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COLLEGE OF ARCHITECTURE AND PLANNING  
DEPARTMENT OF BUILDING TECHNOLOGY**

**TOPIC:**

**EFFECT OF PROJECT ENVIRONMENT FACTORS ON PROCUREMENT OF SMALL  
TOWN WATER SUPPLY SYSTEM: THE CASE OF KETU SOUTH MUNICIPAL  
ASSEMBLY**

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DECLARATION

I hereby declare that this submission is my own work towards the Masters of Science Degree and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other Degree of the University, except where due acknowledgement has been made in the text.

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## **ABSTRACT**

Project Environment factors can have an impact on procurement management even in environments that are relatively stable. From access to capital, to access to technology, to access to people, to political influences in the award of contract especially in public procurement; projects will succeed or fail based on the procurement entity or managers ability to make maximum use of available resources. In addition, unanticipated changes in the environment can cause even the most well-managed and smoothly proceeding project to lose momentum. This becomes more erratic when it comes to the procurement of small water supply where these factors are beyond the control of the procuring entity. Project environment factors: (economic, socio-cultural, political/legal, technological/physical) are unpredictable and significantly influence success or failure of all types of projects. While internal factors are under the control of the procurement entity, external factors which are project environment factors are outside the control of the public procurers.

The main objective of the study is to explore the effect of Project Environment Factors on Small Town Water Supply System within Ketu South Municipal Assembly. A sample size of sixty, (60) was used for which questionnaires as research instrument were used to collect data for analysis. The data were analyzed using descriptive statistic (statistical means) and frequency distribution for presentation and interpretations. The result revealed that project environment factors (economic, socio-cultural, political/legal, technological/physical) impact on the procurement of small water supply for Ketu South Municipal Assembly. The result revealed that involvement of the intended beneficiaries for the supply of small water supply procurement especially in project planning, designed, award of contract and implementation and other procurement decisions are essential to mitigate against project environment factors.

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This dissertation is dedicated to my beloved son and daughters, Elorm, Dorcas, Gifty, Pricilla, and my wife Teresa, who have endured against all challenges throughout my absence while on study.

To my parents, whose prayer and toil in many ways have made me to achieve this level of education today. May their soul rest in perfect peace.

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of the Study**

Development projects have been and remain to be an important building block for developing countries and a major component for development assistance by donor communities. Without favorable project environments, attaining project objectives becomes very difficult and illusive. Development project failure has increasingly generated serious recognition after the donor community and governments became frustrated as a result of lack of effectiveness and efficiency in the development project delivery.

Project environment plays a very important role in the delivery of development projects to the extent that it has significant influence in determining the success or failure of all types of projects. According to Cusworth and Franks (2013) project environment is the one on which the project depends for its survival. It therefore represents a complex set of inter-dependent interactions which continually react with the project as it is brought into reality. Though the past several decades have witness controlled development assistant, the living conditions of large number of people in the developing countries are still far from satisfactory owing to the challenges posed by the project environment (Rondinelli, 2013). At the decentralized Assemblies, development projects continue to fail despite the fact that there were remarkable supports for development projects by international development organisations and the governments (Agunga, 2002).

Admittedly, developing countries have received the largest portion of aid for development projects over the last four decades. The aim of such assistance has been to improve upon the

economic growth of these countries through development projects. However as a result of failure in project delivery these countries remained severely impoverished and underdeveloped (ibid). Analysts such as Pinto and Slevin (2008), FAO (2009), Cosworth and Franks (2013); and MacArther, (2008) have attributed the failure of development project to political, economic, Socio-cultural, environmental and institutional constraints. Among these factors however, the political and socio-cultural environments have emerged in many case studies as the dominant factors accounting for poor project delivery in developing countries (Neyer 2006; Morvaridi, 2004). It is in the light of this that the study aims at attempts to draw on Small Town Water Supply Projects to investigate the effects of political, economic, Socio-cultural, environmental and institutional interactions on the procurement of these project in Ghana.

In the early 1950s development projects gain prominence after the Second World War. During this period, several countries notably those in the West were concerned with the rebuilding and development of their war-torn economies at both national and international level as such development was largely linked with economic growth. Consequently development projects including the construction of large physical infrastructures, viewed as symbols of modernization, are mostly intended to provide socioeconomic assistance to developing countries and in some cases to specific target beneficiary groups (Youker, 2013).

Development projects delivery usually involved donor agencies, government organizations, consultants, trainers, local beneficiaries and local organizations. The responsibility that separate this key stakeholders has several relevant implications such that many challenges arises as a result of internal and external, visible and invisible environmental factors in nature that turn to influence the procurement of this project as such affect the attainment of project objective (Kwak, 2002; Khang and Moe, 2008).

Projects are considered failed when they could not be effectively implemented “within time”, “within budget” and “according to requirements” (Belasi and Tukul, 2006; 141). Similarly failure takes place when projects could not meet the initial expectations or the facility failed to achieve the intended purpose. Although factors associated with projects delivery depends on the way failure or success is defined, causes of project success or failure can be identified in two parts which are ‘internal’ and ‘external’ to the project. While internal factors are factors under the control of the project planners, external factors are outside the control of the project manager and are of environmental within which the project is implemented (Belasi and Tukul, 2006; Weiss, 2006; Cusworth and Franks, 2013).

Projects depends on its environment for survival, therefore if the project planning and design is insufficient, it is likely the direct bearing of the environment will have influence on the project implementation, as well as the output and its subsequent performance. While favourable environment is vital for successful project delivery hostile environment reduces the chances of project success (Cusworth and Franks, 2013). Baum and Tolbert (2005) argue that effective project planning, design and implementation are key elements of successful projects, however if their presence cannot always be assurance of a project success, their absence is almost assured of a project failure. Project environment even though not really predictable during project design stage, has significant influence on the project success or failure.

Project environment exists in various forms depending on context and circumstances under which the development project is implemented. In most Third World countries, for instance, development projects are directed at rural communities, and where rural societies are predominantly lineage-based, local politicians, local elites and their associates from governing party are very well placed to control the project processes. Severally by the virtue of their

dominant position they turn to manipulate the project implementation process by craftily representing their own interest and siphon the resources by corrupt means.

Cusworth and Franks (2013) in explaining argued that despite how well and exhaustive projects are planned some project problems cannot be anticipated. Project success however relies greatly on how effective stakeholders as well as the affected peoples are involved in the project planning processes. Thus, the degree of success of a project to a large extent may depend on the degree of satisfaction of all stakeholders

An enabling environment provides the much needed support from key stakeholders. Many at times the cultural and knowledge gap that exists between the implementing communities and the target recipients, the conflicting needs and the capacity of the target groups as well as the policies of the implementing agencies contributes to the poor project design as such creates special problem for the project delivery (Khang and Moe, 2008).

The Government, for that matter the public sector, is struggling to cope due to inadequacy of, existing infrastructure services, coupled with rapid increasing population. These harsh realities have intensified the search for more innovative means of delivering public services and the need to demonstrate value for money in public construction procurement.

The Public Procurement Act, 2003, Act 663 aimed at ensuring sanity in Procurement and Supply Management and the promotion of efficiency and economy in the use of public procurement procedures are fair, transparent and non-discriminatory, thereby contributing to a sound business climate in Ghana. The Act 663 further provided a framework for developing and strengthening procurement institutions and streamlining their operational processes. The aim of the act was to ensure judicious, economic and efficient use of public funds.

The Act 663, by the Public Procurement Authority (PPA) is use in procuring works in public offices to achieve value for money from the government outfits. Procurement has a direct impact on the successful delivery of projects and services, sound financial management by achieving value for money in government, corporate and personal expenditure, reducing corruption, encouraging private sector growth and investment.

Frequently, project delivery are frustrated by constrains arising out as a result of procurement related issues. Procurement functions are closely related to the way the project may be financed and to the type of contract and are very important process of project delivery.

According to the Africa Infrastructure Country Diagnosis, Ghana by African standards has quite extensive water resource infrastructure and some significant pockets of irrigation. Although Ghana has good water resources, these resources are not used optimally for economic or development purposes. The total actual renewable water resources are estimated to be 53.2 billion cubic metres per year which translates into availability per capita of about 2,500 cubic metres per year. The total water withdrawals constitute only about 2% of total actual renewable water resources. A key feature in terms of water a resource is the variability of water availability between seasons and from year to year (AICD, 2013).

In 2008, Ghana recorded its highest economic growth rate of 7.3% (Ghana Statistical Service), whereby it then decreased to 4.7% in 2009. Ghana had a Gross Domestic Product (GDP) of US\$1, 4801/person in 2009 (World Bank, 2010). Despite the recent drop in growth rate a positive political economy is generally found in Ghana.

Ghana has achieved the MDG target for water supply. According to the Demographic and Health Survey (DHS) evidence, the percentage of households with access to an improved drinking water

source rose from 69% in the 2003 survey to 84% in the 2008 survey, exceeding the MDG target of 76%. However, the poor quality of these services has resulted in very high technical and non-technical losses where more than 50% of water produced is diverted; leaving the final customer exposed to highly intermittent supplies (MAPLE Consult and WSMP, 2010).

In the last five to ten years, the focus in rural water supply has shifted from point sources (mainly bore-holes with hand pumps) towards (normally) simple piped networks for small towns. The focus on small towns with their relatively higher population density has undoubtedly contributed to the relatively rapid rise in coverage rates in the last years. According to a sector investment study (MAPLE Consult and WSMP, 2010), CWSA reported a coverage rate in 2009 of 57% in rural areas (ranging from a high of 77% in Upper West to a low of 41% in Western).

## **1.2 Problem Statement**

Access to potable water is one of the major problems in developing countries. Over the past two decades, inadequate and poor delivery of water has been experience by many of urban and peri-urban towns of Ghana. The perennial situation has become gradually and increasingly gaining status as a normal. The development and delivery of potable water supply system to small towns in Ghana continues to experience huge challenges due to a large number of reasons. Different type of environmental and technological as well as procurement issues continues to plague supply of safe water to urban and peri-urban communities which mostly result to unsafe and inadequate water supply.

Water resources mainly in most of Urban Communities in Ghana are pipe system from small rivers, streams, dug-out wells ponds and aquifers. Indeed, they are in short supply and this is aggravated by their poor state. Both animals and humans depend on these water resources for survival. It might sound strange to echo that in extreme instances water to prepare meals cannot

be obtained let alone for washing down or bathing. In such situations life becomes unbearable and people have to spend several hours in a day looking for water for daily usage. In this case several productive times are lost which in effect affects the economy of the nation. Thus the precarious situation of development of water resources has thrown questions and challenges to water supply delivery to urban and small towns of Ghana.

In Ghana the Metropolitan, Municipal and District Assemblies (MMDA) are established in line with decentralization policy and are mandated to enhance the economic transformation of its people through implementation of development projects among others. Several decades after Ghana has opted for the path of decentralization, people continued to be frustrated because they have failed to achieve the objective of providing essential services and improve economic growth for their citizens. Often this is as results of poor project implementation processes adopted by those who were trusted to bring these projects to fruitful. Many a time huge development funds are wasted on these projects as such deepens the economic woes of the intended beneficiaries. Recently there is an emerging trend for which parties involved in the failed projects turn to seek for payment of huge judgment debts has affected procurement of water delivery system for the KSMA.

It is in the light of the above that the study seeks to investigate the effect that project environmental factors have on the procurement of small town water supply system in Ketu South Municipality and how its negative effect can be controlled.

### **1.3 Aim and Objectives**

The aim of this study is to explore the effect of project environment factors on procurement of small town water supply systems in Ghana.

To achieve this, the following objectives were articulated for the study:

1. To identify the project environment factors that affect Small Town Water Supply projects
2. To determine the effect of identified project environment factors on Small Town Water Supply
3. To determine possible means of minimizing the effects

### **1.4 Research Questions**

To be able to achieve the stated objectives above the study attempted to answer the following research question:

- a) What are the environment factors that affect procuring small town water supply system?
- b) What effects do project environment factors have on small water supply projects?
- c) By what means can the effect of project environment factors on small town water projects be mitigated?

### **1.5 Significance of the Study**

Access to water and sanitation is essential for human life and is one of the vital elements of development, yet in many developing countries including Ghana; the provision of these services continues to be insufficient for a whole host of reasons, including institutional, cultural, political, economic or technological reasons (Savoir, 2010).

Sustainable water supply requires availability and quality of water which plays an important role in determining quality of life. Dirty water and inadequate sanitation kill over 4,100 children every day (DFID, 2009).

### **1.6 Scope of the study**

Although studies have identified some factors that affect development project delivery by the virtue of the environment and since the problems are contextual, the study focused on water supply projects in KSMA in the Volta Region. The study was limited to water supply projects in the five (5) Urban councils of Ketu south municipal. The assessment covered projects [works] awarded and executed between (2004 to 2013) after the enactment of the Public Procurement Act, Act 663. Contextually, issues on project environment factors that affect supply of small town water projects were explored from various authors of related studies.

### **1.7 Limitation of the study**

Any study based on residents survey through a pre designed questionnaire suffers from the basic limitation of the possibility of difference between what is recorded and what is the truth, no matter how carefully the questionnaire has been designed and the field investigation has been conducted. This is because residents may not deliberately report their true preferences and even if they want to do so, there bound to be differences owing to problems in filters of communication process. The author tries to minimize this by conducting personal interviews yet there is no full proof way of obviating the possibility of error creeping in.

The following limitations of the study should be taken into account.

1. As the study was to be completed in the short time, the time factor acted as a considerable limit on the scope and the extensiveness of the study.

2. The information provided by respondents may not be fully accurate due to unavoidable biases.
3. Since this is a one person survey, the number of respondents is relatively small for this kind of survey. However, this could not be helped due to constraints on time and money

## **1.8 Research Outline**

The study has been organized into five chapters. Chapter one of the study, focuses on the key issues of project environment and challenges of the water supply systems in Ghana. In essence, the chapter presents a background to the study, statement of the problem that has necessitated the study. The chapter also presents significance of the study, the research questions and objectives, research scope and limitations of the study. Chapter two of the research contains a review of relevant related literature that provided the theoretical and conceptual framework for the study. The chapter therefore, presents and discusses relevant terms and pertinent issues of Project Environmental Factors and Procurement process of development projects, project environment, challenges and effect on development project delivery. The research methodology has been discussed in chapter three. The chapter discusses the research approach, sampling procedure and techniques uses as well as the data collection and sources for the research. It also explains the techniques for data analysis and presentation of the research findings. In the fourth chapter of this report, analyses of field data collected for the purpose of this research has been presented. It analyses the field data to make meaningful deductions that also contributes to answering the research questions and meeting the objectives of the research.

Finally, the fifth and final chapter of the research report presents a summary of the major findings of the research as well as recommendations based on the findings. It also contains the concluding section of the study.

## **CHARTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The Chapter contains a review of relevant related literature that contains theoretical and contextual framework for the study. The chapter also discusses relevant terms and pertinent issues on project environmental factors that affect water supply and procurement process of development projects, characteristics of development project, challenges and effect among others have been covered.

The success of any development project is dependent upon the project environment in which it is implemented Cusworth, and Frank, (2013). This chapter seeks to identify the factors which influence whether or not a project is successful by considering impact of the project environmental effect on development projects delivery, a tendency of poor planning and defective project design. Often there is insufficient stakeholder involvement in the process of planning, assessing and implementing development projects. As such it is essential to explore relevant aspects of the literatures on the Development projects, project planning and implementation as well as the project environment. The analysis drawn is expected to assist the validity of the case studies involving procurement of some small town Water Supply projects and lends its support to achieving the research objective.

## 2.2 Conceptual and theoretical framework

Conceptually, small town water supply is the independent variable, which has been examined through project environment factors. The dependent variables are project planning and preparation; political, economic, environmental and social constrains that affect water supply procurement.

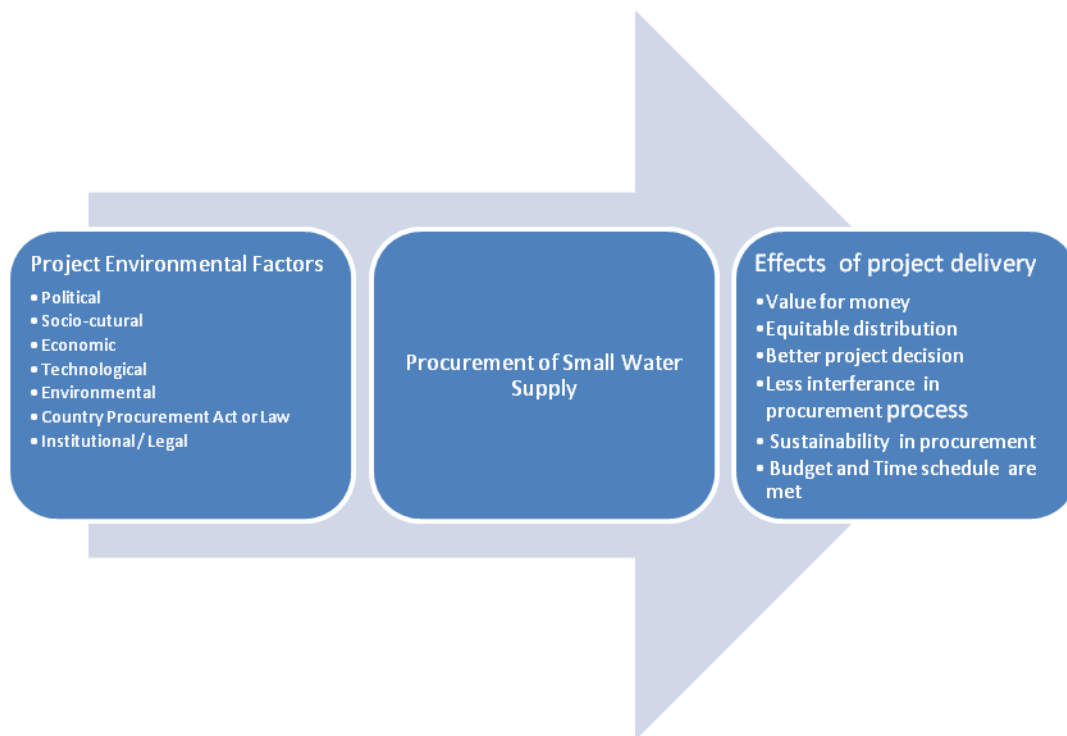


Figure 2.1: Theoretical framework

Source: (Owners Construct, 2014)

Project environment factors affect implementations of development projects. The procurement of water supply system for rural and municipal assemblies is not an exception. It is important that variables such as political, socio-cultural and demographic of the people affected by the project are considered. Availability of funds

and Economic indicators such as inflation and the exchange rate if it is donor funded water supply project are to be considered. More so, due to unstable climate change and issues of sustainable procurement, the environment and technological variables are relevant in procurement of water supply project for District/Municipal/Metropolitan Assemblies. In contrast to the above, the procurement law of procuring country and necessary regulatory frameworks are vital if values for money are to be realized.

## **2.3 Characteristic of Development projects**

### **2.3.1 Development projects**

International development projects take place in developing countries with funding from Official Development Assistance provided through multinational or bilateral aid agencies. Usually it takes the form of concessionary loans, grants or technical assistance and implemented through the government of the recipient countries. These projects are mostly intended to provide socio-economic assistance to developing countries and in some cases to specific target beneficiary groups (Youker, 2013). Most international development projects also involve a complex mix of many stakeholders. Unlike industrial or commercial projects that have only two key stakeholders – the client and the implementing unit, international development projects on the other hand mostly involve broader base stakeholders, namely: the funding agency, government organisations at various levels, consultant, trainers, researchers and local beneficiaries (ibid). The environment of international development projects is often characterised with corruption, poor participation and involvement of stakeholders, contradictory disbursement procedures and that such projects are also vulnerable to political manipulation (Khang and Moe, 2008). A single one or a combination of these factors usually results to project failure.

### **2.3.2 Causes of Failures in Development Projects**

Increasingly the claims of project failing are identified by a growing body of literatures which indicates the dissatisfaction of project performance and outcome by the affected stakeholders (Hodgson and Cicmil, 2006). Indeed conflict and problems are generated in some situations by low administrative capacity of developing countries in the process of development project design and implementation and also in some cases results from the risk of anticipated social, cultural, economic and political changes that threatens the success of the project (Hodgson and Cicmil, 2006).

Development projects continue to experience shortfalls from their actual preconceived plan simply because of insufficient project design and analysis where of course large technical uncertainties are evident (Hodgson and Cicmil, 2006). In this case the original design mostly has technical problems or the studies carried out during the project formulation stages are not sufficient enough to highlight the possible uncertainties that can be encountered. Conflict and tension among donor staff, central government planners, and the affected various stakeholders arising out of imposition of standard designs that donors perceived appropriate are also some of the causes (Rondinelli, 2008). On the other hand lack of involvement of the intended beneficiaries from participating in the project planning, designed and implementation where the local views can be input into the project processes also contributes to development project failure (Rondinelli, 2008).

**Table 2.1 Comparing Failure Factors in Development Projects**

Rondinelli (2008)	Lavagnon (2012)	FAO (2009)	Weiss (2006)
Ineffective project planning and preparation	Political, Economic and Environmental Constrains	Conceptual <ul style="list-style-type: none"> <li>- Big size of project</li> <li>- Many components</li> <li>- tight schedule</li> <li>- Project design</li> </ul>	Internal causes <ul style="list-style-type: none"> <li>- low incentive</li> <li>- low production</li> <li>- Poor management</li> <li>- mismatching technology</li> </ul>
Faulty appraisal and selection	Institutional realities	Technical <ul style="list-style-type: none"> <li>- Production shortfall</li> <li>- Poor engineering</li> </ul>	
Defective project design	Technical assistance shortcomings	Financial/economic <ul style="list-style-type: none"> <li>- Underestimating cost</li> <li>- Shortage of counterpart budget</li> </ul>	External national causes <ul style="list-style-type: none"> <li>- poor decision system</li> <li>- luck of input</li> <li>- low market demand</li> </ul>
Problems in starting – up activation	Decentralisation and participation	Social <ul style="list-style-type: none"> <li>- Inequitable benefit distribution</li> <li>- Slow adoption</li> </ul>	
Inadequate project execution, operation and supervision	Timing	Institutional <ul style="list-style-type: none"> <li>- Bad management</li> <li>- Poor staffing</li> <li>- Unsuitable organisational structure</li> <li>- Poor monitoring and evaluation</li> <li>- Procurement difficulties</li> </ul>	External international causes <ul style="list-style-type: none"> <li>- low international demand</li> <li>- high finance cost</li> <li>- high trading cost</li> </ul>
Inadequate or ineffective external coordinating of project activities	Information systems	Environmental <ul style="list-style-type: none"> <li>- Natural disaster</li> <li>- Resource or degradation</li> </ul>	
Deficiencies in diffusion and evaluation of project results and follow-up action	Sustaining project benefits	Political <ul style="list-style-type: none"> <li>- Turmoil or war</li> <li>- Insufficient government commitment</li> </ul>	

Source: Adopted from FAO (2009), and Weiss (2006), Rondinelli (2008), Lavagnon (2012).

From table 2.1 the outcome of the research shows ample evidence that development projects are characterised by stakeholder involvement – related factors such as “ *In effective project planning and preparation*” (Rondinelli, 2008), “*Political, economic, and environmental constrains*” (Lavagnon, 2012), “*Inequitable benefit distribution*” (FAO, 2009), “*poor decision system*” (Weiss, 2006). The issue identified by Rondinelli looks like a dominating characteristic factor common to all development projects. Most of these issues can however be considered as task – related issues; nevertheless this research assumes the factors arises as a result of poor project design issues and lack of stakeholder involvement. In this case these problems can be handled by implementing a sufficient stakeholder participating where the affected people are involved in formulation, design and implementation of development project of which environmental issues can be discussed.

#### **2.4 Development Project Design and Implementation Issues**

Generally project failures are assumed to have been caused by poor management rather than insufficient project design. However, the World Bank evaluation reports observed that whether project fails or succeeds, project design greatly influences project performance (World Bank, 2004, 2005). The FAO (2009) study shows that project design shortfalls contributed by far the most important reasons why the World Bank sponsored agricultural projects performance is always unsatisfactory. Most of the project design issues can be related to poor assessment of constraints and its management. Project design, however, severally ignored or passed over critical technical constraints and opportunities, which are likely to have a negative impact on the beneficiaries to the benefits the projects will provide. It is also deemed that often project design includes targets which are over ambitious and productivity projections as such local and weak institutions are placed unrealistically over burden (FAO, 2009: World Bank, 2005). These design

problems are normally compounded by situations of underestimating the impact of hostile environmental policies. Some of the project issues that demands attention in views of these studies for a successful development project delivery during the project planning and design process should take on board defining of project objective, project preparation and appraisal, the project environment and implementation.

#### **2.4.1 Defining Development Project Objective**

It is important to emphasise the significance of setting out in clear terms the objectives that a project is intended to attain. Project objective when given the needed attention at the earliest stage in the development project design will enhance the effort to ensure that all parties including beneficiary and affected peoples who will be involved in the project delivery share the same view. Conflicts and differences to agree to and understanding of the project objectives to influence a secure commitment from all the key stakeholders concerned most often results to poor project delivery (Baum and Tolbert, 2005). Weiss et al., (2006) argue that in the life of a project no other thing is most crucial than a clear statement of the project objectives. Development project delivery is therefore greatly influenced by the level to which project objectives are clear to all the stakeholders and in line with beneficiary/client expectation.

#### **2.4.2 Preparation and Appraisal of Development projects**

Poor project preparation and appraisal is considered as one of the factors influencing project failure (FAO, 2009; World Bank, 2005). However an important and necessary condition in enhancing performance of project delivery is adequate project planning. Even though careful and sufficient project design may not assure successful project delivery, it can be well thought out as

very essential in view of improving development project delivery. In this case it is possible to anticipate constraints that may surface such that adequate design measures to mitigate them are put in place (Baum and Tolbert, 2005). Lavagnon (2012) argue that conflicted project appraisal and approval process is a necessary condition for a serious project delivery problem, hence has the ability in negatively influencing the project implementation.

### **2.4.3: Guide towards successful project design Possible Lessons**

#### **Project Design**

**Scope and Coverage:** to be not over ambitious; a clear geographical area focus; and careful consideration of inter-area variations in skills and capacity.

**Components and products:** comprehensive enough to cover key functions and complementary linkages; should facilitate inclusivity in participation by different socio-economic/gender groups; strategic focus is essential during project identification, ie. Well before project design is firmed up

**Technology choice:** not pre-emptive, with careful analysis of alternatives, including assessment of cost effectiveness, with location specific bio-physical and socio-economic suitability.

**Implementation approach:** flexible, decentralised implementation, with scope for fine-tuning and periodic adjustment, with transparency in decisions on funding.

**Participation:** partnerships between community, government and private sector organisations should be considered where synergies exist, community participations should begin from initial planning stages.

**Organisations and management structure:** careful choice of implementation agencies and

integrating of project organisations within existing structures at various level.

**Project phasing:** inclusion of a pilot phase for interventions of novels/innovative nature, critical sequencing of activities and coherent expansion plan essential part of project logic.

**Database** establishing and analysis: there must be adequate assessment of micro level bio-physical, socio-economic and institutional factors, location –specific potentials constrains, need and opportunities and ‘without project, trends; supplementation of ex-ante project database on continuing basis is essential during implementation (Lai, 2001).

Drawing from Lai (2001) lessons discerned, the research adopted it for the ensuing reasons; first of all project design demands a holistic approach with a comprehensive intervention models such that over-ambitious objectives and complexity can be guarded against. Secondly it embraces enabling environment to be ensured prior to detailed project formulation and last but not the least emphasising on joint action by focusing on community and a strong stakeholder participation as well as clear communication process to enable potential conflicts be adequately managed is factored into project design.

#### **2.4.4 Enabling Project Environment**

Constraints related to project environment mostly are the causes of poor project delivery or even failure. In their research Pinto and Slevin (2008) indicate that most of the environmental factors are responsible for project failure especially during planning stages of the project’s life-cycle. Limitations include factors related to funding agencies dominance, national politics, and the local environmental factors. Environmental factors often are outside the control of the project for which assumptions are made in planning, appraisal and design as well as implementation (MacArther, 2007). Regrettably, environmental limitations tend to be inadequately considered

during both the design and implementation of development projects. Sant and Crawford (2005) observed that people responsible for project design and implementation sadly overlook this constrains hence often fails to address them because they fail to consider critically the magnitude of factors that are beyond their express control. Mostly it is assumed that certain constrains can be accepted, notwithstanding how seriously they can influence project outcome.

Logical framework as introduced in the project design has assisted project planners to make assumption on the external environments. Projects environmental changes can negatively or positively impact on the project delivery hence the stated objectives. An assumption on external situations and factors for which the project is considered allows for assessment of 'risk' of the development projects attaining its objective (Gardiner, 2005; Mahigi et al., 2008). Committing to project implementation without insufficient consideration of uncertainties inherited can result to affect negatively the project delivery.

#### **2.4.5 Project Implementation Issues**

The way projects are designed and managed can influence its implementation as such affect its eventual outcome. Project implementation is the most complex and difficult stage of the project cycle which involves a lot of activities. Rondenelli (2013) argues that implementation of projects continues to be a problem for both International funding agencies and the governments of developing countries. The project implementation stages remains a troublesome phase where unanticipated problems 'risk' arises. Therefore getting the project to take off on time and in the right direction, as smoothly and quickly as possible is critical and necessary to a successful development project delivery.

Projects are criticised often to have failed to live up to expectation simply because it could not achieve their intended purpose. Several reasons can be assigned to this, especially during implementation stages where poor assessments of local conditions as well as important social-cultural and political factors are overlooked (Lavagnon, 2012). Rondinelli (2013) argue that no matter how effective the projects are planned some of these problems are not predictable and they are mostly associated with development projects in developing countries.

## **2.5 Project Environment Factors**

The project environment according to Cusworth and Franks (2013:20) is *'the whole set off institutions, people and natural systems which surrounds the project and interacts with it'* the degree of control model divides the project environment into three major areas. Based on the nature and the relationship to the projects, the areas include the controlled environment, the influence environment and the appreciated environment (Cusworth and Franks, 2013). The appreciated environment is that part of the environment which affects the project directly while the project itself cannot in anyway influenced as such is the focus of my study (ibid). Evident indicates that International development project environment is more difficult compare to domestic projects in industrialised countries (Cusworth and Franks, 2013; Kwak, 2002). An enabling project environment if provided creates favourable conditions for successful development project delivery. Belasi and Tukul (2006) in describing factors related to the project environment have agreed with Cusworth and Franks (2013) in classifying the project environment fewer than four broad areas. This includes the physical environment, economic and financial environment, institutional environment and social - cultural environment. The ensuing

discussion will draw on some practical experience of how unfavourable project environment played a negative role and eventually have contributed to some development project failure.

### **2.5.1 Physical Environment**

The physical environments of development projects are most often a major threat to project delivery as it influences the level of success or failure of a project. According to Cusworth and Franks (2013), all natural resources that can be converted to include geology, soil, climate, wars, hostilities and water resources suffers from environmental influences. Poor technology and design in this case can have significant effect on the project delivery leading to the project failure. For instance in the Upper West Region of Ghana, the rocky nature of the soil accompanied by poor geological investigation and survey resulted in the sitting of several World Bank Funded borehole projects wrongly with low yields (Karikari, 2003). In Gabon, poor rainfall pattern compel the farmers to be concern with timing and distribution of rainfall because interrupted early rains or delayed rains results in low crop yield (Brown, 2002). In this case the geology and the climate have much influence on the project outcome. Kwak (2002) indicates that developing countries present considerable cases of such events.

### **2.5.2 Economic and Financial Environment**

The economic and financial environment remains the lifeblood of every development project as such constraint due to these factors does have severe impact on the project implementation such as exceeding completion time and cost overrun. Development projects usually involve the funding agency, the implementing unit, the target and affected beneficiaries however the role that separates these key stakeholders usually has several implications (Khang and Moe, 2008).

Funding agencies need to ensure that project funds flow regularly while the recipients' government ensures there is a sound prevailing macroeconomic condition as promised at the time of project planning and approval. Often it is the reverse that prevails in most developing countries, where high inflation and budgetary constraints compound the problem and weakens the government's ability to shoulder recurrent cost Lavagnon (2012). Rondinelli (2013) in research into World Bank projects noted that it takes about ten years for projects to go through its entire cycle from identification to implementation. The time consuming procedure adopted by the development agencies in the approval of projects often results in unrealistic cost to the recipient Government hence have a potential of influencing the project outcome.

### **2.5.3 Political and Institutional Environment**

The political environment in the context of development project delivery is influenced from three levels which often contribute to an environment of uncertainty. International political influence, national level political influence and the very grass root level political influence. At the international level, donor countries or agencies do use development projects to lure political leaders or recipient countries. Lavagnon (2012), and Rondinelli (2013) have cited the United States of America whose foreign policy seeks to establish military and political alliance with particular aid recipient country. Development projects at the national levels are always the target of political manipulation. Government officials and Members of Parliaments often push for projects that are either not feasible or oppose potentially good projects simply for political interests. In this case the political influence tends to ignore the involvement of the stakeholders and the very people the project is going to affect in the planning and design of the project. In the midst of such conflicts special dilemma and unnecessary difficulties are created in the project

implementation as such the sustainability of the project is put in jeopardy (Khang and Moe, 2008).

Participation of affected and beneficiary peoples in the context of political environment can be considered as a fundamental human right and important for negotiating other right and entitlements. For several unique reasons political processes are used to promote development projects and often the conduct of politic expressed is willful attempt to articulate power in decision making that are mostly repulsive and detrimental to development project delivery (Pinto, 2000). People will feel politically excluded from involvement in decision-making if they are distanced from power negotiations and discussion of what affects them. Local and affected people should be seen as stakeholders whose opinion of right and entitlement to development is a necessary contribution to influence positively delivery of development projects

#### **2.5.4 Socio-cultural Environment**

According to Kwak (2002) cultural issues when considering international development projects, though are least recognise, are generally dangerous. A good understanding of the socio-cultural environment by project planners and designers is a very necessary condition for successful development project delivery. The reverse therefore poses a serious threat to project implementation. Project beneficiaries and affected people are key stakeholders who have a way of life called culture hence lack of effective engagement often impact negatively on the project delivery. It is worthy to note that though development projects are intended for the socio economic well being of the target groups, development agencies do little to involve them in the planning and design of the project (Youker, 2013). The consequence of such action tends to breed distrust and erodes confidence between project beneficiaries and government officials, thus

posing serious threats to the survival of these projects. Efforts to understand the culture of the beneficiaries, affected people and stakeholders must start at the planning stage of the intervention giving the local beneficiary stakeholders to participate in every stage of the project process. By so doing their cultural beliefs, norms and the practice and local knowledge would have been considered and factored into the project planning.

Oakley (2005) and Long (2001) argue that many donor agencies, recipient governments and other development organisations have failed in properly embracing participation of poor and marginalized in many development intervention. The failure of three World Bank development projects Uphoff (2001), in Nepal, Mexico and Ghana, lend support to the views expressed by Oakley and Long. These three projects sought to increase agricultural production through the extension of management services, loan and input to farmers. The overall goal was to improve the livelihood of beneficiary farming communities. Though well intended, the way and manner these projects were carried out exposed the weaknesses of the development officials approach to the project and mainstream participation of the key stakeholders in the project delivery. The intended beneficiaries rarely participate in the formulation, design and implementation stages of these ambitious projects. In implementation, all three projects uncouneted problems of coordination and delay, resulting from the exclusion of beneficiaries in the project planning and design stages.

## **2.6 Water resources situation**

Ghana has considerable water resources and is well above the water scarcity level of 1000m<sup>3</sup>/capita/year (Table 2.2). Water availability however changes markedly from season to season as well as from year to year. Also the spatial distribution within the country is not

uniform with the south-western and coastal part having more water than the northern regions. Another problem is that availability of water per capita is decreasing due to rapid population growth. This is aggravated by increased environmental degradation, pollution of rivers and draining of wetlands and rainfall variability (climate change), (WRC, 2009). The projected water demand for consumptive water use of 5 billion m<sup>3</sup> in 2020 constitutes only 12% of total surface water resources while the projected demand for hydropower generation of 378,430m by 2020 is less than 22% of the projected supply (Draft National Water Policy, 2007). Hence sufficient water will be available to meet future needs, but the difference in their distribution within Ghana could mean that this would not apply for all regions.

**Table 2.2: Water Resources Situation in Ghana.**

<b>Indicator</b>	<b>Value</b>
<b>Renewable Water Resources</b>	2637 m <sup>3</sup> /capita (2002)
<b>Water scarcity level</b>	Well below the water scarcity level, but locally water scarcity may occur
<b>Trend in water scarcity situation</b>	Water availability is reducing; Government is aware of this and promotes among others rainwater harvesting.
<b>Regional variation</b>	Regional variation in water availability is considerable
<b>Water distribution (2000)</b>	Agriculture 655 million m <sup>3</sup> (66%), Industry 98 million m <sup>3</sup> (10%), Domestic use 235 million m <sup>3</sup> (24%),
<b>Trans-boundary basins and related countries</b>	Volta Basin – Ghana, Togo, Burkina, Ivory Coast, and Benin Bia Basin – Ghana and Ivory Coast

Based on: WRC, 2009; WWRI, 2006

Domestic and industrial urban water supplies are based almost entirely on surface water, either impounded behind small dams or diverted by weirs in rivers. The quality of this surface water is increasingly becoming a concern due to mining activities, urban and industrial pollution

problems and agricultural development. In rural areas groundwater is an important water source as more than 28,000 boreholes and hand dug wells mostly fitted with hand pumps have been developed by different programmes countrywide. Despite these efforts over 30% of the population still depends on unsafe surface water or shallow wells (WRC, 2009).

Water supply service delivery in Ghana and in other countries in Sub-Saharan Africa is strongly affected by lack of integrity and by low performance of water utilities and informal service providers. Different initiatives have been taken to overcome this situation including water sector reform. The 2010 declaration of the United Nations General Assembly that clean drinking water is a basic human right will stimulate such initiatives. The declaration places more political obligation on national governments.

As a consequence of low integrity, corruption (abuse of entrusted power for self or group benefit) may lead to and or be the consequence of inequity in access to water supply services, thus increasing vulnerability of individuals or population groups. It may also decrease the efficiency of water operators. Reducing opportunities for corruption and increasing integrity may thus improve financial sustainability and performance of water services as well as increase access. Yet this needs careful analysis to ensure that equity is also enhanced to avoid limiting 'water access' especially for poorer groups some of which may depend on informal providers or have illegal connections (WRC, 2009). An efficient way to fight corruption not only requires enhancing integrity but also engaging actors in dialogue to find common solutions and encourage collective action to rebuild trust and create change in water procurement.

The main consumptive uses of water in Ghana are water supply (37%) and irrigation and livestock watering (48%). Surface water resources alone are sufficient to meet present and future consumptive water demand. Water demand for 2020 has been projected to be 5 billion m<sup>3</sup>, which is equivalent to about 12% of the total surface water resources. In spite of the availability of water to meet demand, there are deficits in coverage. A national demographic and household survey found that only 40% of urban residents had piped water in their homes with a similar number buying water from public taps or neighbours. According to the Community Water and Sanitation Agency (CWSA, 2005), urban water supply coverage is estimated at 59%, while rural and small town coverage is about 54 % ( CWSA, 2008).

A recent Joint Monitoring Programme (JMP) report estimates that between 76-90% of the urban and 51-75% of the rural population has access to an improved drinking water source, giving a combined national estimate of between 76-90% of the population with access to improved water sources (JMP, 2012).

## **2.7 Challenges in water supply**

Statistics indicate that there is enough water in Ghana, but supply and distribution are grossly inadequate (JMP, 2012). With increasing population growth and urbanization and rapidly diversified demands, including water for irrigation, hydro power, industrial processes, fisheries and aquatic ecosystem protection, the resource is becoming increasingly scarce and often of inferior quality. There is therefore the need for an integrated water resources management approach to ensure that water does not become a constraint to national development.

The challenge of water as a key prerequisite for development lies in treatment and distribution of adequate quantities to all parts of the country. However, since most rural and peri-urban

communities are not connected to treated surface water, ground water that is derived from boreholes is common. To serve poor, vulnerable and excluded parts of the country will require the construction of water treatment plants to supplement the boreholes (JMP, 2012)

- While rural areas have largely been excluded from safe treated water supply, increasingly, urban centers have been experiencing water shortages leading to exposure to unsafe water. This is due to the trend of rapid urbanization that renders existing facilities inadequate to cater for the increased population. It is therefore important to expand the facilities as well as repair defective water pumps at treatment plants (JMP, 2012).
- Poor water use practices lead to environmental degradation, the pollution of rivers that increases the chances of the rivers drying, as well as the draining of wetlands of water which invariably lead to their death. All these, in the midst of climate change, could potentially worsen the country's water situation (JMP, 2012).

## **2.8 Conclusion**

Clearly, the project environment poses uncertainty and risk to successful implementation of development projects. What is equally important here in project success is the need to track the projects' relationship to the external environment in order to design a project that must be responsive to its environment by maximising its benefit and minimising the adverse impact that it can exert on the project delivery. This is important because development projects are most created and implemented to solve socio-economic problems identified within the project environment as such their implementation should aim at increasing the benefits to all stakeholders and reducing the negative impacts by 'deliberate mitigation' (Wideman, 2001). In the face of this,

project environment can be considered as major determinant causes of development projects failure in the developing countries. Having said that, the rest of my discussion of this study will be investigating the extent to which the ‘appreciated environment’ can affect effective project delivery of development project interventions for that matter small town water supply projects.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

Chapter three dealt with the research method used, data collection methods, sampling method and technique, the data collection process, review of statistical tool and how data was analyzed. It also provided the analytical framework of the study by this the purposes of this study and the research questions were answered. For this work to be authentic and reproducible, this research work explained all the laid down procedures on how the data was collected and managed. Variables used and reasons for the choice as well as limitation in the methodology are examined.

#### **3.1 Research Design**

Descriptive statistics quantitatively described the main features of a collection of information and are applied to populations, and the properties of populations, the mean or standard deviation (parameters) as they represent the whole population was adopted for this study. Descriptively, research design has been used basically to find out the existing situation of a particular phenomenon of concern (Joseph Hair et al., 2006). In other words, a descriptive research is the research, which deals with the relationship among non-manipulated variables (Field, 2005). In descriptive research, the events or conditions either already exist or have occurred and the researcher mainly selects the relevant variables for an analysis for their relationships (Field, 2005). The rationale for descriptive survey may be seen as involving collection of accurate data for the purpose of determining the current nature of the subject of study (Field, 2005).

The descriptive survey follows specific procedures and makes possible interpretation of data collected. Here, research questions are raised and answered in a descriptive way. Any other person therefore can follow the same procedure and come out with the same results. The

descriptive survey minimizes personality values; beliefs and predisposition of the researcher since there are laid down procedures to follow. The descriptive survey also provides the researcher with instruments, which are easier for the collection of data for the study.

Notwithstanding these strengths, descriptive survey has its own weaknesses. The main weakness of the descriptive survey is that, it is not sufficiently comprehensive to provide answers. Secondly, the descriptive survey cannot establish cause and effect relationships. Moreover, the researcher cannot deduce conclusively the cause of the phenomena or predict what the future phenomena will be. Furthermore, descriptive survey is costly when considered in terms of time and money when the target population is scattered. The choice of quantitative methodology can also be justified based on the fact that it is concise and sample is usually representative of a large population (Field, 2005).

### **3.3 Research Method**

The type of research method that was used is mixed research method. A mixed research design is a procedure for collecting, analyzing, and “mixing” both quantitative and qualitative research and methods in a single study to understand a research problem. The reason behind the adoption of a mixed research method is that although the study adopted the use of research questions which is typical with qualitative research, it also employed the use of statistical procedures in analyzing the data (Field, 2005).

Qualitative research focuses on phenomena that occur in natural settings that is, in the ‘real world’. Qualitative research deals with the quality of a research study. According to Field, (2005) qualitative research involves the interpretation and making sense out of what is seen and this makes it critical for understanding the social phenomena of the study. Qualitative research

helps to define the importance of a study. When that study has very little information or when there is no variable known or when a relevant theory base is not adequate or missing, this means that qualitative research provides what needs to be studied in such circumstances.

On the other hand, Field (2005) describes quantitative research as involving measurement of variables and the delivery of findings in numerical form in which research findings are described by text of significance, confidence intervals, and mathematically demonstrated relationships. Quantitative research has been used to measure how people feel, think or act in a particular way and it is a research technique that seeks to quantify data and apply some statistical analysis. It is often formalized and well-structured and data is usually obtained from large samples – anything from 50 upwards (Field, 2005). It also involves the use of structured questionnaires usually incorporating mainly closed ended questions with set response (Field, 2005).

### **3.3 Population**

The study was limited to water supply projects in the five (5) Urban councils of Ketu South Municipal Assembly. The assessment covered projects [works] awarded and executed between (2004 to 2013) after the enactment of the Public Procurement Act, Act 663. The population of Ketu South Municipal Assembly including the residents of the area numbering about (160,765) according to 2010 housing and population census of Ghana Statistical Council. However, the study was limited to Opinion leaders, Assembly members, Water Board Members, employees of Ketu South Municipal Assembly in the Volta Region of Ghana numbering about (200) from which the sample size of Seventy- five (75) was chosen for the study due to limited time available for this research.

### **3.3.1 Eligible Criteria**

These criteria specify the characteristics that people in the population must possess in order to be included in the study (Joseph Hair et al., 2006). The eligibility criteria in this study are that the participants be a resident of the community and must have stayed in the community for more than one year (Joseph Hair et al., 2006).

### **3.4 Sampling Technique**

Convenience sample technique a non-probability sampling method was adopted for the study in which, according to Joseph Hair et al., (2006), is less vigorous and saves time due to limited time available in submitting this study. This implies that not every member of the population has an opportunity for being included in the sample, as in quota, purposive and network sampling procedures Joseph Hair et al., (2006) describe convenience sample as the use of readily accessible persons in a study. In this case, participants such as Project Managers, District Water Engineers, Clerk of Works, Procurement Officers, water managers, assembly members and opinion leaders were chosen for the study. The respondents have been carefully chosen ostensibly that they have the necessary characteristics and the experience in responding the questionnaires.

### **3.5 Sample Size**

A sample is a subset of a population selected to participate in the study, it is a fraction of the whole, selected to participate in the research project. In this survey, sample sizes of seventy –five (75) out of (200) were selected out of the KSMA. The sample size was limited to seventy -five (75) due to limited time available in submitting final work of study. The researcher purposively selected, two (2) District Engineers, three (3) Clerk of Works, three (3) Procurement Officers, a municipal budget analyst, two (2) municipal planning officers, a municipal finance officer, a

municipal coordinating director, a community development officer, Presiding officer and chairman of works sub –committee chairman of the municipality and totaling (15) staff of the KSMA who deals directly with procurement activities. In addition sixty (60) members of the public were also selected as follows. There are five (5); Urban Council in KSMA with thirty – five (35) electoral areas. From each of the urban councils, two (2) electoral areas were randomly selected to administer the questionnaire for the following five (5) categories of community members. Chiefs/elders, opinion leaders, Assembly members, water board members and watsan committee members making total sample size of (75). The respondents have been carefully chosen ostensibly that they have the necessary characteristics and the experience in responding to the questionnaires. The primary data collection method used to achieve the research objectives was ‘send the questionnaires to the targeted respondents and go for it at a later date to collect it’. After sending the questionnaires, eighty percent (80%) were returned completed and with valid responses.

### **3.6 Instrumentation**

The study considered a descriptive survey approach since it involves collecting primary data in order to answer questions concerning the existing status of the study. Descriptively, the design is directed towards determining the nature of a situation the incidence and interrelations among economic and sociological and psychological needs (Field, 2005). It focuses on vital facts about the respondent's beliefs, opinions and attitudes and behavior, which provide an understanding of the phenomenon (Field, 2005).

### **3.7 Data Collection Procedures**

The researcher adopted a field survey approach to data collection in which questionnaires were used to elicit information from the respondents' as a research instrument. The questionnaires form part of primary sources of data used in this research.

Secondary sources of data were also used, and they were obtained from corporate annual reports, textbooks and the Internet materials. Questionnaires were the primary data for the study which was self designed and self-administered. That is, respondents filled out the questionnaires in their privacy and without the presence of the researcher. The questionnaires were sets of questions designed to generate enough raw data for accomplishing the information requirements between the actual sampled results and the estimated true population results (Field, 2005). Both closed-and open-ended types of questions were administered in collecting the raw data for easy selection or choice by the respondents due to limited time available at their disposal.

### **3.8 Data Analysis**

The data has been analyzed using quantitative and descriptive statistics (mean, standard deviations and standard error). The data collected was coded into the computer and edited to ensure consistency and checked for any omission, non-responses, validity and reliability of the responses using Statistical Package for Social Science software (SPSS version 17) for the statistical analysis of the data and Microsoft Excel 2007 (Field, 2005).

## CHAPTER FOUR

### DATA PRESENTATION AND ANALYSIS

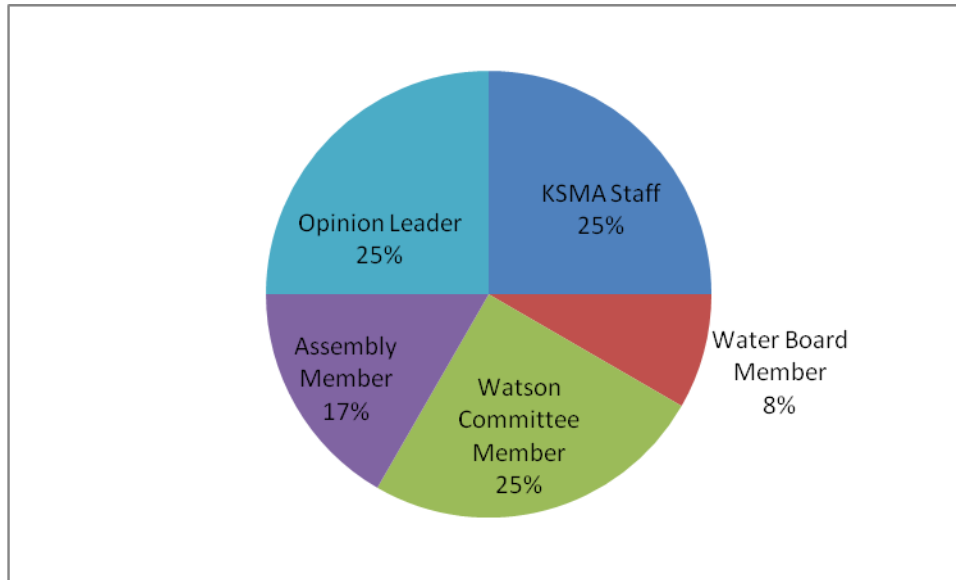
#### 4.1 Introduction

This section focuses on the data gathered and analysis of information from respondents. The main “credibility characteristics” in this study were the respondents’ profession and experience, defined as encapsulating: professional background; number of years staying within Ketu South Municipal Assembly (KSMA) and their involvement in the procurement process for providing community water supply. The responses were assigned weightings based on the five point likert scale (nvi-1, ni-2, u-3, i-4, or vi-5) which was interpreted as (not very important, not important, uncertain, important and very important). Sixty, (60) questionnaires were distributed, with forty-five, (45) completed representing seventy five percent (75%) rate of response.

The mean or standard deviation (parameters) represent the whole population as descriptive statistics and quantitatively described the main features of a collection of information. In furtherance to that given two or more criteria with the same mean, the one with the lowest standard deviation is assigned highest importance ranking (Field, 2005). The means scores was the basis of ranking indicated as first, second, third in that order. Because the standard error associated with all the means is relatively close to zero, it is reasonably asserted that the sample is an accurate reflection of the population (Field, 2005). The findings have been summarized in order to make reading easier for users of this research work. The responses were grouped and analyzed using tables and graphs below.

## 4.2 Analysis of Management and Biographical

This section discusses biographical data of the respondents which comprised of their composition, educational qualifications, number of years working with the Ketu South Municipal Assembly under the heading “background of the respondents”, among others.



**Figure 4.1: Respondents composition within the Assembly**

Source: Field Survey 2014

The figure 4.1, described composition of the respondents' within Ketu South Municipal Assembly who were the respondents for the study. From the above, twenty-five percent (25%) were the staff of the Assembly made up (Procurement Officers, Clerk of works, Project Engineers, Civil Engineers of the Assembly). The remaining seventy-five percent (75%) were the project beneficiaries Community Members of the KSMA which were made up of Opinion leaders twenty-five percent (25%), Assembly member seventeen percent (17%), and Watson Committee Members twenty-five percent (25%) as well as eight percent of (8%) Water Board members within the assembly were chosen for the study. This implies that all the respondents

have been equally representative and their professional inputs on issues of procuring small water supply system for KSMA were considered in the analysis of this research. In order to eliminate any form of bias, respondents responded to the same sample of questions for the study.

**Table: 4.1: Background of the Respondents**

Respondents	Frequency	Percent
Civil Engineers	2	4
Clerk of Works	5	8
Project Engineers	3	5
Procurement Officer	5	8
Others (Community Members)	45	75
<b>Total</b>	<b>60</b>	<b>100</b>

Source: Field Survey 2014

Table 4. 1 described the background of the respondents' their level of profession, qualification and the number of years working within Ketu South Municipal Assembly in charge of procurement of small water supply system. From the above, eight percent (8%) were Procurement Officers, eight percent (8%) were Clerk of works, five percent (5%) were Project Engineers while another five percent (5%) were Civil Engineers of the assembly. The remaining seventy-five percent (75%) were Community Members of the KSMA which were made up of Opinion leaders (15), Assembly member (10), and Watson Committee Members (15) as well as (5) Water Board members within the assembly. This implies that all the respondents have been equally representative and their professional inputs on issues of procuring small water supply system within KSMA are considered in the analysis of this research. Each of the respondents has equal representative and responded to the same sample of questions for the study in order to eliminate any form of bias from the study.

Furthermore, respondents were asked how long they have been working with the Assembly from which fifty three percent (53%) of the respondents indicated one to five years. Also, thirty percent (30%) of the respondents have indicated six to ten years. The remaining seventeen percent (17%) have stated they have being working in the assembly eleven years and above. This implies that all the respondents are familiar with the activities of the KSMA and such relevant specific experiences of being involved in the procurement activities of the KSMA are helpful in determining how the respondents response to procurement of small water supply system in delivering value for money as envisage by the Public Procurement Act, (Act 663, 2003).

Finally, fifty percent (50%) of the respondents were Higher National Diploma (HND) holders, forty-three percent (43%) were holding Bachelors (Hon) degrees and the remaining seven percent (7%) of the respondents were holding Master degree certificates. This implies that each of the respondents were having some level of qualifications a significant evidence in understanding factors which affect procurement of community water supply for KSMA as well as on issues concerning the Public Procurement Act, in making an informed decisions on the implementation of the Act 663, 2003 for value for money creation.

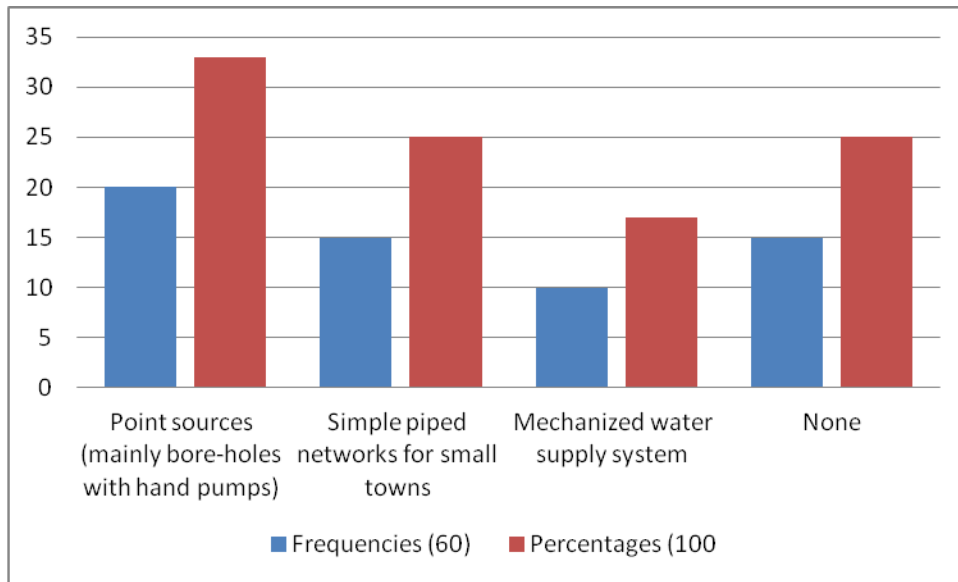
**Table 4.2: Coverage of water supply project within KSMA**

Level in percentages	Frequency	Percent
10-30	15	25
30-50	15	25
50-70	10	17
70-above	20	33
<b>Total</b>	<b>60</b>	<b>100</b>

Source: Field Survey 2014

Table 4.2 above, described the level of coverage of water supply project within the assembly. From the above fifty percent (50%) of the respondents have indicated (10-30% and 30-50%)

coverage while seventeen percent (17%) have indicated about 50-70% coverage. The remaining thirty-three percent (33%) also indicated 70% and above coverage of water supply for KSAM. All respondents have however indicated various challenges in attaining 100% coverage for the assembly procuring effective and efficient water supply for their beneficiaries' communities. This implies that variables (project environmental factors) in procurement of small water supply system are relevant for the study.

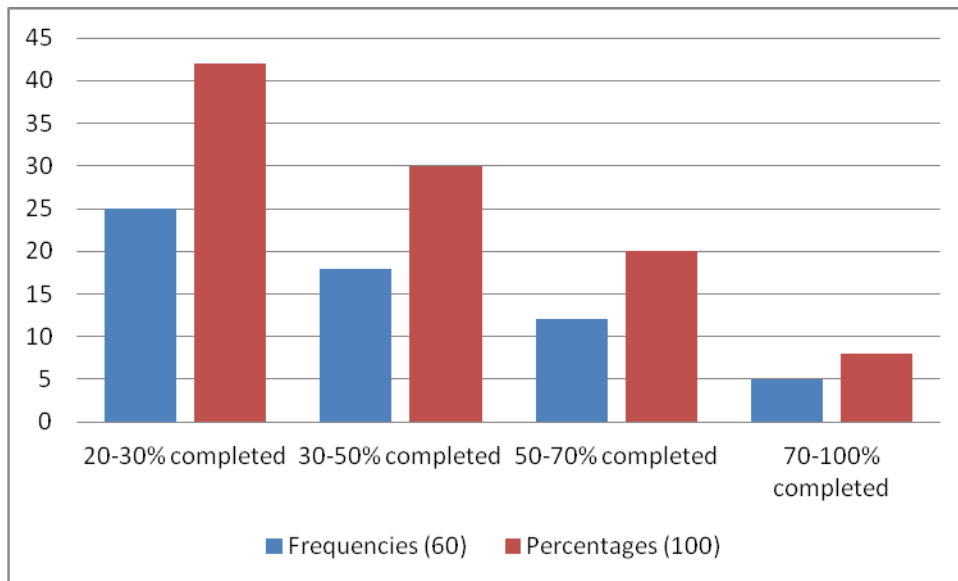


**Figure 4.2: Categories of Water supply system available within KSMA**

Source: Field Survey 2014

Figure 4.2: above, described various categories of water supply system available within assembly. From the study, thirty-three percent (33%) were Point sources (mainly boreholes and hand pumps), twenty-five percent were Simple piped networks for small towns, and seventeen percent were Mechanized water supply system. The remaining twenty-five percent (25%) were however indicated none meaning their beneficiaries communities do not have accessed any of the above mentioned sourced of water supply from the Assembly. This implies that KMSA is under deficit of about twenty-five (25%) of portable water supply. Those beneficiaries

communities who are currently been procured with water supply (mainly boreholes and hand pumps, Simple piped networks and Mechanized water supply system) were inadequate. Ketu South Municipal Assembly population is growing and the current water supply cannot meet the growing demands creating serious demand-supply lead time management for the Assembly. Notwithstanding, such phenomenon links with unstable project environmental factors such as economic and socio-cultural variables (inadequate project funding and increasing population) for the supply of small water project for the Assembly.



**Figure 4.3: Level of completion of Water Project within KSMA**

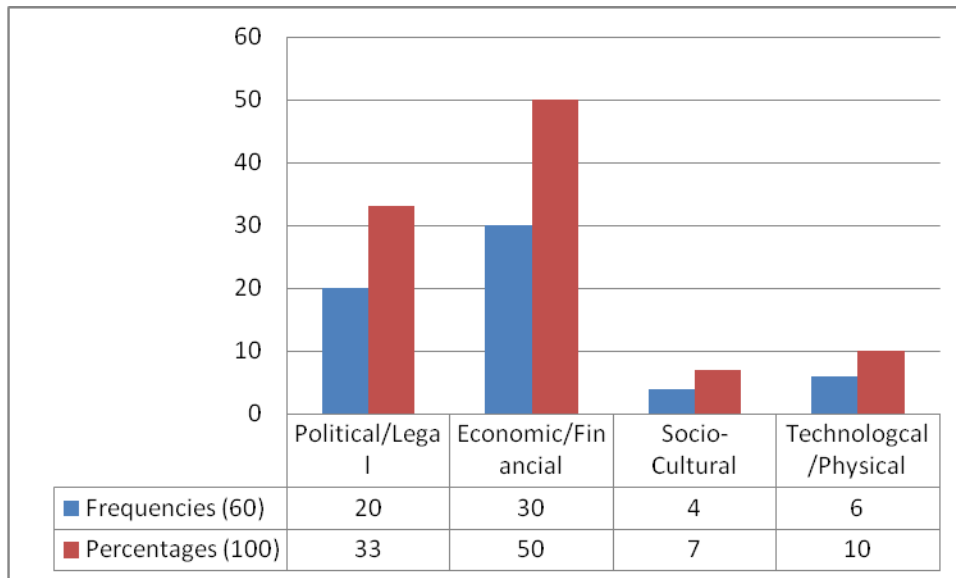
Source: Field Survey 2014

Analyzing figure 4.3: above, respondents were asked the percentages of water project completed within the Assembly. In all, twenty-five (25%) of the respondents have indicated about (20-30%) water project completion, eighteen percent (18%) also stated about (30-50%) of water supply project, whiles twelve percent (12%) have indicated about (50-70%) project completion. The remaining five percent have however indicated about (70-100%) completion of water project

within the Assembly. This implies respondents are aware much are about various pace the procurement of various water supply project within the municipality are ongoing and the necessary factors which affect water supply project implementation within the Assembly.

### 4.3 Knowledge on Small Water Supply Project Environment factors

This section analyzed responses knowledge on Project Environment factors which affect procurement of Small Water Supply for the Ketu South Municipal Assembly. Key Project Environmental Factors were look at alongside, their impact on procurement of small water supply as well as mitigating mechanisms using descriptive statistic.



**Figure 4.4: Key Environment factors**

Source: Field Survey 2014

From figure 4.4 above, respondents were asked to indicate various project environmental factors which affect small water supply within the Assembly. Analyzing the figure above, fifty percent

of the respondents have indicated economic variables such as lack of project fund, inflation and exchange rate as well as poor donor support were the main economic factors which affect their water supply project for the Assembly. Also, thirty three percent (33%) of the respondents have stated political-legal influence (weak legal and institutional framework, corruption in award of procurement contract, pressure from political heads etc). Furthermore, ten percent (10%) of the respondents have indicated technological and or physical factors (lack of technical know-how on water project implementation, climate change or rainfall patterns, salinity of boreholes leading to poor water quality etc). The remaining seven percent (7%) of the respondents have indicated socio-cultural factors such as population/cultural beliefs and norms on water procurement for the beneficiaries, less involvement of beneficiary and affected community in water project planning and design among others. This implies that there various project environmental variables (factors) which affect procurement of small water supply for Ketu South Municipal Assembly that ought to be monitored and managed towards effective and efficient water delivery for the Assembly if the Assembly were to meet millennium development goals while providing value for money.

However, table 4.3 below further discusses project environment factors which affect procurement of small water supply for Ketu South Municipal Assembly. Descriptive statistics of survey results on the effects of environmental factors on the supply of small water project were used in the analysis and interpretation of findings.

The effects of project environment factors in procurement was measured with dichotomous (nvi-1, ni-2, u-3, i-4, or vi-5) which was interpreted as (not very important, not important, uncertain, important and very important) where values greater or equal to  $0 \leq 5$  is the cut off mean as being

very important indicating agreement to project environmental factors as positive significance on procurement management in the supply of small water project within KSMA.

**Table 4.3:** Detail Descriptive Statistics of PEF on Procuring Small Water Supply Project

<b>ENVIRONMENTAL FACTORS</b>	<b>VARIABLES</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Ranking</b>
Political/Legal	Lack of government commitment and support in water project initiation and implementation	4.6167	0.49030	1st
	Poor Stakeholder involvement due to political influence.	4.5667	0.49972	2nd
	Pre or Post Procurement interferences in implementation of water project by politicians	4.4667	0.50310	3rd
	Poor selection process of contractors who cannot implement the project.	4.4000	0.59403	4th
	Water managers often turn to capture the facility and never account to anybody	4.3833	0.59030	5th
	Initiation of projects to settle political promises.	4.1333	0.62346	6th
	Weak legal framework in projects implementation	3.9833	0.70089	7th
	Weak institutions to implement the project process.	3.9000	0.89632	8th
Socio - Cultural	Population/Cultural beliefs and norms are not factored in procurements of water project and its implementation process.	4.5424	0.50248	1st
	Non acceptance of the facility by beneficiary communities due to defective facilities.	4.5254	0.50364	2nd

	Lack of confidence between the beneficiary and the government officials on project delivery processes	4.1500	0.84020	3rd
	Less involvement of beneficiary and affected community in water project planning and design.	3.5500	0.69927	4th
	Hostilities and agitations by the beneficiary/affected communities on the projects implementation process	3.3333	0.61433	5th
Physical/Technological	High mineral presence (salinity or iron) in underground water leading to poor water quality.	4.5667	0.49972	1st
	Bad/Weak geology of the area leading to expensive technological choice	4.5500	0.50169	2nd
	Low technical know-how on the project and its implementation process.	4.5000	0.50422	3rd
	Climate change (Rainfall patterns)	4.5000	0.50422	4th
	Low yielding boreholes	4.2308	0.46575	5th
	Poor Water Resources and its availability	3.6923	0.54837	6th
	Agitation due to land litigation	4.2500	0.49803	2
Economic/Financial	Non availability of project fund & Budgetary constraints.	4.5333	0.50310	1st
	Poor management of project fund leading to corruption and judgment debt payment.	4.5167	0.50394	2nd
	High inflation & exchange rate	4.4833	0.50394	3rd
	Delay in project delivery resulting in cost overrun.	4.4667	0.50310	4th
	Underestimating of project cost & project schedule constrains	4.4000	0.49973	5th
	Poor project fund flow (project fund not flowing regularly)	3.8462	0.5867	6th

Source: Field Survey 2014

From the table 4.3 above the mean values of the responses obtained from the survey range from 3.5500 to 4.6167. The standard deviations of the means range from 0.89632 to 0.49403; an indication that there is no significant difference between the estimated mean and the variables (project environmental factors) which impact on the procurement of small water supply for the Assembly. With the cut off mean of 4.000, variables under political, such as Weak legal framework in projects implementation, weak institutions to implement the project procurement process rank 7<sup>th</sup> and 8<sup>th</sup> respectively are considered not critical as the variables are below the cut off mean of 4.00. Furthermore, variables such as lack of government commitment and support in water project implementation, poor stakeholder involvement due to political influence and pre or post procurement interferences rank 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> respectively considered as been critical since they are above the cut off mean of 4.00 an indication of their effect on the procurement of small water supply for the Assembly.

In addition to the above, under Economic/Financial, all the variables are above the cut off point of 4.00; major implications of these variables been critical in the procurement of small water project for the Assembly. Based on the critical analysis of the above economic and or financial variables (non availability of project fund and budgetary constraint, poor management of project fund leading to corruption and judgment debt payment, high inflation and exchange of project fund, delay in project delivery resulting in cost overrun); rank 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> respectively are critical economic factors which affect procurement of small water supply for the Municipal Assembly.

**Table 4.4: Challenges in procuring community water supply system**

Variables	Maximum	Mean	Std. Deviation	Ranks
The poor technical and non-technical service in delivery of water supply project	5.00	4.7333	.44595	1 <sup>st</sup>
Treatment and distribution of adequate quantities of water	5.00	4.6500	.48099	2 <sup>nd</sup>
Poor management of the facility by water managers	5.00	4.6167	.49030	3 <sup>rd</sup>
Non commitment of Government to the project	5.00	4.5667	.49972	4 <sup>th</sup>
Insufficient involvement of affected and beneficiary communities in project planning and implementation	5.00	4.4667	.50310	5 <sup>th</sup>
Budgetary constrains	5.00	4.4500	.50169	6 <sup>th</sup>
Increasing political pressure in the award of water supply contract	5.00	4.4500	.50169	7 <sup>th</sup>
Urbanization that renders existing facilities inadequate	4.00	4.0000	.35543	8 <sup>th</sup>

Source: Field Survey 2014

Descriptive statistics of survey results on the challenges of project environmental factors on procurement of small water supply have been analyzed in table 4.4. The mean values of the responses obtained from the survey range from 4.0000 to 4.7333. These mean values were greater than the test value of 1. The standard deviations of the means range from 0.35543 to 0.50169. From the above, there is no significant difference between the estimated mean an indication that there is positive effect and vice versa on the challenges of the variables which affect procurement of small water supply project. The variables such as the poor technical and non-technical service in delivery of water supply, treatment and distribution of adequate quantities of water, poor management of the facility by water managers, urbanization that renders existing facilities inadequate, increasing political pressure in the award of water supply

contract, ranking from 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> in that order were the challenges which affect delivery and management of small water supply project within Ketu South Municipal Assembly.

Table 4.5: Effects of project environment factors on water supply project

Variable description	Statistic		Ranks
	Mean	Std. Error	
Environmental degradation of natural resources	4.6833	.06056	1 <sup>st</sup>
Poor post water project delivery management system	4.6500	.06210	2 <sup>nd</sup>
Project goals not achieved	4.5833	.06418	3 <sup>rd</sup>
Less value for money in project delivery	4.5167	.08058	4 <sup>th</sup>
Increase project cost and risk in procurement	4.5000	.06509	5 <sup>th</sup>
Inadequate water supply and poor urban sanitation menace	4.4833	.08401	6 <sup>th</sup>
Poor water resources	4.4833	.08058	7 <sup>th</sup>
High environmental health incidents	4.4667	.06495	8 <sup>th</sup>
Less donor support due to project failure	4.3833	.06330	9 <sup>th</sup>
Intended beneficiaries are not accepting the facility	4.2000	.09742	10 <sup>th</sup>

Source: Field Survey 2014

From the table 4.5 above a descriptive statistics of survey results on the effects of project environment factors on procurement of small water supply have been analyzed. The mean values of the responses obtained from the survey range from 4.2000 to 4.6833 and with the cut off mean of 4.000, almost all the variables were critical an indication of their effects on water project delivery for the Assembly. From the study the standard error range from 0.09742 to 0.06056, indicating no significant difference between the estimated mean. This implies that there is positive effect and vice versa on the effects of the variables which affect procurement of small

water supply project. Effects of project environment factors on water supply project in ranking order lead to environmental degradation of natural resources, less value for money in project delivery, increase project cost and risk in procurement, inadequate water supply and poor urban sanitation menace, and less donor support due to project failure for the Assembly etc in order of highest values to lowest values as in table 4.5 above.

Table 4.6: Available Factors for Mitigating effects of PEF on Small Water Supply Project

Mitigation Variables	Statistic		Ranks
	Mean	Std. Error	
Effective project planning and preparation	5.4167	.84281	1 <sup>st</sup>
Less political interference in the award of contract	4.6167	.06330	2 <sup>nd</sup>
Sufficient Involvement of Beneficiary/affected communities in the project planning and design process	4.6000	.06378	3 <sup>rd</sup>
Sufficient Budgetary allocation to the project	4.5167	.06506	4 <sup>th</sup>
Efficient project cost benefit analysis (economic)	4.5000	.06509	5 <sup>th</sup>
Commitment by government towards water projects	4.5000	.06509	5 <sup>th</sup>
Equitable distribution of water and better project decision	4.4167	.08986	6 <sup>th</sup>

Source: Field Survey 2014

From the table 4.6 above, a descriptive statistics of survey results on the effects of project environmental factors on procurement of small water supply have been analyzed. The mean values of the responses obtained from the survey range from 4.4167 to 5.4167. These mean values were greater than the test value of 1 with the cut off mean of 4.000 of being relevance in minimizing the effect of project environmental factors in the procurement of small water supply for the Assembly. From the study the standard error range from 0.06378 to 0.84281, indicating

no significant difference between the estimated mean. This implies that mitigating factors such as (Effective project planning and preparation, Less political interference in the award of contract Efficient project cost benefit analysis (economic), Effective project environmental analysis, Equitable distribution of water and better project decision, Better utilization of Public Procurement Act (Act 663), and Sufficient Involvement of Beneficiary communities) among others could deflate the impact of project environmental factors on the procurement of small water supply project for the Ketu South Municipal Assembly.

## CHAPTER FIVE

### CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents the summary of the research findings on project environment factors which impact on the procurement of small water supply for Ketu South Municipal Assembly. Furthermore, chapter also includes the review of the research questions, conclusions and the necessary recommendations for the Assembly to improve future performance in their public procurement process.

#### 5.2 REVIEW OF THE OBJECTIVES

**5.2.1 Review of Objective one (1):** To identify the project environment factors that affect Small Town Water Supply projects.

From the study project environment factors such as economic variables (lack of project fund, inflation and exchange rate as well as poor or erratic donor support), political-legal influence (weak legal and institutional framework, corruption in award of procurement contract, pressure from political heads etc). Also technological and or physical factors (lack of technical know-how on water project implementation, climate change or rainfall patterns, salinity of boreholes leading to poor water quality etc). The remaining variable socio-cultural factors (population/cultural beliefs and norms on water procurement for the beneficiaries, less involvement of beneficiary and affected community in water project planning and design among others have been noted to affect procurement of small water supply for the Ketu South Municipal Assembly. The finding has agreed with earlier work of Rondinelli (2008), Lavagnon (2012), FAO (2008), and Weiss (2008) who explicitly identified and discusses work on “Comparing

Failure Factors in Development Projects.” From their study, the authors identified project environment factors which impact on project delivery. FAO (2008) further went on to conceptualise the variables under the size components, tight schedule and project design of project. And categorized the factors as Technical (Production shortfall and Poor engineering), Financial/economic (Underestimating cost and Shortage of counterpart budget), Social (Inequitable benefit distribution and Slow adoption), Institutional (Bad management, Poor staffing, Unsuitable organisational structure, Poor monitoring and evaluation, Procurement difficulties), Environmental (Natural disaster, Resource or degradation and finally Political (Turmoil or war, Insufficient government commitment) among others. This implies that in the procurement of small water project, there are numerous environmental factors which impede successful implementation for the Assembly. It is therefore prudent for the Assembly to put measures in place in mitigating such variables beyond their control if they if water supply ought to be sustainable and meet an ever increasing demand for the Assembly.

### **5.2.2 Review of Objective two (2):** To determine the effects of project environment factors on Small Town Water Supply

From the study the mean values were ranged from (4.2000 to 4.6833) and with the standard error of (0.09742 to 0.06056), indication of no significant difference between the estimated mean. This implies that there is effect on the variables which affect procurement of small water supply project. The impact of these project environment factors on water supply project invariably lead to less value for money in project delivery, inadequate water supply and poor urban sanitation menace, increase project cost and risk in procurement, environment degradation of natural resources, and less donor support due to project failure and poor management as result of project for the Assembly. According to Rondinelli (2013) ineffective project planning and preparation,

faulty appraisal and selection, defective project design, problems in starting – up activation, inadequate project execution, operation and supervision, inadequate or ineffective external coordinating of project activities, deficiencies in diffusion and evaluation of project results and follow-up action impact on project delivery. This implies that KSMA ought to effectively and efficiently plan and manage their procurement if the Assembly is to avoid effects of project environment factors on small town water supply. This can be done by been proactive in their project implementation using strategic mitigating measures not only for the procurement of small water supply but other projects for the Assembly as well.

**5.2.3 Review of Objective three (3):** To determine possible means of mitigating the effect of project environment factors

From the study, mitigating factors such as (effective project planning and preparation, less political interference in the award of contract, efficient project cost benefit analysis of water supply projects (economic), effective project environment analysis to know the threats and opportunities of providing such projects, equitable distribution of water and better project decision, better utilization of Public Procurement Act (Act 663, 2003) in the award of contract), and sufficient involvement of beneficiary communities and management of water supply projects) were suggested to be adopted by the Assembly to deflate and manage the impact of project environment factors on the procurement of small water supply project for the Assembly. The finding has agreed with Rondinelli (2008), Hodgson and Cicmil (2006), writing on “Accounting for Causes of Failures in Development Projects”. Hodgson and Cicmil, 2006) for instance indicated that problems are generated in some situations by low administrative capacity of developing countries in project design and implementation resulting into anticipated risk of social, cultural, economic and political changes that threatens the success of the project.

According to them such project environment factors can be managed by effective project planning and preparation, less political interference in the award of contract, efficient project cost benefit analysis. Rondinelli, (2008) has indicated that to mitigate against project environment factor (socio-cultural and political-legal) for instance, involvement of the intended beneficiaries from participating in the project planning, designed and implementation where the local views can be input into the project processes are essential.

Finally, to improve efficiency and value for money, Public Procurement Act (PPA 663, 2003) has been provided to give a guide in the management of public procurement process.

### **5.3 Conclusion**

Project Environment Factors in the procurement of public projects are critical determinant that affect in the delivery of development projects like procurement of small water supply for Ketu South Municipal Assembly. Project environment factors: (economic, socio-cultural, political/legal, technological/physical) significantly influence success or failure of all types of projects according to Cusworth and Franks (2013). While internal factors are factors under the control of the project planners, external factors which are project environment factors are outside the control of the public procurement managers.

It is interesting to note that project environment factors can have an impact on procurement management even in environments that are relatively stable. From access to capital, to access to technology, to access to people, projects will succeed or fail based on the project leaders ability to make maximum use of available resources. In addition, unanticipated changes in the environment can cause even the most well-managed and smoothly proceeding project to lose momentum.

To conclude, improving public procurement performance and value proposition in the procurement of small water supply for the Assembly called for effective project planning, design and implementation through better understanding, identifying and monitoring of project environmental variables which affect Assembly procurement project implementation.

#### **5.4 Recommendation**

The study has been limited to project environment factors which affect the procurement of small water supply for District/Municipal Assembly of Ghana (Ketu South Municipal Assembly). This study however was limited to external environment factors such as political and economic variables while socio-cultural, technological, and physical have been subjected for further research.

Recommendations were however made for management to be incorporated into procurement management decisions upon request in order to improve performance.

It has been recommended that procurement entity (KSMA) needs to:

- Continuously monitored project environment factors which affect the procurement of their projects including supply of small town water projects. This is to enable the Assembly identified; monitored and managed the project environment factors which impacts on their procurement decisions.
- Effectively and efficiently plan and manage their procurement processes if the Assembly is to avoid effects of project environment factors on the supply of small town water. This can be done by been proactive in their procurement project decisions and implementation.

- It is recommended that involvement of the intended beneficiaries for the supply of small water supply procurement especially in project planning, designed, award of contract and implementation and other procurement decisions are essential to mitigate against project environment factor such as (socio-cultural and political-legal) for instance.
- That there should be better Access to Technology in the procurement of small water supply; in many cases technology can streamline the process of procurement management. However, access to technology may be limited or the necessary technology may be expensive or not compatible with existing technology or equipment. In addition, even when technology is available, training may become an issue and can create delays and added expense for projects.
- Also, due to unanticipated Environmental Changes Regardless of how effective a procurement manager or entity is or how carefully a project is planned, unanticipated environmental changes (disasters or economic shifts) can affect the project at any stage of its implementation. To the extent that, procurement entity (KSMA) needs to be alert to the potential for unexpected environmental impacts and have contingency plans in place to ensure the least possible negative impact to the project's success
- Last but the least, KSMA should innovatively look for alternative sources of funding to augment their project/procurement funding apart from Government and the Assembly internally generated fund for the procurement of small town water supply if donor supports are not forth coming. Alternatively Public Private Partnership agreement for supply of small town water projects can be sought to effectively and efficiently share the

risk in project delivery. An adaptation of any of the above strategies could mitigate project environment factors which may be beyond the control of the Assembly.

### **5.5 Scope for further research**

For further research, it is worthy to investigate the influence of socio-cultural and technological/physical environment on the procurement of small town water supply projects. In addition, research into alternative sources of funding for development projects using Public Private Partnership frameworks in mitigating risk within public procurement process in Ghana as part of project environment control for public projects.

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## APENDIX:

### Questionnaire for Respondents

Dear Respondent,

The researcher is a student of Kwame Nkrumah University of Science and Technology, College of Architectural and Planning, Department of Building and Technology-Ghana. As part of completion requirements for the award of MSc. Procurement Management the student is undertaking a research by using your Institution as case study on the topic: **“Project Environment Factors on Small Town Water Supply System. A Study of KSMA.”** The research has been designed purely for academic purposes. The information given will be accorded the greatest degree of confidentiality.

Tick where appropriate ✓

#### Section A: Biographical Data

1. Level of Education
  - a. HND
  - b. 1<sup>st</sup> Degree
  - c. MSc/MBA/MPhil/PhD
  - d. Others
2. Your profession within the Ketu South Municipal Assembly
  - a. Procurement officer
  - b. Clerk of works
  - c. Civil Engineers
  - d. Project Engineers
  - e. Others
3. Number of years worked in the (KSMA)
  - a. 1-5 years
  - b. 6-10 years
  - c. 11 years –above

#### Section B: Water Supply and Environmental Factors

4. KSMA has not achieved the MDG target for water supply?
  - Strongly agree
  - Agree
  - Uncertain
  - Strongly disagree
  - Disagree

5. Which of the following water supply systems are available in your area?

Point sources (mainly bore-holes with hand pumps) [ ]

Simple piped networks for small towns [ ]

Mechanized water supply system [ ]

6. Which of the following project environmental factors affect your project?

Political/Legal [ ]

Economic [ ]

Socio-cultural [ ]

Technological/Environmental [ ]

Tick  where appropriate to answer questions 7-10

NB: (not very important, not important, neutral, important, very important) as (NVI, NI, N, I, VI)

Questions (7-10)	Variables description	Please tick				
		NVI-1	NI-2	N-3	I-4	VI-5
<b>Environment Factors</b>						
Political/Legal	Poor Stakeholder involvement due to political influence. Initiation of projects to settle political promises. Pre or Post Procurement interferences in implementation of water project. Weak legal framework in projects implementation Weak institutions to implement the project process. Poor selection of contractors who cannot implement the project. Water managers often turn to capture the facility and never account to anybody					
Social	Less involvement of beneficiary and affected community in water project planning and design. Lack of confidence between the beneficiary and the government officials Cultural beliefs and norms in water project implementation Hostilities and agitations from the beneficiary communities on the projects resulted in the contractor not completing the project Non acceptance of the facility by beneficiary					

	communities					
Physical/Technological	Low technical know-how on the project and its implementation process Bad Soil leading to expensive technology Poor Water Resources and its availability Salinity of boreholes leading to poor water quality Geology of the areas & technologies Climate change (Rainfall paters)					
Economic	Underestimating of project cost & schedule constrains High inflation & exchange rate Non availability of project fund & Budgetary constrains Delay in project delivery resulting in cost overrun. Poor project fund flow (project fund not flowing regularly)					

Q11	Challenges in procuring water supply system	Please tick				
		NVI-1	NI-2	N-3	I-4	V I-5
a.	Poor management of the facility by water managers					
b.	Treatment and distribution of adequate quantities of water					
c.	Urbanization that renders existing facilities inadequate					
d.	Increasing political pressure in the award of water supply contract					
e.	The poor technical and non-technical service in delivery of water supply project					

12. What are the effects of project environment factor on small water supply project?

	Effects of project environment factor on water supply project	Please tick				
		NVI-1	NI-2	N-3	I-4	VI-5
a.	Less value for money in project delivery					
b.	Inadequate water supply and poor urban sanitation menace					
c.	Increase project cost and risk in procurement					
d.	Environmental degradation of natural resources					
e.	Less donor support due to project failure					

13. Which of the following means are necessary in mitigating project environment factors?

Effective project planning and preparation [ ]

Less political interference in the award of contract [ ]

Efficient project cost benefit analysis (economic) [ ]

Effective project environmental analysis [ ]

Equitable distribution of water and better project decision [ ]

Better utilization of Public Procurement Act (Act 663) [ ]

Sufficient Involvement of Beneficiary communities [ ]

### Section C: Questionnaires for the Project Beneficiaries

1. In which categories are your services being engaged within KSMA?  
KSMA Staff
- WATER Board
- Watsan Committee Member
- Assembly member
- Beneficiary community member
- Opinion Leader
2. How long have you stayed in the community/Ketu South Municipality  
1-5 years
- 6-10 years
- 11 years –above
3. The Public Procurement Act (Act 663) is not followed in the award of Water supply project?  
Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Uncertain
4. Which of the following projects are commonly done within your area?  
Water project
- Road and Market mall, toilet facilities
- Educational facilities projects
5. Does the authority seek your inputs prior to the provision of the above services?  
Yes
- No
- Uncertain
6. Access to potable water is one of the major problems within the KSMA  
Strongly agree

- Agree [ ]
- Uncertain [ ]
- Strongly disagree [ ]
- Disagree [ ]
7. Which of the following Water Project within KSMA are you familiar with?
- Nogokpo Water Supply System [ ]
- Costal Belt Water Supply System [ ]
- Satsimadza Water Supply Project [ ]
- Others.....
8. Which of the following water supply systems are available in your area?
- Point sources (mainly bore-holes with hand pumps) [ ]
- Simple piped networks for small towns [ ]
- Mechanized water supply system [ ]
- Others.....
9. Are there new water supply projects on going in your area?
- Yes [ ]
- No [ ]
- Uncertain [ ]
- Sometimes [ ]
10. Which of the following do you think are main courses of delivery difficulty of these projects?
- Poor Project Planning and Preparation [ ]
- Political interference in the award of contract [ ]
- Lack of funds and less donor support [ ]
- Poor Project Environmental Analysis [ ]
11. From your estimation most Water Projects ongoing within KSMA are about
- 20-30% completed [ ]
- 30-50% completed [ ]

50-70 % completed [ ]

70-100% completed [ ]

Uncertain [ ]

12. Which of the following is/are the major sponsor(s) of the KSMA Water Projects?

DANIDA [ ]

KSMA [ ]

Government of Ghana (GOG) [ ]

