CHALLENGES AFFECTING SUCCESSFUL IMPLEMENTATION OF WATER AND SANITATION PROJECTS IN URBAN SLUM AREAS IN KENYA

(A Case Study of Mukuru Slum)

BY

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DECLARATION

This project is my original work and has not been presented for a degree in any other university or for any other award.

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Dedication

I would like to dedicate this research project to my husband, Mr. Paul Korir who has been of great support both morally and financially, to my daughter and son for their understanding, to my parents Mr. & Mrs. Wilson .K. Kosgey who believed in me and to my brothers and sisters who were always there for me whenever I needed help, especially Mr. Bungei.
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Abstract

Perceived success in project implementation is more adequately defined as meeting the project’s technical specification or mission while at the same time attaining a high level of satisfaction on the part of the, community, clients, users and the project team (Baker, 2002). The end product must perform satisfactorily in service. This means that parties associated with and affected by a project should be satisfied at the same time that the good cost and schedule performances are realized. This project analyzed the challenges affecting the successful implementation of water and sanitation projects in Mukuru slum in Kenya.

The target population consisted of 220 members of the community made up of project managers, community leaders and recipients of the service. A sample size of 40% of the target population was drawn. Clustered random sampling design was adopted to select the respondents. Data was collected using questionnaires and analyzed using descriptive statistics. Data was presented by use of pie charts and graphs.

This research project concludes that although there are many slum specific problems to progress in water and sanitation project implementations, there are four common challenges: Inadequate investment in water and sanitation infrastructures by the government, lack of political will to tackle the tough problems in this area, the tendency to avoid new technological or implementation approaches such as community participation and apply conventional water and sanitation interventions, without community involvement, over and over again even when they are inappropriate for the specific environment and community needs, and finally the delays and its cost as well as failure to conduct evaluations of water and sanitation interventions to determine whether they are successful and sustainable.
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DEFINITION OF KEY TERMS

Implementation
Implementation is the carrying out, execution, or practice of a plan, a method, or any design for doing something. As such, implementation is the action that must follow any preliminary thinking in order for something to actually happen.

Sanitation
Sanitation is the hygienic means of promoting health through prevention of human contact with the hazards of wastes. Hazards can be physical, microbiological, biological or chemical agents of disease. Wastes that can cause health problems are human and animal feaces, solid wastes, domestic wastewater (sewage, sullage, and greywater), industrial wastes and agricultural wastes. Hygienic means of prevention can be by using engineering solutions (e.g. sewerage and wastewater treatment), simple technologies (e.g. latrines, septic tanks), or even by personal hygiene practices (e.g. simple hand washing with soap).

Projects
A project is a series of activities (investments) that aim at solving particular problems within a given time frame and in a particular location. The investments include time, money, human and material resources.

Community participation
Community participation refers to the process by which professionals, families, community groups, government officials, and others get together to work something out, preferably in a formal or informal partnership. It occurs when a community organizes itself and takes responsibility for managing its problems. Taking responsibility includes identifying the problems, developing actions, putting them into place, and following through.

Time
Time is a dimension in which events can be ordered from the past through the present into the future, and also the measure of durations of events and the intervals between them.

Funding
Funding is the act of providing resources, usually in form of money (financing) or other values such as effort or time for a project, a person, a business or any other private or public institutions.
CHAPTER ONE

INTRODUCTION

1.1 Overview of the Chapter

This chapter provided the background to the study, the problem statement, the study objectives, the research questions, the scope, and the limitations of the study and this chapter gives the basis for the whole study.

1.2 Background of the Problem

According to Pinto J K (1986) the process of project implementation, involving the successful development and introduction of projects in the organization, presents an ongoing challenge for managers. The project implementation process is complex, usually requiring simultaneous attention to a wide variety of human, budgetary, and technical variables. As a result, the organizational project manager is faced with a difficult job characterized by role overload, frenetic activity, fragmentation, and superficiality.

In order for the urban slums water and sanitation to function effectively, it needs to be supported by appropriate infrastructure in good working condition. Protecting the infrastructure used to treat and transport water (including sources, treatment plants, and distribution systems) is important step in ensuring the implementations of water and sanitation projects. However, in Mukuru and other Kenyan slums, there has been years of neglected maintenance to water storage, treatment, and distribution systems. These have affected successful implementation of water and sanitation projects. Most of these projects have ceased to function or are operating at very low capacities which affect the provision of the essential service to the community.

In some African urban areas, the problems of providing housing are further complicated by numerous governance issues, such as poor accountability and lack of capacity, that hinder effective urban management. The weakness of central government and municipalities gives rise to a situation "where nobody is taking charge, nobody is providing guidance," Ms. Rosemary Rop, of the Kenyan non-governmental organization Maji Na Ufanisi, told Africa Renewal.
To make matters worse, governments do not commit sufficient resources to address the problems of existing slums, further reducing them to wastelands of overcrowding, poverty and social exclusion. "Governments simply label these informal settlements as illegal and do not provide services to them," says Ms. Rop. In Nairobi, 60 per cent of the population lives in slums that occupy only 5 per cent of the city's land. This is the case in most large African cities, where between 40 and 70 per cent of urban dwellers live in slums.

With little assistance from the local authorities, the families of Mukuru lack access to safe water and often pay up to seven times more for their water than middle class families in Nairobi. Women and children are disproportionately affected with women spending hours each day travelling to, and queuing at, water points, losing the opportunity to pursue income generating activities. It is virtually impossible to walk in these slums because human waste and raw sewage are litter all over.

The few existing toilet are depilated and mostly located near the river and therefore high potential for water pollution. Children are often absent from school as a result of diseases such as diarrhea and typhoid, due to the lack of water and sanitation facilities. In local schools there is currently just one basic pit latrine for 250 children and none of the schools have a water point.

The social, health, environmental and economic problems have attracted Non-governmental organizations to come up with water and sanitations projects to assist in providing the basic necessities and provide the well being of the slum dwellers. Many donors set up projects in the slum communities and leave them with the hope that it will be self-sustaining or it will be ran and owned by local community members for their own benefits.

1.2.1 Mukuru Slum

Mukuru slum is situated about 10km from the town of Nairobi, Kenya. Mukuru slum is approximately 35 years old. It comprises 20 villages just outside Nairobi. The slum spreads and meanders along the banks of Ngong River dominating 500 hectares of the eastern horizon of Nairobi. Families live in corrugated iron shacks measuring 10 square feet. Large families are crammed into this tiny space to survive.
This slum is characterized by overcrowding, improper human waste disposal and poor access to basic amenities. Mukuru Slums have a population of approximately 500,000 people according to the National Population Census result of 2009. With that population in mind, it's only logical that these people have access to clean drinking water, good toilets, good infrastructure and services and good drainage and sewerage systems.

1.3 Statement of the Problem

Projects in Mukuru Slums usually face a lot of challenges in its implementation which includes lack of necessary technical skills, support and organizational structures in place. Other projects face the problems of inconsistent flow or misappropriation of the funds, there are also issues of scope creep and the high mobility of slum dwellers from one slum to the next leading to continuous retraining and sensitization of the new residents.

Some of the NGO funded projects face political interference because of the political agents who usually have suspicions of the real motive of the donors in the community where the Non-Governmental Organization is funded by foreigners. Most of the projects in Mukuru Slums therefore, end up being stalled and therefore do not achieve the intended objective of providing safe water and sanitations facilities to the slum dwellers.

Government support for communities in the slums is almost non-existent. The governments do not commit sufficient resources to address the problems of Mukuru Slum, further reducing them to wastelands of overcrowding, poverty and social exclusion. Governments simply label these informal settlements as illegal and do not provide adequate services to them. Water and sanitation services are run by small businesses, which charge vastly inflated prices. Sewage system are either poorly maintained or is nonexistent and consequently open sewers run through the streets; rubbish collection is inadequate, and sewage channels are often blocked by rubbish, creating a serious health hazard for residents.

Several organizations, including the UN, have tried in the past to implement projects to improve water supply in urban slums. However, given the scale of the problem, some areas are inevitably chosen over others. Furthermore, mismanagement of past projects - which often did not involve communities in their design and implementation - has led to a buildup of community mistrust for outsiders and the projects they implement.
Despite the success of some projects, there is still a great deal of work to be done to provide water and sanitation to millions of people living in Mukuru slum and around the globe. Insufficient funding ties the hands of many organizations, whose limited finances force them to limit the number of people they can help. These limitations are particularly daunting in Mukuru whose needs seem limitless.

1.4 Objectives of the Study

1.4.1 General Objective

The main objective of this study was to determine the challenges affecting successful implementation of water and sanitation projects in Mukuru slums in Nairobi.

1.4.2 Specific Objectives

1. To determine how the level of participation of the local community influences implementation of water and sanitation projects in Mukuru slums.
2. To establish the effect of time on implementation of water and sanitation projects in Mukuru slums.
3. To determine the extent to which the government supports influences implementation of water and sanitation projects in Mukuru slum.
4. To find out how funding affects implementation of water and sanitation projects in Mukuru Slums.

1.5 Research Questions.

i. How does level of community participation influence the implementation of water and sanitation projects in Mukuru slums?
ii. What is the effect of time on implementation of water and sanitation projects on Mukuru slums?
iii. To what extend does the Government support influences the implementation of water and sanitation project in Mukuru Slum?
iv. What effect does funding have on the implementation of water and sanitation projects in Mukuru Slums?
1.6 Significance of the Study

The study established the challenges affecting successful implementation of water and sanitations projects in Mukuru slum. This was brought about by the fact that the government and very many NGOs have realized the need to provide water and sanitation services to the residence of Mukuru slum but they end up being stalled projects thus the study determined the factors that affects the implementation of these projects since the problem could have been long eliminated if all could have gone well. It determined the mechanisms for involvement of the community at all levels of project development and implementation.

This study intended to help project design officers in Kenya and international Organizations better understand the problems they face in implementation of water and sanitation in urban slums throughout the developing world and therefore enable them to design more effective urban water and sanitation strategies and programs in the future. This study will be particularly useful to those officers who come to the urban sector with generalist experience, or with previous experience in providing water and sanitation in either developed countries or in rural areas of less developed countries.

This study will help technical specialists who assist with project development, particularly in ensuring that they become aware of issues in a wide range of technical areas other than their specialty. Urban planners and municipal administrators in developing countries, and officials in other donor organizations, will find this study useful in increasing their knowledge of issues affecting slum sanitation.

This study will be of importance to project donors who will be able to avoid obstacles identified by the study as having hindered the prosperity of water and sanitation projects and other similar projects.

This study analyzed the importance of involvements of the slum communities in the designing and implementation of projects which ensure ownership by community members and therefore success of project.

Finally, this study will be useful to the government in understanding their role in project implementation. It will enable the government identify the causes of success or failure of implementation of water and sanitation projects in the slum communities not only in Mukuru but all the urban slums within the Kenyan territory.
1.7 Limitations of the Study

The researcher encountered uncooperative respondents who were not willing to fill the questionnaires. The researcher elaborated the questionnaire extensively to the respondents before it was filled.

Due to the confidentiality of information surrounding many slums, most of respondents were reluctant to participate. However, the researcher assured the respondents that the findings will be used for academic purposes only.

1.8 Scope of the Study

The scope was limited to Mukuru Slums. It focused on the residents of twenty villages that were grouped into the following locations, Kwa Njenga, Kwa Reuben and Lunga Lunga. It limited itself to determining the challenges affecting successful implementation of water and sanitation projects in Mukuru Slums. The project managers, community leaders and sampled project members who receive water from the projects were interviewed to find out the challenges faced in implementation of water and sanitation projects in these slums.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter represented the general review of the study. In this section, factors thought to be affecting the implementation of projects are critically looked into and discussed. This section also looked at the critical review as well as research gap.

2.2 Theoretical Review

This section reviewed theories and models that back up the study on factors affecting successful implementation of water and sanitation projects. The first model that is reviewed includes Seven S Framework.

2.2.1 Seven S Framework (McKinsey 7S model)

This model first appeared in *The Art of Japanese Management* by Richard Pascale and Anthony Athos in 1981. They had been looking at how Japanese industry had been so successful, at around the same time that Tom Peters and Robert Waterman were exploring what made a company excellent. The Seven S model was born at a meeting of the four authors in 1978. It went on to appear in "In Search of Excellence" by Peters and Waterman, and was taken up as a basic tool by the global management consultancy McKinsey. The model is also sometimes referred to as the McKinsey 7S model.

According to the model, managers, need to take account of seven basic factors to be sure of successful implementation of a strategy. These include Strategy, Structure, Systems, Style, Staff, Super-ordinate, Goals, Skills and project implementation. These factors are all interdependent, thus failure to pay proper attention to one, marks the beginning of failure (Best & Khan (1993)).
This model has been found applicable in implementing various projects in organizations. In the current study, the model can be used in implementing water and sanitation projects. This process, as highlighted by figure 2.1 requires to be guided by organization’s goals, activities carried out by skilled personnel. The whole process must also be based on organizational structure with top managers guiding the entire process.

2.2.2 Mintzberg's Model

This model based on the concept that project implementation should have its foundation in project formulation. Minztberg claims that some organizations begin implementing projects before they clearly articulate mission, goals, or objectives. In this case project implementation actually precedes project formulation. He calls strategies that unfold in this way emergent strategies. Implementation of emergent projects involves the allocation of resources even though an organization has not explicitly chosen its projects. Most organizations make use of both deliberate (based on goals objectives) and emergent projects (Barnat, 2005).

Whether deliberate or emergent, however, a project has little effect on an organization's performance until it is successfully implemented. This model finds its application in this study based on what it posits about the implementation of deliberate project.
Value Chain Model (Porter1998) of competitive advantage means that every activity in an organization must be value adding hence the need to implement projects which meet this objective.

![Figure 2 - 2: Porter's Value Chain Framework](image)

As shown in Figure 2.2: Value chain framework consists of two key components, namely primary and support activities. Primary activities are those that are directly concerned with creating and delivering a product (e.g. component assembly). Support Activities on the other hand are those activities which are not directly involved in production but may increase the effectiveness or efficiency of an organization (Porter, 1998).

This study focuses on the water and sanitation projects which are one of the key activities that add value to slum dwellers lives. It concerns how resources are acquired for a project (e.g. sourcing and negotiating with materials suppliers). In implementing projects, organizations are faced with a number of hurdles. This study examines these hurdles and how to overcome them in order to add value.

2.3 Empirical Review

The central focus of the literature review was to investigate what is used as the measurement of project success and highlight issues within the literature with this process. Following on from that, the review will look at the implementation of these objectives and examine possible areas that could affect the way in which project objectives are set. The review will also focus on critical success factors and in turn, how these factors are critical to the outcome of a project’s objectives.
2.3.1 Project Implementation

Project Implementation is the stage where all the planned activities are put into action. Before the project implementation can take place, the implementers (spearheaded by the project committee or executive) should identify their strength and weaknesses (internal forces), opportunities and threats (external forces).

The strength and opportunities are positive forces that should be exploited to efficiently carry out project implementation. The weaknesses and threats are hindrances that can hamper project implementation. The implementers should ensure that they devise means of overcoming them (Pinto J K 1986).

Monitoring is important at this project implementation phase to ensure that the project is implemented as per the schedule. This is a continuous process that should be put in place before project implementation starts. As such, the monitoring activities should appear on the work plan and should involve all stakeholders. If activities are not going on well, arrangements should be made to identify the problem so that they can be corrected. Monitoring is also important to ensure that activities are implemented as planned.

This helps the implementers to measure how well they are achieving their targets. This is based on the understanding that the process through which project implementation is carried out has a lot of effect on its use, operation and maintenance. Therefore project implementation being on target is not satisfactory hence a need for implementers to ask themselves and answer the question, "How well do we get there?

According to Clayland and Kings, (1975), the process of project implementation, involving the successful development and introduction of projects in the organization, presents an ongoing challenge for managers. The project implementation process is complex, usually requiring simultaneous attention to a wide variety of human, budgetary, and technical variables. As a result, the organizational project manager is faced with a difficult job characterized by role overload, frenetic activity, fragmentation, and superficiality. Often the typical project manager has responsibility for successful project outcomes without sufficient power, budget, or people to handle all of the elements essential for project success. In addition, projects are often initiated in the context of a turbulent, unpredictable, and dynamic environment. Consequently, the project manager would be well served by more information about those specific factors critical to project success.
2.3.2 Government Role in Water and Sanitation in Kenya.

Governments are genuinely committed towards sustainable development and poverty alleviation as reflected in their international pledges and numerous national policy frameworks. However, a viable mechanism for translating these aspirations into actions is still missing and the response to requirements on the ground remains incredibly slow.

2.3.2.1 Policy Formulation and Sector Coordination

The Ministry of Water and Irrigation (MWI) is the key institution responsible for the water sector in Kenya. The Ministry is divided into five departments: Administration and Support Services, Water Services, Water Resources Management, Irrigation, Drainage and Water Storage, and Land Reclamation.

Water supply is overseen by the Department for Water Services, whose functions include: formulation of policy and strategies for water and sewerage services, sector co-ordination and monitoring of other water services institutions. The Ministry of Water and Irrigation is also in charge of overall sector investments, planning and resource mobilization. Sanitation policy is in the hands of the Ministry of Public Health and Sanitation (MoPHS).

To harmonize the institutional framework for sanitation MWI and the MoPHS have developed a common Water Supply and Sanitation Concept with clearly defined sanitation targets. Other Ministries also play a role in the water and sanitation sector.

2.3.2.2 Implementation of Water Supply and Sanitation in Kenya

Responsibility for water and sanitation service provision is in the hands of Water Services Boards. However, they are not required to provide services directly - they can delegate them to commercially oriented public enterprises, the so called Water Service Providers (WSPs). Service provision is regulated by service provision agreements (SPAs) to ensure compliance with the standards on quality, service levels and performance established by WASREB.

There are four types of SPAs:

- Category I for medium to large WSPs operative in urban areas - WSPs in this category are limited liability companies owned by one or more local authorities. They provide both water and sewerage services. As of May 2008, there were 58 Service Provision Agreements within this category.
- Category II for community projects in rural areas - these are community water supplies which are managed by WSPs registered as Water User Associations (WUAs) by the Registrar of Societies. In May 2008 there were 58 SPAs of this kind.
- Category III for private sector providers - there is one SPA in this category (Runda Estate).
- Category IV for bulk water supply - this is the responsibility of the National Water Conservation and Pipeline Corporation.

Informal small service providers (SSPs) provide water in both rural and urban low income settlements. Some of them sell water from tanker trucks or through jerry cans, often at prices that are five to ten times that of piped water supply. Others are self-help groups, often run by women, who provide piped water supply. The Water Services Trust Fund is making efforts to formalize service provision in low-income settlements. It has developed two national concepts for service provision for the poor.

The first one is the Community Project Cycle, which makes funds available for local communities that are willing to comply with minimum service standards. The second one, the Urban Poor Concept has been implemented in low income urban areas since 2007 and has led to the construction of numerous water kiosks that meet sustainability standards. The local utility sells water in bulk to self-help groups that in turn manage networks and water kiosks inside their neighborhoods.

**Wastewater treatment:** According to an assessment report carried out in 2009, there are 43 sewerage systems in Kenya and waste water treatment plants in 15 towns (total population served: 900,000 inhabitants). The operation capacity of these wastewater treatment plants is estimated at around 16% of design capacity. The main reasons for this inefficiency are: inadequate operation and maintenance and low connection rate to sewers. In Kenya, the estimated connection rate is 19% (12% according to another report). Of the wastewater that enters the sewer network, only about 60% reaches the treatment plants. The most common solution used for wastewater treatments in Kenya are waste stabilization ponds.
One of them is the Dondora Waste Stabilization Pond System which treats the industrial and domestic sewage from the city of Nairobi and is the largest pond system in Africa. Mixing industrial effluent and domestic sewage in mixed sewer system, however, often causes poor performance in Kenyan pond treatment systems.

Civil Society: Kenya has an active civil society including a number of local NGOs active in water supply and sanitation. Many of them are members of the Kenya Water and Sanitation Civil Society Network (Kewasnet) founded in 2007. Among other activities, Kewasnet monitors service delivery, especially for the poor, and policy implementation on water sector reforms. It also "provides information to Kenyans to enable them to be engaged and involved in the management and decision-making mechanisms of the Water and Sanitation Sector.

It also promotes a culture of consumer responsibility that pays for supplied services from utility companies, safeguards water services infrastructure and equipment against vandalism by criminals.

Economic efficiency: The economic performance of Kenyan Water Service Providers is closely monitored by WASREB and made available in the Impact Report to encourage competition and spread best practices. Important indicators of economic efficiency are: collection rates, the level of non-revenue water, metering ratios and labour productivity. Most Kenyan Water Service Providers do not meet the benchmarks in these dimensions.

Cost recovery: Ten of the 55 WSPs that submitted information for 2006-2007 achieved the goal set by the National Water Services Strategy to achieve operation and maintenance cost. Personnel costs have by far the largest share in O&M costs, with utilities spending over 90% of their expenditure on personnel. Between 2005 and 2007 there has been a 9% increase in the share of personnel costs in O&M costs. This development is worrying because it suggests unjustified hiring or salary increases in many WSPs.

At the level of Water Services Boards the situation is markedly different. WSBs should be able to cover their administrative costs through the Regulatory Levy they collect from WSPs in their service area. In fact, only Athi WSB was able to meet 115% of operational costs in 2006/2007. The other WSBs were still heavily reliant on government subsidies.
Investment: According to MWI, the total water sector budget for FY 2008-2009 was 22.9 billion Kenyan shilling or US$297 million. In the past five years, the budget for the water sector increased by 245% from Ksh 4.2 billion (US$ 54.5 million) in 2004-2005. The budget for 2008–2009 was divided as follows: 82% of funds were allocated for the water supply and sanitation sub-sector. In absolute terms this was KSh 18.7 billion or US$ 242.8 million. The budget share for Water Resources Management was 11.5%, for Irrigation Drainage and Water Storage 5.7% and for Land Reclamation 0.3%. In the water supply and sanitation sub-sector, about 80% of funds were constituted by development allocations (KSh 15 billion or US$ 19.4 million) which indicates the government's commitment to develop water and sanitation facilities and increase access.

Financing: The funding effectively available to the water sector in FY 2008-2009 was KSh 18.5 billion (equivalent to US$ 240 million). Of these, MWI handed over KSh 16.8 billion to subordinate water sector institutions. The main sources of funding for Kenyan water institutions are three: government funds which constituted 58% of sector funding in 2008-2009, internally generated funds that amounted to 11% and donor contributions that made up 31% of the funds available.

One third of the contributions by development partners are channeled through government budget, while the remaining two thirds are disbursed for specific projects. Of the estimated donor funding for 2008–2009, 70% was in the form of loans, whereas grants represented 30%. Only 58% of the grant money committed by donors was actually disbursed in 2008-2009.

Funding for measures aimed at improving access to water and sanitation in areas without adequate services - especially areas inhabited by the poor - is provided by the Water Services Trust Fund (WSTF). The WSTF receives funds from the Government of Kenya and from donor agencies and directs them to the 362 poorest locations throughout the country (identified in collaboration with Water Services Boards). There are significant variations in the ability of water supply and sanitation institutions to finance their operations. In FY 2008-2009 WASREB was the most independent as it generated 72% of funds internally. The Water Services Trust Fund, by its nature, had very limited self-generated funds and was supported by 2/3 by the government and by 1/3 by donor agencies.
The financing of Water Services Boards, as already mentioned, showed great variations. None of the Boards managed to generate more than 20% of their funds. Donor agencies provided the majority of funds for Rift Valley WSB, Lake Victoria North WSB and Northern WSB, while the remaining WSBs received more funds from the government.

**External cooperation:** Kenya receives external support from several donor agencies with a currently ongoing project volume of € 627 million. The major donors are, namely, the African Development Bank, France, Germany, Sweden and Denmark, as well as the World Bank: Other donors include: the European Commission, Italy, Finland, Japan (through JICA), the Netherlands and UNICEF.

In October 2006 the Kenyan Government initiated a Sector-Wide Approach (SWAp) to harmonize the activities of the development partners, the coordination and the implementation of projects. The SWAp helps to improve the sector dialogue between the Ministry and the donors and to strengthen cross-sectoral links. A common sector policy framework, monitoring as well as a common sector program and strategy are being developed by the major donor agencies. Since 2007 an Annual Water Sector Review (AWSR) is carried out which helps to foster the alignment of donor projects among other things. The Development Partners have formed the Water Sector Technical Group (WSTG) to improve coordination and harmonization. The WSTG is currently (2010) being chaired by the Italian Cooperation, Germany is the co-chair.

Most donors –funded projects have attempted to undertake water and sanitation interventions in the whole settlement, instead of concentrating in one area. This has resulted in ineffective allocating of resources with one visible improvement in one area. Moreover these large scale projects have failed to understand the needs of the many different ethnic groups within the different ethnic villages. Over the years Mukuru has received significant investment, both physical and financial to alleviate the poor conditions that exist with respect to water, sanitation and health, however no significant impact has been made.

The main reasons for the limited impact are:

- Project have been designed and implemented in an isolated manner due to lack of a good governance structure, which jeopardize the sustainability and as a result there has been no replication or follow up.
• There has been a lack of well-designed demonstration project and as a result many of the initiatives have been purely cosmetic, either falling into despair or being abandon completely.
• Little effort has been made to link sanitation to income generation and livelihood for Slum residents.
• The vast majority of water and sanitation initiatives have not been integrated: Water, solid waste, sanitation (excreta management), and drainage need to be addressed simultaneously in settlement like slum areas if there is to be a perceivable improvement in the living environment.
• Little attempts have been made to develop good local indicators which effectively measure the low levels of service coverage. There is therefore little baseline data except for qualitative reports of poor infrastructure.

Considerable challenges remains in accessing capital as a main source of financing of slum upgrading projects. Some of these are: lack of secure land tenure, low affordability compounded by a rising construction cost, lack of credit history amongst the poor and high real and perceived risk in lending to the poor. Some of these issues can only be addressed through institutional/ policy reform which takes considerable time

2.3.3 Time Versus Cost

The literature reviewed has highlighted that it is widely accepted that time-quality-cost (TQC) are the core variables used to measure the levels of a project’s success. Over the previous fifty years or so, TQC has been seen as a bench mark with which a project success or failure may be measured (Lock, 2007) and (Field and Keller, 2007).
The measurement criteria of TQC is set out to examine the time it takes to complete a project, the final cost of a project and the quality delivered against its quality objectives. Although TQC are acknowledged as the core variables, in measuring project success it is not without its critics.

Well cited researchers such as Chan and Chan (2004) claim that TQC is inflexible, Both offer different approaches to the measurement of project success such as using key performance indicators (KPI) and more value centred approach. Initial research of the literature examined practice methods in descriptive published text books such as (Lock, 2007) and (Field and Keller, 2007) on project management.

This literature seems to make the process of the conception of objectives to implementation clear, in that once you have an idea, make a plan, set objectives and get to work. However, Atkinson (1999) highlighted that there are issues with this type of strategy as “time and costs are at best, only guesses, calculated at a time when least is known about the project.

Quality is a phenomenon; it is an emergent property of people’s different attitudes and beliefs, which often change over the development life-cycle of a project” (Atkinson, 1999, p.337). The literature suggests that the relationship between client and project is crucial in deciding project objectives. However, Winch and Kelsey (2005) warned that there is a fine line, as not enough collaboration and in turn too much collaboration can also lead to project failure.

Whilst reviewing the literature pertaining to TQC variables and their usefulness as measurements of project’s success, it was highlighted how strongly linked the outcome of a project success was to that of a project’s critical success factors (CSF). Bryde (2007) suggested that there are “two broad issues associated with project success: the criteria used to define and measure success project success criteria and the factors that influence success project critical success factors (CSFs)” (Bryde, 2007, p.801). Pinto and Covin (1989) use the axiom “a project is a project is a project” when criticizing the works of other researchers, suggesting they are too focused on classifying all projects as similar, rather than pursuing research issues that investigate differences between projects. The more recent literature has not focused on individual lists but rather suggested that CSFs should be sub-divided into categories. By taking this approach Fortune and White (2006) formatted a Formal System Model which elevates the main concerns of the individual approach of CSFs.
2.3.4 Community Participation

2.3.4.1 Participatory Approach

Participatory approach is a process by which a community undertakes to reach a given socio-economic goal by consciously diagnosing its problems and charting a course of action to resolve those problems. Experts are needed, but only as facilitators. Moreover, no one likes to participate in something which is not of his/her own creation. Plans prepared by outside experts, irrespective of their technical soundness, cannot inspire the people to participate in their implementation.

The latest trends in international development ideology reflect a shift away from traditional, top-down planning to strategic, bottom-up processes. The traditional method of planning for water and sanitation was a highly structured process of written rules and procedures, with a top-down planning flow with narrow participation profiles and budgetary focuses (Pyburn, 1983). The priority needs and necessary service levels were determined by well-meaning officials based on their own perceptions of what was needed for the “target beneficiaries”. The beneficiaries themselves often had little say in the matter (Eawag, 2005).

In contrast, the strategic planning frameworks that have emerged out of the past fifty years of international development work focus on more participatory, bottom-up methodologies. Planners solicit the participation of a variety of stakeholders in a democratic planning process. A number of strategic planning principles can be synthesized from the international development literature concerning the approach necessary for achieving sustainable sanitation projects. These principles are not logical steps to be completed, but guidelines that will influence the format of the steps and the decision-making process itself. The five key principles behind successful planning are:

- Participation,
- Capacity development,
- Economic efficiency,
- Technical flexibility and
- Feedback.

To be able to attain a high sanitation condition in a community, it is essential to select the most suitable sanitation option by involving the end users of the systems in all steps of the planning process.
Participation of users is now thought to be a prerequisite for sustainable development. Working with a participatory planning approach improves motivation, learning and self-realization, feelings of ownership and self-esteem, and the possibility that the identified problems and solutions will truly reflect the felt needs of the stakeholders.

User involvement raises awareness and is particularly important to enable an “informed choice”, and for the proper operation of on-site systems, as neglecting their needs and preferences can result in the non-use of latrines with users reverting to open defecation. If users find their systems inconvenient or cumbersome to operate, or if they are not properly informed and trained, they may make private adaptations that cause environmental pollution and pose health risks.

Participatory planning approaches (PPA) are interactive and often visual methods, which encourage and facilitate the participation of individuals in a group learning and action planning process. A Participatory planning approaches (PPA) generates constructive collaboration among stakeholders who may not be used to working together, often come from different backgrounds, and may have different values and interests (Simpson- Herbert et al, 1997).

These participatory tools have in many cases shown a great deal of success in water supply and sanitation programmes. They therefore have a proven track record that should not be neglected. These tools should be adapted wherever possible to the specific needs of successful implementation sanitation programmes enabling them to address the philosophy of a closed loop approach to sanitation.

2.3.4.2 Community Organization and Participation

Citizen involvement has been found to be a key ingredient in the success of urban slum sanitation projects. Community participation can lead to cost reductions, increased cost recovery, and more effective operation and maintenance of systems. The Working Group on Urbanization (WG/U) of the Water Supply and Sanitation Collaborative Council, an international organization, recently reviewed 271 documents describing 67 urban slum water supply and sanitation (WS&S) projects. Thirty-one of the 67 projects were reported to have been successful; 19 of these attributed a major role in their success to citizen participation.
The lack of a common social composition in urban slum areas can make organizing for community participation difficult, however. The major shared feature of urban slum inhabitants is their place of residence.

People in these areas are likely to come from different ethnic groups, speak different languages, have different religions, and earn a wide range of incomes. Nevertheless, it is imperative to include from the start the users in urban slum areas because their heterogeneous nature increases the complexity of sanitation improvement approaches.

Community participation usually does not begin spontaneously and it rarely continues without enormous work and patience, which eventually must be rewarded financially. Often barriers exist that prevent organization of local institutions in urban slum communities. Residents may lack the free time to organize or the knowledge and experience in how to organize in a sustainable way.

Most community members cannot survive by working as full-time volunteers. However, communities can still be highly organized. For example, they may have carried out an invasion of the land to form the settlement in the first place. To organize residents effectively, project planners need to explore opportunities for bridging cultural and other differences within urban slum settlements early on in the planning of sanitation improvement activities. Residents of urban slum settlements have shown they are willing to organize around specific issues. Identifying and working through an informal power structure, or through an NGO or other community group, can help overcome cultural or social differences within a settlement. Organizations that have grown out of other development activities may turn their attention to sanitation projects. For example, community efforts to legalize land rights can lead to organizing to get water into the community, followed by organizing for a sanitation program.

Based on the WG/U review of the 67 peri-urban WS&S projects noted above.

A related institutional issue is that economic rather than social project components often are seen as determining project viability or success. There is widespread belief that urban slum sanitation projects are essentially technical in nature, with social aspects, including community participation, considered less important for a projects success. Consequently, the technical departments of the implementing agency have much more power and status than those dealing with social aspects; if latter exist at all (Moser, 1992 in Voices from the City 1993).
In most countries, engineers who control the technical departments are mainly senior men, while community development and social workers in the social division tend more to be junior women. Sexual inequalities reinforce the attitude among bureaucrats that the social components of projects are less important. A lack of recognition that community participation requires specialized training also hinders citizen involvement (Moser, 1992), as does the longer time frame required for implementation of projects based on participatory approaches. The latter implies higher initial up-front costs as well, further discouraging the process.

2.3.4.3 Stakeholders and Capacity Building

Historically the performance of urban water systems in developing countries remains below expectation and this has not only been due to inappropriate technology. It should be recognized that urban water management poses extraordinary complex problems that cannot be solved by individual stakeholders.

The failing of systems particularly in developing countries has been partly the result of a top-down approach with limited involvement of stakeholders. Finding consensus on what the problems are and how to solve them remains a big challenge. Another reason for failure has been the lack of understanding of the institutional landscape in which the urban water system will be managed and operated. The methods and techniques developed were not appropriate for the local circumstances. The lessons learnt from these experiences, has emphasized the need to recognize institutional landscapes and provide appropriate institutional development and capacity building programmes.

2.3.4.4 Learning Alliances

Learning alliances (Switch, 2006), is a relatively new concept that aims to link up stakeholders at city level to interact productively and to create win-win solutions along the water chain. They typically consist of a series of structured platforms, at different institutional levels (national, river basin, city, community etc), designed to break down barriers to both horizontal and vertical information sharing, and thus to speed up the process of identification, adaptation, and uptake of new innovation. These platforms bring together a wide range of partners (including public and private sectors, academia, and community based organizations), with capabilities in: implementation.
Clearly, the involvement of these multi-stakeholder alliances will substantially contribute to a reduction in the vulnerability of cities and their capacity and preparedness to cope with global changes. In addition, innovations developed through these alliances will lead to greater impact and more potential for taking innovations to scale through the development of locally appropriate innovations, of ownership of the concepts and process; and of capacity of learning alliance members. Nesting learning alliances at different levels will both shorten the time between developing new knowledge and scaling it up; and, ensure that local solutions are nationally relevant and applicable.

2.3.4.5 Institutional Development

Clearly, improved water and sanitation management will require engagement with a complex array of administrative, political, institutional, social, economic challenges in cities. There is a need, therefore to stimulate changes in policy and practice in urban water management within institutions, other levels of government and civil society. An underlying hypothesis is that without institutional change it will not be possible to achieve a paradigm shift towards more integrated management.

The new paradigm is likely to require:

- Changes in holistic environmental thinking,
- Changes in institutional structures and frameworks,
- Change in use of means and resources,
- Changes in managerial methodologies and approaches &
- Changes in approaches to financial planning and management to include explicit attention to pro-poor and gender-specific strategies.

Developing and managing institutional improvements is a difficult process. Edwards (1988) has developed manual that provides practical and immediately useful information about developing and managing institutional change projects in the water supply and sanitation sector. He points out that institutional development projects should "focus on the development of comprehensive organizational systems and the people within the system which make them work." He goes on to say that "the overall purpose of these projects is to achieve institutional learning or sustainability"
2.3.4.6 Capacity Building

The critical links in the chain of sustainable water management are the institutions and the knowledge base skills and attitudes (the capacity) of individuals and organizations, which need to be strengthened. The capacities are the knowledge and experience incorporated in the organization - in its structure and in its staff (Alaerts, 1999). The capacities allow the organization to adequately resolve problems, and to respond to opportunities. The incentives influence the decisions of the staff and the management to take certain actions.

If the incentives for the staff as individuals and as an organization point in the wrong direction, the possession of other capacities is of little value. Capacities, thus, are an essential component of institutions and actually determine the institutions. That is obvious for organizations, as discussed above, but this also holds for the non-organizational institutions, such as legal and regulatory frameworks, or the framework to devolve decision-making power to local government levels, as well as the economic and other incentive systems (Alaerts, 1999).

Capacity building (for the water sector) draws from three distinct sets of disciplines: water management principles; business, behavioural and administration sciences; and pedagogic sciences. UNU-INWH (2007) defined 4-pillars for capacity building that identify capacities required at the community, state and federal levels of responsibility.

i. Educate and train, including community awareness building, adult training and formal education, so as to provide sufficient numbers of competent human resources to develop and apply enabling systems,

ii. Measure and understand aquatic systems, through monitoring, applied research, technology development and forecasting, so that reliable data is used for analysis and decision-making,

iii. Legislate, regulate and achieve compliance through effective governmental, nongovernmental and private sector institutions and through efficient enforcement and community acceptance,

iv. Provide appropriate, affordable water infrastructure, services and products through sustained investment and management by both private enterprises and public agencies.
This framework can be used to identify gaps in existing capacities, which can then be organized into a coherent and integrated development plan for implementation. The capacities are in fact the tools that can be used to develop and apply the enabling systems which, when fully in place and functioning, result in supply and demand balance. According to Bartle p (2007) a project is a series of activities (investments) that aim at solving particular problems within a given time frame and in a particular location. The investments include time, money, human and material resources. Before achieving the objectives, a project goes through several stages. Monitoring should take place at and be integrated into all stages of the project cycle.

The three basic stages include:

1. Project planning (situation analysis, problem identification, definition of the goal, formulating strategies, designing a work plan, and budgeting);
2. Project implementation (mobilization, utilization and control of resources and project operation); and
3. Project evaluation.

Implementation of the project should be executed by all individuals and institutions which have an interest (stake holders) in the project. To efficiently implement a project, the people planning and implementing it should plan for all the interrelated stages from the beginning.

### 2.3.4.7 Challenges in Project Implementation

Requirements change: The stakeholders may change their requirements at any point during the project, which may lead to a scope creep unless the project manager has formalized the change control process. There will be risks in the Risk Management Plan (RMP) that will materialize during the course of the project; project managers have to respond to these risks immediately by implementing their respective contingency plans.

Project sponsor may not really be there for the project: Otherwise called the "Absent Project Sponsor", this situation is usually very challenging as the project manager needs constant advice, direction, and support from the project sponsor. Not to mention that the project sponsor has the key role of securing funds for the project.
Community politics negatively affecting the project: During the project implementation, you might have some stakeholders with hidden agendas fighting with other stakeholders with different hidden agendas over the "right course" of the project. Of course, both the project and the project manager will suffer because of this.

Project dis-aligned with the community’s objectives can greatly affect successful project implementations: If at a point during the implementation, the project is no longer aligned with the community’s objectives especially where there was no community participation, the project may lack the necessary support.

Project team issues: Including conflicts between team members, low production resulting from de-motivation, gold plating, feature creep, etc.

Poorly maintained water supply systems in slums in Kenya can generally be traced to insufficient financial resources and poor management. This deterioration in the water infrastructure threatens the quality and reliability of all water services. In particular there has been little or no management and maintenance of water and sanitation infrastructure in slum areas. A large proportion of these infrastructures are old, placing it at constant increased risk for leaks, blockages and malfunctions due to deterioration.

Escalating deterioration of water and sewer systems threatens the ability to provide safe drinking water and essential sanitation services for the current and future generations. As the pipes crumble and leak, many cities are faced with an expensive water and sewer problem. As these problems go unresolved, the more serious they become, placing vital public assets at risk of further degradation, posing an unacceptable risk to human health and the environment, damaging public and private property, and impacting state and local economies.

The cost of rehabilitation of water infrastructure system is increasing substantially due to their deterioration. These deterioration processes are more severe for the slum areas of developing countries, due to ageing of the systems, poor construction practices, little or no maintenance and rehabilitation activities due to the limited financial resource, operation at higher capacities than designed. Similarly, there is a little knowledge about specific classes of assets deterioration, the technical service life and insufficient database. Further, there are not efficient decision support tools available to infrastructure managers and decision makers (Misiunas, 2005).
Infrastructure deterioration will impact to the public health, environment and institutions. Higher rate of the water leakage means higher water losses and higher chances of infiltration and ex-filtration of water. This will create the higher chances of drinking polluted water.

2.3.5 Funds

Cost of the project depends on the different factors like change in the rate of materials, equipments & machinery, change in rate of labour and other various factors. Project execution often involves substantial funds, the loss through failure or abandonment, has a crippling effect on the capabilities of the investors and the financiers because once a decision is taken to execute a project, scarce resources are tied down for a long time. The project may be the only future. (Morris S 1990). Budgetary constraints occur frequently given the short tenure of governments, reordering of priorities or diversion of fund as time progresses. Project abandonment or failure is the inevitable outcome of the scenario.

Should the project be included in the new set of priorities, tremendous cost and schedule over-runs are highly probable because of likely changes in resource requirements, escalation in input prices and changes in the organization or implementing unit. This is aggravated by the fact that the contractor may have to deal with different ‘owners’ or officials at different times during different stages of the project life cycle. Often, projects are completed not within budget, time, and technical specifications and within community or client satisfaction. The projects are “completed” but cannot function. Nwachukwu C C, Echeme I and M.N Okoli (2010)

Delays and cost overruns in Public Sector projects can raise the capital-output ratio in the sector and elsewhere, bringing down the efficacy of investments. Yet there are no estimates of the delays and cost overruns, and of their opportunity cost. Cost overruns are very large; even after removing the increase due to inflation! The reasons for the same are also identified and rated. Factors internal to the public sector system and Government largely account for the delays and cost overruns: Poor project design and implementation, inadequate funding of projects, bureaucratic indecision, and the lack of coordination between enterprises. Appraisal by the Government very often is devoid of meaning when the emphasis is only on the form of the project proposal rather than on its content- a tendency quite usual in bureaucracies. Since the public enterprises particularly those in the core sector have large dealings with each other, a 'vicious circle of delays' has been built up.
The politically expedient tendency to take up large numbers of projects and short fund them all, except those with the very highest priority, is perhaps the most important factor in delays. The Government's ad hoc approach in according high priority to certain sectors has compounded the problem and led to delays thereby increasing cost. Nwachukwu C C, Echeme I and M.N Okoli (2010)

In recent years, international investments in water and sanitation have been declining despite growing awareness of water issues. Official development assistance for water supply and sanitation projects from countries of the Organization for Economic Cooperation and Development and the major international financial institutions has dropped from $3.4 billion per year (average between 1996 and 1998) to $3.0 billion per year (average between 1999 and 2001) (Gleick 2003). Furthermore, Gleick points out that about half of this water-related aid goes to ten countries, whereas only 12% of this aid goes to the countries where a high proportion of the population has no access to improved water supplies (Gleick 2003). This observation suggests that water aid is used more as a political tool than as a means to reduce disparities in access.

Greater political will is needed at all levels, from international to community, to dedicate the necessary resources for safe water and sanitation - from rebuilding aging water infrastructure in industrialized and middle income countries to providing water and sanitation to the poorest of the poor in developing countries. Political will is also needed to institute and enforce policies which promote water conservation, safe water reuse, and equitable water sharing and sustainable development of megacities.

2.4 Critical Review of Major Issues

According to Cleland et al (1988), a project is termed successful if it passes four success test criteria namely, the time criterion – completed on time; the cost or budget criterion – completed within budget; the effectiveness criterion – completed in accordance with the original set performance and quality standards; and client’s satisfaction criterion – accepted by the intended users or clients whether the client is internal or from outside the organization. The above success criteria call for successful project implementation by the utilization of proven management techniques of planning, organizing, directing and control. The issues on life cycle management, time management, conflict resolution and management, networking, contracts management, project choice and project quality are the key factors that contribute to project success.
Effective project choice, for example, which results in a good project selection, greatly improves the probability of project success especially when the project is executed in accordance with project management implementation guideline Networking helps in the achievement of these objectives.

Empirical evidence, however, suggests that the importance of networking is far outweighed by the contribution of other project tools, which include work breakdown structure, life cycle planning, systems engineering, configuration management and status reports. Networking contributes to better cost and schedule performance but not necessarily to better technical performance and better client acceptance.

Networking contributes to better cost and schedule performance but not necessarily to better technical performance and better client acceptance. Perceived success is more adequately defined as meeting the project’s technical specification or mission while at the same time attaining a high level of satisfaction on the part of the organization, clients, users or clientele and the project team (Baker, 2002). The end product must perform satisfactorily in service.

This means that parties associated with and affected by a project should be satisfied at the same time that the good cost and schedule performances are realized. Effective project success therefore requires a judicious trade-off amongst the four tests or success acceptance factors of timeliness, completion within the budget, satisfactory technical performance, and client or customer.

Project failure is illustrated by a failure to achieve the four success criteria and is manifested by the lack of application of proven project management techniques. Project abandonment is the abandonment of the contract such as refusal or failure to complete a contract before practical completion. Donald P. Ely is one of the few who has done extensive research into the implementation of innovations. His research (1990, 1999) has shown that the existence of certain conditions tends to facilitate the implementation of an innovation. These conditions are:

Knowledge and skills is an important factor in implementing any project effectively. Stakeholders must feel confident in its operation and their own ability to integrate it into daily practice. The need for training has emerged in the literature as an issue of major proportions (Boe, 1989; Hasselbring, 1990; Milner, 1980; Moursund, 1981; Reinhardt, 1995; U.S. Congress, 1988, 1995).
For successful implementations of any project, necessary resources must be available. Most project fail to deliver the intended purposes because of inadequate resources which range from finances, facilities and material to man power. The third factor affecting project implementation is Commitment. The key to commitment is that it must be displayed by individuals involved in the project at all levels of the implementations. According to Ely (1990), administrators involved in the day-to-day implementation, must support the project.

Leadership occurs at many levels and is key to successful projects. The literature indicates the growing importance of administrators in the success of a project or innovations. According to Jongejan (1990), it is the lack of realization that project administrators control policy making, financial allocation, and project implementation. Thus, administrators must be educated about the project and on value of implementing the project. The actions, interests, and priorities of the building principal have made a significant difference between effective and ineffective implementation of project / program (Berman & McLaughlin, 1978, U.S. Congress, 1995).

Adequate time and compensated time is needed for users to become educated and skilled in how to use the innovation. This condition refers not only to the organization’s willingness to provide time but the user’s willingness to devote learning time for implementation (Ely 1990, 1999). The involvement of key stakeholders in decisions that relate to the planning and design of the innovation is another success factor in project implementation. The condition refers to all stakeholders but emphasizes the participation of product users in this case the slum dwellers (Ely 1990, 1999).

2.5 Summary and Gaps to be Filled by the Study

Many donors, governments and local communities fund or set up water and sanitation projects in the slum communities and leave them with the hope that it will be self-sustaining or it will be run and owned by the local community for their own benefits. These projects usually face a lot of challenges in the implementation stage which include lack of necessary technical skills, support and organizational structures in place. Other projects face the problems of inconsistent flow or misappropriation of the funds, and also the issue of the high rate of mobility of slum dwellers from one slum to the next leading to continuous retraining and sensitization of the new residents. These projects therefore end up not achieving the intended objective.
Although there are many slum specific problems to progress in water and sanitation project implementations, there are four common challenges: (1) inadequate investment in water and sanitation infrastructures, (2) lack of political will to tackle the tough problems in this area, (3) the tendency to avoid new technological or implementation approaches such as community participation and application of conventional water and sanitation interventions, without community involvement, over and over again even when they are inappropriate for the specific environment and community needs, and finally (4) delays and its cost as well as failure to conduct evaluations of water and sanitation interventions to determine whether they are successful and sustainable.

2.6 Conceptual Frameworks

Figure 2.1 Conceptual framework

Independent Variable  Intervening Variable  Dependent Variable

Source – Author, (2012)
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section presented the research design, study area, target population and sample design. Included in this chapter also was: Data collection instruments and procedures, finally data analysis and presentation.

3.2 Research Design

This study used descriptive research design. A research design refers to the way a study is planned and conducted, procedures, and the techniques employed to address the research problem or question. This design was chosen because, no attempt is made to change behaviour or conditions. The subject was observed and measured as they were in their natural setting without manipulating their environment. Mugenda and Mugenda (2003) explain that descriptive design studies are commonly used when examining social issues that exist in communities. This research looked at the various project implementation issues in Mukuru slums and therefore descriptive design was appropriate. The Participants were beneficiaries or project staff. Selection of respondents was random or purposive.

3.3 Target Population

For this purpose a study sample was taken. Mugenda et al (2003) defines population as an entire group of individuals, events or objects having a common observable characteristic. The target population of this study included two project managers involved in the planning and implementation process of the water and sanitation projects in Mukuru slum, three community leaders and six project members who received water from the above projects from every location. Mukuru slum has twenty villages that were clustered into three locations namely, Lunga Lunga, Kwa Reuben and Kwa Njenga. The characteristic of the population was as shown in the table below.

Table 3 - 1: Target Population

<table>
<thead>
<tr>
<th>Location</th>
<th>Number of villages</th>
<th>Target population</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lunga Lunga</td>
<td>8</td>
<td>88</td>
<td>40</td>
</tr>
<tr>
<td>Kwa Reuben</td>
<td>5</td>
<td>55</td>
<td>25</td>
</tr>
<tr>
<td>Kwa Njenga</td>
<td>7</td>
<td>77</td>
<td>35</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td><strong>220</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Chief’s Office, Mukuru Location {2012}
3.4 Sample Design

A sample is a small proportion of a population selected for observation and analysis (Best & Khan 2006). Sampling refers to selecting a given number of subjects from a definite population as a representative of that population (Best & Khan).

A Sample is a finite part of a statistical population whose properties are studied to gain information about a whole (Webster, 1985). From the above population, a clustered random sample of forty percent was sampled for the study as follows:

Table 3 - 2: Sample Size

<table>
<thead>
<tr>
<th>Location</th>
<th>Population Frequency</th>
<th>Sample ratio</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lunga Lunga</td>
<td>88</td>
<td>0.4</td>
<td>35</td>
</tr>
<tr>
<td>Kwa Reuben</td>
<td>55</td>
<td>0.4</td>
<td>22</td>
</tr>
<tr>
<td>Kwa Njenga</td>
<td>77</td>
<td>0.4</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>220</td>
<td>1.2</td>
<td>88</td>
</tr>
</tbody>
</table>

Source: Author (2012)

Kothari (2004) argues that random sampling ensures the law of Statistical Regularity which states that if on average the sample chosen is a random one, the sample will have the same composition and characteristics as the universe. This is the reason why random sampling was considered as the best technique of selecting a representative sample.

3.5 Data collection procedures and instruments

3.5.1 Type and Sources of Data

The data for the study was primary and secondary data and involved firsthand extraction of information from the Water and sanitation project officers and Mukuru residents.

3.5.2 Data Collection Instruments

The study utilized questionnaires to collect the primary data. Questionnaires were more appropriate for the study since the data was to be collected from a large sample. Two questionnaires were designed for the project officers and the slum residents. The slum residents who had difficulties filling out the questionnaires were assisted by the research assistants.
3.6 Data Analysis and Presentation

This process started as soon as all the Questionnaires had been collected. These questionnaires were edited, classified and tabulated as a process for better and efficient analysis. This information was analyzed quantitatively with the aid of the Statistical Package for Social Science (SPSS). The findings were reported both qualitatively and quantitatively using descriptive and inferential statistics. Descriptive statistics included measures of central tendency such as mean, mode, median and measures of dispersion; and inferential statistics was applied. The analyzed findings were presented using frequency distribution tables, pie charts, and graphs.

For the purpose of this study, permission was sought from relevant authorities and a letter granted to allow the researcher to carry out the research. Furthermore, the researcher explained the purpose of the study to the respondents and assured them of confidentiality of their responses and identities. Recommendations from the analyzed data were drawn to enable future prospects to overcome the challenges encountered in the implementation process.

3.7 Ethical Consideration

The following ethical considerations were taken into consideration during the study; the need for approval of the research proposal by the school of business, Kenyatta University was essential and mandatory to give validity to the document and to show that the study had been done according to approved research standards and practices. Informed consent from the participants was sort beforehand and the maintenance of confidentiality was vital especially for participants who wanted to remain anonymous for either official or personal reasons for fear of reprisals or otherwise.
CHAPTER FOUR
DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

After collecting data from the respondents, the data was edited, classified, coded and tabulated. The data analysis was based on the research objectives and questionnaire items which were analyzed using statistical tools like pie charts, frequency distribution tables and graphs. The analysis, presentation and interpretation of the results were presented as shown below:

4.2 Background Information

4.2.1 Response Rate

This shows the total number of the people who responded and those who did not respond. The total number of questionnaires distributed to the field was 88 but 85 questionnaires which represent 98% were returned fully answered while 3 questionnaires which represent 2% were not returned. From table 4-1 it can be inferred that there was good response rate. The response rate reflected the view of Mugenda & Mugenda (2003) who indicated that a response rate of 70% and over is very good as it gives a representative sample for meaningful generalization and minimizes errors.

<table>
<thead>
<tr>
<th>Response rate</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responded</td>
<td>85</td>
<td>98</td>
</tr>
<tr>
<td>Did not respond</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>88</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure 4-1: Response Rate
Source: Author (2012)

4.2.2 Gender of Respondents

According to the above study, the total number of males who responded was 44 representing 52% of total respondents while females were 48%. From figure 4-1 below, it can be concluded that the majority of respondents were males implying that there is a growing participation of men who are interested in water and sanitation projects in line with Ngau and Keino (1996) there is a growing group of men who are keen on participating in implementation of projects.
4.2.3 Age Structure

Table 4-2: Age Structure of the Respondents

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>45</td>
<td>62</td>
</tr>
<tr>
<td>31-40</td>
<td>22</td>
<td>18</td>
</tr>
<tr>
<td>41-50</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Above 51</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>85</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Author (2012)

Table 4-2 above and figure 4.2 below indicates that 62% of the respondents were aged between 20-30 years, 18% ranged between 31-40 years, 15% aged between 41-50 years and 5% of the respondents were 51 years and above. Therefore, majority of the respondents were aged between 20 and 30 years.
4.2.4 Academic Qualifications

The study above shows the response of respondents on their level of Education. 55% had attained education up to primary level, 32% indicated secondary school, and 15% indicated tertiary level. From Figure 4-3 below, it can be deduced that a majority of the respondents had attained education up to primary school. It can be generally inferred that most of the population is not learned and justifies their staying in the slum areas in Nairobi. Henry et al (2005), notes that education creates higher expectations in some industry sectors meaning that education is expected to facilitate representative participation in implementation of water and sanitation projects.
4.2.5 Length of Stay in Mukuru Slum

According to the study above 33% of the respondents have stayed in Mukuru for less than 5 years, 54% had stayed for a period between 6-10 years, 10% had stayed for a period between 11-15 years, while 7% had stayed for a period of more than 15 years. Based on Figure 4-4, it can be inferred that majority of the respondents have stayed in Mukuru for a period of between six and ten years. It seems reasonable to hypothesize that a positive relationship exists between the period of time and implementation of water and sanitation projects. First, people who have stayed in slums for a long time have successfully implemented water and sanitation projects. Theoretical explanations can be derived from Jovanovic (1982) who postulates that, over time, people learn and improve their efficiency of project implementation.

![Figure 4-4: Length of Stay in Mukuru](source: Author (2012))
4.2.4 Level of Involvement

There are various levels of involvement in water and sanitation projects in slums. According to Figure 4-5 below, 58% of the respondents are Clerical, 28% are middle level managers, 10% are in the management level and 4% are at top management level. This indicates that the study was successful as it involved the right key informants who gave the right information.

Figure 4 - 5: Employee Level of Management
Source: Author (2012)
4.3 Implementation of Projects

4.3.1 Number of Water and Sanitation Projects

The study shows the views of the respondents on the number of water and sanitation projects in the community. According to the above study 15% indicated that they had one project, a majority of the respondents at 44% had two projects and 41% had many projects, this is shown in Figure 4-6 below.

![Figure 4-6: Number of Projects](image)

Source: Author (2012)

4.3.2 Financing of Projects

According to the study 35% of the respondents indicated that the projects were financed by the local community, 26% by the government, 9% by donors, 24% by the investors and 6% from loans. Based on Figure 4-7 below, it can be inferred that most water and sanitation projects are financed by the local community. Community members are usually charged for water consumption.

![Figure 4-7: Sources of Financing](image)

Source: Author (2012)
4.3.3 Management of Projects

According to the study, 15% of total respondents indicated that the projects are managed by the Community based organizations, 24% by the community leaders, 19% by the donors and a majority of the respondents at 42% indicated private ownership management as shown in Figure 4 - 8.

![Figure 4 - 8: Project Management](source)

Source: Author (2012)

4.3.4 Major Challenges in Project Implementation

The study shows the views of the respondents on challenges faced during the implementation of water and sanitation projects in the community. According to the above study, 41% indicated inadequate or lack of financial support, 20% poor management, 18% lack support from local communities, 15% political interference and 6% insecurity. From Table 4-3 below it can be concluded that inadequate or lack of financial support as the major challenge facing them.

**Table 4 - 3: Challenges facing Project Implementation**

<table>
<thead>
<tr>
<th>Item</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor Management</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>Inadequate or lack of financial Support</td>
<td>35</td>
<td>41</td>
</tr>
<tr>
<td>Lack support from local communities</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>Political Interference</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Insecurity</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>85</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Author (2012)

Other challenges raised by the community members included: changing donor requirements, absent project sponsors, community politics, project that are dis-aligned with community
objectives, project team issues, poorly maintained water supply systems, deteriorating water and sewer systems and increasing cost of rehabilitating water infrastructural systems.

4.4 Project Duration

4.4.1 Time Taken to Implement a Project

The study shows the views of the respondents on the time taken to fully implement projects and their functionality. 7% of the respondents indicated one month, 24% three months, and majority of the respondents at 69% indicated more than four months as shown in Figure 4-9 below.

![Figure 4-9: Project Duration](source: Author (2012))

4.4.2 Factors Affecting Length of Time

There are various factors affecting the length of time taken by a project: changes of climate, inadequate or lack of water, inadequate materials, local community participation, financial constraints and insecurity among others. Community members’ involvement does moderately affect duration of time taken by a project.

4.5 Government Role

4.5.1 Number of Government Projects

According to the study, a number of projects were set up by the government. 54% of the respondents indicated that there was no project that had been set up by the government. 35% indicated more than ten projects and 11% less than ten projects as shown in Figure 4-10. From the study it can be deduced that the government plays a minimal role in setting up and implementing water and sanitation projects in slums.
4.5.2 Inspection of Projects

This is the government official's inspection of projects. According to the study, 15% of the respondents indicated frequently, 50% sometimes and 35% rarely as shown in Figure 4 - 11. From the study, it can be inferred that the government at times inspects projects.

4.5.3 Performance of the Projects

This is the performance of the government run projects verses other projects. According to the study, 6% indicated excellent, 11% very good, 29% average, 40% poor and 14% very poor as shown in Figure 4 - 12. It can be deduced that the government run projects are rated poorly compared to other projects.
There are various factors affecting the poor performance of the above projects such as: corruption, lack of finances, nepotism and unskilled labour.

4.6 Community Participation

4.6.1 Community Involvement

According to the study, 42% concealed participation and 58% were not involved in designing and implementing of the projects as shown in Figure 4-13 below. Community participation does affect performance of the projects.

![Figure 4 - 13: Community Involvement](Source: Author (2012))
4.6.2 Support of Community involvement

According to the study, 56% concealed support for involvement and 44% were not supporting involvement in designing and implementing of the projects as shown in Figure 4-14 below. Community involvement greatly affects performance of the projects.

![Figure 4 - 14: Community Participation Support](source: Author (2012))
CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter focused on the answers to the research questions derived from the study. It also concludes the study and covers the summary of the findings and recommendations.

5.2 Summary of the Findings/Answers to Research Questions

5.2.1 Community participation

On whether community participation influences successful implementation of water and sanitation projects, most respondents (56%) agreed that the community participation greatly influences the successful implementation of water and sanitation project. The reasons given for such support include: the community ownership of the project, provide security for the project, consumption of the products, as well as work force for the project.

5.2.2 Project Duration.

On the effect of time on project implementation, most respondents (69%) agreed that most projects take more than four months to be successfully implemented. There are various factors affecting the length of time taken by a project: changes of climate, inadequate or lack of water, inadequate materials, local community participation, financial constraints and insecurity among others. Community members therefore support assigning these projects a good amount of time, taking into considerations the technicalities of the slums which include; acquisition of land, poor infrastructure and sensitization of community members on importance of such projects.

5.2.3 Government Role

On whether the government supports implementation of water and sanitation projects in slums, Majority of the respondents at 54% indicated that the government had no water and sanitation project set up in the slum. It can therefore be deduced from the study that the governments do not commit sufficient resources to address the problems of existing slums, further reducing them to wastelands of overcrowding, poverty and social exclusion.
Governments instead label these informal settlements as illegal and do not provide services to them.

5.2.4 Funding

According to the study, funding plays a critical role in successful implementation of water and sanitation projects in Mukuru slum. Most respondents at 35% indicated that the community members contribute towards funding of their own water and sanitation project since they cannot continue relying on the donors as well as the government which has failed to recognize their efforts. Instead of the funders harnessing their energy they are discouraging the poor from participating in the improvement of their own living conditions.

5.3 Conclusions

According to the study, community participation and involvement plays a very important role in successful implementation of water and sanitation projects in Mukuru slums. Without community participation and involvement projects can face many challenges of insecurity, lack of labour and acceptance of the project by the slum dwellers. Majority of the respondents concealed support for involvement.

The study revealed that most successful projects take more than four months to be fully implemented and therefore we can conclude that time is a very important factor in determining the successful implementation such projects.

Government support also plays a very important role in successful implementation of water and sanitation projects in Mukuru slums, without which many donors do not wish to venture into such slums without government support. The government run projects are rated poorly compared to other projects.

On funding, majority of the respondents agreed that funding is one of the major critical issues that influence the successful implementation of water and sanitation projects. For successful implementations of any project, necessary resources must be available. Most project fail to deliver the intended purposes because of inadequate resources which range from finances, facilities and material to man power.
5.4 Recommendations

More water and sanitation projects should be set up in the slum areas to address the rising need of lack of water and sanitation projects.

On community participation, it is recommended that project managers involve the community members in designing and implementation of such projects. Community members act as source of security to the projects as well source of cheap labour during the different stages of project life cycle.

Time: It is recommended that project managers allocate enough time to each stage of project implementation for it to be successful and to achieve its intended purpose of satisfying the end user. The challenges affecting time of project implementation should be addressed in time.

Government: It is recommended that the government should set up more projects and inspect them regularly so that the community can benefit from such projects rather than they receiving this basic need of water from private owners who charge them high rates to use their utilities. The government should also support other donors in setting up such projects so that they cannot face political interference.

Funding: From the findings, it is clear that the community members believe in their own projects rather than those funded by other people since they are fully involved in every stage of project design and implementation. It is therefore recommended that for a project to be successfully implemented, the community members should be involved in its funding so that they can easily own the project and contribute to its success.

5.4 Suggestions for Further Research

Due to the limiting factors mentioned earlier in this study, it was not possible to carry out a comprehensive research on the challenges facing successful implementation of water and sanitation projects in Mukuru slum. It’s true that there are other challenges that have not been explored by this research study hence it is necessary to undertake a comprehensive research survey of the sector to determine other factors. Among the factors mentioned adversely is security. Further study should also be done on how the community members finance water and sanitation projects using loans.
REFERENCES


Density History.


Ngau and Keino (1996). Women Social Background and Entrepreneurship in Nairobi;


APPENDICES

Appendix I: Location Map

Figure 4: Location of slums in Nairobi
Section 1: Background information (Tick where appropriate)

1. Gender
   a) Male [ ]
   b) Female [ ]

2. Age bracket
   a) 20-30 yrs [ ]
   b) 31-40 yrs [ ]
   c) 41-50 yrs [ ]
   d) 51 yrs and above [ ]

3. Education level
   a) primary level [ ]
   b) secondary level [ ]
   c) Tertiary level and above [ ]

4. How long have you lived in Mukuru slum?
   a) Less five yrs [ ]
   b) 5 – 10yrs [ ]
   c) 11 – 15 yrs [ ]
   d) 15 yrs and above [ ]

5. What is your level of involvement in the water and sanitation project in the slum?

Section 2: Implementation of projects.

6. How many water and sanitation projects do you have in your community?
   a) One [ ]
   b) Two [ ]
   c) Many [ ]

7. Who finance these water and sanitation project?
   a) Local community [ ]
   b) The government [ ]
   c) Donor [ ]
   d) Investor [ ]
   e) Any other, specify [ ]

8. Are the community members charged for using these services?
   a) Yes [ ]
   b) No [ ]

9. Who manages these water and sanitation project?
   a) CBOs [ ]
   b) Community leaders [ ]
   c) Donors [ ]
   d) Private owner [ ]
   e) Any other specify [ ]

10. What challenges were faced during the implementation of these water and sanitation projects in this community?
    a) Poor management [ ]
    b) Inadequate or lack of finances [ ]
    c) Lack support from the locals community [ ]
    d) Political interference [ ]
    e) Any other? Specify [ ]
Section 3: Duration/Time

11. How long does it take these projects to be fully implemented and function well?
   a) One Month [ ]  
   b) Two Months [ ]  
   c) Three Month [ ]  
   d) More than 4 months. [ ]

12. What factors affect the length of time taken by each project before it is fully functional?
   a) .................................................................
   b) .................................................................
   c) .................................................................
   d) .................................................................

13. Does community involvement affect the duration taken by the project?
   a) Yes [ ]   b) No [ ]

14. If yes, how?   a) Greatly [ ]   b) Moderate [ ]   c) To a low extend. [ ]

Section 4: Government support/role

15. How many water and sanitation projects do you have in your community?
   a) One [ ]  
   b) Two [ ]  
   c) Many [ ]

16. How many of these projects where set up by the government?

17. How often do the government officials come around to inspect these projects?
   [a] Frequently [ ]  
   [b] Sometimes [ ]  
   [c] Rarely [ ]

18. How do you rate the performance of these government run projects as compared to others?
   a) Excellent [ ]  
   b) Very good [ ]  
   c) Average [ ]  
   d) Poor [ ]  
   e) Very poor [ ]

19. What affects the Performance of these projects?

Section 5: Community Participation in these projects

20. Are the community members involved in designing and implementing these water and sanitation projects in their area?
   a) Yes [ ]  
   b) No [ ]

21. Does community participation affect the performance of these projects?
   a) Yes [ ]  
   b) No [ ]

22. If yes, to what extend?   a) Greatly [ ]   b) Moderate [ ]   c) low extend [ ]
23. Do you support community involvement in designing and implementation of these projects?  
   a) Yes [ ]  
   b) No [ ]

24. Why? Please specify

..........................................................................................................................
..........................................................................................................................
..........................................................................................................................
Appendix IV: Questionnaire 2 for project managers

Section 1: Background information (Tick where appropriate)

1. Gender  
   a) Male []  b) Female []

2. Age bracket  
   a) 20-30 yrs []  b) 31-40 yrs []
   c) 41-50 yrs []  d) 51 yrs and above []

3. Education level  
   a) primary level []  b) secondary level []
   c) Tertiary level and above []

4. How many water and sanitation projects do you have in the Mukuru slum?  
   a) Less than five []  b) 6 - 10 projects []
   c) 11 - 15 projects []  d) 15 and above projects []

5. What is your level of Management in the water and sanitation project in the slum?  
   a) Clerical []  b) Middle level []
   c) Management []  d) Top management []

Section 2: Project Funding

6. How many water and sanitation projects do you have in your community?  
   a) One []  b) Two []  c) Many []

7. Who finance these water and sanitation projects?  
   a) Local community []  b) The government []
   c) Donor []  d) Investor []  e) Any other specify 

8. Do you charge the community members for using these services?  
   a) Yes []  b) no []

9. Who manages these water and sanitation projects?  
   a) CBOs []  b) Community leaders []  c) Donors []
   d) Private owner []  e) any other specify 

10. What challenges were faced during the implementation of these water and sanitation projects in this community?  
    a) Poor management []  b) Inadequate or lack of financial []
    c) Lack support from the locals community []  d) Political interference []
    e) Any other? Specify 

55
Section 3: Duration/Time

11. How long did it take for these projects to be fully implemented and function well?
   a) One Month [ ]   b) Two Months [ ]   c) Three Month [ ]
   d) More than 4 Months [ ]

12. What factors affect the length of time taken by a project?
   a) ............................................................... 
   b) ............................................................... 
   c) ............................................................... 
   d) ............................................................... 

13. Does community involvement affect the duration taken by the project?
   a) Yes [ ]   b) No [ ]

14. If yes, how?
   a) Greatly [ ]   b) Moderate [ ]   c) To a low extend. [ ]

Section 4: Government support/role

15. How many water and sanitation projects do you have in your community?
   a) One [ ]   b) Two [ ]   c) Many [ ]

16. How many of these projects were set up and supported by the government?
   a) One [ ]   b) Two [ ]   c) All [ ]

17. How often do the government officials come around to inspect these projects?
   a) Frequently [ ]   b) Sometimes [ ]   c) Rarely [ ]

18. How do you rate the performance of these government run projects as compared to others?
   a) Excellent [ ]   b) Very good [ ]   c) Average [ ]   d) Poor [ ]
   e) Very poor [ ]

19. What affects the Performance of these projects?
   ............................................................... 

Section 5: Community Participation in these projects

20. Are the community involved in designing and implementing these water and sanitation projects in their area?
   a) Yes [ ]   b) No [ ]
21. Does community participation affect the performance of these projects?
   a) Yes [ ]  b) No [ ]

22. If yes, to what extent?
   a) Greatly [ ]  b) Moderate [ ]  c) Low extend [ ]

23. Do you support community involvement in designing and implementation of these projects?
   a) Yes [ ]  b) No [ ]

24. Why? Please specify

..............................................................