AN EVALUATIVE STUDY OF MUNICIPALITY PROGRAMS IN ADDRESSING WATER AND SANITATION SERVICES IN INFORMAL SETTLEMENTS

By

AUSTIN SIMASIKU SIMASIKU

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SUPERVISOR: Dr N.H. NTOMBELA

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DECLARATION

I, Austin Simasiku Simasiku hereby declare that: **"An evaluative study of Municipality programs in addressing water and sanitation services in informal settlements"** is my original work; it has not and will not be presented for the award of any degree at any other university

…… ……

Austin Simasiku Simasiku **Date**

DEDICATION

This work is dedicated to the memory of my father (Fabian Simasiku Matengu (Mr) and the entire family (my mother Helen Simasiku (Mrs), (my sisters) Lillian, Winnie and Rejane, (my brother) Auden and lastly, (my children) Sherlyn & Tanicia Simasiku for keeping my feet on the ground and supporting me through my many years as a student.

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ABSTRACT

South Africa has one of the most progressive legislative and policy frameworks for water and sanitation services in the world, which includes a constitutional right to water and a national free basic water policy. However, when it comes to the local government level (municipalities) who arestipulated with the duty to provide water and sanitation services not only in informal settlements, the reality is quite different. In many municipalities, water and sanitation services programs are still run according to long established routine and customs which have never been examined for their effectiveness or appropriateness to current conditions of the areas (informal settlements) where services are driven to.

Nevertheless, the intention of this study was to evaluate municipality programs in addressing water and sanitation services in informal settlements. To produce data for the study, the questionnaires, interviews schedule and document review or analysiswas utilised. A sample of 10respondents was drawn from three Umhlathuze municipalities, namely: Richards Bay, Empangeni and Esikhawini municipalities.

The findings from the study indicated that Umhlathuze municipality programs in addressing water and sanitation services in informal settlements is a failure, the municipality have a sour working relationship with the community, the criteria used to choose the strategy to the provision of the services does not encourage community participation, and finally, the municipalities are still using a bit of the past supply driven approach and the new approach; demand responsive approach simultaneously.

The set objectives for the study were achieved, and most importantly, it is recommended that fullcommunity participation at different levels and stages of water supply and sanitation service planning and implementation should be encouraged.

CHAPTER 1

1. ORIENTATION TO THE STUDY

1.1 INTRODUCTION

Informal settlements are dense settlements comprising communities housed in self-constructed shelters under conditions of informal or traditional land tenure. They are common features in developing countries and are typically the product of an urgent need for shelter by urban developers. As such they are characterized by a dense proliferation of small make-shift shelters built from diverse materials, degradation of the local ecosystem (Solo, Perez & Joyce 2003: 3).

According to Huchzermeyer (2004:1) people who live in informal settlements often share several factors in common. First, they do not stand in line waiting for the government or the formal private construction sector to provide completed and fully serviced housing. Instead, they find land, somewhere, sometimes to occupy, but more frequently, to buy and begin building a shelter.

Second, they are apparently willing to go without certain levels of comfort, and without full or even any public services, in order to secure a family shelter. Families that live in these settlements build on the cheaper land outside city limits (which means they pay a premium in travel to work and schools), on land that is not zoned for housing, or on land considered dangerous or environmentally protected (Huchzermeyer 2004:1).

Third, they tend to be ignored by official planning authorities, who find themselves overwhelmed by the informal sectors' sheer numbers and needs, which far outstrip the capacity of the local planners and government (Huchzermeyer (2004:2). Furthermore, Solo, Perez & Joyce (2003: 5) outlined that informal settlements begin as scattered huts, without streets, house numbers, or connections to public services. They may pirate electricity from the nearest cables, bring water in drums from their neighbours who have standpipes, walk through fields to get to streets with public transportation, and rely on a stack of tires (a commonly improvised toilet) and an occasional bonfire to take care of.

In addition, the living conditions within these settlements are typically poor, with residents facing a range of basic livelihood challenges such as poor access to basic

sanitation and water supply, solid waste accumulation, recurrent shack fires, safety and security risks, and a range of health hazards (2010www.ngopulse.org).

Moreover, the UN-habitat report (2003:2) reports that the official governments' statistics on the provision of water and sanitation services shows that it is only a minority of urban dwellers who are unserved even in low income nations of the continent, Africa. But, hundreds of millions of urban dwellers who are said to be having improved water and sanitation services by these statistics still have very inadequate provisions because most governments and international agencies often misinterpret these statistics and in so doing, they give false impression of the extent of the provision of water and sanitation in urban areas.

For example, everyone has access to water in some form since no one can live without water, but the issue is not whether they have access to water, it is whether the water supplies are safe, sufficient for their needs, regular (available 24 hours a day and throughout the year), convenient (piped to their homes or close by) and available at the price they can afford. Similarly for sanitation, the issue is not whether they have sanitation provision, but it is whether they have quality of provision that is convenient for all household members, affordable and eliminates their contact with human excreta and other waste water (UN-habitat report 2003:2).

The water research commission report (2000:7) states that South Africa is one of the few countries in the world that enshrines the basic right to sufficient water in its constitution, stating that "Everyone has the right to have access to water." However, much remains to be done to fulfil that right. In addition, and as a possible reason to why it's said; much remains to be done to fulfil the right to water access, Richards et.al, (2007) reportsthat the number of informal settlement dwellings in South Africa reached 1.4 million in 2004 and this number was anticipated to increase to 2.4 million dwellings by the end of 2008 and these settlements can be best described by their lack of sufficient basic services, including water, electricity and sanitation and Inhabitants of these settlements perceive their quality of life as low, since they have inadequate housing and low level of access to services.

Finally, despite the existing right to water access in South Africa, the water research commission report (2000:7) reports that there is a local government transition act of 1993 which stipulated the duty to local government structures to provide access to the mentioned services in South Africa's rural and urban informal settlements.

It is against this background that this study is designed to weigh up municipal adopted programs in addressing water and sanitation services in informal settlements, focusing on Umhlathuze municipal areas in KwaZulu-Natal.

1.2 STATEMENT OF THE PROBLEM

The researcher in (2008) conducted a study on the challenges faced by inhabitations of informal settlements with regards to water and sanitation at Mkhoboza informal settlement of Esikhawini Township. The findings proved that the municipality was using unsatisfactory poor programs or approaches in addressing water and sanitation services.

1.3 MOTIVATION

The key motivation in conducting this study is driven by the findings of the study on the challenges faced by inhabitations of informal settlements with regards to water and sanitation, carried out by the researcher in (2008). It was soul-touching to find out that residents in informal settlements would go for hours and sometimes days without water. They walk long distances in search of water or either settles for unhygienic water from surrounding rivers. The majority do not have toilets and the only option available to them, is visiting nearby bushes or use plastic bags.

It is for this reason the researcher this time around is so keen in assessing municipality programs towards water and sanitation services in informal settlements.

1.4 OBJECTIVES

The objectives of the study are as follows:

4.1 To determine strategies set out by the municipalities in providing water and sanitation services in informal settlements.

4.2. To measure the performance of municipality adopted programs to the provision of water and sanitation services in informal settlements.
4.3. To determine to what extent are municipal programs accommodating informal settlement dwellers into the delivery of water and sanitation services.
4.4. To determine the key constraints that must be addressed in order to improve the situation of water and sanitation services in informal settlements.

1.5 HYPOTHESIS

There is a lack of municipality improvement programs designed to address water and sanitation services in informal settlements. This leads to municipality program failures and as a result there are huge services backlogs with respect to the provision of water and sanitation.

1.6 RESEARCH METHODOLOGY

1.6.1 Research Design

Research design is a set of guidelines and research instructions to be followed in addressing the research problem (Mouton: 2002:107). Althoughthis study will employ evaluative research as the primary research design in order to measure the performance of municipal adopted programs towards water and sanitation services, this study will also use a mixed method of exploratory and descriptive research.

To describe the main research design, Babbie & Mouton (2001:335) define evaluative research as a systematic application of social research procedures for assessing the conceptualisation, design, implementation and utility of social intervention programs. In addition, Gomm (2004:274) refers to evaluation as a type of research designed to help people make wise choices about future programming. It does not aim to replace decision makers' experience and judgement, but rather offer systematic evidence that informs experience and judgement.

Finally, this approach will allow both quantitative and qualitative reporting on the perceptions and experiences of program planners, practitioners or participants.

1.6.2 Sample

The sample of the study will be drawn from the seven (7) Umhlathuze municipalities, whereby within the department or division responsible for water and sanitation services, a selection will be done randomly from the available municipality employees where to access data through the request of program documents, personal interviews or give questionnaires. However, this will depend on the internal situation of the targeted municipalities.

1.6.3 Data collection

The study will use the following data collection methods (analysis of documents, archival records, conducting individual interviews and finally, questionnaires). Individual interviews will be specifically directed to the service managers or municipal employees who may seem to be free to be interviewed on the day, while questionnaires will be directed to those who may seem too busy to be interviewed and questionnaires will be dropped, so to give them time to respond at their own time.Both closed and open-ended questions will be used and notes will be taken when conducting the individual interviews.

1.6.4 Data analysis and interpretation

Data will be analysed using a mixed method of qualitative and quantitative data analysis. For example, quantitatively; the statistical packages to the frequencies, percentages and relationship among variables from open-ended and closed-ended interviews will be utilised. Qualitatively and as an example, the study will employ content analysis to look at documents, text, or speech to see what themes emerge. What do people talk about the most? See how themes relate to each other. And after that, the researcher will be in position to interpret the data.

1.7 STUDY AREAS (LOCATION)

The City of Umhlathuze is a local municipality situated within the uThungulu District Council area in KwaZulu-Natal. Some 796km2 falls under the jurisdiction of this South Africa's most sophisticated local authorities. Established in the year 2000, the City of uMhlathuze encompasses the towns of Empangeni, Richards Bay, eSikhawini,

Ngwelezane, Nseleni, Vulindlela and Felixton, as well as the rural areas under Amakhosi Dube, Mkhwanazi, Khoza, Mbuyazi and Zungu (2010www.kzntopbusiness.co.za).

1.8 ETHICAL CONSIDERATIONS

To ensure the safety of participants, the conditions will be carefully explained to the participants. Informed consent will be obtained from respondents whose confidentiality and anonymity will be ensured by not writing their names on the information sheet. They will be given information sheets containing the researcher's name, the aims and the objectives. Participation in the study will be voluntary and they can withdraw at any stage of the study without undesirable effects.

1.9 STRUCTURE OF THE REPORT

The final report will be organized as follows;
Chapter 1 – Introduction to the study
Chapter 2 – Literature review
Chapter 3 – Profile of the study area
Chapter 4 – Research methodology
Chapter 5 - Presentations, analysis and interpretations of data
Chapter 6 – Findings, conclusion, recommendations drawn from the study

CHAPTER 2

2. LITERETURE REVIEW

2.1 INTRODUCTION

The delivery of water and sanitation service (not only in informal settlements) is dependent on the efficient and effective performance of highly vulnerable and complex system of administration, finance and hardware and infrastructures. The sector is all too often susceptible to systemic and chronic failure if one of the mentioned interdependent parts underperforms or fail. In essence, the critical factor for determining whether water and sanitation services successfully reaches or works for the poor is governance (2010*www.wateraid.org)*.

In line with the above, de la Harpe (2008:2) maintains that, it has been long recognised that good local governance is necessary for the achievement of sustainable water and sanitation services. People want water, sanitation and hygiene services that are sustainable, in which stakeholders, including the most vulnerable in society, have a say in key decisions and where access to the services is equitable and fair, and this requires good governance.

Good governance involves constructive co-operation between the different sectors where the result is efficient use of resources, responsible use of power, and effective and sustainable service provision. To achieve improvement, lesson sharing and sustainability, requires policy shifts and changes to legislation to allow more facilitative and responsive modes of governance. Such changes typically result in shifts in the way power is held and how society makes choices (de la Harpe 2008:3).

Good governance can only emerge when stakeholders engage and participate with each other in an inclusive, transparent and accountable manner to accomplish better services free of corruption and abuse, and within the rule of law. Although good governance is difficult to put into practice, it is important to work towards good or 'good enough' governance, in order to achieve sustainable services (de la Harpe 2008:3).

2.2 THE BASIC CHARACTERISTICS OF GOOD GOVERNANCE

The basic characteristics of good governance are met when**:**

- ✓ There is participation of all stakeholders
- ✓ Decisions are taken in terms of rules and regulations in a transparent manner, with all information freely available and accessible to those who are affected by decisions
- ✓ There is equity and inclusiveness of all members of society in development, particularly the most marginalised, with an emphasis on ensuring that the interests of women and men are included
- ✓ Fair legislation (rules) is implemented objectively with full protection of human rights
- ✓ Services are responsive so that the needs of consumers are addressed within a reasonable time period
- ✓ Broad consensus is achieved about what is in the best interests of the community, and how to achieve sustainable services
- ✓ The needs of society are met efficiently and effectively, with sustainable use of national resources where the institutions of government are capable
- ✓ There is accountability for decisions taken and implemented, so that stakeholders involved in decision-making are accountable to those affected by decisions (de la Harpe 2008:3).

To summarize, de la Harpe (2008:3) maintains that good governance ensures that all stakeholders, including the poor and disadvantaged have an opportunity to influence development decisions that affect their lives, to contribute to development, and to share the benefits and improve their livelihoods. The result of good governance is access to basic services on a sustainable basis. It can take years to achieve good governance, because different stakeholders and groups in society need to negotiate how things are done and how resources are allocated.

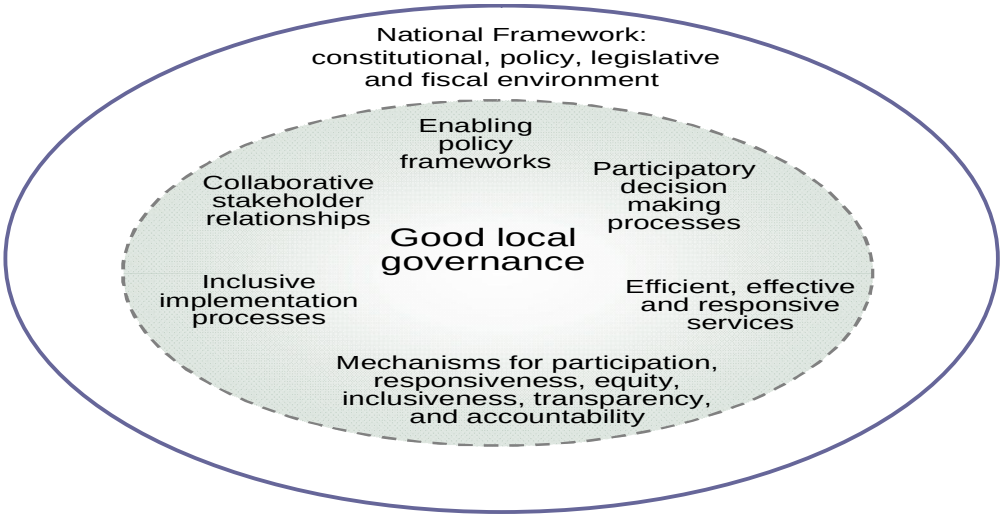
What works in one country may not work in another country. Countries need to create their own good governance frameworks, through (locally led participatory processes). In other words this is a formation of local governance, but a question may arise, what local governance is;

2.3 LOCAL GOVERNANCE

Local governance is the set of policy frameworks, structures, relationships and decision making that takes place at the local level to deliver a service or achieve an objective. Local governance varies from country to country depending on how government is constituted (structured), and on the policy and legislative framework. The greater the extent of decentralisation, the more developed and democratic local governance frameworks is likely to be (de la Harpe 2008:4).

Additionally, Shah (2006:1) maintains that local governance should include the diverse objectives of vibrant, living, working, and environmentally preserved self-governing communities. Good local governance is not just about providing a range of local services but also about preserving the life and liberty of residents, creating space for democratic participation and civic dialogue, supporting market-led and environmentally sustainable local development, and facilitating outcomes that enrich the quality of life of residents.

FIGURE 2.1: Shows the requirements for good local governance (de la Harpe 2008:4).



2.4 WATER GOVERNANCE

2.4.1 THE PRINCIPLES

Mcgranahan and Satterthwaite (2006:14) opines that there is widespread agreement that inadequate water and sanitation provision is at least in part a failure of governance, and the definitions of water and sanitation governance are reasonably consistent. At least superficially, there is also widespread agreement on a number of the critical

features that good water and sanitation governance must have. In line with the above discussed, a recent paper commissioned by the global water partnership, identified the following principles of effective water governance (Rogers and Hall 2003:44).
Approaches should be:

- ✓ Open and transparent
- ✓ Inclusive and communicative
- ✓ Coherent and integrative
- ✓ Equitable and ethical.

Performance and operation should be:

- ✓ Accountable
- ✓ Efficient
- ✓ Responsive and sustainable.

To some degree, at least these principles reflect the prevailing wisdom in the water sector and respond to widely perceived weaknesses in pre-existing water and sanitation governance systems (Rogers and Hall 2003:44). In line with the water governance, UN-HABITAT (2003:228), states that good government for water and sanitation is about developing the most cost effective solutions and not taking on unnecessary large loans to improve water and sanitation provision, impoverish the local government with debt repayments that it cannot afford.

2.5 THE FOUR CHARACTERISTICS OF A GOOD GOVERNMENT FOR WATER AND SANITATION

2.5.1 Good administration

This is all about being efficient in managing provisions, or managing and supervising the companies, corporations or other bodies that are given responsibility for managing provisions and also ensuring that the providers are accountable to clients.

2.5.2 Economically viable or cost effective

Delivering good value services at an affordable price while also ensuring that revenues are sufficient to fund system management and expansion;

2.5.3 Political support

Water and sanitation management must be supported by the appropriate legal, financial and regulatory systems and accountable to an elected political system, while also being protected from political interference; and

2.5.4 Technical competence

The competence and capacity to deliver good quality services within broader systems that ensure sustainable supplies and good wastewater management (UN-HABITAT 2003:229). All the four aspects summarized above by the UN-HABITAT (2003:229) are compulsory or are crucial. A water utility may have competent administration and technical capacity but might not be allowed to charge a realistic tariff, which then undermine its capacity to maintain the system and expand provision. In the case of smaller urban centres and many larger cities in low-income nations, there may be political support but not technical and administrative skills. Good governance contains the same focus, but adds dimensions of government-civil society interaction.

FIGURE 2.2: Shows the elements of good governance for water and sanitation (UN-HABITAT 2003:230).

<table>
<tr><td colspan="3">Management of water & sanitation</td><td colspan="2">Citizen demands and priorities</td></tr>
<tr><td>Administration</td><td>Economically viable/cost effective</td><td rowspan="2">  </td><td>Effective management</td><td>Low prices</td></tr>
<tr><td>(Efficiency, transparency, accountability)</td><td>(Low price and good cost recovery)</td><td>(clear bills, fair management)</td><td></td></tr>
<tr><td colspan="5"></td></tr>
<tr><td>Political support</td><td>Technical competence</td><td rowspan="2">  </td><td>Accountable to democratic pressures</td><td>Good quality services</td></tr>
<tr><td>(level of accountability within wider system; level of support of or interference with management or prices; appropriate legal, financial and regulatory support)</td><td>(quality and regularity of service; good management of wider system, e.g. with water basin)</td><td></td><td>(regular, good quality service)</td></tr>
</table>

According to the UN-HABITAT (2003:230), the above, shows how the elements of good management must be linked to the needs and priorities of citizens. All city dwellers and businesses want low prices, but also effective management. For instance, unambiguous bills, technical competence (regular good quality services) and a system that is accountable to democratic pressures and with systems overseeing it that is accountable to citizens too.

Furthermore, evaluation of a good government centre on the performance of government institutions; evaluations of good governance are broader because they also evaluate the quality of the relationship between government institutions and civil society- including citizens, community organisations, private enterprises and local NGOs (UN-HABITAT 2003:229).

For cities or smaller urban centres with inadequate water and sanitation provision, good governance provide more scope for civil society involvement, including mechanisms to allow low income households and their organisations more influence in decision and resource allocations. It also provides more scope for neighbourhood-level or district-level initiatives undertaken by community organisations and non-governmental organisations (NGOs) (UN-HABITAT 2003:230).

This is recognition that both good government and good governance are needed if water and sanitation provision is to improve. In wealthier or better managed cities, this kind of direct involvement by citizen organisations with water and sanitation may not be necessary as city governments have the capacity to ensure adequate provision to all homes and households , and are accountable to citizens through representative political systems (UN-HABITAT 2003:230).

2.6 TWO COMPONENTS OF INADEQUATE CITY GOVERNMENT IN THE PROVISION OF WATER AND SANITATION

- ✓ Weak, underfunded local institutions (including water and sanitation utilities with little or no investments capacity), and weak and often unrepresentative urban government structures; and

- ✓ Higher levels of government that are unwilling to allow local institutions the resources and revenue-raising powers they need to become more effective (UN-HABITAT 2003:229).

2.7 THE HISTORICAL FAILURES OF GOVERNANCE IN THE PROVISION OF WATER AND SANITATION

2.7.1 THE OVERVIEW OF THE PAST APPROACHES

Generally, one can conclude that, the past approaches in addressing water and sanitation had mixed results; both positive and negative experiences. In support of the above general statement, Lockwood (2004:6) maintains that, during the 1960s and 1970s international and national efforts focused largely on increasing coverage through so-called supply-driven approaches. These assumed that governments knew what was needed and could provide the maintenance and management capacity required.

In most cases, the only solutions international donors had to offer were complex and only affordable to an elite minority, leaving a large majority of people without services of any kind. The vast majority of thosewithout water and sanitation services were poor, and the countries in which they lived werefrequently water short and had little to spend on public infrastructure.

2.7.2 THE SUPPLY-DRIVEN APPROACH

In attempt to provide more understanding of what really supply driven approach is all about, Brikké (2000:148) describes this approach as an approach based on pre-selection of the intervention area, with village and technology selection criteria based on policies of replication of successful experiences in other countries or projects. This approach can have serious implications for the sustainability of projects, particularly in terms of community acceptance, functioning, use and operation and maintenance costs, the community not being involved in any phase of the project cycle.

Adding up on how the supply driven approach has been used, Wright (2007:5) states that, the most common failing of urban sanitation programs in the past has been failure to take into account the expressed needs of the users traditionally. Utility planners developed demand projections based on demographic and economic progress indicators. Sector professionals then translated these projections into hypothetical

demand for new services and converted this hypothetical demand into project designs based on sewerage and treatment technologies commonly used in industrial cities of Europe and the United States.

Moreover, Wright (2007:5) highlights that reliance on this supply-driven approach has too often led to investments by governments and donor agencies suffer from several critical defects:

- ✓ The investments are costly both in absolute terms and in relation to the number of people served.
- ✓ The main beneficiaries are the richer neighbourhoods that can afford the high connection charges, sometimes with the help of subsidies; poorer communities tend to be excluded for both cost and technical reasons.
- ✓ The environmental and water resources implications of planned investments are not compared with those of other options, and this can lead to unsustainable projects or projects that are not environmentally sound.
- ✓ Investment costs are not recovered, with the result that operations and maintenance, and expansion of services to meet future needs, become impossible.

In line with the past approaches in addressing water and sanitation, Mcgranahan & Satterthwaite (2006:14) outlined the conventional governmental approach to water and sanitation management of the 20th century which are also supply driven;

2.7.2.1 Bureaucratic and labyrinthine, rather than open and transparent

In the 19th century, water and sanitation were widely debated in many parts of the world, in public fora as well as academic halls and government chambers. When cities were considering whether they could afford a major new water or sanitation project, it was not uncommon to hold a referendum. As the responses to water and sanitation became more standardized, the decision-making process also became less open and transparent, however, and increasingly became the preserve of bureaucracies, removed from any public engagement (Mcgranahan & Satterthwaite 2006:14).

This did not pose a serious problem in countries where public utilities were effectively providing adequate water and sanitation services to all those who could not provide it

for themselves. In many parts of the world, however, water and sanitation coverage remains far from complete, trust between users and their (predominantly public) utilities is poor, and the lack of open and transparent decision-making is a serious impediment to improving service delivery in low-income areas (Mcgranahan & Satterthwaite 2006:14).

2.7.2.2 Exclusive and expert-driven, rather than inclusive and communicative

In addition to not being open and transparent about their own decision-making, water and sanitation utilities have tended to be expert-driven and not very responsive to their customers' requests and demands, let alone those of people not connected to the network. Again, this is less of a problem when everyone is connected to a high-quality piped-water and sewerage connection, and can pay a monthly bill based on the water tariff (Mcgranahan & Satterthwaite 2006:14).

When a large share of the residents of an urban area are unconnected, and are likely to remain unconnected unless standards and connection procedures are adjusted or relaxed in some way, then exclusive and expert-driven approaches can create serious problems. This holds especially for the urban poor, who tend to be the most excluded and the least able to understand or influence utility procedures (Mcgranahan & Satterthwaite 2006:14).

It is indicative of the lack of inclusive and communicative approaches that even residents in areas on or near the network are often unaware of how the connection procedures are meant to operate, or their of rights in relation to the utilities. Similarly, residents are often not informed about even planned interruptions to water supply, although such information is often important to a household's own planning (Mcgranahan & Satterthwaite 2006:14).

2.7.2.3 Sectoral and segmented, rather than coherent and integrative

Water and sanitation utilities have often developed with very clearly defined sectoral responsibilities, that do not extend to the water-resource issues created by excessive water withdrawals, or the water-related health problems created by inadequate access to safe water and sanitation. For example, most water utilities are, formally at least, responsible for ensuring that the water is uncontaminated when it comes out of the

utility's own pipes, but have no obligation to provide a service such that the water people actually consume, in many cases after carrying it home, is of good quality, although it is known that, where indoor piping is not the norm, water quality often declines appreciably between tap and mouth (Mcgranahan & Satterthwaite 2006:15).

2.7.2.4 Based in favour of those able to access the large water and sanitation networks, rather than equitable and ethical

In urban settlements where a large share of the population is not connected to the piped water supply network, it is common for utilities to provide subsidized water and sometimes sanitation to the middle classes, even as the least well off are forced to buy scarce water on secondary markets at high prices. Price controls, ostensibly designed to make water and sanitation affordable to those living on low incomes, have often contributed to the financial insolvency of public utilities, which cannot achieve their expansion plans on the basis of their revenue (Mcgranahan & Satterthwaite 2006:15).

In many cases the income from water sales is not allocated to the utilities, but even so the fact that expanding the water network is a long-run financial drain on the government undoubtedly contributes to the slow expansion. Similarly, the criticisms levelled at the performance and operation of public utilities typically centred on their being unaccountable, inefficient and unresponsive to consumer demands, or environmentally unsustainable (Mcgranahan & Satterthwaite 2006:15).

Some advocates of private-sector participation claimed that bringing in the private sector was in itself a means of resolving most of these problems. Private operators would be non-bureaucratic and responsive to consumer demands, and government agencies not directly involved in water and sanitation provision could focus on creating a more coherent and integrative water and sanitation system that was environmentally sustainable and served all residents, not just the well-off (Mcgranahan & Satterthwaite 2006:15).

Moreover, not only would the private operators increase efficiency, but they could also be made accountable to the public interest through contractual agreement and regulation and accountable to individual interests through market mechanisms. Private-sector participation has not proved to be this panacea, however, and getting private

operators to provide adequate services to low-income residents is a particular challenge (Mcgranahan & Satterthwaite 2006:15).

Pro-poor water governance is usually facilitated by, if not dependent on, poor groups gaining more power and influences either through representative political structures or through more direct participation in provision, whether in planning, installing, managing and or monitoring provision. The interests of urban poor groups arise at many different levels. They may be affected by how the water utilities are regulated, and whether the utilities operators are public or private, but not have the information needed to determine which option will serve their interests best (Mcgranahan & Satterthwaite 2006:15).

In such circumstances, local residents are largely dependent on their representatives in government. The more open, inclusive coherent and equitable the decision-making process, the more likely it is that the interests of the poor can be brought to bear. Those without adequate provision also have a more direct interest in whether a piped-water network is extended to their neighbourhood, or what sort of sanitation systems are made available. Here, the underlying issue is whether the providers themselves can be made accountable to the demands of low-income residents, and responsive to their needs (Mcgranahan & Satterthwaite 2006:15).

Additionally, and in-line with the past approaches to water and sanitation, Wright (2007:6) in his lessons from the past on urban sanitation problems, the following are his contributions to the topic;

2.7.2.5 Central or local management

Institutional approaches have also been dominated by inappropriate models from industrial countries. City water and sewerage utilities in developing countries generally suffer from lack of financial or managerial autonomy, are often overstaffed and under skilled, show unacceptable financial performance, and have little contact with their customers. Budgets are often restricted by central or city governments and agencies may not have the freedom to make use of their own revenues (Wright 2007:6).

Emerging alternatives involve much greater participation of users and other stakeholders in the planning and implementation of water and sanitation projects. For

the urban poor, formal or informal partnerships among service providers, nongovernmental organizations (NGOs), community groups, and private sector enterprises offer other ways to develop more realistic and more sustainable programs (Wright 2007:6).

2.7.2.6 Macro versus micro projects

A major handicap hindering progress in meeting sanitation needs, especially those of the urban poor, has been the scale of projects addressing urban sanitation problems. The high initial cost of such large-scale projects restricts competition for construction contracts to large-scale operators and may inhibit private sector participation. Costs for connections, sewers, and treatment tend to be bundled together, with cost recovery depending on cost-sharing across many different categories of beneficiaries. The result of bundling together all the elements of sewage collection, treatment, and disposal is that only a small proportion of the investment is used to meet the immediate needs of the un-served (Wright 2007:6).

The bulk of the investment is used for trunk sewers or treatment plants that are often underutilized. To recover these costs, charges are high or unsustainable subsidies are sometimes used to stimulate additional requests for connections. The peri-urban poor are often omitted from such schemes since they cannot afford the high charges (Wright 2007:6).

Urban sanitation programs can be unbundled so that smaller-scale projects can bring benefits at an affordable cost to those in greatest need. Investments in expensive trunk sewers can then be financed more equitably through general taxation, sometimes in conjunction with user charges. In addition to benefits in expanded coverage, smaller projects tend to open up competition to more contractors and therefore encourage lower prices. This does not mean that the macro picture should not be considered. On the contrary, the unbundling should take place after an adaptable strategic macro framework has been defined to sketch out the overall direction for sanitation service provision in the project area (Wright 2007:6).

It is important that the strategic plan be done within the context of overall development in order to safeguard the sustainability of vital environmental and socioeconomic resources. It is within such an overall flexible sketch of the future that the unbundling

should take place, with sequencing and details of investments in different service zones driven by demand (Wright 2007:6).

2.7.2.7 Poor system performance

An inevitable result of past approaches to project design and investment patterns has been poor in sanitation system performance. Central governments have not had the outreach capacity to handle local operations and maintenance of installed systems. Municipal water and sewerage agencies lack the power and the resources to manage systems effectively on their own. Local users, having been excluded from the planning process, have no vested interest in looking after the systems. Thus well-intentioned projects fall into disrepair and disuse (Wright 2007:6).

Through neglect of maintenance, blockages, and breakdowns make services unreliable. Customer complaints cannot be properly handled because of lack of resources, so payments are hard to recover. The end result is a downward spiral in service quality, cost recovery, and attention to maintenance, which makes many schemes practically worthless only a short time after completion (Wright 2007:6).

2.7.2.8 Unsustainable investments and illusory benefits

In most urban sanitation programs the combination of inappropriate designs, neglect of user requirements, inadequate maintenance, and ill-equipped operating agencies create a continuous drain on government resources and a disincentive to governments and donors contemplating further sector investment (Wright 2007:7).

Users become disillusioned when promised improvements fail to materialize. Malfunctioning or inappropriate systems are unlikely to yield optimum results; disenchanted users who revert back to unhygienic practices because improvements are unreliable will not enjoy optimum health benefits; and projects that continue to drain national resources long after completion will not contribute to economic growth (Wright 2007:7).

But there are some urban sanitation improvement programs that have provided dependable services to a satisfied group of beneficiaries and that have proven sustainable and self-financing. Successful programs have generally relied on extensive

user involvement in planning, choice of service levels, scale of investments, charges, and cost recovery structures(Wright 2007:7).

These experiences show the way to developing a new agenda. Sustained community involvement should begin at the initial planning phase and should continue through implementation, monitoring, and evaluation. Lessons should be fed back into on-going projects so that corrective changes and adjustments can be made. Women need to be included in all discussions about water, sanitation, and hygiene in order to have an impact at the most important level of all, (the household) (Wright 2007:7).

Finally and in line with the above past approaches to the provision of water and sanitation services, the UN-HABITAT (2003:215) in its typologies for community participation in water and sanitation, identified one typology that shares the characters with the past approaches to the delivery of the mentioned two basic services, **Passive participation:** whereby residents participate only by being told about water and sanitation initiatives that are being planned or have already been decided upon, without any attempt to elicit local opinion or knowledge.

2.8 EFFECTIVE APPROACHES IN PROVIDING AND IMPROVING WATER AND SANITATION SERVICES

2.8.1 LEARNING FROM THE PAST AND PLANNING FOR THE FUTURE

As pointed out earlier by Lockwood (2004:6) that during the past decades, international and national efforts focused largely on increasing coverage through so-called supply-driven approaches. They assumed to know what was needed and could provide the maintenance and management capacity required and these led to failure in the provision of water and sanitation. Generally, as a way of looking forward and due to past failures to respond to the crisis of water and sanitation, this prompted service providers to consider how to address water and sanitation problems in the future.

Movik (2009:1) emphasised that the increasing perceptions of water scarcity have prompted many countries to engage in reforming their water legislations and systems of water use rights. In other words, this is what can be referred to as a rethinking of the existing approaches, Whereas, Brown et al (2001:10) supplemented on, that successful approaches are certain to require strategic thinking and concerted effort at national and

local levels to improve institutions and financing methods, reform policies and standards, and increase customers' knowledge and willingness to pay.

In addition, and in general terms; the above led to practical realisation by countries that started adopting approaches with comprehensive coverage, putting poor people at the center of service provision, by enabling them to monitor and discipline service providers, by amplifying their voice in policymaking, and by strengthening the incentives for providers to serve the poor.

The figure below by Zurbrügg et al (2004:5) provides a good example of a move from the past approaches and how plans for the future can turn out to be.

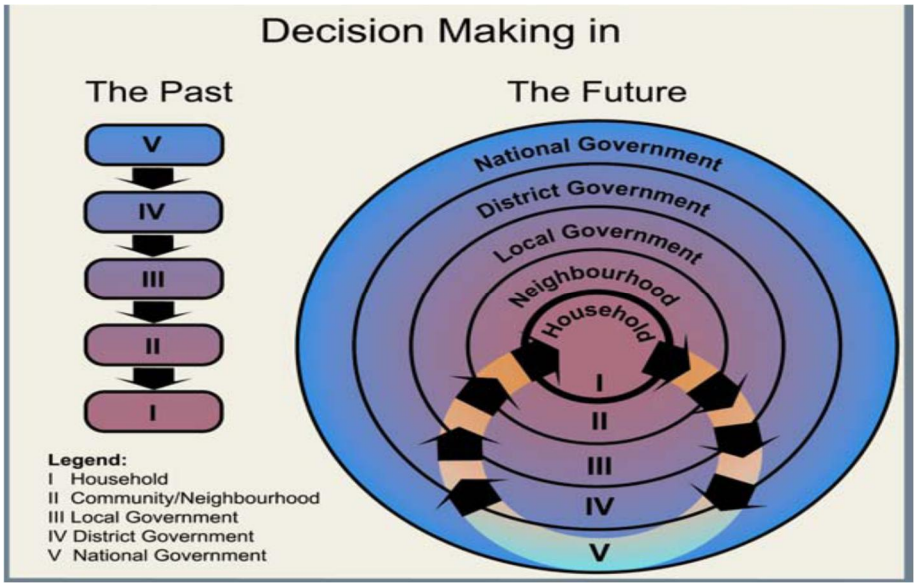


FIGURE 2.3: The household at the core of the planning process. TheHousehold-Centred Environmental Sanitation approach attempts to avoid the problems resulting from either "top-down" or "bottom-up" approaches, by employing both within an integrated framework.

Zurbrügg et al (2004:4) clarify that the figure above shows how household level should be at the centre of the new approach, which should be responsive and accountable to needs and demands in the local and that national setting and decision-making should involve participation of all stakeholders, especially the consumers and providers of services. Generally, and to supplement on the above figure, it actually demonstrates how influential supply driven approach has been in the past, whereby the service providers gave little room to the community in terms of deciding what kind of a service they need the most.

However, most of the approaches which are today proved to be a success in the provision of water and sanitation they are deemed to be demand responsive in nature, which is the primary approach;

2.8.2 THE DEMAND RESPONSIVE APPROACH TO WATER AND SANITATION

To shed light on what demand responsive approach is, Wedgwood (2005) explained that the demand responsive approach was developed as the new project approach during the 1990s in an attempt to improve the efficiency of service delivery. The concept basically means that users make keydecisions about the service they want and are willing and able to pay for. In other words, it is an informed expression of desire for a particular service, measured by the contribution people are willing and able to make to receive this service.

Wedgwood (2005) still maintains that water programmes that have not met demand have problems of under use, poor maintenance and poor cost recovery. Such findings have resulted in the emergence of a new generation of project methodologies based on the concept of determining and meeting user demand.

Additionally, a number of strategic issues and approaches have emerged on the *local level* which is here in South Africaand on the *global* context as well on how to better deal with the concern of water and sanitation;

2.9 THE LOCAL CONTEXT

2.9.1 SOUTH AFRICA'S NATIONAL APPROACHES OR STRATEGIES TO WATER AND SANITATION

DWAF (2004) reports that after the accession of full democracy in 1994, in the early years delivery was slow and this led to rising tensions and riots in South Africa's townships due to service delivery backlogs. In order to halve the proportion of people without access to basic services such as water and sanitation, South Africa has been engaged in extensive institutional and organisational restructuring to meet the needs of the new South Africa. In the process, there are a number of strategies and policies that have been and are still being introduced. But, in line with the issue of water and sanitation, the focus is on the following;

2.9.1.1 THE NATIONAL SANITATION STRATEGY OF 2004

Bringing back to light the issue of learning from the past and planning for the future, the national sanitation strategy was initiated or adopted to deal with the backlogs. It carries some approaches that ensure success to water service authorities in the implementation of projects. Those that are in line with the focus of the study are summarised below;

(i) Community based approach- Community based sanitation delivery approach offers the best way to meet the objectives. Within this approach, they promote the sense of ownership and in turn help reduce maintenance costs due to abuse of the facilities. Unfortunately in most cases projects are not designed for community based approaches and inappropriate management and operation procedures are used, leading to failure of such approaches and usually unjustified condemnation of the community based route (DWAF 2004).

Recommended methodology for community based approach:

- ✓ Real community involvement must be part of the project even where high levels of service are envisaged.
- ✓ Community based delivery should be the preferred method in all on site and alternative sanitation projects.
- ✓ Community involvement must include decision making in all aspects of the project.
- ✓ All projects must have a meaningful Institutional and Social Development (ISD) Component.
- ✓ Projects must be designed to maximise community involvement.
- ✓ Community contribution must be encouraged to promote ownership. Financial contributions in poor rural communities must be avoided in favour of contribution in kind. Strong social facilitation is needed to facilitate willingness to contribute.
- ✓ Management structures must be appropriate to community based work.

This methodology is applicable in Rural and peri-urban areas. In urban areas the methodology can be adapted to suit conditions but the basic principles apply. The model must be seen as generic and be adapted for local conditions (DWAF 2004).

(ii) Health and hygiene education and promotion- Health and hygiene education must be an integral part of all sanitation projects regardless of who the project is implemented by. This is a fundamental requirement included in the definition of sanitation in the White Paper and all subsequent policy and legislative documents. Health and hygiene education must not be seen as an add-on item but as important to the delivery of sanitation as the delivery of infrastructure (DWAF 2004).

Recommended methodology for health and hygiene education and promotion:

- ✓ All sanitation projects must include health and hygiene education. Project proposals with no clear strategy to do health and hygiene education should not be accepted. The Municipal Health Services must be involved right from planning stages of any projects.
- ✓ Municipal Health Services must provide health and Hygiene education both during and after the project. They must also provide the health and hygiene education outside the confines of project areas.
- ✓ Provincial departments of Health should provide on-going mentoring and support to the Municipal Health Services.
- ✓ Departments who deliver sanitation as part of other infrastructure, such as housing, must make funding available to ensure that health and hygiene education is included as part of the client hand over process.
- ✓ Health and hygiene education strategies must be developed between the health departments and the service providers.
- ✓ Schools and other public institutions should form part of the health and hygiene education target group.
- ✓ Community facilitators must be used for health and hygiene education to increase resources and to promote sustainability of the health and hygiene education beyond the limited period of the project.
- ✓ The national health and hygiene strategy must be adopted as an integral part of sanitation delivery (DWAF 2004).

(iii) Technology choice and its long term consequences- The choice of technology is among the most important determinants of the technical, financial and social success of the project. Technically, the chosen solution should be appropriate to the situation in which it is used. The use of ventilated improved pit latrines, in a waterlogged area without any appropriate modification is problematic and there are other situations where the technology may not apply (DWAF 2004).

Similarly the use of full waterborne sanitation in a rural or peri-urban situation where the community and the council cannot afford the costs and skills required for the system is not acceptable. Currently in South Africa the basic choice seems to be between the basic level of service as represented by the ventilated improved pit-latrine or its variants and the full water borne flush system with virtually no consideration for the systems in between. Wrong choice of technology has serious consequences for the community and municipality. The country is littered with examples of leaking and failing sewer systems which are polluting the environment and causing serious spread of diseases (DWAF 2004).

Recommendations:

- ✓ Feasibility studies must be made to determine the best technology suitable for the site.
- ✓ In order to meet the targets and eliminate the backlog, basic levels of service must be used in all projects taking into account properly investigated constraints in an area for each technology available.
- ✓ Stereotypes about suitability of various technologies for various localities must be replaced by proper planning and investigation and rational choices.
- ✓ The economy of an area and its ability to afford chosen levels of service must be evaluated and must form part of the planning of sanitation solutions.
- ✓ Where the Water Service Provider is already struggling to cope with the needs of the current systems, lower levels of service must be implemented.
- ✓ Clear and achievable plans for upgrading to higher levels of service should be spelled out in plans where low levels of service are being implemented as temporary measures (DWAF 2004).

2.9.1.2 STRATEGIC FRAMEWORK FOR WATER SERVICES OF 2003

The strategic framework takes us back to Movik (2009:1) who emphasised that the increasing perceptions of water scarcity have prompted many countries to engage in reforming their water legislations and systems of water use rights. However, to support the above opinion, in an attempt to succeed in the water and sanitation provision in South Africa, the strategic framework for water services was introduced. It puts forward the vision for the water service sector from the inception to the next ten years and to set out the framework to achieve the goals (DWAF 2003).

The following outlines changes that were needed to water and sanitation approaches in order to achieve policy goals (provision of community water supply and sanitation);

Institutional reform of water services provision:

As captured from DWAF (2003) the following are factors that provided further motivation for the reform of water services provision in South Africa:

(I) Financial viability: some water services providers, as presently constituted are not financially viable.

(II) Under-investment: poor revenue collection, rising input costs and downward pressure on retail water tariffs are placing many water services providers under financial pressure and are resulting in inadequate spending on maintenance and under-investment in rehabilitation. This in most cases result in the deterioration of assets over time and a breakdown in service provision (DWAF 2003).

(III) Revenue management: late payment and poor rates of payment are critical issues for many water services providers in South Africa. The physical functions of service provision are separated from revenue management in the case of most municipal water services providers. This often hinders effective consumer and revenue management (DWAF 2003).

(IV) Financing: considerable on-going investment is required to expand and sustain water services infrastructure in South Africa. This investment is of both a social nature (to meet basic needs) and an economic nature (to meet economic demands). It is important that the water services sector has the ability to attract financing in the form

of loans, bonds or equity particularly for investments necessary to meet economic demand. The development of financially strong water services providers will greatly assist in this (DWAF 2003).

(V) Lack of capacity: the capacity required for effective water services provision is in short supply in many parts of the country, and particularly in rural areas. So, it is important, therefore, to make the best use of existing capacity, particularly in the light of potential losses in human resource capacity through HIV/Aids (DWAF 2003).

(VI) Inefficiencies and economies of scale: the current institutional framework for water services provision is highly fragmented, with a substantial number of water services institutions acting as water services providers. These include district and local municipalities, water boards, municipal entities, national government, water user associations, community-based organisations and private companies. This fragmentation may result in the loss of economies of scale, duplication of administration and technical functions, inability to attract and retain good management and technical staff, and inability to invest in the development and training of specialist skills (DWAF 2003).

The key objectives of reform are to:

- ✓ Ensure the provision of an appropriate level of water and sanitation services which are sustainable to all households in South Africa and to implement the free basic water and sanitation policies effectively and efficiently;
- ✓ Improve the performance of water services providers;
- ✓ Improve the financial viability and sustainability of the water services sector by significantly enhancing revenue collection (from those who use in excess of a basic service) and improving consumer management;
- ✓ Improve the accountability of water services providers to water services authorities and to consumers;
- ✓ Use existing capacity, skills and resources in the water services sector in an integrated and optimal way and to attract, develop and retain the necessary professional and technical skills, and improve employment and gender equity;

- ✓ Improve the efficiency of water use so as to ensure the wise use of South Africa's scarce water resources through appropriate demand management and conservation initiatives; and
- ✓ Improve the regulation of water services providers to ensure technical and environmental standards are met, services are provided efficiently and services are appropriately priced (DWAF 2003).

2.9.1.3 FREE BASIC WATER APPROACH OF 2002

Water supply, sanitation, refuse removal and electricity are the basic services the free basic approach or policy was adopted for. According to Hazelton et al (2009) this document intended to give water services authorities a framework for planning and operating sanitation services for the poor. It provides substantial leeway to municipalities to determine how to go about this, depending on their geography, demographics, income distribution and capacity.

In attempt to understand this approach, it is wise to capture the entire 10 steps pointed out in the implementation guidelines for local authorities (2002), which need to be taken for a free basic water policy to be successful at a local level:

- ✓ Understand consumers and consumption
- ✓ Assess technical options
- ✓ Assess links to sanitation
- ✓ Establish the institutional framework
- ✓ Understand costs
- ✓ Review income sources
- ✓ Select poverty relief option
- ✓ Complete pricing policy
- ✓ Establish financial arrangements with water services providers (WSPs)
- ✓ Set up management arrangements

In line with the free basic services, summarised by DWAF (2009) in Hazelton (2009) and as noted in Section 6.1 of the same document, it was implied that free sanitation means that the poor household does not have to contribute towards the cost of

providing the service initially (capital) and managing the service in the long term (operating). However, there are certain limitations in this regard:

Construction of new infrastructure and rehabilitation of infrastructure (Capital items):

- ✓ Poor households will not be required to fund the capital cost of constructing the infrastructure necessary for a basic service but with the condition that the water services authority may set a ceiling amount of capital to be allocated for construction per household.
- ✓ Where rehabilitation of infrastructure is required (a capital item), this will be provided free. But this excludes the onsite infrastructure which is the responsibility of the household with an exception described below.
- ✓ An exception may be made by the water services authority for the rehabilitation costs of pits or tanks, the underground infrastructure associated with onsite sanitation. Typically such an exception may apply to situations where it is not feasible to empty ventilated pit latrines and relocation of such pits is required. It may also apply to rehabilitation of collapsed pits.
- ✓ The rehabilitation of buildings, pedestals and pipe work, which are part of the onsite facility, is the household's responsibility (DWAF 2009).

Operating and maintenance of infrastructure:

- ✓ Households are responsible for the day-to-day operating costs of the on-site component of the service. This includes providing anal cleansing material, cleaning the pedestal and the room or privy in which the toilet is located, and ensuring that solid waste is not discharged into pits or tanks.
- ✓ In the case of systems which require flushing, the household must ensure that the onsite water pipe work and flushing systems are fully functional and that water used beyond the limit set for free basic water is paid for.
- ✓ Day-to-day maintenance of the complete on site facility is the responsibility of the household. This includes all repairs to pits, tanks, pipes, pedestals, flushing mechanisms and buildings in which the toilet is housed. However, an exception may be made with regard to sludge or compost handling, as described below.

- ✓ As far as possible, on site sanitation systems should be designed so that the households can themselves manage the sludge or compost which is produced. However, where this is not possible the water services authority may arrange for a sludge or compost removal service to be provided to the household free (DWAF 2009).

2.10 THE GLOBAL CONTEXT

2.10.1 GUIDING PRINCIPLES OR STRATEGIC ISSUES TO THE FORMATION OF A BETTER APPROACH TO WATER AND SANITATION

As adopted from Brown, et al (2001) this is a review of important issues concerned with the planning and implementation of urban water supply and sanitation programs which decision makers, practitioners and advocates (including politicians) involved in water service and sanitation programs typically need to address;

2.10.1.1 PARTICIPATION

Most water and sanitation projects underestimate the costs of community participation. Involving the community in developing water supply and sanitation projects improves the chances that the users will accept their responsibilities and that the project will be sustainable. Increasing participation by individuals, communities and the private sector holds great potential to mobilize substantial resources for water supply and sanitation services (Brown, et al 2001:19).

(I) Community Participation- Community participation can occur at different levels and stages of water supply and sanitation service planning and implementation. When communities and customers participate in a substantial way, a shift to demand-driven provision of services can occur, with several important advantages, including better fit between customer preferences and the technical and financial characteristics of water supply and sanitation service systems, improved willingness to pay and increased commitment to water conservation. Community participation strengthens the capacity of individuals, the community and local authorities to jointly meet demand using available resources. The net result is more successful project implementation and sustainability (Brown, et al 2001:19).

Early community involvement in the planning process can help disseminate information about feasible services and their likely costs. Raising public awareness is a key element

of demand-driven planning and the creation of effective demand for water supply and sanitation services. Effective demand means the ability and willingness to pay for goods or services. In the context of water supply and sanitation service options, potential users can speak meaningfully about their willingness to pay only when they possess sufficient information about the characteristics of the service. Knowing more about the features and benefits of specific options may interest users to pay more for the service (Brown, et al 2001:19).

UN-HABITAT (2003:215) pointed out a proven working typology mostly adopted in community participation in attempt to sustainably supply water and sanitation;

A typology of community participation in water and sanitation provision:

- ✓ **Participation through information (giving):** Residents are asked questions about their water and sanitation situation or needs through surveys or similar instruments. The information is fed anonymously into the decision-making process without feedback.
- ✓ **Participation through consultation:** Residents are consulted as to what should be done to improve the local water and sanitation situation and may discuss different options being proposed by sector professionals, but the professionals are not obliged to take residents views into account.
- ✓ **Participation through contribution:** Residents are asked to provide labour or financial contributions towards water and sanitation improvements, but do not choose what improvements are on offer.
- ✓ **Participation through collaboration: Residents** groups and other key actors (e.g. local government and a water and sanitation utility) agree to take responsibility for certain components of negotiated water and sanitation improvements, with residents taking primary responsibility for some well-defined components.
- ✓ **Participation through partnership:** Resident groups and other key actors share resources, knowledge and risks in pursuit of commonly agreed upon water and sanitation improvements. Partnership can be taken to imply a long term equitable relationship.

- ✓ **Participation through self-mobilisation:** Residents work together to demand and or implement water and sanitation improvements. They develop contacts with external actors, some whom may contribute organisational as well as technical skills, but resident groups retain control over how the resources are used.

(ii) Private Sector Participation (PSP)-There is many opportunities for private sector participation in water supply and sanitation services planning and implementation. In most places, there is already enormous involvement of the private sector, including small private water vendors, firms and individuals who build and repair household water supply and sanitation services facilities, empty septic tanks and construct distribution networks and other infrastructure under municipal contracts. Virtually all water supply and sanitation services in informal settlements are in the private sector (Brown, et al 2001:20).

In addition to these traditional roles, the private sector may be capable of managing the operations and maintenance of entire water supply and sanitation services systems and of financing upgrading and expansion. Recently much attention has been given to partial or full privatization of water supply and sanitation services in urban areas, for example through long-term management concessions. This large-scale private sector participation demands a suitable policy, legal and regulatory enabling environment, plus political will and knowledge of the relevant contracting mechanisms and instruments (Brown, et al 2001:20).

However, large-scale commercial companies may also find it challenging to operate under urban conditions that are typical in developing countries: low affordability and willingness to pay may undermine profit as an incentive to private sector involvement; informal settlements may pose significant challenges for billing and collection; and political interference may be unavoidable. The amount of time, energy and expertise needed to overcome these challenges should not be underestimated (Brown, et al 2001:20).

2.10.1.2 DECENTRALIZATION

Decentralization is the process of relocating power, authority and responsibilities from higher to lower levels of government. Decentralization can reduce administrative and bureaucratic costs while making public services more responsive and accountable by closing the gap between providers and customers. Global experience indicates that decentralization increases the likelihood that policies and projects will reflect local need and conditions. A decentralized water supply and sanitation sector enables management to develop unique local solutions and provides greater flexibility in decision making (Brown et al 2001:24).

A realistic assignment of water supply and sanitation functions to the levels of government might locate broad policy-making and regulatory powers at the highest levels of government. State, provincial or municipal governments would be responsible for implementing sector programs and monitoring and enforcing regulations. Local or regional water supply and sanitation companies would be responsible for implementing plans and managing and operating infrastructure systems (Brown et al 2001:24).

It is important to communicate clearly to all stakeholders the division of roles and responsibilities and mandates for the water supply and sanitation sector. In decentralizing water supply and sanitation services, it is equally important to ensure that the assignment of responsibilities is matched by appropriate powers, for example, by giving cities the statutory authority to raise and manage finances (Brown et al 2001:24).

Enterprise Reform and Capacity Building- Water supply and sanitation enterprises can be only as good as the people they employ and the environment in which they operate;

Decentralization highlights the need for capacity building and institutional development, including the following:

(I) Management: the management of water supply and sanitation is a specialized function and therefore requires appropriately qualified managers. In addition to having technical expertise, managers should understand business management, including the analysis and interpretation of financial reports.

(II) Staffing: there should be adequate number of appropriate qualified staffs, including engineers, operations and maintenance personal and accountants. The ability to recruit and retain suitably qualified individuals depends very much on the size of the institution and its ability to pay attractive wages. By reducing the size of water supply and sanitation organizations, decentralization and corporatization may in fact make it more difficult to afford and retain skilled specialists. Water supply and sanitation program design must account for this risk, possibly by contracting with the private sector for specialized services or by arranging to share expertise between several cities (Brown et al 2001:25).

(III) Accountability: the lack of clearly defined responsibilities, performance targets and reporting requirements and poor internal or external audit procedures for water supply and sanitation enterprises makes it difficult to hold them accountable. Enterprises should be given clearly identified performance targets and held accountable to them (Brown et al 2001:25).

(IV) Autonomy: Lack of autonomy is a serious impediment to good institutional performance in the water supply and sanitation sector. Perhaps more than any other public service, water and sanitation enterprises are constrained by political interference. This frequently affects the selection and appointment of key personnel and the ability to make plans and set priorities and to increase tariffs when required.

Inability to take effective measures against government and public sector institutions that fail to pay their water supply and sanitation bills or abuse the system (for example, by making unauthorized modifications) also jeopardizes the autonomy of many water supply and sanitation enterprises. Increased autonomy, within a framework of standards, targets and accountability, has the potential to significantly improve performance (Brown et al 2001:25).

(V) Training: when public institutions are privatized, the new owners often provide extensive training for staff retained from the public sector, which suggests that the public sector typically devotes inadequate resources to developing the workforce. A training needs assessment and program can lead to cost-effective improvements in performance, but the effectiveness of training efforts in bringing about on-the-job improvements must be carefully monitored.

(VI) Rewards: Salaries and wages in municipal enterprises are rarely related to the performance of the enterprise or the individual employee. Efficient work is not necessarily rewarded. Some governments make performance contracts with institutions that reward the achievement of targets and base promotion and wage levels on performance rather than on seniority.

In support of the of rewards to stimulate performance, Wright (2007:12) adds on that, incentives can stimulate the behaviours required from key actors such as; users, suppliers, service providers, and government staff, so to achieve sustainable expansion of sanitation coverage. Incentives work because they shape the reasons why individuals behave the way they do. Behaviour is driven by a perception that the benefits obtained from an action exceed the costs of the resources required to perform it or that the risk of suffering from the behaviour is negligible compared to the benefits, so the risk is worth taking.

Incentives can involve the promise of financial rewards or the threat of penalties. They can also involve delivery of new information to change people's perceptions about the benefits of investing in sanitation improvements or about the costs and benefits of breaking rules and regulations. In some instances, they may include opportunities for an individual or community to gain distinction, prestige, or power (Wright 2007:12).

(VII) Funding: Most of the suggested performance enhancements are not capital intensive and can be funded in the long run by the savings they generate through improved efficiency.

2.10.1.3 INSTITUTIONS AND STAKEHOLDERS

Successful water supply and sanitation programs depend on the active participation of diverse stakeholders, including individuals and organizations in both public and private sectors. Inclusion of stakeholder groups is essential to build broad support for new policies and programs. Policy makers and planners must understand the following:

- ✓ Who is involved or has an interest in water supply and sanitation programs?
- ✓ What goals do stakeholders pursue?
- ✓ What motivates them?
- ✓ How do stakeholders operate and interact?

- ✓ What authorities and powers do stakeholders possess?

How are they controlled (by regulation or governance structures)? (Brown et al 2001:25).

In addition, Wright (2007:10) explains that Stakeholder participation in successful urban sanitation programs, the users and the service agency have common goals, developed through a consultative process involving all stakeholders. Stakeholders may include local, regional, or national government, public utilities, private service providers, NGOs, local community associations, industrialists, special interest groups, and users of different types of sanitation services.

The challenge for governments and donor agencies is to motivate and build the capacity of the different stakeholders to participate in appropriate and productive ways. For example, peri-urban residents know the problems of inadequate sanitation since they live with them daily, but they may need intermediaries to work with municipal authorities in order to develop trust in other stakeholders and to overcome the fear that formal recognition will lead to sanctions or other institutional interference (Wright 2007:10).

With clear guidance on technological options, and freedom to make arrangements for payments and local management of facilities, residents are usually able to help develop affordable and effective solutions. Women, in particular, need to be involved. They are the principal users and managers of household water and sanitation services. Their nearly universal responsibility for family health and hygiene makes women critical change agents, but only if they are fully involved in the decision making process. If women are excluded, or involved only indirectly, programs are usually not sustainable and the installed facilities will not be used or maintained in the intended way. Thus gender considerations need to be thought through carefully (Wright 2007:10).

Typical stakeholder groups important to water supply and sanitation projects:

(I) Customers

Customers are not necessarily homogenous. Rather they include numerous sub-groups with wide-ranging interests. For example:

- ✓ **Households-** typically desire convenient access to a reliable, continuous supply of potable water. They desire clean homes and workplaces but normally do not place much value on the offsite elements of sanitation systems. They spend their own resources—money and effort to build and maintain the in-home components of water supply and sanitation systems. Hygiene education may be needed to help them understand why they should adopt new health and hygiene behaviours (Brown et al 2001:25).
- ✓ **Businesses and industries** require safe, reliable water supplies, though some do not require potable water for their processes. The cost of water is generally a small fraction of manufacturing inputs. Industries often extract their own groundwater or use surface water independently from municipal water supply systems. Industries are also normally the most significant polluters. Safe disposal of toxic and other wastes can be very costly, so industries seek to minimize investments in facilities to treat effluent and to reduce the cost of goods they produce, thus increasing competitiveness and profitability (Brown et al 2001:25).
- ✓ **Institutions -** such as schools, universities and healthcare organizations depend on potable water and effective sanitation services. When these institutional customers are in the public sector, they commonly receive services at subsidized rates, yet they are also often delinquent in paying for services (Brown et al 2001:25).

(II) The urban poor

The urban poor are mentioned as a separate category of stakeholder. Often without access to piped water supplies, they may depend on multiple sources, including public standpipes, vendors and illegal connections to mains and factories; they sometimes use surface water sources. The poor are rarely served by formal sewer systems. The special needs of this category of stakeholder demand careful and sympathetic treatment by planners and decision makers (Brown et al 2001:25).

(III) Water supply and sanitation enterprises

The management and staff of water supply and sanitation enterprises, often represented by organized labour, have strong vested interests. Both management and

staff are likely to fear the unknown and will often resist change even if it is clearly in the public interest. It is important to fully involve these stakeholders from the earliest stages of policy or program design to build understanding and support for change (Brown et al 2001:25).

(IV) Government

National and local government stakeholders are in the best position to consider water supply and sanitation needs, resources and programs in the broad context of other possibly competing programs and priorities. Yet the task is complicated because often there is no water and sanitation ministry. Water resources may be the purview of a ministry of environment and natural resources. Sewers and bulk water transmission lines may be the responsibility of the ministry of public works. Emptying septic tanks may be a municipal mandate under the ministry of local government (Brown et al 2001:25).

Programs to subsidize construction of latrines may be operated by the ministry of health. The ministry of finance usually regulates foreign aid and investments, allocates national funds and may even get involved in tariff setting. The ministry of economic development may influence or control national and foreign investment and decisions on industrial location with consequent impacts on local infrastructure. Coordinating these stakeholders and reconciling their diverse interests is potentially very rewarding, yet challenging to accomplish (Brown et al 2001:25).

(V) Politicians

Elected officials need to be involved in planning and implementation of water supply and sanitation programs. They can inform the government about the needs and desires of constituents and may figure strongly in policy and program design. It is important to understand that politicians are also at great risk from inappropriate or poorly implemented programs and policies. Experience shows that it is essential to actively engage politicians in the planning process to raise their understanding and acceptance. Politicians also provide another means to inform the public (Brown et al 2001:26).

(VI) Non-Government Organizations (NGOs)

NGOs can be valuable partners in the planning and implementation of water supply and sanitation programs. They can be particularly effective links to households and community groups by obtaining input concerning demand for services, affordability and willingness to pay; disseminating information and training; and mobilizing and organizing self-help labour. Water users groups are specialized NGOs that play an important role in local management especially promotion, distribution and fee collection of small-scale water supply projects (Brown et al 2001:26).

A vast range of other NGOs may be interested to promote water supply and sanitation programs, including those representing

- ✓ Women and youth;
- ✓ Socially disadvantaged people, the urban poor;
- ✓ Religious and cultural organizations;
- ✓ Community groups, homeowner associations;
- ✓ Environmental interests;
- ✓ Public health and humanitarian assistance; and
- ✓ Business associations and chambers of commerce (Brown et al 2001:26).

In many places, NGOs with good experience in community development exist, but their knowledge of water supply and sanitation is limited. Water supply and sanitation programs may be designed to include orientation and training to build their capacity as effective partners (Brown et al 2001:26).

(VII) Media

Though it has no major direct interest, the media can be influential in supporting or opposing water supply and sanitation projects and is an effective means of stakeholder outreach. Frequent media briefings can assist in building public support for government and community-based programs, legal and regulatory reforms and privatization initiatives (Brown et al 2001:26).

2.10.1.4 TECHNOLOGY

Technology is not the objective

Municipalities and enterprises are responsible for ensuring safe, reliable, affordable and sustainable water and sanitation services. The function of technology is solely to help achieve this objective, there is no inherent advantage to any particular or advanced or any particular technology. For example, most cities in developing countries have leaky intermittent systems that cannot be trusted to deliver safe water (Brown, et al 2001:31).

Highly sophisticated water treatment processes will not solve this, but simple measures to control unaccounted for water could double the supply available to users and make the systems much safer. Similarly, simple onsite sanitation can protect people's health as effectively as a sewer system. Generally, planners should aim for robust systems: technologies and institutional arrangements that depend on readily available local resources and expertise, rather than imported ones (Brown, et al 2001:31).

Local factors that determine technology choice

Brown, et al (2001:31) states that there are many good technologies from which to choose, but to ensure sustainability, they have to be matched to local circumstances. Sound conventional engineering should ensure that the technologies considered would be suitable under given site conditions such as topography, climate, geology, available water resources and water table. Other factors affecting the suitability of a technology include the following:

- ✓ The size and density of the city and of its various communities and service areas;
- ✓ Its stage of development, including institutional capacity and the sophistication of local manufacturing and service industries, and access to spare parts and specialized equipment (if required);
- ✓ Local culture, which will often vary by community and which greatly influences whether or not a specific solution is acceptable to users; and
- ✓ users' ability and willingness to pay

According to Brikké (2000:132), the technology selection process depends on the strategies adopted by the planners and on basic principles which are emerging in the

water and sanitation sector. One principle is the need to involve communities' right from the start of the selection process. The agencies, the communities and users should therefore work together as partners, and plan their activities based on mutual agreement.

This is particularly important in contexts where both men and women in the community and among the users are increasingly taking on the responsibilities of operating, maintaining and managing their water supply systems. In this situation, we advocate a sustainable technology, i.e. a technology that should, as much as possible, match the people's needs,expectations, preferences and cultural habits. It should be convenient, manageable,maintainable and affordable (Brikké 2000:132).

Considering conventional and innovative technologies

According to Brown, et al (2001:31) effective sanitation can be provided by systems ranging from household pit latrines and pour-flush toilets to conventional sewerage. If water is scarce city-wide or locally, then extending conventional waterborne waste disposal may be inappropriate. In low-income, water-short areas in particular, which comprise the majority of those needing service, the don't mix principle should often be applied: keeping faeces and urine apart and using a minimum of water (ideally zero) for waste disposal, thus reducing the amount of pathogenic material that has to be treated and allowing nutrient recovery through activities such as urban agriculture.

Although composting and separation of urine are widely considered impractical, the recent movement to introduce eco-sanitation seems to be having some success, for example, in China. These approaches should be considered when planning to service water-short informal settlements (Brown, et al 2001:31).

Ensuring acceptability to users

There are many factors that affect whether a particular package of technology and how it will be delivered, managed and paid for will be acceptable on social, cultural, religious, financial or other grounds. Planners cannot assume that people will accept or desire the services offered; they need to find out first-hand what is appropriate. Social scientists may be needed to determine whether acceptability can be enhanced by small changes in design or other elements, whether promotion and education campaigns will be needed,

how much demonstration and piloting will be required ahead of full-scale implementation or whether the obviously correct technical solution will run into serious problems for reasons that may be obscure to planners (Brown, et al 2001:32).

Linking water and sanitation

Planning for water supply and sanitation programs should be holistic and realistic. A given population will produce a predictable amount of faeces and urine, and this amount has to be managed properly by whatever means are feasible. A given amount of water used in a city each day will produce a corresponding amount of wastewater, and it is irresponsible to increase water supply without making provisions for its safe collection and disposal after use (Brown, et al 2001:32).

In many cities, a combination of inadequate sanitation, leaky sewers and leachate from septic tanks and other onsite systems has already irreversibly contaminated overdrawn urban aquifers (or will do so in the near future); prudent water supply planning would assume that these aquifers will have to be abandoned and other sources found. Generally, project planners should always emphasize water conservation, which has the additional benefit that it will often make it possible to adopt local sanitation solutions and local management of pathogens (Brown, et al 2001:32).

Consider all costs

For comparisons of technologies to be valid, all associated costs must be considered. For example, a substantial, but often ignored, part of the total cost of conventional sewerage is the cost of the toilet, the connection to the street sewer and the water used for flushing. Similarly, pit latrines need proper means of sullage disposal to be comparable with sewer systems (Brown, et al 2001:32).

Plan for a mix of solutions

Any large urban area will need a mix of technologies. There is an intimate connection between technology choice, the institutional framework and sustainability. Each type of technology must be assessed in terms of its institutional requirements during the full project cycle: planning, implementation, operation and maintenance, regulation and monitoring and evaluation and a corresponding range of institutions and institutional support mechanisms (such as training) ensured (Brown, et al 2001:33).

Water supply and sanitation program planners are usually familiar with the institutional needs of large conventional systems, but are far less clear about how to ensure success with lower-cost, community-based alternatives. They will often need to seek advice from other fields, such as social scientists and community development specialists (Brown, et al 2001:33).

Be sceptical about economies of scale

Water and sewer systems demonstrate economies of scale: large installations generally handle greater flows at lower unit costs. However, the costs (for example, constructing sewer ring mains to permit centralized treatment plants) may more than offset any economies. Another risk is that large facilities may prove to be poorly sited if uncontrolled growth occurs elsewhere, thus increasing connection costs (Brown, et al 2001:33).

In addition, failure of large systems (through poor operation and maintenance, or external factors such as unreliable power supplies) has much more severe economic, environmental and health consequences than isolated failures of smaller installations. The safe water system is an example of a technology that employs simple, inexpensive and robust technologies appropriate for the developing world to make water safe through disinfection and safe storage at the point of use (Brown, et al 2001:33).

However, Wright (2007:15) in his strategic sanitation approach argues that it is very important to widen technological options because one of the lessons from the last two decades is that a lower-cost technology by itself is not sufficient for sustainable investments in sanitation services. There are examples of successful sanitation projects involving high-cost technologies like conventional sewerage, intermediate cost technologies such as simplified sewerage, and low-cost technologies such as ventilated improved pit (VIP) and pour-flush latrines.

There are also unsuccessful sanitation projects covering the same range of technologies. Strategic sanitation's emphasis on demand requires consideration not only of lower-cost technologies, but also a wider choice of technological options across the full cost range than was generally the case in the past. A wide range of technologies is already available. The world bank, bilateral agencies, national governments in industrial and developing countries, and research organizations have done considerable work on

innovative technologies, leading to options spanning a broad cost range and with recognized merits and disadvantages depending on local conditions(Wright 2007:15).

Within these categories are some innovative technologies, like the condominial system of small, shallow neighbourhood sewers that are being replicated on a large scale in Brazil, and the solids-free sewerage systems used in a number of developing countries, and in countries such as Australia and the United States to reduce sewer diameters, gradients, and consequent costs. Low-cost options include on-site systems such as VIP latrines, pour-flush latrines, and septic tanks. Communal latrines reduce the land area required and can be sighted where geology is most favourable (Wright 2007:16).

Pay-per-use communal latrines do operate successfully in some places, though they generally require a subsidy and can present maintenance problems unless responsibilities are clearly defined. In addition to being comparatively inexpensive in capital and running costs, these technologies are well-suited to community management. Latrines remain a popular option where land is available and there is no risk of contaminating groundwater (Wright 2007:16).

However, the congested nature of many peri-urban settlements restricts the space available for pits and soaks-ways. Geological conditions such as rocky ground, steep slopes, too much clay, or a high water table, may also mean that on-site household systems are inappropriate. In some cases, it may be possible to organize an effective system of latrine emptying and waste disposal (Wright 2007:16).

However latrine emptying technologies are generally not appropriate for peri-urban areas and the handling and transport of fresh excreta can be a public health hazard. In crowded low-income areas, conventional sewer construction is difficult and costly. Few peri-urban communities can afford it, and there are many examples of well-intentioned sewer schemes that have proven ineffective (Wright 2007:16).

Alternative, intermediate cost sewers are increasingly seen as the most appropriate choice for carrying away the effluent from household systems such as pour-flush toilets or septic tanks. Innovative technologies include the condominial systems that have proven highly successful in northeast Brazil and are being replicated on a large scale (Wright 2007:16).

Other innovative options include simplified sewerage in which modified design parameters allow the use of smaller, shallower pipes, and buried boxes to replace manholes, as well as solids-free sewerage in which an interceptor tank, designed like a septic tank, discharges only liquid waste into pipes that can therefore be small and use shallow gradients. Regular upkeep of these systems is as critical as for low-cost options. Simplified sewer systems do become blocked and need periodic clearing out; solids-free sewerage involves regular emptying of the interceptor tanks (Wright 2007:16).

The Successful Processes of Deciding a Technology Choice for both Water and Sanitation Provision

The community water supply technology choice

The following steps are proposed:

(I) The community requests the agency for support to improve its water supply (demand driven approach); this could be preceded by promotion and mobilization campaigns. The expectations and preferences of the users (both men and women) and their motivation should be assessed (Brikké 2000:133).

(II) Initial service-level assessment, what service level is responsible for dealing with environmental issues and the preferences of users (both men and women)? What are the comparative advantages between various options (e.g. stand posts and yard connections)? The validity of hydrological, technical and institutional data collected by agencies must be confirmed by local resource persons (Brikké 2000:133).

(III) Participatory baseline survey, including needs and problem analysis with the community.

- ✓ What reliable water source is available?
- ✓ Can this source provide the required quantity and quality of water?
- ✓ What is the treatment needed?
- ✓ What materials, spares and skills are needed to sustain the desired service level?
- ✓ What is the most appropriate structure to sustain the desired service level which corresponds to the management capacity of the communities?
- ✓ What is the capacity of present community organization to manage, operate and maintain an improved water supply system?
- ✓ What is the involvement of women and men in community activities?

- ✓ What are the costs (capital and recurrent) of the options considered?
- ✓ What are the financial resources available and the willingness to pay?
- ✓ What is the present approach to the application of operation and maintenance within the programme or country area?
- ✓ What are the causes and effects of poor operation and maintenance within the area?
- ✓ Should technology match the available operation and maintenance system and capacity (including spare parts distribution), or should the operation and maintenance system be adjusted to match the most suitable technology?
- ✓ What type of support can the communities receive, in terms of technical, financial and capacity-building assistance?
- ✓ What is the overall impact of the option selected?

(IV) Analysis of data: by the agency leading to the possible selection of the most suitable technologies and service levels, including a review and appreciation of all specific operation and maintenance criteria (Brikké 2000:133).

(V) Presentation and discussions with the community: of the most sustainable technologies considering all operation and maintenance implications and commitment to long-term management of operation and maintenance. Clarifications should be made at the same time on all necessary adjustments of the existing operation and maintenance system, with a definition of the responsibilities of the actors involved in the development of the project. Communities should be given enough time to consider the options and the future implications of each one (Brikké 2000:133).

(VI) Formal agreement on technology selection between the community and all partners, once the community has made its informed choice. This agreement can be formalized with a contract, and include a financial contribution (in cash or kind) from the communities.

(VII) Finalization of planning for implementation, this actually the final stage (Brikké 2000:133).

The process of low-cost sanitation technology choice

It is assumed that the technology selection process is based on a participatory needs assessment, which is carried out following an expressed demand for improved sanitation facilities. Hygiene awareness and promotion campaigns can result in an increase in the demand for improved facilities (Brikké 2000:134).

The process of choosing sanitation technology should include at least the following steps as identified by Brikké (2000:134):

(I) Participatory assessment of problems: in the existing human excreta disposal system, as well as in hygiene behaviour, environmental hygiene and human excreta-related diseases. For instance, conducting a participatory assessment on cultural, social and religious influences on the disposal of human excreta and choice of sanitation technology.Participatory assessment of local conditions, convenience, capacities and resources (material resources, human resources and finance).

(II) Initial awareness-raising of the community on hygiene and sanitary matters about the benefits of safe human excreta disposal and appropriate human behaviours linked to sanitation and personal hygiene.

(III) Identification of local preferences and capacities: for sanitation facilities and possible variations. Matching these preferences with local capacities and environmental conditions including contamination risks, and determining the operation and maintenance requirements and other implications of the technology options.

(IV) Discussions with the community: about implementing different sanitation technology options and their implications in terms of operation and maintenance.

(V) Selection of one technology option: by the community (Brikké 2000:134).

Improvement of sanitation facilities should be accompanied by activities in information, education and communication (IEC) to promote safe sanitation behaviour and proper hygiene. These activities have a longer time horizon than the time required for improvement of physical structures. Schools and other institutions, churches, and social and community groups have an important role to promote proper hygiene and sanitation behaviour. Attention must be paid to selecting the most appropriate

technology, design, and site in order to prevent environmental pollution, particularly of water resources and the living environment. Control measures must be carried out to minimize these risks (Brikké 2000:134).

2.10.1.5 POLITICS

Water supply and sanitation is a neglected sector. Sustained, widespread improvement is not possible unless customers, individuals and organizations express demand through political processes. Only then will governments give water supply and sanitation services the attention they deserve and require. Declarations such as water for all or health for all that typically originating from the Ministry of Health rarely do not enjoy full cabinet support, nor do they cause serious or lasting reorientation of national policies or resources (Brown, et al 2001:36).

Improved water supply and sanitation needs to be accepted as a national development priority. If national governments do not take the lead or do not support water supply and sanitation, then local initiatives are likely to be ineffective or unsustainable. Although the approach to mobilizing political support will vary from country to country, the issues identified below are common (Brown, et al 2001:36).

Commitment to serve the poor

Commitment to the water sector will contribute to poverty reduction, since poor households are the most likely to lack adequate services. This fact raises real political concerns, such as the potential for public backlash against price increases or concerns that the provision of services would legitimize the illegal occupation of land. Integrated programs may be called for to resolve such issues in tandem with water supply and sanitation programs (Brown, et al 2001:36).

National water resources policy

It is unrealistic to expect local authorities to adopt and enforce innovative, sustainable water resources management policies unless they are supported by a sound national policy framework. This framework must address contentious issues such as efficient and equitable allocation, pricing of irrigation water, control of industrial and private abstractions, protection of aquifers from over-abstraction and conditions governing wastewater discharges (Brown, et al 2001:36).

Policies that reflect the role of water

Government policy and plans should recognize the role of water as both a social and an economic good. This recognition should result in a more equitable and rational allocation of resources, for example, by reducing or eliminating subsidies to well-off customers and reducing the high cost of service often paid by the poor (Brown, et al 2001:36).

2.10.1.6 FINANCE

Water supply and sanitation projects are costly and require creative, innovative financing arrangements to assemble sufficient funding and to make the costs affordable for customers.

Ability and willingness to pay

First and foremost, the quantity and quality of services provided must be at a level that is affordable and for which customers are willing to pay.Affordability refers to the income level in the community as a whole and to household incomes and expenditure patterns. It is particularly important for poor households who frequently pay a large proportion of their income for water supply and sanitation. The cost of service is somewhat less important to most industrial and commercial customers because water and sanitation charges are a relatively small part of the cost of doing business (Brown, et al 2001:27).

Willingness to pay must be considered in light of other competing demands on household income and the value customers place on the services provided. When these principles are ignored, the services cannot be sustained without continuing subsidies. People and governments are normally willing to pay for the purification and delivery of water but much less willing to pay for sanitation services (Brown, et al 2001:27).

More specifically, households show relatively high willingness to pay for on-site improvements and some willingness to pay for community-level infrastructure, but they are typically much less willing to pay for trunk infrastructure and offsite sanitation. Thus, while cities typically make substantial investments in developing water supply systems, much less investment has been made in offsite and downstream sanitation systems (Brown, et al 2001:27).

Willingness to pay depends only partly on ability to pay. It may also be strongly influenced by existing levels of customer satisfaction (or dissatisfaction) with water supply and sanitation and other municipal services and by general perceptions of local government's performance. Residents often assume, frequently with politicians' encouragement that higher levels of services can be provided without commensurate tariff increases (Brown, et al 2001:27).

A long history of subsidized water supply and sanitation services may also undermine willingness to pay, particularly if new customers are asked to pay a greater share of the capital costs than existing customers who have received substantial subsidies. It is important for planners to understand what customers will pay, and the determining factors, before deciding on service levels (Brown, et al 2001:27).

Tariff levels

It is now generally recognized that water supply and sanitation services cannot be given free or indefinitely subsidized, these services should be paid for directly by the customers. Therefore, setting the proper level and structure of tariffs is vital to sustainability. Global experience shows that failure to properly address these principles has contributed significantly to the poor state of water supply and sanitation services. In respect to the level of the tariffs, sound economic principles prescribe that tariffs should be set so that the full current economic cost of providing these services is recovered from customers (Brown, et al 2001:27).

This principle is reflected in the typical covenant that might be negotiated for loans from multilateral development banks. It would require that the average tariff be set at a level that will earn a net rate of return (after meeting operation and maintenance costs and depreciation), of a specified percentage, on revalued net fixed assets in operation. The specified rate of return would normally be set at the opportunity cost of capital. Revaluations of net fixed assets in operation would be required periodically, perhaps every fifth year. Such an advanced approach to pricing can be applied only for large sophisticated public or private utilities serving metropolitan areas (Brown, et al 2001:27).

Smaller utilities often use a simpler approach, setting tariffs to recover:

(a) Operation and maintenance costs; (b) debt servicing (including the repayment of and interest on loans) or depreciation, whichever is the higher, and (c) contribution toward future investment. A more simplistic approach that is economically unsound but readily understood, and therefore often used for small community-based systems, prescribes that tariffs are set at a level to meet operation and maintenance costs and debt servicing requirements, the latter comprising repayment of and interest on loans (Brown, et al 2001:27).

This approach can be unbalanced when loans for long-lived assets have to be repaid over rather short periods of time or when part of the cost of development is financed by subsidies. In extreme cases, existing tariffs charged by utilities may not even cover annual operation and maintenance costs. In such cases, raising tariffs to recover operation and maintenance costs would be a good first step before progressing to more realistic pricing. Tariffs for sanitation services are often complex (Brown, et al 2001:27).

Generally, sewer charges are based on the value of the property being served or related to water consumption and or the degree of pollution discharged by the customer, particularly industry Charges for onsite sanitation systems are usually lump sums (e.g., for emptying septic tanks), although they might be more affordable if converted to uniform monthly fees. Tariff levels that do not ensure financial viability of a utility or community-based system will lead to a further deterioration of the water supply and sanitation sector (Brown, et al 2001:27).

Tariff Structures

Tariff structures often include increasing block tariffs that charge successively higher rates for higher levels of water consumption. Also, the tariff may differentiate between residential and commercial or industrial customers, with the latter groups paying a higher average tariff for the same level of consumption. These approaches encourage water conservation and make possible cross-subsidies to low-income households (Brown, et al 2001:28).

Tariff-Setting Objectives

As can be gathered from the foregoing text, tariff setting requires a delicate balance between economic and social policy objectives. Typically, tariff-setting objectives include the need for long-term financial viability, the desire for universal access, water conservation and the provision of subsidies to make basic consumption affordable to the poor (though subsidies for operation and maintenance should be avoided, if possible) (Brown, et al 2001:28).

Funding for the construction of water supply and sanitation infrastructure can be wanted from various sources:

(I) Central government may provide grant or loan funding, especially when it has such major taxing powers as collection of income taxes, or when it identifies such external benefits as improved public health, economic growth or employment generation.

(II) Local government is influenced by voters, and as a result may allocate budget funds for water supply and sanitation in response to popular demand. Unfortunately, local government is often also responsible for the poor state of water supply and sanitation because it will often not support politically unpopular tariff increases even when they are clearly justified.

(III) Customers pay the full cost of water supply and sanitation facilities in the house and on the land parcel and are often required contributing directly to the capital cost of offsite infrastructure. For example, customers cover the cost of service connections to the home, business or factory.

(IV) Private water vendors who obtain water from public resources should share the financial burden of developing more costly distant water sources for public sector use. Their consumption can be metered and appropriately priced, and their selling prices can be regulated, if necessary.

(V) External support agencies such as the World Bank, regional development banks and bilateral donors have provided low-cost finance for development in the past. However, the current trend is for such external support agencies to gradually phase out of direct project financing, instead focusing on technical assistance that will leverage funding from other sources such as local and foreign capital markets.

(VI) Private sector works increasingly in partnership with government to provide capital and management resources. This applies particularly to the water supply and sanitation sector, in which many different forms of public-private sector participation have developed, each tailored to local needs and based on differential sharing of the benefits and risk of such partnerships.

(VII) Financial Management Long-term viability of water supply and sanitation services also depends on sound financial management by local governments and service providers. Cost control and efficient revenue collection are particularly important. Sound financial management requires the use of commercial accounting methods. Billing and collection systems are particularly important. When there are many customers, these systems should be computerized (Brown, et al 2001:28).

Local authorities must be empowered and willing to take action against delinquent customers, including cutting off their water supply. Government agencies such as ministries, the army, hospitals or schools are often the greatest and most troublesome delinquents. It is highly desirable that governments should have and exercise the authority to deduct payments at the source from any budget allocations due to chronically delinquent agencies and to transfer payments directly to the water supply and sanitation enterprises (Brown, et al 2001:29).

Water supply and sanitation enterprises need well-qualified financial staff and independent external auditing of operations and management. However, it is often challenging to attract and retain suitable personnel on government pay scales. Upgrading financial management systems, while essential, is nonetheless subject to such constraints as lack of funding, inability and unwillingness to pay, and regrettably, sometimes to a reluctance to make hard political decisions (Brown, et al 2001:29).

2.11 SUMMARY OF THE CHAPTER

This chapter has given a broad view on how good local governance is necessary for the achievement of sustainable water and sanitation services, it exposed how historically governance failed in the provision of water and sanitation (this is a look on past approaches that failed to deliver), it touched on the more effective approaches in

providing and improving water and sanitation (this is actually a learning from the past approaches and plan for the future and it includes South Africa national approaches or strategies to water and sanitation (local context) and lastly, it also looks on the global context, what guiding principles or strategic issues are crucial for the formation of a better approach to water and sanitation which decision makers, practitioners and advocates (including politicians) involved in water service and sanitation programs typically need to address in order to ensure success in water and sanitation.

CHAPTER 3
3. PROFILE OF THE STUDY AREA

3.1 INTRODUCTION

This section of the report provides an overview of the Umhlathuze municipal area. In other words it is a community profile of the study area. According to Hawtin and Percy-Smith (2007:5), a community profile is a comprehensive description of the needs of a population that is defined, or defines itself as a community, and the resources that exist within that community, carried out with the active involvement of the community itself, for the purpose of developing an action plan or other means of improving the quality of life of the community.

3.2 REGIONAL CONTEXT

Umhlathuze municipality is located on the east coast of South Africa, some 180kms north-east of Durban, some 200kms south of Swaziland and some 250kms south-east of Mozambique. The N2 highway traverses Umhlathuze municipality in a north-east direction towards the Swaziland border and south-west towards Durban. It affectively forms a division between Empangeni and Richards Bay. The R34 provincial main road passes through Empangeni towards Melmoth (some 80kms from Empangeni) and onwards towards Vryheid (some 200kms from Empangeni) in the north-westerly direction (Umhlathuze 2005).

The Umhlathuze municipality comprises urban settlements, rural settlements, rural areas, farms and nature reserves. It includes a deep-water harbour, the Richards Bay harbour, connected inland via a railway line. Empangeni and Richards Bay are the largest towns forming part of the municipal area and are surrounded by large tracts of traditional authority areas, sugar cane fields, timber plantations, wetlands and fresh water lakes (Umhlathuze 2005).

The Richards Bay harbour, the largest bulk handling harbour in South Africa, acted since its development in 1976, as a catalyst attracting heavy and other industries to Richards Bay. Empangeni continues to act as the dominant commercial and service centre in the sub-region, although Richards Bay is rapidly closing the gap to become on par with Empangeni in this regard (Umhlathuze 2005).

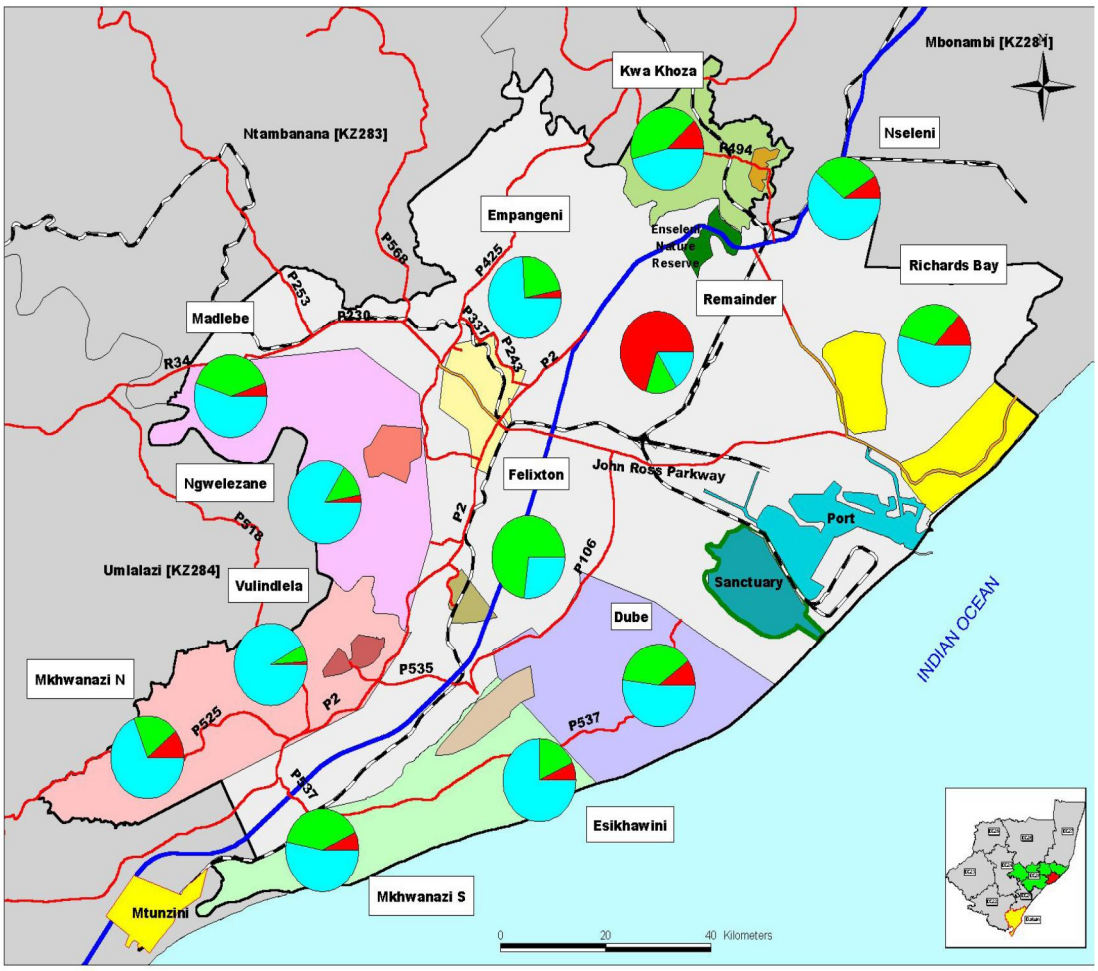
A large number of people in adjoining local municipalities are, to a degree, dependant on Umhlathuze municipality for work opportunities, placing additional residential development pressure on the municipality. A number of densely populated, peri-urban settlements have developed along the borders of existing urban centres such as Nseleni, Ngwelezane, Vulindlela and Esikhawini (Umhlathuze 2005).

3.3 ADMINSTRATIVE ENTITIES

The Study Area incorporates the Umhlathuze local municipality, forming part of the Uthungulu district municipality. The Umhlathuze Municipality covers an area of approximately 79,580 hectares. The study area is bordered by: Kwambonambi local municipality to the east, Umlalazi local municipality to the south-west, Ntambanana to the north-west; and the Indian Ocean to the west. It includes four traditional authority areas which cover approximately 27,953 hectares (or 35%) of the Umhlathuze municipal area and these are: Dube, Kwakhoza, Mkhwanazi north and south; and Zungu-Madlebe (Umhlathuze 2005).

The following proclaimed urban areas exist within the Umhlathuze municipality: Richards Bay (developed, from 1976, around the harbour as main function), Empangeni (developed, since its origins in 1841, into a service centre), Ngwelezane (originally established, in the previous dispensation, as the black township of Empangeni, located west of the latter), Felixton village (developed around the Felixton mill, south-west of Empangeni), Nseleni (north of Richards Bay and originally established, in the previous dispensation, as a township for black workers in Richards Bay), Esikhawini (north of Richards Bay and originally established, in the previous dispensation, as a township for Black workers in Richards Bay); and Vulindlela (situated next to the University of Zululand, also as a black township, in the previous dispensation) (Umhlathuze 2005).

FIGURE 3.1 Orientation map of the Umhlathuze municipal areas



Source: Umhlathuze (2009).

The rural areas (excluding Tribal Authority Areas) of Umhlathuze are characterized by sugar cane fields, timber plantations, wetlands, and fresh water lakes. The Study Area includes two proclaimed Nature Reserves, namely Nseleni nature reserve (north of Richards Bay, adjacent to the N2); and Richards Bay Sanctuary (south of the Richards Bay harbour) (Umhlathuze 2007).

3.4 LAND USE AND ZONING

According to the Umhlathuze (2007) report, and as noted beforehand, the Umhlathuze municipality includes four traditional authority areas, which covers approximately 27,953 hectares (or 35%) of the Umhlathuze Municipal area. Non-tribal rural land (mainly agriculture, forestry, wetlands, and water bodies) covers approximately 40,311 hectares of the study area. This constitutes approximately 51% of the total municipal area. The tables below illustrate the various zones (in the case of Empangeni and

Richards Bay some zones are grouped) and associated areas for those areas, as well as percentage against the respective total areas, within the municipality which are covered by town planning schemes:

TABLE 3.1: Richards Bay land use zones

Zones	Hectares	% against total
Civic	71.61	1.45
Commercial	27.37	0.55
Devotional	25.98	0.53
Educational	98.79	2.00
Garage	4.30	0.09
Garage General Industrial	1,495.81	30.32
General Residential	71.62	1.45
Harbour / Rail / Institution	577.52	11.71
Local Authority	66.91	1.36
Not Registered	480.90	9.75
Office / Professional	10.64	0.22
Open Space	404.22	8.19
Public Car Park	8.69	0.18
Service Industrial	31.44	0.64
Special Residential	794.44	16.10
Street - Approximate Position	1.87	0.04
Undetermined	760.98	15.43
TOTAL	**4,933.10**	**100.00**

Source: Umhlathuze (2007).

In Richards bay, the dominant zoning is the general industrial which accounts for (30, 32%), special residential is the second most dominant (16, 10%), commercial zonings only account for 0, 55% and the open space zonings account for 8, 69%.

TABLE 3.2: Empangeni land use zones

Zones	Hectares	% Against Total
Activity Zone	6.01	0.31
Administration	121.61	6.19
Agricultural	531.72	27.07
Airfield	8.95	0.46
Bus Terminus	4.55	0.23
Cemetery	4.65	0.24
Commercial	38.40	1.96
Education	63.26	3.22
Eptls Servitude	1.75	0.09
Garage / Service Station	4.93	0.25
General / Extractive Industry	103.62	5.28
General Residential	42.78	2.18
Intermediate Residential	11.59	0.59
Light / Service Industry	23.11	1.18
Open Space	144.39	7.35
Public Parking	0.53	0.03
Roads	12.25	0.62
SAR / Railway Reserve	99.41	5.06
Special Residential	374.07	19.05
Special Zone	36.79	1.87
Undetermined / No Zoning	325.76	16.59
Water Works	1.35	0.07
Worship	2.41	0.12
TOTAL	**1,963.89**	**100.00**

Source: Umhlathuze (2007).

The dominant zoning in Empangeni is agricultural related, covering (27, 07%); the special residential zoning in Empangeni is more prominent than in Richards Bay accounting for 19, 05% as opposed to the 16, 10% in Richards Bay. Empangeni has a comparatively low allocation of only 5, 28% to the general or extractive industry zoning. The open space zoning accounts for 7, 35%, Commercial zonings account for 1, 96% of Empangeni's total (as opposed to Richards Bay 0, 55%) with an additional 1, 87% being allocated to special zones that are generally of a commercial nature.

TABLE 3.3: Nseleni land use zones

ZONES	HECTARES	% AGAINST TOTAL
Civic 2	2.64	2.60
Devotional	1.74	1.72
Educational	15.32	15.13
Garage	0.42	0.41
Limited Commercial 2	0.15	0.15
Limited Commercial I	2.29	2.26
Public Car Park	0.31	0.31
Public Open Space	5.13	5.06
Special Commercial 3	0.63	0.62
Special Residential I	71.44	70.53
Undetermined	1.22	1.20
TOTAL	**101.28**	**100.00**

Source: Umhlathuze (2007).

The dormitory nature of Nseleni is very apparent by the fact that special residential zones account for 70, 53%. Zonings associated with residential uses are also significant in Nseleni, i.e. education accounts for 15, 13%, a significant contributor being the Owen Sithole College. There is about 3, 5% of commercially related zonings in Nseleni but no industrial related zonings. It is anticipated that the commercial zonings only provide in the needs of the local residents.

TABLE 3.4: Ngwelezane land use zones

ZONES	HECTARES	% AGAINST TOTAL
Admin & Public Building	38.53	12.25
Cemetery	2.51	0.80
Commercial	5.15	1.64
Education	31.87	10.13
General Commercial	0.05	0.02
General Industrial	2.83	0.90
No Zoning	2.56	0.81
Pedestrian Lane	0.22	0.07
Public Open Space	47.14	14.99
Recreation	1.59	0.51
Service Station	0.31	0.10
Special Residential	145.42	46.22
Undetermined	33.55	10.66
Water Works	1.17	0.37
Worship	1.70	0.54
TOTAL	**314.60**	**100.00**

Source: Umhlathuze (2007).

The dominant zoning in Ngwelezane is special residential at (46, 22%) which is also indicative of the towns dormitory nature. In line with this the education total is also rather high at (10, 13%). It is likely that education facilities are also provided to its rural surroundings. Ngwelezane does, however, provide social services and facilities in the

form of government offices (e.g. Agriculture and Social Welfare) and higher order health facilities (i.e. the Ngwelezane Hospital). The (12, 25%) allocated to Administrative and public buildings illustrates this and a comparatively large portion is allocated to public open space (14, 99%) (Umhlathuze 2007).

TABLE3.5: Vulindlela land use zones

ZONES	HECTARES	% AGAINST TOTAL
Cemetery	1.80	2.72
Civic 2	1.87	2.82
Devotional	0.76	1.14
Educational	19.18	28.87
Garage	0.22	0.32
Limited Commercial I	0.71	1.07
Public Car Park	0.25	0.37
Public Open Space	8.72	13.12
Service Industrial	0.23	0.35
Special Residential I	22.65	34.09
Undetermined	10.06	15.14
TOTAL	**66.44**	**100.00**

Source: Umhlathuze (2007).

The dominant land use in Vulindlela is special residential making (34, 09%), the educational zoning accounts to (28, 87%) which is largely due to the University of Zululand. Very low provision has been made for commercial related zonings (1, 07%).

TABLE3.6: Esikhawini land use zones

ZONES	HECTARES	% AGAINST TOTAL
Civic 1	1.22	0.26
Civic 2	7.76	1.65
Devotional	7.55	1.61
Educational	66.22	14.09
Existing Street	0.01	0.00
Garage	0.20	0.04
General Residential I	9.44	2.01
Limited Commercial 2	0.13	0.03
Limited Commercial I	3.10	0.66
Professional	0.04	0.01
Public Car Park	0.12	0.03
Public Open Space	112.89	24.01
Service Industrial	0.95	0.20
Special Commercial3	1.79	0.38
Special Residential 2	0.03	0.01
Special Residential I	256.38	54.53
Undetermined	2.30	0.49
TOTAL	**470.15**	**100.00**

Source: Umhlathuze (2007).

The dominant land use in Esikhawini is special residential making (54, 53%). The educational zoning accounts to (14, 09%), the Esikhawini training college being a significant contributor to percentage. The large public open space allocation (24, 01%) can be attributed to the large areas that are within the 1:50 and 1:100 year flood lines (Umhlathuze (2007).

3.5 SOCIO-ECONOMIC CHARACTERISTICS

3.5.1 DEMOGRPHICS

Census 2001 estimated the total population of the City of Umhlathuze at 289 186, while the City of Umhlathuze estimates their population at 295 811 (City of Umhlathuze 2005). Due to the municipal figures being in more detail, it will be used to illustrate the demographics and socio economic characteristics of the study area.

3.5.1.1 Population and household sizes

TABLE 3.7: Total population and average household size

SPATIAL ENTITY	Total Population	No. of Households	Average Household Size
Total Formal Urban	112438	28041	4.01
Total Rural Nodes	78980	19930	3.96
Total Rural Areas	104392	25689	4.06
Municipal Population	**295811**	**73660**	**4.02**

Source: Umhlathuze (2007).

38% of the population is located in the formal urban areas, 27% in rural nodes and 35% in the remaining rural areas. The average household size for the City of Umhlathuze is 4.02 persons per household; the average for formal urban areas is 4.01 persons per household and the rural entities have the highest average household size of 4.06 persons per households with rural nodes at 3.96 persons per household(Umhlathuze 2007).

The highest population densities are in Nseleni and Esikhawini while the predominantly informally settled areas around Nseleni, Esikhawini and Ngwelezane towns depict the second highest population density and the lowest population densities are found in the nontribal rural areas of the municipality (Umhlathuze 2007).

3.5.1.2 Age breakdown

TABLE 3.8: Age breakdown for spatial entities

Umhlathuze Local Municipality: Age Breakdown					
Spatial Entity	**0- 4**	**5- 14**	**15- 34**	**35- 64**	**≥ 65**
Formal Urban	12%	18%	33%	27%	10%
Rural Nodes	13%	23%	41%	21%	2%
Rural Areas	12%	25%	38%	21%	4%
Umhlathuze LM	**12%**	**22%**	**37%**	**23%**	**6%**

Source: Umhlathuze (2007).

3.5.1.3 Gender breakdown

TABLE 3.9: Gender Breakdown

Gender	% in 1996	% in 2001
Male	48.20	48.40
Female	51.80	51.60

Source: Umhlathuze (2007).

3.5.1.4 Ethnic Compilation

TABLE 3.10: Ethnic Grouping

Ethnic group	% in 1996	% in 2001
African	80	87
Coloured	1	1
Indian	4	3
White	15	9

Source: Umhlathuze (2007).

Approximately 85 % of the population's home language is isiZulu, followed by English (8.5 %) and Afrikaans (5.4%) (Umhlathuze 2007).

3.5.1.5 Population growth tendencies in the City of Umhlathuze

TABLE 3.11: population growth

	POPULATION GROWTH			
	1996	**2003**	**2008**	**2023**
Population Growth Rate		2.14 %	1.44 %	0.08 %
Municipal Population	196 183	296 339	318 299	347 658

Source: Umhlathuze (2005).

3.5.2 HOUSEHOLDS

There are a total of 81 008 households within the municipal area. The numbers of houses per geographic area are: Richards Bay 12433, Empangeni 6046, Esikhaleni 6363, Nseleni 1439, Ngwelezane 2775, and Vulindlela 588. The respective numbers of houses in each of the other areas are unknown. There are 202 indigent households. 80, 9% of the total dwellings are of formal type, with 15, 3% being traditional type, and 3, 8% informal type. 64% of households own their dwelling, while 17, 8% rent (Umhlathuze 2009).

3.5.2.1 Number of persons per household

TABLE 3.12: Area and households

Suburb / area	Persons / household
Farmland	0,86 – 2,28
Felixton, Empangeni, Meerensee, Birdswood, Veldenvlei, and Vulindlela	2,29 – 3,71
Arboretum, Brackenham, Aquadene, Wildenweide, and Ngwelezane	3,72 – 4,79
Mzingazi Village, Mandlazini, Nseleni urban and Esikhaleni urban	4,80 – 5,98
Nseleni rural, Esikhaleni rural and tribal areas	5,99 – 7,47

Source: Umhlathuze (2009).

3.5.2.2 Percentage distribution of households by type of main dwelling

House or brick structure on a separate stand or yard = 66, 4%, traditional dwelling (hut structures) made of traditional materials = 15,2%, flat in block of flats =9,1%, town / cluster /semi –detached house (simplex :duplex: triplex) =1,9%, house / flat or room in backyard =1,3%, informal dwelling /shack in backyard =1,4% not in backyard e.g. in an informal or squatter settlement = 2,4%, room or flat-let not in backyard but on a shared property =2,2%, caravan or tent =0% and finally, private ship or boat=0% (Umhlathuze 2009).

3.5.2.3 Household income

The comparison between annual household incomes is done according to typical rural, peri-urban and urban areas. Analysis of the overall average annual household income will be misleading as it is directly related to the geographical position and developmental level of a particular area. According to the Umhlathuze 2009 statistics, the annual household income in the Nseleni rural area is the lowest as over 40% of all households have no income. Close to 20% of households in the Ngwelezane, Esikhawini and Nseleni rural areas earn between R9601 and R19200 per annum (Umhlathuze 2009).

27% of households in Mzingazi Village and 29% of those in Mandlazini earn no income. A large portion of the households in these areas earn between R4801 and R38400 per annum. On average, the income distribution between households in Mzingazi Village and Mandlazini is between the R4801 and R76800 income brackets. The comparison of annual household income between typical urban areas reveals that whereas 47% of

households in Meerensee and 23% of households in Empangeni earn more than R153601 per annum, only 2% of households in Nseleni Urban earn this annual income (Umhlathuze 2009).

23% of households in Nseleni urban do not earn any income. Overall, annual household income is the highest in Meerensee, although some 8% of households in this area earn no annual income (Umhlathuze 2009).

3.5.3 EDUCATIONAL LEVELS

TABLE 3.13: Education levels for persons aged 20 and over

Level of Education	% in 1996	% in 2001
None	15.65	18.49
Some primary	14.59	13.56
Completed primary	5.57	4.88
Secondary	31.16	26.95
Grade 12	24.42	25.24
Higher education	8.61	10.88

Source: Umhlathuze (2005).

3.6 ECONOMIC CHARACTERISTICS

3.6.1 Economic performance

The local economy forms an integral part of the international and national economies. The presence of a number of huge exporting and importing industries, notably Billiton's aluminium smelters, Richards Bay Minerals, Mondi Kraft, Foskor, Bell Equipment, Ticor, Exxaro KZN Sands, Richards Bay Coal Terminal, agricultural activity (sugar cane and timber) and the port of Richards Bay, means that the welfare of the region is influenced by international and national market movements (Umhlathuze 2009).

95% of economic activity is vested in Richards Bay, Empangeni and Felixton. The area is 3rd most important in the province of KwaZulu Natal in terms of economic production, contributes 7,6% of the total Gross Geographic Product and 5,5 % of total formal employment. Theyear on year economic activity expanded by 14, 09 % (Umhlathuze 2009).

3.6.2 Main employment sectors

The municipal demarcation board (2001), states that apart from being the dominant economic sector in the Uthungulu district and being centred in the City of Umhlathuze,

only 14, 5% of people employed work in the manufacturing sector as described in the table hereunder:

TABLE 3.14: Employment sectors

Economic Sector	2001	1996	% of Total(2001)
Agriculture/Forestry/Fishing	4015	2497	5.785719
Community/Social/Personal	13789	9518	19.87031
Construction	4159	2927	5.993227
Electricity/Gas/Water	516	614	0.743569
Financial/Insurance/Real Estate/Business	5300	3013	7.637438
Manufacturing	10089	5866	14.53851
Mining/Quarrying	2234	1926	3.219252
Other	9	0	0.012969
Private Households	4668	4048	6.726709
Transport/Storage/Communication	4365	3774	6.290079
Undetermined	9104	10269	13.1191
Wholesale/Retail	9146	4992	13.17962
Total	**67394**	**49444**	

Source: Municipal Demarcation Board (2001).

3.6.3 Employment status

The table below includes students, homemakers, the disabled, those too ill to work and anyone not seeking work.

TABLE 3.15: Employment status

	RICHARDS BAY	EMPANGENI	ESIKHAWINI	OTHER AREAS	TOTAL
Employed	18 666	9 252	11 082	28 391	**67 391**
Unemployed	3 711	1 218	6 894	34 242	**46 065**
Not - Economically Active*	9 666	4 587	10 359	48 251	**72 863**
Unemployment Rate	17 %	12 %	38 %	55 %	**41 %**

Source: Umhlathuze (2005).

3.7 COMMUNITY FACILITIES

3.7.1 Business

The population is served by 5 business districts with 23 shopping centres and a combined total of 265 000m^2 commercial floor space. There are± 5 000 businesses in

the municipal area. The area has 8 post offices, 30 bank branches, 35 government organisations and offices, 5 cinemas, 14 hotels and 129 registered bed and breakfast establishments or guesthouses and finally, Industrial floor space totals 558927m^2(Umhlathuze 2009).

3.7.2 Health and welfare services

3.7.2.1 Welfare services

The Provincial Department of Welfare, City of Umhlathuze nongovernment organizations (NGOs) provide welfare services to the community. Municipalities have limited powers and functions as far as developmental welfare is concerned and mainly act as facilitator between the public, provincial departments, NGOs and institutions. There are very few facilities caring for people in distress or people in need in the area, particularly facilities provided by government (Umhlathuze 2007).

The facilities can be listed:

- ✓ SANCA Rehabilitation Centres in Lulama and Newland Park
- ✓ Sikhane Rehabilitation Centre
- ✓ Empangeni Crisis Home for Women and Children
- ✓ Orphanage – Ngwelezane

In addition, there are a number of NGOs and CBOs (Community Based Organizations) that are involved in developmental social projects and services. The following institutions and organizations are present in the area:

TABLE 3.16: Institutions and organizations

SERVICE AND WELFARE ORGANISATIONS	
Alcoholics Anonymous	Rotary Club
Child Protection Unit	Round Table
Damesklub	SA Red Cross Society
Jong Dames Dinamiek	SANAB
Lifeline Zululand	SANCA – Zululand
Lions International	Senior Citizens Clubs
Lower Umfolozi Community Chest	Tuzi Gazi Art Society
National Sea Rescue Institute	Wild Care Centre
Richards Bay Women's Institute	Wildlife Society
Richards Bay Garden Club	Zululand History Society
Richards Bay Family Care (Soup kitchen and crisis center)	

Source: Umhlathuze (2007).

3.7.2.2 Health services

The Health Department of the municipality provides personal health and environmental health services. The environmental health department deals with issues pertaining to

pollution of the air, land and water, the monitoring of food outlets, crèches and waste management. More detail on personal health, i.e. clinics services is provided hereunder. Municipal clinics are provided in all the municipal suburbs while provincial clinic services are supervised from the Ngwelezane hospital (Umhlathuze 2007).

The following municipal clinics are available in the City of Umhlathuze: Aquadene, Brackenham, Meerensee, Empangeni, Richards Bay, Empangeni Baptist Church and Felixton clinic. The following are the hospitals that can be found in the municipal area: Empangeni Garden Clinic (private), Bay Hospital, Richards Bay (private), Ngwelezane (public), Lower Umfolozi War Memorial and the Empangeni (public maternity hospital) (Umhlathuze 2007).

The KwaZulu-Natal Provincial Administration's (KNPA) hospital located within Ngwelezane deals with the full range of medical problems and contains the main medical departments including primary health care. The hospital also operates several mobile clinics to service the neighbouring rural areas. The Ngwelezane hospital is over extended in terms of the demand for its facilities. There is significant demand for health care facilities within the study area, not only from the population living within the area, but also from the people commuting into the area from outlying rural areas (Umhlathuze 2007).

The City of Umhlathuze is a major focal point for these communities for health care, placing huge burdens on the existing infrastructure. In the City of Umhlathuze there is growing concern about the incidence of respiratory diseases that many people relate to the air quality of the area. As such, the Richards Bay Clean Air Association intends to investigate the prevalence of asthma and respiratory symptoms among children within the City of Umhlathuze by conducting a health study (Umhlathuze 2007).

3.7.3 Safety and security

The Umhlathuze municipality provides fire services and traffic services to the area. Their units respond to emergency situations in the city, including fires and accidents. The fire brigade has its main offices in Alton, with satellite offices in Empangeni and at the airport. The municipal disaster management plan outlines, amongst others, response procedures to disaster situations that may arise throughout the whole municipal area (Umhlathuze 2007).

There are police stations in Empangeni and Richards Bay, with satellite police stations in Ngwelezane and Esikhawini. There are magistrate courts in Empangeni and Ngwelezane, with a branch court in Richards Bay. Ambulance services are provided by the Provincial Health Department to the entire City of Umhlathuze area. The National Sea Rescue Institute (NSRI) and Surf Lifesavers play an important role in sea and coast emergencies (Umhlathuze 2007).

3.7.4 Community centres and libraries

Given their role as service centres to the City of Umhlathuze and beyond, Richards Bay and Empangeni provides higher order community facilities and services. The urban areas are well provided for in terms of community facilities and services, although access to these from the rural areas is problematic. The following facilities and services are available:

TABLE 3.17: facilities and services

COMMUNITY CENTRES/HALLS	LIBRARIES
Aquadene Community Centre	Empangeni
Auditorium – Richards Bay Municipal Offices	Felixton (private)
Empangeni	Richards Bay central
Mandlazini Community Centre	Ngwelezane
Mzingazi Reserve Community	Centre Brackenham
Ngwelezane	Esikhawini
Nseleni Community Centre	Nseleni
Bhejane Community Centre	
Veldenvlei Community Centre	
Bay Hall – Richards Bay Area	
Aquadene Community Hall	
Veldenvlei Community Hall	
Brackenham Community Hall	
Mzingazi Community Hall	
Esikhawini Community Hall	
Hlanganani Hall	
Empangeni Town Hall and Supper Room	
Ngwelezane Community Hall and Supper Room	
Ntuze Community Hall	
Nhlangenyke Community Hall	
Port Durnford Community Hall	
Gobandlovu Community Hall	
Mandlankala Community Hall	
Gobandlovu Community Hall	
SERVICE DEPARTMENTS	**MUNICIPAL OFFICES**
Empangeni Magistrate Court	Empangeni
Richards Bay Magistrate Court	Esikhawini
Department of Home Affairs, Empangeni	Ngwelezane
Esikhawini Magistrates Court	Nseleni
Ngwelezane Magistrate Court	Richards Bay
	Vulindlela

Source: Umhlathuze (2007).

3.7.5 Sport recreation facilities

The sports recreation facilities include: Two athletic fields, 15 basketball courts, one baseball field, five cricket fields (two floodlit) four hockey fields (2floodlit), 10 volleyball courts, 74 soccer fields (9 floodlit) four rugby fields, four korfball courts, seven tennis courts, 10 netball courts (8 floodlit), two polo fields, five squash courts, 16 jukskei, two golf courses, two bowling greens, 15 combi courts, nine swimming pools. There are 809 sports clubs with specific facilities for inter alia equestrian sport, polo crosse, aerolites, angling, yachting, paddling and radio flyers (Umhlathuze 2009).

3.7.6 Cemeteries

One cemetery exists in Empangeni which, despite recent expansion, has reached capacity. The existing Empangeni cemetery is situated on residual quartz feldspar, approximately 0.5 km northwest of the town centre. Ngwelezane Township also contains a single cemetery, which has reached capacity and has insufficient room for expansion (Umhlathuze 2007).

The cemetery in Richards Bay is situated adjacent to the Arboretum or Mtubatuba road, opposite the residential area of Brackenham. There are also cemeteries situated in Vulindlela and Esikhawini. There is limited space available in the Richards Bay Cemetery. There are no formal cemeteries in the rural areas. There are no crematoriums in the City of Umhlathuze; the closest crematorium in the region is situated in Eshowe. The cemeteries in the City of Umhlathuze are operated by the municipality, with private companies providing undertaking services (Umhlathuze 2007).

3.7.7 Telecommunication

It is 42, 5% of all households that has a normal telephone or cellular telephone in the dwelling and only 4, 4% of all households do not have access to a telephone near the dwelling(Umhlathuze 2009).

3.7.8 Transport

It is estimated that some 250 000 persons commute daily within the municipal area; close to 40 000 of these commuters are from outside the municipal boundary. The

number of minibus taxis is estimated at 3 900 and the number of buses at 130. During 2007, 33582 light passenger vehicles, 2687 motorcycles and 1953 minibuses were registered within the municipal area. There are 733 bus routes and 142800 bus commuters. On average 400 freight trucks enter and exit the municipal area on a weekly basis. Spoornet provides a freight service of close to 750 trains per week, linking the city to Durban and Gauteng; there are 320 km of railway track. There are 128 km of tarred national roads and 850 km of tarred secondary roads in the municipal area (Umhlathuze 2009).

The municipality maintains 554 km of tarred roads and streets. The Port of Richards Bay consists of 2 157 hectares of land and 1 495 hectares of water area. Distance to closest international ports: Maputo – 465 km and Durban 160 km. The average monthly passenger departure in 2007 was 3694 at the Richards Bay Airport and the number of vessels in the harbour averaged 308 during 2007(Umhlathuze 2009).

3.8 WATER SUPPLY

At present, Umhlathuze municipality is supplied with surface water from the following sources: Umhlathuze River, Nseleni River (Lake Nsezi), Lake Mzingazi, Lake Cubu and Ntuze River (Naidoo 2005). Given the above, the municipality is divided into supply zones as outlined hereunder:

TABLE 3.18: Water supply zones

Zone Description	Supply Node
Richards Bay	-Richards Bay urban and industrial
Empangeni	**-Empangeni urban and industrial as well as Madlebe**
Ngwelezane	- Ngwelezane urban
Nseleni	**-Nseleni urban and Bhejane Khoza (including upper Nseleni and Kwambonambi)**
Esikhawini	-Esikhawini and Vulindlela urban. Dube and Mkhwanazi (including Felixton if required)

Source: Umhlathuze (2007).

3.9 ENERGY SOURCES

84, 9% of all households use electricity as energy source for cooking and 91,8% use it as a lighting source. 82, 3% use it as a source of heating. 18, 9% of households use gas or paraffin for cooking. Solar power is used by 0, 3% of all households for cooking and lighting. An average of 31 903 498 kilowatt electricity is used per day within the municipal area. The Municipality has a customer base of 31312 and 3000 customers receive 50kwh free electricity every month (Umhlathuze 2009).

3.10 CLIMATE

An idyllic subtropical, maritime climate prevails throughout the year at the coast, seldom lower than 12°-14°C in winter and reaching 32°-35°C during summer months. Average daily temperature is 28°C in summer and 22°Cin winter. Summers are hot and humid, and experience majority of annual rainfall, while winters are warm and dry with occasional frost in the interior. Prevailing winds are north-easterly and south-westerly. The long term average annual rainfall for Richards Bay area is about 1200mm decreasing to about 1000mm inland towards Empangeni, with most of the rainfall occurring between January and May (Umhlathuze 2009).

3.11 WATER, SANITATION AND WASTE REMOVAL

It is actually 92% of households who have access to running water; and 68, 0% of households have piped water to the dwelling or inside the yard. The length of water pipes in the municipality adds up to 1700km. The reservoir capacities add up to 260 mega-litres. The length of sewer pipes in the municipal area adds up to 623km (Umhlathuze 2009).

68129 of all households have access to free basic water services and 49.2% of all households have a flush or chemical toilet on the premises. There are 33 945 water meters for households, and 2 070 for businesses. There are 30 517 waste collection points for households and 1000 for businesses and 58% of the population has access to waste removal services; approximately 2 500 tons of waste is collected on a weekly basis and 47,6% of waste collected is domestic waste and 12,3% is garden waste(Umhlathuze 2009).

3.12 SUMMARY OF THE CHAPTER

This chapter (community profile) developed a portrait of the community of the city of Umhlathuze. It profiled the community in a number of areas (e.g. population, work force, income, household, education, socio cultural system, climate, community facilities, economic characteristics and other things. As mentioned earlier on, a community profile in most cases is carried out for the purpose of developing an action plan or other means of improving the quality of life of the community. With reference to the topic under study, the profile is carried to let the reader know what to expect in the Umhlathuze municipal areas.

CHAPTER 4

4 RESEARCH METHODOLOGY

4.1 INTRODUCTION

Research methodology is the way in which you find out information, it describes how something will be (or was) done and includes the methods, procedures, and techniques used to collect and analyse information (Utexas 2007). Adding on, Colton and Covert (2007:34) outlined that there are two broad categories of methodologies: qualitative and quantitative. Qualitative method involving open ended explorations of people's words, thoughts, actions and intentions information.

For the sake of the topic in hand, the study will use qualitative method more often and where its necessary quantitative will be used (for example, in the analysis of data).

4.2 RESEARCH DESIGN

Research design is a plan outlining how information is to be gathered for an assessment or evaluation that includes identifying the data gathering method(s), the instruments to be used or created, how the instruments will be administered, and how the information will be organized and analyzed (Utexas 2007). However, as it was earlier highlighted in the first chapter, the study will employ evaluative research design in order to measure the performance of municipal adopted programs towards water and sanitation services.

4.2.1 Evaluation research design

According to Walliman (2006:206) evaluation research design, is a design that is concerned with the critical assess of the real-life intervention in the social world. Payne and Payne (2004:80) explained that evaluation research is undertaken to assess the worth or success of the something: a program, a policy or a project. It is a particular and increasingly common type of applied social research, its action orientation is to support or introduce change.

In line with the above Payne and Payne (2004)'s explanation, O'Leary (2004:135) contributed by stating that evaluation research attempts to assess the effectiveness of change intervention programs and policies. However, in terms of evaluating municipality programs in addressing water and sanitation services in informal

settlements, this study's evaluation process will be broken into the following two general types of evaluations as adopted from O'Leary (2004:135)'s evaluation types;

4.2.1.1 Formative evaluation

Formative evaluation also called process evaluation, its main goal is to provide information that will aid the development of a particular change intervention programmes. This study helps to investigate program delivery and ask how and how well a program is being implemented. It assesses strengths weaknesses, opportunities, and threats, and often works to asses barriers to implementation.

Results are expected to inform decision making related to program improvement, modification and management. Now while these studies are often case specific, transferable findings will allow other organisations interested in the use of any similar program to apply lessons learned.

4.2.1.2 Summative evaluation

Summative evaluation also called outcome evaluation; its main goal is to provide information that can assess the effectiveness, efficiency, and ethicality of the change strategy in question. This study investigates if the program met its aims and objectives, and might also asses the overall effects of the program both intended and unintended.

Summative evaluation may also consider cost-effective and include a cost-benefit analysis. Results are expected to inform decision-making related to program funding, continuation, termination, expansion, and reduction. Findings are case specific, results can be of interest to any stakeholder groups and, depending on the nature of the change intervention, might be of interest to wider population as well.

Finally, as cited before that the study will also use a mixed method of exploratory and descriptive research to determine and explain a couple of things mentioned above on the objectives of the study. The two methods are explained below;

4.2.1.3 Exploratory design

This design provides a basic familiarity with the topic in hand. It is a very useful approach when the researcher examines a new interest or when the subject of study itself is new. As an example, this approach can be used when wanting to find out more

about a certain approach, programme or a movement; how widespread is it? What level and degrees of support is there within the community and finally, how is it organised? (Babbie & Mouton (2001:79).

4.2.1.4 Descriptive design

This design describes what have been observed. For example, the researcher usually go on to examine why the observed patterns exist and what these patterns imply (Babbie & Mouton 2001:80).

4.3 SAMPLE

Sample is a subset of the population that is chosen based on its ability to provide information, its representativeness of the population under study, and or factors related to the feasibility of data gathering such as cost, time, participant accessibility, or other logistical concerns(Utexas 2007). On the other hand, Walliman (2006:213) simply defined a sample as a small part of the whole population selected to show what the whole is like.

In line with subject under study, the sample of the study will be drawn from the seven (7) Umhlathuze municipalities.

4.3.1 Type of sampling

In order to access data from the Umhlathuze municipalities, random sampling will be used whereby within the department or division responsible for water and sanitation services, a selection will be done from available municipality employees where to access data through the request of program documents, personal interviews or give questionnaires.

4.3.1.1 Random sampling

Random sample is a subset of the population in which every member of the population has an equal likelihood of being selected (Utaxes 2007). Adding on, Hoffman (2004) describes random sample as a set of items that have been drawn from a population in such a way that each time an item was selected, every item in the population had an equal opportunity to appear in the sample.

4.4 DATA COLLECTION

Generally, every process improvement effort relies on data to provide a factual basis for making decisions. Data Collection enables a team to formulate and test working assumptions about a process and develop information that will lead to the improvement. Data Collection improves your decision-making by helping you focus on objective information about what is happening in the process, rather than subjective opinions.However, the purpose of data collection is to obtain information to keep on record, to make decisions about important issues, to pass information on to others. Primarily, data is collected to provide information regarding a specific topic (Wikipedia 2010). In this study, the following data collection methods will be used;

4.4.1 Document review or archival analysis

Document review is a way of collecting data by reviewing existing documents. The documents may be internal to a program or organization. For example, records of how successfully the municipality water and sanitation programs were implemented to function in informal settlements) or may be external (such as records of emergency visits to informal settlements to hear from the people served by the program (happy with the service or not) (Evaluation Briefs 2009: No.18).

In line with the documentary sources of collecting data, the Policy Hub (2008) supplemented on that documentary analysis uses public and private documents as data. Private document raises the issue of accessibility (materials are difficult to access). Public documents include administrative historical records held by national and local governments, official statistics, reports of government select committees, parliamentary papers, public reports; private letter, diaries and notebooks) and non-text documents, such as photographs, maps and plans, videos and DVDs.

Web-based technologies have also been used: for example, web discussion groups and websites. Many of these materials are in most cases freely available and it is actually vital to usethem because they can provide or supplement information which would otherwise not be traceable, they can track processes over a period of time, for example, in the way a policy process emerged over time, they can unlock the otherwise hidden history of a process or organization and fill in gaps in personal memories of interviewees. Documentary analysis can be used for the triangulation of evidence

(Policy Hub 2008). Summing up, O'Leary (2004:177) states that in the document collection source, the researcher's role is limited to gathering, reviewing and interrogating relevant documents.

4.4.2 Interviews

In short, an interview is a one-on-one directed conversation with an individual using a series of questions designed to elicit extended responses (Utexas 2007). With reference to the topic under scrutiny, this study will employ individual or face-to-face method of interviewing. Walliman (2006:92) describes the face-to-face interview as an interview that can be carried out in a variety of situations; in the home, at work, outdoors and on the move (while travelling).Using this kind of a method, the researcher is in good position to judge the quality of the responses to notice if a question has not been properly understood and to encourage the respondents to be full in his or her answers.

4.4.3 Questionnaires

Payne and Payne (2004:186) defines questionnaires as a printed sets of questions to be answered by respondents, either through face to face or self-completion, as tested, structured, clearly presented and systematic means of collecting data. In other words, questionnaires are an inexpensive way to gather data from a potentially large number of respondents. Often they are the only possible way to reach a number of reviewers large enough to allow statistically analysis of the results.

According to Walliman (2006:87) using questionnaires enables the researcher to organize the questions and receive replies without actually having to talk to every respondent. Generally, questionnaires can be delivered personally or by post, but for this study, the questionnaires will be delivered personally with the aim of helping respondents to overcome difficulties with the questions and also for the researcher to use personal persuasion and reminders to ensure a high response rate.

There are two types of questions one can ask and that will be used by this study as well (open format or closed format). Closed-format questions are where the respondents must choose from a choice of given answers, while open-format questions are where respondents are free to answer in their own words and style (Walliman 2006:90).

4.5 DATA ANALYSIS AND INTERPRETATION

Okello (2004) defines data analysis as a process by which large sets of numbers are reduced to smaller sets to make it more understandable. The purpose of data analysis is to provide answers to the research questions being studied. In line with Okello (2004)'s definition, the Wikipedia (2010) defines the analysis of data as a process of inspecting, cleaning, transforming, and modelling data with the goal of highlighting useful information, suggesting conclusions, and supporting decision making. Moreover, the Utexas (2007) supplemented on by describing data analysis as a process of systematically identifying patterns in the information gathered and deciding how to organize, classify, interrelate, compare, and display it.

Whereas, Interpretation on the other hand can be generally described as a process of finding a meaning in the analyzed data, or decides what the intended meaning of something is. Supporting the interpretation definition, Maree (2007:111) describes interpretation as a process of making sense of the available data, and this simply means that the analyzed data must be brought into context with existing theory to reveal how it corroborates existing knowledge or bring new understanding to the body of knowledge.

With reference to the study in hand, data will be analysed using a mixed method of qualitative and quantitative data analysis. For example, quantitatively; the statistical packages to the frequencies, percentages and relationship among variables from open-ended and closed-ended interviews will be utilised. Qualitatively and as an example, the study will employ content analysis to look at documents, text, or speech to see what themes emerge. What do people talk about the most? See how themes relate to each other. And after that, the researcher will be in position to interpret the data.

4.6 SUMMARY OF THE CHAPTER

This chapter has dealt with several research methods that will be used by the researcher to collect relevant data. The following terms has been briefly explained: research methodology, research design, evaluative research design, sampling etc. This chapter indicates how information is going to be gathered and who is going to be involved in that phase. It is actually the main plan of the study to be followed.

CHAPTER 5

5. PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

5.1 INTRODUCTION

This chapter contains the presentation, analysis and interpretation of the data that was collected from the municipal documents such as the water and solid waste services by-laws and also data collected from questionnaires and interviews with different Umhlathuze municipal employees responsible for the provision of water and sanitation services.

Out of the seven targeted municipalities within Umhlathuze (Empangeni, Richards Bay, Esikhawini, Ngwelezane, Nseleni, Vulindlela and Felixton municipalities), only three municipalities managed to provided the datas (Empangeni, Richards Bay and Esikhawini) due to the fact that other municipalities do not have the departments of water and sewer, roads and storm water because they depend on the main above three mentioned municipalities. Finally, the data is presented in the form of figures, tables, graphs and pie charts.

SECTION A

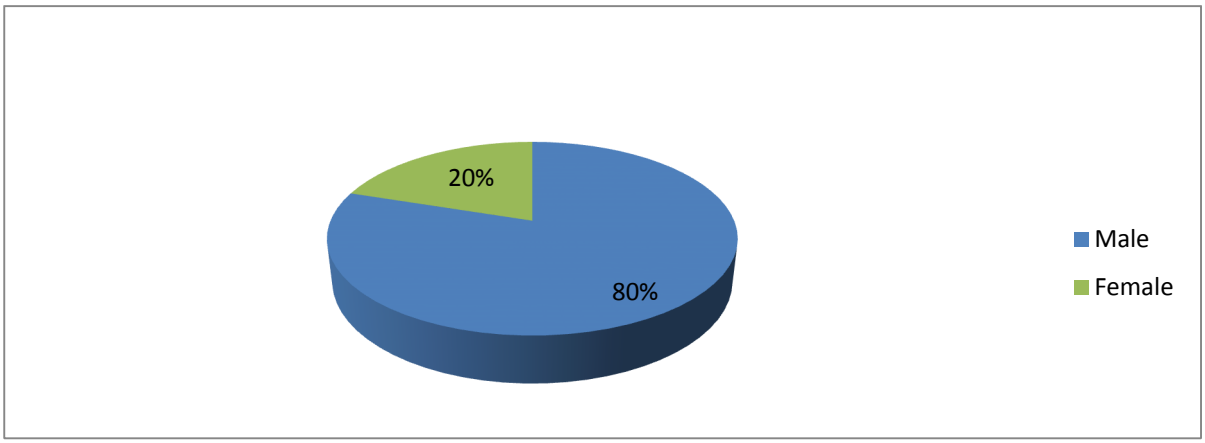
5.2 PERSONAL AND SOCIO ECONOMIC DETAILS

The information regarding the respondent's personal and economic details was sought by the researcher in order to describe the respondent's gender, work status and highest standard passed.

5.2.1 Distribution of respondents according to sex (gender).

The researcher asked for the respondent's gender in order to realize who the majority of the respondents were, between the two genders (female and male).

FIGURE 5.1: Distribution of respondents by gender

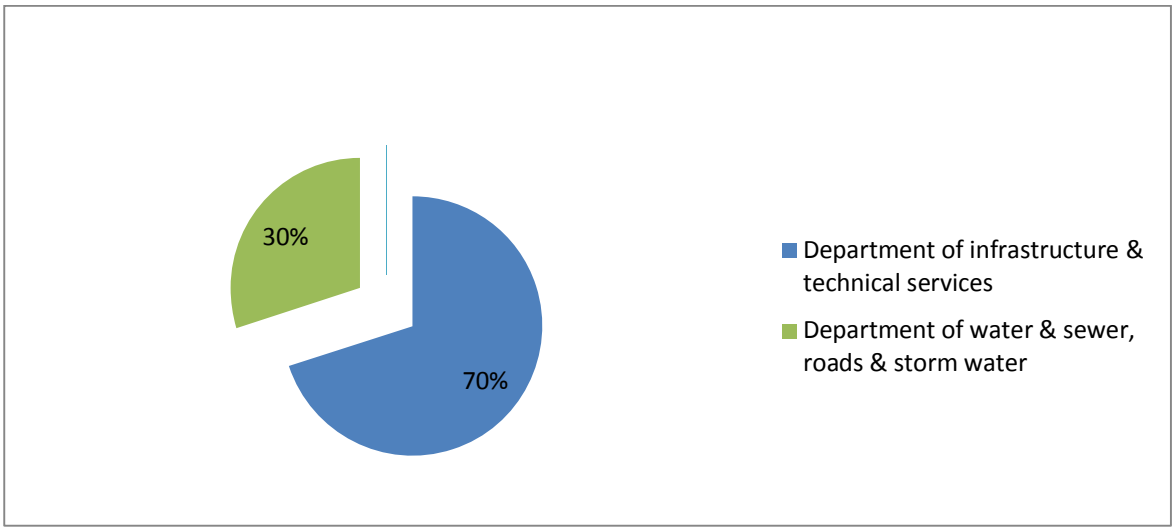


As shown in figure 5.1 above, the majorityof the respondents were males making (80%) and the females making (20%) of the total sample (100%).

5.2.2 Distribution of respondents according to the departments or sections they are attached to.

Due to the fact that water and sanitation is not one solid section or department providing the service as a unit, this question was asked in order to find out from which section of the municipality (water, sewer, storm water etc) was the respondents attached to.

FIGURE 5.2: Distribution of respondents by the departments or sections they are attached to.



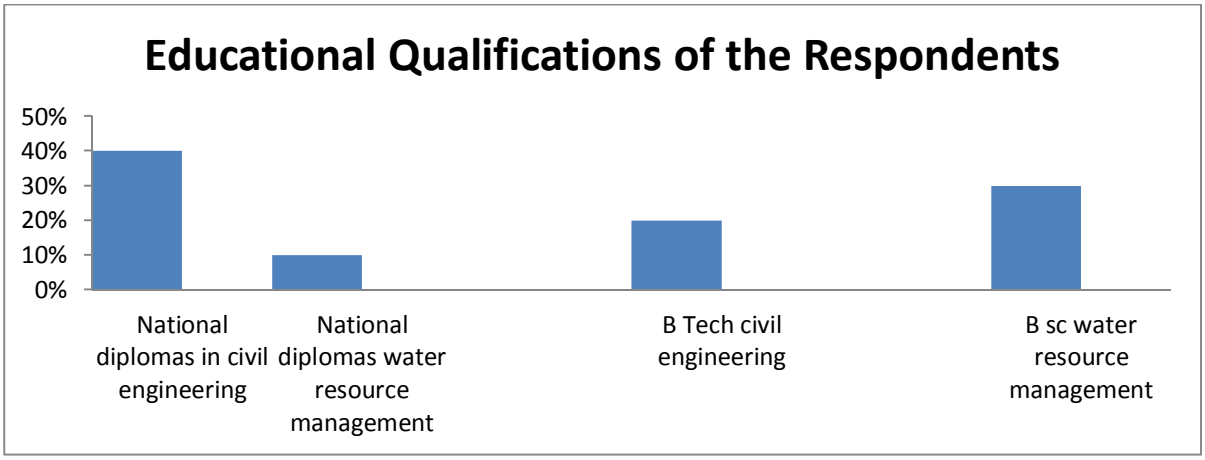
The above figure 5.2 shows that the majority of the respondents who managed to produce a 70% figure were from the Departments of infrastructure & technical services,

while the other 30% of the respondents who also contributed to the provision of data were from the Departments of water & sewer, roads & storm water.

5.2.3 Distribution of respondents according to their educational qualifications and positions they hold in their departments.

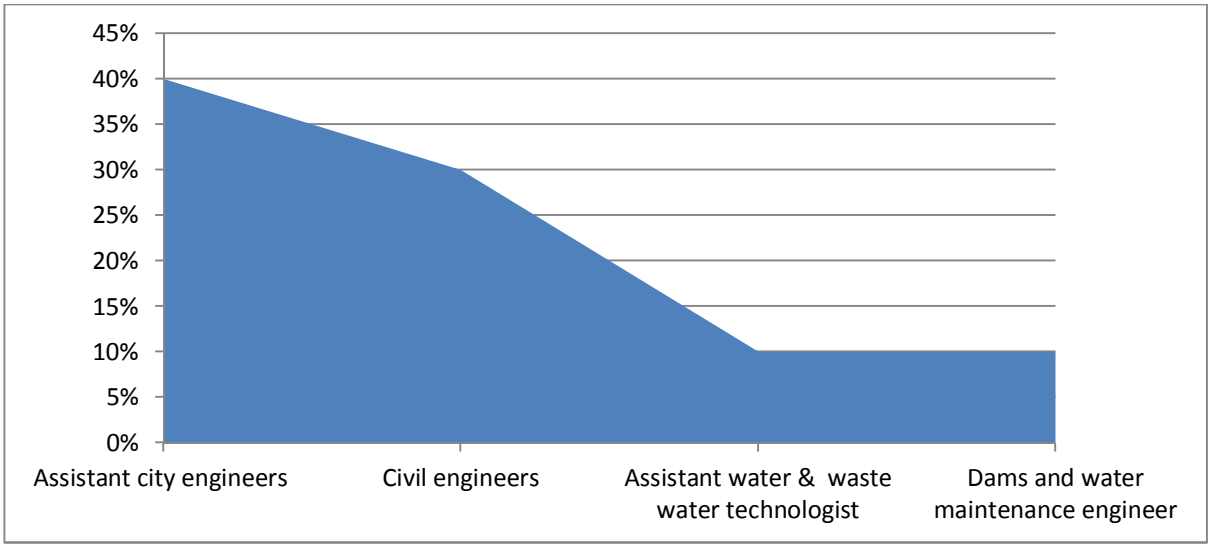
Due to the evaluation influence of the study, the researcher asked for educational qualifications and positions, employees (respondents) hold in their departments. It was a question with an aim of detecting the status of the respondents and also to find out if these water and sanitation services providers are qualified to successfully carry out their tasks in order to achieve their projected objectives.

FIGURE 5.3: Distribution of respondents by educational qualifications



The above scenario in figure 5.3, indicates that the majority of the respondents dealing with water and sanitation, hold National diplomas in civil engineering and they managed to produce 40% of the total population 100%, even though the total population is not reflecting in the above figure. However, 30% hold Bachelor's degrees in water resource management, 20% holds some B Tech in civil engineering and lastly the other 10% hold a National diploma in water resource management.

FIGURE 5.3.1: Distribution of respondents by positions held in their departments



From the findings as represented in figure 5.3.1, it clearly shows that the majority of the respondents were assistant city engineers who makes 40% of the total sample, 30% were civil engineers and lastly it was the assistant water and waste water technologist, dams and water engineers and the maintenance engineers who each managed to make 10% of the sample of the study, which is 100%.

SECTION B

5.3 INFORMATION RELATING TO THE PROGRAM

5.3.1 Distribution of the respondents to whether the municipality have any approach or strategy they use in providing water and sanitation services in informal settlements.

The significance of this question was to explore the kind of strategy the municipality use in the provision of water and sanitation and at the same time evaluate if the strategy is supply driven or demand driven approach to water and sanitation.

TABLE 5.1: Distribution of respondents to whether the municipality have a strategy in providing water and sanitation services in informal settlements.

The municipality approach or strategy in providing water and sanitation services in informal settlements	Frequency	Percentage
The basic sanitation and the basic water supply strategy	10	100%
Total	**10**	**100%**

Here the responses from the question indicates that all the 10 respondents, making 100% of the total sample, stated the basic sanitation and the basic water supply strategy as the approach used to the provision of water and sanitation in informal settlements.

5.3.2 Distribution of respondents to what criteria they used to select the approach or strategy they are using in providing water and sanitation services in informal settlements.

The aim of this question was to find out whether they have been any community involvement or participation in the process of planning and implementation of the strategy mentioned above in table 5.4. In other words, this was a question to find out if there have been any factors that were considered on the suitability of the strategy that was implemented.

TABLE 5.2: Distribution of respondents to the criteria used to select the approach or strategy in providing water and sanitation.

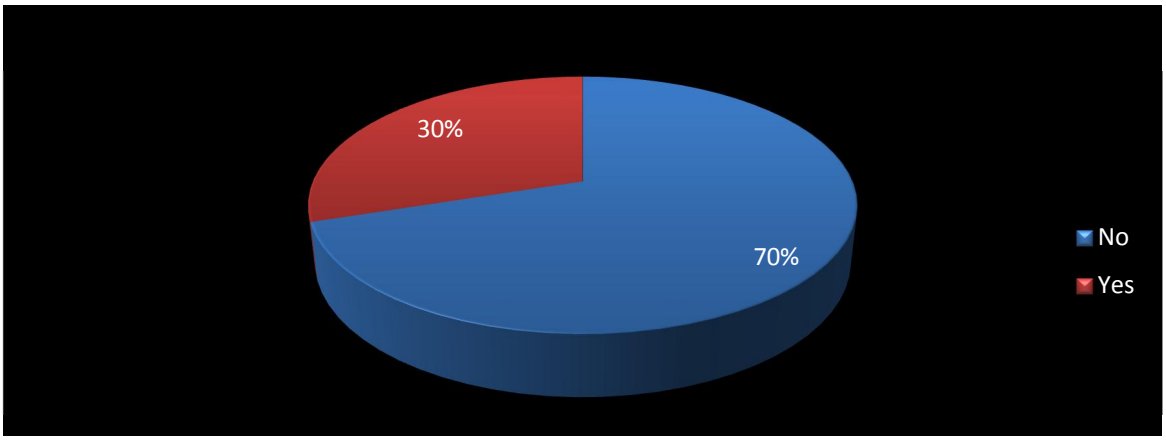
Criteria used to select the approach or strategy in providing water and sanitation	Frequency	Percentage
National water act influenced strategy	10	100%
Total	**10**	**100%**

Uniformity in response just like in the above table 5.1, the same as this scenario shown in table 5.2, and it also indicates that all the 10 respondents making 100% of the total sample mentioned the national water act as the criterion that influenced in the deciding of using the basic sanitation and the basic water supply strategy in Umhlathuze municipalities.

5.3.3 Distribution of the respondent's observation to whether the municipal approach or strategy for providing water and sanitation has been successful in achieving the expected implementation objectives or not.

This was actually a question to find out if the adopted approach or strategy is successful or failing to meet its anticipated objectives. Any response that was given (yes/no), respondents were asked to give contributing factors.

FIGURE 5.4: Distribution of respondent's observation if the strategy is successful or not successful.



The findings as shown above in figure 5.4, the majority of the respondents making 70% of the total sample, were strongly of the opinion that the adopted approach is not a success at all in the provision of water and sanitation in the informal settlements, while the other 30% of the sample believed that the approach is a success. Below are their motivations to their choice of response;

5.3.3 .1. Distribution of the respondent's motivation if the answer is (yes) and also the contributing factors to no success if the answer is (no).

This was a question with an aim to find out the force behind success and the force to no success in achieving the set objectives.

TABLE 5.3: Distribution of respondents' motivations to why they say the system is successful or not successful.

Motivations given by the respondents who believe the strategy is not successful.	**Frequency**	**Percentage**
✓ It's not successful because there is an extreme shortage of water since insufficient water is being produced to supply all the community. ✓ Many illegal connections to water systems and it contribute to high water losses. ✓ Limited resources (limited amount of trucks). ✓ Shortage of funds for the implementation of additional water services. ✓ Few qualified staffs ✓ Lack of full community support/ strong resistance from the community	7	70%
	Subtotal= 7	**70%**
Motivations given by the respondents who believe the strategy is successful.	**Frequency**	**Percentage**
✓ There is no room for failure because we (the municipality) are providing water and sanitation as it is specified in the national water act and the municipal by-laws.	3	30%
	Subtotal= 3	**30%**
Total	**10**	**100%**

From the findings as represented in the above table 5.3, the majority of the respondents which is 70%, believed the municipal strategy or approach to water and sanitation provision is not successful and had the above given reasons to support their opted answers. However, on the other hand the table still demonstrate that 30% of the study's sample believed the strategy used by the municipality is a success because there is no room for failure since the municipalities are providing water and sanitation as it is specified in the national water act and the municipal by-laws.

However, the first reason given by respondents on table 5.7 who believe the strategy to water and sanitation supply is not successful, is actually in agreement with the study's literature review on the strategic framework for water service of (2003) which specifies that in South Africa there is a lack of capacity required for effective water services provision and that it is in short supply in many parts of the country, particularly in rural areas.

Finally, the majority of the respondents again mentioned the problem of insufficient water being produced to supply all the community and this actually in disagreement with the literature review's strategic framework for water service of (2003), one of the key objectives to reform is to Ensure the provision of an appropriate level of water and sanitation services which are sustainable to all households in South Africa. A direct opposition of the Umhlathuze municipal situation who are unable to achieve that objective, six years after the implementation of the strategic framework for water service of (2003).

5.3.4 Distribution of respondents on how they evaluate the overall merit or worth of the program (for example = should it be modified or it should continue as it is).

This was a question to investigate how the municipality employees measure or mirror the program they use to provide water and sanitation.

TABLE 5.4: Distribution of respondents' evaluation of the program they use in the provision of water and sanitation.

Reasons by those who believe the program should be modified	**Frequency**	**Percentage**
✓ It should be modified so to have a new system that can help to maintain resources. For example, billing system whereby the community can be encouraged to pay for the services since this can contribute to the raising of revenue to improve the current system.) ✓ It should be modified to open way for a system that is flexible to meet future business requirements and provide better services for the users.	7	70%
	Subtotal= 7	**70%**
Reasons by those who believe the program should be continued as it is	**Frequency**	**Percentage**
✓ It should continue because the program is a success (its achieving what the municipality set as an objective, the basic provision of water and sanitation). ✓ The national water act declares that people are entitled to free basic services.	3	30%
	Subtotal= 3	**30%**
Total	**10**	**100%**

From table 5.4, and judging using the majority and minority system, there is a continuation in the findings whereby the size of the response that has been dominating from question 5.3.3or regarded as the majority is still 70% of the total sample. In other words, this is the same scenario as the findings as represented in the above table 5.4 where the majority of the respondents who makes 70% of the total sample, believed the municipality program used in the provision of water and sanitation should be modified in order to have a new system that can help to maintain resources.

As an example, they stressed much on the introduction of the billing system whereby the community can be encouraged to pay for the services since this can contribute to the raising of revenue to improve the current system. On the other 30% of the respondents

believe the program should be continued as it is because the national water act declares that people are entitled to free basic services.

5.3.5 Distribution of respondent's responses to whether there is any means through which the current municipality programs accommodate the users or informal settlement dwellers in the whole process of providing water and sanitation.

The significance of this question was to find out if there are other ways in which municipalities are involving the community in the developing of water supply and sanitation mission and how successful is that initiative. For respondents who agreed that there are some means through which the municipality accommodates the users, they were asked to specify or mention them.

TABLE 5.5: Shows the findings with regard to whether there are any means through which the municipality programs accommodates the users

Response to whether there are any meansmunicipality programs accommodates the users	Frequency	Percentage
Yes	10	100%
No	0	0%
Total	**10**	**100%**

These results indicate that all the respondents which make 100%, agreed to have a way through which the municipality programs accommodate the users in the process of providing water and sanitation.

5.3.5.1 Distribution of respondent's reply on the means or ways municipality use to accommodate users or informal settlement dwellers in the whole process of providing water and sanitation.

This was actually a connecting question from the question numbered 5.3.5 with an intention to dig and find out if in actual fact the municipalities does have a room on how the community can be accommodated in the long process of providing them with the basic services (water and sanitation).

TABLE 5.6: Below, shows the means or ways on how municipalities accommodate users.

Means or ways municipality use to accommodate users	Frequency	Percentage
✓ They normally liaise or communicate with ward councillors to negotiate the introduction of a new system in providing basic services.	10	100%
Total	**10**	**100%**

This question was replied to by the respondents in different translation but with the identical meaning. Nevertheless, the findings as tabulated above, shows that 10 out of 10 respondents which makes 100%, indicated liaising or communication with ward councillors as the means or way in which the municipality manages to accommodate users or informal settlement dwellers in the whole process of providing water and sanitation.

However, the above stated mean or way by which the municipality accommodate users, is in agreement with the literature review of this study, whereby Brown et al (2001:26) explains that; Elected officials need to be involved in planning and implementation of water supply and sanitation programs. They can inform the government about the needs and desires of constituents and may figure strongly in policy and program design. Experience shows that it is essential to actively engage politicians in the planning process to raise their understanding and acceptance. Politicians also provide another means to inform the public.

Finally and in support of the above, the findings have shown that there is a community involvement in the process of providing the basic services. Just like Wright (2007:7) who stated that successful programs have generally relied on extensive user involvement in planning, choice of service levels scale of investments, charges, and cost recovery structures.

5.3.5.2 Distribution of respondent's responses on how successfully do the municipality initiatives to accommodate users or informal settlement dwellers in providing water and sanitation, work or function.

Finally, this was the last part of the connecting question 5.3.5. However, it was a question which was sought in order to explore how the municipal employees (respondents) judge their initiative to accommodate the users (informal settlement dwellers) in providing water and sanitation. For example, is the initiative successfully achieving the set goals?

TABLE 5.7: Below, shows how the respondents judge the municipality initiatives to accommodate users or informal settlement dwellers in providing water and sanitation; how successful do they work or function.

Respondent's judgement on how successfully do municipality initiatives in accommodating users, work/function.	Frequency	Percentage
✓ It is not really successful because we (the municipality) tend to get strong resistance from the users who seem not to be interested in new systems, as a way of avoiding making financial contributions to the given services.	6	60%
✓ It not successful because it takes time for a new initiative to be accepted in the communities.	4	40%
Total	**10**	**100%**

As tabulated in table 5.7, the study sample comprised of 6 respondents making 60% of the total sample emphasized on the issue of the municipality getting strong resistance from the users (informal settlement dwellers) who seem not to be interested in new systems, as a way of avoiding making financial contributions to the given services as a source of no success. While on the other hand, the other remaining 40% of the study's sample highlighted the problem of much time it always take for a new initiative to be accepted in the communities as a cause to no success in the municipal attempts to accommodate the community (users).

5.3.6 Distribution of respondent's responses on the user's attitudes and perceptions concerning the approach or strategies used by the municipalities in providing water and sanitation

This was actually a question to find out from the service providers, in their experiences, what are the attitudes and perceptions of the informal settlement dwellers concerning the strategy they use to provide water and sanitation.

TABLE 5.8: Below, shows user's attitudes and perceptions concerning the approach or strategies used in providing water and sanitation.

User's attitudes and perceptions concerning the approach or strategies used in providing water and sanitation	Frequency	Percentage
✓ They do not support the strategy because they want the services at no cost. ✓ They believe the services were supposed to be free from financial contributions in the independent South Africa.	8	80%
✓ The users sees these services as a basic right, therefore they don't appreciate the way the municipalities provide water and sanitation.	2	20%
Total	**10**	**100%**

From the findings as represented in the above table 5.8, respondents gave various responses to the question but with almost identical meaning. This table reflects that the majority of the respondents, 80% out the total sample, cited that the users do not support the strategy because they want the services at no cost and they believe the services were supposed to be free from financial contributions in the independent South Africa. However, 20% of the sample emphasised that the users sees these services as a basic right, therefore they don't appreciate the way the municipalities provide water and sanitation.

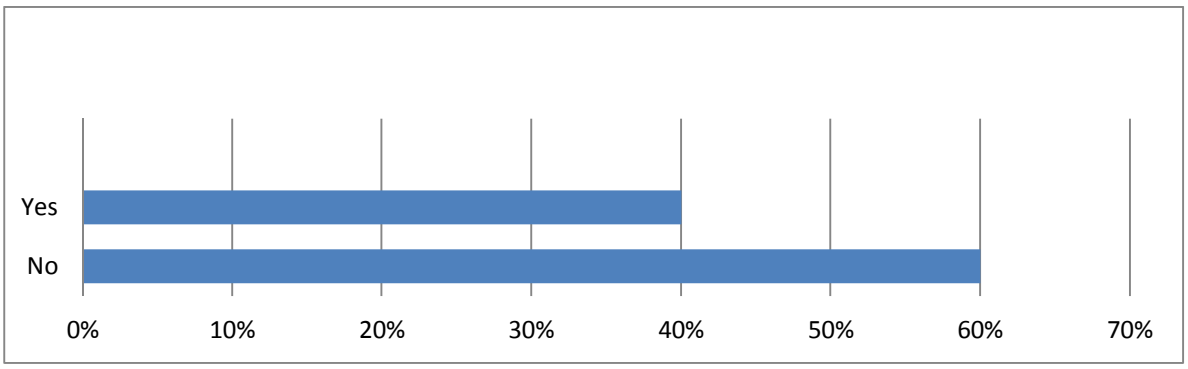
The answer why the community or user's attitudes and perceptions concerning the approach or strategies used in providing water and sanitation is so negative, can be extracted from this study's literature review on community participation where Brown,

et al (2001:19) stressed that in the context of water supply and sanitation service options, potential users can speak meaningfully about their willingness to pay only when they possess sufficient information about the characteristics of the service. Knowing more about the features and benefits of specific options may interest users to pay more for the service.

5.3.7 Distribution of respondent's responses to if there are any municipality improvement programs designed to boost current approaches or strategies used in the provision of water and sanitation.

The significance of this question was to investigate if there are any programs that municipalities have in place in order to improve the system performance.

FIGURE 5.5: Below, shows the response to if there are any municipality improvement programs designed to boost current approaches or strategies used in the provision of water and sanitation.



The above figure 5.5 reflects that the majority of the respondents making 60% of the total study sample agreed that there are improvementprograms designed to boost current approaches or strategies used in the provision of water and sanitation. On the other hand, the other 40% disagreed that there are programs designed to boost current approaches to water and sanitation.

However, for those who agreed that there are programs designed to boost current approaches to water and sanitation, they were asked to give or mention those programs;

TABLE 5.8.1: Below, shows the program mentioned by respondents as the boost up the current approaches or strategies used in the provision of water and sanitation.

Program to boost up the current approaches or strategies used in the provision of water and sanitation.
✓ The introduction of V.I.P toilets and the prepaid water standpipes that will assist in lowering water wastage.

The above table reflects the cited program by the majority of the respondents that the municipalities within Umhlathuze municipal areas are using to boost up the current approaches or strategies used in the provision of water and sanitation. In other words, it is actually 6 respondents who make 60% of the total sample, who mentioned the program mentioned in table 5.8.1 as a municipal initiative to boost up the current approaches or strategies used in the provision of water and sanitation.

However, the above findings totally put off the assumption of the study which states that there is a lack of municipality improvement programs designed to address water and sanitation services in informal settlements.

5.3.8 Distribution of respondent's response to the question if there are adequate number of appropriate qualified staffs in the department who can successfully carry the task of providing water and sanitation.

According to Brown et al (2001:25) management of water supply and sanitation is a specialized function and therefore requires appropriately qualified managers and technical expertise. For that reason, this question was sought in order to find out if the departments of water and sanitation in Umhlathuze municipalities have a satisfactory number of qualified staffs who can lead to cost-effective improvements in the provision of the mentioned services.

TABLE 5.9: Below, shows the response to the question if there are adequate number of appropriate qualified staffs in the respondent's departments who can successfully carry the task of providing water and sanitation.

response to the question if there are adequate number of appropriate qualified staffs in the respondent's departments	Frequency	Percentage
✓ The department is experiencing shortage of qualified staffs.	10	100%
Total	**10**	**100%**

From table 5.9 above, all the 10 respondents, making 100% of the study sample, expressed the concern of a shortage of adequate staffs in their departments. However, these findings are very much in disagreement with the literature review on the issue of staffing where Brown et al (2001:25) stressed that in order to succeed in providing water and sanitation, there should be adequate number of appropriate qualified staffs, including engineers, operations and maintenance personal and accountants. Yet, this is not case with Umhlathuze municipalities where all the respondents expressed a concern of not enough qualified staffs in their departments.

5.3.9 Distribution of respondent's response to the question if there anything municipality usually do to boost the staffs within the department so that they can work effectively and efficiently in the provision of water and sanitation.

This was a question to find out if the municipalities normally do something to stimulate performance in the in the provision of water and sanitation. For example, giving financial rewards, promotion and further training courses. Still, the respondents who agreed that the municipality is doing something to boost the staffs, they were asked to specify or support their answers.

TABLE 5.10: Below, shows the response to the question if there is anything municipality usually do to boost the staffs within the department so that they can work effectively.

Response to the question if there is anything municipality usually do to boost the staffs within the department	Frequency	Percentage
No	6	60%
Yes	4	40%
Total	**10**	**100%**

The table above reflects that the majority of the respondents, who are 6 in number, making 60% of the total study sample, disagreed that there is anything municipalities usually do to boost the staffs within their water and sanitation departments. On the other hand, the other 4 respondents, making 40% of the sample agreed that the municipalities normally do something to boost the staffs within the departments.

However, for the 40% who agreed that the municipalities normally do something to boost the staffs within the departments, they gave or mentioned the following things tabulated below;

TABLE 5.10.1: Below, shows the specific things usually done by the municipalities to boost the staffs in their departments

The specific things municipalities usually do boost the staffs in their departments	Frequency	Percentage
✓ Workshops	3	30%
✓ In-service training	1	10%
Total	**4**	**40%**

As indicated in table 5.10.1 above, 3 respondents, making 30% of the total 40% of the respondents agreed that the municipalities usually do something to boost the staffs and they cited workshops as the specific things municipalities use to boost the staffs in their departments. And the other 10% mentioned in-service training.

In addition and in support of the majority of the respondents in table 5.15 who cited that there is nothing municipalities are doing to boost the staffs, Wright (2007:12) opposes the finding of this study by citing that; incentives can stimulate the behaviours required from key actors such as; users, suppliers, service providers, and government staff in order to achieve sustainable expansion of sanitation coverage. However, the above contribution by Wright is an exact opposition of the Umhlathuze municipal situation.

5.3.10 Distribution of respondent's response to the question if the current approach or strategy to the provision of water and sanitation, it has increased access to the mentioned services for the poor.

This was a question to find out if the current strategy has managed to expand the water and sanitation network up to the poor and the respondents who believed there was an increase, they were asked to provide any evidence.

TABLE 5.11: Below, shows the response to the question if the current approach or strategy has increased access to water and sanitation.

Response to the question if the current approach or strategy to the provision of water and sanitation has increased access to the poor.	Frequency	Percentage
Yes	7	70%
No	3	30%
Total	**10**	**100%**

Tables 5.11 above indicate that 70%, which is the majority of the respondents confirmed that current approach or strategy to the provision of water and sanitation has increased access to the poor. While, the other 30% of the total sample denied that there has been an increase. The evidence given by the majority of respondents has been

given in the form of municipal documents which were issued to the researcher and the following was the findings after a careful analysis;

TABLE 5.11.1: Below, shows the supporting evidence given by respondents who believed there has been an increase in the service provision.

Program to boost up the current approaches or strategies used in the provision of water and sanitation.
✓ **There has been an increase in the provision of tanks (for example, in the Madlebe tribal areas) and this happened in the period of five years). They increased drastically from 11 tanks to 55 transportable tanks.**

The above table reflects the supporting evidence by the majority of the respondents who believed there has been an increase in the provision of water and sanitation to the informal settlements of Umhlathuze municipal areas. 7 respondents, making 70% of the total sample provided municipal documents containing the above evidential information.

5.3.11 Distribution of respondent's to if there is any constraints that have been encountered in the process of providing water and sanitation.

According to Wright (2007:6) past approaches has been poor in system performance and central governments have not had the outreach capacity to handle local operations and maintenance of installed systems. However, this question was sought in order to test the above theory.

TABLE 5.12Below, shows the response about the constraints encountered by the municipality in the provision of water and sanitation.

Constraints that have been encountered in the process of providing water and sanitation.	**Frequency**	**Percentage**
✓ Financial constraints ✓ Lack of resources ✓ Staff shortage (skilled staffs) ✓ Low level of water in the reservoirs	9	90%
✓ Lack of community cooperation ✓ Power failure by Eskom leads to the water reservoirs level being very low.	1	10%
Total	**10**	**100%**

These results indicate that there is a factual serious problem within the Umhlathuze municipalities' departments of water and sanitation which are hindering the process of providing the basic services (water and sanitation). For example, 9 respondents, making 90% of the total sample cited the following problems; financial constraints, lack of resources, staff shortage (skilled staffs) and low level of water in the reservoirs as a constraint encountered in the provision of water. 10% of the respondents mentioned the lack of community cooperation and power failure by Eskom which leads to the water reservoirs level being very low.

The introductory part of the literature review of this study states that the delivery of water and sanitation service is dependent on the efficient and effective performance of highly vulnerable and complex system of administration, finance and hardware and infrastructures. The sector is all too often susceptible to systemic and chronic failure if one of the mentioned interdependent parts underperforms or fails (2010*www.wateraid.org)*. However, in the Umhlathuze municipality situation, one of the mentioned interdependent parts exist as underperforming or failing and this makes one to make a conclusion that the system is chronic to failure.

Judging by the findings and according to the literature review of this study, in the UN-HABITAT (2003:229) there are two components of inadequate city government in the provision of water and sanitation, but for the sake of the topic in hand, one will get hold

of the first one and compare it to the Umhlathuze scenario and conclude that; the municipality is a weak, underfunded local institutions (including water and sanitation utilities with little or no investments capacity), and with often unrepresentative urban government structures (UN-HABITAT 2003:229).

5.4 SUMMARY OF THE CHAPTER

In this chapter, the collected data has been presented, analysed and interpreted in the form of tables, graph or pie charts, percentages and discussions (word explanation). The reason for using discussion is because facts tend to be rich in details and capable of showing the sequences of life. All phases of the questionnaire were included.

CHAPTER 6

6. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS DRAWN FROM THE STUDY

6.1 INTRODUCTION

The objectives as well as the hypothesis of the study will be restated and at the end the researcher will makes some recommendations and draw conclusions based on the findings.

6.2 RESTATEMENT OF THE OBJECTIVES OF THE STUDY

The objectives of the study were as follows:

- ✓ To determine strategies set out by the municipalities in providing water and sanitation services in informal settlements.
- ✓ To measure the performance of municipality adopted programs to the provision of water and sanitation services in informal settlements.
- ✓ To determine to what extent are municipal programs accommodating informal settlement dwellers into the delivery of water and sanitation services.
- ✓ To determine the key constraints that must be addressed in order to improve the situation of water and sanitation services in informal settlements.
- ✓ To establish if there is any improvement programs intended to address water and sanitation services in informal settlements.

6.3 RESTATEMENT OF THE ASSUMPTION OF THE STUDY

There is a lack of municipality improvement programs designed to address water and sanitation services in informal settlements. This leads to municipality program failures and as a result there are huge services backlogs with respect to the provision of water and sanitation.

6.4 HOW THE RESEARCH WAS CONDUCTED

Initially, the researcher did the literature review on theoretical information relevant to the study and the basis of social research. The study was arranged on the basis of chapters in such way that flow of thoughts must be maintained. Ten respondents (Employees from three Umhlathuze municipal departments/sections of water and

sanitation) were aimlessly selected to be the sample. The researcher headed to all the 7 documentedUmhlathuze municipalities (Empangeni, Richards Bay, Esikhawini, Ngwelezane, Nseleni, Vulindlela and Felixton) in search of data, and only to be astonished that of all the 7 known municipalities, it is only 3 municipalities (Empangeni, Richards Bay and Esikhawini) having the departments of water and sanitation and the rest depends on Richards bay for the mentioned services.

As it was mentioned in the first chapter, the study used the following data collection methods (analysis of documents, archival records, conducting individual interviews and finally, questionnaires).However, it was not easy to get the data because most of the respondents gave the impression of not having time to attend to the researcher's needs (to be interviewed) and also not having time to fill the questionnaires.

So, the majority of the respondents were all interviewed face to face and a few were given questionnaires to fill and they also provided some municipal documents where evidence was needed. The data obtained was presented, analysed and interpreted in the form of tables, percentages, pie-charts and discussions (word explanation). And finally, the following findings were made;

6.5 SUMMARY OF THE FINDINGS

For each of the major areas of the study, the results have been summarized in the paragraphs that follow. These summaries are based on the research questions that were used to guide the study.

Question 1: Sex or the gender of the respondents

The majority of the respondents were males who managed to produce an 80% figure of the total sample.

Question 2: Departments or sections respondents are attached to.

The study established that the majority of those who provided data through interviews and questionnaires were from the Departments of infrastructure & technical services.

Question 3: **Respondent's educational qualification and positions they hold in the department.**

The findings established that the majority of the respondents who are dealing with the water and sanitation and they hold National diplomas in civil engineering and for the most part they were assistant city engineers (water services providers).

Question 4: **Does the municipality, have any approach or strategy used in providing water and sanitation services in informal settlements.**

The findings established that the Umhlathuze municipality does have a strategy to the provision water and sanitation in informal settlements (the basic sanitation and basic water supply strategy).

Question 5: **Criteria that were used to select the approach or strategy Umhlathuze municipalities are using in providing water and sanitation services in informal settlements.**

The study established that national water act is the criterion that influenced the coming to a decision of using the basic sanitation and the basic water supply strategy in Umhlathuze municipalities. However, this implies that there wasn't any community involvement or participation in the process of planning and implementation of the strategy mentioned. Water and sanitation services programs are still run according to long established routine and customs, which have never been examined for their effectiveness or appropriateness to current conditions.

Question 6: **Is the approach or strategy used in the provision of water and sanitation successful in achieving the expected implementation objectives**

The findings established that the adopted approach is not a success at all in the provision of water and sanitation in the informal settlements because there is an extreme shortage of water, since insufficient water is being produced to supply all the community, many illegal connections to water systems which contributes to high water losses, limited resources (limited amount of trucks), shortage of funds for the implementation of additional water services, few qualified staffs and the lack of full community support or strong resistance from the community. In other words, the municipal water and sanitation departments lack the power and the resources to manage systems effectively on their own.

Question 7: **How do respondents evaluate the overall merit or worth of the program (for example = should it be modified or it should continue as it is).**

The findings established that the majority of the respondents (municipal employees) are calling for the municipality program used in the provision of water and sanitation to be modified in order to have a new system that can help to maintain resources. As an example, they stressed much on the introduction of the billing system whereby the community can be encouraged to pay for the services since this can contribute to the raising of revenue to improve the current system.

Question 8: **Are there any means through which the current municipality programs accommodate the users or informal settlement dwellers in the whole process of providing water and sanitation, and how successfully do they work?**

The findings established that there is a technique through which the municipality programs accommodate the users in the process of providing water and sanitation and this is; liaising or communicating with ward councillors to negotiate the introduction of new systems in providing the mentioned basic services. However, it is not really successful because the municipality tend to get strong resistance from the users who seem not to be interested in new systems, as a way of avoiding making financial contributions to the new services to be given.

Question 9: **The user's attitudes and perceptions concerning the approach or strategies used in providing water and sanitation.**

The findings established that that the users do not support the strategy because they want the services at no cost and they believe the services (water and sanitation) were supposed to be free from financial contributions in the independent South Africa.

Question 10: **Are there any municipality improvement programs designed to boost current approaches or strategies used in the provision of water and sanitation?**

The findings established that there are improvement programs designed to boost current approaches or strategies used in the provision of water and sanitation. For example, the introduction of V.I.P toilets and the prepaid water standpipes that will assist in lowering water wastage.

Question 11: **Is there adequate number of appropriate qualified staffs in the department who can successfully carry the task of providing water and sanitation?**

The findings established that there is a shortage of adequate staffs in the water and sanitation departments.

Question 12: **Is there anything municipality usually do to boost the staffs within the department so that they can work effectively and efficiently in the provision of water and sanitation?**

Judging by the majority rule, the findings established that there is nothing Umhlathuze municipalities usually do to boost the staffs within water and sanitation departments.

Question 13: **With the current approach or strategy to the provision of water and sanitation, has access to the mentioned services increased for the poor? And what evidence is there to prove it.**

The findings established that current approach or strategy to the provision of water and sanitation has increased access to the poor. For evidence purposes, documents containing evidential information/figures on an increase in the provision of tanks in some parts such as (Madlebe tribal areas), was provided and all the successes was achieved in a period of five years where they increased from 11 to 55 transportable tanks.

Question 14: **Are there any constraints that the municipality have been encountering in the process of providing water and sanitation?**

The findings established that there is a factual serious problem within the Umhlathuze municipalities' departments of water and sanitation which are hindering the process of providing the basic services (water and sanitation). For example, financial constraints, lack of resources, staff shortage (skilled staffs) and low level of water in the reservoirs as a constraint encountered in the provision of water.

6.6 CONCLUSION

In concluding this study, the researcher discusses the conclusions as drawn from the findings and It is actually concluded that Umhlathuze municipality is partly using the new system (demand responsive approach) and the old system (supply driven approach) whereby the government assumed that they knew what was needed and could provide the maintenance and management capacity required.

The above conclusion is based on the issue of the selection of the approach or strategy Umhlathuze municipalities are using in providing water and sanitation services in informal settlements whereby the findings established that there was never community involvement in deciding the approach but the national water act was the driving force in coming to a decision of using the basic sanitation and the basic water supply strategy in Umhlathuze municipalities. It is a situation that is proving difficult for the municipality to be able to work with the local communities because the system used is expert driven which is not responding to the customers' requests and demands.

For that reason, Umhlathuze need a complete usage of the new system (demand responsive approach) whereby users make key decisions about the service they want and are willing and able to pay for. It is a situation also referred to as, an informed expression of desire for a particular service, measured by the contribution people are willing and able to make to receive this service. Wedgwood (2005) still maintains that water and sanitation programmes that have not met demands have problems of under use, poor maintenance and poor cost recovery. However, the above has been the situation with the Umhlathuze municipality.

6.5 RECOMMENDATIONS OF THE STUDY

From the results of the study, a number of recommendations are suggested which can be utilised to improve the programs, approaches or strategies used in providing water and sanitation not only informal settlements of Umhlathuze municipality, but in our communities and in Sub-Saharan Africa as a whole.

However, recommendations are suggested as follows:

(a) Criteria of selecting an approach or strategy to be used in providing water and sanitation services in informal settlements.

- ✓ This study recommends full community participation at different levels and stages of water supply and sanitation service planning and implementation.

(b) In order for the approach or strategy used in providing water and sanitation to succeed.

- ✓ This study recommends a considerable on-going investment to expand and sustain water services infrastructure in Umhlathuze municipality and the investment must be of both social nature (to meet basic needs) and an economic nature (to meet economic demands).
- ✓ Umhlathuze municipality should ensure that they recruit adequate number of appropriate qualified staffs, including engineers, operations and maintenance personal and accountants. The ability to recruit and retain suitably qualified individuals depends very much on its ability to pay attractive wages. Therefore, reducing the size of water supply and sanitation organizations, decentralization and corporatization may in fact make it more difficult to afford and retain skilled specialists.

(c) The modification of the existing water and sanitation program to a new system (billing system) that can maintain resources.

- ✓ Since the municipality workers (respondents) are calling for the modification of the current program, to a program whereby the users can financially contribute for the service given, this study recommends an early community involvement in the planning process that can help disseminate information about feasible services and their likely costs. Potential users can speak meaningfully about their

willingness to pay only when they possess sufficient information about the characteristics of the service. Knowing more about the features and benefits of specific options may interest users to pay more for the service.

(d) Means through which the current municipality programs accommodate the users or informal settlement dwellers in the whole process of providing water and sanitation.

- ✓ This study recommends an elimination of the current passive participation of the informal settlement dwellers in the whole process of providing water and sanitation. Residents should not only be told about water and sanitation initiatives that are being planned or have already been decided upon, without any attempt to elicit local opinion or knowledge.

(e) Municipality initiatives to boost the staffs within the departments so that they can work effectively and efficiently in the provision of water and sanitation.

- ✓ This study recommends an extensive training and rewards for staffs, so to stimulate performance.

6.6 SUGGESTIONS FOR FURTHER RESEARCH

On the basis of the findings of the study, the researcher wishes to suggest that:

(a) The future research would concentrate on investigating the incapability of the municipalities to retain adequate number of appropriate qualified staffs to handle the provision of water and sanitation.

b) The challenges faced by municipalities in creating good working relationship with the informal settlement dwellers.

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APPENDIX I

RESEARCH QUESTIONNAIRE

AN EVALUATIVE STUDY OF MUNICIPALITY PROGRAMS IN ADDRESSING WATER AND SANITAION IN INFORMAL SETTLEMENTS.

SECTION A

Personal & socio economic details

1.1 Sex

female	
male	

1.2 Please state the department/ section you're attached to.

……
……

1.3 What is your educational qualification and position you hold in the department?

……
……

SECTION B

Information relating to the program

2.1 As a department/municipality, do you have any approach or strategy that you are using in providing water and sanitation services in informal settlements? If yes, which one?

……
……
……

.

2.2 What criteria were used to select that specific approach or strategy you are using in providing water and sanitation services in informal settlements?

……
……

2.3 Has the approach or strategy been successful in achieving the expected implementation objectives?

Yes	No

2.3.1 If yes, what are the contributing factors to success and if the answer is no, what are the contributing factors to no success in achieving the expected implementation objectives?

……
……
……

2.4 According to you what is the overall merit or worth of the program?

Should it be modified?……
……
……
……
Should it be continued?……
……
……

2.5 Are there any means through which the current municipality programs accommodate the users or informal settlement dwellers in the whole process of providing water and sanitation?

Yes	No

2.5.1 If yes, what are they?……
……
……
2.5.2 And how successfully do they work?……
……
……

2.6 What are the user's attitudes and perceptions concerning the approach or strategies you are using in providing water and sanitation?

……
……

2.7 Are there any municipality improvement programs designed to boost current approaches or strategies used in the provision of water and sanitation?

Yes	No

If yes, which ones?……
……
……

2.8 Is there adequate number of appropriate qualified staffs in the department who can successfully carry the task of providing water and sanitation?

……

……

2.9 Is there anything municipality usually do to boost the staffs within the department so that they can work effectively and efficiently in the provision of water and sanitation?

Yes	No

If yes, what is that?……

……

……

2.10 With the current approach or strategy to the provision of water and sanitation, has access to the mentioned services increased for the poor?

Yes	No

If yes, is there any evidence that shows the increase?……

……

……

2.11 Are there any constraints that you have been encountering in the process of providing water and sanitation?

……

……

……

THE END

Thank you for your time and responding to the questionnaire.