COMMERCIALISATION OF WATER SERVICES IN INFORMAL SETTLEMENTS: CASE STUDY OF MANYATTA; MUNICIPALITY OF KISUMU, KENYA.

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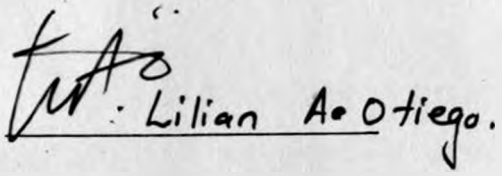
DECLARATION

This is my original work and has not been presented in any other university for examination.

Signed 

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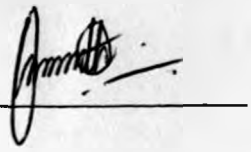
Signed 

DEDICATION

TO
MY PARENTS
Vitalis and Phelgonah

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This is to register my innermost appreciation to all those whose assistance and co-operation aided me to complete this work. I am immensely indebted to my supervisors Professor R.A. Obudho and Mr. Musyimi Mbathi for their selfless, candid and valuable guidance during the whole process of producing this work. Their criticisms and suggestions are most appreciated. I also grateful to the department of town planning in the Municipal Council of Kisumu for the facilities and equipment they availed particularly for map making and data collection, and to the staff for providing information that was relevant for my study. I am deeply and especially indebted to my parents Phelgonah and Vitalis for their constant support. To them I owe the entirety of my life. As an obligation, I specially thank my respondents for rendering to my assistants and me their time and information without which this work would not have been possible. Special thanks to my sponsors, UNESCO - International Hydrological Programme (IHP), and the entire department of Urban and Regional Planning for the facilities and support they availed towards the completion of this work.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF PLATES

LIST OF TABLES

LIST OF MAPS

LIST OF ACRONYMS AND ABBREVIATIONS

CBOs	Community Based Organizations
CDF	Constituency Development Fund
FGD	Focus Group Discussions
GOK	Government of Kenya
KIWASCO	Kisumu Water and Sewerage Company
LVSWSB	Lake Victoria South Water Service Board
NGOs	Non Governmental Organizations
PPPs	Public-Private Partnerships
PRSPs	Poverty Reduction Strategy Papers
PSP	Private Sector Participation
SSWSPs	Small Scale Water Service Providers
UFW	Unaccounted For Water
WSP	Water and Sanitation Program
WSPs	Water Service Providers
WSRB	Water Services Regulatory Board
WSS	Water Supply and Sanitation

ABSTRACT

Increasing economic difficulties and changes in prevailing ideologies in African countries has since led to calls for a reduction in the role of the state in public service provision. The thrust for public services, particularly water, has thus been more towards commercialisation. Although well intended to help ensure a better and more efficient management of water resources, this policy shift is arguably laden with ambiguities that do not augur well for the consumers, especially the poor. In the informal settlements, the water service provision has not improved, as various studies show that commercialisation has contributed much less than expected to the improvement of the water supply with many service providers both private and public justifying the lack of service delivery in these areas with various reasons. Given that most of the urban population growth is occurring in poor communities and settlements, the task of reaching the un-served is becoming increasingly difficult. This study sought to find out the challenges facing the current water supply system in informal settlements and how these challenges can be addressed.

A review of literature in this field was undertaken which elucidates both on the strengths and weakness of the various approaches used in water service delivery. These include the purely public sector approach of state-owned monopoly whose results have been disappointing as they are identified with high levels of waste and inefficiency, and the private companies whose aim is profit maximization and who find such areas not profitable or too risky, have also not achieved the desired status of water service delivery.

The study demonstrates that indeed, singly, both approaches seem not to be an answer for informal settlements. Out of the inadequacies and strengths of these approaches, the study proposes an integrated model, which captures the strengths of the various actors in the water sector including neglected but very important actor - the community indicating each party's input and degree of participation for sustainable water service delivery.

Both primary and secondary data were collected. The primary data was obtained from 70 household respondents sampled using the cluster sampling techniques. Thirty

water operators were sampled using the non-probability sampling technique with the selection of the sample being deliberate. The key informants were also selected using a non-probability sampling technique based on the researches judgment. Spatial data such as the location of standpipes was collected using the Global Positioning System (GPS). Spatial analysis as well as various descriptive and inferential statistical analyses was performed. The information is graphically and spatially represented using tables, bar graphs, pie charts and maps.

The analysis presents the main sources and method of water delivery, the types of water providers and their areas of operation, the water distribution and coverage, the challenges in delivery and the opinions of the community in Manyatta informal settlement, Municipality of Kisumu.

In the examination of factors it was found that current system of commercialisation has not improved the water supply to the poor in the informal settlements, as the level of access is still poor and coverage still low. The majority of the residents prefer for the management of the water supply to be handed over to Community Based Organisations effective delivery of water services.

It is, therefore, recommended that a partnerships approach that includes a broad set of actors be adopted and that this requires formal institutions to bring about legal and procedural changes to planning, policy formulation and providing partial financial support. Secondly, intermediaries should be included in the framework and their role recognised. Thirdly, water utilities need to find ways to mobilise and tap into funds from domestic financial markets and the small-scale providers should be legalised and included in the framework.

CHAPTER ONE

INTRODUCTION

More than one in three Africans residing in urban areas currently lack access to adequate services and facilities (Plummer, 2003). In most countries, water is considered a basic right and addressing the needs of the poor to this end is a stated objective of national policy. Treating water supply as any other service to be traded translates to subordinating the needs of the poor and their human right to health to market forces. Recent studies reveal that the per capita investment in the water and sanitation sector is declining in most urban centres of developing countries. With few notable exceptions, the public service providers pay little attention to consumer satisfaction, operation and maintenance and cost recovery. (Coppejans, 2003)

In Africa, the continuing rapid urban growth has overwhelmed the public utilities leading to poor performance. Increasing economic difficulties and changes in prevailing ideologies has led to calls for a reduction in the role of the state in public service provision. The thrust for these services, particularly water, thus appears to be more towards commercialisation. In sub-Saharan Africa, the rate of household connections is chronically low, between 2 and 7 connections per 100 people (Plummer, 2003). However, even those with access to a connection are not guaranteed a safe and reliable supply. In the informal settlements, the situation is even worse. Many service providers both private and public justify the lack of service delivery in these areas with "illegality" or the haphazard manner in which the settlements took place. However, alternative findings suggest that in practice, the main barrier to the extension of public services in informal settlements is not the irregularity but the lack of political will.

In some countries such as Ethiopia, Tanzania and Nigeria security of tenure is not a major constraint while in others such as in Kenya and Cote d' Ivoire; the lack of secure tenure is a significant blockage. Evidently, both in countries where security of tenure is an obstacle and in those that security of tenure is not, the poor still face inadequate provision of water services.

Given that most of the urban population growth is occurring in poor communities and settlements that are informal and unplanned, the task of reaching the un-served will become increasingly difficult.

Urban centres have attempted to address the unplanned nature of informal settlements in a range of ways. In conjunction with residents and residents associations, some urban centres have established intermediate planning measures while others have formed agreements with the main service providers that will allow independent and intermediate providers to establish temporary facilities either through a temporary permit or moratorium.

In Western, Eastern, and southern Africa, flexibility and community involvement in water supply in the last five years have demonstrated that through an evolving process, improvements in management arrangements for public water points can result in better access for poor households. Partnerships with local CBOs are also an increasingly common arrangement for the management of water supply. In Zambia, Senegal and Mali, communities are given the opportunity to apply for water-point management responsibilities and identify a manager(s) who will be contracted by the utility, municipality or directly by the community.

Private connections and standpipes still have limited applicability in many low-income situations, depending on local legislation, policy and institutional arrangements as some communities and individuals still lack access to these options. Consequently, many of these communities rely on water supplied by another provider, who could be intermediate or independent.

In a bid to increase efficiency in service delivery, the GOK like several other governments in Africa, sought to move away from direct provision of water services in favour of ceding control to autonomous water service providers as stipulated in the current Water Act 2002. It is now a common trend for Local Authorities to form municipal companies run on strict commercial lines under "agency contracts" from the parent Local Authority.

Although well intended to help ensure a better and more efficient management of water resources, this policy shift is arguably laden with ambiguities that do not augur well for the consumers, especially the poor. The UN-Habitat (2000) pointed out the need for a paradigm shift that must be a broad-based partnership and must build on the relative strengths of all actors, avoiding overlaps and redundancies.

Regardless of their location and legal status, informal settlements have several characteristics in common. Improving services in these areas is a practical challenge because of their haphazard layout, high density and difficult environmental and geographical conditions. Any development of infrastructure services in these areas are certainly constrained by the congested pattern of settlement which leaves very little space along which water supply infrastructure could be developed.

According to Lobina and Hall (2000), failures of both private and public management can be found, at least in part, and blamed on an inadequate regulatory environment. However, Onjala (2002) identified that one of the main concerns arising from the current ideological tide is the single-minded implementation of commercialisation that sometimes occurs in inappropriate contexts and with limited consideration of either equity implications or the regulatory requirements.

If 'water is life' should it be submitted to market forces or should it remain as a commodity of social trust? If the former is to prevail, how can the poor be protected from discrimination? Onjala (2002) argued that while the private sector may be providing sub optimal services, it could be doing a much better job than either the public sector or the non-profit cooperative sector. However, it cannot be denied that financial considerations go hand-in-hand with human, social and cultural aspects of water.

Water supply need not be treated as an end to itself purely driven by market forces, but it may be possible to take advantage of the commercialisation synergies in order to approach water supply in such as way as to effect sustainable settlement patterns and livelihoods among the poor.

To this end, both spatial and social aspects deserve consideration in addition to the economic feasibility. For water supply and access to remain sustainable for the urban poor, water needs to be treated both as an economic and public good that has to be planned for and managed using appropriate spatial, institutional and financing models.

1.1 Problem Statement

The long held myth that the urban poor cannot pay for water has, unfortunately, hindered the expansion of municipal services to the informal settlements. However several studies by UNCHS (2000) and WSP (2005) indicate that the poor pay to street vendors for a litre of water as much as 5 to 20 times of what their affluent neighbours pay for municipal supplies. Contrary to the myth, it appears that the poor can essentially afford to pay for water although maybe not in a lump sum to facilitate connection or to cater for large monthly bills, but they can afford to pay in piecemeal. This is therefore a challenge to the policy makers and planners to decipher which approach will adequately and appropriately incorporate the "piecemeal payment ability" to effectively and equitably get the urban poor populace served.

Previous researches have further shown that the commercialisation of water service delivery has contributed much less than expected to the improvement of the water supply for the low-income population. Neither public utilities nor small-scale private service providers are serving the urban populace well. Gulyani et al (2005) indicated that water use levels are low, prices are high and service is dismal for both poor and non-poor households. The findings challenge current prescriptions, especially the belief that 'correct' prices and competition can automatically and dramatically improve service delivery.

Since the prevailing supposition is that sustainability of development involves the relevance of the development action to local needs and capacities as well as increased community participation through the tapping of indigenous knowledge, skills, resources and local values, there is an increased need to incorporate the principle of reality of options and choices in relation to local capacities and needs in the provision of water services. It is thus necessary to unravel this intricacy for effective planning

and management of water supply to ensure inclusiveness and facilitate equity, community participation, transparency, and cost recovery.

This raises the role of the planners and the government, private sector and the community in the process. There is need to know the institutional structure, community structure, organisation and relationship, as well as decision habits, values, behaviour pattern and attitude, how they respond to problems, how they perceive future changes in order to articulate a framework to achieve economical, spatial and socially viable water supply.

There is need to identify an approach that will be relevant to the local needs and capacities and that will incorporate the principle of reality of option and choices in relation to local water capacities and needs. One of the realities being that although commercialisation approach seem to be providing sub optimal services, it could be doing a much better job than the public utilities, that water can not be subjected purely to market forces and that financial considerations need to go hand-in-hand with human, social and cultural aspects of water. The problem is how can the current inadequacies in the water commercialisation system be addressed. This study aims to examine the challenges facing the current water supply system in informal settlements and how these challenges can be addressed.

1.2 Purpose of the Study

Development of water and sanitation facilities goes beyond just mere provision of facilities; it calls for a properly designed and managed system otherwise the same facilities turn out to pose worse problems to the same beneficiaries. Sustainability of planning development involves the relevance of the development action to local needs and to local capacities; it incorporates the principle of reality of option and choices in relation to local capacities and needs and emphasises on increased community participation through the tapping of indigenous knowledge, skills, resources and local values.

The need to unravel this intricacy is necessary for effective planning and management of water supply and to ensure inclusiveness and facilitation of equity, transparency,

and cost recovery. Subsequently, it is imperative to have an adequate framework for the provision of water services in the informal settlements. This may be the only way in which the ceding of control to autonomous water service providers can contribute to the improved livelihood of the low-income populace. The purpose of this research is to identify how the inadequacies in the current water supply system of commercialisation can be solved.

1.3 Justification

In most countries, water is considered a basic right and addressing the needs of the poor to this end is a stated objective of national policy. Treating water supply as any other service to be traded translates to subordinating the needs of the poor and their human right to health to market forces. This is emphasized by the Millennium Development Goal No. 7 of ensuring environmental sustainability which targets reducing by half the proportion of people without sustainable access to safe drinking water and achieving significant improvement in lives of at least 100 million slum dwellers by 2020 (WHO 2000).

The failures of both private and public management at least in part are blamed on an inadequate regulatory environment, but the motivation for community-based water supply is arguably more pragmatic, since it is a relatively recent ideology on the grounds of improving both efficiency and equity and promotes sense of ownership and transparency. However, there is need for a proper spatial and institutional framework in the planning and management of water both as a commodity and a service- a strategy that will take advantage of the commercialisation synergies to improve water service delivery to the urban poor.

In Manyatta, there seems to be little time and energy given towards dealing with the current and the growing future water crisis. Researchers in urban areas seem to be 'muddling through' in an attempt to find sustainable solutions to efficient water services for the low income. This research in the same rationale will attempt to propose an incremental method that could facilitate effective water supply geared towards the achievement of a long-term solution to the problem. The spatial framework to be developed in the study intends to promote equity in water supply and demonstrate the need and opportunity to use services (in this case water) to engender

sustainable human settlement patterns within the unplanned/informal settlement, consequently encouraging the provision of other basic infrastructure and services in these areas.

1.4 Research questions

In relation to the above, the research poses the following questions:

1. What are the main sources of water supply and delivery methods in Manyatta informal settlement?
2. Who are the main suppliers of water and what areas do they serve in Manyatta?
3. What are the challenges facing the current water delivery system in Manyatta?
4. What is the best approach for improved water delivery and enhance the effectiveness of community driven initiatives?

1.5 Objectives

The objectives of this research are:

1. To establish the sources and methods of water supply within Manyatta.
2. To investigate the type of water service providers and the areas of their operations.
3. To investigate the challenges associated with the water delivery in Manyatta.
4. To propose an approach that would facilitate effective water supply for the low-income populace.

1.6 Hypothesis and Assumptions of the Study

The research seeks to test the following hypotheses: -

Null hypothesis

Commercialisation of water services has not improved water supply to the low-income population.

Alternative Hypothesis

Commercialisation of water services has improved water supply to the informal settlements.

Assumptions

To achieve the objectives of the study, the following assumptions were formulated:

i) The residents of Manyatta informal settlement are mainly served by Small Scale Water Service Providers (SSWSPs).

ii) The population of the study area will continue to increases from natural increase and in migration subsequently, propelling the demand for water services which will continue to be inadequate

iii) There is no decisive partnership role by private sector, public institutions, or the community in water supply within the settlement.

1.7 Scope of the Study

The study focussed on Manyatta informal settlement in the municipality of Kisumu covering an area of $2km^2$. This formed the sampling frame and data collection was carried out within this area. However, policy prescriptions may be applied to several other informal settlements in Kisumu and the country as a whole.

The study established the sources, methods and problems associated with water supply, the type of water service providers and mapping out their areas of operation within Manyatta. The study also explored the extent of integration of the social and spatial aspects of the community in water supply.

Finally, from the information gathered the study intends to propose an approach that would be appropriate for effective water supply in Manyatta.

1.8 Research Methodology

As earlier stated the study sought to identify how the inadequacies in the current water supply system of commercialisation can be addressed and how feasible that approach would be. In this sub section the author discusses the methods of data collection adopted, sampling techniques used, the units of observation, operational definition and measurement of variables, the tools and the techniques of data analysis and presentation used. The methods were therefore considered as central to the study with

due regard to the research problem, the objectives set, hypothesis tested, and the theoretical framework.

The data was thus collected in such areas as household characteristics, water consumption patterns and requirements, constraints and factors affecting water service delivery and management preferences in the informal settlements and other components of the study. In this regard, the use of survey method and participant observation proved most valuable in the process of data collection. The researcher thus applied the following techniques of data collection:

1.8.1 Secondary Data Sources

The library was a major source of information particularly at the formulatory stage where the literature pertaining to the subject matter of this study was reviewed. This involved reviewing published and unpublished materials as well as collection and analysis of existing data. The literature review encompassed; water policy, commercialisation of water services, community participation in water services provision, management of water services, challenges for commercialisation, approaches in solving water problems among others issues.

These enabled the researcher to extract a few research hypotheses as clues to the issues investigated. Library research therefore provided valuable background information to the study itself.

1.8.2 Primary Data Sources

This method constituted the researcher's key research method. Both structure and unstructured interviews were conducted and facilitated through transect walks which were undertaken in Manyatta informal settlement. For the structured interviews, the questionnaires and interview schedules were prepared before hand and the respondents were asked questions as ordered to allow the comparisons of responses from all the respondents. This method also facilitated the computation of the summary statistics. The survey utilised one set of questionnaires targeting the household and two sets of interview schedules targeting the water operators and the professionals in the various relevant institutions.

The household questionnaire was divided into five parts namely the Demographic Information, ownership of residences, Household income and expenditure, water supply and consumption and open discussion. These different sets of structured interview materials were made with due regard to the objectives and hypothesis set for testing. The unstructured interview model was used where the need arose to elicit more information especially about the people's values, preferences and professional opinions.

1.8.3 Participant Observation

This method was used to facilitate the extraction of information from the respondents and their surrounding particularly concerning the environment, sanitary conditions, and the water supply delivery and relationships. This was complemented by photography used to record and enhance the information collected on the quality of the environment and the situation on the ground. This was envisaged to further support and elucidate statements in data presentation.

1.8.4 Key Informant Technique

This method was employed by the researcher to obtain information from the key persons in the mainstream of water services delivery. Structured and unstructured interviews were conducted among various cardres of water specialists and heads of institutions relevant to water service delivery. These included independent and intermediate water providers, key personnel in the Municipal council of Kisumu, Kisumu Water Services Company (KIWASCO), Lake Victoria Water Service Board and the Community Based Organizations (CBOs) and Non-Governmental Organizations NGOs.

This technique was employed with a view of getting information from water specialists about their own perceptions of commercialisation and water service delivery to the low income population in the informal settlements, constraints to effective and efficient provision of water services and what can be done to improve the provision of water services to the informal settlements. The method was therefore

used to understand from the professionals, the inadequacies of commercialisation, and the barriers to effective interventions.

Tools

The various tools and instruments that will be used to facilitate the process of data collection will include but not limited to camera, maps, satellite images, aerial photographs and GPS.

1.8.5 Sampling Techniques

The main purpose of sampling is to avoid bias in the selection of the sample and to help achieve maximum precision for a given outlay of resources. The sample was drawn from the Manyatta informal settlement. To obtain the required sample, the study adopted the cluster random sampling technique and the simple random sampling techniques. These techniques were preferred due to the similar living conditions of the target population. In order to ensure that all households in the study area were given equal chances of selection, five regions were delineated to form five clusters, then within these clusters, a simple random sampling was undertaken and 14 households in each cluster were interviewed. Therefore, an adequate sampling frame was constructed in the final analysis.

However, in the interviewing of the water operators, to obtain the required sample, the study resorted to the non-probability sampling technique, The selection of the sample was deliberate and not attached to any mechanical devices of sampling.

The idea was to interview individuals in the most convenient

Units of Observation

In an attempt to examine the factors affecting the delivery of water services and the challenges faced in Manyatta, the following units of observation were considered as valuable and central in understanding the water supply planning needs. These include the community patterns, water providers and the households

The community pattern

This refers to the social group of people living in the informal settlement. They tolerate the lack of amenities such as clean water, sanitation, housing and poor environment conditions. However loose or informal the community maybe, social pressures may be effective in stimulating action and participation.

People's social beliefs, attitudes, values, and socio-economic activities play a vital role in determining the level of commitment to a process and to what extent is the community responsible to support the process. In this light, the community became an important unit of observation in this study.

The water providers

This refers to the different water providers in the informal settlements, which include the intermediate providers, independent providers, the public utilities and private water companies. These are an important unit of observation because they impact on the operations of the quality of service delivery. Their role is a key ingredient in determining to what extent are they responsible for efficient delivery of services.

The household.

This refers to the social group of people usually living together eating from a common kitchen, contributing to and drawing from a common source and with competing needs and aspirations. The household is a suitable unit of analysis because more than any other decision-making unit it determines what individuals do and how much water they use. The household lifestyle influences the expenditure pattern. In many cases, people hold views that may limit or promote social participation. This views reflect cultural barriers to development, inherent conservationism if the poor or ignorance. The household hence was a significant unit of observation since its

members are the ones who are the consumers of the service and may be part of those participating in the water service delivery as water operators

1.8.7 Data analysis

Data Analysis included Geo- information Systems (GIS) analysis and statistical analysis. This is because (GIS) has unique abilities of data capturing, storage, analysis and manipulation of spatial data. The data was systematically analysed quantitatively and qualitatively.

GIS facilitated the development of a spatial model of Manyatta informal settlement and mapping the existing water supply points. GIS tools also aided the mapping out of the water suppliers (actors) by area and the spatial analysis in terms of coverage of water supply, network analysis, and buffering.

The appraisal of level of service of the water supply in the Manyatta is aimed at assessing the supply of water in relation to the water demand. In assessing the level of service, important variables that are analysed include: - the sources of water, its quality, distance to source, area served by standpipes and challenges of supply.

The socio-economic factors that are analysed include: - population parameters, household income, housing tenement system and investment and management parameters. Statistical software were used to record, process and manipulate the raw data collected through the questionnaire survey. The data was coded and in-put into SPSS, for frequencies analysis and the findings presented in charts, graphs, and tables designed in MS Excel.

Content analysis was used to analyse qualitative information from the in-depth interviews. Spatial data was also analysed, and presented in forms of maps prepared in a Geographic Information System using Arc View 3.2 software. Jointly with the GIS analysis, statistical testing enabled comparison of different sets of data values and in designing of various planning solutions to the research problem.

1.8.8 Limitations

The survey method, which constituted the main method of data collection, had a number of shortcomings. In a number of cases, it was difficult to obtain accurate information when some questions were asked especially to the water operators. For instance, some respondents were not quite willing to respond to questions pertaining to licensing of business and the selling price of water to the consumers. The study was carried out amidst limited time and financial resources that constrained data collection. It limited the number of research assistants hired to facilitate faster data collection. Besides a section of the target household population that were rude and uncooperative, some key informants were quite uncooperative and unwilling to be interviewed.

Some heads of institutions were not keen to provide the required information. This led to instances in which the junior staffs were asked to represent their seniors in the interviews.

Although in some occasion the desired information was obtained, most cases required clarification and a direct response from the person heading the institution. These scenarios saw the continuous scheduling of appointment in seeking audience with the individual consequently straining the already limited time.

1.8.9 Operational Definitions and Measurement of Variables

Informal settlements -Unplanned settlements and areas where housing does not comply with current planning and building regulations (unauthorized housing)

Commercialisation - refers to the use by the public sector of private sector management practices, such as commercial practices and goals, management and organizational styles drawn from the private sector

Absolute Poverty Line - Is derived by summing the food expenditure level and the non-food expenditure allowance. Overall poverty line in Kenya is estimated at Kshs 1,239 per month / adult person in rural areas and Kshs 2,648 in urban areas.

Financial resources – This variable refers to the monetary resources accessible to the houschold to expand on various needs. It is measured by household monthly income, monthly expenditure on various household needs.

Environmental Condition - This variable refers to the respondents' social and physical milieu in which they live. Its indicators are housing conditions, availability of clean water and sanitary provisions.

Water Consumption - This variable refers to the amount of water used/consumed by the household for various activities. It is measured by amount of drinking water, cooking, and other uses.

Accessibility of water - It is measured by distance to the water source, availability. People are considered adequately served with water if they have "access to an adequate amount of safe drinking water located within a convenient distance from the user's dwelling (WHO/UNICEF, 1993:13, cited in Satterthwaite, 1995:v- vi)

According to United Nations and WHO standards, minimally acceptable water access consists of having a source of abundant, safe drinking water within 200 meters. This standard implies that standpipes and outside water connections can be part of the solution, especially in high-density low-income areas where the realistic alternative is expensive and unsafe water delivered by truck or no water supply at all.

Water affordability - This refer to the ability of the households to purchase water from the water source. It is measured by the ratio of household income versus amount spent on water. Access to services is of little consequence if households are unable to afford the costs of using them.

Water institutions - rules that together describe action situations, delineate, action sets, provide incentives and determine outcomes both in individual and collective decisions related to water development, allocation, use and management

Community-Based Organizations - refers to voluntary and autonomous local level self-help organizations that are endogenous to a community, with established rules, regulations and procedures of operation -usually formed for mutual attainment of goals specific to the members or, the entire community.

1.9 Organization of the Study

This report is divided in five chapters.

- Chapter 1 is the introductory section of the report
- Chapter 2 presents the literature reviewed on the subject under study.
- Chapter 3 presents the study area and details the available information on the existing situation of the study area.
- Chapter 4 covers the Data analysis, Findings
- Chapter 5 presents the synthesis and policy approaches.
- Finally, chapter 6 presents the Conclusions and Recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Drawing from several articles, books and papers written in this field of study, this chapter discusses the divergent views held on the subject of commercialisation of water services at the global, regional and local levels. It briefly refers to the wave of commercialisation that first swept through the western and European countries before it was borrowed by the developing countries; the various approaches adopted by different nations and communities in the quest to solve the challenge of providing safe and adequate water supply particularly to the marginalized populations. The chapter further delves into discussing the successes and failures of various approaches adopted and finally try to elucidate on the gaps and missing links. Lastly, based on the literature reviewed, the conceptual framework attempted to elucidate a model to contribute towards filling in the identified gaps.

2.2 Global Overview of Commercialisation

The World Bank defines as poor a person with an income below 2/3rd of the national mean per capita income. It therefore accepts that in 2000 practically one out of three persons (29.5%) in Sub-Saharan countries, was poor and that one out of two people in Sub-Saharan Africa had no access to safe water, while 45% had no access to sanitation facilities. Most people in Africa live without telephone services; many manage without electricity or formal education. But nobody can survive without sufficient drinking water. In most countries, water is considered a basic right and addressing the needs of the poor to this end is a stated objective of national policy.

People everywhere have always thought of water as a common good to which they have a right, one that has traditionally been managed on community based principles. Central to this kind of 'social thinking' logic has been the contention that a common good and/or right cannot be put up for sale.

However the World Bank over the years since the late 1980s has continued to advocate the notion that water is not only a right but also an economic good and that

water supply development should be seen as an economic intervention. The European Commission embraced this concept stating that, though water is an essential need, it is also a commodity and can therefore be considered as a service to be traded.

The United Nations 2002 Economic and Social Commission affirmed that: "the human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses". Coppejans (2003), illuminates that the right to water is enshrined in the International Bill of Human Rights and it is the state's obligation to assure an equal, affordable and non-discriminatory access to water, especially for disadvantaged or marginalized groups in society. He maintains that safe and sufficient water services cannot be treated the same way as other services that can be traded and argues that this would translate to subordinating the needs of the poor and their human right to health, not to mention the freedom of their governments to opt for a more suitable policy-to market forces.

Opting to understand water and basic sanitation as "economic goods" and "services that can be traded" has translated to private sector participation as a key component in the development of water and sanitation sectors in developing countries. As such, the World Bank, the World Trade Organization General agreement on Trade in Services (GATS) and the EC proposed to African governments to abdicate their responsibility for an equitable public or community based water and sanitation policy in favour of a policy that encourages full or partial privatisation of their public water and sanitation undertakings (*ibid*).

However, if Europe has since recognised the dangers of privatisation in the provision of accessible basic public services; Coppejans, (2003) makes a case that would it then not be fair to recognize that this policy is at least as dangerous for the much poorer African countries? While in some countries this was a freely chosen policy option, there is evidence that several governments in developing countries were coerced into opening their water and sanitation markets. The researcher argues that traditional approaches, often experienced in developed countries, will often be poorly adopted to meet the needs of the poorest in these countries based on the different types of economic environment.

Mairura (1988) asserts, that development of water and sanitation facilities goes beyond just mere provision of facilities; it calls for a properly designed and managed system otherwise the same facilities turn out to pose worse problems to the same beneficiaries. He stresses on the fact that sustainability of development involves the relevance of the development action to local/felt needs and capacities incorporating the principle of reality of option and choices in relation to local capacities and needs and incorporates increased community participation through the tapping of indigenous knowledge, skills, resources and local preferences and values. In light of this, it is important to appreciate that the development process in developing countries cannot simply follow that of the developed countries because the needs and potentials are different.

UN-Habitat in the Second World Water Forum, reported that the per capita investment in the water and sanitation sector has been declining in most developing country cities. With few notable exceptions, the public service providers pay little attention to consumer satisfaction, operation and maintenance and cost recovery. While public investment plans are overwhelmed by the rapid urban growth, few public service providers have the credibility to raise investment capital from the markets.

Governments and communities as a result of the international water and sanitation decade have made substantial progress in understanding what works and what doesn't (Architecture 1997). The Dublin principle of *water as an economic and social good to be managed at the lowest appropriate level* provided a foundation for the emergence of new sector visions.

In the present day African context where 29.5% of the population lives around or under the national poverty levels (World Bank 2002), the continuing rapid urban growth has overwhelmed the public utilities leading to poor performance. The increasing economic difficulties and changes in prevailing ideologies, has led to calls for a reduction in the role of the state in public service provision. The thrust for these services particularly water has been more towards commercialisation.

There is ample documentation that water and sanitation services are fast being privatised and are increasingly run on a commercial basis in Burkina-Faso, Gabon, South Africa, the Republic of Congo, Cameroon, Ghana, Nigeria, Tanzania, Sao-Tome, Uganda, Chad, Mali, Mozambique, Senegal, la Côte d'Ivoire, Angola, Benin, Guinea-Bissau and Niger (Coppejans, 2003).

However, none of the developing countries have yet achieved a system of water governance which can be described as inclusive, accountable and transparent, what seems to be required is an enabling environment that provides for flexible strategies that responds to the communities need and capacities where all the players learn to co-operate and bargain with each other.

2.3 Water supply in the Informal Settlements

A look at the urban scene in developing countries reveals that there are low-income settlements that either completely lack these services or where they are offered, these services are inadequately developed. These settlements are often referred to us uncontrolled, spontaneous, illegal, squatter and temporary. Mairura (1988) refers to these settlements as unplanned and argues that if adequate water and sanitation facilities are recognised as basic human rights then a consciously conceived – planned human settlement would incorporate adequate development of these facilities as part of the total development of the settlement environment.

Turner (1966) suggests that the unplanned settlements should be accepted as facets of urbanisation and so should be encouraged to improve in quality. Public policies have a huge influence on the development of unplanned urban settlement. Undoubtedly, the development of unplanned settlement is a manifestation of the failure of the policies.
On the local scene, one of the policies being pursued by the government on the development of infrastructure services in urban areas states in part that the "strategy for water is to work towards the provision of individual connections to all properties and to develop adequate water-borne sewerage disposal facilities" (Kenya development Plan 1984/1988, pg. 161). It is not clear however whether the policy catered for the unplanned low-income urban settlements because the level of service and technology is well beyond the means of the population in the unplanned settlements.

Many water service providers both private and public justify the lack of service delivery in informal areas because settlement took place illegally or in a haphazard manner and may not then have been recognised. They argue that the lack of secure tenure or lack of compliance with building codes and standards make any intervention in these areas problematic and risky.

Evidence also suggests that, in practice, the main barrier to the extension of public services in informal settlements is not irregularity but the lack of political will. In many cases, the failure to extend services is a result of rigid or outdated policy and legislation, as well as a lack of official recognition of the magnitude and scale of the problem.

Plummer (2003) reports that in some countries such as Ethiopia, Tanzania and Nigeria, security of tenure is not a major constraint and there are limited administrative and legal restrictions that prevent the water utilities from extending the network to most communities. In other situations as in Kenya and Cote d' Ivoire, the lack of secure tenure is a significant blockage.

Given that most of the urban population growth is occurring in communities that are poor and settlements that are informal and unplanned (*ibid*), the task of reaching the un-served will become increasingly difficult.

In what appears to be a more awkward position of the solution to the problem is the fact that while attempting to reverse or arrest the current situation the planners often find themselves in a dilemma. Most of the time the standards and conventions used were developed in the developed world. This practice has not only been viewed as making the provision of infrastructure services out of reach for the target consumer but it discourages hope for local initiatives.

2.4 Commercialisation of Water Services in Sub Saharan Africa

In sub-Saharan Africa, there are indications that the rate of household connections is chronically low, between 2 and 7 connections per 100 people (Plummer, 2003). However, even those with access to a connection are not guaranteed a safe and reliable supply.

In the present day, African context the continuing rapid urban growth has overwhelmed the public utilities leading to poor performance. The increasing economic difficulties and changes in prevailing ideologies, has led to calls for a reduction in the role of the state in public service provision with the thrust for these services particularly water heading more towards commercialisation. There is ample documentation that water services are fast being privatised and are increasingly run on a commercial basis.

If water distribution were left to enterprises whose concerns are full-cost recovery and profit, their focus would be on those sections of the society that can generate a fair return for their investments. The overall figures of the number of people with access to water may very well be higher, but the plights of those living in remote areas, peri-urban areas, slums and informal settlements, -i.e. the poor - will not improve.

This has been one of the main concerns for designing of tariffs for water and sanitation service provision that has become a significant development issue. It is magnified as donors encourage public-private partnerships (PPPs) and private sector participation (PSP) in order to improve water and sanitation services for the poor. Is it possible to set tariffs at levels that the poor can afford but which also provide incentives to private companies to invest in the delivery of these services?

Franz D. et al (2005) refutes this indicating that low water tariffs have been blamed for poor coverage, as has municipal mismanagement. They argue that low tariffs benefit only those with connections – typically better-off people. They recover just two-thirds of operating costs, depriving service providers of the resources necessary to extend their coverage to un-served poor people and that the municipal government departments responsible often lack financial and institutional autonomy.

Sohail (2004), further upholds the view that costs of water services must be covered either by users through water charges, by government subsidies, or by a suitable combination of cost recovery and subsidies. He further argues that inadequate capacity to expand infrastructure to cope with urban growth is penalising unsupplied poor households and states that in many cases the tariffs do not even cover operation

and maintenance costs. In addition, most tariff structures make it hard for new operators to track the designers and the key assumptions used with politics remaining the dominant element in setting tariffs (ibid).

2.5 Water Sector Reforms (Commercialisation) in Kenya

The Kenya Government undertook a comprehensive water sector reforms focusing on improving the water infrastructure based on the globally accepted principles of decentralization, participation and sustainability of the water resources. The water sector reforms in Kenya was characterised by the development of National Water Policy 1999 and the Water Act 2002,

The reforms outlined in the policy are implemented under the Water Act 2002 which came into operation in 2003. The act gives legal basis to the Water Policy objectives. The provisions of the act allow for the necessary reforms for management of water resources, strengthening the institutional framework of the water sector while eliminating the role of government in direct service provision and providing mechanisms for financing water resources and services.

Consequently, the water sector has undergone major changes in the last three years as the government implemented the reforms contained in the Water Act 2002. The reforms have seen establishment of various levels of players and definition of specific roles, which include Policy Formulation, Regulation and Water Services provision.

Under the Water Act, 2002, water and sewerage services are separated from water resources management to minimize conflicts of interests between allocation and service provision. The Act also establishes standards for the provision of water and sewerage services

At the National level, Ministry of Water Resources established a water sector reform committee (WSRC) and a water sector reform secretariat (WSRS) that has been steering the whole sector reform. On institutional development, there is Water Appeal Board and water services trust fund that works closely with Water Resources Management Authority and Water Services Regulatory Board. All these are involved

in policy formulation and regulation. The regulation functions involve rules setting, monitoring and enforcement of rules.

At the regional level, water services boards work closely with catchment areas advisory committees to regulate water usage and utilization. At the local level, there are Water Resources Users Associations and Providers (WRUAs & WSPs).

The institutional framework for water resources consists of The Water Resources Management Authority, Catchment Area Advisory Committees, Water Resources Users Associations, Water Services Trust Fund. The Water Services Trust Fund was set up to mobilize finances for supporting schemes in urban slums and the rural poor in order to serve communities that cannot afford water and sanitation services.

These reforms provide the institutional and legal framework to support the attainment of the MDGs in Kenya particularly MDG No. 7 of ensuring environmental sustainability which targets to reduce by half the proportion of people without access to safe *drinking water* by 2015 and to achieve significant improvement in the lives of at least 100 million slum dwellers by 2020.

In a bid to increase efficiency in service delivery the Kenya government, like several other governments in Africa, sought to move away from direct provision of water services in favour of ceding control to autonomous water service providers. Although well intended, this policy shift is arguably laden with ambiguities that do not augur well for the consumers, especially the urban poor.

Kenya Government's key policy strategy paper, the *Economic Recovery Strategy for Wealth and Employment Creation, 2003-2007* emphasizes the critical role of private sector in the provision of water and sanitation services.

The new Water Act of 2002 provides the institutional framework for the management of water resources and water supplies. The provision of water and sanitation services in Municipalities is governed by Municipal by-laws and other sector laws including Public Health Act, and the Physical Planning Act of the Laws of Kenya.

The Act further provides for the management, conservation, use and control of water resources and for the acquisition and regulation of rights to use water. The institutional arrangement under the Act puts the Ministry of Water and Irrigation as the key policy maker responsible for providing general policy guidelines for the management of water resources and water services. In addition, its role includes liaising with other Ministries such as the Ministry responsible for Finance to negotiate funding for the projects proposed by WSBs and for its own operations. It also deals with issues that cut across WSBs and which impact on the water sector.

The Ministry has devolved the responsibility for the management of water resources to Water Resources Management Authority and the delivery of water and sewerage services to Water Services Boards, which are licensed and regulated by the Water Services Regulatory Board.

The Water Services Boards appoint agents to deliver WSS on their behalf. So far, the agents appointed in major municipalities in Kenya have been limited to the existing Water and Sewerage Companies. The increasing role at the ground now revolves around the WSBs and water services providers (WSPs).

It is now a common trend for Local Authorities to form municipal companies run on strict commercial lines under "agency contracts" from the parent local authority. The emphasis by local authorities is ensuring that under the framework of commercialisation, companies formed to provide water plough back the bulk of their earnings into improving service delivery while allowing local authorities to retain part earnings to cover costs such as personnel expenses. This is primarily geared towards protecting water revenues from diversion to non-water areas.

However, Onjala (2002) argues that this policy while helping ensure a better and more efficient management of water resources cannot ensure large-scale commercialisation of water services. Local Authorities would need to invest substantially in improving the infrastructure to cover substantial numbers of consumers who are critical to the viability of commercialisation.

2.6 Attempts in Solving Water Problems

Municipalities have attempted to address the unplanned nature of informal settlements in a range of ways. In conjunction with residents and residents association, some municipalities have established intermediate planning measures while others have formed agreements with the main service provider that will allow independent and intermediate providers to establish temporary facilities through a temporary permit of moratorium.

2.6.1 Contracting

In the context of Manila, the Philippines, the contract does not specify the particular methods to be used by the operators and has enabled significant improvements to be achieved. Maintenance responsibility for the pipes lies with the consumers while the CBOs and NGOs play a role in intermediation and mapping of the network. Estimates suggest that the connection has reduced water cost for poor families by up to 25% (Rosenthal, 2002). This illustrates that in an enabling contracting environment the private sector operators will seek innovative solutions to make water supply more accessible and affordable for the poor.

2.6.2 Design for flexibility

In Ouagadougou, Burkina Faso, 25 stand–alone water points were designed so that they could be moved when demand changed. Standpipes often provide much needed flexibility that can be critical livelihoods strategies. Common through out Africa, standpipes therefore constitute a key element of any strategy for improving water supply to low-income communities. However, management arrangements are a key factor determining the performance of standpipes.

On the other hand, in Benin, Ghana and Cameroon, the 1980s saw the systematic removal of standpipes due to a change in policy while in Sao Tome and Madagascar the standpipes were removed due to inadequate cost recovery. In Nairobi, consumer preference for more reliable and accessible private water Kiosks has gradually led to the elimination of the public standpipes (Plummer 2003). Consideration needs to be given to policy environments and culture as well as consumer preferences/values in design water delivery point.

2.6.3 Management

Partnerships with local community based organisations are also an increasingly common arrangement for the management of standpipes. In Zambia, Senegal and Mali, communities are given the opportunity to apply for management responsibilities and identify a manager(s) who will be contracted by the utility, municipality or directly by the community. In some instances, community based self help groups are formed with the specific purpose of establishing and managing water points or small networks. In Kibera - Nairobi for instance, a number of self-help groups have been created to address local water supply needs and now act as small-scale providers. The service they provide competes with the private operators as management is carried out on a commercial basis (Kariuki and Mbuvi, 1997).

While community organisations have proven to be better managers of standpipes than local leaders, experience varies and depends on the degree of organisational ability and management capacity in the community. A study by Wandera (2000) in Arusha Tanzania indicates that a new system of public standpipes managed by neighbourhood representatives known as 'mtaa leaders' was introduced in 1993 after a previous system of standpipes that were managed by the utility failed to recover costs. The revised approach placed the management of the individual kiosks in the hands of the 'mtaa'. The public water standpipes provide a level of service that responds to the socio-economic needs and improved access for low-income consumers. However it has led to the closure of some mtaa managed standpipes.

This demonstrates that through an evolving process, improvements in management arrangements for public water points can result in better access for poor households. In addressing himself to the problem of poor management of slum properties, Sternlieb (1970) in Mairura (1988) notes that the single most important variable that accounts for variations in the maintenance of facilities in slums is the factor of ownership, noting the importance of local landlord residence especially single parcel landlords. In a settlement where tenant turnover is high, the management of individual and communal water points becomes unfavourable. Therefore, the provision of communal water should be designed in such a way as not to hamper management.

When a comparative survey was done to assess the management of the communal water points within the settlement- the privately owned and operated water points are well managed and do not waste excessive water by leaving the tap running or through indiscriminate excessive water use. (Mairura, 1988).

2.7 Challenges for commercialisation

So far commercialisation has been associated with a high level of access to utility connection that has at least one positive implication of scaling up water supply to respond to demand. However, there is need for improvement and expansion of the transmission and distribution networks. On the other hand it has also been identified that the utilities are losing money and that service provision is deteriorating, even though the tariffs are technically sufficiently low to allow cost recovery (World Bank 2001).

This means that the low level equilibrium cannot be attributed to low tariffs, and hence the standard prescription of 'raising prices and using the increased revenues to improve service' has little impact in this situation. The key challenges appear to be political and institutional. They include the political will to build broad support for implementation of the governments reform program, thereby improving institutional and governance arrangements for service delivery, enhancing incentives for performance and designing means of improving the efficiency and cost effectiveness of alternative providers such as Kiosks.

Poor incentives, embedded in the weak institutional and governance framework, have been identified as the key reason why service is declining and utilities are losing money even though cost recovery at current tariff rates is possible. Current targeting approaches need to be re-evaluated and improved to ensure that they actually benefit poor people.

The efficiency and cost-effectiveness of small-scale service providers, such as kiosks and tankers, also need to be improved through better incentives and appropriate regulations.

While Kiosks may be an appropriate, affordable and desirable strategy for serving the poor a report by World Bank found that they are the least preferred 'improvement among the unconnected urban households. Households report that kiosks do not offer adequate convenience citing long travel distance and queuing times and that they are more expensive than other options. This finding highlights the limitation of using tariffs as a targeting tool and the importance of getting the subsidy targeting mechanism to work.

This failure to recover cost from kiosks applies to all informal settlements, even though they have a subsidized tariff users are paying cost recovery level prices for water from these systems. This contention has thus been identified as needing to be tested through additional empirical research (World Bank, 2005).

Using an in-depth survey of 675 households in three urban centres in Kenya, field survey carried out in 2005 investigates the extent and nature of the urban water problem and possible solutions. The survey, conducted in Nairobi, Mombasa and Kakamega, examined water use, prices, sources and service preferences of both poor and non-poor households.

The survey revealed that although half of the sampled households are connected to the public utility, they have to supplement irregular water supply with purchases from small-scale private service providers such as kiosks, tankers, vendors, and that only five percent of those connected to the public utility are poor; hence poor people have no option but to rely on small-scale private providers (Gulyani et al, 2005).

This indicates that private connections and standpipes still have limited applicability in many low-income situations, depending on local legislation, policy and institutional arrangements as some communities and individuals still lack access to these options. Consequently, many of these communities rely on water supplied by another provider that could be intermediate or independent. Given the (forced) reliance on private providers, both poor and non-poor households pay very high prices – the median price is US$ 2.1 per cubic metre. The survey findings indicate that although kiosks receive water from the public utility at a subsidised price of US$ 0.15 per cubic meter they charge their customers, on average, 18 times that price (Gulyani et al, 2005).

This shows that the subsidy mechanism has not had the desired result of reducing prices for customers. Overall, the survey indicates that neither public utilities nor private providers deliver a desirable water service and that although public utilities charge tariffs at cost-recovery level they deliver poor service. Thus, the majority of households rate 'improvement in water supply' as their top development priority. Further, although there is a well-established private market for water with many competing suppliers, prices remain high. This indicates that the market is not functioning well either.

These findings directly challenge the notion that higher prices and competition can provide sufficient incentives for water providers – public or private – to improve service delivery. It also indicates the limitations of an increasingly common prescription – that utilities should move from a low-price, low-quality service for everyone to a high-price, high-quality service for those willing to pay.

The study concludes that in expanding and sustaining access to affordable water services for people in Kenya, the key challenges are political and institutional rather than economic or financial. Therefore, a strong and sustained political will is required to implement changes in the framework within which water utilities function with the focus on providing strong incentives for utilities to improve performance and especially for reaching un-served poor people. Equally important is the need to inform the public and build popular support for water sector reforms.

Sohail (2004) maintains that reforming tariff structures to achieve cost recovery is not incompatible with the objective of making water available and affordable to all households as it would seem in the foregoing views. He counsels that the greatest scope for establishing transparent and equitable charges lies at the planning stage and the degree of commitment given to pro-poor policies. Once arrangements are set in place however, it becomes progressively harder to implement a pro-poor policy unless these are anticipated in regulatory mechanisms. A better understanding of cost recovery mechanisms and the application of a fairer tariff structure will help to achieve what is currently a dream for millions of people in the world (Sohail, 2004).

2.8 Private Sector Participation

A global trend of liberalizing and privatising infrastructure activities, beginning in the early 1980s, strengthened in the 1990s. Developing countries have been at the forefront of this movement, motivated by concerns to increase the efficiency of service delivery, accelerate the expansion of improved services, relieve the drain of under-performing services on state and national budgets, and bring a greater and more consistent consumer focus to service delivery.

Private sector participation has taken various forms ranging from management contracts aimed at improving operating efficiency, through to concessions, divestitures and greenfield projects that also seek to mobilize private sector investment.

Private sector involvement in water services is a debate that has been going on for some time. There are strong proponents for and against. At the extremes on both sides the consumer's interests seem to be sacrificed, either on the altar of profit or on the altar of ideology. However, the other undeniable reality is that the private sector will always be involved, whether the anti-private sector lobby likes it or not. The debate is not whether or not the private sector will be involved, it is to what extent will they be involved as the actual providers of services. There are several degrees of engagement of the private sector as service providers and investors in infrastructure.

Supporters of private sector participation (PSP) in water supply have argued that it extends service levels, generates investment and relieves government budget deficits. Incentives to private operators and new regulatory frameworks will, they claim, safeguard the public interest while taking advantage of private sector efficiency. However, empirical evidence is in short supply.

A paper from the University of Greenwich's Public Services International Research Unit (PSIRU) questions whether PSP is the way forward to improve water supply and sanitation. The author argues that the Millennium Development Goal of halving the proportion of people without access to safe drinking water cannot be reached unless there is greater support for public sector operations.

PSP has failed to deliver promised benefits because private water companies are, above all, profit seeking and risk averse. Lobina (2005) indicates that ineffective competition, imperfect risk allocation and lax governance have allowed companies to renegotiate contracts and avoid obligations to extend coverage to poor customers.

The conflicts between private pursuit of profit and aspirations to universal access question whether the private sector can ever favour poor people. The World Bank has repeatedly emphasised the problems experienced with public sector operations and made funding conditional on developing countries agreeing to PSP schemes. However, little effort has been made to examine successful public sector operations.

2.8.1 Public Private Partnerships

Two main models exist in the water sector: the English model of full privatisation, where ownership and management are private, and the French model of delegated management, where the ownership is in public hands and the management is a mix of public and private systems. The English model occurs mainly in England and Wales, whereas the French model, heavily promoted by the World Bank, has been exported in various forms in developed and developing countries.

In this study, PPPs is used to refer to any "contractual arrangement between a public sector agency and a for-profit private sector concern, whereby resources and risks are shared for the purpose of delivery of a public service or development of public infrastructure" (Akintoye and Hardcastle, 2004). This can include everything from service contracts to full privatisation. There are various degrees of engagement of the Private Sector which include:

- Management agreements: Through a management agreement, the operation and maintenance of a service are contracted out to a private company for a predetermined period without the private company or consortium financing the asset. Instead, the public sector finances both fixed assets and working capital and specify standards.

- Lease agreements (affermage): Through a lease agreement, a private company leases, operates and maintains a State-owned asset for a prescribed period. The public sector retains the responsibility of financing the investments in fixed assets.

- Concessions: Through a concession agreement, a private operator is responsible for developing or rehabilitating and operating a State-owned asset or service for a prescribed period. Concessions include agreements such as a build-operate-transfer (BOT) or rehabilitate-operate-transfer (ROT) scheme.

- Build Own and Opearte (BOO): Partnership between Public and Private sectors hereby the private firm is authorised to build, own and operate the asset/service

- Build Operate and Transfer (BOT): Similar to BOO but the asset/service will be transferred to the public sector after a period of time.

- Privatisation: State-owned assets are sold to a private company or consortium and these assets are owned and managed by the private operation in perpetuity.

It is worth noting that in all cases except in privatisation, the public sector remains responsible for regulation and monitoring performance, hence privatisation does not necessarily result in less government spending and regulation

The essential role of the government in all forms of PPPs is to define the scope of business, to specify priorities and outputs, and set the stage (through contracts, regulatory agencies, laws, market tools, etc.) for successful PPPs. Experience shows that when legal and institutional frameworks are lacking or too complex and incoherent, the quality and reliability of water provision may be at risk and public-private partnerships may fail. Also, private companies need to be assured of return on investments in the water sector because investments are high and irreversible.

Further, there is no "one size fits all" approach and the choice of a particular form of partnership should depend on the local context and on its feasibility. Once PPPs are implemented, they need to be regulated to give incentives to the private sector and to protect consumers from monopoly abuse, which can be a difficult and costly task.

Public-private partnerships are mostly regulated by contract. Experience shows that institutions and policies in developing countries are not well adapted to incorporating the private sector. There is a lack of legislation, and the administrative structure and the judicial system are both deficient in human and financial capacities. To protect consumers and private operators, private participation needs to be preceded by substantial institutional developments i.e stable coherent Institutional framework.

Clearly, the private sector operates only where certain profitability requirements can be met, which considerably limits the scope for Public-Private Partnerships." (OECD, 2003: 7). PPPs are complex, costly and time-consuming to implement. Because the water sector is capital intensive and most of the investments are irreversible and of no alternative use, organisational and institutional adjustments are needed to provide credible protection for investors so that they can be secure in their investments.

It is also important to ensure that institutions exist to provide well-structured incentives to the private sector and to protect consumers against monopoly abuse. Moreover, since there is no "one size fits all' approach, to choose a form of partnership that best fits the local and institutional conditions, many preliminary analyses are required: an analysis of the state of utility, an analysis of the existing regulatory framework, and an analysis of the financial viability of different forms of PPPs. Experience shows that competition and regulatory policy have more impact on performance than ownership per se.

Another challenge of introducing PPPs is the fact that with the increased managerial autonomy of operators, the level of transparency and accountability decreases. So, it is important to involve consumers in the decision process from the beginning. Indeed, the success of PPPs depends on the support of consumers, as they contribute directly (through fees) or indirectly (through taxes) to finance PPPs. It is also important to have tools (legislative rules, monitoring schemes, access-to-information guarantees) to ensure high levels of transparency and accountability.

Successfully implementing PPPs in the water sector remains a challenging issue for governments. It is crucial for the government to understand the drivers that attract the

private sector to enter in PPPs and to develop the knowledge and skills necessary to deal with unknown and unforeseen circumstances during the life of the partnership. Moreover, because of the lack of systematic evaluation of experience, there is no evidence that the benefits of introducing the private sector offset the costs (transactions costs, regulation costs and the costs of introducing competition). There is no clear answer as to who are the winners and losers of PPPs; results of experiences worldwide are mixed and depend on the circumstances and the design of the contract. Other options should also be considered, as PPPs are clearly not suited to all circumstances

Public-private partnership cannot of itself and by itself remove many of the barriers to efficiency that hinders public sector operations. As a result, regulatory design and enforcement are identified as crucial elements for water sector performance. Privatisation is not a simple retreat of the state, but rather a redefinition of its role as a regulator in a market-oriented economy.

The characteristics of water services from the foregoing literature have challenged private sector involvement. "Privatisation has proven to be more difficult and more controversial in water and sewerage than in other sectors." (Clarke et al., 2004).

2.8.2 Community participation in Water Supply

Even though the Concept of Participation became more predominant and comprehensive since the 1980s, the idea of involving people in development is more than fifty years old. In the 1950s, and largely in the 1960s, people were encouraged to participate in the implementation of infrastructure projects, which affected the participants, but were designed and controlled by development agencies (UNDP, 1998).

In the late 1970s and 1980s, the recognition of the multidimensional nature of poverty required a more direct involvement of poor people in development practices (UNDP, 1998). Since the 1980s, participation has no longer been limited to project implementation, but also encompasses planning, monitoring, and evaluation further also participation of people in policy decision-making started to be considered.

Despite its importance in development, participation does not have a single universal definition or generalized analytical framework. According to Syagga (1987), there is significant disagreement in the development literature about the meaning of participation. Also, the UNDP (1998) recognizes that participation is a broad and complex term whose varying interpretations will determine the different strategies and methodologies used in participatory practices.

In general, participation can be seen as a means or as an end in itself. The former perspective considers participation to be a process (e.g. participation in the design or implementation of projects) through which people contribute to different objectives (e.g. project effectiveness). The latter perspective sees participation as the objective in itself (e.g. community development).

'Participation is concerned with the organized efforts to increase control over resources and regulative institutions in given social situations on the part of groups and movements of those hitherto excluded from such control.' Community participation is an active process by which beneficiary or client groups influence the direction and execution of a development project with a view of enhancing their well being in terms of income, personal growth, self-reliance or other values they cherish.

'Participation can be seen as a process of empowerment of the deprived and the excluded. This view is based on the recognition of differences in political and economic power among different social groups and classes. In this sense, participation necessitates the creation of organizations of the poor that are democratic, independent and self- reliant.

'Participatory development stands for partnership which is built upon the basis of dialogue among the various actors, during which the agenda is jointly set, and local views and indigenous knowledge are deliberately sought and respected. This implies negotiation rather than the dominance of an externally set project agenda. Thus people become actors instead of being beneficiaries.' (OECD, 1993)

The Debate on Participation indicates that there are many attributes associated with participation First, it is assumed that participation will bring local knowledge,

promote democracy and empowerment of hitherto marginalized people, and therefore contribute to more effective and sustainable development practices. Second, participation of people in policymaking and projects that affect them is deemed to promote ownership and acceptance of these policies and projects, thus contributing to their political sustainability . Third, participation is supported as a means to challenge traditional power structures (Kothari, 2001), to press for government accountability and transparency, and to promote social capital (Stiglitz, 2002).

Finally, participation of communities in projects is supposed to help governments to gain citizen's trust in the project and to help improve their image because it would appear that they are interested in listening to what people may have to say. It is important to note that there is not enough evidence to support the idea that participation has brought social change or has enhanced the living standards of the poor (Clever, 2001).

The Poverty Reduction Strategy Papers (PRSPs) introduced the concept of "country-driven" and "country-owned" strategies to promote economic growth and reduce poverty. This is supposed to promote ownership of the strategies (World Bank, 2004e). In order to promote ownership of the strategies in the water sector, PRSPs should be the result of an extensive broad-based participatory process that not only involves the government, but also civil society, the private sector, development agencies and the target community.

The aspect of public participation has also been recognised as an important aspect in the design, operation and management of water supply infrastructure. The community can only participate in solving community problems if the individuals in that community recognise the need and have the ability to do so. According to Mairura (1988), the degree of response to community problems therefore depends on how widespread the recognition of a particular problem is and the subsequent felt and ability to solve it.

Abrams (1966) quoted in Mairura (1988) however warns that the more self-help that is involved in a project, the more inducement, administrative and technical

supervision that would be required but unfortunately these are the attributes that are not readily available amongst the local low-income communities.

Publicly owned water utilities are often criticized for being inefficient, incapable of change and failing to reach poor people. Experience in the Indian city of Bangalore, however, shows how external forces can influence a utility to begin responding to demands for improved performance and accountability. This demonstrates Community participation working together with public utilities to efficient deliver services.

Another paper from the Massachusetts Institute of Technology in the USA describes how the Bangalore Water Supply and Sewerage Board (BWSSB) is learning to work with residents to extend the city's piped water supply to slum areas. Similar to most Public Service providers in developing countries, BWSSB has struggled to cope with insufficient funds, frequent changes in leadership, rapid population growth, expanding urban boundaries, declining groundwater and political interference in setting tariffs.

BWSSB has recently been shaken out of its long-standing neglect of slums. Management has had to come to terms with two realities: local groups demanding improved performance and accountability and insufficient revenue as the number of public taps and illegal connections to the utility's network kept growing.

Three pilot projects funded by the Australian agency AusAID also demonstrates that water could be piped to slums legally, contractors can work in slums under supervision, residents are willing to pay for improved supply and the traditional problem of lack of tenure can be managed. The projects formed part of a larger programme to build a water supply and sanitation master plan for the city.

Bangalore may not yet have achieved a system of water governance that can be described as inclusive, accountable and transparent. However, change is on the way as the utility, NGOs and residents learn to co-operate and bargain with each other.

Creating Partnerships: An Integrated Approach framework

The idea behind decentralization is to bring decision making to the lowest appropriate level. One of the positive consequences is that it should increase consumers' influence on quality of service and prices.

Governments, investors, and consumers are involved in a relationship, and their interests are not always convergent. Investors' primary interest is to maximize shareholders' returns, so they will seek to minimize risks while the interest of consumers is to have safe and affordable water and reliable service. As citizens who elect leaders with the mandate to manage public goods, consumers have a policy role. Because trust is a core requirement for successful PPPs, if there is a lack of transparency or confidence is eroded, PPPs are compromised.

Klein, (1996) quoted in Ouyahia, (2006) argued that the success of PPPs or any other form of partnership depends on the support of consumers. Consumers have an economic role, contributing directly (through fees) or indirectly (through taxes) to finance PPPs. In small systems, consumers can organize themselves in cooperatives to balance their interests and those of the suppliers. Therefore, Kessides, (2004) quoted in Ouyahia, (2006) indicates that this evidently requires a carefully thought out integrated approach that would reconcile efficiency, equity and sustainability. Efficiency implies cost effectiveness, water-use efficiency and maintenance of the assets. This approach would ensure that water distribution is equitable, i.e., that access is available to all at an affordable price, with an adequate quality of service, and pollution and damage to water resources are minimized.

A prominent feature of public life since the mid 80's has been an increasing demand by people to participate in and influence the formulation and making of decisions directly affecting the quality of their living environment, however, this has not been effectively incorporated particularly by the public institutions. There is thus a growing increase in the demand for community participation in water sector service provision.

Social Factors

The significance of social factors to any development project cannot be over-emphasised. This is particularly true of community water supplies, which involve

every member of the community on daily basis. A large amount of written material is available highlighting the importance of community involvement and detailing examples of participation in project initiation, design, management, and finance.

Good engineering is only one part of sustainable, economic and equitable water supply system. Without complete community involvement, even a water supply system that is technically perfect is likely to encounter serious problems and may fail altogether. Adequate community involvement is particularly important during the period of system appraisal and design, and is dependent on good communication.

Ideally, development approaches particularly in the water sector should incorporate participation both as means and end; Participation as an end in the case of water supply should be seen as a goal in itself. This goal can be expressed as the empowering of people in terms of their acquiring the skills, knowledge and experience to take greater responsibility for their development. People's poverty can often be explained in terms of their exclusion and lack of access to and control of the resources, which they need to sustain and improve their lives

Participation is an instrument of change and it can help to break that exclusion and to provide poor people in the informal settlements with the basis for their more direct involvement in water services provision in their communities.

The critical issue to bear in mind is that people's participation in development is concerned with two things: Structural relationships and the importance of developing people's capacities and skills to negotiate and to seek the resources and changes which they require in order to improve their lives; and the methods and techniques whereby local people can be brought to play a part and to develop a stake in water projects. Both purposes are of equal importance; the former seeks to secure a longer term and sustainable development for poor people, the latter is crucial in providing immediate access to water services.

To improve the efficiency of supply effectively the communities have to be positioned to be an equivalent negotiator to the large-scale enterprises that bid for the supply area. This often requires capacity building of the target community.

The construction, operation and maintenance of water systems entail huge costs. Sustainability cannot be achieved unless costs are fairly shared among all system customers. As UN-Habitat (2000) pointed out, a paradigm shift that is a broad-based partnership of public, private, and community sectors is needed for urban water governance. The new paradigm must build on the relative strengths of all actors, avoiding overlaps and redundancies.

2.9 Conceptual Framework

For much of the last century, most governments believed that the best way to provide infrastructure services to their people was through a state-owned monopoly that was mandated to provide "universal service". Results have been disappointing. Progress in expanding access has been slow as state-owned monopoly provision became synonymous with high levels of waste and inefficiency.

From the preceding review of literature, the public utilities have failed to provide the adequate and efficient water supply to the urban poor. The private companies have also not achieved the desired status of water service delivery.

The current players in the field include a wide range of different types of organisations such as the Local authorities as stipulated in the Local Government Act, Water Services Boards charged with the responsibility of water and sewerage delivery, water utilities as Agents of the Water Service Boards, private sector, NGOs as intermediaries, lobbyists, capacity builders and representatives of civil society, CBOs as representatives of communities, lobbyists and managers, and the communities themselves as users, managers of water .

In the current water supply framework of commercialisation, the different interests of consumers, investors and government has often led to conflicts. Governments have broader objectives (environmental and social) than the private sector, whose main objective is to maximize profit while on the other hand local communities have expectations of adequate, efficient and affordable water supply. Many objectives have to be considered in the water sector: protection of public health and the environment, accountability, transparency, participation, access for the poor, equity, efficiency and

effectiveness. What is the best way to balance all these objectives when the interests of stakeholders do not always converge?

Rethinking current approaches, exploring alternative delivery mechanisms, and developing new methodologies and capacities are essential in achieving substantial progress for effective water service delivery. The water service boards and the water companies are in an embryonic stage at present in many parts of Kenya. The current institutional framework requires the real engagement of local people in governing and running their own affairs.

This is not only a moral and political issue; it is also an important development principle. Experience throughout the world indicates that where local people are not responsible for local services, sustainability of development is not achievable. One of the prominent development theories is the Basic needs approach that introduced development approaches in which people at the grass roots level would become the main actors in development theories; and can be seen as a forerunner of the people-centred approaches that were to follow

The participatory people-centred approaches place the decisions with regard to the development goals, as well as the methods to achieve it, in the hands of the intended beneficiaries themselves. These approaches emphasise the need that development must be sustainable and that the bureaucracy or development agency should play a supporting role, while the people themselves should have decision-making power. In this way the capacity of the people to take control of their own development is developed.

Singly, both the public and private approaches have failed to meet the basic objective of adequate access and affordability of water to the urban poor. So far, none of the experiences have yet achieved a system of water governance which can be described as inclusive, accountable and transparent, what seems to be required is an enabling environment and a framework that provides for flexible strategies that responds to the communities need and capacities where all the players learn to co-operate and bargain with each other. In the absence of partnerships the synergies in commercialisation will remain untapped, management of water services will remain poor, the municipal

water utilities will continue to be dependent on public funds, regulation of water service providers will still be inefficient, the small scale water providers will continue operating illegally, generally the water services provision conditions are unlikely to change significantly from the status quo.

From the foregoing, it appears that the major problem with a number of approaches in the water sector is that although development is supposed to be all about people, an often top-down ethnocentric and technocratic approach is most often followed. Partnerships are at the centre of emerging approaches to service delivery and management. The benefits of partnerships mainly derive from mobilizing additional community resources as well as from increased effectiveness in the use of available resources. Achieving the purpose of people-centred development in the water sector implies substantial decentralisation in which the decision-making is truly returned to the people, who have "both the capacity and the right to inject into the process the richness – including the subjectivity – of their values and needs".

Given the various actors with various capacities and divergent interest, and given the nature of water both as a service and product and the emotional and political interests vested in this field, partnership approach need to be adopted in water supply and management. Partnerships appropriately structure and realistically oriented, might be a way to bridge the gap, bringing more interests to the table that ensures a longer-term perspective. The active engagement of communities should be encouraged particularly in the management of water as a resource and a service in order to ensure their involvement in decisions about factors that affect their lives.

This emerging trend in development of water services provision to the informal settlements is the focus of this study. The inclination is directed towards an all inclusive people -centred development, an adaptive approach to building of partnerships for sustainable water services provision to the informal settlements.

CHAPTER THREE

BACKGROUND TO THE STUDY AREA

3.0 Introduction

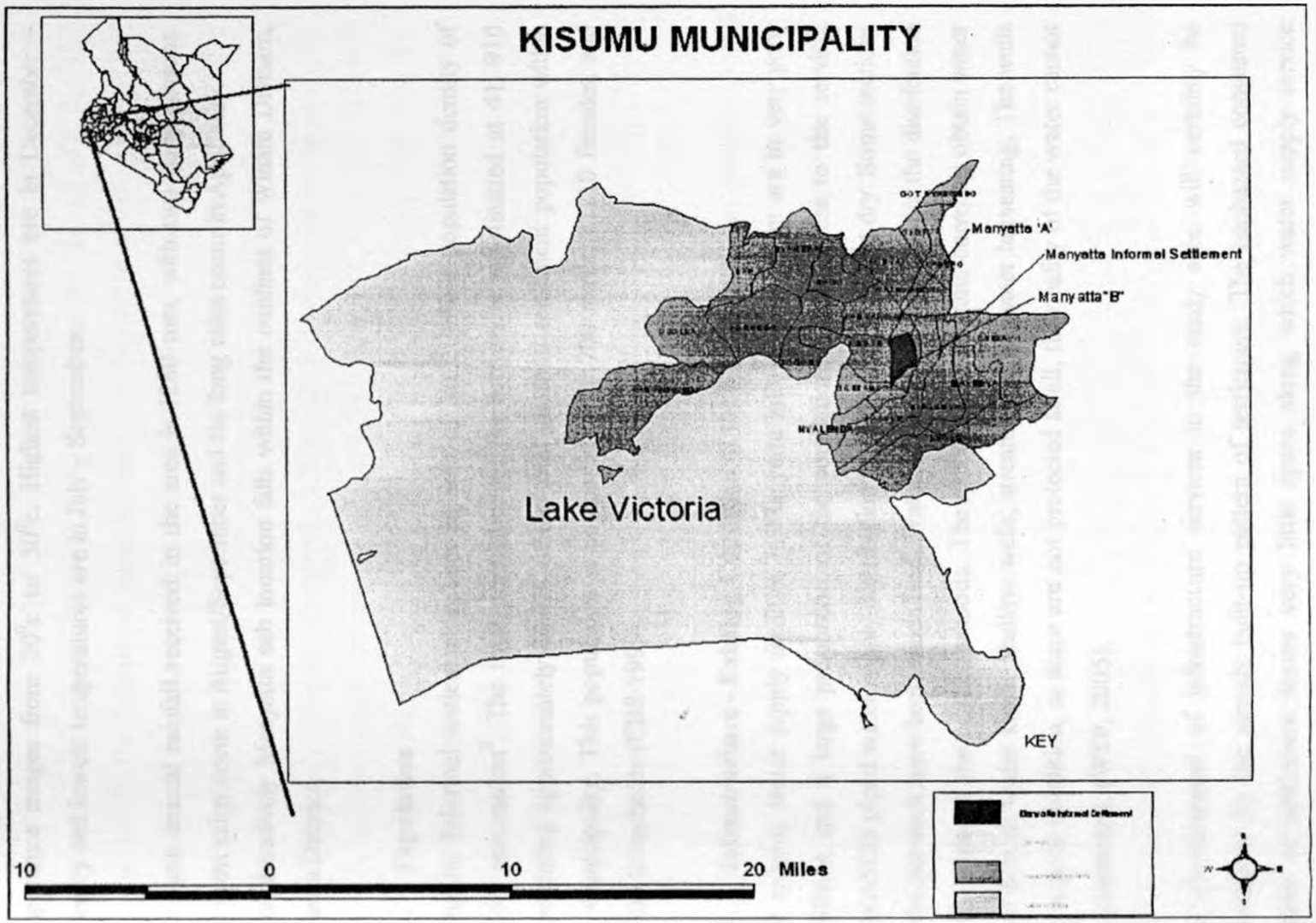
This chapter presents the discussion on the background to the study area.

3.1 Location

Manyatta informal settlement, which covers parts of Manyatta 'A' and Manyatta 'B' Sub locations in Kisumu Municipality, Kisumu District, Nyanza Province constituted the study area. The area is situated between latitude $34^0$55' to $35^0$55' N and longitude $0^0$00' to $01^0$12' E. It is bordered by Wathorego sub location to the North, Kibuye sub location to the west, Nyalenda sub location to the South, Milimani sub location and Lake Victoria to the Southwest, Kasule sub location to the East and Kanyakwar sub location to the Northwest border it.

Kisumu town within which the study area is located is the largest and most important urban centre west of the Rift valley. It is strategically located at the hub of communication network, which serves most of west Kenya. This factor has effectively facilitated its dominance as an administrative, industrial, and commercial area for this region.

Kisumu town is located on the eastern shores of Lake Victoria at Winam Gulf between latitude $34^0$55' to $35^0$55' N and longitude $0^0$00' to $01^0$12' E, covering an area of 417 sq km including 157 sq km of lake water. The town borders Lake Victoria to the southwest, the sugar belt and the expansive Kano irrigation scheme to the east. The town has a high population density of 887 persons /km^2, with an average household size is 4 persons,. Kisumu town is also the third largest town in Kenya and is estimated to have 60% of its population living in informal settlements (SIDA, 2000) (fig.1.0). The census population information indicates that of Manyatta informal settlement, which covers parts of both Manyatta 'A' and Manyatta 'B' sub locations, have the highest population and highest densities.



Map 1: Kisumu District (Source: Field Survey, 2006)

3.2 Physical Characteristics

The area lies at about 1,144 meters above sea level and is hot and humid. Generally, the area experiences high temperatures through out the year. The mean maximum temperature ranges from 20^0c to 30^0c. Highest temperatures are in December – February and lowest temperatures are in July – September.

The mean annual rainfall received in the area is 1280 mm, with two rainy seasons. The short rains occur in August/September and the long rains occur in April/May. Administratively Manyatta sub location falls within the confines of Winam Division, Kisumu District,

3.3 Population

Manyatta Informal settlement covers an area of $2km^2$ with a population density of 20955 persons/km^2. The total population of the settlement is estimated at 41, 910 representing approximately 30.4% of the total informal settlement population within the municipality. This population is composed of 20,700 males, 21210 females, and 10869 households (CBS 1999).

3.4 Infrastructure - Existing Condition of the Study Area

The existing water supply facilities in Manyatta informal settlement are in very poor condition and a large proportion of the population has no access to the service. KIWASCO piped water supply distribution network is in place but dry. Some sections of the network have been vandalised. Water carriers in the area help in the distribution of the water to the neighbourhoods. The residents of Manyatta currently obtain water from Kibuye water kiosk, shallow wells, streams and rainwater harvesting. The wells are in poor condition, as some are not protected at all, the quality of the water cannot be guaranteed. (WSP, 2005).

Any development of infrastructure services in the study area will certainly be constrained by the already built-up pattern of settlement. The haphazard congested pattern of settlement leaves very little space along which water supply service infrastructure could be developed.

3.4.1 Existing water situation in Kisumu Municipality

The current water supply network in the municipality commands 40% coverage, mainly concentrated within the built up urban centre of Kisumu. The combined water supply capacity from the two water treatment systems amounts to 20,000m^3/day against a projected demand of 50.000m^3/day (DOE strategic plan of 04-07). The infrastructure for the delivery of water services is inadequate or non-existent and has been identified as the most pressing need in Kisumu informal settlements. Small-scale water service providers fill the gap left for the delivery of water services.

Kisumu Water and Sewerage Company (KIWASCO) is a key player in the provision of water and sewerage services in Kisumu, but does not cover the informal settlements. Water supply system in Kisumu can be categorised into three systems: KIWASCO, peri-urban and informal settlements. The coverage of the current KIWASCO water supply system is approximately 40%-50%, mainly concentrated within the built up central part of Kisumu. The peri-urban water supply systems consist of several small-scale systems. Informal settlement systems are a combination of the Municipal system and peri-urban systems (WSP, 2005).

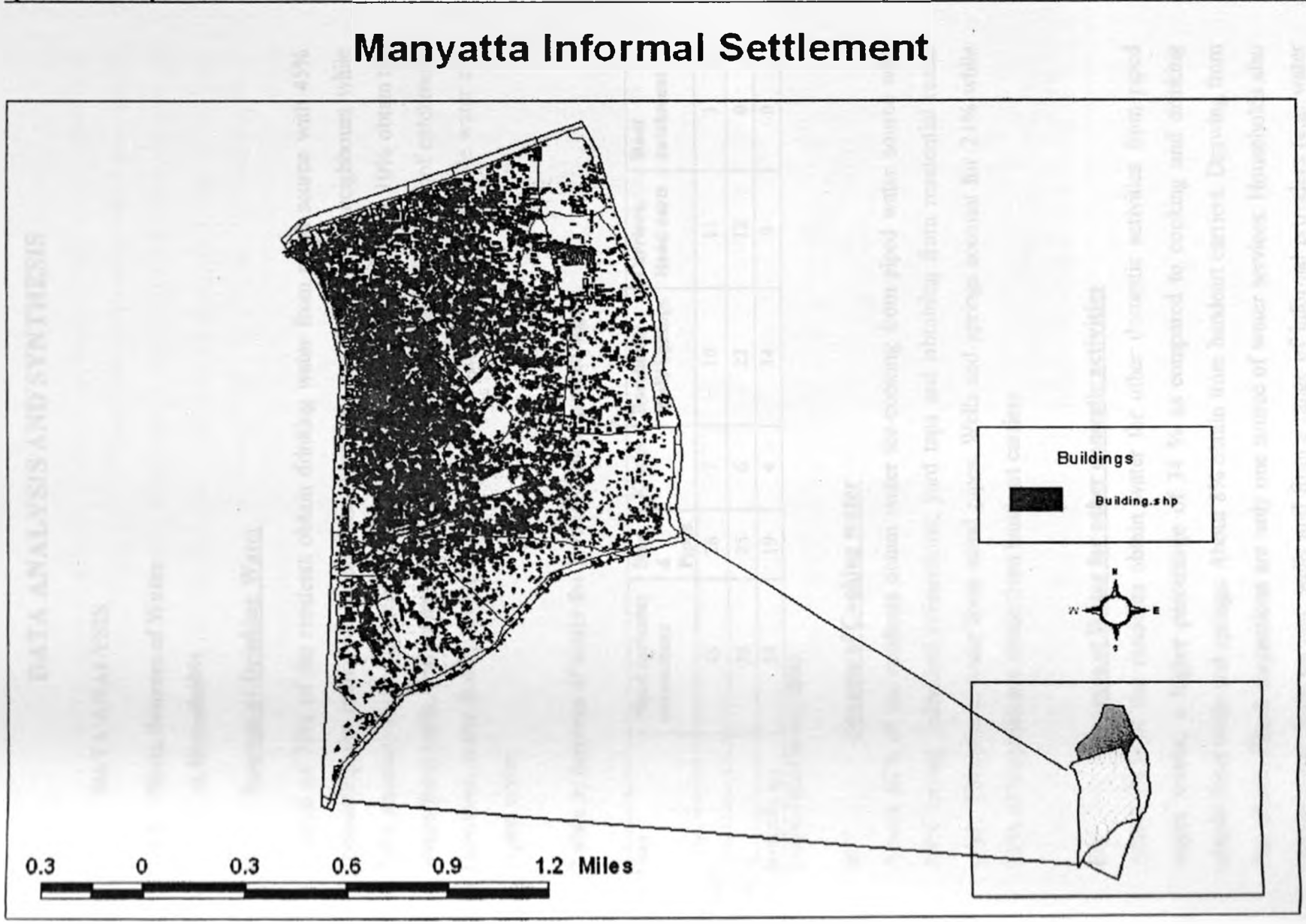
According to a situational assessment carried out in Kisumu, water supplies in the informal settlement are either non-existent or very poor. Even in serviced areas, there is a strong demand for better service. Communities in informal settlements have taken positive steps to operate and maintain small-scale water supply. More families rely on water carriers than the municipal service. Most of the water connections in these areas are illegal. Shallow wells, springs, boreholes, streams/river and lake which are important alternative water sources are of poor quality due to overcrowding and poor sanitation services.

3.4.2 Economic characteristics

Kisumu has 4 main sources of income; agriculture, fishing, business and manufacturing and civil service employment. Agriculture is the main source of income and livelihood for the majority of the people in the hinterland. The main cash crops grown are sugarcane, rice and cotton. Maize and sorghum are the leading food crops. Other crops that are grown on commercial basis include beans, bananas, pineapples, citrus, simsim and green grams. Subsistence farmers grow maize, beans,

millet, groundnut, sorghum, cassava, and vegetables. Livestock production is in an attempt to provide meat and milk.

Public sector employment account for the larger part of total labour force in the town. Private sector employment in business and manufacturing enterprises and informal sector, which has experienced substantial growth with increased informal transport (*bodaboda*). Fabrication of small household items, woodcraft, basketry and other informal sector activities also provide substantial sources of income. Fishing also constitutes an important industry in Kisumu. It accounts for a major source of food, household incomes and employment accounts for the larger part of total labour.



Map 2 The study Area Source: Field Survey, 2006.

CHAPTER FOUR

DATA ANALYSIS AND SYNTHESIS

4.1 DATA ANALYSIS

4.1.1 Main Sources of Water

a) Households

i) Sources of Drinking Water

A total of 71% of the residents obtain drinking water from piped source with 45% accounting for individual connections, yard taps and buying from neighbours while 26% accounts for standpipes. Seven percent obtain water form kiosks, 10% obtain the water from wells, and springs while only 1.4 % obtain water through roof catchment. However, water from kiosks is in some cases a mixture of both borehole water and piped water.

Table 1: Sources of water for Households in percentages

Main Uses	Piped (private) connections	Stan d Pipes	Kiosks	Boreholes/ Well/ Springs	Carriers, Hand carts	Roof catchment
Drinking	45	26	7	10	11	1
Cooking	35	25	6	22	12	0
Other domestic use	34	19	4	34	9	0

(Source: Field Survey, 2006)

ii) Sources of Cooking water

About 60% of the residents obtain water for cooking from piped water source with 35% having individual connections; yard taps and obtaining from residential resale while 25% obtain water form stand pipes. Wells and springs account for 21% while 11% of the residents obtain from handcart carriers

iii) Sources of Water for other domestic activities

About 52% of the residents obtain water for other domestic activities from piped water source, a higher percentage of 34 % as compared to cooking and drinking obtain from wells and springs. About 8% obtain from handcart carriers. Drawing from the above, Piped connections are only one source of water services. Households also obtain water from springs, wells and from a range of informal providers (e.g. water

vendors or handcart carriers,). Many households rely on combination of sources (See Plate 2 and 3).

As map 3 indicates within a radius of 50 meters, standpipes serve several households leaving many households still un-served. These findings on household water sources in Manyatta show that 61% percent of households either have individual connections or get their water from private water vendors/standpipes, yard taps or through residential resale. Most households supplement their water supply by obtaining water from at least one additional source.

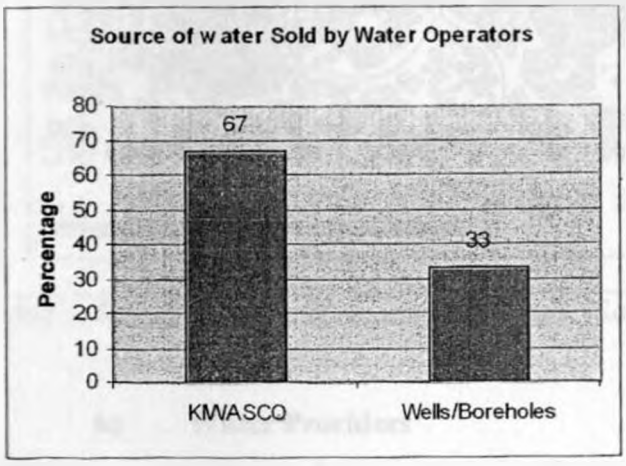


Figure 1: Sources of Water Sold by Water Operators (Source: Field Survey, 2006)

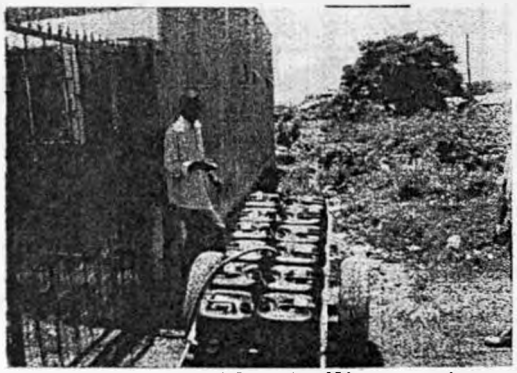


Plate 1: Residential Resale: Water vendor buying water from an individual connection (Source: Field Survey, 2006)

Plate 2: Manyatta Resident drawing water from spring. (Source: Field Survey, 2006)

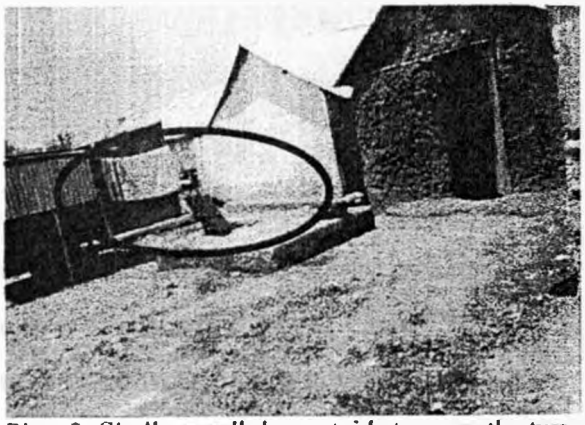
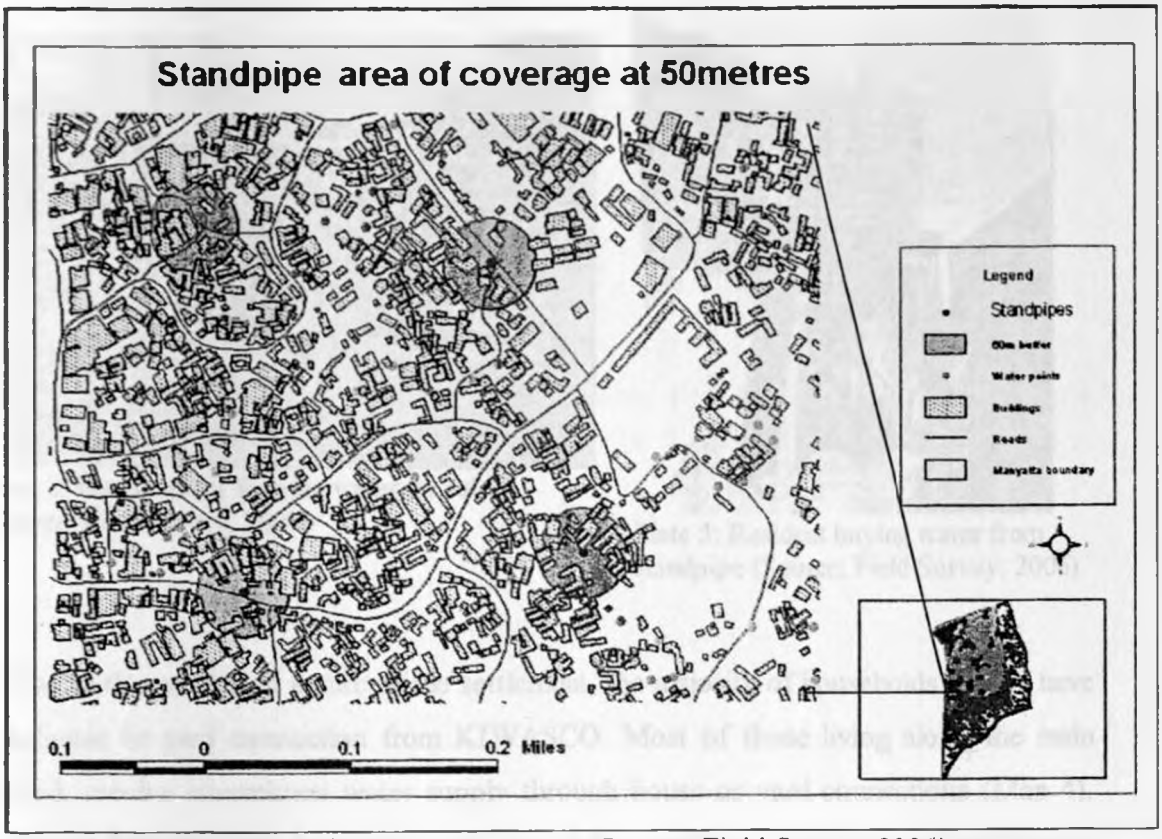


Plate 3: Shallow well dug outside to serve the two house units. (Source: Field Survey, 2006)



Map 3 . Standpipe areas of coverage at 50mts. (Source: Field Survey, 2006)

b) Water Providers

Sixty seven percent of the water supplied in Manyatta is obtained form the KIWASCO the main water utility in the Municipality while the remaining 33% is obtained form private wells and boreholes.

4.1.2 Main Methods of Water delivery

Besides the households with in-house water supply, piping caters for a large percentage of the mode of water delivery 70% (Plate 5) while 26% accounts water delivered manually- mostly from the private wells in which the residents draw water manually or from vendors who obtain water from private wells or from piped sources and delivers it using containers in handcarts.

Handcarts (non-motorised) means are used to transport water mainly for residents residing far distances from water points. The case of piped source delivered by water vendors using handcarts (Plate 4) mostly apply to the residents residing a far distance.

Plate 4: Water vendor ferrying water for sale (Source :Field Survey, 2006)

Plate 5: Resident buying water from standpipe (Source: Field Survey, 2006)

Due to the unplanned nature of the settlement, the majority of households do not have a house or yard connection from KIWASCO. Most of those living along the main road, receive intermittent water supply through house or yard connections (Map 4). Those that are not connected rely on water vendors, handcarts or neighbours (residential resale).

There are no public standpipes in Manyatta what exist are vending standpipe points. Residential resale is a practice in Manyatta as a number of domestic consumers in Manyatta currently sell water to their neighbours as well as water vendors.

4.1.3 Types Of Water Service Providers

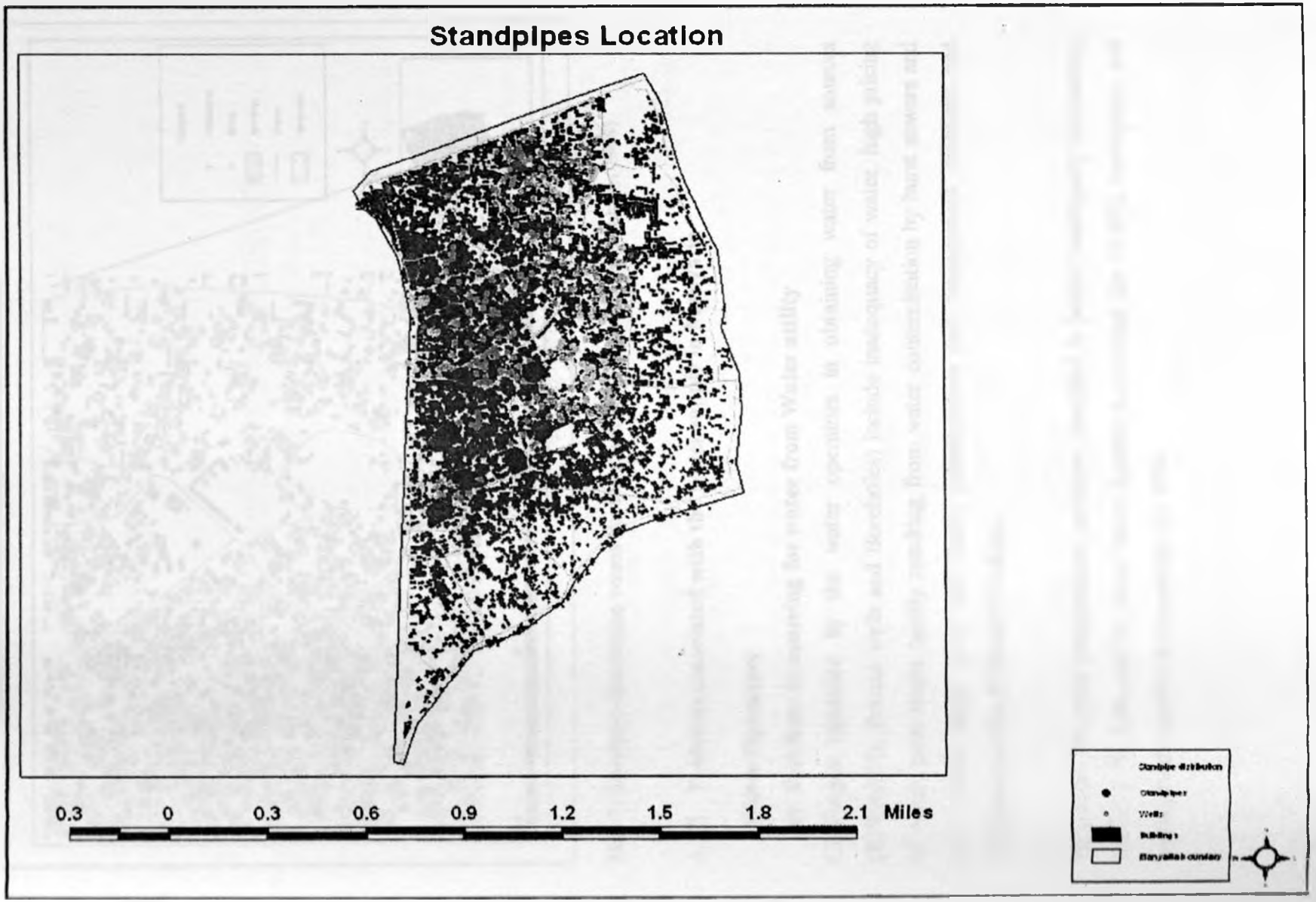
Main suppliers to residents of Manyatta informal settlement are the Intermediate Providers and the Independent Providers and KIWASCO. The Intermediate providers in Manyatta are mainly the small-scale private operators obtaining water from KIWASCO while the Independent Providers obtain water from Private wells and boreholes.

Although KIWASCO is the main provider of water in the settlement, the intermediate providers carry out the larger role of delivery; since of the 66.7% of municipal water most of it is delivery through intermediate provider in form of water vendors and hand carts carriers.

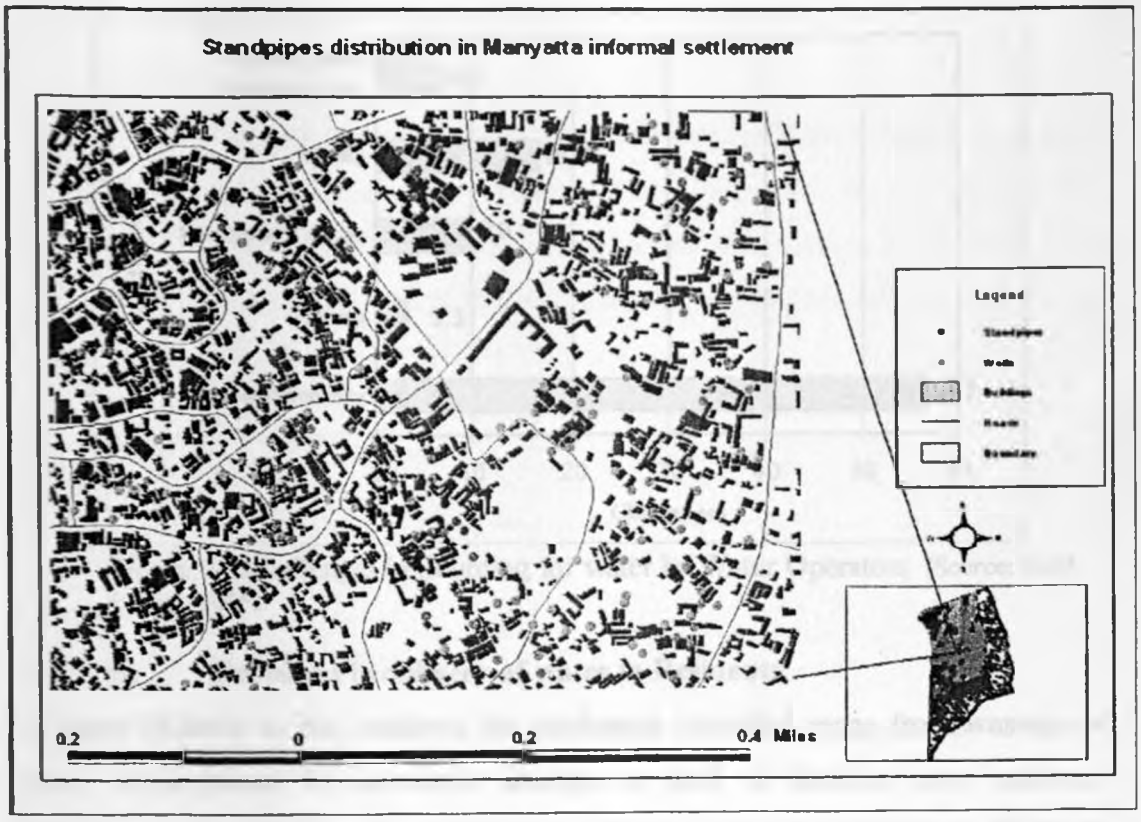
Residential resale is also a common practice in Manyatta as is seen in ***Plate 1*** as some domestic consumers in Manyatta currently sell water to their neighbours. At least 4% of those with individual connections resell water.

4.1.4 Main areas of Operation.

Currently KIWASCO has 39 registered water operators in Manyatta sub location. However, only 15 of them are located within the informal settlement without equitable distribution as indicated in Map 4 &5.



Map 4: Areas served by Water operators (Source: Filed survey, 2006)



Map 5: Standpipe distribution versus Population density. (Sources: Filed survey, 2006)

4.1.5 Problems associated with the water supply in Manyatta

Water Operators

a) Problems in sourcing for water from Water utility

Challenges identified by the water operators in obtaining water from sources (KIWASCO, Private wells and Boreholes) include inadequacy of water, high pricing of water, poor water quality resulting from water contamination by burst sewers and burst water pipes, poor and faulty infrastructure and management problems and corruption at the KIWASCO offices.

However, the most predominant problem identified is water inadequacy accounting for 56.7 % followed by poor water quality accounting for 16.6%, corruption and management problems accounting for 10%.

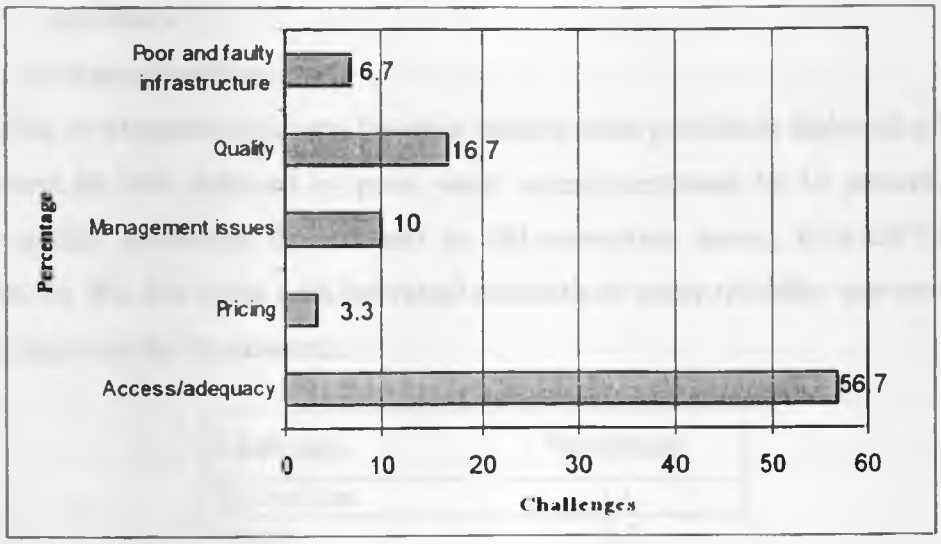


Figure 2: Challenges in Sourcing for water by Water Operators (Source: Field Survey, 2006)

b) Problems in delivery of water to Residents

In water delivery to the residents the challenges identified range from wastage of water, non-payment by customers, damage or theft of facilities, poor customer relations, poor sanitation and unhygienic conditions, customer complains on pricing to competition leading to few customers. However, inadequacy and rationing of water accounted for the most complains at 23% followed by poor water quality at 13% and poor customer relations at 10%.

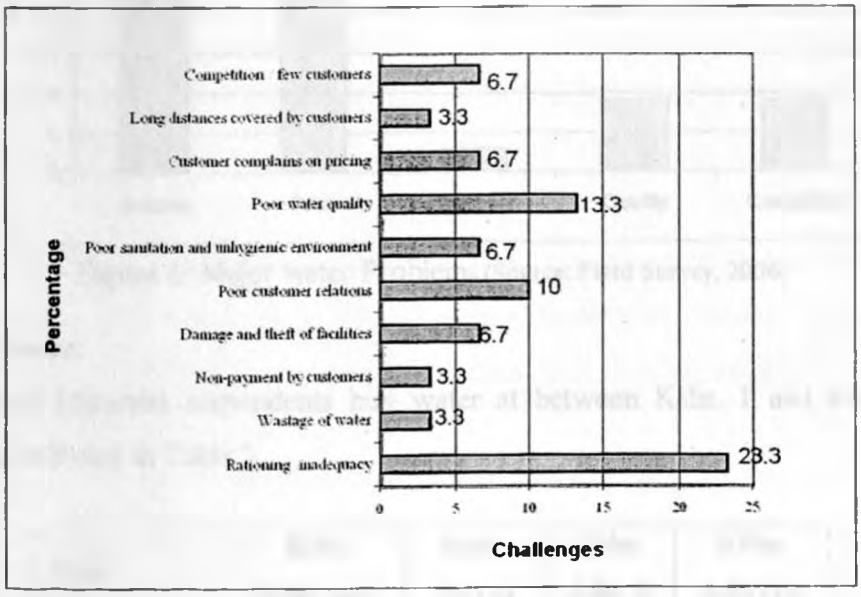


Figure 3: Challenges in delivering of water (Source: Field Survey, 2006)

Residents

a) Water Problems

According to Manyatta residents, the most serious water problem is high cost of water mentioned by 36% followed by poor water access mentioned by 34 percent. Poor water quality accounted for 9% and as did corruption among KIWASCO Staff account for 9%. For those with individual connections water reliability was termed as having improved by the residents.

Challenges	Percentage
No Problem	1.4
Access	34.3
Price	35.7
Quantity	2.9
Quality	8.6
Corruption	8.6

Table 2: Major water problem (Source: Field Survey 2006)

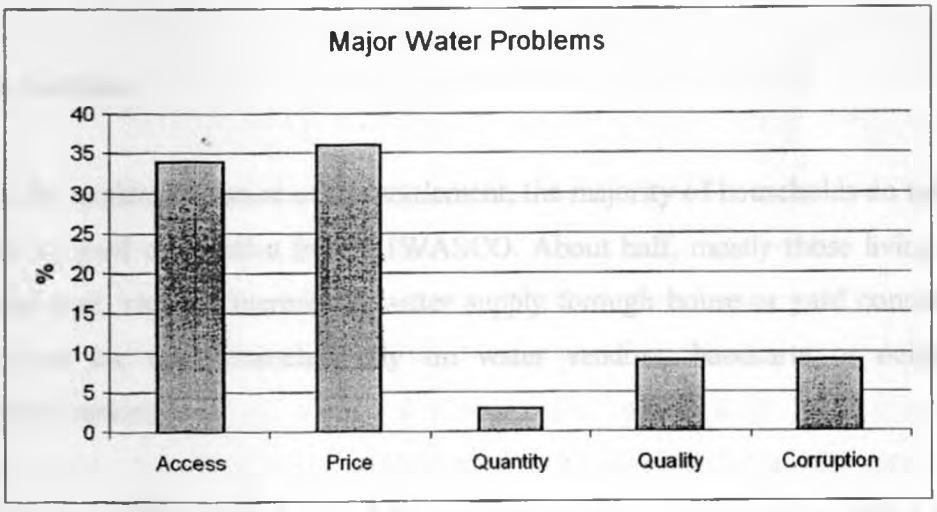


Figure 4: Major water Problems (Source: Field Survey, 2006)

Price of water.

Majority of Manyatta respondents buy water at between Kshs. 1 and Ksh 10 per bucket as reflected in Table 3.

Price	Kshs. 0.50 <=1	Kshs. 1.50 -3	Kshs. 3.50 -5	Kshs. 5.50 -10
Percentage	4.3	45.7	22.9	17.1

Table 3: Unit Cost of Water in Manyatta (Source: Field Survey, 2006)

Compared to the tariffs charged by KIWASCO (annex 1) this price is more than double. Although a Situational Assessment & Socio-Economic Household Survey Report World Bank (2005) indicates that the situation is slightly better during wet season. In general, this implies that the residents without individual or yard connections in the settlements pay more for water services.

The prices the consumers pay in the informal settlements are driven by inaccessibility, non-availability/inadequacy of water and the role of intermediaries in the distribution of water. The availability of water and the provision of efficient services would bring down the prices significantly.

High prices are identified to push some consumers to illegal connections, or other inappropriate access to water. The consequences on KIWASCO are the increase in UFW and loss of revenue. The residents of Manyatta placed pricing as their highest-ranking challenge that accounted for 36% of all the challenges identified.

Access to water

Due to the unplanned nature of the settlement, the majority of households do not have a house or yard connection from KIWASCO. About half, mostly those living along the main road, receive intermittent water supply through house or yard connections. Those that are not connected rely on water vendors, handcarts or neighbours (residential resale).

There are no public standpipes in Manyatta what exist are vending standpipe points. Residential resale is a practice in Manyatta as a number of domestic consumers in Manyatta currently sell water to their neighbours as well as water vendors.

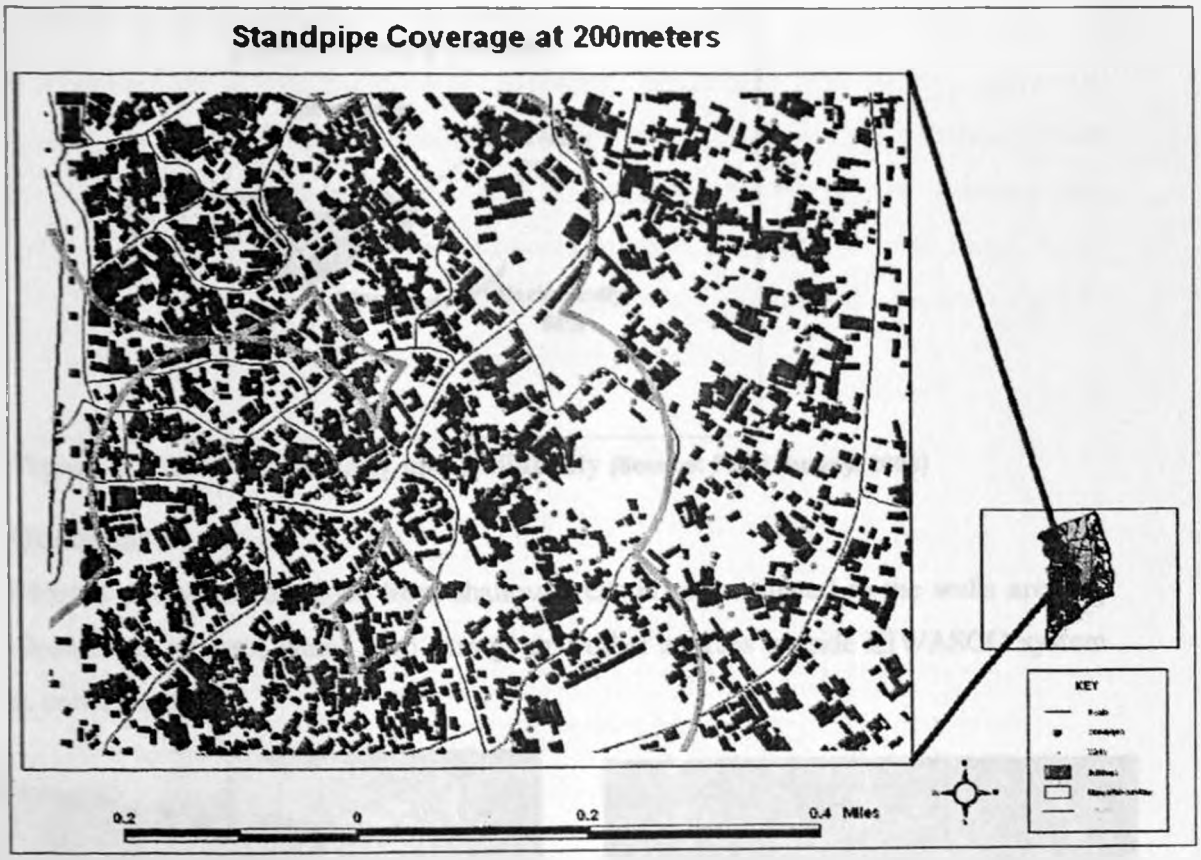
Accessibility of water is measured by distance covered to the water point and the adequacy / availability of the water. People are considered adequately served with water if they have "access to an adequate amount of safe drinking water located within *a convenient distance* from the user's dwelling (WHO/UNICEF, 1993, cited in Satterthwaite, 1995:)

According to United Nations and WHO standards, minimum acceptable water access consists of having a source of abundant, safe drinking water within 200 meters. This standard implies that standpipes and outside water connections can be part of the solution.

Map 5 shows that the distribution of the standpipes versus the high population density is quite wanting as it is likely that its capacity is overstretched which often leads to poor services, long queues and waiting hours. Map 6 indicates the areas within radii of 200 meters in which the standpipes are concentrated; some household are left out while within the same informal settlement; some areas are not served at all except by private wells.

Given the distances that households have to travel to reach water sources, the time spent queuing for water and the non - availability of water, the pressure on KIWASCO to provide services is onerous. The low quality of service is not necessarily a KIWASCO fault but it is an issue precipitated by the magnitude of the demand for services where the system and capacity have not been built.

The study thus derives that Manyatta informal settlement is not adequately served with water and the quality of services is still low. Increasing the pipe network to improve on the standpipes distribution would improve on the accessibility challenge of the un-served population. Increasing pipe network should target increasing the total length of functional pipe networks through the rehabilitation of existing non-functional pipe networks in the settlement and the construction of new and extend existing pipe networks.



Map 6: Standpipe Coverage at 200 metres radius (Households served and un-served) (Source: Field Survey, 2006)

Water Availability and reliability

Those connected to individual pipes identified water availability as periodic at 58%, however 38% of the respondents reported having relatively regular supply and thus term the water as available but not as reliable. In is thus notable that water availability has improved.

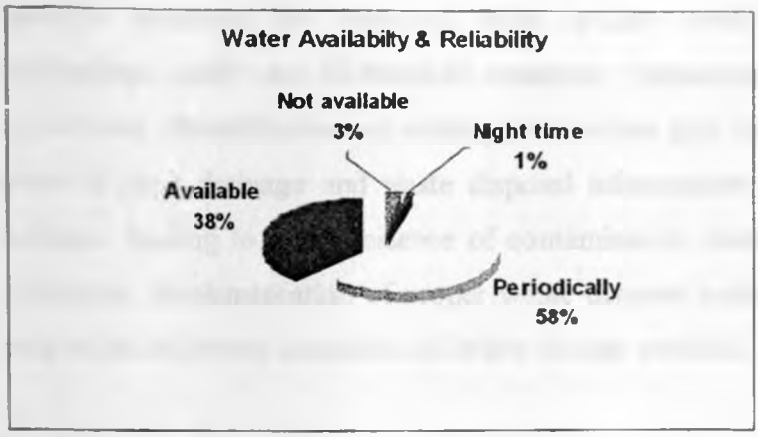


Figure 5: Water Availability and Reliability (Source: Field Survey, 2006)

Quality of water

Most of the water obtained from shallow wells is contaminated as the wells are dug close to pit latrines; water from springs and other sources outside KIWASCO system is contaminated.

Plate 6: Shallow well dug within compound contain four graves. (Source: Field Survey, 2006)

Plate 7: Burst water pipe exposed to contamination in the open drain (Source: Field Survey, 2006)

Although currently KIWASCO water seems to be the safest complains of contamination of post-privatised water has been identified. Contamination also result from bursts pipes and poor waste disposal methods within the neighbourhood as seen in Plate 6 &7. Contamination of KIWASCO water also occurs mainly during transportation to the household by the vendor as other vendors mix the water with well water in trying to make the prices competitive. The containers used to transport the water to the household are also of questionable hygiene. Water quality improvement is crucial to reclaim and maintain the consumer confidence and contribute towards the improvement of informal settlement residents' welfare.

Specific measures for improved water quality would include: Conducting an institutional audit on KIWASCO treatment procedures and making necessary corrections, Rehabilitation of existing distribution pipe network in Manyatta where there is poor drainage and waste disposal infrastructure coupled by frequent pipe leakages leading to high incidence of contamination, treatment of well water in the settlement, implementation of proper waste disposal methods and creation of public awareness on proper sanitation and water storage methods.

b) Other water problems

Other Problems	Percentage
No problem	3
Dry season, high price, high demand, unreliability	30
Long distance, queuing, time wastage	13
Poor waste mgt, Burst pipes, contamination, and poor quality.	26

Table 4: Distribution of other water problems (Source: Field Survey, 2006)

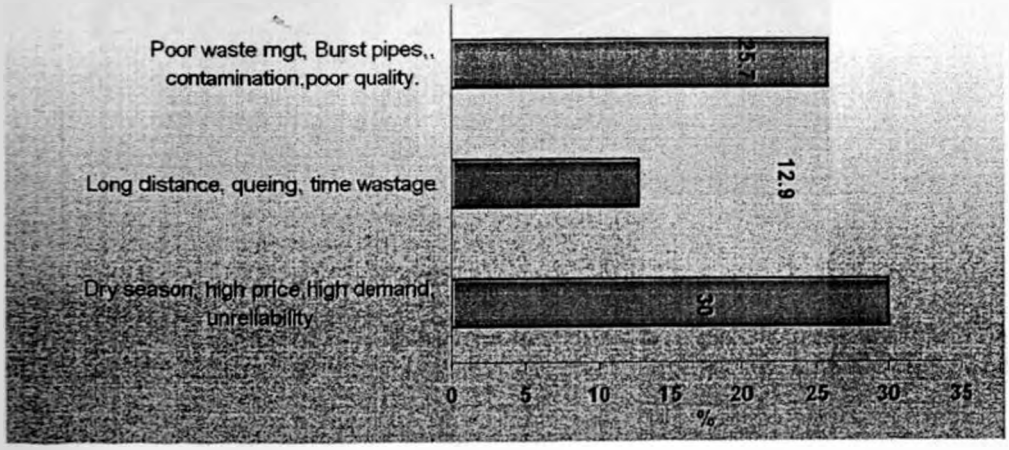


Figure 6: Problems Identified (Source: Field Survey, 2006)

Water Operators

Other problems identified by the water operators include poor solid waste management characterized by open dumping sites and burst water pipes, which often lead to contamination of the piped water. There are some areas where the water supply line and the open drains cross each other (plate 7) and in such areas, this leads to contamination of the clean water often exposing its users to various water borne

diseases. The burst water pipes and poor waste management lead to water contamination both in pipes and wells.

Residents

Residents identified other problems in water provision as, unreliability, high pricing, poor water quality, long distances covered to water point and queuing (See Plate 8). High prices, unreliability and inadequacy during dry seasons all of which have a huge bearing on adequate water service delivery account for 30% followed by poor waste management; burst pipes leading to contamination and poor water quality accounting for 26%. Long distances covered to water point, queuing and time wastage accounted for 13%.

Plate 8: Water Vendors queuing to buy water from a Standpipe
(Source: Field Survey, 2006)

KIWASCO

KIWASCO identified the frequent bursts of old worn out pipes and illegal connection by the water operators as leading to high UFW and loss of revenue.

Unreliable/interrupted water supply arising from low production. The current water supply to Manyatta of 1,250 cubic meters per day against a demand of 12,500 cubic meters per day means that the supply is unreliable and inadequate particularly in area where the water network does not cover. According to KIWASCO, the disparity between supply and actual demand is compounded by the high UFW estimated at 65%. The situation is made worse by unreliable power supply and mechanical breakdowns at the plant.

Of the water operators interviewed 57% did not have licenses and this implies that they are operating illegally. Only 43% had licenses to operate a water point. It is estimated that only 28% of the connections in the settlements have meters. Vandalism of network infrastructure and meters has also been identified as a challenge to KIWASCO in its attempt to provide services to the settlements.

Reasons offered for the lack of seeking legal approval were that most people (30%) view the water point as private property and thus KIWASCO has no mandate to interfere. However, these applied more to those operating private wells or those with individual connections and were undertaking residential resale of the water.

The other reason was that the operators 20% got discouraged by the bureaucracy that they feared was in the system of legalisation and lastly 20% felt that the rates in terms of water prices they pay to the Municipal council already too high and thus they were unwilling to pay anymore to the Municipal council. This indicated the lack of awareness on the part of the community /operator on the changing role of the various institutions and their role either as users or private operators. KIWASCO also does not have the capacity to respond to service requirements of the residents of the informal settlements. The whole water distribution network is old and requires rehabilitation.

During the study, the household respondents as well as some officials of KIWASCO mentioned, the existence of corruption among the utility officials who facilitate illegal connections. Ironically, the same officials would be the ones expected to survey the network to ensure its safety from illegal connections and vandalism.

Capacity building through provision of appropriate hardware and software, appropriate staff recruitment and training, and delegation of management to appropriate community based service providers may in some way provide solution to these capacity challenges. Adoption of firm actions and appropriate penalties for staff engaged in corrupt activities would also need to be done by the management.

4.1.6 Preferred option for connection by Households

The study suggest that 70% of the households would be willing to upgrade to household connections or 25% to a yard tap as this would eliminate the extra expenses charged by the handcart carriers while at the same time improving water quality and reliability.

Generally, the community in Manyatta indicates a high level of participation towards the improvement process indicated by 80% of the water operators' willingness to share in the cost for improving the water services.

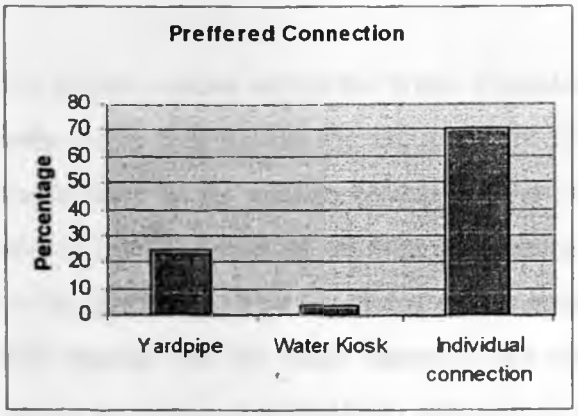


Figure 7: Preferred connection (Source: Field Survey, 2006)

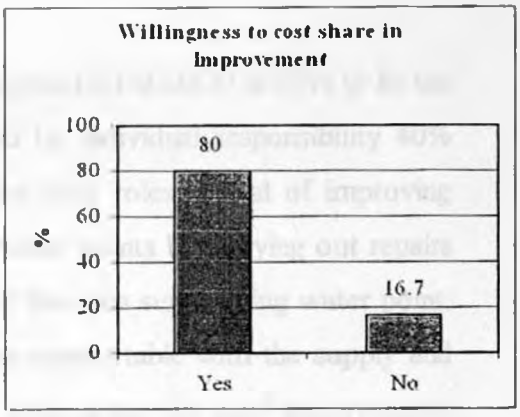


Figure 8: Willingness to cost share. (Source: Field Survey, 2006)

Since previous researches have shown that it does not necessarily follow that because someone can afford a service, they will be willing to pay for it. It is therefore necessary to consider 'willingness to pay' when assessing prospects for service improvements and cost recovery in projects for communities.

The study results suggest that the households would be willing to upgrade to individual connections and to a yard tap while the water operators indicate a high level of participation towards the improvement process by their willingness to share in the cost for improving the water services. Generally, this implies that Manyatta community is willing to participate in the improvement process to facilitate a change from the status quo of poor water service delivery.

4.1.7 Preferred Actor for effective water supply

Residents

Following the challenges identified by the residents, the most preferred actor for water supply is by private operators accounting for 52% followed by the community themselves represented by the CBOs and self-help groups as another preferred choice accounting for 48%.

Water Operators

However, only 13% of the private operators prefer CBOs management due to the vested interest of private operators to maximise their profits and support continued management by KIWASCO at 46%.

For effective water supply the Water Operators proposed KIWASCO at 47% to be the main Actor responsible for improvement followed by individual responsibility 40% particularly by the private operators who identified their roles as that of improving service to the customers through maintaining the water points by carrying out repairs to the pipes as well as improving on the hygiene of the area surrounding water point. This implies that the water operators are relatively comfortable with the supply and service provision of KIWASCO although they site some areas that need improvement. Similarly, the residents seem to be satisfied by the service offered by the private water operators but also citing areas of improvement.

Proposed actor for improvement in Management

i) Water Operators

For improved effective water supply, the Water Operators accounting for 47% identify KIWASCO to be the main Actor responsible for improvement, followed by individual responsibility 40% particularly by the private operators. However, the water operators felt that the community's role towards improvement was only 13% (fig 9)

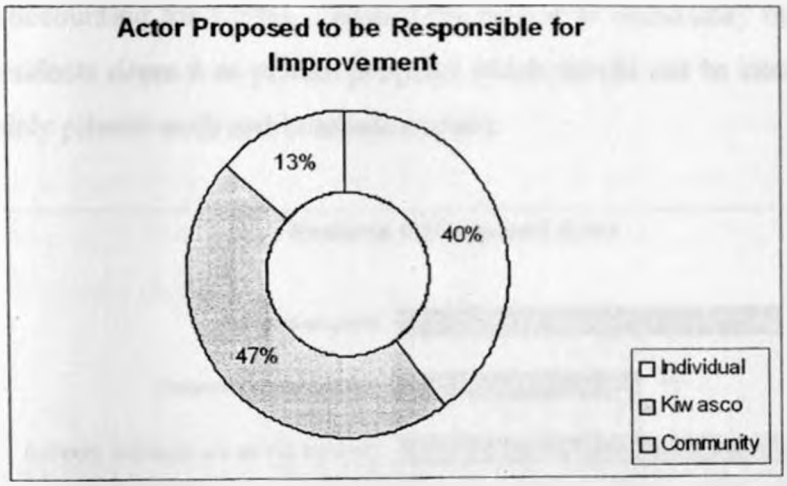


Figure 9: Proposed Actor for Improved Water supply (Source: Field Survey, 2006)

ii) Residents

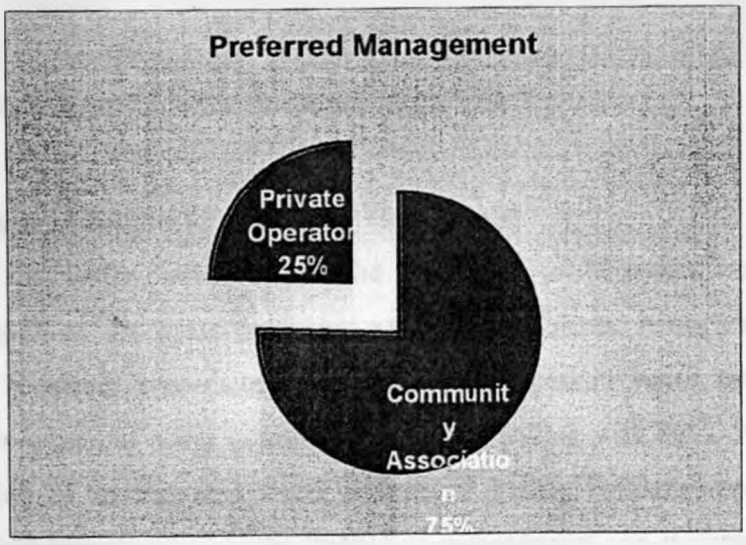


Figure 10: Proposed Actor for Improved management (Source: Field Survey, 2006)

Contrary to the water operators' proposals, the Manyatta community identified their own representation by the CBOs and Self-help groups as their proposed actor for improved management at 75%. The remaining 25% however, still proposed the water operators for improved management.

The various reasons for the divergent preferences both by the resident and the water operators ranged from individual financial limitation (23%), for efficient management, accountability and management (23%), most of the water operators and a percentage of the residents felt that since they already pay taxes and other rates to the Municipal, it is the responsibility of KIWASCO to manage and improve water

services accounting for (23%). About 13% view it as community responsibility 19% of the residents deem it as private property which should not be interfered with these were mainly private wells and borehole owners.

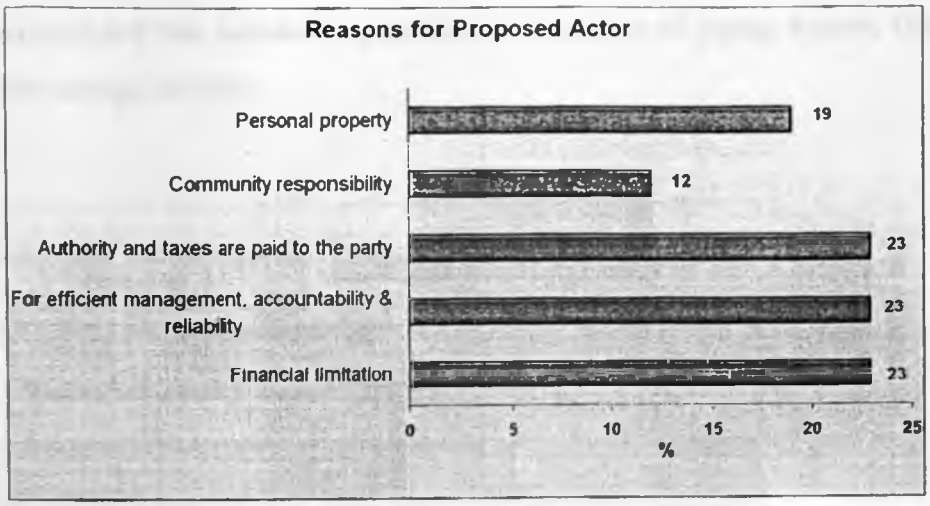


Figure 11: Reason for the actor Proposed (Source: Field Survey,2006)

4.1.8 Recommendations / Opinion by Community

To remedy the water service provision challenge in Manyatta community, the residents as well as the water operators gave their opinions. Areas identified by the residents as requiring immediate improvement for efficient water services delivery include improvement in water quantity and quality leading with 86%, 5% recommend for exploitation of underground water in form of drilling boreholes and treatment of well water, 2 % improvement in the institution management and structure to help curb the problems of corruption, and poor management relationships with the KIWASCO staff as well as 2% for the regulation of the water prices.

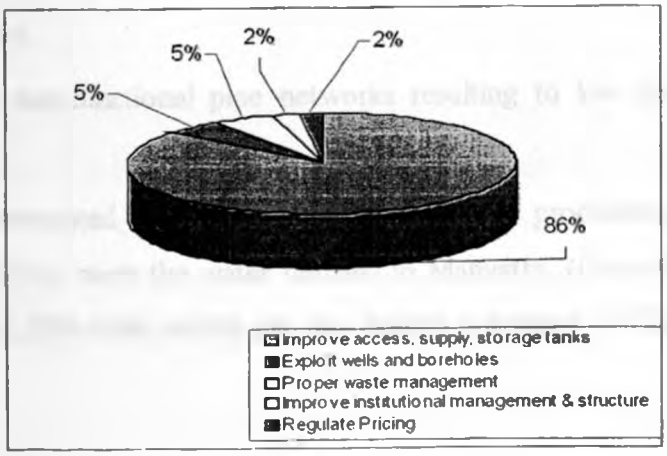


Figure 12: Recommendation by households (Source: Field Survey, 2006)

However, the water operators had other concerns of which they proposed remedies to improve the situation. These remedies included improvement in security as they had complains of vandalism and theft of property, improvement and expansion of existing infrastructure and this included expansion and extension of piping system, the roads and water storage facilities.

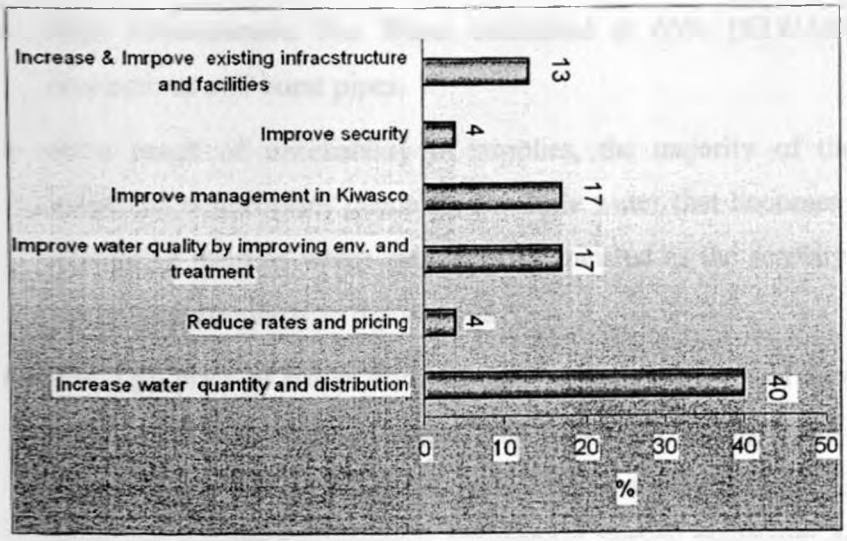


Figure 13: Recommendations by Water Operators. (Source: Field Survey, 2006)

4.1.9 Identified Barriers to effective Water Service Provision

From the findings, the study derives a number of challenges in the provision of water services in Manyatta informal settlements. The barriers identified are technological, environmental, socio-economic and institutional in nature. They include:

- Unreliable power supply and mechanical breakdowns at the water intake and treatment plant.
- Limited and non-functional pipe networks resulting to low coverage and poor accessibility.
- Unreliable/interrupted water supply arising from low production thus an inability by KIWASCO to meet the water demand in Manyatta. (Current water supply to Manyatta is 1,250 cubic meters per day against a demand of 12,500 cubic meters per day).

- Poor quality of water arising from sources of supplies such as shallow wells where water is contaminated by seepages from shallow pit latrines and surface water flowing over contaminated environment. Burst pipes exposed to open drains and dumpsites. The deterioration of water quality in Lake Victoria and old treatment works of KIWASCO.
- Corruption among KIWASCO Staff.
- Vandalism and theft of water facilities and infrastructure
- High Unaccounted For Water estimated at 65% (KIWASCO) due to illegal connections and burst pipes.
- As a result of unreliability of supplies, the majority of the residents without individual connections queue for the little water that becomes available, or go for alternative sources which may be contaminated as the scarcity pushes the price of water up particularly in dry seasons
- The high price of water from vendors reduces the level of access to safe water by residents of Manyatta settlement. The prices charged by water vendors of between Ksh.1.50 and Ksh. 10 (which, translates to a minimum of Kshs. 450 per month based on the Socio-Economic Household Survey maximum daily consumption of 10 buckets a day) are more than double KIWASCO's Kshs. 200 per month for the same consumption - from the Tariff Structure of KIWASCO (annex 1).

This observation implies that the commonly held myth that the poor cannot pay for water services may not be entirely convincing. Instead, as the study indicates, they pay much more higher prices for lower quality water than the people with individual connection receiving monthly billing from KIWASCO.

It further indicates that the low tariffs set benefit only those with connections leaving out the unconnected consumers unable to access the service. This points out the anomaly that still exists in the current system of commercialisation, which although associated with a high level of access with increased connection there is still need for improvement, and expansion of the transmission and distribution networks to improve water.

4.2 DATA SYNTHESIS

4.2.1 Water Accessibility

Drawing from the field data and existing reviewed literature; KIWASCO is the major water service provider in Manyatta informal settlement. The water delivery is mainly through piped networks either through individual in house connections, standpipes or residential resale. Due to the unplanned nature of the settlement, the majority of households do not have a piped water connection. About half, mostly those living along the main road, receive intermittent water supply through in-house house or yard connections. Those that are not connected to the piped system i.e. the un served, rely entirely on the small-scale providers or private wells which are likely to be contaminated.

The study also establishes that majority of the households obtaining water from the piped network supplement their water supply by obtaining water from at least one additional source; this could be springs, private wells or boreholes delivered by carriers or handcarts. Currently KIWASCO has 39 registered water operators in Manyatta sub location. However, only 15 of them are legalized and located within the informal settlement without equitable distribution.

According to United Nations and WHO standards, minimum acceptable water access consists of having a source of abundant, safe drinking water within 200 meters. The research findings in Map 5 indicate that the distribution of the standpipes versus the high population density is quite wanting as it is likely that the standpipes capacity is overstretched leading to poor services, long queues and long waiting hours. Map 6 also indicates that within the required radius of 200 meters some household are left out while within the same informal settlement; some areas are not served at all except by private wells. Given the distances that households have to travel to reach water sources, the time spent queuing for water and the non - availability of water, the pressure on KIWASCO to provide services is onerous.

The low quality of service is not necessarily a KIWASCO fault but it is an issue precipitated by the magnitude of the demand for services where the system and capacity have not been built. Although a positive aspect attributed to the new water

delivery system is improvement in water availability and a relatively regular supply by those with in-house connections, this does not necessarily apply to the standpipe operators as their major complain is water inadequacy and rationing. This according to the field data is attributed to the huge numbers of customers served versus the few standpipes subsequently reflecting that the standpipes capacity is exceeded. The study thus derives that Manyatta informal settlement is not adequately served with water and the quality of services is still low.

4.2.2 Water Delivery

Although KIWASCO is the main provider of water in the settlement, the intermediate providers carry out the larger role of delivery; since of the 67% of municipal water most of it is delivery through intermediate provider in form of water vendors and hand carts carriers. Outside of formal utility systems in Kisumu, a mass of private, small-scale providers typically cater to the water needs of poor households un-served by formal infrastructure networks. Therefore, developing innovative approaches both to the practical problems of service delivery, and to catering to the payment capacity of poor households need to be explored. As regards this approach, in Manyatta informal settlement small-scale network infrastructure systems can be encouraged in earnest to further provide house or yard connections. Also, the recognition of the role of small-scale water operators and vendors is necessary, as it would reduce their risk, allowing for increased investment and better services to consumers.

4.2.3 Water Quality

Although currently KIWASCO water seems to be the safest, complains of contamination of post-privatised water has been identified. Contamination is identified to result from bursts pipes and poor waste disposal methods within the neighbourhood. Contamination has also been identified to occur during transportation to the household by the vendor as other vendors mix the water with well water in trying to make the prices competitive even as the containers used to transport the water to the household remain of questionable hygiene. Water quality improvement is crucial to reclaim and maintain the consumer confidence and contributes towards the improvement of informal settlement residents' welfare.

4.2.4 Water Pricing

Majority of Manyatta respondents buy water at between Kshs. 1 and Ksh 10 per bucket. Compared to the tariffs charged by KIWASCO (annex 1) this price is more than double. Generally, this implies that the residents without individual or yard connections in the settlements pay more for water services. The higher prices that the 'un-served' consumers pay in the informal settlements are driven by inaccessibility, non-availability/inadequacy of water and the role of intermediaries in the distribution of water. The availability of water and the provision of efficient services would bring down the prices significantly. This indicates that the low tariffs set benefit only those with connections leaving out the unconnected consumers unable to access the service and points out the anomaly that still exists in the current system of commercialisation. This observation further implies that the commonly held myth that the poor cannot pay for water services may not be entirely convincing. Instead, as the study indicates, they pay much more higher prices for lower quality water than the people with individual connection receiving monthly billing from KIWASCO.

4.2.5 Community Participation in water supply and management

Since previous researches have argued that it is necessary to consider 'willingness to pay' when assessing prospects for service improvements and cost recovery in projects for communities. Manyatta community indicates a high level of participation towards the improvement and management of water services. The households indicate a desire and willingness to cost share in upgrading to individual connections and to yard taps while the water operators express a high level of willingness to share in the cost for improving the water services. Generally, this implies that Manyatta community is willing to participate in the improvement process to facilitate a change from the status quo of poor water service delivery.

To remedy the water service provision challenges in Manyatta community, the residents as well as the water operators gave their opinions and identified areas that require immediate improvement. These include improvement in water quantity and quality, improvement in the institution management and structure to help curb the problems of corruption, regulation of the water prices, recommend for exploitation of underground water in form of drilling boreholes and treatment of well water to remedy inadequacy and poor quality, improvement in security to curb complains of

vandalism and theft of property, improvement and expansion of existing infrastructure and this included expansion and extension of piping system, the roads and water storage facilities. The majority of the residents prefer for the management of the water to be delegated to CBOs from their community for effective delivery of water services.

Overall, the study indicates that the current system of commercialization has not improved the water supply to the poor in the informal settlements, as the level of access is still poor and the coverage of water points still low.

CHAPTER FIVE

AN APPROACH FOR EFFECTIVE WATER SERVICE DELIVERY IN INFORMAL SETTLEMENTS.

Meeting the water service requirements of the poor people, in particular the growing number living in informal settlements requires that stakeholders be able and willing to undertake innovative approaches to service delivery. This should include offering users choices among alternative service options, some of which could be upgraded over time, in line with changes in income levels and effective demand; experimenting with innovative technologies and service options; negotiating with community-based groups rather than interacting with individual customers; and engaging key stakeholders in shared provision of services.

This also means addressing the constraints that impede poor people's access to these services, in particular policies and regulatory frameworks as well as existing institutions and social structures. Any improvements in provision of water supply delivery in Manyatta Informal Settlement or any other informal settlement, should aim at achieving inclusiveness, sustainability, effectiveness and equity of the supply.

It has become generally accepted that although water is a basic human right and needs to be accessible to everyone, it is also an economic good. And as such, economic value can be attached to it. This realisation is increasingly changing the ways water services delivery is being dealt with, and in particular has led to the involvement of many other parties in the sector. Rethinking the ways in which these parties co-exist and cooperate can provide opportunities to drastically improve water services delivery.

In order to strengthen the socio-economic conditions of communities, mere administrative decentralization may not be enough. Urban sector reforms could play a major role in adoption of demand-responsive and adaptable approaches based on partnerships and empowerment of local people to ensure their full participation through a decision making role in the choice of project design, control of finances, and management arrangements.

This could also mean a shift in the role of municipal water utilities representing the Local Authority from direct water service delivery to that of planning, policy formulation and providing partial financial support. Implementation, management, Monitoring and evaluation of projects could be done by NGOs, CBOs and other independent bodies as well as the communities.

The concept of a partnership for water services provision in the community needs to be widely discussed amongst a variety of people and particularly with the communities, in order to ensure a relevant and appropriate partnerships in different scenarios for different communities.

In this case, the art is to learn from past mistakes, address the issues that require immediate attention, and achieve genuine sustainable change in people's access to and use of water services. Issues requiring immediate attention include the problems around serving the urban poor – with issues of norms and standards, of density, and of weak community links hampering community management approaches.

The focus on technology also needs to shift from large-scale, western style, highly technical solutions, to local, small-scale, appropriate and affordable technologies. Low-cost technologies are now available for water supply, supported in many cases by institutional experience that has made their implementation acceptable to users and entire communities. Such innovations include community/group water taps, private-sector community water kiosks, and methods for combining public water supply in towns with rainwater collection by homeowners.

Small-scale systems are possible, often desirable, effective and can be economic, especially when diseconomies of scale in conventional distribution networks are considered and in allowing diverse solutions, a multiplicity of situation-tuned solutions is required in increasingly complex and resource-limited human environments as is exemplified in informal settlements, and enabled by new management technologies and strategies.

To make all the above possible, attention needs to be paid to institutional management options, the role of local government, local communities, private sector including the small scale intermediate and independent entrepreneurs and alternative management options involving various forms of partnerships.

Research findings suggest that outside of formal utility systems in Kisumu, a mass of private, small-scale providers typically cater to the water needs of poor households un-served by formal infrastructure networks. Therefore, developing innovative approaches both to the practical problems of service delivery, and to catering to the payment capacity of poor households need to be explored. As regards this approach, in Manyatta informal settlement as is in several other informal settlements, small-scale network infrastructure systems need to be encouraged in earnest to further provide house or yard connections. Besides, the recognition of the role of small-scale water operators and vendors is necessary, as it would reduce their risk, allowing for increased investment and better and more affordable services to consumers. This is only possible through effective partnership and legalising of the small-scale operators.

Solo (1998) describes a situation in which small-scale network infrastructure systems provides house connections – An example of the small-bore developer in Malang, Indonesia, who put together a private sewerage system that ended up covering more than 1,000 families. Solo (1998) indicates that when utility companies lack means to extend their networks, suppliers of materials or equipment and contractors build water and sanitation systems and turn them over to user groups or to the utility. For more than forty years virtually all-new secondary infrastructure in Latin America has been supplied by developers and paid for by homeowners. Private entrepreneurs own or manage water points, kiosks, latrines, pipelines and storage tanks.

There are also other examples where small-scale providers hold concession contracts. In Mauritania for example, 50 percent of the countries' water supply is concessioned to private operators. The characteristics of these concessions are that they are private and the concessionaires are natives of the towns or villages whose water service they manage (Collignon, 1999)

Another key challenge in seeking to improve access to water for low-income population remains where to tap additional funding resources and how to ensure that these investments result in sustainable delivery of services. Currently in Kenya, public funding from governments and donors –alone- is just not enough to develop water infrastructure and improve delivery of services. New ways are needed to bridge this financing gap and at the same time reform governance of the sector. The development of strong public private and community partnerships would contribute to improved water service delivery.

Partnerships are at the centre of emerging approaches to service delivery and management. The benefits of partnerships derive from mobilizing additional community resources as well as from increased effectiveness in the use of available resources.

However, there currently exists a misunderstanding of roles both by the private sector, the municipal councils, NGOs and the community. Ideally, the council should promote income generation while providing effective services, while the private sector although aiming at profit maximisation should not forget it has a duty to the community and can only achieve it if it works hand in hand in close collaboration with the communities and the council.

An aspect of commercialisation that needs to be appreciated still is that the council still has the responsibility to protect the interest of the community based on the Local authorities Act. Commercialisation does not mean full privatisation- there is need to forge a way in which commercialisation maximises benefits while meeting the real need and in a sustainable manner

The various approaches in water supply and management have different reasons for the failure in achieving the desired result. The NGOs, CBOs and Self-help without adequate recognition and support by the government have been faced by challenges of inadequate financial capacity, weak institutional and regulatory frameworks, and poor management both within the institutions and within the communities.

Private ownership on the other hand has also faced challenges of cost recovery, haphazard settlement patterns and most often than not prefer areas in which they can recoup profits faster and this implies in areas where no extra cost would be involved such as infrastructure expansion, consequently affecting the informal settlements that require the infrastructure expansion.

At the root of many failures is the lack of community participation. Participation is not happening due to governance failures, but also due to lack of awareness. The participation of all stakeholders in water supply, distribution, and tariff decisions is critical, but often overlooked in the water sector. Community participation in water supply and management decisions is part of the solution. However, it is important to note that people will only participate if they believe it is in their interest to do so. All too often participation is seen as a way of getting poor people to carry out activities free or share costs, when the benefits are not clear to those expected to participate – but once households recognize how their costs of water supply will differ with varying types of service, community members often can agree on the preferred type of service for their neighbourhood.

In spite of the various deficiencies in the various actors, there exists strengths and potential in each case that can be capitalised. Further, it is important to bear in mind that water and sanitation policies would be most effective when they seek to stimulate and support community-based initiatives. Therefore the proposal of a framework of effective partnership that blends the community management aspect with government and development agencies supporting role while tapping in to the commercialisation synergies of the private sector strikes a balance and retains water as an economic good of public trust.

What is required is an integrated approach in order to include the excluded who, in this case are the users (active role of the communities), particularly the poor in the informal settlements. Whichever combination of a framework eventually chosen, the user (community) has to play a key role especially in planning and management.

Why form Partnerships?

Given the haphazard settlement patterns in the informal settlements, the technical and/or resource constraints limiting the various organisations engaged in delivery of water services from operating effectively. Water service delivery to urban informal settlements is proving difficult thus making it clear that extending services requires partnerships between communities, the private sector, regulators and municipal authorities.

Greater involvement of the private sector and the community in water supply, distribution and management, through innovative approaches of different forms of partnerships, would likely improve the institutional efficiency of WSS providers, may be a way to bridge the existing financial gap and bringing more interests to the table that ensures a longer-term perspective. WSS providers with a profit incentive are more likely to stress efficiency in water delivery. The community /public partners in these partnerships may stress greater accountability to consumers and to municipal government.

The result can be better-focused cost-recovery strategies, along with billing and collection procedures that are both more accurate and better accepted by the community. Improved efficiency and better rates of cost recovery can generate benefits at all levels. The poor in the informal settlements would receive customer-oriented service. WSS providers can stand on their own feet financially, without becoming a drain on the general municipal budget. The community would be responsible for their own water projects and the political leadership can reap the political capital of better water access.

There are numerous benefits of partnering and using small-scale providers in water services delivery as described in many studies. They tend to be customer-driven, financially viable, and ready to apply innovative technologies and marketing methods. They provide appropriate solutions in appropriate places, assume all investment risks, and reach the poor. They cover costs, and respect willingness to pay. Their businesses are profitable, and the small-scale operators can start up more quickly and cheaply than their bigger competition. They have less to lose, and are therefore more likely to adopt innovations. Owing to their size and consequent ability to get closer to clients,

they have developed simpler, more appropriate charging mechanisms (Solo, 1998). Collignon & Vézina, (2000) also found that the main advantages of independent providers are their ability to respond quickly to changes in demand, to offer services needed by low-income families, to self- finance, and to recover all costs. In addition, they found that the independent providers were particularly successful in working in areas where the concessionaires have great difficulty, and in overcoming the barriers cited by the concessionaires in justifying their neglect of these areas.

In Kenya so far, the attention for private sector involvement has very much benefited large-scale municipal companies, and has failed to incorporate the possible added value of local small-scale providers. Many of the water utilities deal with large-scale, mainly urban systems. Local artisans, masons, and small- scale manufacturers have little role in such centralised and large-scale operations.

However, experience has proven that low-cost, locally applicable and available technologies and community management approaches are often more appropriate and sustainable than large-scale, highly technical options. Therefore, partnering and using local, small-scale entrepreneurs in the informal settlements might make more economical, social and institutional sense. Already, several studies have shown that the small-scale entrepreneurs or independent providers are responsible for serving large groups of people that are not being, or cannot be served by the mainstream providers. Identifying more possible delivery channels and increasing the capacity-base for improving and increasing service delivery is essential.

This may includes the necessary investments in training and capacity building communities and opening up opportunities for small-scale providers and entrepreneurs to become more actively involved in water services provision. And given the significant inequities in prices paid for safe water between those connected and those not connected in informal settlements, cross-subsidisation and syndication of utilities should be considered to allow fair pricing of water for those not connected.

The overall picture that emerges from the study suggests that by recognising and regularising the activities, roles, and institutional position of intermediate and independent providers, and by facilitating intermediation, coordination, and

partnership between intermediate and independent providers, NGOs, CBOs, and the private sector, the municipal and national authorities can set the stage for better delivery of water services to the poor in the informal settlements.

Partnerships are important because they enable organisations or individuals to leverage additional skills and resources while remaining focussed on their own core business. Thus a water utility which partners with a community based NGO or CBO can learn more about the informal household who are not customers while the NGO can help those households lobby effectively to be connected an get access to services.

Social intermediation by NGO's/CBO's / private bodies, can play a facilitating role in ensuring water supplies in informal settlements by acting as a guarantor to the formal municipal utilities and thus provides another level of partnerships and a new model for improved service delivery at low capital cost. In this case, the proposal is that in the event of introduction of community Based Organisations participation in the water service delivery and management, the water utilities should consider the possibility of entering into operational/ concession contracts or outright purchase of service points.

The establishment of community water associations would meet the objective of regulating the services of water operators. The operational contract would enable the utility (municipal council whose main role and responsibility as stipulated in the local Government Act is to provide services to the population within the area of jurisdiction.) to collect revenue for water used, monitor quality and pricing and extend water services to un-served consumers.

Private sector particularly the financial institutions can view the waters sector/ water utilities as valuable clients for long-term financing even as the private capital becomes a powerful incentive for water utilities to reform and improve performance.

With issues of weak community links hampering community management approaches, there is need to develop community self-help options and enhance participation of civil society to ensure sustainability in delivery of water services. The civil society roles in water provision need to be supported, and their capacity to perform more effectively needs to be enhanced through exploring the possibility of

creation of Decentralised Funds for the Development of Local Initiatives to be drawn on by local groups - NGOs, and community Associations – to build capacity through training, hiring advice, creating partnerships and attracting funding. It may be worthwhile to note that the Constituency Development Fund (CDF) could come in handy in supporting Community water projects. The CDF provides a funding opportunity for partnership to be formed between CBOs and Government (Local Authorities) or Water Utilities and the Municipal Councils.

With issues of norms and standards and of high densities in the informal settlements, formal institutions need to bring about legal and procedural changes to respond to community initiatives and demand for services. For instance, this may require revision of municipal laws to facilitate defining a standard of water service that meets critical health objectives, is financially sustainable within the resources available to families and water supplier, and yet is acceptable to the community. This also inevitably entails such reduced standards in urban planning.

Good water governance is also important for providers whether public, private or at community levels and is crucial for successful partnerships. Governance concerns not only the institutions but also the interactions between different levels/bodies of government and the interaction between all the stakeholders involved and the government. Principles of good governance include transparency, accountability, customer focus, health and environmental protection, and are key to sustainable water services and should be at the core of any reform.

Public trust also needs to be cultivated as Intermediaries such as NGOs, CBOs that are available and effective actors take up an active role in mediating and partnering with formal institutions or the water concessionaires to provide safe water access to the informal settlements while involving the community in the process from the beginning. Contracts should also be made public before they are signed. This would increase public trust, since trust has been identified as being at the core of a successful partnership. In regard to this, there is a need to develop monitoring schemes and access-to- information guarantees that ensure accountability by all parties involved.

However, for these forms of partnerships to be fully successful and to guard against abuse of any form, the partnerships must be appropriately structured and realistically oriented in order to cater for all interests and ensure long-term perspectives. Evans, (2005) identifies the most important element of partnerships as mutual understanding and argued that even when organisations do not fully trust each other a degree of mutual respect and understanding can significantly improve the quality of the relationship.

Contrary to the loosely used term 'partnership' which is commonly used to refer to forms of relationships from conventional contracts or donor beneficiary relationships to formation of new organisations, true partnerships in this context are meant to have the potentials to combine the ideas, resources and drive of two or more entities in an enterprise where risk is shared and commitment to the relationship is high. To optimise the odds of a successful partnership, great emphasis also need to be laid on attracting private sector investments particularly the domestic financial markets and to protecting consumers.

The study proposes a partnerships approach that is likely to result in innovation, accountability and added value and can be effective both in service delivery and in the arena of policy development. This involve formation of sustainable water solutions model for participatory-based management in which:

i) The partnership is expanded to include a broad set of actors (such as intermediate and independent water providers, Domestic financial Institutions, NGOs, CBOs and WUAs.),
ii) Long-term municipal policies that are based on consensus among all the actors and which improve the quality and extent of service provision is developed,
iii) Participatory diagnosis and a water map as a tool for guiding action is built,
iv) The level of service is more flexible and responsive to poor people's needs.

The partnership would necessitate the involvement of the Public sector, Private sector and Community - includes the Government, the water utilities (KIWASCO), Private sector (Small scale intermediate and independent Water providers, domestic financial institutions), the local NGOs, and CBOs/WUAs.

For effective water supply and management, the Government and the Municipal utilities would be mainly involved at higher level of partnership particularly responsible for policy formulation, planning and partial financial support while the Private sector, NGOs, CBOs and WUAs, would be at a lower level responsible for implementation, operation & maintenance and management with an advantage of additional community resources as well as increased effectiveness in the use of available resources. Monitoring and evaluation of the project would be done at all levels.

Various partnerships could be formed between different actors as defined below.

Government – KIWASCO: Key responsibilities include Policy formulation, Partial financial support, monitoring and evaluation

KIWASCO- NGOs: Key responsibilities include Planning, Policy formulation, Partial financial support, monitoring and evaluation

Government - NGOs: Key responsibilities include, Partial financial support, monitoring and evaluation

KIWASCO – CBOs/WUAs: Key responsibilities include Planning, Implementation, Management, monitoring & evaluation, Financial Input

KIWASCO – Private Sector: Key responsibilities include Planning, Financial Input, Monitoring and evaluation, implementation.

KIWASCO - Government - CBOs/ WUAs: Key responsibilities include Planning, Policy formulation, Financial input, Implementation, Management, Monitoring and evaluation.

KIWASCO - CBOs – Private Sector: Key responsibilities include Planning, Financial input, Implementation, Management, Monitoring and evaluation.

KIWASCO -NGOs - CBOs: Key responsibilities include Planning, partial financial input, Implementation, Management, Monitoring and evaluation.

This is further graphically presented in the models in figures 14 & 15. Figure 14 the size of the arrow and the circle indicates degree and level of input respectively

required from each party. In Figure 15, the arrows indicate the possibilities of partnerships.

The codes indicate the roles played and input by respective partners.

Codes

1 = Policy formulation

2 = Planning

3 = Financial Support

4 = Implementation

5 = Management

6 = Monitoring & Evaluation

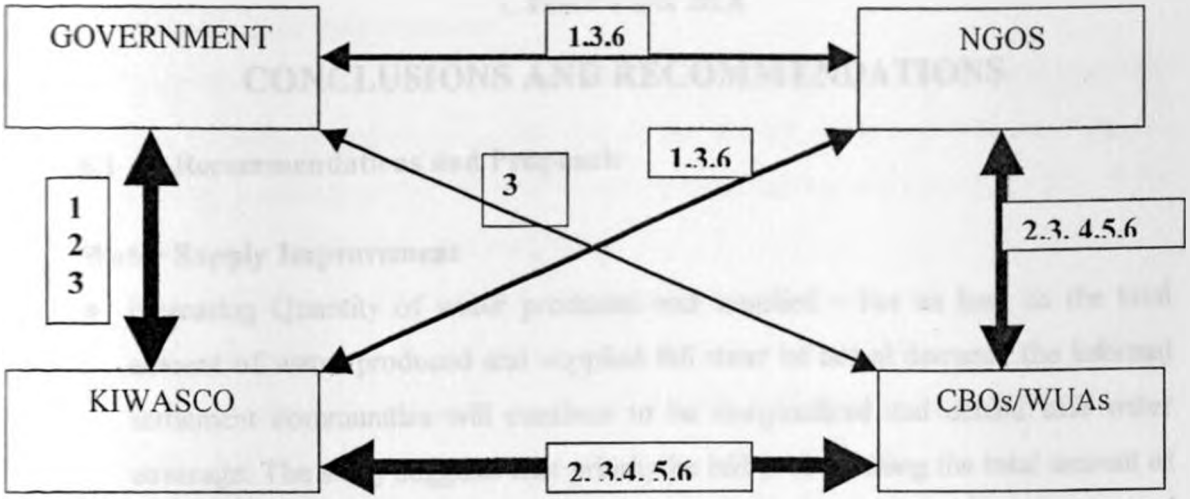


Figure 14: Partnerships Defined

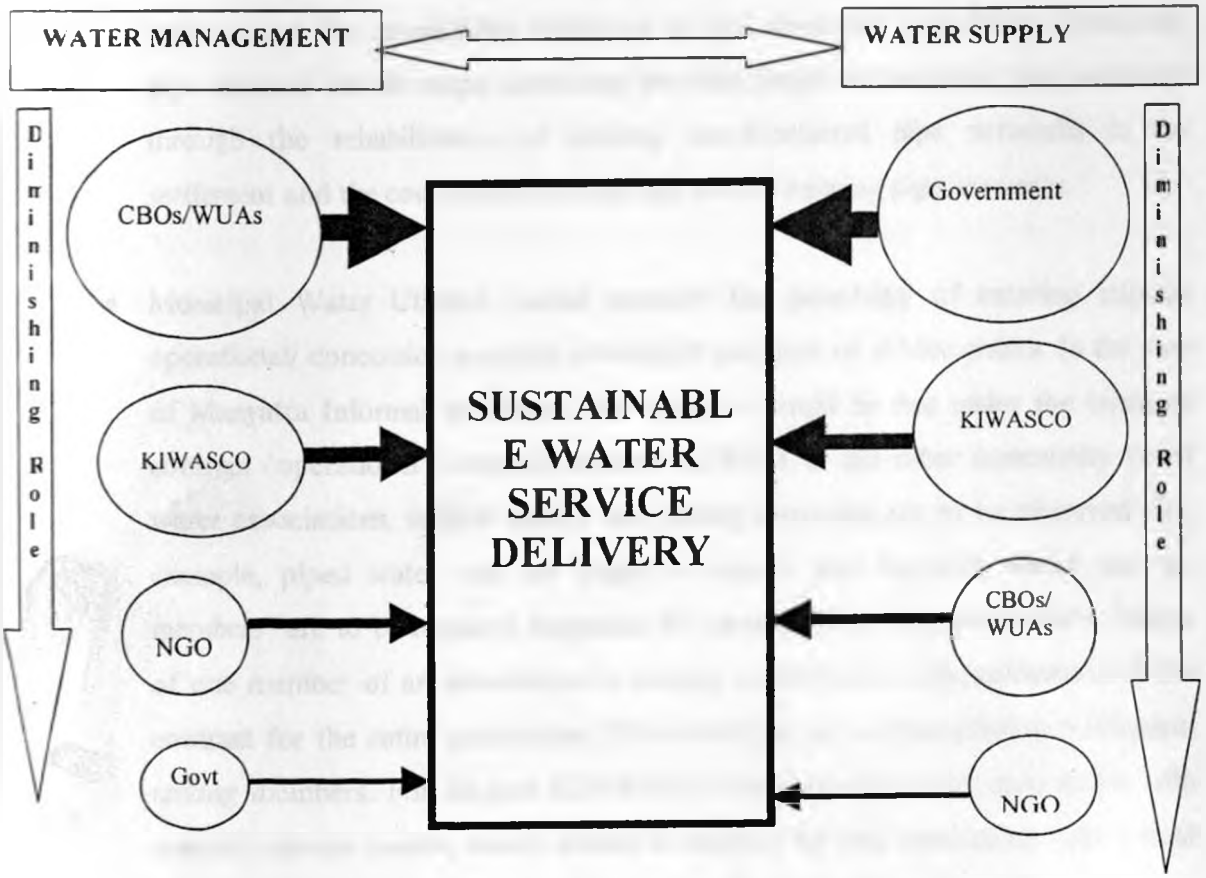


Figure 15: Level and Degree Of Input From Key Partners in Partnership

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Recommendations and Proposals

Water Supply Improvement

- Increasing Quantity of water produced and supplied - For as long as the total amount of water produced and supplied fall short of actual demand, the informal settlement communities will continue to be marginalized and denied safe water coverage. The study suggests that priority be laid on increasing the total amount of water produced and supplied by the water service providers.

- Increasing the pipe network to improve on the standpipes distribution would improve on the accessibility challenge of the un-served population. Increasing pipe network should target increasing the total length of functional pipe networks through the rehabilitation of existing non-functional pipe networks in the settlement and the construction of new and extend existing pipe networks.

- Municipal Water Utilities should consider the possibility of entering into an operational/ concession contract or outright purchase of service points. In the case of Manyatta Informal settlement, the scenario would be that under the terms of contract (operational Contract) between KIWASCO and other community based water associations, several quality and pricing measures are to be observed. For example, piped water may no longer be mixed with borehole water and the members' are to be regularly inspected for cleanliness by their association. Failure of one member of an association to comply could lead to disqualification of the contract for the entire association. This would act as a self-regulating mechanism among members. For its part KIWASCO would provides each association with metered service points, which should be manned by that association- this would contribute towards checking against waste .The Association's continuous supply of water would then depend upon the settlement of the previous month's bill.

Management Improvement

- Steps should be taken to enter into a mutually satisfactory contractual relationship that recognizes and supports the role of the private operators, while meeting the utilities own objectives of cost recovery and service delivery and that of the community of effective water supply.
- The establishment of community water associations should also be encouraged to meet the objective of regulating the services of water operators. The operational contract would enable the utility to collect revenue for water used, monitor quality and pricing and extend water services to un-served consumers.

- Given the unplanned nature of the settlements and the trend indicating that population in informal settlements is likely to continue rising and that the water utilities at some point in time need to expand the infrastructure to meet the demand, there is need for close co-ordination and linkage between the water utilities and the land use planning department of the relevant local authorities as situations may arise in which water services provision outstrips demand of land available or allocated for these service , there is also need to control the growth and further development of existing informal settlements -this would require legalisation and comprehensive planning for these areas.

- Following the weak community links hampering community management approaches there is need to develop community self-help options and enhance participation of civil society to ensure sustainability in delivery of water services.

- Formal institutions need to bring about legal and procedural changes to respond to community initiatives and demand for services. This may require revision of municipal laws to facilitate defining a standard of water service that meets critical health objectives, is financially sustainable and acceptable to the community. This may also entail such reduced standards in urban planning.

- Given the present limitations on financing, the water utilities will have to find ways of mobilising and tapping into funds from domestic financial markets to

invest in the water sector. This may include making improving on their service delivery and managerial efficiency in order to attract private funding.

- Optimisation of existing water systems, and better management, maintenance and repair of existing water systems is advocated as this can improve services more inexpensively than increasing capacity–it can lead to an increased availability of water and substantial savings. Effective operation and timely maintenance of facilities will ensure optional use of limited resources and lead to reduced demands for replacements.

Sustainability

- Establishment of progressive water pricing policies and cross-subsidisation and syndication of utilities will ensure effective cost recovery for the sector and provision of safe water between those connected and those not connected in informal settlements, which will in turn ensure equitable access to water and the efficient and sustainable use of water resources.

- Another cardinal area for consideration is the use of lower cost more appropriate technologies. What are required are technologies that require minimum municipal commitment, in which potential users create, and maintain services through "self-help". A shift in focus from large-scale, highly technical schemes to appropriate, small-scale technologies is recommended. This requires a shift on many levels, in the training of civil engineers in the ministries, service delivery agencies and all learning institutions in the country who are currently still responsible for the technological side of planning and service delivery within the ministries and service delivery agencies. They need to be convinced of the use of looking for locally applicable, sometimes unusual technologies that do not require much technological knowledge to be operated, maintained and repaired.

- Cultivation of public trust can be done through mediation and partnering of various civil organisations with formal institutions or the water concessionaires, making public the contracts before they are signed, development of monitoring schemes and access-to- information that guarantees and ensure accountability by all parties involved.

- Given clear rules and regulations and quality assurance, and clear guidance on the roles and responsibilities of the community water associations vis-à-vis the mainstream concessionaires, cooperation and co-existence of these various entities can be possible, can lead to more employment opportunities, and can make a real difference.

- Whichever partnership adopted, participatory approach should be adopted and water user associations and local bodies should be involved in operation, and maintenance to lead to eventual transfer of management to the local bodies / community groups. Public, private and community participation should be encouraged in planning, development and management of water services to improve service efficiency.

- Systematic project evaluation of the various water sector reform projects and partnerships would be required, so that when a particular form of project or partnership fails causes for it failure would be known.

- Given that some partnerships may not be suited for some circumstances, it is necessary to consider the feasibility of any options before selecting/prescribing them to a particular situation. The process should consider all relevant stakeholders, as there is a need to better understand under what circumstances specific partnerships are a suitable solution.
- There is need to fully operationalise the new water sector institutions, by equipping them adequately with the resources required to function effectively and execute their duties. The new institutions are not yet fully in control of their budgetary resources, the water utilities still remit all the revenue collected to the central government.

Altogether, this would increase the chance of providing sustainable water services to many more people than are currently being served in the informal settlements.

6.2 Areas For Policy Intervention

- **Revisions in urban Planning standards**

While water policies and reforms must be developed with economic and environmental sustainability as an essential focus, drawing from the principals of human right and dignity, the issues of access and affordability are equally critical to the current debate. Access and affordability to basic water services, therefore, is still a major concern in Kenya's informal settlements. In this respect, the study observes that focus has also been lacking in much discussion on planning and regulation of water both as a service and as an economic good and the adoption of appropriate technologies to enable the affordability aspect for the low-income populations in the informal settlements.

The public authorities have been unwilling to incorporate reduced standards in urban planning. The result has been a publicly endorsed "right" to inside-the-house public water supply, which many residents in fact do not receive, leading to frustration and illegal connections. Public authorities face the policy challenge of defining a standard of water service that meets critical health objectives, is financially sustainable within the resources available to families and water supplier, and yet is acceptable to the community.

- **Legalisation of Informal Settlements**

In order to arrest the current water crisis among informal settlements in Kenya, the informal settlements need to be acknowledged and legalised since their non-recognition has been identified as one of the major constraints in accessing social amenities. This calls for definition of pro-poor policies and implementation concepts in order to tackle the urban informal settlements. This implies an urgent need to develop a national policy on slums and informal settlements in order to focus special attention to the unique sectoral and crosscutting problems prevailing in these areas.

6.3 Conclusions

Given the water use patterns and challenges in the informal settlement and recognising the economic status therein, it would be logical to tap in to the commercialisation synergies of the private sector and community participation and develop and/or improve alternative water source potentials and to forge effective partnerships to facilitate improved water service provision.

The most relevant conclusions are firstly that formal institutions need to bring about legal and procedural changes to planning, policy formulation and providing partial financial support in order to respond to community initiatives and demand for services, and secondly, intermediaries such as NGOs, CBOs should be included in the framework and their role as actors responsible to organize the communities and mediate with formal institutions recognised. Thirdly, water utilities will have to find ways of mobilising and tapping into funds from domestic financial markets to invest in the water sector; the small-scale providers encouraged and included in the framework both as users and investors and their roles as part of the private sector and advantage of bringing along additional resources recognised.

Since previous researches have shown that it does not necessarily follow that because someone can afford a service, they will be willing to pay for it. A demand-responsive based on willingness to pay and adaptable approaches based on partnerships and empowerment of local people needs to be part of the approach.

Appropriate regulation setting out the rights and responsibilities of the main concessionaire and other partners, as well as dealing with the position of the small-scale providers, can enable a form of coexistence and even cooperation that will improve service provision to all groups of consumers, ultimately benefiting the poor. At the same time, stimulating the intermediate and independent providers' businesses to grow and officially become part of the system, may lead to increased employment opportunities.

The municipal water utility should adapt different a approach that may entail a slight shift from direct water service delivery to the community to that of planning, policy formulation and providing partial financial support, while at the same time, opening

doors for partnership creation in which reputable and competent NGOs, CBOs and WUAs are allowed to take part in planning, implementation, management, monitoring, evaluation and even financial input.

Thus, a participatory approach should be adopted in the water sector which public, private and community participation is encouraged in waters services supply and management to improve service efficiency. An opportunity exists with the current drive of the Kenya governments to decentralise the management processes. Where most activities used to be controlled, managed and financed from the centre, now districts and local authorities receive more and more autonomy and responsibility. This specifically affects service delivery, and such reforms therefore present good opportunities to rethink, build capacity, and engage more people in the service delivery processes. This would help to further realise the complete implementation/actualisation of the Water Act 2002 principle of stakeholder involvement in management of water resources with an emphasis on enhancing the role of private sector and community management for sustainable services.

6.4 Areas For Further Research

- As regards community capacity building there exists uncertainty and confusion relating to the function of capacity building, it is largely ad hoc and unlikely to be successful in the long run in most instances. Further research need to be undertaken in the areas of community capacity building as regards the institutions and a distinction drawn between new, emergent, low capacity institutions and pre-existing organisations that have capacity.

- Further, research also need to be done on how to make the water utilities attractive to the domestic financial market in order to tap into the private capital.

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Annex 1: Kiwasco Tariff Structure

Table 3.1 KIWASCO Tariff: Water Charges in Kshs/m^3

(Domestic Consumers)					
Consumption in m^3	**Approved 1996**	**Proposed 2001**	**Increase %**	**2002**	**2003**
Minimum	180.00	150.00	- 20	170.00	200.00
7—20	20.00	30.00	33	35.00	40.00
21 —40	23.00	40.00	42	45.00	50.00
41—60	26.00	45.00	42	50.00	55.00
Over 60	33.00	50.00	34	55.00	60.00
(Government & Government Institutions)					
0 - 6	20.00	30.00	33	35.00	40.00
7—20	22.00	40.00	45	45.00	50.00
21 —40	25.00	50.00	50	55.00	60.00
41—60	30.00	60.00	50	65.00	70.00
Over 60	37.00	65.00	43	70.00	80.00
(Industrial and Commercial Consumers)					
0-6	20.00	30.00	33	35.00	40.00
7 — 20	24.00	40.00	40	45.00	50.00
21 —40	28.00	50.00	44	55.00	60.00
41—60	32.00	60.00	47	65.00	70.00
Over 60	40.00	35.00	38	75.00	80.00
(Raw water)					
(Minimum 100)	15.00	15.00	-	20.00	25.00
Approved Kiosk	-	30.00	-	40	50
{Public Boarding School (Up to 600 @60 litre each day)}					
0-1200	-	25	-	30	40
Over 1200	-	50	-	55	60
(Water Deposits)					
Domestic Consumers	900.00	1200.00	25	1500.00	1800.00
Shops & Offices	1400.00	2,000.00	30	2,300.00	2,500.00
Private Constructions (Single Residential Units)	6000.00	8,000.00	25	9,000.00	10,000.00
Large Construction	25000.00	30,000.00	17	32,000.00	35,000.00
Bar, Restaurants & Lodgings	6000.00	7,500.00	20	8,000.00	8,500.00
Private Essential Kiosks	10,000.00	10,000.00	-	10,000.00	10,000.00
Private Kiosks	14,000.00	15,000.00	7	16,000.00	18,000.00
Gazette Hotels	15,000.00	20,000.00	25	22,000.00	25,000.00
Industrial Users	60,000.00	25.000.00	20	78,000.00	80,000.00

(Source: KIWASCO)

Annex 2: Household Questionnaire

Please note: This information is sought strictly for academic purposes and shall be treated with confidentiality.

Demographic Information

1. Name of respondent_____

2. Sex of respondent. 1= Male 2 = Female

3. How long have you been living here?
1= 0-1years 2 = 1-3 years 3 = 3-5years 4 = over 5years

4. Number of Residents in this family: ----------

Type And Ownership Of Residence

5. Type of building:
1 =Mud wall / Grass Thatched Roof; 2 =Mud wall /Iron Sheet Roof
3 = Permanent 4 = Others (specify)_____

6. House ownership:
1 = Owner occupied 2 = Rented 3 = Others (specify)
_____

7. Use of the building:
1 = Residential only 2 = Residential/Commercial
3 = Commercial 4 = Others specify_____

Household Incomes And Expenditures

8. How much money does your household earn per month? (Tick)

Source	<2500	2500 - 5000	5000 - 7500	>7500
Male Spouse				
Female Spouse				
Others (Specify)				

9. How much money does your household spend per month on each of the listed items? (Tick)

Item	1 - 150	150 - 300	300 - 1000	1000 - 5000	>5000
Rent					
Water					
Electricity					
Food					
Clothing					

Water Supply And Consumption

10. What is your main water source and the distance to the source?

Type of Water Source	Drinking	Cooking	Other Domestic Uses	Distance to source 1 = 0 - 500mts 2 = 500mt - 750mts 3 = 750mts - 1Km 4 = 1Km - 1.5Km 5 = >1.5Km	Time Spent (minutes) 1 = < 5 Mins 2 = 5 -10 Mins 3 = 10 – 20 Mins 4 = 20 -30 Mins 5 = > 30 Mins
Pipe – Individual Connection					
Yard tap					
Public tap					
Neighbours Individual pipe Connection					
Protected Bore Hole					
Lake (or dam)					
Protected shallow well / spring					
Unprotected Shallow well / spring					
Water vendors/Kiosk					
Roof catchments					
Carriers/Handcarts					
Tankers					
Others (Specify)					

11. How much water do you use and at what cost per bucket? (Refer to previous answer)

Source of Water	Quantity (No. of buckets used per day) 1 = 1 to 2 2 = 3 to 5 3 = 6 to 10 4 = >10	Cost per Bucket (20ltr Jerry can 1 = Ksh. 0.50 - 1 2 = Ksh. 1 - 3 3 = Ksh. 3 - 5 4 = Ksh. 5 - 10 5 = Ksh. 10 - 20
Pipe – Individual Connection		
Yard tap		
Public tap		
Neighbours Individual pipe Connection		
Protected Bore Hole		
Lake or dam		
Protected shallow well / spring		
Unprotected Shallow well / spring		
Water vendors/Kiosk		
Roof catchments		
Carriers/Handcarts		
Tankers		
Others (Specify)		

12. How much water per day do you use for each of the following?

Drinking Jerry cans_____

Cooking Jerry cans _____

Selling to neighbours Jerry cans _____

Washing/other domestic use Jerry cans _____

13. How is the water availability?

1 = Not available at all

2 = Only during night

3 = Periodically (specify) (_____)

4 = Available all the time

14. Do you think the water you are using is clean and safe?

1 = Yes 2 = No 3 = I don't know

15. If no, how do you treat the water that you think is unsafe to drink:
    1 = Boiling
    2 = Filtering
    3 = Water Guard / Chlorine
    4 = Settling
    5 = Nothing
    6 = Others (specify) (_____)

16. What problems do you encounter with your current water supply
    1 = Unreliable supply
    2 = Interrupted supply
    3 = Insufficient water quantity
    4 = Poor water quality
    5 = Too expensive prices of water
    6 = Billing and revenue collection is inappropriate
    7 = Water Source is too far
    8 = Corruption by water service providers
    9 = Others (specify) _____

(Questions 17 To 19; *For Respondents Served By Piped Water)*

17. Do you have a meter? 1 = Yes 2 = No
    If yes, is it functioning? 1 = Yes 2 = No

18. If you are connected, how often do you get your bills? _____

19. Do you sell water to your neighbours? 1 = Yes 2 = No
    If the answer is yes, how much per bucket? _____

(Question 20 & 22 ; For Respondents Served By Standpipes & Water Kiosks)

20. Are you comfortable with the location of the water point from your premises?
    1 = Yes 2 = No
    If no, How far/ near would you like it to be located from your premises?
    1 = 0 - 500mts 4 = 1Km - 1.5Km
    2 = 500mts - 750mts 5 = >1.5Km
    3 = 750mts - 1Km

21. Who is currently responsible for managing the water point?_____

22. Are you comfortable with the management of the water point?
    1 = Yes 2 = No
    If No, in your opinion who can be relied on for effective water supply and management?
    1 = Community Association
    2 = Self help groups
    3 = Private Operator
    4 = Community Based Organisation
    5 = Non- Governmental Organisation

(Question 23 To 28; For Respondents Served By Mobile Water Vendors)

23. Who collects water for your household?
    1 = Male Adult
    2 = Female Adult
    3 = Male Child
    4 = Girl Child

5 = Others (specify) (_____)

24. In case of improvement of water supply, services are you willing to be connected to water supply? 1 = Yes 2 = No

25. If yes, what option would you prefer?
    1 = Standpipe
    2 = Water Kiosk
    3 = Individual connection

26. If answer in Qsn. 21 is (1 or 2), how far would you like the water point to be located from you premises?_____ (Mts)

27. In case of a kiosk selling water from a pipe connection what are you prepared to pay per bucket jerry can (20 litres)? Ksh._____

28. In your opinion who can be relied on for effective water supply and management?
    1 = Community Association
    2 = Self help groups
    3 = Private Operator
    4 = Community Based Organisation
    5 = Non- Governmental Organisation

OPEN DISCUSSION

29. What do you consider to be the biggest problem with Water Provision in Manyatta
    1 = Access
    2= Price
    3= Quantity
    4= Quality
    5= Corruption
    6 = Others (Specify) _____

30. What other problems do you encounter as a result of the water problem in this neighbourhood? _____

31. What do you think should be done to improve the Water Supply situation in Manyatta? _____

Annex 3: Focus Group Discussions With Community Groups.

Please note: This information is sought strictly for academic purposes and shall be treated with confidentiality.

1. What is the current water situation in Manyatta in terms of?
    a) Availability:.....
    b) Quality: .....
    c) Quantity: .....
    d) Reliability:.....
2. How does this situation affect the following?
    a) Women
    b) Men
    c) Girl child
    d) Male child
3. What are the key factors responsible for the current water situation?
    .....
4. How can the situation be improved?
    .....
5. How would the improvement impact on your daily activities?
    .....
6. Who do you think should be responsible for the improvement and why?
    ....
7. Do you think the residents would be willing to play cost sharing role in the water supply improvement efforts during:
    a) Implementation (contributing to investment cost): Yes / No)
    b) Operation and maintenance stage (pay for user fee): Yes / No
        i. Why.....
        ii. What Role.....
8. Who are the main suppliers of water in Manyatta?
    ....
9. Who are the key development agencies with tangible development inputs/outputs in your community in water supply?
    ....
10. If there is any improvement to be done on Water, which agencies would you like to manage the resources / process?
    ....

11. Land Tenure

a. What is the average plot size in the neighbourhood / estate
    .....
b. What is the land ownership system
    i. Free hold with titles
    ii. Freehold without titles
    iii. Leasehold with titles
    iv. Leasehold without title
    v. Squatters
    vi. Others (specify)

Annex 4: Questionnaire For Kiwasco

Please note: This information is sought strictly for academic purposes and shall be treated with confidentiality.

1. Has Manyatta settlement further been subdivided into smaller units?
   1 = Yes 2 = No
2. If yes, what are the units and what is the subdivision based on?
   _____ _____
3. What factors hinder the effective supply of water to Manyatta despite the laid down infrastructure? _____
4. How are you currently addressing the water problem in Manyatta?
   _____
5. What is the water demand for Manyatta settlement?
   _____
6. Under the current contract, is KIWASCO covering Manyatta?
   1 = Yes 2 = No
7. If yes, how much water is KIWSACO supplying to Manyatta?
   _____
   What is the deficit? _____
8. If no, who are the water providers in Manyatta?
   _____
9. How many are mobile and how many are fixed at a particular location?
   _____
10. What are their main areas of operation?
    _____
11. For those fixed by location, what is their distribution within the settlement?
    _____
12. What are the main difficulties faced by the water providers?
    _____
14. What advise would you give to the water operators in order for them to operate
    successfully?_____
    ___
15. Given the prevailing situation in Manyatta, what is the best mode for water supply in the area?
    _____
13. In your opinion, what are the future prospects of water supply in Manyatta?
    _____
16. Are there any planned or ongoing water projects in Manyatta?
    1 = Yes 2 = No
17. Is there a plan to completely cover the area and provide piped water to the entire population?
    1 = Yes 2 = No
18. If yes, what is the time scale? _____

Annex 5: Questionnaire For Water Operators

Please note: This information is sought strictly for academic purposes and shall be treated with confidentiality.

1. **Name of respondent**_____
2. **Sex of respondent**. 1= Male 2 = Female
3. **How long have you been supplying water in this area?**
   1= 0-1years 2 = 1-3 years 3 = 3-5years 4 = over 5years
4. **Where do you obtain the water to sell?**
   1 = Municipal Water 2 = Boreholes 3 = Wells/Springs
   4 = Lake/ Dams 5 = Others (Specify)
   _____
5. **How much do you buy the water and at how much do you sell?**
   Buying _____ Selling _____
6. **What mode do you use to supply water?**
   1 = Handcart/Donkey 3 = Stand pipe
   2 = Tankers 4 = Others (Specify)
   _____
7. **Are you mobile or in a fixed location?**
   1 = Fixed Location 2 = Mobile (door to door delivery)
   a) If in a fixed location, which area?
   _____
   b) If mobile, what areas do you serve?
   _____
8. What problems do you encounter in obtaining water from the source?
   _____
9. What problems do you encounter in water delivery in this area?
   _____
10. In your opinion, how can the situation be improved?
    _____
11. How would the improvement impact on your operation in this area?
    _____
12. Who do you think should be responsible for the improvement and why?
    Who: _____ Why: _____
13. **Would you be willing to play cost sharing role in the water supply improvement efforts?**
    1 = Yes 2 = No
14. **Is your business licensed?**
    1 = Yes 2 = No
    If no, Why_____