



**DETERMINANTS OF QUALITY MANAGEMENT IN WATER AND SANITATION INFRASTRUCTURE PROJECTS IN NAIROBI CITY COUNTY, KENYA**

**LENAH KINYA MITHIKA, DR. MAKORI MORONGE**

---

**DETERMINANTS OF QUALITY MANAGEMENT IN WATER AND SANITATION INFRASTRUCTURE PROJECTS IN  
NAIROBI CITY COUNTY, KENYA**

**Lenah Kinya Mithika<sup>\*1</sup>, Dr. Makori Moronge<sup>2</sup>**

<sup>\*1</sup> Msc. Candidate, Jomo Kenyatta University of Agriculture and Technology [JKUAT], Nairobi, Kenya

<sup>2</sup> Lecturer, Jomo Kenyatta University of Agriculture and Technology [JKUAT], Nairobi, Kenya

**Accepted: October 2, 2017**

---

**ABSTRACT**

*The general objective of this study was to examine the determinants of quality management in water and sanitation construction projects in Nairobi, Kenya. The specific objectives of the study were to determine the influence of project quality planning and project funding on quality management in water and sanitation infrastructure projects in Nairobi, Kenya. The study adopted a descriptive design survey approach and targeted 105 projects situated within Nairobi County. The census survey design was used and primary data was collected through the use of questionnaires. Secondary data was obtained from published documents. The data was analyzed with help of SPSS version 22. It was notable that there exist a strong positive relationship between the independent variables and dependent variable. This indicated that project quality planning and project funding were important factors that needed to be enhanced to boost effective quality management of water and sanitation infrastructure projects in the study area. The study findings revealed that the variables statistically, strongly and significantly correlated to quality management of the projects as it had a positive relationship with the dependent variable. This revealed that the quality planning and project funding were important factors that could enhance quality management of the projects. Therefore, from these quantitative results it was deduced that the study which sought to establish the influence of project quality planning and project funding on quality management of water and sanitation infrastructure projects achieved the intended results.*

**Key Words:** Project Quality Planning, Project Funding, Water and Sanitary Infrastructure Projects

## INTRODUCTION

Quality management of a project improves overall efficiency of project planning, management and implementation and therefore various projects are started with the sole goal of changing positively the socio-political and economic status of the residents of a given region (ADRA, 2007). Quality Management has been strongly emphasized all over the world especially due to its importance in enhancing performance and increasing customer satisfaction. Quality being a universal phenomenon has seen a universal shift in the mindset of many builders and makers of products. They seriously focus towards ensuring that their products do meet their customer's expectations. The emphasis on quality management has increased especially with the current high competition in the market and globalization (Rumane, 2011). The construction industry is slowly embracing quality concepts like Total Quality Management (TQM.), which first took root in the manufacturing sector. In the 1970's, the Japanese construction companies began implementing TQM after they witnessed how it was benefitting the manufacturers. Even though construction was viewed as a creative, one-time process, the Japanese construction industry embraced the TQM concepts that some argued could only apply to mass production. With time, the United States have also embraced the concept (Rumane, 2011).

The construction industry has taken time in actual application of project quality management. Attainment of acceptable levels of quality in the construction industry has long been a problem. Non-existent or inefficient quality management procedures are the root cause of wastage of resources every year.

However, according to Teena (2014), the importance of quality has been long recognized in other industries in order to obtain or manufacture higher quality products. Quality is an essential element for both sustainability and customer satisfaction. In its simplest form, quality can be defined as 'meeting the customer expectations' or 'compliance with customer specification'. It is an essential element for reliability, safety, sustainability and customer satisfaction (Teena, 2014).

A study conducted on the United States homebuilding industry revealed that quality management is limited and immature. Many organizations are emphasizing on the inspection processes rather than quality approaches that are more structured and advanced. (Leonard & McAdam, 2002), argues that project managers fail to see the value of quality and they keep side-lining it. For growth and advancement, in this industry, the leaders need to embrace strategic-based quality approaches.

In Hong Kong, one of the densely populated cities in the world, the quality of infrastructure projects is particularly very important. Since 1991, the Hong Kong Government embraced quality and only allowed the ISO 9000 certified construction firms to tender for its housing projects. This has led to the increase in the adoption of quality assurance by the local construction industry. In this country, there is a common understanding that any failure or discrepancy in construction can be disastrous, especially in economic terms (Au & Yu, 1999).

Many African countries have experienced an increase in number of building projects especially in the urban areas. This is mainly due to the increase in the population during the last 50 years. The African construction industry has become more dynamic, with

construction projects getting bigger and more complex. According to Deloitte's African Construction Trends Report 2013, this expansion is due to economic growth, a rising middle class, urbanization, and regional integration in many of the 54 nations in Africa. The increase in the demand for houses has led to increase in construction projects (Hancock, 2014).

In the West Africa, most of the organizations in the construction industry find TQM a very new concept. There has been a lot of reluctance in its acceptance despite the positive reaction on the same by organizations outside West Africa. However, for these companies to be more effective, they will need to embrace new quality management strategies. Cultural change within the organizations will also need to take root for ease of the whole issue of quality development (Akintan, 2013).

The Construction industry in Kenya has been facing a lot of challenges in quality assurance from collapsing of buildings to constructions on road reserves and public utility spaces. Quality control is new to some of the local authorities and so they are not able to facilitate the implementation of quality control, hence quality assurance is left to public health technicians. However, majority of professionals are competent enough to offer good quality advice and service, but some give poor service through poor documentation, poor decision making and extension of time variation (Macharia, 2014).

The Nairobi City Water and Sewerage Company is a water service provider charged with the provision of the water and sewerage services in Nairobi. Those services were previously offered by the Water and Sewerage Department of the Nairobi City Council. Nairobi City Water and

Sewerage Company (NCWSC) and the Athi Water Services Board have been implementing the social connections project over three years, increasing access to an estimated 80,000 low-income residents by June 2017. These projects will enable urban utilities and planners to focus more on the needs of poor urban households and to invest more in water and sanitation infrastructure projects within the fast-expanding informal settlements. (WB, 2011). This study, thus seek to establish the determinants of quality management in water and sanitation infrastructure projects in Nairobi County, Kenya.

### **Statement of the Problem**

The quality of water and sanitation construction projects is essential because it is a major factor determining people's water and food security in the country (Agha, 2003). Currently the amount of non-revenue water that is water that is unaccounted for in Nairobi City county stands at 40% (NCWSC 2015). This 40% is lost in the process of transmission and distribution of water through pipe leakages and pipe bursts that caused by poor quality of the water infrastructure. According to world bank the sewerage infrastructure in Nairobi city county is characterised by collapsed, blocked and open sewers due to poor construction techniques of various sewer lines.

It is estimated that 55% of water and sanitation projects do not meet the expected quality standards (NCA). It is also estimated that at least a third of the constructions coming up are not approved for quality. About 52 per cent of the water and sanitation construction projects in the capital of Nairobi have a problem and are not safe for use (Wafula, 2016). In 2013, an environmental impact assessment

commissioned by government of Kenya stated that approximately 75% of constructions especially WASH projects installed lacked quality management.

The UN Joint Monitoring Program estimates the failure rates of most water and sanitation development projects in Africa are at anywhere from 30% to 60% due to lack of quality planning in the early stages of the projects.(WB, 2011). In Kenya, Statistics show that 24 WASH projects collapsed between 2011 and 2014(Situma, 2013). This has created water shortage and huge financial losses to the economy. It is estimated that water sector is losing 10 per cent of its earning annually as a result of collapsed water projects. The loss is estimated to be worth Sh1.4 billion a year (Cosmas, 2015). This study aimed to establish determinants of quality management in water and sanitation infrastructure projects in Nairobi County, Kenya.

### **Objectives of the Study**

The purpose of the study was to establish the determinants of quality management in water and sanitation infrastructure projects in Nairobi City County, Kenya. The specific objectives were:-

- Establish how project quality planning influence quality management in water and sanitation infrastructure projects in Nairobi City County, Kenya
- Determine how project funding influence quality management in water and sanitation infrastructure projects in Nairobi County, Kenya

## **LITERATURE REVIEW**

### **Theoretical Review**

#### **Deming's Theory**

This theory guided the study in investigating the relationship between project quality planning and quality management in water and sanitation infrastructure projects. William Edwards Deming is well known for founding the Deming's theory of Total Quality Management, which rests upon fourteen points of management. He also identified the system of profound knowledge; the Shewart Cycle (Plan-Do-Check-Act), the ratio of Quality is equal to the result of work efforts over the total costs. This ratio explains that if a company is to focus on costs, the problem is that costs rise while quality deteriorates (Brighthub, 2013).

Edwards emphasized on the management as a key player in proper delivery of quality. He made it clear that poor management leads to a quality crisis. This also focuses more on the human resource capacity in the organization. If the management has poor quality skills, there will be a quality crisis. In a bid to eliminate some of these managerial mistakes, he came up with Fourteen Points that are applicable in any organization regardless of the type or the size. Therefore, these points are very applicable even in the construction industry (Mnyonyi, 2014).

These Deming's Fourteen Points of Quality were: creation of constancy of purpose geared towards improvement of products and services, adoption of the new philosophy that does not condone commonly accepted mistakes or defective workmanship, ceasing dependence on mass inspection to emphasize on required statistical evidence, end the practice of awarding business on the basis of

price only, constantly identify problems and continually improve on the system, make training on the job compulsory, use modern supervisory methods and demonstrate leadership, eliminate fear to foster worker effectiveness, emphasize on freedom between departments, eliminate targets and slogans for the workers, remove any working standards that describe numerical quotas, dispose of barriers denying workers the right of pride of workmanship, invest in a vigorous educational and retraining programs and develop a structure and culture in the company that will enable achievement of quality (Mnyonyi, 2014). This theory shades light on the project planning, which is one of the independent variables in this research. The Deming's Fourteen Points of Quality emphasize more on planning, workmanship, skills and training and development of the workers. All these are aspects related to the project planning. This theory facilitated the understanding of the first research question: How does project planning influence quality management in water and sanitation infrastructure projects in Nairobi County, Kenya?

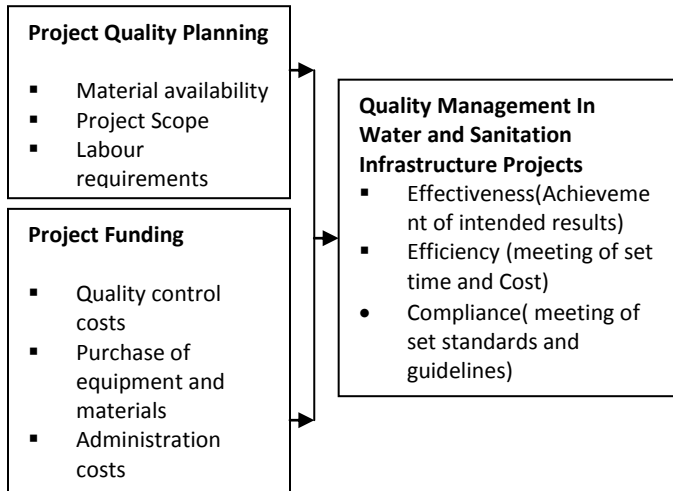
### **Financial Distress Theory**

This theory guided the study in investigating the relationship between project funding and quality management in water and sanitation infrastructure projects. The financial distress theory seeks to look at the different factors that lead to a decline in a firm's performance (Brigham & Ehrhardt 2013). Beaver, Correia, & McNichols (2011), describe financial distress as the inability of an organization to pay its financial obligations as they mature. It is important to assess the probability of organizations financial distress because it determines the payout distribution associated

with an investment. An organizations investment decision and financing are separable and independent. However, not most organizations recognize this hence holding their balance sheets on debts and equity claims as one which then reduces their leverage on costs (Finnerty, 2013).

The financial distress theory hence shows the relationship between an organizations financial cash flow and the ability to finance its investment opportunities or projects. Each organization aiming at undertaking a project should ensure that its financial capability has been well planned for as well as project funding opportunities well planned, communicated and prepared for before making a decision on whether to carry out a project or not. Organizations should also consider the length of time required to release funds needed for a project or investment during the project preplanning stage before determining or agreeing on project start dates to ensure on time project funding release so as to prevent delays associated with late funds disbursements that may be influenced by several factors relating to the late release of fund. Organizations with high cost projects are supposed to be able to be able to finance these projects and when this is not possible, then projects are delayed. This theory is therefore important when addressing the financial factors influencing project delays. Project delivering organizations experience financial constraints either due to late funding, poor financial estimations and late release of project funds. This theory facilitated the understanding of the second research question: How does project funding influence quality management in water and sanitation infrastructure projects in Nairobi County, Kenya?

## Conceptual Framework



**Independent Variables      Dependent Variable**

**Figure 1: Conceptual Framework**

### Project Quality Planning

Quality planning is a disciplined process that ensures the successful completion of a structured sequence of activities. It helps to ensure that an organisation can provide a quality product that meets or exceeds the customer's specific specifications, both on time and at the lowest cost (Jayarathna, 2012). This is an ordinal independent variable that assessed the steps undertaken by the company in achieving a high quality construction end product. The sub constructs that were used to test quality planning are emphasis placed on quality planning by organizations, strategic quality planning and quality control measures.

Quality is a major asset to any good or service. The higher the quality of a product, the higher the likelihood of its durability, reliability, precision, safety and other valued attributes. All construction companies ought to place a lot of emphasis on quality planning throughout their entire structure and in their policies. Emphasis on quality plays a big role in giving the company a competitive advantage. It will also ensure that

quality on any project is very high and thus good quality work which will translate to contracts being renewed for them. (Agha, 2003).

The Strategic quality planning process is the method through which the strategic-level quality plans are deployed. When the quality plans are integrated with the organization's strategic plans, the rest of the departments in the organization work towards its success. Development of any supporting quality plan at the operating level is based on the strategic-level quality plan. Strategic quality planning also entails the organisation of the company towards meeting customer's requirement (Aaron, 2005). The variable worked towards finding out the extent to which allocation of resources, feedback monitoring, timely decisions and identification of critical decisions ensures quality management influenced the quality of the end product.

Quality control measures are the methods and procedures implemented or used to make sure that data is collected, managed, and utilized with accuracy and precision (Webster, 2004). Quality control emphasizes a lot on product testing in order to uncover any defects, hence making the management aware so that they can make a decision or do further analysis. This explains the directly observable steps undertaken by the managers in ensuring quality management. It was used to find out the highly rated control measures that are used in the construction industry.

### Project Funding

Although project delivery process does not have a stage called funding, budgetary constraints affect each stage of the process (Rahaman, 2011). The Right of Way to a project is not

identified by a project that only fulfils the environmental process, only for the policy makers to disagree with the chosen source of funding. Kaliba et al. (2009) reviewed the correlation between cost overruns and project delays and realized that a good agreement exists between the two factors. Adequate and timely funding is essential for project success. Inadequate funding and untimely funding may interfere with implementation schedule of projects.

Brown, & Phua, (2011) identifies contractors' financial difficulties as major causes of delays in government sponsored construction projects. He further defines contractors' financial difficulties as the contractor not having sufficient funds to carry out the construction works. This includes payment for the materials, labourers' salaries and equipment to be used for the construction work. Thornton (2007), in his survey, found that slow collection, low profit margins and insufficient capital or excessive debt are the three major causes of financial difficulties among contractors. Slow collections topped the list in the years 2007 and 2005, in which the contractor received late payment from the client. This is supported by Akinsiku, Akintola, Ameh, & Ige, (2014) who found that delay in payment from the client would eventually cause financial difficulties to the contractor. Thus, most of the construction works cannot be carried out due to these financial difficulties. El-Behary (2013) found that the owners and consultants considered financing by contractor during construction as the top cause of delay in Egyptian building projects. Aiyetan, Smallwood, & Shakantu (2011) found that contractors' financial difficulties were the most important cause of construction delay in Nigeria. Kaliba et al. (2009) postulated that insufficient capital is one

of the major causes of financial difficulties among contractors. Poor financial control by the contractor can lead to insufficient capital (Auma, 2014). Hence, the contractor will have excessive debt which causes them to face financial difficulties as they cannot pay back the debt.

Mahdavinejad, & Molaei (2011) found that material shortages are due to poor materials planning, inefficient communication, unreliable suppliers and late delivery. Chirisa (2014) stated that poor planning is mistake number one in project management. This is reflected in the scenario in which poor materials planning from the contractor could lead to material shortage because the materials needed for construction may not be available within a certain time frame. This is due to mistakes in the planning stage relating to when the materials are expected to be used in the construction phase leading to project delays. Muchungu (2012) contends that financial issues, human resources conditions, site characteristics and design quality aspects

### **Quality Management**

Quality management creates guidelines and policies that help ensure that the set quality standards are met by the project. It not only focuses on measuring the quality level of the end product, but it also focuses on avoidance of any defects and control of quality to ensure that the pre-determined quality standards are met (Achumba, 2010). Project quality management will assess the performance rating of the process of ensuring customer satisfaction by the company. It was an ordinal variable sub-constructed into three factors; project quality assessment, top management support and quality assessment tool.



Project quality assessment explains how construction end products satisfy the customer requirements. Quality assessment is important to ensure that the project is sustainable in the long run through doing a thorough quality assessment (Adenuga, 2013). It was used in this research project to find out how participants in a construction industry assess quality. A highly rated description of ensuring quality will show how construction industries work in meeting customer needs.

Top management support explains how managers carry out their activities in achieving quality. It sought to find out how manager's dedication or commitment to the construction process leads to effective quality management. A highly rated commitment activity by managers ensures that quality construction products are achieved (Jha & Iyer, 2006). Quality assessment tools are used for checking whether quality is being met such as check lists. There should be application of quality tools during project inception, concept design, schematic design, design development, construction documents, bidding and tendering, construction, and testing and handover (Rumane, 2013). This sub variable worked to find out the commonly used quality assessment tool in the construction industry.

## **Empirical Review**

### **Project Quality Planning**

Quality planning requires effective allocation of resources of the construction work by providing work schedules, budget, project control plan, labour, building materials, inspection and test plan. Lydia (2010), argues that for effective planning to take place all relevant parties which include suppliers of building materials, subcontractors and consultants should be included in the project quality planning. The

author further states that the managers should establish a quality plan system and explain it to all parties. Moreover, a quality management team should be set up comprising members drawn from the parties involved whose duty is to ensure customer satisfaction.

Juran, one of the quality management gurus, sees quality planning as part of the quality trilogy of quality planning, control and improvement. According to Juran's road map for quality planning, there are several major elements that are necessary for effective implementation of a company-wide strategic quality plan. These elements include: identification of the customer's needs, establishment of optimal quality goals, and creation of quality measurements, planning and enforcing processes that can meet the quality goals and continuous production of good results (Juran & Godfrey, 2010).

There has been an effort by many modern organizations towards quality management, especially improving the quality planning process. However, in developing countries, the construction contractors are still lagging behind in their practice of effective quality planning. Quality planning is the most important phase in quality management and requires much attention. The absence of an effective quality planning process before implementation of any quality measures causes a big gap between quality improvement expectations and the realization of its benefits (Jayarathna, 2012).

Despite the several approaches like TQM and ISO that emphasize on quality planning, the results not been impressive. Rather, there has been much tension rising between the financial and quality goals, employee and customer involvement, and the progress measurement aspects. All this are brought about by the

conflict of the quality plan and the strategic plan. In a bid to solve this problem, several studies have proposed the implementation of strategic quality planning (Leonard, 2012).

### **Project Funding**

Ondari,(2013) carried out a study on the factors influencing the construction of government road projects in Kenyan and he concluded that the Ministry lacks the necessary supervising engineering staff required to implement projects. Further Government procedures for disbursement of funds are beauracratic and thus most projects once approved by parliament await a longer period before actual release of funds is undertaken though the current study disputes on availability of financial resources and equipments.

Aridity, (2002), stated that cost overrun is a major problem in both developed and developing countries. Several studies of major projects show that cost overruns are common. The causes of cost overrun in construction projects are varied, some are not only hard to predict but also difficult to manage. The inherent contractors experience during preparation, planning, authorization and evaluation procedures for large infrastructure projects creates obstacles to the implementation of such projects (Commission of the European Union, 2008). There is a fear that obstacles in the planning and implementation phases translate into cost escalation, if they do not block projects altogether (Ardity et al, 2009).

Adan (2012) conducted a study on the influence of stakeholders' role on performance of constituencies' development fund projects a case of Isiolo North Constituency; Onchoke (2013) study on factors influencing performance of community development projects in Kenya; and Ondieki (2011) did a study on factors

influencing stakeholders' participation in monitoring and evaluation of Local Authority transfer fund projects in Kisii municipality. The studies established that the common challenges that affected successful completion of the projects included; project cost overruns, procurement practices, political goodwill and external factors.

### **Quality Management**

Top management commitment was highlighted as one of the major factors that affect quality of a project (Sharp et al., 2000, Arshida & Agil 2012 and Omware, 2012). According to (Zakuan et al., 2012), any decision made during the implementation of a project entirely relies on the manager's commitment. Wanderi (2015) in his study found out that managers are entitled in establishing organization quality policy to act as guidance in ensuring quality is observed. This is in line with argument of Deming (2016) who found out that managers must institute leadership to ensure quality transformation. In Kenya there is limited literature on assessment of top manager's commitment in the construction industries. High cases of buildings collapse have been witnessed in Kenya and this study seeks to find out whether establishment of quality process and management can lead to successful implementation of quality buildings.

Employee training as a factor to quality project management has also been used in previous studies. According to Jamali et al. (2010), employee training is one of the most important requirements in a successful TQM implementation. This was emphasised by Zakuan et al. (2012) who found out that training is an important factor that boosts employees' efforts towards improvement. The researcher went on and stated that educating and training of employees at all levels in the organization with an intention of broadening their

knowledge on quality issues and programs and providing them with information about the organization's quality mission, vision and general desired direction. This study sought to find out whether the sensitizations of the employees (human capacity) lead to effective quality management in the construction industry.

Owing to the fact that in Kenya, there has been cases several of buildings collapsing which has been linked to inadequate quality management. An article by Eng. Mambo mentioned ten reasons leading to the collapse of structures. These include; inadequate investigation of materials, incomplete designs, use of inappropriate manuals, poor workmanship and supervision, close relationship between parties to the contract, unethical behaviour, existence of very weak laws and corruption (Mamabo, 2010). Most of these causes can also be traced back to inadequate project quality management.

## RESEARCH METHODOLOGY

This study used descriptive research design. The target population comprised of 105 water and sanitation construction projects in Nairobi City County completed between 2011 and 2017.

The study adopted a census survey design with respect of unit of analysis which is the water project in Nairobi City County. The study used the questionnaire as the research instrument.

Data collected was analyzed using both quantitative and qualitative methods with the help of SPSS version 22 and Microsoft excel.

## RESULTS AND DISCUSSION

A response rate of 71.42% was established with 75 respondents reached, out of the 105 targeted. From the results, a majority (64%) were male respondents while the rest (36%) were female respondents. The study went further to establish the distribution of the respondents' ages. From the findings, majority (40%) indicated that they ranged between 41-50 years, followed by those who indicated that they are 51 and above years at 33.33% with few (20.00%) and (6.67%) and indicating that they were 31-40 years and 20-30 years respectively. This implied that respondents were well distributed in terms of their age during the study. The respondents were requested to indicate their highest level of academic qualifications. The study established that majority (60.00%) indicated that they had diploma certificate, followed by those who indicated that they had university degree (26.67%), certificate holders comprised 5.33% of the respondents, with a few (8%) indicating that they had a master's degree.

The respondents were asked to indicate the period they had been in managing projects. The findings indicated that a simple majority (46.67%) of the respondents had been in management of projects for a period ranging from 11-20 years followed by those who indicated that they had been in management of projects for a period of 21-30 years at 26.67%, 6.67% of the respondents indicated that they had 1-10 years and while only few (20%) indicated that they had been in the management of projects for a period more than 31 and above years.

## Project Quality Planning

The first objective of the study was to establish the influence of project quality planning on quality management in water and sanitation infrastructure projects in Nairobi City County, Kenya. Respondents were thus asked to indicate the extent to which they agreed with various statements relating to project quality planning and its influence on quality management in water and sanitation infrastructure projects. Responses were given on a five-point scale where: 1= Very small extent; 2= Small extent 3= Moderate extent; 4 = Great extent; 5= Very great extent. The scores of 'Very small extent' and 'Small extent' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Moderate extent' has been taken to represent a statement agreed upon moderately, equivalent to a mean score of 2.6 to 3.4. The score of 'Great extent' and 'Very great extent' have been taken to represent a statement great extent upon equivalent to a mean score of 3.5 to 5.0.

Table 1 below presented the findings. With a grand mean of 3.870, a majority of respondents highly agreed to moderate extent with most statements posed as regards influence of project quality planning on the quality management of water and sanitation projects in

the study area. Majority particularly highly agreed that the management ensured that there was availability of materials on all construction projects (3.332); the management ensured that every department developing their project scope linked to the overall quality plan (3.329); the employees got involved in the quality planning and labour requirements planning (3.223); the policies being formulated on quality planning (3.652); all labour requirements for the project set in the quality plan (3.897); there was timely decision by project owners and engineer on the project scope for quality planning (3.567) the top management backed plans for quality control and identify critical activities in the project scope (3.252); they select a manager with proven track record at an early stage to accomplish the project (3.6234). The study findings corroborated with the findings of Andawei (2014) and McLeod et al. (2012). It found out that project quality planning is one of the most important factors for project implementation. Darrington, & Howell (2010). Emphasized that motivation schemes on construction site workers should not be centred on monetary incentives because it destroys intrinsic motivation, which makes quality in construction site workers be less productive. He proposed that there is need for project quality planning which can result in successful quality projects

**Table 1: Project Quality Planning**

Statements	Mean	Std. Dev
Does the management ensure that there is availability of materials on all construction projects?	3.332	.567
Does the management ensure that every department developing their project scope linked to the overall quality plan?	3.329	.098
Do all employees get involved in the quality planning and labour requirements planning?	3.223	.090
Are there policies formulated on material quality as part of quality planning?	3.652	.987
Are all labour requirements for the project set in the quality plan?	3.897	.876
Is there timely decision by project owners and engineer on the project scope for quality planning?	3.567	.765
Does the top management back plans for quality control and identify critical activities in the project scope?	3.252	.317
Do you select a manager with proven track record at an early stage to accomplish the project?	3.234	.876
<b>Average mean</b>	<b>3.870</b>	

**Project Funding**

The second objective of the study was to establish the influence of project funding on quality management in water and sanitation infrastructure projects in Nairobi City County, Kenya. Respondents were thus asked to indicate the extent to which they agreed with various statements relating to project funding and its influence on quality management in water and sanitation infrastructure projects. Responses were given on a five-point scale where: 1= Very small extent; 2= Small extent 3= Moderate extent; 4 = Great extent; 5= Very

great extent. The scores of 'Very small extent' and 'Small extent' had been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Moderate extent' had been taken to represent a statement agreed upon moderately, equivalent to a mean score of 2.6 to 3.4. The score of 'Great extent' and 'Very great extent' had been taken to represent a statement great extent upon equivalent to a mean score of 3.5 to 5.0.

Table 2 below presented the findings. With a grand mean of 3.561, a majority of respondents to a great extent there was adequate quality

control costs in your project (3.672); there was adequate purchase of equipment costs in the project (3.549); there were adequate administration costs in the project (3.782); the administration costs affected compliance of quality in the projects (3.894). The study findings were in line with literature review by Kaliba, Muya, & Mumba (2009) who observed that the required project funding was necessary for the effective quality management of construction projects. There is need to have adequate project funding with conflict management system, supervisory skills, experience, coordination and leadership, communication skills, and financial control mechanisms can lead to quality management of the projects. The study findings were in agreement with the findings of Aiyetan, Smallwood, & Shakantu (2011) found that

contractors' financial difficulties were the most important cause of construction delay in Nigeria. Kaliba et al. (2009) postulated that insufficient capital is one of the major causes of financial difficulties among contractors. Poor financial control by the contractor can lead to insufficient capital (Auma, 2014). Hence, the contractor will have excessive debt which causes them to face financial difficulties as they cannot pay back the debt thus affecting quality of the projects. Mahdavinejad, & Molaee (2011) found that financial shortages are due to poor materials planning, inefficient communication, unreliable suppliers and late delivery. Chirisa (2014) stated that poor financial planning is mistake number one in project quality management of many infrastructure projects being implemented countries in the developing world.

**Table 2: Project Funding**

Statements	Mean	Std. Dev
Are there adequate quality control costs in your project?	3.672	.087
Is there an adequate fund for purchase of equipment and materials in your project?	3.549	.068
Are there adequate administration costs in your project?	3.782	.086
Do administration costs affect compliance to quality in the projects?	3.894	.056
<b>Average mean</b>	<b>3.561</b>	

### Quality Management

The study sought to establish the extent of quality management of the water and sanitation projects in the study area in terms of

efficiency, effectiveness and compliance. The data was collected from the different indicators of the variable quality management of projects which was ordinal categorical. The data was therefore presented in frequency tables with the median being used as the appropriate

measure of central tendency. The results were presented in Table 3. The first indicator for the dependent variable required to know what the quality management in terms of effectiveness that is how well the projects achieved the intended results was, 5% of the respondents had 0% , 35% had less than 10%, 20% stated 20-30% , 15% indicated 30-40% , 15% posited 31-40%, 10% indicated over 40%. The median was found to be 2 which implied that on average the most of the project's effectiveness was between 10%-20%. The next indicator required the respondents to state level of efficiency that is how did the projects perform in terms of completion in time and cost, 25% of the respondents had less than 100%, 45% stated 20-30% , 10% indicated 30-40% , 0% posited

31-40%, 20% indicated over 40%. The mode was found to be 2 which implied that on average the most of the project's Efficiency-was between 10-20% in the study area.

When the respondents were asked what the level of compliance that how well did the projects conformed to the established guidelines and standards was, 30% of the respondents had less than 10% , 45% had less than 10%, 15% stated 20-30% , 5% indicated 30-40% , 5% posited 31-40%, 5 % indicated over 40% The mode was found to be 2 which implied that on average the most of the project's Compliance- how well did the projects conform to the established guidelines and standards was between 10%-20% in the study area.

**Table 3: Quality Management of Projects**

	<b>Less than 10%</b>	<b>10%-20%</b>	<b>21%-30%</b>	<b>31%-40%</b>	<b>Above 40%</b>	<b>Median</b>
Effectiveness-How well did the projects achieve the intended results?	5%(4)	35%(26)	20%(15)	15%(11)	15%(11)	2
Efficiency-How did the projects perform on terms of completion in time and cost?	25%(19)	45%(34)	10%(8)	0%(0)	20%(11)	2
Compliance- How well did the projects conform to the established guidelines and standards?	30%(23)	45%(34)	15%(11)	5%(4)	5%(4)	2

## **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

From the descriptive statistics the study established that to great extent the management ensured that there was quality planning being done on all construction projects and every department developing their quality plan linked to the overall quality plan. The employees got involved in the quality planning and the policies being formulated on quality planning. They rarely had a quality control meeting and there was proper sampling and testing which they have set procedures to control quality. There was a continuous quality follow ups in all constructions which normally had a site review with staff. The management ensured that there was quality planning being done on all construction projects and the management ensures that every department developing their quality plan linked to the overall quality plan.

From the study results it was established that project funding affected quality management of water and sanitation infrastructure projects in the study area. The majority of respondents to a moderate extent indicated that there was adequate financing mechanisms in the projects. The project financing mechanisms reduced cost overruns; the project teams possess planning, communication and technical skills. There were no effective an internal control on the cost overruns and had adequate record keeping on control of capital to run projects. The project personnel took care of the available financial resources.

The study sought to determine quality management in projects, attributed to the influence of project quality planning and project funding. Efficiency in the projects recorded low

positive achievements Effectiveness in the projects further recorded low positive achievements. From inferential statistics, a positive correlation was seen between each determinant variable and quality management in the projects. The strongest correlation was established between project quality planning and quality management. Both independent variables were found to have a statistically significant association with the dependent variable.

### **Conclusion**

The study established that project quality planning affected quality management of the projects. The study revealed that the variable statistically, strongly and significantly correlated to quality management of the projects as it had a positive relationship with the dependent variable. This showed that project quality planning was an important factor that could enhance quality management of the projects. Therefore, from these quantitative results it could be deduced that the study which sought to establish the influence of project quality planning on quality management of water and sanitation projects was fruitful.

The study established that project funding affected quality management of the projects. It revealed that the variable statistically, strongly and significantly correlated to quality management of the projects as it had a positive relationship with the dependent variable. Project funding was thus an important factor that could enhance quality management of the projects. Therefore, from these quantitative results it could be deduced that the study which sought to establish the influence of project funding on quality management of water and sanitation infrastructure projects was achieved.

### **Recommendations for the Study**



The study recommended that there was need to ensure that there was proper quality planning being done on all water and sanitation infrastructure projects and every department developing their quality plan linked to the overall quality plan. The project staff should also get involved in the quality planning and policies should be formulated on quality planning. The management of the projects should always have the quality control meeting, proper sampling and testing which they have set procedures to control quality. There should be a continuous quality follow ups in all stages of project implementation

The study recommended for provision of adequate project funding to enhance quality management of water and sanitation infrastructure projects in the study area, There should be effective internal control and have adequate record keeping on control of capital to run projects.

#### **Recommendations for Further Studies**

A review of literature indicated that there was limited of research on the determinants of

quality management in water and sanitation infrastructure projects in the Kenyan context. Thus, the findings of this study served as a basis for future studies on determinants of quality management in water and sanitation infrastructure projects. The effects of determinants on quality management in projects, has not been widely studied which presents gaps in African and Kenyan contexts. The study has contributed to knowledge by establishing that determinants of quality management in water and sanitation infrastructure projects in the Kenyan context. This study confined itself to government water and sanitation infrastructure projects in Nairobi City County, Kenya. A comparative study should be carried out to compare whether the findings also apply for other projects in different regions in order to validate whether the findings can be generalized in Kenya. Additionally, the study did not tie the determinants as the only factors of quality management in projects Thus, there is need to undertake another research to examine the other factors which could be of influence quality management in projects in Kenya.

#### **REFERENCES**

- Agle, B. R., R. K. Mitchell & J.- A. Sonnenfeld: 2008, 'Who Matters to CEOs? An Investigation of Stakeholder Attributes and Saliency, Corporate performance, and CEO Values', *Academy of Management Journal* 42, 507-525.
- Ahsan, K., Gunawan, I., 2010. Analysis of cost and schedule performance of international development projects. *International Journal of Project Management* 28 (1), 68–78. ares552e.htm. Last visited December, 2006.
- Atrill, P. (2006). *Financial Management for Decision Makers*, (4th ed.). London: Prentice Hall.
- ADRA(2007). Monitoring and Evaluation Manual Prepared for ADRA *International Prepared by TANGO International, Inc.* March 2007
- Al-Kharashi, A. & Skitmore, M. (2009). Causes of delays in Saudi Arabian public sector construction projects. *Construction Management and Economics*, 27(1), 3-23.

- Annie, E. C. (2009). *Getting Started: A Self-Directed Guide to Outcome Map Development Exercise*. Seattle: Organizational Research Services.
- Awiti, P. V. (2008) 'An assessment of The Use and Management of Development Funds: The case of Constituencies Development Fund in Kenya'. MA thesis, Institute of Social Studies, The Hague.
- Bagaka, O. (2008). Fiscal decentralization in Kenya and the growth of government: *The Constituency development fund*. Northern Illinois University: De-Kalb Illinois.
- Baum, Warren C., and Tolbert, Stokes, M. 1985. Investing in Development. Published for the World Bank. Washington, D.C.: World Bank. Oxford University Press.
- Borgmann, A. (2006). Technology as a Cultural Force: *The Canadian Journal of Sociology* 31 (3): 351-360.
- Boyle, G. (2009). Be the Change: Empowering Women Through Microfinance.
- Burns, N., & Grove, S. (2001). *The practice of nursing research: conduct, critique and utilization*. Philadelphia, Pennsylvania: W.B. Saunders
- Burt, P. (2012). *Linking Monitoring And Evaluation to Impact Evaluation*. InterAction.
- Babbie, E. (2009). *Survey research methods* (2nd ed.). Belmont: Wodsworth.
- Bardhan, I. R., Krishnan, V. V., & Shu, L. (2007). Project Performance and the Enabling Role of Information Technology: An Exploratory Study on the Role of Alignment. *Manufacturing & Service Operations Management*, 9(4), 579-595.
- Beach, S. (2009). *Who or what decides how stakeholders are optimally engaged by governance networks delivering public outcomes?* Australian Centre for Business Research; QUT Business School; School of Management.
- Belassi W. and Tukul O. (2002). *A new framework for determining critical Success/failure factor in Projects*. International Journal for Project Management.
- Bordens, K. S., and Abbott, B.B. (2008). *Research design methods: A process approaches* (7<sup>th</sup> ed.). New York, NY: McGraw-Hill.
- Burke, R. (2004). *Project Management Planning and Control Techniques*. 4th edition, New Delhi India: Pearson Education.
- Carletto, Calogero, and Morris, Saul, S. 1999. *Designing Methods for the Monitoring and Evaluation of Household Food Security and Rural Development Projects*. IFPRI Technical Guide No. 10. Washington, DC.
- Callahan, M. T., D. G. Quackenbush, and J. E. Rowings, (2006). "Construction Project scheduling". USA: McGraw-Hill.
- Chandran C. (2004). *Research Methods: A qualitative Approach with Illustrations from Christian Ministries*. Nairobi: Daystar University.
- Chikati, J. (2009). *Project Cycle Management: an Integrated Approach and Logical*. Pearson. New Delhi.
- Cooper D R, Schindler PS (2005). *Business Research Methods*. (8th ed.). Mc Graw-Hill, New Delhi, India.
- Creswell, J. W. (2003). *Research design: Quantitative, qualitative, and mixed methods approaches* (2nd Ed.). Thousand Oaks, CA: Sage.
- Creswell, J. W., (2002). *Educational research: Planning, conducting, and evaluating quantitative and qualitative approaches to research*. New Jersey: Merrill/Pearson Education.
- Deloof, M. (2003). "Does Working Capital Management Affect Profitability of Belgian Firms?" *Journal of Business Finance and Accounting*, Vol. 30, No. 3 & 4, 573-587.
- Dennis Lock (2007). *Project Management*. Gower Publishing Limited, New Delhi.

- Donaldson, S. I. (2001). Overcoming our negative reputation: Evaluation becomes known as a helping profession. *American Journal of Evaluation*, 22, 355-361.
- Donaldson, T. and Preston, L. (1995). The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications. *Academy of Management Review*, v 20, n 1, pp65-91.
- Freeman, R.E. (2004). *Strategic Management: A stakeholder approach*. Boston: Pitman.
- Freeman, R.E., and Phillips, R. A. (2002). *Business Ethics Quarterly*, 12(3), 331-349.
- Goldratt E. and Cox J., (2002). *The Goal: A process of ongoing improvement*. (Revised Ed.). Croton-on-Hudson. North River Press.
- Goldratt, E. M. (2006). *Critical chain*. The North River Press, Great Barrington, U.S.
- Government of Kenya (2009). *Ministry of Planning and National Development: The National census*. Nairobi: Government Printer.
- Government Press (2005). *Ministry of Planning: Millennium Development Goal 7*.
- Harold, K. (2009). *Project Management: A systems Approach to Planning, Scheduling and Controlling* (8th ed.). Wiley Publishing: NY.
- Harvey, Maylor (2010). *Project Management* (4th ed.). Englewood Cliffs: Prentice Hall.
- Heldman, K. 2011. *Project management jumpstart*. 3rd ed. Hoboken, NJ: Wiley
- Herman, S. John, M. and Nicholas (2011). *Project Management for Business, Engineering and Technology, Principles and Practice*, 3rd Edition
- Hitesh, B. (2009). *Marketing strategy management*. (2nd ed.). New Delhi India: Response Books.
- Hoard, C.A. 2003. *Hierarchy of skills: laying a foundation for PM Maturity*. [online]. Available from: <http://www.gantthead.com/content/articles/176281.cfm>. [Accessed 12 April 2011].
- Hunkeler D and Rebitzer G (2005). The Future of Life Cycle Assessment. *The International Journal of Life Cycle Assessment* 10 (5) 305-308.
- IFAD ( 2006); *Sustainability of rural development projects Best practices and lessons learned by IFAD in Asia India Case Study North Eastern Region Community Resource Management Project for Upland Areas*
- Jack R. Meredith and Samuel J.Mantel (2010). *Project Management : A Managerial Approach*. (8th ed.). New Delhi.
- James P. Lewis (2005). *Project Planning Scheduling and Control*. USA. Mc Graw Hill.
- Jankowicz, A.D., (2005). *Business Research Projects*, (4<sup>th</sup> ed.). Luton.
- Jennifer R. McConville (2006): *Applying Life Cycle Thinking To International Water and Sanitation Development Projects: An Assessment Tool for Project Managers in Sustainable Development work*
- Johnson, G. & Scholes, K., (2003). *Exploring Corporate Strategy*. (7<sup>th</sup> Edition). New Delhi: Prentice Hall
- Joseph, K, M. (2013). *Effect of fund management practices on the financial performance of cdf funded water projects in Kenya a case of Molo constituency ,Nakuru County, Kenya*. Available at <http://ir.kabarak.ac.ke/bitstream/handle/123456789/179>

- Karl, M. (2000). *Monitoring and evaluation stakeholder participation in Agriculture and rural development projects. A literature review. Sustainable Development(SD) Food and Agriculture Foundation of the United Nations (FAO).* Available at <http://www.fao.org./sd/PPdirect/PPre0074.htm>
- Kerzner, H. (2003). *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*, New York: Wiley, p.45.
- Kitui County Integrated Development Plan (2013- 2017). *Planning for sustainable Socio-Economic Growth and Development*
- Kliem, R.L. 2008. *Effective communications for project management*. Boca Raton: Auerbach/Taylor & Francis.
- Klöpffer W (2003). Life-Cycle Based Methods for Sustainable Product Development. *The International Journal of Life Cycle Assessment* **8** (3) 157-159. Labuschagne
- Knipe, A., Van der Waltd, G., Van Niekerk, D., Burger, D. & Nell, K. 2002. *Project management for success*. Sandown: Heinemann.
- Komalawati (2008). *Participation and Project Sustainability: Participatory Intergrated Development in Rain-fed (PIDRA) Projects in East Java -Indonesia*
- Kombo P.O. (2006). *Proposal and Writing: An Introduction*. Pauline's Publications Africa.
- Kothari, C.R. (2004). *Research methodology: methods and techniques*. New Delhi: New Age International.
- Krejcie and Morgan (2006). In their article "*Determining Sample Size for Research Activities*" (Educational and Psychological Measurement, pp. 607-610).
- Kwak, Y.H., 2002. *Critical success factors in international development project management*. CIB 10th International Symposium Construction Innovation & Global Competitiveness. Cincinnati, Ohio. 9–13 septembre
- Lamberson, M. (2005). *Changes in Working Capital of Small Firms in Relation to Changes in Economic Activity*, Retrieved from <http://www.AJOnline.com> on 17th August 2014.
- Laufer, A., H. Woodward., and G. A. Howell. (1999). *Managing the decision making process during project planning*. *Journal of Management in Engineering*, 15(2):79-84.
- Lavagnon A. Ika a,, Amadou Diallo b, Denis Thuillier ( 2011) Critical success factors for World Bank projects: *An empirical investigation International Journal of Project Management* pg105- 106 Ste Catherine Est, C.P. 6192, Montréal, Québec, Canada H3C 4R2
- Lawther P., Light B and Gibson N. (2000). "*A Critical Success factors model for projects rise resources planning implementation*" Proceedings (8<sup>th</sup> Ed.). European Conference on Information Systems.
- Lewis R. Ireland (2006). *Project Management*. McGraw-Hill Professional: UK.
- Loker, W.M. (2000). *Sowing discord, planting doubts: Rhetoric and reality in art environment and development project in Honduras*. *Human Organization*, 59(3): 300-310.
- Love, H., Mackinnon, D., Cumbers, A, Chapman, K.(2005),*Learning, Innovation and regional development ;a critical appraisal of recent debates, Progress in Human Geography*, Vol 26.No. 3, pp.293-311.
- Makgoshi and Maliwichi (2010). *Sustainability of Poverty Eradication Projects in rural Communities*. Acts Publishing: Kenya.
- Malladi, S. (2007). *Enhancing project performance and productivity*. Addressing it in project management and beyond Pm tips and techniques .PM tips and techniques.pm world today,9(7)
- Matsumura,K. (2008). *Causes of Poor Performance in World Bank Water and Sanitation Projects*.

- Maylor, C. and Vessey, I. (1999). *"TRP Implementation approaches towards a consistency framework"*. New York
- Maylor, H., Brady, T., Cooke Davis, T. and Hodgson, D. (2006). "From projectification to programmification, *International Journal of Project Management*, Vol. 24 No 8.
- Mbachu and Nkondo (2007). ISK Sue Arrow smith and Arwel Davies, eds. London: Kluwer Law International.
- Meredith J, R (2006) *Project Management. A Managerial Approach*, John Wiley & Sons, Inc Newyork.
- Morardet ,S. Merrey, J. Seshoka& H. Sally (2005). *Improving Irrigation Project, Planning and Implementation in Sub-sahara Africa*: Diagnosis and Recommendations.
- Mugambi, D.K, (2005). *Challenges of Project Implementation of Community based Goat breeding Projects*. A case study of Meru. Unpublished MBA thesis, Kenyatta University.
- Mugenda O,&Mugenda A. (2003). *Research methods: Quantitative and qualitative approaches*. Nairobi; Laba Graphics Services.
- Mugenda, A., and Mugenda, O. (2003). *Research methods; quantitative and qualitative approaches*. Africa Center for Technology (ACTS), Nairobi Kenya.
- Mugure ,F.M. (2012). *Influence of community participation on the performance of Kiserian dam water project Kajiado county*, Kenya.
- Mwangi, K. (2005). *Efficiency and efficacy of Kenya's Constituency Development Fund: Theory and evidence*. Working Paper Number 2005 – 42, Department of Economics, University of Connecticut, U.S.A
- Nosike, A.F (2005). *Women Leadership and the Future*. New Nigeria, July 22.
- Nyaguthii E. and Oyugi L. A. (2013). *Influence of community participation on successful implementation of constituency development fund projects in Kenya: a case study of Mwea Constituency*; Available at: <http://www.ijern.com/journal/August-2013/49.pdf>
- Ochelle (2009); *Factors influencing sustainability of community water projects in Kenya; A case of community water Mulala division, Makueni County, University of Nairobi*
- Ochieng et al, (2012) *Effectiveness of Monitoring and Evaluation of CDF Projects in Kenya*. A Case of Ainamoi Constituency. *International Journal of Arts and Commerce* Vol. 1 No. 6 November 2012
- Padachi, K. (2006). "Trends in Working Capital Management and its Effect on Firms' Performance: An Analysis of Mauritian Small Manufacturing Firms". *International Review of Business Research Papers*, Vol. 2, No. 2, pp. 45-58
- Patton, M.Q. (2002). *Qualitative Research and Evaluation Methods*. Thousand Oaks, California: Sage.
- Paul K.Ngugi (2008). *Planning Of Geothermal Projects: A Case Study on Kenya*, Papers and Presentation s at "Short Course III on Surface Exploration for Geothermal Resources" Organized by UNU-GTP and KenGen in Naivasha Kenya
- Pearson Education Limited, 2009. *Code of Practice for Project Management for Construction and Development*, Eight Edition, Edingurgh Gate, Harlow, England, 217pp
- Phinney M. (2007). *Project Management. A system approach to planning, scheduling and controlling* (8<sup>th</sup> ed.). Harold Kerzner, John Wiley & sons. New York.
- Project Management Institute (PMI) (2008). *A guide to the project management body of knowledge (PMBOK® Guide)* (4th Ed.). Newtown Square, PA, USA: Project Management Institute(PMI).

- Project Management Institute (PMI). (2012). *A guide to the project management body of knowledge (PMBOK® Guide)* (5th Ed.). Newtown Square, PA, USA: Project Management Institute (PMI).
- Ravallion, M. (2005). *Evaluating anti-poverty programmes*. In T. P. Schultz & J. Strauss (Eds.), *Development Research Group, World Bank and Handbook of Development Economics*, 4, Amsterdam, North-Holland.
- Repared (2009). *The Project Management Handbook (Regional Partnership for Resource Development)* Nairobi.
- Rogers, P. (2009). *Matching Impact Evaluation Design to the Nature of the Intervention and the purpose of the Evaluation in Designing impact evaluations: different perspectives. 3ie Working paper4*. London: 3iE ([www.3ieimpact.org/admin/pdfs\\_papers/50.pdf](http://www.3ieimpact.org/admin/pdfs_papers/50.pdf)).64.
- Rono, K.P and Aboud, A. A. (2003). *The role of popular participation and community work ethic in rural development: the case of Nandi District, Kenya*; *Journal of Social Development in Africa* Vol 18 No 2 July 2003
- Rossi, P. H., Lipsey, M. W., and Freeman, H. E. (2004). *Evaluation: A systematic approach* (7<sup>th</sup> Ed.). Thousand Oaks, CA: Sage.
- Samuel and Tom (2010), *Project Management from Design to Implementation*, Richmond designers and Printers, Nairobi.
- Scriven, M. (1998). *Minimalist theory*. UK.
- Shapiro J. (2004). *Monitoring and Evaluation*. Johannesburg: CIVICUS66.
- Sirota P. (2006). *Political participation of the NGOS in project implementation in Nepal*. *International journal of organisations*.2 April 2003:140-150.
- Thairu, R.W. (2014). *Analysis of implementation of NGO projects in Nairobi County*.
- Tim, H. (2008). *Management Concepts and Practices*, Fifth Edition. Englewood Cliffs: Prentice Hall
- Trevor L. Young, (2008) *Successful Project Management, the Sunday Times*, 2<sup>nd</sup> Edition
- UNDP (2002). *Handbook on Monitoring and Evaluation for Results*. New York: UNDP.
- UNIDO(2013); *Independent UNIDO Country Evaluation Republic of Kenya 2013*
- United Nations (2000). *Millennium Development Goals* [http://www.un.org/millennium\\_goals/](http://www.un.org/millennium_goals/), accessed June 24, 2006
- United Nations, 2003. *United Nations Millennium Declaration (A/55/L.2)*[Online] Available at: <http://www.un.org/millennium/declaration/>
- Wayne and Wittig(2002) *Building value through project implementation: A focus on Africa Three*.
- Weiss H. (2004). *On Theory – Based Evaluation: Winning Friends and Influencing People Evaluation Exchange*, 9(4): 2 -773.
- Wil D. Verwey (1977). *Riot Control Agents and Herbicides in War*. BRILL.p. 99. ISBN 9028603360.
- World Bank (2007) *Project Performance: project performance issues*. Report v.washington.USA.
- Wysocki, R.K. 2007. *Effective project management: traditional, adaptive, extreme*. Indianapolis, IN.: Wiley.

Zulu and Chileshe (2008). *Poor performance of Zambian Contractors*. Institution of Structural Engineers magazine, UK, July Publication.