market and rights-based frameworks, compromising the wellbeing of poor people.

Bates (2011) argues that while 'every human being in every society is entitled to have basic freedoms respected and basic needs satisfied', the existence of those rights obligates the state to ensure that it does not violate human rights. The recognition of human rights does not guarantee the realisation of the specific right, however, as these have been routinely violated within states and at the international level, as Bates cautions.

The United Nations Committee on Economic, Social and Cultural Rights (UNCESCR) adopted General Comment No. 15 on the right to water in 2002. While the Comment is not a legally binding document, it states explicitly that 'the right to water falls within the category of guarantees essential for securing an adequate standard of living, particularly since it is one of the most fundamental conditions for survival' (Hale 2007:144). Although General Comment 15 does not explicitly mention that water should be delivered free of charge, it does indicate that water is primarily not an economic good. It thus represents a major step in defining the human right to water (Nilsson 2005, Hale 2007). Hale (ibid) cautions that General Comment 15 should be understood as the articulation of the recognised but not internationally enforceable human right to water, which states can therefore choose to ignore.

This problem of unenforceable rights negates the good intentions of the human rights instruments and leaves the poor vulnerable to the dictates of the state. The state, on the other hand can equally be rendered powerless if it only plays an enabling role to the powerful international financial institutions but cannot intervene in what happens to its people for fear of upsetting the status quo.

The well-documented Phiri case[7] against Johannesburg City's installation of prepaid water meters is a demonstration of the significant difference between recognizing the right to water and the physical provision of water supplies to individuals to meet their basic needs.

[7] *Mazibuko & Others v City of Johannesburg and Others* (Centre on Housing Rights and Evictions as *amicus curiae*) CCT 39/09. The application was first launched in 2006, in the now South Gauteng High Court, Johannesburg (and heard by Judge Tsoka), 18 months after Operation Gcin'amanzi in Phiri.

Johannesburg Water and the municipality launched Operation Gcin'amanzi (an isiZulu term meaning 'save water') to encourage poor residents to save water through the installation of prepaid water meters. It is important to remember that this operation was launched in Soweto's poor areas and its goals were to reduce unaccounted for water, rehabilitate the water network and reduce demand for water, as well as improve payment for services. Although Judge O'Regan ruled that the installation of prepaid water meters in Phiri was lawful and did not conflict with the Constitution, she highlighted three causes of the water problems experienced in Soweto: the corroded pipes laid during the apartheid era; the City of Johannesburg's inaccurate tariff system that resulted in more water being used than was stipulated; and finally, the culture of non-payment that started as part of the resistance against the apartheid system (Case CCT 39/09).

While the Phiri residents lost their case at the Constitutional Court, they had previously won at both the High Court and the Supreme Court of Appeal. Notably, Judge Tsoka ruled that the installation of prepaid water meters was unlawful, citing that the City of Johannesburg's water services by-laws did not provide for their installation. He also added that the prepaid water meters gave rise to unreasonable discontinuations in water supply, a characteristic also exhibited by the WMDs installed in Saxonsea, Atlantis.

Although the City has repeatedly pointed out the difference between WMDs and prepaid water meters, both devices control access to FBW and have been installed mostly in poor and low-income areas as cost recovery tools. In both circumstances, residents have to calculate and budget their water usage because it automatically disconnects as soon as the daily allocation is exhausted.

2.3 Arguments for the neo-liberal approach to water

Harvey (2005:2) defines neo-liberalism as 'a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets and free trade'. Similarly, Palley (2004) also acknowledges that neo-liberalism is based on 'the economic parameters of capitalist development and free markets.

Neo-liberal thinking is based on three foundations: the economic (where markets determine the direction of interface/service provision); social (where markets comprise individual rights,

responsibilities and opportunities); and political (where the state defers involvement in service provision to the markets, except regarding legislation and policies) (Venter & Marais 2010).

According to this theory, the role of the state is to create a conducive environment for such practices, beyond which it should not interfere as it does not have the capacity to 'second guess' market signals and withstand the influence of powerful interest groups (Harvey 2005). Notably, the emphasis is on political economic practices and not on complete political ideology. According to Blomgren (1997), neo-liberalism is a 'political philosophy that gives priority to individual freedoms and the right to property'. Although Blomgren's characterisation of neo-liberalism overlaps with that of Harvey, she emphasises its internal diversity. Thorsen & Lie (1997:14) build their definition upon Harvey and Blomgren, and see neo-liberalism as 'a loosely demarcated set of beliefs which most prominently and photo-typically include the conviction that the only legitimate purpose of the state is to safeguard individual, especially commercial liberty as well as strong private property rights'.

Thorsen & Lie (1997:15) argue further that because neo-liberalism is silent on the existence of democracy or the free exchanges of political ideas, Harvey's (2005) definitions means that neo-liberalism can be implemented under any regime, be it autocratic or a liberal democracy. Following this argument, it is clear that the proponents of neo-liberalism view as necessary the relocation of power from the political to the economic processes to ensure the practical implementation of neo-liberal policies, without interference.

2.3.1 A critique of neo-liberalism

Critics have described neo-liberalism as an exclusionary regime. In South Africa, the arguments for water as an economic good interrogates the legislative instruments put in place to redress the historical imbalance of access to water resources by the majority of previously disadvantaged people. One of the major issues is how the concept of water as an economic good ensures that people have access to it. Von Schnitzler (2008:902) argues that prepaid water meters are the capillary ends of cost recovery and are 'indicative of a larger transformation of the political terrain that rests ambivalently between late apartheid and the fruition of neo-liberal reforms in the post-apartheid period'.

On the other hand, Dugard (2008) argues that the ascendency of the neo-liberal thrust towards cost recovery and the subsequent decentralisation of water services to municipalities has led

to fiscal pressure on municipalities to maximise profits from water services and this has manifested itself in a fixation to recover costs from all sectors, including poor communities. The gradual decrease of financial and technical support for water services by national government has contributed to challenges faced by municipalities and, by association, by their residents as well. In addition, a lack of standardised basic water services across the board to ensure that everyone enjoys water related rights could lead to motivate municipalities to view water as a commodity rather than a public good as they seek to keep themselves afloat financially.

It is in this context that the City of Johannesburg embarked on the mass installation of prepaid water meters in Soweto under Operation Gcin'Amanzi as a way to curb excessive water consumption. It is important to understand the context in which the reference to the City of Johannesburg's water management strategy is made, because when the City of Cape Town embarked on the mass installation of WMDs in poorer areas of the metropole, the argument was that these devices were not similar to the prepaid water meters installed in Johannesburg. In fact, WMDs, as the name implies, are a tool that to make it easy for households to manage water use throughout the month without the inconvenience of disconnection, whereas prepaid meters work on availability of credit for water – no money, no water.

2.3.2 Implications for the poor of water as an economic good

An economic good has a value attached to it and therefore assumes a certain level of importance. The value of water is therefore measured by the maximum amount that the user is willing to pay for it (Briscoe 1996). Brown (2009) argues that water subsidies benefit the middle classes at the expense of the poor, who are the intended beneficiaries, as some of them may not even be connected to the water supply infrastructure. Further, Brown adds that water subsidies distort the market and do not encourage its efficient use. Water should therefore be priced to reflect its economic cost in line with the guiding principles that view it as an economic good. In this context, Brown calls for the abandonment of the state's monopoly on water provision and advocates for private sector participation, together with the privatization of water service provision as an alternative.

Among the supporters of water as an economic good, Rogers et al (2002) argue against the conventional wisdom that price increases would result in inequality. Instead, they propose that increasing the price of water increases its sustainability because it will be put to valuable

use. They add that water has for a long time been recognized as an economic good even though the 'sanitary revolution' of the 19th Century resulted in the call for public ownership of companies that had always provided water services. This revolution resulted in heavy subsidization of water but did not remove the fact that water has an economic value. They acknowledge that although economic water pricing is the easiest way to promote efficiency, equity and sustainability in the water sector, politically it would be difficult to implement. Roger et al (2002) dismiss the notion that maintaining lower tariffs improves access to water by the poor and argue instead that the poor are willing to pay more. In their opinion, low water prices encourage excessive consumption and leave the poor with no choice but to buy expensive water from water vendors. Lifeline water tariffs as implemented through the FBW policy enable the poor to have access to water for basic needs. Seemingly the poor only need water for basic needs and nothing else, because they do not have the capacity to pay for more water, thereby limiting their life choices.

Similarly, the Dublin Principle (1992) claimed that water has always been treated as an economic good in Europe. Water should be accessible to ensure physical security of individuals, and should be of acceptable quality and free from pollution. The affordability of water should not prevent people from accessing safe drinking water; neither should it compromise access to basic services such as food, health, and education.

Nleya (2008) confirms that the adoption of the Dublin principles at the 1992 International Conference on Water and the Environment was symbolic of a new water paradigm whose shift was markedly market oriented. The four Dublin principles recognize that:

- water is a finite resource that should be managed in an integrated manner;
- resources development and management should be based on a participatory approach, involving all relevant stakeholders;
- women play a central role in the provision, management and safe guarding of water; and
- water has an economic value and should be recognized as an economic good, taking into account affordability and equity criteria (Savenije and van der Zaag, 2002).

These principles were set as a guide to nations to tackilo litree their water management programmes.

2.3.3 Commodification of water

A commodity is a product that has economic value attached to it. Van Rooyen & Hall (2007) observe that the market in its assumed role as an institution, influences access to water through consumerism and individuality. Stated this way, water services have become a commodity with an attached economic value that operates according to prevailing rules. McDonald & Ruiters (2005a: 28) describe commodification as the 'transformation of all social relations to economic relations, subsumed by the logic of the market'. This would aptly describe the process of limiting water consumption by poor households through various means, such as the installation of prepaid water meters in the case of Phiri in Soweto, or WMDs in Saxonsea, among other interventions carried out in other parts of South Africa and elsewhere in the world.

The World Bank, according to Bond (2000), develops policies and projects that promote the commodification of water. This entails arguing that water is an economic good; attempting to reduce cross-subsidisation that distorts tariffs; promoting a limited form of means-tested subsidization; establishing shadow prices for water as an environmental good; solving problems associated with state control of water and in the process; and fostering conditions for water privatisation. Bond further criticises the World Bank for promoting cost recovery conditions as part of its loans to developing countries.

In 1998, the United Nations Panel on Water declared that as a commodity, water be paid for instead of being treated as an essential staple that would be available free of cost (Bond 2000). The endorsement of public-private partnerships (PPPs) by the UN at the World Sustainable Summit in Johannesburg in 2002 clarified the UN's stance on water issues. Further, the UN's adoption of the New Partnership for Africa's Development (NEPAD), which calls for increased foreign investment in privatized African infrastructure, showed its preparedness to wield its authority. Given South Africa's Constitution that sought to enhance access to water as a right, it is rather ironic that it (SA) spearheaded this investment vehicle. A perfect example of the effects of water commodification was the cholera outbreak in Ngwelezane in KwaZulu-Natal, which followed the disconnection in August 2000 of thousands of people's previously free water supply (Bond 2000). Because they could not

afford to pay for clean water, they resorted to unclean water, which resulted in the outbreak of disease and in deaths.

2.3.4 Free Basic Water policy

The FBW policy was introduced in 2001 in part as a response to the Constitutional guarantee of the right to access services. The coincidence of the introduction of various cost recovery mechanisms such as prepaid water meters and WMDs is disturbing. The lifeline of 6,000 litres was calculated to provide 25 litres per person per day, based on a household size of eight people. However, the major challenge was the implementation of the means test to determine who qualified for free water. Hence the decision to provide the lifeline to all households, irrespective of their ability to pay. In the end, both the rich and the poor receive the same amount, the difference being that with the poor, the FBW was all they had access to and management strategies were put in place to manage that lifeline.

While the FBW policy represented a significant step in the realization of the right to water, its implementation was dependent municipalities' financial readiness. The cut-off of intergovernmental borrowing resulted in some municipalities being unable to implement the policy. Loftus (2006:1033) argues that with the implementation of the FBW policy, service providers had to review the basis on which water was supplied to consumers. This forced local authorities to use hydraulic systems to limit household consumption patterns on either a supply zone or a consumer basis. Loftus (2006) traces the bold decision by eThekwini Municipality in Durban to implement the FBW policy and observes that 6000 litres was allocated to all households regardless of income; the implementation of water limiting technologies was targeted at poor households. Rudin (2008:19) argues that, although the Constitution does not specify how much water is 'sufficient', government's arbitrary calculation of 25 litres per person or 6kilo litre per month was inadequate as it did not take into account the needs of the 'very young, old, sick and those living with HIV'. Instead, he argues that 90 litres per person per day would be adequate because South Africa is rich in natural resources and can therefore afford to ensure that the poor access water at no cost.

The City highlighted the differences between WMDs and pre-paid metres as being that the former ensured a reliable supply of water to consumers free of charge. Prepaid meters also dispense free basic water but the difference is that when this supply is exhausted, the consumer has to pay before they can access water again. WMDs 'ensure' that consumers have

access to water daily by dispensing the pre-set 350 litres. It is the consumer's responsibility to calculate how much water to use for their needs on a daily basis. Arguably the two types of technologies may differ in the manner in which they operate but they are a constant reminder to households that they have limited access to water. Both types of intervention have been given a platform to 'manage' the end user's access to water and have been implemented in poor or low-income areas.

Table 1: Comparison between WMDs and prepaid water meters

Issue	**WMDs**	**Prepaid water meters**
Free Basic Water	yes	Yes
Calibrated to dispense set amount of water per day	yes	No
Ensure daily access to water	yes	no
Save unused water for later use within the month	yes	no
Cost recovery	yes	yes
Replaces human intervention	yes	yes
Pay for additional water above the set daily limit	yes	yes

The common thread in poor communities is the introduction and implementation of measures to control access to water service provision. Loftus (2003) observes that restrictive measures are often targeted at the poor because of their inability to pay their water bills. Bond (1996) argues that the installation of pre-paid water meters in Johannesburg's poor informal area of Orange Farm presented a challenge to the impoverished communities, adding that government's buy-in of global neo-liberal policies reproduced and amplified class apartheid in its municipalities. Bond criticises the privatisation and corporatisation of basic services such as water, as it does not put into context the socio-economic impact of the affected communities. Similarly, Naidoo (2005:159) observes that the installation of prepaid meters

signified the shift of role by the state from that of being provider of basic services to the 'teacher of new way of living under the neo-liberalism', where the individual takes responsibility to ensure delivery of services.

Ironically, the City of Cape Town implemented the WMDs at the time that the Phiri residents and City of Johannesburg's case was before the Constitutional Court. The Constitutional Court's judgement appeared to have emboldened the City, given its argument that its WMDs were different from pre-paid water meters and ensured daily access to water. The City's project then appeared to have the poor's interests at heart as it ensured that they had access to water daily, unlike the prepaid meters, which offered no such assurance. Notwithstanding the City's argument about the viability of the WMDs, several community leaders and civic society organisations criticised them as ingenious versions of the prepaid water meters and Rudin (2008) derisively called them 'weapons of mass destruction'.

2.3.5 Privatisation of water in South Africa

The water privatization debate is contentious in current development discourse. Gutierrez (2003) describes privatization as a political phenomenon that creates new roles and rules between state, market and civil society. Bond & MacDonald (2004) note that in South Africa, Nelspruit was the first city to enter into a 30 year-long water concession with a foreign water company, but this was fraught with massive criticisms and problems from its inception. Both labour and community groups criticized the deal because of the perceived challenges associated with it.

An argument is made in privatising water services that the public sector is often seen as inefficient, corrupt and lacking in the financial power needed to invest in water provision (World Bank 1994), while, on the other hand, the private sector is perceived as flexible, efficient and essential. Petrella (2001) argues that turning water services to private corporations ensures that poor people get good service at appropriate prices. However, Mehta (2006) argues that it is flawed to think that the acceptance of water as an economic good would solve water problems or generate efficient use and highlights the danger of the poor getting a raw deal compared with rich water users. Instead, she suggests water prices should be structured progressively, with cross subsidies to charge the rich for more consumption and better services. She further observes that experiences on water privatisation have not always been poor-friendly as water companies are usually monopolies and do not face any

competition. Barlow (1999, in Mehta 2006) argues that water is increasingly emerging as 'blue gold' for private investors, adding that its commodification could erode people's informal rights to free water. In addition, Nilsson (2005) argues that the notion of water as social good is associated with the human rights perspective and with a free, heavily subsidised supply of water.

Thompson et al (2008) explain that South Africa's water policies examine how sins of omission largely prevent vulnerable groups from having access to the right to water, especially where lack of financial resources, poor institutional capacity and very little knowledge of rights prevent them from being realised and claimed by citizens. For example, the conflict between FBW policies and privatization and cost recovery negates the citizens' basic rights through the implementation of WMDs in Cape Town and prepaid water meters in areas like Orange Farm in Johannesburg. The burden of water scarcity should be shared by all water consumers and not be the responsibility of the poor, lest it comes across as discrimination. Willingness to pay does not diminish the burden of water scarcity.

Narsiah (2008) criticises the establishment of the Water Research Commission (WRC) in 1971 as strengthening the economic/commercial value attached to water by the then apartheid government. The Water Research Commission (2005a) further confirms Narsiah's criticism as it views water as an economic good, thus removing its human rights and basic needs aspect and replacing it with economic principles that govern its accessibility. Narsiah (2007) argues that the Commission's response to global and national trends towards neo-liberalisation of water services delivery ties in neatly with the 1992 Dublin Convention, which called for the recognition of water as an economic good, as mentioned earlier.

2.4 Legislation and neo-liberalism

The Water Services Act (No. 108 of 1997) and the National Water Act (No. 36 of 1998) provide various legal tools that are potentially effective for eradicating water deprivation under conditions of growing water scarcity. Section 3(1) of the Water Services Act proclaims that 'everyone has a right of access to basic water supply and basic sanitation' (Water Services Act 1997 (Act No. 108 of 1997:12). De Visser et al (2003:34) describe basic water supply as the

> "prescribed minimum standard of water supply services necessary for the reliable supply of a sufficient quantity and quality of water to households, including informal

households, to support life and personal hygiene".

Right from the outset, the Water Services Act (108 of 1997) clarifies the water consumers' duties and emphasises the financial viability of the water service providers. Therefore, while the Act recognizes the right of access to basic water supply, it also acknowledges the need for financial viability, making it clear that water is a commodity. The only difference with the apartheid legislation is that everyone's right is recognized and taken care of, irrespective of political or economic status. De Visser et al (2003) point out that the Water Services Act entrenches the concept of cost recovery as well as the involvement of the private sector in the provision of water.

Section 27(1)(b) entrenches that "everyone has the right to have access to sufficient water" for basic needs (RSA Constitution 1996). The idea of human rights in South Africa influenced the development of the Freedom Charter, which in turn influenced the Bill of Rights contained in the Constitution (du Toit & Sguazzin, 2007). The Bill of Rights enshrines the rights of all people in South Africa, affirming the democratic values of human dignity, equity and freedom.

According to Okonski (2009:10[8]) research has shown that because water is 'un-owned, un-traded, and hence under-priced, water delivery systems, aquifers, and watersheds are in serious peril'. She observes the failure by governments of poor countries to provide water to millions of their thirsty people and cites substantial underinvestment in the development and deployment of new technologies for water management.

Mehta (2006) argues that water rights are embedded in wider legal instruments and tenure arrangements that can be competing and conflicting, calling into question water's publicness, but at the same time, cautions that poorly defined water rights could lead to conflicts over access. She adds that policy shifts towards Growth Employment and Redistribution (GEAR)[9]

[8] Okonski, K (2009) Water wars: is water a human right or a commodity?
Reference page not available, hence created own page numbers. Article ranges from page 1 – 20.
http://www.thefreelibrary.com/Water+wars:+is+water+a+human+right+or+a+commodity%3F-a0194721478
accessed 29 March 2010

[9] GEAR – the conservative macro-economic strategy adopted by ANC government following the failure of the RDP policy. The implication was that economic development would be led by the private sector, that the state should play a smaller role in the economy, that there would be deep cuts in government spending, and that there would be privatisation of state assets, among other drastic changes.

and other forms of neo-liberal global economics have obscured links between ordinary citizens and their representatives, making tracking processes of accountability difficult across these multiple scales.

Thompson et al (2008) express concern that although provision is made in the Constitution for every individual to have access to water and basic sanitation, there was a huge possibility that some citizens would not be aware of their rights and may lack the capacity to mobilise around them; or, in some instances, would mobilize in fragmented and unorganized ways without enough impact on government policies or behaviour to be of any benefit. Further, Thompson et al (2008) argue that the uneasy mix of official socio-economic entitlements to water which conflict with broader economic policies result in the sins of omission and commission playing themselves out.

2.5 Public participation and governance

The Constitution, as the cornerstone of democratic processes in South Africa, enables citizens take part in democratic processes both at the local and national levels. Oldfield (2008) acknowledges that the role of participatory democracy is to build an inclusive citizenship as opposed to the once exclusive state of the apartheid era, which was not responsive to the needs of the majority. Both the Constitution and the Municipal Systems Act (2000) require municipalities to ensure that disadvantaged communities participate in processes of identifying the needs of the larger communities (Gray & Maré 2002).

There are numerous legislative ways in which South Africa's citizenry are invited to participate or are consulted to make an input into important matters that happen around their environs. Such participation forums in municipalities, for example, include the mayoral *izimbizos* (public meetings), integrated development plans (IDPs), ward committee meetings, and the five-year process of electing municipal representatives. The role of *izimbizos* is to strengthen the system of local government in all three spheres of governance. It is an 'invited space' in which key issues are discussed and updates given on projects taking place in various areas. In this regard, public participation, in accordance with the Bill of Rights, allows people to exercise their basic human rights and take part in decisions that affect their future. Municipalities often have to facilitate the formation of ward committees, led by the ward councillor, in accordance with the Municipal Systems Act (2000). The only drawback of such a forum is that it does not have any decision-making capacity but only facilitates debate over

resources. Sokupa (2009) argues that since the deliberative role of both ward committees and *izimbizos* are restricted, it affects their impact on local municipalities' decision-making processes, and reduces them to public relations functionaries to give a semblance of broader community participation.

One of the roles of ward committees is to identify and discuss major issues that affect their locale, but this is frustrated by their lack of meaningful integration into the municipal decision-making process which reduces them to mere talk shops and political grandstanding opportunities. Ideally, ward committees form an avenue through which ward issues are channelled through the councillor to the wider council for deliberation and actioning, thus ensuring public participation in decision-making processes.

Piper and von Lieres (2008) lament the lack of any meaningful role by ward committees in the development planning or budgetary processes at both the municipal and local level. Their role is to strengthen the voice of ward councillors at council meetings. The long-term effect is a disjuncture between residents and authorities, often manifested through protest action as people express frustration and dissatisfaction with poor service delivery.

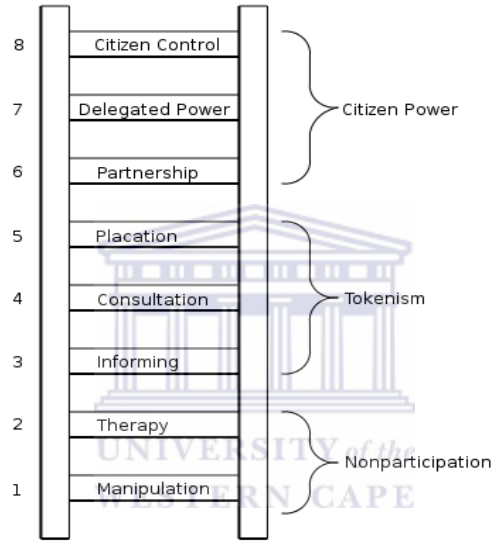
According to Servaes (2008:171) participation implies a 'higher level of public involvement in communication systems', as well as sharing of both economic and political power, which often diminishes the advantages of those in power. Freire's (1979) participation model favours the human-centred approach that recognises the importance of interpersonal communication and how this impacts on the decision-making process. This approach was applied to the Saxonsea study to see how the households reached their decision-making process. In order to explore this concept of participation, I draw on Arnstein's (1969) ladder of participation, which ties well with Freire's approach because it brings out to fore the exact nature of participation that took place.

Public participation is vital as it makes residents feel that they are part of the decision-making process of projects being implemented for their benefit and therefore gives a sense of ownership and control. Konisky & Beierle (2001 in Irvine & Stansbury 2004) argue that the debate around citizen participation is no longer representative of government versus citizen participation but about the best type of citizen participation. If done well, the citizen participation process has the potential to transcend barriers to effective policy as the citizens

understand the challenges around them and view themselves as part of the solution (Irvine & Stansbury 2004).

Thompson (2007) observes that the success of the public participatory process depends on the intended results. On the other hand, the weakness of participatory governance is reflected when government views participation as a vehicle to gain legitimacy in decision-making rather than as vehicle of change.

Figure 1: Ladder of citizen participation



Source: Arnstein, 1969:217

Arnstein (1969) explains levels of citizens' participation through an eight-rung ladder each depicting the extent of citizens' power in determining the plan and programme. This ladder of participation is useful in the analysis of the nature of public participation by Saxonsea residents and the extent to which it could be viewed as voluntary or convenient participation.

The lower rungs of manipulation and therapy depict the non-participation level, which enables power-holders to 'educate' the participants. Participation without any form of power sharing would be a frustrating exercise for vulnerable people, who are already powerless. Manipulation, the first rung of the ladder, shows the power play between powerful and vulnerable people. Notably it was the City (through the Community Service Agents hired by the City's consultants) that set out to educate, persuade and convince residents that the

WMDs were advantageous, and in the process making it (the City) appear benevolent and caring about its residents. The relationship was top-down approach.

The Constitution requires local government to be democratic and accountable, and encourages the involvement of communities and community organizations in matters of local government, but Smith & Vawda (2003) hold a different view. They argue that the imperatives of commercialization and cost-recovery of core services, at the expense of greater public participation, have the side effects of creating passive customers and undermining the cultivation of active citizens. In addition, the sequence of developing the entitlements that come with these identities influences how individuals engage with the city.

According to Atkinson (1992:43), there is a notion of 'popular sovereignty' that indicates that governance is not a separate entity from its citizenry, but that the two are intertwined. Implicit is the notion that the government is accountable to the community in an on-going manner. This form of democratic and good governance instills an impression that the community owns governance. This contextual analysis is in line with the shift from the concept of government to governance (Kooiman 1993).

Smith & Vawda (2003) add that the Reconstruction and Development Programme (RDP) and GEAR represented different visions for how to bring about equity and redistribution in a deeply divided state and economy. The shift from RDP to GEAR signified a fundamental shift in service delivery. Under RDP, redistribution of resources was vital whereas GEAR advocated a free market approach, liberalising the economy, reducing the role of the state and deregulating labour (Nattrass 1999). Mayher & Makoatsane (2005) and Mehta (2006) agree that, although the ANC government developed the RDP in 1994, the shift to GEAR reflected the influence of the World Bank. GEAR's emphasis on liberalism and market forces generated a lot of controversy, which had wider implications especially in the water sector, as it translated to disconnections for poor households because water became very expensive. These disconnections were in contrast with the pronouncements made by both the Constitution and the Water Services Act, which sought to redress the imbalances in the provision of services to poor people. The right to water and sanitation is, in fact, not just a right to subsidized services but a means to ensure that water and sanitation fulfil a collective social and environmental function, and that the most disadvantaged groups in society are

effectively empowered to have a say in the decision-making process (Allen, Dávila & Hoffman 2005).

The collective orientation of republican citizenship in relation to the state is being replaced by an individuating relationship where 'customer service' is delivered to current or intended clients who purchase products. Those who can afford to pay user fees and have the numeracy skills to understand their bills, have the communication confidence to interact with call centres and the confidence to complain. These are the entitlements of being a customer. Yet for those who have historically been excluded from cultivating their rights as citizens, let alone their capacity to be responsible customers, the relationship between the state and customer is based on a transaction with little exchange value. There is therefore a critical difference between going through the empty ritual of participation and having the real power needed to affect the outcome of the process. What does this shift from the citizen to the customer imply for democracy and the state's relationship to the individual and community? If we look at service delivery as a microcosm of this changing relationship, the outcomes of this shift threaten to undermine meaningful forms of public participation.

Thompson (2007) observes that the success of the public participatory process depends on the reason why it is done, adding that the weakness of participatory governance is reflected when government views participation as a vehicle to gain legitimacy in decision-making rather than as vehicle of change. With reference to Saxonsea, this study analysed the nature of public participation and the role played by residents. The participation process was reduced to information sessions during the period when WMDs were installed. Given pronouncements by the City (2008) that it is owed more than R12 million in unpaid bills by residents of Atlantis, it already complicates the nature of power dynamics and creates an uneven playing field.

Since 1994, the South African government has actively promoted users' participation, for example during the formulation of the National Water Act (No. 36 of 1998). Although the National Water Act challenged prevailing inequities in water use by introducing a powerful legal tool with a potential for change, its major challenge was in the implementation of the law. According to Atkinson (1992:43) there is a notion of 'popular sovereignty', which indicates that governance is not a separate entity from its citizenry but that the two are intertwined. Implicit in this form of governance is the notion that the government is

accountable to the community in an on-going manner. This form of democratic and good governance instils an impression that the community owns governance. This contextual analysis is in line with the shift from the concept of government to governance (Kooiman 1993).

The Phiri Judgement of 2008 presented a major victory for the Orange Farm residents who, although they lost their bid for the removal of pre-paid water meters as a violation of their human rights, nonetheless won an increase in the basic free allocation of water from 25 litres to 40 litres per person per day. The right to water and sanitation is, in fact, not just a right to subsidized services but a means to ensure that water and sanitation fulfil a collective social and environmental function and that the most disadvantaged groups in society are effectively empowered to have a say in the decision-making process (Allen, et al 2005).

2.6 Conclusion

This chapter discussed in detail the broader debates on water services provision and the various international instruments that acknowledge the importance of water in the sustenance of human beings. These instruments, however, fall short of proclaiming access to water as an express human right that stands on its own without being embedded in other rights. The major challenge is that states are not obliged to enforce access to water as a human right, but are expected to respect it. It is still debatable why this cannot be enforced as a stand-alone right. It would seem that the same UN that has a plethora of agreements on human rights also supports the commodification of water. It is not coincidental therefore that although the UN in other forums recognizes the importance of water, it is unable to force governments to enforce the human rights laws. States' responsibility is to respect the human rights of their citizens but they are not obliged to enforce them.

Chapter 3: Water policy reform and implications for the poor

3.1 Introduction

Chapter 3 looks at the legislative framework on water, using both the neo-liberal and human rights lens. It draws out the implications of Constitutional provisions in relation to the provision of water, especially for the poor. The review of the current legislation and a historical background the previous water policies will put in perspective the current water policies, which shape access to water. Specific reference is made to WMDs installed on properties in Saxonsea in Atlantis. It is important to remember that while South Africa's Constitution plays a pivotal role in correcting the imbalances of the previous apartheid regime, it is largely influenced by the international instruments, many of which lean towards neo-liberal persuasions. The advice by the World Bank and other Brenton Woods institutions hugely affect the way the South African state sets out to redistribute water, especially to the poor.

The chapter is divided into several sections as follows: an overview of apartheid and post-apartheid water legislation; an introduction of the Constitution as guiding legislation that recognized the rights of all citizens to have access to water; a review of current water legislation and its impact on the delivery of water services to the poor; the rights and neo-liberal approaches to water and how these influence current legislation; and FBW policy as a cost recovery strategy and how this has been used as a tool to monitor water consumption by the poor and whether its implementation is in the spirit of the constitutional provisions of access to water. The conclusion summarizes reforms in the water sector and their impact on access to water by the poor.

3.2 Overview of apartheid and post-apartheid water legislation

3.2.1 Dutch settlement in Cape Town

Wuriga (2008) traces governance of water use management to the permanent settlement of the Dutch in Cape Town in 1655 and the subsequent introduction of Roman Dutch Law by Jan van Riebeek. Laws gave the state responsibility over the ownership and control of water use, and in this instance, it favoured the colonial masters who had taken over ownership of land and turned the indigenous people into their slaves. The defeat of the Dutch by the British in 1795 saw a change in the governing system, with the introduction of the English legal system bolstered by the riparian principles influenced by the Crown. Under this system, the concept of the state control of water use was alien: the Crown had no such control except where it concerned naval exploits. The riparian system benefited the landed few (the whites) and the common factor between the two systems was marginalization of the dispossessed black majority (Warigu 2008). This led to private rights to water access gaining precedence over public rights. However, the concept of state control of water was reintroduced following a series of amendments to the Water Act (No. 54 of 1956), hereafter the Water Act 1956 (Rowlston et al 2006; DWAF 1986), aimed at ensuring the equitable distribution of water supply to other industrial and other activities, as well as concern for environmental conservation. Notably, equitable distribution applied only to white farmers and individuals with private use rights and not to marginalized blacks, most of whom found themselves under the jurisdiction of homelands[10], which, apart from Bophuthatswana, relied on the water laws from central government irrespective of their suitability to their environment.

3.2.2 Water reforms

The water reforms of 1912, 1956 and 1998 were influenced by political changes such as union in 1910, the National Party's election victory in 1948 and the African National Congress's election victory in 1994. Changing developmental needs in the 1950s linked to industrialization and urbanization, and the socio-equity factors of the 1990s, influenced the provision of water services to poor and disadvantaged communities (Backeberg 1994; Bate & Tren 2002)**.** The repeal of the Water Act 1956 and other water legislation implemented during

[10] Those that attained 'independence' from South Africa included Transkei, Bophuthatswana, Venda, and Ciskei. Homelands were not recognized outside South Africa.

the apartheid era was meant to make water more accessible to domestic, industrial and agricultural users without the restrictions that underlay riparian[11] principles.

The Water Act of 1956 was promulgated after the Irrigation and Conservation of Waters Act (No. 8 of 1912) became inadequate to cater for the country's social and industrial growth. The Water Act of 1956 resulted in control measures being put in place for industrial water use, effluent treatment and disposal. Pollution of water bodies was also put under spotlight to avoid the deterioration in the quality of water and it became important for industrial users to recycle waters. While the Water Act 1956 was in place, various other Acts were promulgated, amended and repealed to cater for different local needs and serve the interests of the powerful and landed elite. These include, for example, amendments to the Southern Suburbs of Cape Town Water Supply Act (No. 29 of 1907) in 1952; the repeal of the Breede River Conservation District Adjustment Act (No. 24 of 1950); and the amendment of the Kilo litreipdrift Settlement Act (No. 23 of 1947) by Act No. 50 of 1963 Thompson (2005).

Table 2: Some of the repealed water-related Acts

Number and year of Act	**Short title**	**Extent of repeal**
Act 54 of 1956	Water Act 1956	Sections 26A to 26H and 107 to 138
Act 29 of 1964	Rand Water Board	The whole
Act 89 of 1981	Water Amendment Act, 1981	The whole
Act 39 of 1988 (Bophuthatswana)	North-West Water Supply Authority Act, 1988	The whole

Source: Water Services Act (108 of 1997)

The Water Act 1956 differentiated between public and private forms of water. Public water referred to normal flow and surplus water that flowed in the bed of a public stream, while private water included spring water, ground water that was not derived from a public stream after its abstraction or water that overflowed naturally during a flood from a public stream (Thompson 2005). Although in principle it was easy to distinguish the two forms of water, it

[11] Riparian principles under English law entitled a land owner unlimited rights to use water that flowed through his land as he pleased, without consideration for other land owners above- or downstream.

often required the courts to rule on claims over these forms of water. Interestingly, private water could change to public water if it joined other flowing water in a public stream, but that change was not effective outside the public stream.

Given the complicated nature of water legislation that was tailor made to serve the interests of the few land owners, it became necessary for the various pieces of legislation to be streamlined to provide the water to more people. Legislation progressively shaped the provision of water services, especially to the urban poor, who by virtue of their socio-economic status, and other discriminatory laws, were further marginalized. The fight against the oppressive apartheid regime saw the withholding of payment for essential services such as water and electricity by the urban poor, loosely described as the 'culture of non-payment'.

3.2.3 Neo-liberal approach to water

The transition of water reform laws after apartheid was part of a deliberate move to acknowledge the new political dispensation, and take into account the needs of the majority of South Africans who had suffered deprivation under the previous oppressive government.

The transition from RDP to GEAR presented a different way of responding to global political and economic changes and saw South Africa shift its orientation in line with the existing neo-liberal approach to development. Warigu (2008) argues that the apartheid government, by virtue of its selective development principles, had put in place a market approach to water that was dominated by the commercial farming sector at the expense of other sectors. The new democratic government emphasized the human rights approach to the procurement and distribution of water, and aimed to provide water for basic use for everyone.

Therefore, this shift from the riparian principle, which had guided water allocation and was used by the apartheid government to assist white landowners, to the Constitutional imperatives that promote equity and opportunity in access to water, illustrates the changes in the historical focus of water management.

The challenge that faces water management is the growth of competing users as well as economic growth, leading to a need for innovative ways to manage the resource efficiently. South Africa's water resources are said to be scarce, a situation that has given rise to the need

to conserve, protect and manage them effectively to ensure that they are available for many years to come.

3.2.4 Millennium Development Goals

Access to safe drinking water and to sanitation plays a pivotal role in the realization of all the Millenium Development Goals (MDGs). Soussan (2004) acknowledges that meeting water needs for the poor goes beyond just the provision of drinking water to providing livelihoods through irrigation or animal husbandry. Soussan adds that current home-based allocation systems could be perceived as prescriptive because they focus on basic needs, which do not accommodate any livelihood activities, such as vegetable gardening that could assist households provide their own food security and thus work their way out of cycles of poverty. Water security is an integral part of any household. According to South Africa's 2010 MDG report, there has been a significant improvement in the proportion of households with access to clean water. In 1995, 60% had access to clean water and this proportion improved by 25% in 2003 to 85% of households. Similarly, access to sanitation improved from 49% in 1994 to 63% in 2003 (South Africa MDG Report 2010), although it lagged behind access to water. Although the figures reflected in the report show a significant improvement in access to both water and sanitation services, it is how communities access water that is important and is not shown in the report. Protests by poor communities in Soweto's Phiri settlement are indicative of the struggle by poor people to access adequate water for their needs. However, it is important to note that access to water and sanitation did improve through post-apartheid reforms, which were implemented to redress the unequal access to resources perpetuated by the apartheid regime's policies (Geneva: COHRE 2009).

3.3 The Constitution and the right to water

The South African Constitution (Act No 108 of 1996) formed the basis of the comprehensive water policy reform following the demise of apartheid. The Constitution's comprehensive Bill of Rights includes the right of access to water, among other social and economic rights.

As mentioned above, Section 27(1)(b) identifies access to water as a right to be enjoyed by all citizens and exhorts the state to take

> reasonable legislative and other measures, within its available resources, to achieve the progressive realization of each of these rights (RSA Constitution Act 108 of 1996 S(27)(2)).

Gleick (1999) emphasizes that access to basic water is a fundamental human right supported by international law, declarations and state practice.

Chapter 3 of the Constitution outlines that the three spheres of government (national, provincial and municipal) are not only interdependent but also interrelated and should therefore cooperate and coordinate their functions and legislations. The Constitution identifies cooperative governance and integration as being the key to effective policy management. It is the duty of the national and provincial governments to support and ensure that municipalities carry out their functions, which also include providing water supply and sanitation services to their communities.

However, this obligation is further qualified by 'reasonable legislative and other measures, within its available resources', which gives the state room within which not only to determine the content of this right of access to water, but also to empower policymakers to make determinations on the reasonableness of the measures to be used. This alone limits the right of access to water. In addition, and perhaps more importantly, the Constitution obligates the state to give effect to the realization of the right but does not provide 'for the right of individuals to access water'. It is neither an all-encompassing right, but an access right (du Plessis 2010); nor does it give a timeframe within which the right to access water must be realised.

In addition, the language used to express the obligation of the state in the realization of these rights is protective and shows foresight on the side of the drafters to contain future legal challenges. Du Plessis (2010) observes that the drafters of the Constitution took into account the likelihood of limited state resources, hence the realistic 'progressive realization' of the right. The reasonableness of legislative and other measures is not defined and leaves room for interpretation, which would appear to give the state more power than the individual who is dependent on the state for resources. It remains questionable whether 'reasonableness' can actually protect the poor. Of even greater concern is the assertion 'within its available resources' because it could potentially be open to misinterpretation: it does not set the basis

upon which it is determined whether the available resources are adequate to achieve the realization of these rights. It is not clear what happens to citizens if resources are deemed inadequate. Section 27(1) of the Constitution does not define what constitutes a 'sufficient' amount of water. The question is whether it is desirable for the Constitution to specify the amount of water required by individuals. However, it is worth noting that different countries specify different quantities of water per person per day: the United States regards 450 litres per person per day as adequate, while in the United Kingdom 145 litres per person per day (UNDP Human Development Report 2006). In South Africa, DWAF (2001) defined 'basic water supply' to mean 25 litres per person per day, available within 200 metres of a household. This is in line with the standards set by World Health Organisation's short-term minimum requirement for survival (WHO 2001). Interestingly, this minimum short-term requirement was adopted by DWAF as the basis for what it then promoted as the basic requirement espoused by WHO, and ignores the emphasis on the short-term nature of this requirement.

Although South Africa's water scarcity has been advanced as one of the reasons for the regulation and control of water usage, it would appear that such control targets the poor; while the rich do not have the same regulations put in place to control their consumption. In addition, the free lifeline is available for all households, irrespective of their ability to pay.

Gabru (2005) observes that the phrase 'right to have access to' restricts the right to water as an indirect right. In this regard, the state only has to provide water depending on its 'available resources' and is therefore under no obligation to do so, unless citizens have inadequate means to meet their basic needs. In the same vein, Gowlland-Gualtieri (2003) argues that the question of the justiciability of the social and economic rights as enshrined in the Constitution remains central to the right to water.

In the Phiri case,[12] Judge Moroa Tsoka of the Johannesburg High Court ruled in favour of residents who had challenged two aspects of the City of Johannesburg's water delivery service. Residents sought to the opportunity to have conventional water meters in place of prepaid meters, and wanted access to sufficient water for their needs (Bond & Dugard 2006). This was a ground-breaking case over what residents believed was a breach of their

[12] *Mazibuko & Others v City of Johannesburg and Others* (Centre on Housing Rights and Evictions as *amicus curiae*) CCT 39/09. Case no 06/13865 in the Johannesburg High Court

Constitutional rights to access adequate water for their needs. The applicants, along with others in Phiri, had been forced to accept either prepaid meters or standpipes as the only options open to them, or else complete disconnection from the water supply. The historical background to this water issue stemmed from the apartheid days when the municipal officials were concerned with quelling political activism in Soweto rather than regulating payment for water and electricity services. A flat rate was charged and residents had access to an unlimited water supply, which on its own was problematic because it did not take into consideration the volume of water consumed by each household. Bond and Dugard (2006) point out that this state of affairs was acceptable to residents, who incurred high bills because of the laxity of credit control by the municipality. Unlimited water consumption and rising arrears became untenable for the City of Johannesburg after 1994 and it sought to implement cost recovery, as there was no longer any political imperative to continue with the status quo. In 2002, the City of Johannesburg launched Operation Gcin'amanzi in Soweto as an attempt to solve the problems of unlimited consumption by residents and rising arrears.

3.3.1 The Constitution as the catalyst for water sector reform

As previously mentioned, the review of legislation on water gave rise to the promulgation of both the National Water Act (No. 36 of 1998) and the Water Services Act (No. 108 of 1997). Arguably the Constitution provided an enabling environment for these changes to take place. Gowlland-Gualtieri (2003) acknowledges South Africa's adoption of progressive laws and policy frameworks as recognition of the constitutional call for the right of access to water. Similarly, Marjanović et al (2011) observed the positive changes after the 1994 democratic elections, which paved the way for wholesome policy reforms in all sectors, including the water sector.

The democratically elected ANC government has largely been successful in expanding access to water by poor communities, which previously had little or no access to water and sanitation. For impoverished communities this brought much-needed relief, although it rather pales in comparison to white and middle-class households that have piped water in their houses. Francis (2005) decries the fact that the number of households with access to basic water represents only a fraction of those without access to potable water. In addition, those with access to water, especially in the townships, suffer from the lack of adequate maintenance of water infrastructure and from poor delivery systems, coupled with high water

prices and frequent cut-offs due to non-payment. The situation looks bleak for these households, and government's long-term vision of moving them up the water ladder, from standpipe to yard tap to in-house connection, remains a big challenge.

3.3.2 Post-apartheid legislation and access to water

This section discusses various pieces of legislation that govern accessible and equitable water provision in post-apartheid South Africa, as opposed to the discriminatory laws of the past. Francis (2005) makes a direct link between the current inequality in access to water with the apartheid government's land and water policies. Land was reserved for whites through the discriminatory Natives Land Act of 1913. Similarly, the Natives (Urban Areas) Act 1923, prevented the black people from moving freely to cities, and this resulted in them being pushed to over-crowded and unproductive homelands, while the white South Africans enjoyed comfortable living conditions (Francis ibid).

3.3.3 Water Services Act (No. 108 of 1997)

The democratic South African Parliament drafted and passed the Water Services Act (No. 108 of 1997) to further clarify government's responsibility for providing basic water services to the people. The Act assists municipalities to undertake their roles as water services authorities and to provide water to those living within their jurisdictions. However, although the Act gives guidelines on basic water provision and pricing techniques it does not prescribe strict implementation timelines within which this should be achieved, thus leaving residents at the mercy of water service providers. It is only when the FBW was introduced in 2001 that various municipalities pursued their pricing policies in order to implement this basic right to water. A baseline potable water provision was adopted as part of the RDP minimum standard and 6kilo litre.

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

The National Water Act pays specific regard to water demand management and creates a broad legal framework that legislates the protection, use, development, conservation, management and control of water. The National Water Act considers the environment as 'user' and states that:

> After providing for the basic needs of its citizens, the only other water that is provided

> as a right, is the Environmental Reserve – to protect the ecosystems that underpin our water resources, now and into the future … it is the duty of national government …to assess the needs of the Environmental Reserve and to ensure that this amount of water, of an appropriate quality is set aside (DWAF 1997:24).

It also includes provisions not only to ensure equal access to water, but also to take positive action to redress racial and gender imbalances in water use (Seetal and Quibell 2005).

The National Water Policy (1997) pronounced water as an 'indivisible national asset' (DWAF 2004:7) and called for decentralization of the water-resource management system to include stakeholder participation within demarcated areas (Warigu 2008). In addition, government would assume the responsibility of "custodian of water resources, and its powers in this regard exercised as public trust" (DWAF 2004:7). This was a symbolic shift from the previous dispensation where water was in the hands of the few, to one where the government would assume responsibility to ensure equitable access to water for every individual. This policy led to the enactment of the Water Services Act of 1997 and the National Water Act of 1998, both of which uphold and recognize the rights and freedoms of access to water. Abrams (1996) acknowledges that although the shift from riparian law to a human rights approach to water governance gave DWAF a political mandate to fulfil people's expectations of equitable access to water, its implementation was not guaranteed. On paper, the approach encouraged public participation, a practice that was not visible under successive white governments.

There were challenges in implementing the water resources strategy, including poor infrastructure, lack of skilled manpower and a dearth of technological expertise. Peer (2001) notes that the new democratic government did not fully disclose the existence of phased implementation of the National Water Policy and this led to boycotts and protests against perceived lack of water service delivery.

3.3.5 The Municipal Structures Act (No. 33 of 2000)

The Municipal Structures Act assigns the responsibility for water services to the District municipality. This development has seen district municipalities assume the role of service providers, "deviating from the original conception of coordinators and supporters of and equalisers between local municipalities" Steytler (2000:228). Steytler adds that the district municipalities share both administrative and legislative powers with local municipalities in

their area. The division of functions and powers between the two is largely dependent on the capacity and needs of the local municipalities.

3.3.6 The Municipal Systems Act (No. 32 of 2000)

The Municipal Systems Act focuses on municipalities' internal systems and administration. The Act introduces the differentiation between the function of an authority and that of a provider. It also identifies the importance of alternative mechanisms for providing municipal services and sets out certain requirements for entering into partnerships.

Mackintosh et al (2004) acknowledge that the introduction of new municipal systems, water policies and financial frameworks changed the face of water services provision in South Africa. Before 1994 approximately 14 to 18 million people had no access to water services while a further 21 million had inadequate sanitation (Van der Merwe 2003). The repealing of various legislation discussed earlier in the report, enabled the previously disadvantaged groups to access water for their basic needs.

3.4 Water subsidies

This section discusses water subsidies, the targeted households and impact of subsidies on the quality of water services provided to households. South Africa's subsidy system, the FBW, addresses issues of equity given the historical imbalances in service provision by the apartheid government. This section also discusses how the poor can be 'discriminated' against using policies such as the Indigent Policy[13] to provide services to them. The labelling of the poor classifies them as 'special' people that are treated differently, and makes it convenient for decisions to be made on their behalf without prior consultation. Although the FBW policy was designed to benefit the poor, the challenges of its implementation resulted in everyone benefitting regardless of their ability to pay. Water limiting measures were put in place in the delivery of water, especially to poor households, which was a subtle cost-recovery strategy disguised as a policy to improve the quality of life of the poor. Cost recovery describes a process by which a service provider recoups all or some of the costs linked to the provision of

[13] The Indigent Policy was designed to redress the inequalities perpetuated by the apartheid government by assisting households that struggle to pay their rates and service charges. The indigent are those sections of the population that are unable to pay for their basic needs and services. To qualify for the grant applicants have to meet to predetermined criteria such as income, ownership of property and status of occupancy. The value of the property they occupy must also be within the limit set by the municipality (City of Cape Town 2008).

any services, whether they are operating, maintenance or infrastructural costs. McDonald (2002) points out the difference between private and public sector providers in that the former expect to make a profit whilst the latter are not under pressure to make a profit out of the cost recovery process.

3.4.1 Free Basic Water Policy: Rationale for use as a tool for accessing water

As discussed elsewhere in this study, the introduction of free basic water by government in 2001 was part of water management strategies aimed at ensuring that everyone had access to water for their basic needs. The policy was initiated to redress apartheid-induced inequality in access to water by the poor, and in the process to improve public health, gender and equity as well as fulfilling individual South Africans' constitutional rights to access water. Although the FBW policy sought to alleviate the suffering especially of the poor, Bond & Dugard (2008) dismissed its timing as a political ploy by the ruling ANC designed to win votes, given that it was during the run-up to the local government elections. The ANC had promised to

> "provide all residents with a free amount of water … those who use more than the basic, will pay for the extra they use" (Bond & Dugard 2008:7)

Under this policy, households receive 6kilo litre water free every month, irrespective of their ability to pay. The implementation of the FBW policy was challenging, hence the blanket provision of free water to all households irrespective of their ability to pay. Water users who can afford to pay for water benefit while those whom this was targeted at, find themselves at the raw end, facing similar challenges of inadequate resources as before, although the difference being that they at least have access to free water. The point of departure is the implementation of this access, where the poor have regulated access to supposedly free water through technological intervention in the form of pre-paid meters, trickilo litreers and WMDs, among others. The use of these interventions ensures that poor households are prevented from consuming more water than rich households, which, even if they exceed the free water allocation, can afford to pay for water and often do not get penalised for their 'excessive' water use. Households that do not rely solely on free water can enter into payment agreements with the water provider, in this case, the City, and pay for their water in instalments. In most instances, they can negotiate arrangements not to have their water supply cut off. The major difference is that they make human contact to set up these payment arrangements whereas the technological intervention cuts off that interface, and dehumanizes the process.

The FBW policy operates on the notion that water is a scarce resource that needs to be managed and conserved. However, Illich and Gronemeyer (1993) criticise the notion of 'basic needs' as a by-product of development that seeks to measure humanity according to standards of decency and normality. Accordingly, these basic needs are expressed in technical measurements and monetary terms to give credence to their existence. Smith (2010) argues that the justification of FBW was in line with the contrived humanitarian crisis approach that sought to solve physiological needs through scientific methods. In addition, provision of FBW with the support of the indigent policy not only enables poor households to access free water but also ensures non-disconnection when they exceed their free allocation (Smith 2010). This ensures that households, especially large ones, access financial benefits associated with the FBW and the indigent grant.

However, various factors affect water scarcity and Mehta (2000) outlines four notions of scarcity – the biophysical and ecological attributes determining water availability; temporal and cyclical dimensions; distributional and relational attributes of scarcity; and anthropogenic dimensions of scarcity. It is important to understand the multifaceted nature of water scarcity so as to avoid addressing the problem with one blanket explanation. According to Mehta (2000), the experience of water scarcity is not homogenous, and therefore requires a multi-pronged approach and not a single solution. Arguably, if the implementation of FBW provides a lasting solution to South Africa's water problems, then the controversial installation of prepaid meters in Orange Farm and Durban, among other places would not have caused distress to the affected residents. Currently, the regulation of FBW is prevalent in poor communities giving rise to criticisms that this approach victimizes them but leaves the well-to-do able to access water without punitive limitations.

Although water was heavily subsidized during the apartheid era, this was done through racially designed policies that saw the black majority with inadequate access to water supply. Therefore the FBW subsidy is significant in that it not only addresses issues of access based on income or ability to pay, but equitable access to water by everyone as part of the reform of the water sector. As a subsidy, FBW is double-sided because its implementation serves to redress imbalances of the past but it also becomes part of the cost recovery strategy. While the introduction of the FBW policy has been viewed by some critics as politically motivated, others have viewed it as an attempt to correct inequalities.

The implementation of FBW policy poses challenges especially for poor rural municipalities because of the income profile of their residents, which in turn affects the sustainability of the programme. Given the poor financial position of several municipalities, the implementation of the FBW is a great challenge. Where urban municipalities have made strides to provide FBW services, some rural municipalities may still be in the first stages of the implementation of the policy. DWAF (2002) acknowledges the financial, socio-political, institutional and technical challenges that affect the implementation of the FBW policy. The financial aspect involves the ability to sustainably fund targeted households, given the disparities in different municipalities. The socio-political challenges involve ensuring cooperation of various stakeholders such as communities, local councillors and government officials through the establishment and management of effective communication channels. Similarly with institutional challenges, there is need to develop working relationships between different organisations, and the technical aspect involves choosing appropriate technical and service level options to facilitate the provision of free water. These challenges pose genuine difficulties and frustrations for both municipalities and consumers.

Since there is no commonly accepted definition of poverty,[14] levels of income have been loosely used as one approach to identify poor households. This is, however, not a watertight approach as various factors come into play that makes it unreliable. Given this complexity, it is easier for local authorities and municipalities to provide blanket lifeline water to all households irrespective of their income levels. It is this lifeline of 6kilo litre that is regulated to 'poor' households through various interventions such as WMDs, trickilo litreers and pre-paid water meters in different places throughout the country.

Gowlland-Gualtieri (2003) reiterates that although the implementation of the right to water has resulted in the development of the FBW policy for domestic use and consumption, huge inequalities remain as a result of the apartheid legacy and the application of the economic approach to water policy. The latter approach manifests in terms of cost recovery and privatization, which has contributed to the challenges faced by the poor in access to water for their basic needs and sanitation. Further, Gowlland-Gualtieri (2003) expresses concern that as far as the water policy is concerned, the radical legal policy reform has seemingly not translated into meaningful improvement for the poor majority in the country.

[14] Households are still required to prove their income or lack of it when applying for the indigent grant.

3.4.2 The Indigent Policy as a cost recovery tool

The Department of Local Government (2008) defines indigence as 'lacking in the necessities of life'. The Indigent Policy is based on the Constitution (Section 27(2)) and the Municipal Systems Act (2000). Section 27 (2) of the Constitution states that:

> The state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of each of these rights.

According to the guidelines given by the Constitution these basic necessities are water, sanitation, refuse removal, environmental health, energy, housing, healthcare and food. The Municipal Services Act (2000) sets provisions for targeted tariffs through the Indigent Policy but emphasises the cost effectiveness of municipal services.

Although the indigent grant is designed to benefit struggling households, it is the responsibility of each Municipality throughout the country to come up with its own strategy of implementing the policy, depending on available resources. The grant enables indigents to have access to water and Smith (2010) describes it as a tool that makes it possible for households to access water if the FBW supply runs out. The grant of R40.00 per month provides additional water supply for the beneficiary households, thus supplementing the FBW supply.

Although both the indigent grant and FBW are designed to help the beneficiaries have access to water, it is this same water that is regulated through various technological interventions such as washers, WMDs and prepaid meters, thus patronizing them in a way that is not done to other sections of the community. Although the Constitution is clear about the rolling out of government services and benefits without discrimination, the availability of resources puts that into disarray especially for municipalities that have limited financial capacity. This invariably affects the provision of free basic services to indigent households. The water reforms implemented in post-apartheid South Africa seek to improve access to water for every citizen regardless of race and economic position. The reclassification of the poor as indigents raises concerns as it reincarnates the apartheid notion of discrimination. Even though this reclassification could arguably be viewed as positive discrimination, it still means that the poor have no right to make their own decisions..

In Cape Town, the Indigent Policy covers arrears, grants and payments of services to ensure that the poor have access to basic services such as water, sanitation and electricity (van Ryneveld et al 2003). This policy can also be used as a tool to keep the poor in line and make sure that they conform to the set policies by ensuring that they only access predetermined quantities of free water and electricity.

The Makana[15] Municipality in the Eastern Cape defines indigent households as 'households or ratepayers that fall within the qualifying criteria of being declared poor and qualify for financial assistance through the Assistance to the Poor/Indigent Policy' (Makana Municipality 2007). It is interesting to note that Makana Municipality also refers to the Indigent Policy as 'Assistance to the Poor', but also acknowledges the complexity of defining poverty by relying solely on income as the prime indicator. However, in implementing its Indigent Policy, it would seem that the Municipality uses the income factor as the major determinant of the poverty status of the household. It provides 10kilo litre of free water for households after which a step tariff applies for water used above this amount. Like the City of Cape Town, Makana Municipality's extent of indigent support includes water, electricity; refuse collection, sewerage and rates assessment. Cape Town defines a certain level of income as the defining indigence and largely uses property values as a determinant factor.

3.4.3 Tariffs as a cost recovery tool

Tariffs constitute an important source of revenue for municipalities and the push for cost recovery influences the steep tariff structures after the free lifeline to enable municipalities to recoup income. Inadequate funding from national government presents challenges for poor municipalities in the implementation of free basic water. National government determines the principles and minimum national norms and standards for tariff setting, while the local Water Service Authorities have the constitutional mandate to set water tariffs in their jurisdictions. Although DWAF has the power to impose price-caps on water tariffs, it cannot prescribe the exact levels or prices of tariffs. However, it is envisaged that it will exercise a regulatory role over Water Service Authorities. South Africa's water tariffs are a major source of revenue for water services. Flynn & Chirwa (2005:65) observe that in South Africa, access to water is increasingly determined by consumer tariffs that "seek to cover full cost of service". The

[15] Makana Local Municipality in the Eastern Cape is named after a Xhosa prophet and serves a population of approximately 70 000 people. It has 12 wards, three of which are in the rural areas of the Municipality.

various water tariffs, as illustrated in the table below, reflect the complexity of tariff structures and the achievement of set objectives vis-à-vis affordability of water.

Table 3: Performance of various tariff options against design objectives

Tariff structure	**Cost recovery**	**Objectives/equity**	**Affordability**
Fixed charge	Adequate Provides stable cash flow if set at appropriate levels, but utility may be vulnerable to resale of water and spiralling consumption.	Poor People who use large quantities of water pay the same as those who use little.	Adequate If differentiated by ability to pay, but households are unable to reduce their bills by economizing on water use.
Uniform volumetric	**Good** If set at an appropriate level, moreover revenues adjust automatically to changing consumption.	**Good** People pay according to how much they actually use.	**Good** Can be differentiated by ability to pay, and people can limit their bills by reducing consumption.
Increasing (rising) tariff blocks (ITBs)	**Good** But only if the size and height of the blocks are well designed.	**Poor** People do not pay according to the costs that their water use imposes on the utility.	**Poor** Penalizes poor families with large households and/or shared connections.

Decreasing block tariff	**Good** But only if the size and height of the blocks are well designed.	**Poor** People do not pay according to the costs that their water use imposes on the utility.	**Poor** Penalizes poor families with low levels of consumption.

Source: Whittington et al (2002)

Regulation 10(2) of the Regulations relating to National Standards and Measures to Conserve Water (Compulsory National Standards) requires that services provided to consumers be measured and quantified according to user sectors. In this regard, the Water Service Authority is expected to differentiate consumers in accordance with their consumption patterns – for example, industrial consumers should be differentiated from residential, commercial and agricultural consumers – so that it would be able to measure consumption levels accurately, and plan accordingly. This differentiation of consumers would enable the Water Service Authority to institute appropriate tariff structures for each sector.

Similarly, municipal councils are required under the Municipal Systems Act (2000) to implement tariff policies that reflect principles that ensure poor households have access to basic services. Tissington et al (2008) argue that the City of Cape Town has partially ring-fenced water services financially, while the City of Johannesburg, Nelson Mandela Metropolitan Municipality, municipalities such as Mangaung and Mogalakwena, as well as district municipalities such as iLembe and Vhembe, to name a few, also financially ring fenced[16] their water services. DWAF's National Water Services Regulation Strategy promotes ring fencing of water services to improve financial efficiency. However, although McDonald acknowledges that theoretically it enables the effective use of funds, he expresses reservations about the practice of ring fencing, citing the cholera outbreak in 2000 in rural KwaZulu Natal

[16] Ring-fencing means that finances set aside for water services are separate from those of other municipal functions through the corporatization of the water services provider.

as a direct result of the implementation of full cost recovery measures. According to Tissington et al (2008), out of the 284 municipalities, eight have achieved partial financial ring fencing of their water services.

The South African Government's adoption of lifeline tariffs was in line with its policy to ensure that all South Africans had access to water for their basic needs (DWAF 1997 - The White Paper on a National Water Policy for South Africa). The tariff policy reflects the value of water as an economic resource, and how costs incurred in its provision should be recovered. It is designed to promote efficient use of the water resource. It is in this scenario that the WMDs have been located by the City, as part of it cost-recovery strategy to ensure that poor households only use water that they can afford. In this case, the free basic water lifeline available to all households is regulated through WMDs for some households in Atlantis, including the study site Saxonsea.

According to the City, this regulation ensures that those households have access to 350 litres per day, throughout the month. If they stick to this amount, they do not have to pay for water at all.

3.5 History of water metering in South Africa

This section discusses the role of water metering as a direct response to water demand management. A brief historical background of universal water metering in the City of Durban sets the tone for the current water metering strategies employed throughout South Africa. Durban saw the introduction of the first steps of implementing the FBW of 200 litres per household per day in response to the problem of access to water by the poor.

Loftus (2006) traces the history of domestic water metering in the City of Durban, as tabled in the municipal government in 1919, 1934 and 1948. This was in response to debates that had raged about 'hedonistic' domestic water usage by households, viewed as posing a threat to the City's industrial and economic progress. Check meters were piloted in the city on some properties to monitor water use at the recommendation of the City Engineer Alec Kinmont[17] in the 1950s (City Engineer's report 1959, in Loftus 2006). The results showed high rates of

[17] City Engineer Alec Kinmont's report revealed high usage volumes of water by residents and implied that this was linked to actual needs, either socially or biologically constituted. The racial slur was hardly disguised.

unmetered water usage, racially profiled as follows: Whites – 72 gallons per day;[18] Asiatics and Coloureds – 52 gallons; Bantu groups – 34 gallons. The effect of the check meters saw a reduction in daily consumption levels to 40, 10 and 6 gallons respectively, with the assumption that this was an indication of households' ability to pay for water used. It is important to note that racial profiling was used to measure water use and hence the implied connotations about ability to pay. This 'experiment' formed a foundation of using water pricing as a disciplinary tool to control household's excessive use of water, and in the process racially defined the consumption patterns (Loftus 2006).

According to Loftus (2006), Engineer Kinmont projected reasonable water use by the three racial groups to be 50, 35, and 20 gallons per day respectively, which, if translated into current terms, is a very generous allocation of 43.75 litres per person per day for those who rely on the lifeline allocation. The report recommended the installation of water meters throughout the municipality, and the City Council only accepted the universal metering of all properties in 1970. Loftus argues that the formation of the semi-commercialised Water Board and its desire to increase profit margins gave rise to what he refers to as 'commodity fetishism'. The water meters assumed a powerful role in poor households as a reminder that there was a new way of doing things. It is in this line of thought that Loftus describes the water meter as 'creeping dictator' in that it controls the amount of water available for households' consumption. Looking at Kinmont's recommendations for racial water allocation, it is ironic that this thought process is similar to what post-apartheid Durban would recommend as FBW for poor communities: 200 litres per household of eight per day, translating to 25 litres per person per day, slightly higher than Kinmont's 20 gallons per household (90.92 litres).

After South Africa's first democratic elections in 1994, the water sector experienced large-scale reforms through a rigorous consultative process. Both the legal and policy reforms covered various aspects of water management including rights to water, reforms in the water management and supply institutions, protection of environmental flows and provision of FBW (Schreiner & Hassan 2011).

[18] 1 UK gallon is equal to 4.55 litres

3.6 Types of water meters

A water meter is a device used to measure and monitors water consumption at a given location, and benefits both the utility and customer insofar as it enables them to curb their expenditure patterns. Mutikanga et al (2010) argue that in universally metered utilities, water meters can be 'cash' registers generating revenue for utilities, which is then used for 'system maintenance and infrastructure improvements'. They argue that inefficient metering and low tariffs can affect the financial sustainability of utilities. Saglin (2005) argues that self-disconnection and self-rationing reduce opportunities for collective action, as access to water becomes an individual affair.

Flynn & Chirwa (2005:66 in McDonald & Ruiters 2005) argue that the use of any form of technological intervention places undue limit on people's ability to 'enjoy other constitutionally protected rights' and therefore limits their constitutional right to access water.

On the other hand, van Zyl (2011) advocates for water restriction in areas where it is deemed uneconomical to implement conventional or pre-paid metering systems, as a way to control water consumption. This way, consumers get cheap or free water, with an added benefit of limiting wastage and controlling leaks. The provision of water services has been said to be costly, hence the need for payment. However, critics including Bond (2005) argue that the measurement of water itself is a form of control of access to the resource. The argument that water provision is more than a resource is shown by restrictions around its use. For indigent households, restriction is a condition of access, as evidenced by the myriad technical interventions to ensure that these households use only the FBW. Smith (2010) views the benefit of free water as contrived because the restricted access carries 'social and health burdens'.

3.6.1. Flow restrictors

These are devices that restrict either the flow rate or the volume of water received by a consumer. The effectiveness of these devices is that they reduce the water flow to a trickilo litree, hence reduces the amount of water used per day. However, this makes it prone to being tampering with for a faster flow rate. Supply can be shut off if the daily set volume is exhausted, often with associated health and social burdens to the affected households.

3.6.2 Electronic flow limiters

These are devices that require a direct connection with a flow meter and which can dispense a predetermined volume of water (typically programmed by the operator to allow 200 litres per day). They use electronics and thus require power supplies or batteries (Van Zyl 2010). Besides being mechanically sophisticated, these meters are expensive too. Marvin, Laurie & Napier (2001) argue that although prepayment practices are well established in South Africa, for example in the electricity sector, the water sector is complex and has been plagued by resistance by the affected households because in the past, water was provided at a flat rate to individual households, some of who did or did not pay for the service. Additional pressure has been put on municipalities as they became autonomous of both the provincial and national governments. They have had to ensure cost recovery for services and accordingly tried to implement prepayment systems in individual households, to the chagrin of the consumers who resisted such moves.

On the other hand, prepaid electricity has been accepted, mainly because it can be replaced by other alternative sources of energy such as firewood, and paraffin for lighting and cooking. Unlike electricity, water is irreplaceable hence the contention around its access to meet basic needs.

3.6.3 Conventional house connection meter

These meters are installed on properties and water consumed is paid for at the end of the month. Water is provided at high pressure into the house, and the flow is unregulated. Households do not need to prepay for water used and can enter into agreements with the service provider to still access water for their needs while settling their bills. Unlike those on either pre-paid or WMDs, water use is unlimited. The disadvantage of this system is that if there is a leak on the side of the consumer's property, it could result in high bills and may be difficult to detect because of unlimited water flow. Errors in meter readings can result in high bills, and meters require manpower to conduct physical readings. Difficulty in accessing some properties could result in inaccurate estimated readings, which could translate to irregular billing. The problem of unreliable postal services also contributes to non-payment of bills. In addition, the service provider incurs costs trying to recover unpaid bills as well as manpower to disconnect services for non-payment. In addition, the aging water infrastructure system compounds water leakage and wastage. Given the apartheid regime's historically skewed

water infrastructure, it is quite plausible that high volumes of water could have been lost as a result of poor infrastructure, especially in the black townships.

3.6.4 Prepaid water meters

The introduction of prepaid water meters was geared towards the provision of solutions to problems related to revenue collection on conventional meters for both the utility and end user (van Zyl 2010). Van Zyl adds that the massive implementation of the prepaid water meter technology in most parts of the country has been described as an alternative to conventional water meters for all types of users. Pre-paid meters are an embodiment of the privatisation of water services in South Africa and are a cost recovery innovation used to force poor/low income households to pay for accessing water. The meters can be set up to dispense free basic water, after which the user has to purchase prepayment tokens from central vending offices. This technology offers numerous advantages to the service providers and municipalities because it removes the need for monthly meter readings, data management, billing and debt collection services, thus reducing the attendant financial risks.

DWAF (2007) commends the pre-payment system as 'powerful tools for helping water service providers to control water wastage and customer debt'. The irony of the FBW policy is summarised succinctly by Loftus's (2005) critical observation about why free water has translated into a restriction on supply to previously disadvantaged people: poor households are forced to decide how to allocate their meagre incomes to meet all their needs, resulting in choices being made around water consumption that can compromise health, as shown by the cholera outbreak in Durban following the use of unprotected water by households who could not afford to buy water for their basic needs (Loftus 2005). In Orange Farm informal settlement, residents resisted the installation of prepaid water meters by the City of Johannesburg, resulting in a court action[19] instituted by a group of residents. Although they eventually lost in the Constitutional Court, this resistance gave them a voice that forced authorities to consider their needs.

[19] Lindiwe Mazibuko and Others v City of Johannesburg and Others
Case CCT 39/09
[2009] ZACC 28
Date of Judgment: 8 October 2009

Jaglin (2004) argues that under-investment in water infrastructure in townships mainly occupied by blacks during the apartheid era adversely affected the maintenance of the system, causing the ripple effect of dilapidation and poor services, which would continue to dog residents in post-apartheid times. This would explain why post-apartheid the improvement in water services would not have had a significant impact without the major revamping of the archaic water infrastructure system in poor townships. It is debatable that vast amounts of water could be lost in the system due to leakage caused by old water reticulation system.

3.6.5 Water management devices

These devices have been described by the City as a kind of water meter that replaces the existing conventional meter and is programmed to dispense a pre-set amount of water daily.

Figure 2: Water management device

Source: Environmental Monitoring Group (2009)

On its website, the manufacturer of the WMD, Utility Systems Corporation (USC) says the device was developed in response to the need to conserve water. USC describes the WMD as 'a low cost, intelligent, electronic valve capable of controlling water flow to a domestic consumer at high pressure' (USC 2011 www.utility-systems.co.za). The device offers financial and operational benefits to the service provider and reduces consumption by as

much as 80%, while at the same time affording the consumer lifeline allocation of water. In this regard, it assists consumers to budget their daily consumption through a capped daily or monthly allowance, and encourages responsible water usage through the accumulation of unused daily allowances. It also assists in individual leak detection and allows for automated meter reading.

Although the City was at pains to highlight the difference between the WMD and the pre-paid water meter, critics view it as a pre-paid meter in disguise because of the similarity in limiting access to water. The City's Tariff Policy (2009/10) clearly spells out that its aim is to limit water supply to non-paying consumers through the WMD, thus throwing into disarray the official claim that the purpose of the device is related to water conservation or water demand management (City of Cape Town 2008).

Although in its submission to Parliament the City argued that the WMDs programme was not targeted at poor households only, the concentration of these devices in areas of high consumption and high debt levels is evidence that the poor are the majority targets.

Nleya et al (2012) argue that the high concentration of WMDs in poor areas compared with the low rate of installation in high-income areas, as shown in table 4 below, is evidence of the discrepancy with which water consumption is treated. Since 2009, more than 30 000 WMDs were installed in low-income areas (City of Cape Town 2009) compared to the negligible figures for similar installations in affluent areas. This negates the whole argument by the City that the implementation of the water leaks and detection project is meant to address the scarcity of the water resource currently experienced in Cape Town, if this intervention is largely targeted at the poor water consumers who are unable to pay for the service. What this implies is that, as long as a consumer is able to pay for the water service, they can use it as they like because they contribute revenue for the City.

Table 4: Installation of WMDs in high-income areas in Cape Town

Surburb	**Installations to December 2010**

Claremont	1
Constantia	1
Durbanville	*2*
Diep River	1
Forest Heights*	318
Goodwood	19
Plumstead	1
Wetton	9
Wynberg	10

Source: Nleya et al (2012)

*Forest Heights has property values mostly in the region of R400 000 to R500 000 and thus hardly qualifies as a high-income area.

The pre-paid meter, on the other hand, ensures that water is paid for before it can be used thus reducing chances of non-payment. Both types of interventions aim at reducing unwarranted free access, over and above the official free basic supply, thus preventing non-paying consumers to freeload services for which they do not pay.

Efteq Effective Technologies, one of the distributors of water meters in South Africa, describe three modes in which their 'intelligent water meter' can operate: the WMD mode, which controls daily consumption; the standard prepayment mode, which controls monthly water consumption; and the post-pay mode, in which a credit limit can be set (Thompson, Nleya, Masiya et al 2012). This description, if taken at face value, could be interpreted as an admission that the difference between the WMD and prepaid meters is a clever way to escape from public scrutiny as well as regulatory censure.

3.6.6 Standpipes

Standpipes provide water for larger populations especially in sprouting informal settlements, and have been accepted as providing better service for both plot owners and back yard dwellers. Standpipes often serve entire communities and the maximum distance from the furthest dwelling to the standpipe is 200 meters. Although the use of standpipes can be viewed as retrogressive when compared with on-site water, the fact that they provide water is a relief to households that have no other access to it, especially in the informal settlements, where it could be a challenge to install WMDs because of the haphazard settlement structures. The challenge with informal settlements is that most are temporary structures often built on areas not designated for housing and therefore lack proper sanitation facilities.

3.6.7 Tagged standpipes

A variation of the ordinary standpipe is the tagged standpipe[20] such as those in the Samora Machel informal settlement, in Philippi, targeted mostly at backyard dwellers. The tags enable the backyard dwellers to access their daily-allocated amount of 250 litres of free water, independent of the landlord's daily allocation.

3.6.8 Roof tanks or semi-pressure systems

These were implemented in Durban's eThekwini Municipality as a pro-poor water supply solution. They have, however, been plagued with payment and usage problems, with high reported levels of illegal upgrading from low to high pressure. The perception of inferiority has also negatively affected the assumed benefits of the roof tanks (Bruner et al 2010).

3.7 What is Water Demand Management?

Debates on water scarcity have raised environmental concerns regarding water service delivery and there have been calls for urgent intervention on the demand side of water rather than on its supply side. Proponents of water demand management argue that domestic water consumption (demand side) does not go back into the hydrological system unlike the agricultural sector, which is widely viewed as using vast amounts of water. Although the agricultural sector uses more water than the domestic sector, some of it goes back into the hydrological system through evaporation and plant transpiration. This is not to ignore the fact that pollution in this sector renders water unusable downstream, but measures can be taken to reduce wastage.

Herbertson & Tate (2001:36) define water demand management as **'**the management of the total quantity of water abstracted from a source of supply using measures to control waste and undue consumption'. This definition is in line with the Dublin Statement 1992, which states that 'Water has an economic value in all its competing uses and should be recognized as an economic good' (Solanes & Gonzalez-Villarreal 1996:27).

The statement emphasizes that demand management policies should reflect the 'role of water as an economic and life sustaining good through conservation, efficient use, recycling and re-

[20] Tagged standpipes in Philippi's Samora Machel informal settlement enable backyard dwellers to access their own 250 litres FBW without sharing with their landlord. However, the backyard dwellers share a toilet with their landlord. In Saxonsea, backyard dwellers share the same daily allocation with the landlord and do not have separate daily limit, as is the case in Samora Machel.

use'. The focus on demand management therefore requires a mind-set shift from the traditional supply-side orientation to conservation and demand management to ensure the sustainability of the resource and the environment (Herbertson & Tate 2001).

Similarly, DWAF (1999) emphasizes the purpose of demand management strategies as achieving sustainable, efficient and affordable services to all consumers. The City (Samora Machel Scope of Works Q2009/10:4) views water demand management and water conservation as the 'minimisation of network and on-site losses and/or inefficient use', adding that in poor areas, these contributed to non-revenue demand because of non-payment of bills. The result is not only high water wastage but the accumulation of bills that burden the consumer and at the same time threaten the sustainability of the service.

The City's integrated water leaks repair project aimed at reducing unaccounted for water loss through the repair of leaks within residential properties, to ensure that indigent households used their allocated water. The City sought to ensure sustainable use of water and therefore needed to manage its demand through changing consumer behaviour. Its approach to water demand management is based on the premise that water is a precious, scarce and strategic resource that should not be wasted and has to be accounted for at all times. It is in this regard that it seeks to work together with both its citizens and stakeholders to develop long-term strategies to conserve water.

As discussed elsewhere in this paper, the City embarked on a water demand strategy in indigent communities to reduce water loss through an integrated water leaks repair project and subsequent installation of WMDs. In addition to the FBW allocation of 6kilo litre, indigent households are also entitled 4.2kilo litre for basic sewerage discharge for a household size of eight members, without double occupation or any water-consuming businesses on their properties. It is important to note that the City had already specified the terms and conditions for the contractors to adhere to in order to implement the water leaks and repair project and required that community and household buy-in of the project be obtained.

3.8 Conclusion

In conclusion, this chapter discussed water policies and legislation put in place to improve access to water by households that were not serviced during the apartheid era. Although great strides have been made in the water sector, the challenge remains of ensuring that all people

are connected to safe drinking water throughout the country. The indigent policy as an instrument to ensure basic access to water is important, but its implementation remains a challenge especially for financially weak municipalities.

In South Africa, access to water has and continues to be a deeply politicized issue. The skewed apartheid water policies based on riparian law benefitted the landed few, who had access to both political and economic power. After apartheid, the new government attempted to improve access to water and posted significant success in ensuring that the majority of people could access tap water within 200m of their dwellings, especially in urban areas. Progressively, access to water is transformed into an individualized experience through which the water consumer is forced to interact with a water-regulating device, thus removing the human interactive process through which negotiation is possible.

The WMDs installed in Atlantis, unlike the ones in Samora Machel, do not have display units to show how much water has been consumed, resulting in some households being unable to gauge how much they have left before it runs out. As a result, some households resort to drastic measures such as sharing bath water, a situation that is both as unpleasant as it is unhygienic. Not only has the regulation of water affected usage patterns, but most households reported sadness at having to give up gardening activities as they could not afford the water.

> That meter is a skelem[21], we know that water must be conserved but to punish us with that meter is unfair. It cuts off water and we spend the whole day without water (Mr Green, interview 5 November 2011)

[21] Skelem describes something that is dangerous and has the capacity to cause harm. In this context the water management device is perceived as something that causes untold misery by restricting water supply.

Chapter 4: Presentation and discussion of case study findings: Are rights denied through technology?

4.1 Introduction: Participation – consensus or coercion?

The discussion of the research results that follows is in two parts. The first part, in this chapter, discusses the nature of households' participation in the project using Arnstein's ladder of participation. Participation is a concept that empowers citizens to make informed decisions based on their perception of the installation of WMDs on their properties. Understanding the characteristics of the households is important in determining whether these were influential in the households' response to the installation of WMDs. The second part of the discussion of the research results, which follows in chapter 5, discusses the impact of WMDs on households and how this has shaped their attitude towards water conservation.

The democratic election of a new government in 1994 ushered in a representative democratic system in which other forms of public participation complemented the power of elected politicians. Participation in both national and provincial spheres of government takes the form of public involvement in the legislative processes. Subsection 152(1)(a)(e) of the Constitution gives Local Government the mandate 'to provide democratic and accountable government to local communities', as well as to 'encourage the involvement of communities and community organisations in the matters of local government' (RSA Constitution 1996).

Fakir (2004) comments that it is local government's responsibility to ensure democratic participation through the elected councillors and appointed municipal officials. Ideally, this process ensures the full participation of communities in issues that affect their lives, besides the cyclical five-year process of electing office holders. At the local level, councillors are the direct route for the public to access government and are often the first port of call for advice and support. They therefore play a pivotal role in ensuring public participation, especially in decisions that affect the communities they represent.

4.2 Characteristics of households

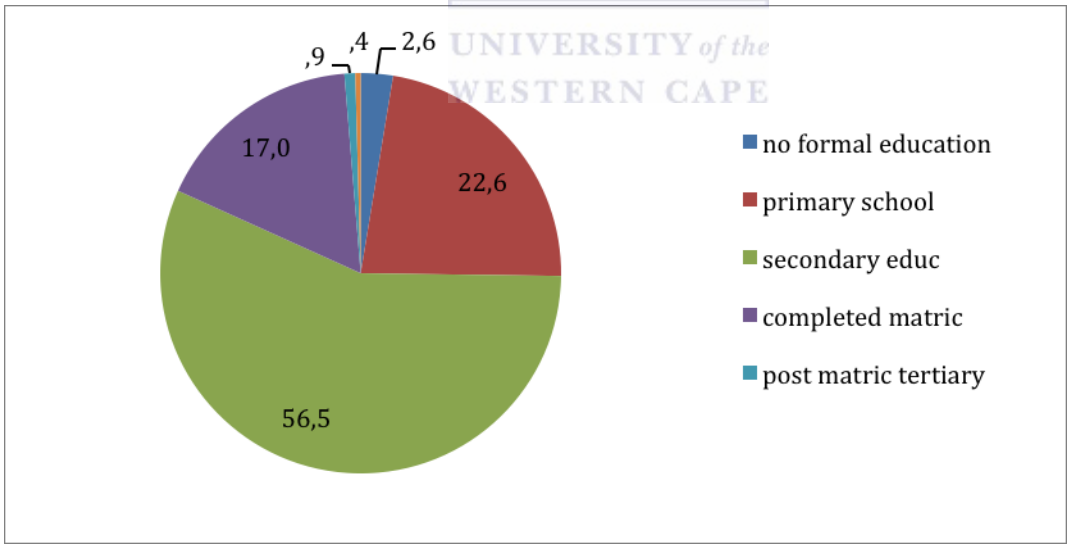
Saxonsea consists of a mixture of RDP and middle-income houses. The size of households in the study sample ranged from four to 15 people per household. In the study sample, 65% of households were female headed, who in a patriarchal setting take charge of 'routine' household chores such as fetching water, cooking and general upkeep of the family.

Following the installation of the WMDs, most households indicated that they had resorted to prioritising water usage for basic activities such as cooking, bathing, and laundry. In households with small children, adults shared their bath water and then recycled it for ablution purposes.

4.2.1 Education

There is a strong possibility that lack of education makes it difficult for some respondents to understand their water bills. Most respondents, when asked about their bills, could see the amount owing but could not understand how that amount had been arrived at. Nor could they understand how much water they had used, even as reflected on their bills. They dismissed their bills as complex and found it difficult to understand how the bills reflected their water use.

Figure 3: Level of education of head of household

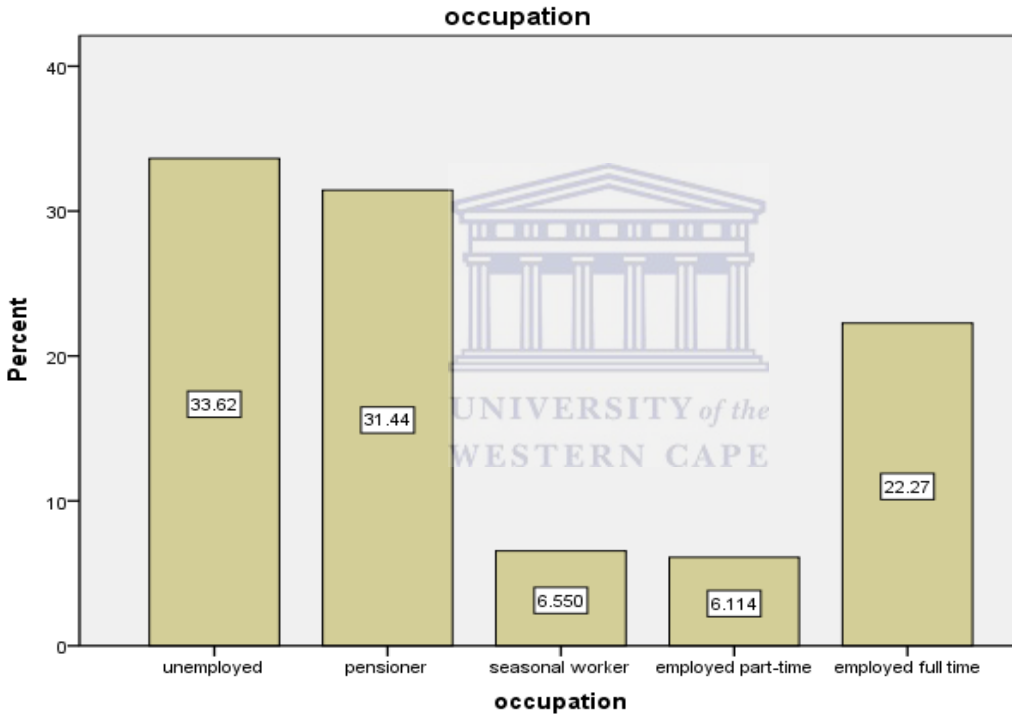


> I am uneducated. I never went to school and there is no way that I can understand what this council bill means, it's meaningless to me (Granny Susan, interview 2011).

4.2.2 Employment status of research sample

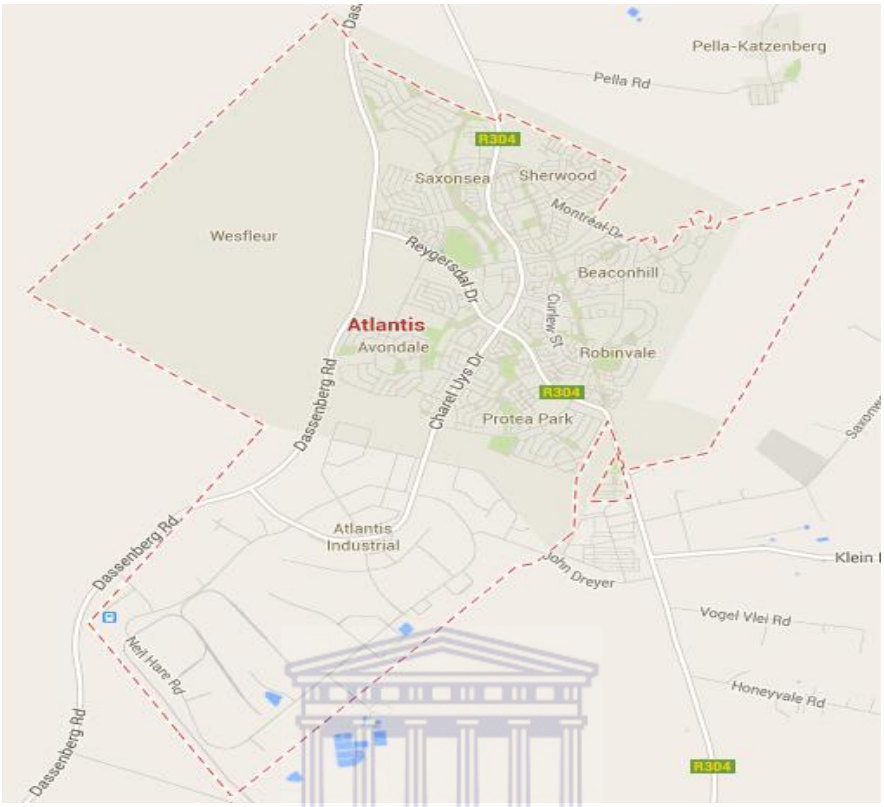
The greater Atlantis is characterized by severe social and economic conditions, manifested by poverty, illiteracy and unemployment. According to Census 2001 statistics,[22] Ward 29[23]'s economically active age population ranged between 15 and 65 years and of these, 70.59% were employed and 29.5% were unemployed.[24] The employment status of heads of households revealed that 65% were unemployed and 35% were employed. This high rate of unemployment is, according to the 2001 Census report, reflective of the depressed economic activity in the area.

Figure 4: Employment status of heads of households



[22] The Census is carried out in a ten-year cycle.
[23] War 29 includes Avondale SP1, Beaconhill, Protea Park, Robinvale, Saxonsea, Sherwood, Wesfleur, and Witsand (see Figure 5 map)
[24] An unemployed person is defined in the Census as one who has no job, either permanently or temporarily, but in some cases is actively looking for employment and could work if they got a job (Census 2001).

Figure 5: Ward 29



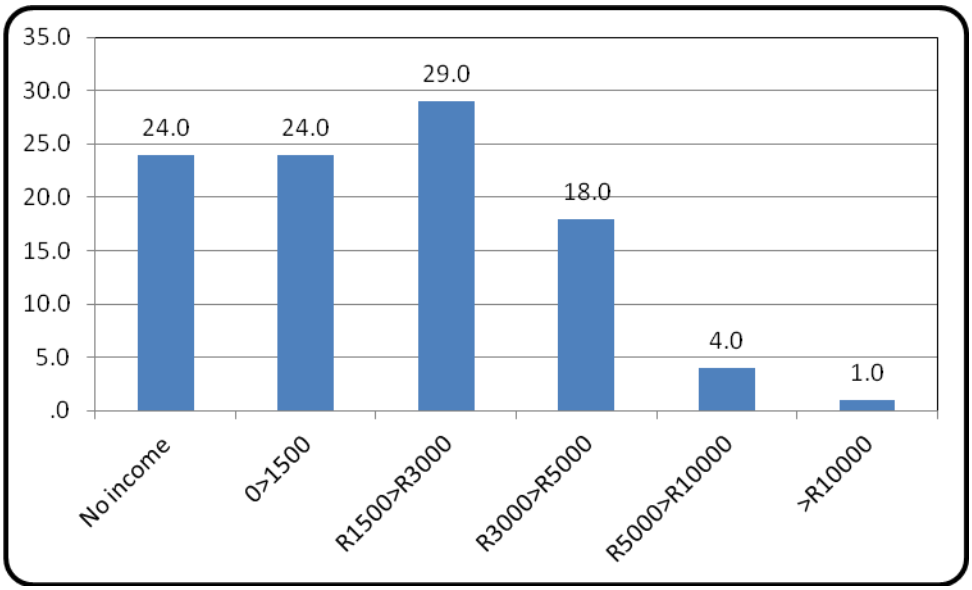
Source: Google Maps (2014)
https://www.google.com/maps/place/Atlantis,+Cape+Town,+South+Africa/

4.2.3 Level of income

The response to this is reflected in part through the provision of the Indigent Grant (discussed extensively elsewhere in the report). One can also tie income to education, which make an impact on households in terms of opportunities for better paying employment. Hence in some instances respondents said they were prepared to change their behaviour to conform to the new water access regime.

For households without income, the installation of WMDs ensures that they can enjoy their constitutional right to access to water. In that light, the City ensures that its residents have access to basic water and sanitation services irrespective of their economic status. It also ensures efficiency in water provision and curbs unaccounted for water (UAW) through leak repairs and subsequent installation of the WMDs.

Figure 6: Level of household income and high rate of WMD acceptance



A quick look at some of the socio-economic characteristics of the respondents (level of unemployment, income and education levels), paints a picture that is consistent with depressed economic activity and would arguably influence how most households would respond to incentives to accept WMDs. The majority of respondents indicated that they were worried about their unpaid bills and would settle their bills if they had disposable income.

4.3 Ladder of participation

Arnstein's ladder of participation was used to look closely at different types of participation and more importantly to see the lens through which both parties view participation, and at what point this translates to coercion especially in relation to poor households. Earlier in the report, I discussed other forms of participation as guaranteed by the Constitution to ensure that citizens take an active and meaningful role in democratic processes. This marks a departure from the previous exclusive state of the apartheid era to the inclusive democratic state that is 'responsive' to the needs of the majority.

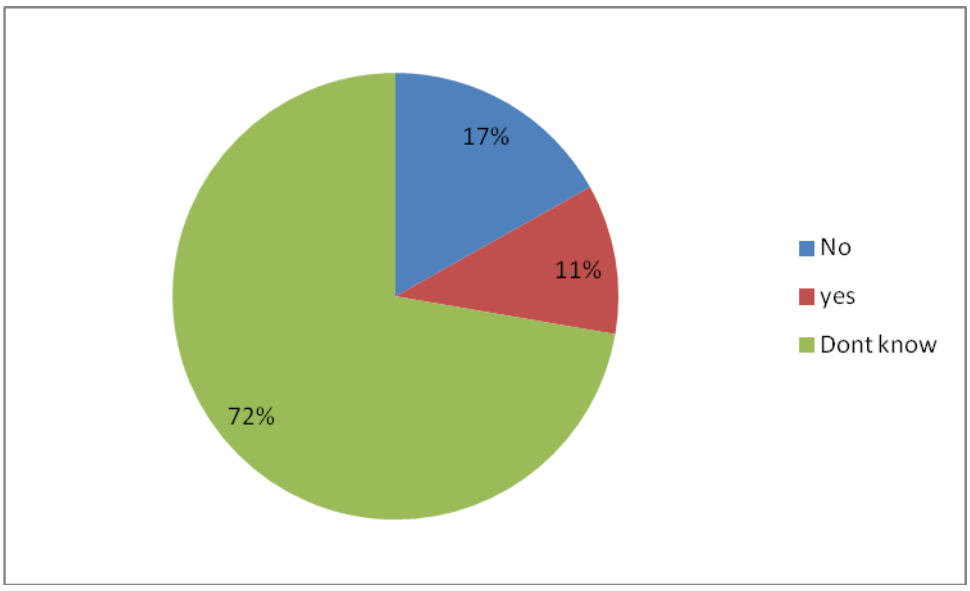
The form of public participation in Saxonsea took the form of administrators deciding what they thought was suitable for the area and then 'consulting' residents to approve their decision. While Kavinya, et al (1994) advocate for community involvement in decision-making processes that affect their lives, the coercive strategy employed by Community Service Agents (CSAs) on behalf of the City was different from what Freire and others advocated would be effective.

Sokupa's views on the ward councillors' lack of decision-making capacity was confirmed when the Saxonsea ward councillor indicated in an interview that, although she was personally not in favour of the implementation of the WMDs in the community, her political role as an elected member 'forced' her to comply. As ward councillor, she had no capacity to object to this project even though in her personal capacity she believed that it infringed on the rights of the residents of Saxonsea.

> I am an elected official and must promote Council's projects such as this one even though I have my personal reservations against it. It is so painful to see people struggling but one has to understand also what drives the Council to implement such drastic measures (Ward Councillor Rass, interview, 5 November 2011).

In terms of public participation in processes that affected their access to water, 72% of the respondents said they did not know whether the City had called for any meetings with the residents to discuss the new water access restrictions and interventions. Only 11% said the City did hold meetings, while 17% said none were held. This lack of awareness bodes ill for the City's interaction with the residents and it is an indication of poor communication between the two parties. This lack of awareness can also be interpreted as apathy by residents towards the City's programmes.

Figure 7: Meetings held with residents before the installation of WMDs?



Anstein's ladder of participation offers valuable guidelines with which to understand citizens' participation in Saxonsea, especially whether households and various stakeholders participated meaningfully in the project. According to the results from the respondents, the level of participation is at the lower rungs of the participation ladder, manipulation and therapy. Households were not given room as participants to make meaningful contributions.

The buy-in process for the acceptance of the WMDs cannot be seen as participation because nowhere in the process were households as water consumers given the chance to contribute to decisions that affected their lives, except at the implementation stage of the project. Even at that stage, households merely rubber-stamped the process because decisions had already been made regarding the cost recovery process through the installation of the devices.[25] The mere courtesy of 'education and awareness' about the importance of water is not participation insofar as making meaningful contribution is concerned. It is important to remember that right from the beginning, the City had already decided on a course of action given the rate of high-unpaid bills and the need to recover costs as well control unaccounted for water loss. The decision to implement the WMDs was part of a water demand strategy that had nothing to do with the wilful participation of water consumers. That the project took place against a backdrop of high levels of unpaid bills and unaccounted for water loss gave the City credibility to target lower-income groups and ensure they only use as much water as they can afford, without adding to the City's financial obligations. The objectives of the leaks repair and WMD installation project in Saxonsea were:

- to ensure that 95% of properties consumed not more than 11kilo litre/ month;
- to reduce unaccounted for water loss; and
- to ensure that 99% using of those more than 11kilo litre/month pay their water and sewerage bills through the installation of WMDs (City of Cape Town report 2001).

4.4 Community coercion or active participation?

As part of the tender process, the consultants had to make sure that they employed 'trained' CSAs and 'restricted' plumbers to carry out the education, awareness and leaks detection and repair process. Both CSAs and restricted plumbers were part of the community and were

[25] See Table 6 guidelines for the door–to-door activities of CSAs and plumbers.

selected as part of an empowering process that sought to build skills from within the community. Notably, the consultants were not resident in the community and therefore relied on the local 'employees' to garner goodwill and support from their community.

The activities of CSAs and restricted plumbers reflect a typical top-down approach, which does not even pretend to accommodate any dissenting voice. The nature of participation was only in so far as the households complied with the instructions as relayed by the CSAs, whose understanding of the project was guided by the limited training they had before the onset of the project, therefore the table acted as a reference point to guide the installation process.

The table below shows the skewed nature of participation and consultation before and after the implementation of the WMDs. The above information was used for both Saxonsea and Samora Machel WMDs installation projects.

Table 5: The CSAs and plumbers door-to-door activities

Table 5: Door-to-door activities of CSAs and plumbers			
	Process	CSAs	Plumbers
1	Visit No. 1	1. Greet the owner. 2. Check the name of the owner against the Council record and note differences if any. 3. Hand-over the Flow Limiter/Water Management Device pamphlet. 4. Educate the owner on the issues in the pamphlet and those in the A4 bookilo litreet especially those listed in table 3. 5. Inform owner of what leaks will not be repaired under the project. 6. If owner or designated senior member is not at home (NAH), leave bookilo litreet and calling card with date of 2nd visit.	1. Install the flow limiter and set on free flow (whether or not the owner is there). 2. Take a meter reading.
2	Visit No. 2 (at least 30 days after	1. If previously NAH cover issues under Visit 1. 2. Greet the owner. 3. Show the owner where there are leaks and	1. Take a meter reading. 2. Download

Table 5: Door-to-door activities of CSAs and plumbers			
	Process	CSAs	Plumbers
	visit no. 1. Team installing flow limiter will go ahead of plumbing repair team)	what needs to be repaired. 4. If no leaks but high consumption, identify water uses and advise on how to reduce consumption. This is critical as the owner will experience problems once the Flow Limiter is installed. 5. Ask the owner for the latest bill and identify properties that have incorrect billing information e.g. no Indigent Grant. 6. Inform owner of date that plumber will repair water leaks. 7. Ask the owner to sign off the audit and the visit 8. Ask owner to sign agreement letter. If owner refuses, inform him/her that no repairs will be done and the standard credit control process will be followed. 9. If owner or designated senior member is not at home (NAH), leave bookilo litreet and calling card to contact the contractor to arrange date to visit.	consumption information from Flow Limiter for the period. 3. Audit the plumbing.
3	Visit No. 3	1. If previous NAH, undertake activities as per Visit No 1.1 2. Inform owner how to maintain plumbing in good condition 3. Sign off plumbing repair 4. Repeat information about flow limiter – ensure owner understands (report unhappy owners for special visit). 5. If owner or designated senior member is not at home (NAH) leave calling card giving date of	1. Take a meter reading 2. Repair the plumbing. 3. Ensure no leaks. 4. Set flow limiter

Table 5: Door-to-door activities of CSAs and plumbers			
	Process	CSAs	Plumbers
		installation of the Flow Limiter. Leave a leaflet explaining who the owner should contact if they run out of water during the day. 6. Install "Hlonipha Amanzi" Boards. 7. Handover the A4 bookilo litreet and A4 colouring book 8. Educate the owner on the issues in the A4 bookilo litreet.	
4	Visit No. 4	This occurs about 6 weeks after the flow limiter is commissioned at the property. 1. Check for understanding 2. Ensure no problems with leaks or with WMD 3. CSA calls plumber if it is a technical problem with WMD or a new water leak 4. Follow up on those whose flow limiter is set >10.62Kilo litre/month and have not paid	On call out from CSA: 1. Audit new leaks. 2. Repair new leaks. 3. Repair/adjust WMD.
5	Call out from Customer	This visit is only in response to customer call out 1. CSA goes to investigate first to check that the problem is not to do with customer understanding. 2. Educate customer in case of understanding problem. 3. CSA calls plumber if it is a technical problem with WMD or a new water leak	On call out from CSA: 1. Audit new leaks. 2. Repair new leaks. 3. Repair/adjust WMD.

Source: City of Cape Town Scope of Work Q2009/10 (2009:12)

4.5 Impact of Water Demand Management on households

The City's integrated water leaks repair project aimed at reducing unaccounted for water loss through the repair of leaks within the residential properties, to ensure that indigent households used their allocated water. The City sought to change consumer behaviour and this had the

effect of individualizing the navigation of access to water through technological intervention, and in the process, removing the human interface.

Access to water becomes an isolating experience, which forces the consumer to drastically change their attitude towards water use and adopt a calculative approach to it. In addition, residents are encouraged to regularly check and report water leaks to authorities. This process transfers the responsibility of water management from the water provider to the end user. As mentioned elsewhere in this report, indigent households are entitled to the free life line of 6kilo litre and additional 4.2kilo litre for basic sewerage discharge for a household size of eight members, without double occupation or any water consuming businesses on their properties. Unlike in the Cape Flats' Samora Machel settlement, where backyard dwellers have access to their own water supply through individual access tags, in Saxonsea the daily allocation does not cater for extra households on the same property. Although backyard dwellers were not a significant feature in the research sample, the few properties that had extra households shared their allocated daily supply.

In Umlazi, EThekwini Municipality, residents have logbooks where they record the daily amount of water dispensed in order to identify any technical problems with their flow limiters (Thompson, et al (2013 WRC Report). This approach to water demand management is based on the premise that water is a precious, scarce and strategic resource not be wasted and has to be accounted for at all times.

4.6 Consultation or command installation of WMDs

The period within which the project had to be completed could not realistically accommodate an adequate consultative process. The project started on 1 December 2007 and ran until 1 August 2008 and had to be completed before the end of the financial year (City of Cape Town 2009). By the time that the devices were installed in Saxonsea, a consultative process should have taken place whereby the residents would have been informed about the project and their opinions solicited about the water situation and debt levels, but this was not done. Both the Ward Councillor and a Council official confirmed in separate interviews that the consultative process did not take place.

While 56% of the respondents said that no consultation happened before the installation of the devices, the other 44% said the only consultation that took place was when the 'restricted

plumbers'[26] and CSAs came to install the WMDs. The respondents claimed that they were told that it was compulsory for every household to have the devices installed and that those who refused would face the consequence, namely, having to pay off their arrears or risk disconnection. It appears that threats of unspecified action persuaded some households to accept the WMDs. These threats are outlined in Table 5 above, which provides guidelines for CSAs to inform the household owners/respondents of the consequences that would accompany refusal to participate in the device installation project:

> If owner refuses, inform him/her that no repairs will be done and the standard credit control process will be followed (City of Cape Town 2009, Door–to-Door Activities of CSAs and Plumbers guideline)

While the use of consultants by the City could be seen as a way to bridge the skills gap and manpower shortage, there should be a way to assess their performance on the ground so as to avoid the misinformation and use of intimidation tactics in order to enforce compliance. The danger of using untrained CSAs, as in the case cited above, is that they lack the technical skills and expertise of how the City functions and therefore resort to intimidation tactics to mask their inadequacy and lack of understanding. This brings about the challenge of quality of information and the ripple effect this has on the relationship between the City and the affected households.

Similarly, a study by the Environmental Monitoring Group (2009) also revealed that households in Witsand near Saxonsea, also complained about lack of consultation by the City regarding water issues. The City implemented WMDs without prior consultation and this angered residents who felt discriminated against and disempowered because of their disadvantaged economic status.

4.7 Type of information given on WMDs

In response to the question on the type of information given during the device installation, 57% of the respondents said they did not know anything about the information given, while 37% said it was neither good nor bad. Only 6% said the information given about the devices

[26] These are 'plumbers' trained on the job by the plumbing team that won the bid to install WMDs in Atlantis. They have no formal training in plumbing and have been 'trained' as part of the job creation initiative so that they would be able to attend to minor problems that arise after the completion of the project, in their own capacities as 'plumbers'.

was very useful. On further probing, those who said the information was good based it on the fact that they would not have to pay for any water if they accepted the installation of the devices.

From the responses given, it would appear that the financial aspect of accepting the installation of the devices was the major selling point, understandably because of the inability of the majority of households to pay their bills. It would appear that the information given by CSAs highlighted the financial advantages associated with the device rather than their overall impact on the scarcity of water in the City. One respondent indicated that she felt intimidated because the CSAs told her that it was compulsory for all households to install the devices, and therefore had no choice but to accept it. In an interview with the City's technical project manager in charge of the installations, it transpired that towards the end of the project, the CSAs allegedly sabotaged the installation programme by misinforming both the City and the residents; throwing away documents signed by home owners; and claiming that home owners were not home for the installation of WMDs in a bid to stretch their contractual period. The CSAs allegedly turned against the City and criticized the project for targeting only the poor, thus fuelling suspicion and uncertainty. This highlights the danger of outsourcing, as people lack loyalty to the project and concentrate on their financial gains at the expense of the overall project and its potential gains.

> I was told that the new water management device was compulsory, otherwise had I been told the whole truth, I would have opted to keep my old conventional meter because it never gave me problems. This new meter has been replaced three times whereas the old meter had been there for 24 years without any problems at all (Mrs Greenwald, interview, 6 November 2011).

These were sentiments expressed by a respondent who felt that she was not given adequate information regarding the WMDs and that she had not made an informed decision.

However, given that the City's plan was to install the devices, it is debatable whether her refusal would have made any difference, especially given that her account was already in arrears. The households interpreted the use of ill-informed CSAs as reflection that the City did not consider them important enough to give them useful information.

4.8 Extent of citizens' power in relation to perception of WMDs

The democratic election of a new government in 1994 ushered in a representative democratic system in which other forms of public participation complemented the power of elected politicians. Participation in both national and provincial spheres of government takes the form of public involvement in the legislative processes.

Subsection 152(1)(a)(e) of the Constitution gives Local Government the mandate 'to provide democratic and accountable government to local communities', as well as to 'encourage the involvement of communities and community organisations in the matters of local government' (RSA Constitution 1996). Fakir (2004) explains that it is local government's responsibility to ensure democratic participation through the elected councillors and appointed municipal officials. Ideally, this process ensures the full participation of communities in issues that affect their lives, besides the cyclical five-year process of electing office holders. At the local level, councillors are the direct route for the public to access government and are often the first port of call for advice and support. They therefore play a pivotal role in ensuring public participation, especially in decisions that affect the communities they represent.

Battersby-Lennard (2009) argues that the effects of apartheid's continue to impact on the day-to-day lives of people long after its official demise. Piper & von Lieres (2008) explain that the emergence of the term 'citizenship' was a result of the early political context, which saw a particular configuration of both the state and civil society coupled with their mutual relationship. Various rights are embedded in citizenship, especially the political right to vote, which then brought together various political actors and helped them find their place within the new democratic dispensation.

Given the fluid nature of debates on citizenship, 42% of respondents understood it in terms of their acceptance of the installation of the WMDs, while 58% said citizens' power was very low because they felt compelled to accept the devices. Some respondents said they felt unfairly targeted and discriminated against because of their socio-economic status. The threat about their debt status was another factor that encouraged some households to accept the devices.

> "To me free water means that I will not be worrying about paying bills, but when my supply gets cuts for three days on end, what is the point? These people take their time

to come and reconnect our water supply, this is very unhealthy and I fear for my children that they will contract diseases" (Mr Johnson, interview, 6 November 2011).

4.9 Infringement of people's rights over sanitary functions

Based on the disconfirmation theory of consumer satisfaction, if the product's performance does not meet prior expectations, it leads to dissatisfaction. On the other hand, confirmation takes place when a product's performance equals prior expectations. The experience of erratic water supply contravenes the basic tenets of the Strategic Framework for Water Services (RSA, 2003) whose notion of 'basic water supply service' says it must not be interrupted for more than 48 consecutive hours per incident.

Box 1. When the promised new water management fails to live up to expectations

Granny *Masilela* (not her real name) and her husband live in a four-roomed RDP house in Lapland, a poorer section of Saxonsea. They have two children: a married son, who lives with his pregnant wife and their two young children in a two-roomed backyard dwelling behind the main house, and an unmarried daughter who lives elsewhere with her lover, but whose two-school going children live at this house with their grandparents. Their water supply is erratic and sometimes they go for three days without water and rely on their neighbours for cooking and drinking water. There are no public toilet facilities close by so the family uses the indoor toilet. When there is no water to flush it, this renders the house inhabitable because of the stench. Their water bills reflect an average daily amount of 193 litres, way below the 350 litres per day per household of eight people. An enquiry at the housing office brought confirmation from a council official that the WMD was faulty and it was logged for replacement. A week later, I visited granny *Masilela*'s house and she indicated that her WMD had been replaced and their water supply restored. This time there was no stench and everyone looked happy. She indicated that her neighbour's water supply was cut and she was now returning the favour and giving the neighbour water for her basic needs.

4.10 Level of satisfaction with water services

In Saxonsea 50% of the respondents said they were satisfied with water services from the City. On the other hand, 12% respondents expressed dissatisfaction, while a further 38% were neither satisfied nor dissatisfied with the services. Those who were dissatisfied noted that this was mainly due to frequent breakdowns of the water devices, lack of adequate after-hours service from the local depot and suspicion that the devices were some form of punishment for

non-payment of bills. The respondents were aware of the need to pay their bills but said they had no financial means; neither did they have clear prospects of getting meaningful employment that would enable them to pay their bills in the future. What came through clearly was that they were not boycotting their responsibility to pay, but that there were very few employment opportunities within the Atlantis community to support their needs.

Statistics of current operational industries in the area confirm this observation. While the industrial boom that had been envisaged in the 1980s by the then apartheid government failed to hold, it threw all plans for a self-sustaining Atlantis into disarray, hence the historical impact of unemployment continues to play out in the current economic climate.

Unlike the rental boycott that beset places such as Soweto during the apartheid era, Atlantis is different. Atlantis was a failed project by the regime that sought to further disenfranchise its people by separating them, with the intention of creating enclaves for Coloured people. The other differentiating factor was that in Atlantis, the regime sought to attract industries to create employment for the majority of the people there, yet the same provisions were not made for the people in Soweto.

It is notable that the responses of those who were satisfied with water services were financially induced, because they would not have to worry about payment of water bills as the City had promised to write off their arrears, which some of them indicated that they had failed to service due to lack of income.

Sharing bath water with family members came through as a prevalent practice and a large majority gave up gardening in a bid to save water, a situation that saddened many of the respondents. Some respondents indicated that although they were saddened not to pursue gardening, which kept them active and happy, it was a small price to pay in exchange for a debt-free life. It is not surprising that most households that recorded high-unpaid bills expressed satisfaction with the services delivered by the City. As one respondent observed:

> "As long as I do not pay for water I will make a plan to ensure that water is used wisely. Since I have no income this free water has come as a big relief, especially because my debt will be cancelled" (Mr Kilo litreeinsmith, questionnaire, 6 November 2011).

Another respondent complained that although she does not have to pay for water, it comes with nasty consequences for her family:

> "My house smells like a sewer and I don't enjoy living like this, it's inhuman and undignified to live in such conditions, *ndiphila njenge nyamazana* (I live like a wild animal).[27] I fear for my grandchildren that they will fall sick because of not having water. What will happen if my neighbour refuses to give me her water"? (Mrs Masilela, interview, 8 November 2011)

Her neighbour gives her two buckets of water: enough for cooking, drinking and washing dishes. The stench of human waste was unbearable and was worsened by high temperatures. Her description of her living condition was not an exaggeration; it was simply unthinkable how anyone could live under such circumstances.

Figure 8: Tap bucket

Source: Fieldwork, (2011)

According to the calibration on the bucket above, it holds 35 litres, but in reality it is a 20 - litre bucket. This bucket has a tap that ensures that no water is lost unnecessarily. In any case,

[27] Because of frequent water cuts and malfunctioning water management device, she likened her living conditions to that of wild animals.

ten of these 35 litre buckets are the equivalent of what a family of eight people is allocated daily and therefore acts a constant reminder that water should be used carefully. On the other hand, the table below illustrate the double standards approach to water provision by the City to its residents. Low-income households receive an allocation of 44 litres per person per day. This means that every aspect of life that requires the use of water is highly regulated and bodily functions like ablutions and personal hygiene are carefully thought out to ensure that there is adequate water throughout the day.

Table 6: Water use patterns in a home: Average daily use for a typical dwelling with four occupants (excluding garden use)

Place	**Family not saving water**	**Family saving water**
Bath	2 x 150 mm deep 180 *l* each	2 x 100 mm deep 90 *I* each
Shower	2 showers 12 l /min 60 *l* per 5 min each	2 showers 6 *l* /min 24 *l* per 4 min each (close tap while soaping)
Basin	Water used freely 30 *l*	Water used carefully 20 *l*
Toilet	6 flushes per person per day 9 l cistern 216 *l*	4 flushes per person per day with hippo fitted 9 *l* cistern 112 *l*
Washing machine	5 x per week x 110 *l* = 550 *l*	4 x per week x 110 *l* = 440 *l*
Hand washing	Clothing, floors, windows & other 20 *l*	Used sparingly & other 15 *l*
Cooking and drinking	15 *l*	15 *l*
Dishwashing	Sink filled with water each time 40 *l*	Used sparingly each time 30 *l*
Total	939 litres	530 litres
	Equals 235 l per person per day	Equals 132 *l* per person per day

Source: City of Cape Town (2006 http://www.capetown.gov.za/en/Water/Documents/account_Eng.pdf)

The table six above shows a comparison of use patterns for two sets of families of four in 2006. In the low-income areas such as Saxonsea (Atlantis) and Samora Machel (Cape Flats) each individual has an allocation of 44 litres per day, three times less than the 132 litres per person shown in the table above.

The City has applauded the success of the integrated water leaks and repair project in terms of the amount of water and money saved since the beginning of the project, which has since been replicated in other low-income areas such as Samora Machel. In Saxonsea, the City recorded huge water savings per household following the installation of WMDs, as shown in the table below.

Table 7: Household consumption before and after device installation (450l/ day setting)

Indicator	**Amount**
Average water consumption before project	41.00 kilo litre/month
Average water consumption after project	12.58 kilo litre/month
Average monthly water saving	28.42 kilo litre/month
Total monthly cost saving	R200,929
PV of savings over 20 years	R48.6 million
Payback period of total project	28 months

Source: City of Cape Town project report (2009:16)

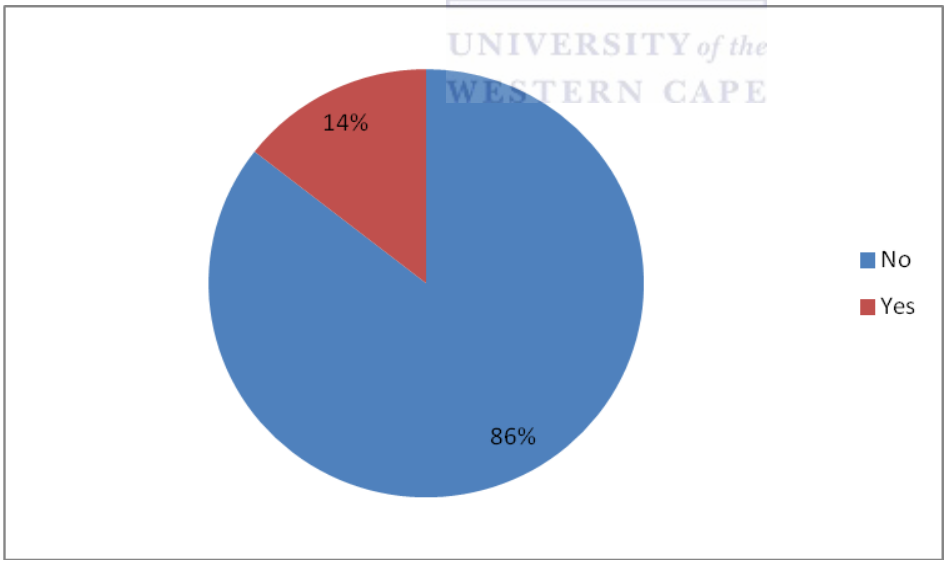
In both instances, it is the poor communities that have had these water saving interventions implemented. While the City is within its right to applaud water saving by poor communities, what remains unknown is to what extent this saving has impacted on the dignity and wellbeing of the participating households. This thesis argues that turning service delivery into welfare benefits in the form of the indigent grant and then further regulating that water service is a double blow to the poor. In the case of Cape Town, as argued elsewhere in this report, all households receive the FBW supply of 6kilo litre irrespective of their ability to pay, with the only difference that the poor then get regulated on the free water, while those who can afford to pay for additional water, do so.

4.11 Awareness of the Indigent Grant

Although designed to assist the poor, results of the survey and in-depth interviews in Saxonsea showed that 86% of the respondents had never heard about the Indigent Grant and although only 14% were aware of it, they did not know how to access it.

Asked whether they would apply for the grant, the majority of respondents said they would a few said they would not because of fear of stigmatisation. Respondents expressed reluctance to take part in a process that they did not understand unless they got assistance from City officials. Smith (2009) argues that the indigent application process is both demanding and humiliating for affected households. Ironically, 100% of the interviewed households are classified as automatic indigents, and therefore beneficiaries of the grant. Given that automatic indigents qualify on the basis of their property and land value, this could be reason why the interviewees were not aware of the existence of the grant. Automatic indigents are identified through a computerised system and need not physically apply for the grant (Smith 2010, City 2008).

Figure 9: Awareness of Indigent Grant



As automatic indigents, households enjoy free refuse removal and get an extra R40 worth of free water and sanitation services, of which they are not aware. Some respondents were surprised to find out that they were automatic beneficiaries of the grant but indicated that if they had a choice, they would prefer a cash hand-out for other household needs. A large

number of respondents did not know how to read their bills from the City: all they dealt with was the amount owing, without understanding the breakdown shown in the bill, which explained why so many of them could not see that their bills reflected their indigent status.

While that could easily be ignored, it is an indication of a gap in communication between the City and households. The Ward Councillor (who at the time of the study had been in office for just over four months) confirmed this lack of communication and lamented the lack of awareness by the Atlantis community of how to access the various services offered by the City. She added that part of her responsibility was to bring the City to the people and ensure that they attained a fair understanding of how the two parties (residents and the City) could enjoy a mutually beneficial relationship. The Councillor indicated that she was once a member of the ruling African National Congress (ANC) and later *'crossed the floor'* (my emphasis) and joined the Democratic Alliance (DA).

4.12 Debt write-off

Part of the incentive for WMDs was debt write-off, especially for households that had incurred huge bills. While 23.04% of the respondents said their debt was written off, 26.52% said it had not been written off and 49.57% did not know. None of the respondents whose arrears had not been written off indicated any intention to seek answers from the City; instead there was an air of despondency about the whole issue. Some respondents said the City just did not care about them because they are poor and unemployed. One added that the City only cared about rich people with large swimming pools. The negative perception that some households expressed about the City could arguably be the reason why they are not aware of programmes that benefit them, such as the indigent grant.

Several issues emerged in an informal interview with one of the council officials at the Wesfleur housing office. First, although the City had promised to write off arrears six months after installation of the WMDs, only a few households had had their arrears written off because of a huge backilo litreog, confirming the responses of 23.04% of respondents. However, this backilo litreog information was never communicated to households because doing so would have revealed that the City had not fulfilled its promises, thus confirming the suspicion with which some of the residents view it.

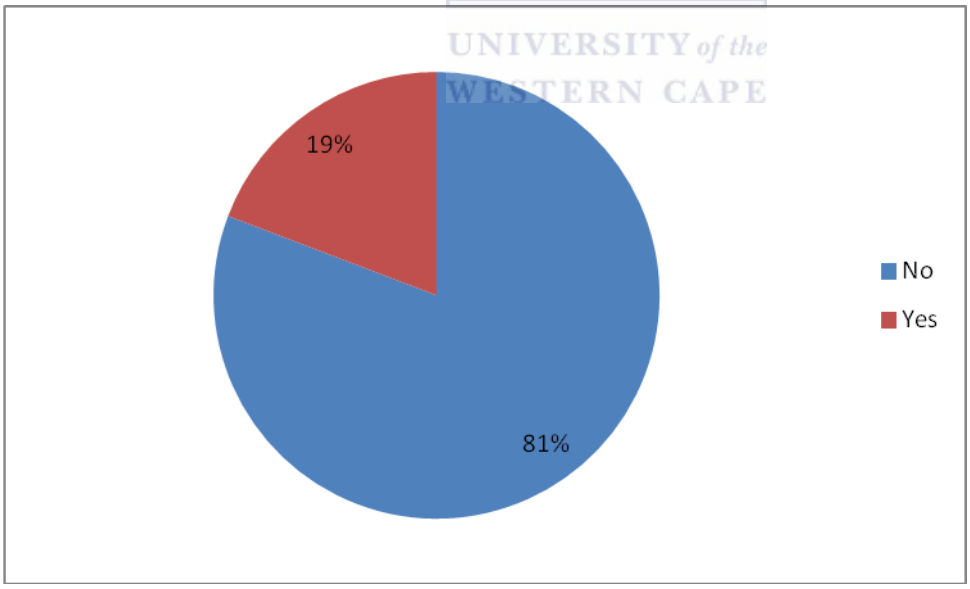
Second, the official added that some residents had threatened council officials with unspecified action when they experienced water cuts, thereby forcing them to be put on free flow which in turn resulted in them incurring high bills. The official said the council workers felt intimidated as they live in the same community.

A common complaint by some respondents was that council officials took their time to respond to calls about water cuts; some respondents had spent a whole weekend without any water supply. One respondent even said that council officials told her that the people who fixed the WMDs would come from Durban and would therefore take a while to fix her meter.

4.13 Withholding information to protect the poor from themselves

In an interview with the Council official, it emerged that information about applying for additional water above the regulated amount was withheld from the residents to avoid being inundated with more requests. According to the official, the idea was to let households adjust to the new water regime and 'learn to live within their means'.

Figure 10: Level of awareness that you can apply for more water if you have a function



This tied in with the result from the survey that showed 81% of the households interviewed were not aware that they could apply for additional water should the need arise. Only 19% of respondents were aware that they could apply for an additional water allocation, and that they had to pay for it.

On whether it was not the City's responsibility to give adequate information to residents, the official defended the withholding of information as advantageous to the households to avoid incurring bills they could not afford to pay. Therefore lack of information could be attributed to lack of awareness about the option of applying for additional water, should the need arise. However, in her personal capacity, the same official expressed sympathy for challenges experienced by households on a day-to-day basis and admitted that she would never be able to function within those restrictive limits.

> "I feel sorry for the households that have to live with this device, because they have no choice because of their circumstances. I certainly cannot imagine myself living with this kind of restriction". (Personal interview with council official Ms September, 6 November 2011)

Perhaps more revealing was that the official was aware that some of her colleagues, especially at the Depot office, were not putting much effort into helping the residents and simply watched helplessly as the situation worsened. She revealed that when complaints about water cuts reached her office, she escalated them to the Depot officials, whose response time was too long. She let slip that the Depot office was experiencing staffing problems, low moral and was often overwhelmed by requests. As a result, they sometimes put some households on free-flow to avoid going out to sort out problems with water cuts. Apparently some households once threatened council officials with unspecified action if water supply was not restored on free flow.

4.14 City's perception of impact of WMDs on water consumption

The interview with the Ward Councillor was very informative because she was critical of the WMDs and said that these infringed on the rights of the people. However, she added that as part of the official voice, she had to support the project.

> It is very distressing to see people suffering as a result of these devices, but I have to stand here and support the official decision. Personally I will never have this device on my property (Ms September, interview, 6 November 2011).

The responses from both the council official and the Ward Councillor illustrate the contradiction between the official and personal lines regarding the water management strategy employed by the City. Both officials were adamant that they would never have the WMDs on

their properties because of their restrictive nature and because of the infringement of their rights to access water. Yet as City employees they were part of the implementation process.

4.15 Conclusion

In conclusion, using a combination of questionnaire surveys and in-depth interviews proved to be a useful approach as it enabled the researcher to uncover important facts behind the responses elicited in the questionnaire survey, which would otherwise remained untouched.

Although the majority of interviewees indicated that they were satisfied with the WMDs, this was insofar as it translated to no payment of bills, yet on the other hand, they felt discriminated against because of lack of consultation and their economic status. For example, the high level of satisfaction with the WMDs was directly related to financial relief and not because of the perceived need to preserve water. Lack of consultation was another issue that left interviewees unhappy as well as the fact that it was deemed compulsory for every household to accept the WMD.

The deliberate withholding of information by the local council about applying for additional water as a strategy to protect the poor comes can be interpreted as violation of people's rights. It comes across as patronizing and given the lack of awareness about the water management project by the majority of the interviewees, it lends itself to speculation about what else is withheld to 'protect' the poor. It is quite disturbing that a large number of respondents lacked information about their water use, were unable to read and understand their bills and never knew about their indigent benefits, yet stood to benefit from the programmes and services offered by the City. Massive education and awareness programmes should be put in place. Ward Councillor Rass said she was alarmed by the lack of knowledge of basic things by people in her Ward and was embarking on an awareness programme to help the people understand and know how to access the services offered by the City.

Chapter 5 Perspectives on water management devices

5.1 Introduction

Chapter 4 discussed the issue of participation of households in the implementation of the WMDs project, the extent of citizen participation and how this shaped their attitudes towards the new water access regime.

Chapter 5 continues to look at the impact of WMDs on households and how this has forced them to adjust their water consumption in line with the new system. This is all part of the cost recovery process that seeks to ensure that poor households use water within their means and as mentioned in the previous chapter, places the responsibility of access to water to individual consumers and keeps them preoccupied with complying with the new requirements. In a way, this has had an effect of shifting focus from the communal or social mobilization response to water cuts to an individualized process where the consumers deal with the municipal demands on their own, and have to modify their behaviour to suit the new way of accessing and using water.

The introduction of technological interventions in the management of water for the poor is symbolic of the distance between the water service providers and the end users. Restrictive technology is part of the credit control and debt-collection strategies used by the local authorities, particularly in economically depressed communities. To cater for different consumer needs, local authorities use a mix of metering strategies that include conventional meters, pre-paid meters, WMDs, trickilo litreers, and standpipes.

The technological interventions, as Loftus (2005) observes, restrict people's access to water. These interventions have more power over the people because they self-cut when the set daily limit has been finished leaving the consumers on the other side frustrated and unable to access water till the following day.

5.2 Exploring the impact of WMDs on households

5.2.1 Sanitation

As result of the installation of WMDs, access to water has become a calculative affair and households prioritise water consumption for fear of running out. Unlike electricity, which is

replaceable, water is irreplaceable and therefore becomes essential that proper planning be in place to meet the daily requirements. Based on the daily amount of 350 litres per household of eight members per day, each individual has an allocation of 43 litres, which must be carefully divided to meet the daily necessities such as bathing, cooking, drinking, laundry and ablution. A further analysis reveals that each individual not only has to control the amount of water they use, but also their bodily functions so that they can have adequate water to flush their waste. The politics of water leaves households in a space where they have to prioritise their water use and in the process guard each other against wasteful use. It is important to note that although the majority of households expressed satisfaction with WMDs, this was financially motivated and not out of a sudden realization of the importance to conserve water. The City's draft report on the IWRM project shows that, prior to the implementation of WMDs in Saxonsea, the average monthly water consumption was 42kl and this dropped to 12lkl following their installation (City of Cape Town project report 2009). This massive reduction in water consumption per household resulted in huge financial and water savings for the City.

5.2.2 Impact of water management device on households

While one of the positive features of the device is leak detection, which allows for automatic meter reading (AMR) and would flash warning signs to the individual manning the machine remotely, the experience of one household was glaringly worrisome. Soon after the installation of the device in 2007, Mrs Jones* (*not her real name*) got a bill of R28 000 which forced her to seek clarification from the Council. The bill was later written off. Mrs Jones lives in an RDP house, like most people in her area, and has eight family members. Also like most households in the area, she had high arrears and was told that once she accepted the WMD, these would be written off. It seemed like a bittersweet pill, which she was prepared to swallow because her family was struggling to make ends meet. Her husband is the only breadwinner and all her six children are unemployed. The financial relief was welcome, although it meant that the family had to make drastic changes to ensure that they complied with the new water use requirements. First, she removed the conventional bathtub, and replaced it with a large plastic bath dish (in which an adult cannot sit, but has to stand during a bath; only a child can sit down comfortably). This holds less water than an average bathtub. The property is on a corner stand, and most of the ground where there was once lawn is under a concrete slab except for a strip of greenery at the gate. Mrs Jones said that gardening was no longer an option, as it required more water, which her family could ill-afford. She therefore

was astounded when she got a bill of R28 000 soon after the installation of the water management device on her property.

> "There was water all over this place outside and I am sure the plumbers that replaced the meter did a bad job because I never had such problems before with the other meter. Not even a factory can run a bill that high. Just look at my property and see where I can use that amount of water" (Mrs Jones, interview, 10 November 2011).

Mrs Faber, a self-appointed social activist living in Lapland who has taken it upon herself to champion the cause of her fellow community members, further confirmed Mrs Jones' statement and added that she had actively encouraged her to take the matter to the Council. The matter was subsequently resolved, but Mrs Jones' current bills are high. Her current statement reflected a daily consumption rate of 1 800 litres, way above the average 450 litres other households receive. I asked whether she had gone back to the Council to complain about the high water bills, and she quipped:

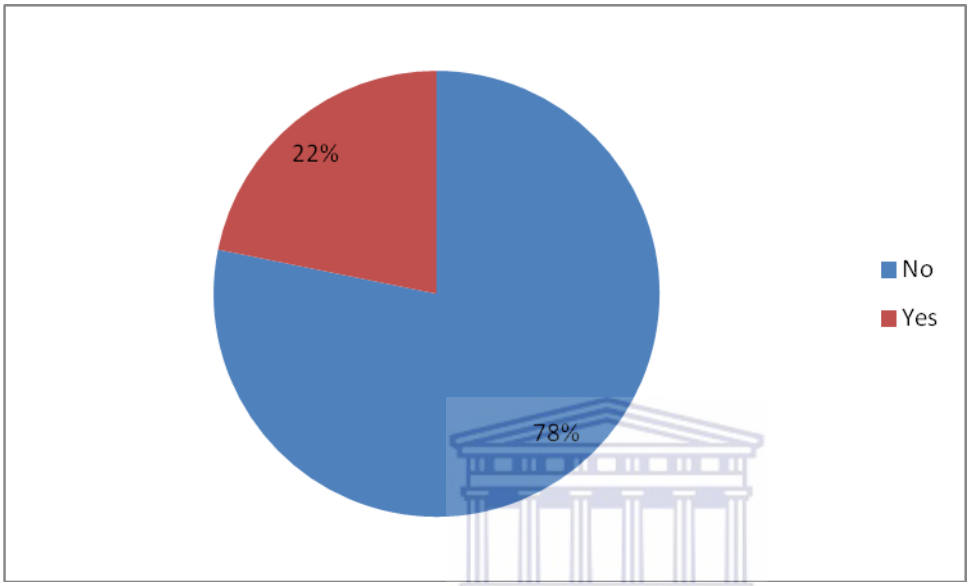
> I no longer open my bills because I know they are ridiculously high. The last time I checked it was R5 984.22. When this device was installed I was told that it was set at 450 litres and that I would not have to pay a cent for water, so I do not understand where these bills are coming from now. I have approached the Council several times but nothing happened. There is still water that I see around this blue meter and I think this is where the problem lies. We do laundry once a week and there are no small children here to misuse water (Mrs Jones, interview, 10 November 2011).

The desperation that comes out of the consumer's voice is reflective of the challenges faced by households in dealing with the device, which comes across as authoritarian and dictatorial. No negotiations are possible once the water is cut off, for whatever reason. The device dissocializes the water provision by replacing the human interaction. Utility Systems Corporation (USC), the manufacturers of the WMDs, describes it as a useful tool for 'management of water supply to domestic and commercial customers as well as managing delinquent customers (USC 2011 www.utility-systems.co.za)

5.3 Impact of technical problems of WMDs

Although 78% said they had not experienced major technical problems with the WMDs, 22% said they had experienced frequent breakdown of the device, which caused frustration because of the slow response rate by the municipal officials.

Figure 11: Impact of the installation of WMDs on water usage



Reasons given for technical problems were:

1. Water would just cut off without using full capacity of our daily allocation.
2. Water leaked on the council side and the meter was replaced.
3. The meter just stopped working but when they changed it, it hasn't given me problems again
4. Faulty meter and frequent water cuts
5. We do not have water sometimes for the whole day. Sometimes when we wake up there is no water.

One respondent said that her WMD was replaced three times because it was not functioning properly and added that each time she reported the faulty device, the municipal office would take long before responding to her complaint, and in the meantime, she had to rely on her neighbours for water:

> "Every time I reported the fault, I was told that the factory that manufactures these blue meters was closed during the weekend and opens on Monday. So you can imagine three days of begging for water from neighbours, it is humiliating, but we have no choice but to do it" (Mr January, interview, 10 November 2011).

In response to a query about the complaint against municipal officials' delay to fix the device, the Wesfleur Council official acknowledged that the local depot was plagued by staff shortages but hinted that there was a disconnect between the head office in Cape Town and the local office in Atlantis. Apparently the Wesfleur depot officials were not part of the planning team for the implementation of the WMD project and were only included towards the tail end of the process. As a result, they were not keen to fix the problems created by paid consultants. My informant added that the depot did not attend to any technical related problems after 11am, therefore leaving very little time to service the complaints and queries that came through their office. Although the public had no intimate details about the internal inefficiencies, the affected households believed that the City disregarded their plight because they were poor. Another respondent who also experienced technical problems with the WMD lamented the lack of support from the Water Department, adding that the officials 'take their sweet time' to respond, often leaving them desperate and helpless (Mrs Hoefmeyer, questionnaire, 5 November 2011).

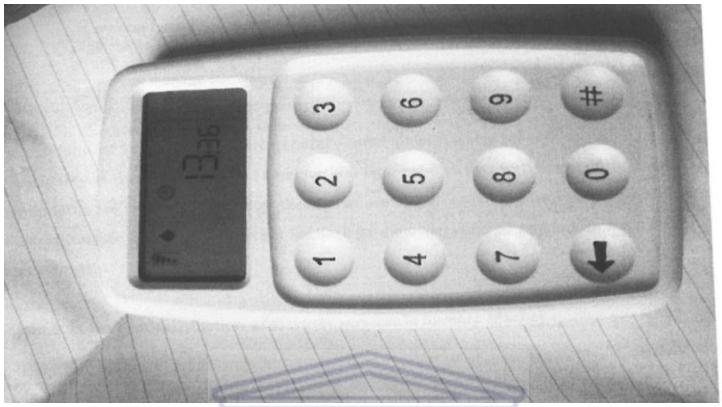
Another respondent observed that although local unemployed youths had been given an opportunity to learn new skills, these youths would not have been hired to do a similar job in well-to-do areas.

5.4 Water cuts as access control measure

Frequent water cuts featured prominently throughout the interviews as households complained that their daily water limits ran out by 10:00am, leaving them stranded, frustrated and angry. Probably the reason why households got frustrated with their WMDs was because it has no display console that shows how much water has been used, unlike the electricity prepaid meter that has a display console that shows the units available and therefore alerts the user to replenish the units. With the WMD system in Saxonsea, when the water supply is exhausted, it self-cuts without warning. This could be the reason why some respondents complained that their water supply gets cuts off in the morning because they did not understand how the system functioned. However, another version of the WMDs, with the in-

house display console installed in the Cape Flats, does shows consumption levels and this enables the households to monitor their water usage. That way they are not caught unawares when their water allocation is exhausted. The device with the display console also compares better than the blue meter installed in Atlantis because it is easier to detect leaks within the system.

Figure 12: In-house water management device display unit installed in Samora Machel



Source: Ntwana, Fieldwork, 2013

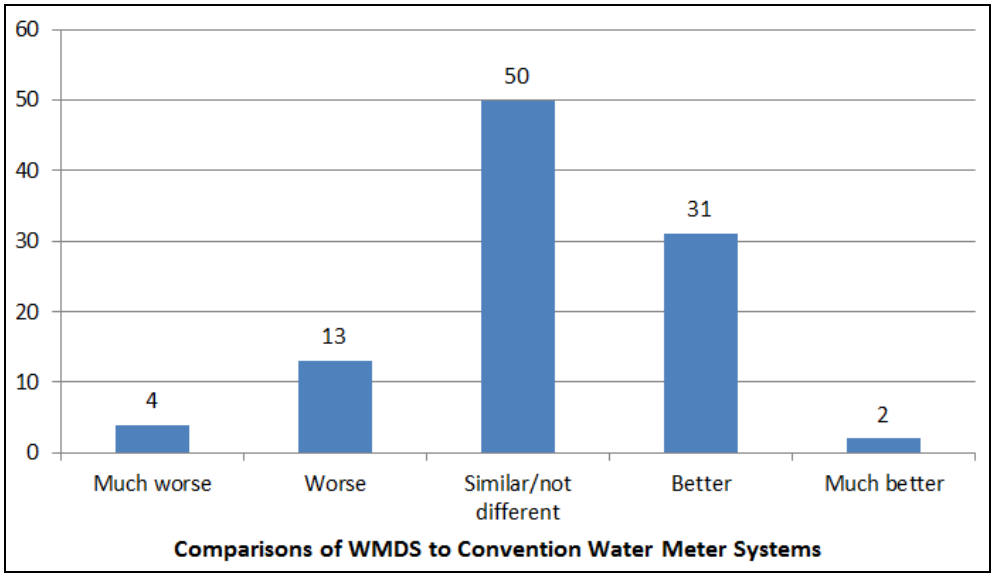
5.5 Comparison between conventional metres and WMDs

In both the survey and in-depth interviews, respondents were asked to draw a comparison between the conventional water meter and the water management device. A behavioural and mind shift took place. It is important to note that this shift was not a result of the sudden realization of the importance to conserve water, but a purely economic decision. The other characteristic that endeared the new water meter to some households was that the hard plastic material it is made from has no economic value, compared with the metal conventional water metre that could be exchanged for cash at the metal scrap yards. Other respondents acknowledged that the new water regime forced them to calculate the amount of water they used for their daily needs and they therefore had to abandon gardening activities. The table below shows some of the responses:

Table 8: Comparison between WMDs and conventional water meters

Water management device	**Conventional water meter**
Water runs out early in the morning and we have to ask from neighbours	Water never runs out at all. We used water freely without fear of being cut-off
The blue meter never gets vandalized by thieves	Thieves used to vandalise the meters to sell to scrap metal places
Water is not guaranteed, we removed our lawns because there is not enough water for it.	Water was guaranteed. We never worried about not having any, and we had lovely gardens, but now that is all history, not enough water to do everything
No longer have to worry about paying water as it is free, it's a small price to pay	Having to worry about unpaid bills was not good
Faulty meter, have had it replaced three times	Never experienced technical problems with the old water meter
The blue meter was supposed to control my bill but instead it has gone up, I think there is a leak somewhere	I never knew how much water we used because it never ran out.
My family now shares bath water and this is unhealthy, sometimes I do not bath at all	Sharing bath water was never something that we did, but now all this has changed

Figure 13: Comparison between WMDs and conventional water meter systems



In response to the question on whether there was any difference between the conventional water meters and the WMDs, 50% of the respondents said they did not know the difference between the two types of meters. However, 4% indicated that WMDs (popularly called 'blue meters' because of their colour) were much worse than the conventional meters. With the conventional meters each household paid for its water at the end of the month, whereas the WMDs are set to dispense a daily pre-set amount of water. In this case, the WMDs were set to dispense 350 litres per day, which for some households was inadequate, as they had been used to unregulated quantities. Like conventional meters, WMDs can also be set on free flow, which resulted in high bills for some households. Some 13% of the respondents said WMDs were worse than conventional meters. One could argue further that if WMDs were better than the conventional meters, then a significantly high number of interviewees would have responded positively. In total 33% of the respondents said the WMDs were better than the conventional meters because they would not have to worry about paying bills. The only challenge was to readjust their usage pattern to fit the new dispensation.

One respondent who experienced problems with her WMD expressed dissatisfaction with the device as well as the service from the Council offices:

> Since the installation of the blue meter, (WMD) I have experienced many problems. The meter rolls even when all the taps are closed, there surely is something wrong with it. I reported the matter to the Council offices and they kept promising that they

> would send someone to fix the problem. Now my water bill is higher than when I had the old meter. So, what is the point of having changed something that worked perfectly with something that is problematic? I really do not understand it. I do not have the energy to keep fighting; I am too old for this kind of thing. I am sick to my stomach over this water business and I am desperate for a permanent solution (Mrs Greenfield, interview, 7 November 2011).

I asked this respondent to show me her water bills over a period of three months to check the usage pattern. During the first month her daily rate was 793 litres (23 000 litres per month); the second month it was down to 33 litres (1000 litres per month) and third month it jumped up again to 733 litres (22 000 litres per month). In the first and third months, the amount of water used was above the regulated daily minimum of 350 litres, while for the second month it 33 litres per day.

I was careful not to raise expectations with the interviewees about being able to solve their problems but rather encouraged them to approach the Council for clarification where it was necessary. My 'informant' at Council offices confirmed that this respondent's problem was indicative of a faulty meter that needed replacement. The officer quickilo litrey logged a query on the system and conceded that there were operational problems between the housing office and the depot responsible for attending to community complaints, especially after the installation of the WMDs.

> Although the depot has a staff shortage, there is a general unwillingness on their part to attend to these WMD complaints on time (Ms September, Wesfleur council official, personal interview 6 November 2011).

She gave an example of a family that had lodged a complaint about a water cut-off, and had had no water for five days. The children refused to go to school because they had not had a bath and their uniforms were dirty. Although the complaint was logged, the depot officials took their time to fix the problem.

I probed the official about the situation at the depot and she indicated that the problem was not only about staff shortages. There was a general feeling within the depot that they were not part of the project briefing process from the beginning but were now expected to pick up the

pieces and fix the problems created by consultants and unqualified plumbers. This kind of in-house information would not have been available had it not for the good rapport that I had established with this official. This highlights the challenge of using consultants and the resultant passive resistance of internal staff who for various reasons, feel unhappy to carry the burden created by third parties. Even though the use of 'restricted plumbers' was designed to transfer basic plumbing skills, adequate checks and balances should have been put in place to ensure that such problems would not arise frequently.

My key informant in the local office commented in passing that had similar issues happened in neighbouring Melkbosstrand,[28] the response rate would be quicker because the residents paid rates and know how to exercise their rights, compared with the residents of Atlantis who rely on free water and are disempowered. While the Melkbosstrand comment was said in passing, the irony was not lost as it reflected the way different categories of residents are possibly discriminated against depending on their perceived social status.

5.6 Other voices

It was interesting to note that only one of the ten households targeted for an in-depth interview was aware of civic groups such as the Environmental Monitoring Group (EMG) and their work to give a voice to the voiceless. Even the Ward Councillor acknowledged the tension between her personal opinion towards technologizing access to water by the poor, and the policies that the City, which she represents, implements. She indicated that although she was part of the decision-making process, she would not have the WMD installed on her property because she felt that it was intrusive and would violate her space and right to access water freely. In her opinion, if this technological intervention was right, then it should have been rolled out to all properties in Cape Town and surrounds without making it a preserve for the poor. She further argues that if the focus is to conserve water, the onus should not be placed squarely on the shoulders of the poor but should be borne by every water user in the City. 'Water scarcity affects all sections of the population uniformly and should therefore be treated as such', she added. It brings to the fore the issue mentioned earlier about former Mayor Helen Zille installing a WMD on her property. The major difference between that

[28] Melkbosstrand (Afrikaans for Milkwood Beach) was a result of two significant Apartheid developments in the 1970s – the Koeberg nuclear power station and Atlantis Diesel Engines. It provided good quality accommodation for foreign contractors. It is now dubbed the rich man's town because it is home to both the local and the foreign rich and famous. It boasts a 7km stretch of white sandy beach.

publicity event and the reality in Saxonsea and other low-income areas is the choice to have the device, without being forced to accept it.

5.7 Conclusion

The chapter has looked at the various instruments and strategies put in place to negotiate access to water by poor urban households. Although the provision of FBW supply is supposed to provide relief to poor and struggling households, the focus by DWAF on restricting this access to water can be viewed as ironical. While these formally disadvantaged areas had inadequate access to water, they are now further burdened by technological controls in accessing the very water that is supposed to bring them relief. Previously, poor communities and households suffered under the yoke of discrimination; now, post-independence, the yoke of technological vigilantism burdens them.

Section 27(1)(a) of the South African Constitution states that everyone has the right of access to water. It can be argued that the water management device gives an individual the right to access water. It is important to note that the right of access to water does not mean the right to water. South Africa's waterscape is characterised by the complex relationship and power play between technologies, people and the ability to pay for services, on one hand, and political intervention, on the other. The waterscape has been reconfigured by the development and introduction of the FBW policy, which was championed by the Durban Municipality and designed to ensure that people had access to at least two hundred litres of water per day. Ironically, its implementation came with strings attached, as access to water had to be managed through a myriad of technological interfaces that would self-cut when the daily limit had been exhausted. Instead of the FBW policy providing the anticipated relief to the previously disadvantaged poor, it dealt them another blow: under apartheid, their access to water was limited and post-apartheid this access is regulated.

While the technological interventions post positive results on the part of the City in terms of saving water and recovering costs, their impact on the households has varied. Even the lifeline tariff has become a space for further access regulation through technology. This discourse overrides how people have a say in the services they get. The fact that a prescribed set amount of water has been gazette as adequate for poor households based on their ability to pay poses challenges of discrimination, even though the indigent policy and the FBW policy are designed to improve access to water by the poor.

Chapter 6: Summary and Conclusion

6.1 Introduction

Although water services in South Africa have seen a marked improvement from the apartheid era, there remains a need for national government to keep up with meeting the needs of the poor while at the same time making strides to ensure economic growth. The current water service policy is situated within the neo-liberal framework, incorporated in GEAR, and seeks to achieve the triple objectives of equity, efficiency and sustainability.

The study set out to explore the impact of installing and utilizing WMDs in Saxonsea; examine households' participation in the installation of WMDs; and find out to what degree the rollout of WMDs could be seen as a tool that effectively enhances water management without sacrificing democratic objectives of improving access to resources by the previously disadvantaged poor. The key research findings were that although the introduction of the WMDs had resolved some residents' concerns about unpaid water bills, the unintended consequence was the negative impact on quality of life and infringement of rights of access to water. Governance and technical issues emerged as the major challenges in the implementation of the intervention strategy.

6.1.2 Governance and participation

The study established that the conceptualization of WMDs was not done through citizens' participation. Instead, residents became aware of the project at implementation stage and thus their participation and consultation were very limited.

Poor communication and withholding vital information resulted in residents failing to make informed decisions about water access options. Participation in the project was not voluntary and some residents did not fully understand the advantages and disadvantages for the installation of WMDs. Although the municipality outsourced the technical changeover from conventional water metres to WMDs, it remained responsible for ensuring that proper procedures and communication protocols were adhered to fully. In addition, some respondents reported that they were told that it was compulsory for every household to have the devices, as failure to do so would result in dire consequences..

The use of consultants has, according to the results, presented post-project service challenges for households, and organizational challenges for the City in terms of depot staff engaging in low-level passive resistance by providing unsatisfactory service to households that experience problems with their devices and frequent water cuts. Results showed that, while the City provided FBW of 6kilo litre per household based on an average household size of eight people, this provision did not adequately cater for extended families or backyard dwellers; where in some cases there were 15 people. The 'undocumented' rent-paying backyard dwellers were not catered for separately, but shared the same daily allocation of 350 litres with their landlord. Because the installed WMDs had no display units to show the amount of water available for the day, some residents were frustrated when their daily allocation was exhausted early. It took them longer to figure out that they had to use their water sparingly to ensure that they had enough to last them the whole day. Health implications, especially for households that cared for sick people, were dire with limited access to water. This reflects the impact of neo-liberal policy on water provision whose emphasis is on cost recovery, and negates its objectives of achieving equity in water service provision.

6.1.3 Technical – implications for access to free basic water

The high level of unemployment poses a complex problem for Atlantis households and the City. Although the impact of unemployment cuts across gender, race, age and other social factors, it is true that other factors such as skills and education level of individuals also play a significant role. The 2011 Census put the unemployment figures for Ward 29 to 26.58 % (City of Cape Town, 2011 Census Suburb Atlantis). This is a significant increase from 20.1% in the 2001 Census (Stats SA 2001). From the results of the survey, the education level is very low, with only 17% of respondents having completed matric and 0.9% having post matric qualifications. The rest either completed primary education (22%) and secondary education (56%), while 2% had no formal education at all. With these low levels of education, it is not surprising that there is high unemployment in the area. The employment pattern in an area is largely reflective of its economic growth. With the closure of factories and manufacturing plants in Atlantis, little economic activity resulted in a high unemployment rate; and with low education levels, the residents could not possibly compete with the greater Western Cape region for employment. Trapped in this cycle of inadequate employment, lack of income and low levels of education, it makes sense for the residents to accept the reality of free water that is not financially burdensome, even though it comes with access restrictions. Employment

would arguably provide individuals income to meet their basic requirements and improve their ability to pay for services. At the time of the study just over 60% of heads of households were unemployed and said they had no income to pay for basic services such as water. The respondents indicated that as much as they did not want to be in debt, their lack of income made it difficult for them to service their debt. Therefore, the installation of WMDs literally enabled them to manage their water consumption and debt level.

The City had promised to write-off debt six months after installation of the WMDs, and the affected households readily accepted the offer as it meant they would not have to worry about accumulating debt. However, for some households, this promise did not materialise, and interviews with key informants, revealed that this was due to backilo litreogs within the system, but this information was never relayed to the affected residents. The fact that the respondents were worried about their debt and how they would service it without any meaningful income is different from someone saying they are entitled to free water. Some respondents commented that given adequate financial resources, they would want to service their debt as they were aware that services had to be paid for. The respondents said although they disliked the devices because of their restrictive access to water, the consolation was that they would not have to worry about payment because the water was free.

For the City, the installation of the WMDs was the first step towards cost recovery and conservation of water. The WMDs as debt control measures are used to restrict the lifeline water supply to those households that are unable to pay for the service. Their installation in low-income communities gives credibility to the criticism by various activists that these are discriminatory because water scarcity should be an issued addressed by all sectors of consumers and not just poor communities. The majority of respondents argued that if the City was not discriminatory in its approach to the project, greater efforts should have been made to ensure that the communities were made aware of the project and its benefits, as well as educating them on how to use the devices instead of the haphazard approach that was employed. Although the temporary employment of youths from the community to take part in the project was applauded, some respondents said these youths were not adequately trained and equipped to handle the project. The respondents complained that the use of ill-trained people was a reflection that the City did not care about the residents. Comparisons were made with the affluent communities, that the City would have made extra effort to use trained staff to service the rich because they have the financial resources to afford the services.

The integrated water repair programme that ran in conjunction with the installation of WMDs ensured that all leaks were repaired, and that resulted in massive saving of previously unaccounted water in households that had leaks on their properties. The WMDs have also assisted households identify leaks in the reticulation system as the presence of leaks adversely affects the consumption of the daily water allocation. Inadequate water allocation resulted in frustration for the majority of households as it took them a while to adjust to the daily limits of 350 litres. According to the City (2009), prior to the installation of the WMDs, the average monthly water consumption per household was 42 kilo litres, and this was reduced to 12 kilo litres..

The City on its part argues that it has fulfilled the constitutional requirement by ensuring that residents have access to basic water services, and in addition, through the Indigent Grant, ensured that indigent residents have adequate access to basic services. However, the fact that the majority of residents (84%) were neither aware of the existence of the Indigent Grant, nor that they were beneficiaries of the grant, reveals gaps in communication between the council and the residents. Although this information is reflected in the utility bills, the majority of respondents said they did not know how to read and interpret the information. One respondent said, 'All I look for when I open my bill is the amount owing, and the rest I do not understand what it means' (Mr Dickson, questionnaire, 5 November 2011).

6.2 Policy implications

The emerging story from households is that their decisions to accept the installation of WMDs was purely economic, as indicated by one respondent: 'As long as I do not have to pay for water, I will make a plan' Mr Adam, questionnaire, 5 November 2011). Some respondents felt that the lack of consultation by the City prior to the installation of the devices was discriminatory and alluded that this was because of their economic status, given their inability to pay their bills. The majority of respondents, however, indicated that they were happy with the WMDs because it removed the burden of payment for water, and they could focus on putting food on the table instead. So on one hand they were grateful to have free water, but on the other hand they felt that decisions were being taken on their behalf and were not given a voice. The implementation of WMDs in poor households should not be used as an excuse for water conservation. If water conservation is the issue, then the focus must be on

ensuring that all users are aware of the issue and that appropriate measures are put in place, and that conservation is not the responsibility of low-income communities alone. Through the study, it would appear that water conservation is a preserve for poor households and it is 'forced' (*my emphasis*) on them through WMDs.

6.3 Conclusion

The study has shown that the participation process was more symbolic than meaningful; more about mere consultation and communication than engaging in negotiated decision-making processes and planning to allow for effective monitoring by the residents as citizens. The use of devices to manage consumption of water by the poor infringes on their rights to water. During an informal discussion with one of the Wesfleur council officials, it emerged that the decision to withhold information was taken to avoid a situation where households would be tempted to apply for additional water allocation they could not afford.. The official indicated that the City would rather have the residents comply with the free water allocation than create expectations of extra water, which would land them in the same situation of unpaid bills.

The City as the 'provider' dictated the terms of engagement, as shown in the Table 5 (CSAs and plumbers door-to-door activities). By the time of the project's implementation in Saxonsea, it was too late for any negotiated participation and input. Some respondents also said that citizen's power was very low as illustrated by the top-down approach taken by the City in the project. Given the uptake of the project, the City could have gained mileage and trust through extensive awareness programmes using the local ward and community structures to emphasise the importance of the project and how it would empower households to manage their water consumption and, at the same time, reduce their debt burden. Even the promises for debt write-off should have been fulfilled during the given timeframe through effective planning within the local council office in Wesfleur, and in the event of delays, these too should have been communicated to the households to ensure that they were kept abreast of developments in the service delivery process. Now, the relationship that prevails is that of a skewed client-patron relationship with power balanced in favour of the water provider (the City). The tendency in this type of relationship is for the client (households) to become passive spectators in development projects supposedly designed for their benefit. The danger of this type of relationship is that people often find ways of expressing themselves through violent protests, which have gripped the country of late. The popular belief is that this is the most effective way of forcing all spheres of government to listen to their grievances.

If government is serious about addressing the issue of water scarcity and water conservation, then this should apply to every individual and not only a portion of the population as this amounts to denial of their constitutional rights. The Constitution does not say that poor households should have their access to water regulated through technological devices; it says every individual has the right of access to water.

As an overall conclusion, evidence from the study indicates that households' basic rights as enshrined in the Constitution and the UN and as argued elsewhere by Mehta (2000) have been infringed. The study therefore suggests that the use of WMDs should be carefully considered as their use purely focuses on cost recovery without considering the rights of poor people, whose rights were previously grossly undermined through apartheid's skewed policies.

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