INFLUENCE OF TOTAL QUALITY MANAGEMENT STRATEGIES ON THE CONSTRUCTION OF POWER LINE PROJECTS BY RURAL ELECTRIFICATION AUTHORITY KENYA

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DECLARATION

This research project proposal is my original work and has never been submitted for an award of a degree in any other university.

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This research project proposal has been submitted for examination with my approval as the university supervisor.

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DEDICATION

I dedicate this work to my wife Eunice Karani, my daughter Shantelle Moraa, and my mother Caroline Moraa, for their lovely support.

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I take this opportunity to thank the Almighty God for the gift of life. Many thanks goes to my supervisor Dr. Luketero Wanyonyi who fully supported guided me throughout the writing of this research proposal.

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ABBREVIATIONS AND ACRONYMS

CI	Continuous Improvement
ERC	Energy Regulatory Commission
GDC	Geothermal Development Company,
GDP	Gross Domestic Product
KEBS	Kenya Bureau of Standard
KENGEN	Kenya Electricity Generating Company Limited
KETRACO	Kenya Electricity Transmission Company Limited
KNEB	Kenya Nuclear Electricity Bond
KORE	Coca-Cola Operating Requirements
MBNQA	Malcolm Baldrige National Quality Award
REA	Rural Electrification Authority
ROI	Return on Investment
SPSS	Statistical Package for Social Science
SQC	Statistical Quality Control
TCCMS	Coca-Cola Management System
TQM	Total Quality Management

ABSTRACT

Organizations are the world over trying to come up with ways to satisfy their customerós needs and expectations. The adoption of a Total Quality Management System and its subsequent certification is a voluntary and consensus based process supported by an organizationôs own strategy, motivations, policy and goals. The Rural Electrification Authority is of particular interest for this study because electrical infrastructure is fundamental ingredients to socio economic growth. Executing such quality system during rural electrification and making better public management decision is crucial for everyone. Rural Electrification Authority has been implementing various quality management systems during construction of power lines, in order to enhance the quality of electrical infrastructure in their rural electrification projects. This study seeks to establish the influence of total quality management practices on the construction of power line projects by Rural Electrification Authority Kenya. The objectives of the study were to determine the influence of top management commitment, customer focus, and continuous improvements on the construction of power line projects by rural electrification authority Kenya. The study was conducted using a descriptive survey research design. This study was conducted using a descriptive survey research design. The target population in this study was 40 respondents which comprised of the project team and stakeholders of Rural Electrification Authority during the power line construction process. Due to the small population size, the study carried out total enumeration of all the respondents. The researcher used questionnaire to collect primary data. Descriptive statistic was used in data analysis. A regression model was applied to determine the relative importance of each of the variables with respect to construction of power line projects. The contribution of key management is very important for the project because they work hard to ensure the projects are done and are of great quality. Customer focus was found to significantly influence the construction of power line projects by Rural Electrification Authority Kenya. The study established that continuous improvement influences the construction of power line projects by rural electrification authority Kenya. The study also found that employee empowerment is statistically significant to construction of power line projects by rural electrification authority Kenya. The study recommends that the management of Rural Electrification Authority Kenya should establish a team from inside or outside the company for training. The study recommends that the management of Rural Electrification Authority Kenya should ensure continuous check on customersô requirements to find areas in which improvements can be made so as to ensure total quality is achieved. The study further recommends that the management should warrant that the whole organization, and not just frontline service staff, puts its customers first; this will ensure that they meet customer expectations thus achieving quality.

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Organizations are tirelessly trying to satisfy customersô needs and expectations across the globe. This is only achievable through improved product quality, increased customer satisfaction, and continuous improvement towards world class organizations. These challenges prevailed upon organization around the globe to change their old traditional quality systems, and implement new quality approaches to deliver high quality goods and services. Organizations that can deliver quality are the ones that were able to compete on the globalization era (Lohrke, Bedeian & Palmer, 2014).

Quality improvement has become a considerable force throughout the world. Although methods to improve and manage quality are numerous, it can be said that TQM is a critical determinant in the success of public sector organization. In most highly industrialized countries of the world, The United States, Japan, and the European Union, the implementation of total quality management has become a common practice and a preferred approach for improving quality in the public sector organization (Durai & Balakrishnan, 2011).

Quality Management generally is the process of ensuring that a product (good or service) continuously meets and even exceeds customer expectations. TQM can generally be looked at as a business management approach that attempts to maximize organizational competitiveness through continuous improvement of products, services, work force, processes and environment. It is an approach aimed at continuously improving the competitiveness, effectiveness and flexibility of the entire organization through total involvement of everyone in the organization led by the management (Abdul, 2011). The concept of TQM came into existence in 1970s when evolution of quality took a strategic shift from quality control to a strategic approach of quality to take care of the growing concern for quality. Quality management has evolved through Quality Inspection, to

Quality Control, to Quality Assurance then to the current Total Quality Management (Kenya Institute of Management, 2009).

A number of organizations across the world have adopted quality initiatives. For instance, Toyota company developed the philosophies of 'customer first' and 'quality first'. They set up quality assurance systems across various divisions and departments (Zakuan, Muniandy, Saman & MdArif, 2012). They introduced statistical quality control (SQC) in 1949 followed by Total Quality Management (TQM) initiatives based on the unchanging principles of 'customer first' and 'total participation'. Through their quality initiatives, Toyota won the Deming Application Prize in 1965 and the Japan Quality Medal Award in 1970 (union of Japanese Scientists and Engineers, 2006). Sony Company set out to respect their customerôs viewpoints and remain committed to deliver quality products and customer service that exceed their customersô expectations. To achieve this, Sony implemented continuous, decisive efforts in enhancing product quality and continuously improves its quality management system (Sony Company, 2012).

The Coca-Cola Company focused on developing consistency and reliability in their products. They for instance developed a new management system, Coca-Cola Operating Requirements (KORE) in place of the initial Coca-Cola Management System (TCCMS) in January 2010. The company created an integrated quality management program which is used in all operations of the organization to ensure they deliver quality to customers (Coca-Cola Company, 2012).

The Public sector in Kenya, have been encouraged to adopt Total Quality Management (TQM) to ensure ability to provide quality services in a manner that addresses their range of financial, environmental and social concerns (Oruma, 2014). TQM ensures maximum effectiveness and efficiency within an organization and secures commercial leadership by putting in place processes and systems which will promote excellence prevent errors and ensure that every aspect of the business is aligned to customer needs and the advancement of business goals without duplication or waste of effort (Tricker, 2008).

As World Bank (2008) posits, there are numerous benefits derived from rural electrification that contribute to improving the quality of life in the rural areas. Apart from lighting which improves the study environment for school children, electricity also improves businesses, thereby providing employment opportunities, hence contributing to poverty reduction. The Rural Electrification Authority was established under Section 66 of the Energy Act, 2006 (No 12 of 2006) as a body corporate. It was created in order to accelerate the pace of rural electrification in the country, a function which was previously undertaken by the Ministry of Energy.

The significance of rural electrification in Kenya is spelt out in the Governmentôs Sessional Paper No. 4 on Energy (May 2004). The Paper sought to lay the foundation upon which cost-effective, affordable and adequate quality energy sources will be made available on a sustainable basis. This Paper led to the creation of the Rural Electrification Authority (REA), which was established and charged with the responsibility of accelerating the pace of rural electrification in the country. This study sought to establish the influence of total quality management practices on the construction of power line projects by Rural Electrification Authority Kenya

1.2 Statement of the Problem

Adopting the Total Quality Management System and its subsequent certification is a voluntary process based on consensus supported by an organizations own strategy, motivations policy and goals. Besides, various studies have confirmed that ISO 9000 certification is too expensive, time consuming, resource-consuming, formalized and impersonal and that the implementation costs are greater than the benefits derived (Bhuiyan & Alam, 2005). Studies investigating the effect of ISO 9001 on performance of the certified organizations have shown mixed results. Some studies showed positive effects while others did not (Moono & Kasongo, 2010).

Reports by Kenya Bureau of Standard (KEBS 2012), the certifying body in Kenya indicate that some certified organizations have failed to gain the anticipated benefits of implementing the ISO 9001:2008 Quality Management Systems. A main finding by

Wright (2006) has shown that some certified companies are performing at the same level regardless of ISO 9001 certification. The benefits or otherwise of implementing ISO 9001:2008 Quality Management System in a Construction Company have been the subject of contention for some time. Some Contractors experience a change for the better and others remain status quo. Yet others degenerate into state of chaos. Indeed, the energy has a jaundiced view of quality assurance along the line of ISO 9000, (Chung, 2010).

The study stands to benefit the Rural Electrification Authority because of the basic nature of electricity as a fundamental ingredient to socio economic growth and realization of the Kenya Vision 2030. The contribution to Gross Domestic Product, (GDP) growth by the Energy (electricity) sector is estimated at 8.3%, (KPMG, 2015). Electricity connection and maintenance are regulated by government policies which are administered top down. Effective construction of power line projects during rural electrification is critical to the quality of electricity infrastructure in Kenya.

Executing such quality system during rural electrification and making better public management decision is crucial for everyone. Rural Electrification Authority has been implementing various quality management systems during construction of power lines, in order to enhance the quality of electrical infrastructure in their rural electrification projects. It is against this background that the study sought to establish the influence of total quality management practices on the construction of power line projects by Rural Electrification Authority Kenya. A case of Engorwa Primary School power supply project in Masaba Sub County, Kisii County.

1.3 Purpose of the Study

The purpose of the study is to establish the influence of total quality management practices on the construction of power line projects by Rural Electrification Authority Kenya.

1.4 Objective of the study

The study was guided by the following research objectives:-

i. To determine the influence of top management commitment on the construction of power line projects by rural electrification authority Kenya.
ii. To establish the influence of customer focus on the construction of power line projects by rural electrification authority Kenya.
iii. To examine the influence of continuous improvement on the construction of power line projects by rural electrification authority Kenya.
iv. To assess the influence of employee empowerment on the construction of power line projects by rural electrification authority Kenya.

1.5 Research Questions

The study seeks to answer the following research questions

i. To what extent does top management commitment influence the construction of power line projects by rural electrification authority Kenya?
ii. How does customer focus influence the construction of power line projects by rural electrification authority Kenya?
iii. To what extent does continuous improvement influence the construction of power line projects by rural electrification authority Kenya?
iv. What is the influence of employee empowerment on the construction of power line projects by rural electrification authority Kenya?

1.6 Significance of the Study

The research findings and recommendation of the study will be of great significance to the enrichment of current literature and stimulating further research on the study of TQM practices and its applications in construction of power line projects. This will significantly influence the construction of power line projects by rural electrification authority Kenya. In addition, the findings and recommendations will be useful to electricity regulation, generation, transmission and distribution organizations such as Kenya Power, KENGEN, KETRACO, GDC, KNEB, Rural Electrification Authority, Renewable Energy Portal and ERC in understanding TQM practices influencing the

completion of power line construction projects. The study will contribute to the body of knowledge on influence of total quality management practices on the construction of power line projects.

1.7 Limitations of the Study

The study faces numerous limitations, key among them being communication barriers like age differences and stereotype. Some respondents may be unwilling to give accurate information for fear that the information due to the sensitivity of the topic of research, bearing in mind the level of importance attached to quality. It may also prove difficult for some of the respondents to fully comprehend the concept of TQM, hence give irrelevant information that does not enable the study meet its set objectives.

1.8 Delimitations of the Study

Necessary measures was taken to ensure that there was proper communication so as to collect all the relevant information for the purpose of the study. The respondents were assured that the information they gave was treated as confidential and was only used for academic purposes. To minimize the problems associated with collecting data from respondents who did not fully understand TQM, the questionnaire items were simplified to ensure all respondents comprehended and gave the relevant information.

1.9 Basic Assumptions of the Study

This study was based on the following assumptions: the researcher got access to the sampled respondents; the respondents were corporative and freely gave the required information and that the sampled employees were having an ongoing project at the time of the study.

1.10 Definitions of Significant Terms Used in the Study

Continuous Improvement **:** is an ongoing effort to improve products, services or processes.

Customer Focus **:** The orientation of an organization toward serving its clients' needs.

Employee Empowerment **:** is giving employees a certain degree of autonomy and responsibility for decision-making regarding their specific organizational tasks.

Top management commitment **:** Direct participation by the highest level executives in a specific and critically important aspect or program of an organization.

Total Quality Management **:** a system of management based on the principle that every member of staff must be committed to maintaining high standards of work in every aspect of a company's operations.

1.11 Organization of the study

This study in its entirety is organized in five chapters. Chapter one covers the background of the study, statement of the problem, purpose of the study, objectives and research questions. It also covers the significance of the study, assumptions of the study, limitations and delimitations of the study, definition of the significant terms as well as the organization of the study. Chapter two covers literature review explaining the factors that influence implementation of Total Quality Management, theoretical framework and conceptual framework, the relationship between the factors on the conceptual framework, gaps in the literature review as well as the summary of the literature review. Chapter three outlined the research methodology which included research design, target population, sample size, sampling technique, research instruments reliability and validity and procedures for data collection and analysis techniques. Chapter four covers data analysis and discussions; it included the response rate analysis of demographic information, descriptive statistics and inferential statistics. Finally chapter five covered the discussion of major findings, conclusions drawn from the findings and recommendations for the study.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter reviews literature that had been developed by authors and researchers in the themes outlined in the study objectives. It discusses the influence of total quality management practices on construction of power line projects by Rural Electrification Authority Kenya. It mainly focuses on four principles: Top management commitment, customer focus, continuous improvement and employee empowerment. In this study, the Total Quality Management practices affecting construction of power line projects were looked at under the following sub topics: Top Management Commitment, Customer Focus, Continuous Improvement and Employee Empowerment.

2.1 Review on Construction of Power Line Projects

Access to electricity is important for development due to its linkages to agriculture, education and health. Limited access and use of energy significantly slows down economic and social transformation1. Transmission lines provide infrastructure that is used to evacuate high voltage power from generation plants to the national grid for eventual use by consumers. Archer (2001), Barber (2004), Dey (2001), Fan, Lin, and Sheu (2007), and Soderholm (2008) the electrical transmission line industry is useful for the development of the country and hence the number of such installation projects will be increasing in future. The conventional risk management process is a generalized methodology which is highly uncertain. In the current business scenario, it is compulsory to have a complete and accurate control over the risk especially in electrical transmission line installation projects. So there is a need to increase the accuracy of risk mitigation, which can be achieved by extensive and multiple research opinions derived and analyzed through different tools ranging from expert opinion to probabilistic analysis.

Owolabi *et al.* (2014) studied causes and effects of project delays and concluded that time overruns increase the final cost of the project, as well as wastage and under-utilization of

man-power and resources and ties down the client capital due to non-completion of the of the project. It was established by Owolabi *et al.* (2014) that delays occur in every construction project and the significance of these delays varies from project to project as concluded by (Hoseini, 2014). Therefore, it is quite common that projects in the construction of Electricity Transmission lines are also prone to delays in the completion dates. An incident of delay can originate from within the organization or from any of the other factors interfacing during construction (Tumi, Oman & Pakir, 2009). It is therefore imperative that project managers ensure that participants are responsive and remain focused on these factors if the project is to be completed on time.

According to Mukuka, Aigbavboa and Thwala (2015), Schedule overruns due to delays in projects are one of the major causes of loss of revenue to the Client because of rescheduling of production which result in higher cost to the contractor due to fixed costs in addition to the inflation effect manifested in the increasing prices of material. The study conducted by Haseeb, Xinhai-Lu, Bibi, Dyian and Rabbani (2015) concluded that the major effects of delays in construction projects are Time overrun, cost overrun, abandonment of work, court cases and disputes, and these effects are primarily caused by financial problems, late payments for completed work, change orders, increase in cost of labor, mistakes in the contract, changes in drawing and natural disasters

2.1.1 Construction of Power Line Projects by REA Kenya

In Kenya, rural electrification first became a public priority in 1973 with the establishment of the Rural Electrification Programme, a government plan to subsidize the cost of electricity supply in rural areas. Under this initial setup, rural electrification was the joint responsibility of the Ministry of Energy and its implementing partner, Kenya Power (KPLC), the country's regulated monopoly transmission, distribution, and Retail Company (IEA, 2012). Over the next few decades, however, the pace of rural electrification remained stagnant. The cost of grid expansion was prohibitively high and there was a general perception that demands for energy in rural areas was too low to be financially viable.

In recent years, there has been a dramatic increase in the coverage of the national electricity grid. In 2003, a mere 285 public secondary schools across the country were connected to electricity. By November 2012, Kenyan newspapers were projecting that 100% of the country's 8436 secondary schools would soon be connected. This recent big push to electrify rural Kenya began with the ratification of the Energy Act of 2006, which restructured the country's electricity sector and created the Rural Electrification Authority (REA), an agency that would operate independently of Kenya Power, and would be in charge of accelerating the pace of rural electrification. Almost immediately, REA announced a strategy to prioritize the connection of three major types of rural public facilities markets, secondary schools and health clinics. In the densely populated regions of Central and Western Kenya, where the majority of the population lives, it is widely believed that households are within walking distance of multiple public facilities, although detailed data verifying these claims are lacking. By following this strategy, public facilities would not only benefit from electricity but could also serve as community connection points, bringing previously off-grid homes and businesses within reach of the grid.

By 2013, REA announced that 90% of the country's public facilities had been electrified suggesting that a large share of the population had access to the electricity grid. Despite this success, estimates of the national household electrification rate remain just between 18% and 26% (IEA, 2012). This gap between those who are believed to live within range of power and those who are connected to power suggests that ñlast-mileò grid connections could be important moving forward.

Electricity is not commonly available or used as a primary energy source in rural Kenya but that demand is increasing. As of June 30th, 2013, 28.9% of the Kenyan population was connected to electricity (KMEP, 2014). This figure was as the result of the Kenyan Government establishing the REA under section 66 of the Energy Act No. 12 of 2006, developed in order to accelerate the pace of rural electrification and promote sustainable socio-economic development (KMEP, 2014). Additionally, projects like the Last Mile Connectivity Project, which aimed to maximize the efficiency of rural electrical

transformers and build new transformers to offer more connections to rural households, are being implemented in order to meet Kenyaôs national goal of 100% electricity availability by 2020 (KPLC ,2016b). Under this program, the number of customers connected to electricity in Kenya expanded to 38% between 2015 and 2016 (KNBS, 2017).

2.2 TQM Practices and the Construction of Power Line Projects

Across the globe, the construction sector is a vital industry for economic growth and economic prosperity. Studies, primarily performed on Western job-sites, have demonstrated the importance of the labor work-force in terms of the capital expenditures, which may account for upwards of 40% of the direct capital costs. International studies performed by Jarkas and Bitar (2014) confirm that, in electrical and mechanical works, labor costs comprise between 30% and 50% of the overall project costs. Results were not limited to Western nations with high labor costs and the trends were observable through most countries internationally, which includes areas with low labor costs, such as in Dubai and throughout the Gulf States. The general presupposition that output is relatively insensitive to labor effects due to the low labor costs is challenged by such results.

A significant impact can be made by focusing on enhanced performance and positive productivity increases, especially given the stagnant record of productivity in the construction industry. When considering productivity increases, areas of concern relate to the instantiated inefficiencies within the industry, labor output and management factors. Over several decades throughout multiple industries, total quality management (TQM) approaches and TQM principles have been proven to measurably improve performance. Empirical evidence has shown that construction projects benefit from the application of TQM principles in terms of cost and schedule performance, safety, productivity and quality. However, mixed results have been also reported, nevertheless, the promises of TQM adoption within the construction industry cannot be overlooked.

2.3 Top management commitment and Construction of Power Line Projects by REA

Top Management plays a critical role in any key business decision. Consequently, the success of any critical decision made in an organization is highly dependent on top management support and commitment (Zakuan *et al.,* 2012). Quality issue has become of great importance to every organization and no management can afford to let nature take its course when it comes to quality. The top management must play a leading role by making available the critical resources, establishing an organization wide quality policy that is well communicated to all stakeholders, establishing a quality management structure and managing the entire process through close monitoring and evaluation. This must be supported by an organization culture and climate of open cooperation and team work among stakeholders in quality management (Sharp *et al.,* 2000).

As cited by Zakuan *et al* (2012), Deming (1986) urges that managers must institute leadership to usher the quality transformation process. Parameshwar and Srikantia (2000) discussed two types of leadership: transformational leadership and transactional leadership. Transformational leadership is leadership that is based on an ideologically anchored vision while transactional leadership is based on reward control mechanisms and emphasizes on clarification of followers roles and goals and the way the desired outcome will follow after achievement of the set goals. Champions of innovation tend to exhibit transformational leadership behavior; they try to initiate influence through calculated tactics in their work environment.

Arshida and Agil (2012) points out top management commitment as an essential element for ensuring successful use of TQM practices. The top management must be on the fore front of the quality management process starting from the initial stages. According to Omware (2012), adoption of TQM for the first time is associated with development of new organizational policy, new procedures and new tools that must be learned. TQM is an organizational change process that is often associated with instability, confusion, and employeesô resistance and must be carefully initiated through consistent management involvement. This was consistent with Samir (2003) that top management must develop

clear quality mission and goals and identify quality values and communicate them to all employees. They must put in place a proper quality planning process, and a good quality management structure to ensure successful implementation

2.4 Customer Focus and Construction of Power Line Projects by REA

TQM is an ideology which is focused on the satisfaction of customerôs need. Thus, most organisations try as much as possible to meet or exceed customerôs expectation in their daily activity and also their long term plan (Andrle, 1994). TQM require organisations to develop a customer focused operational processes and at the same time committing the resources that position customers and meeting their expectation as an asset to the financial wellbeing of the organisation. Achieving customer focus involves ensuring that the whole organization, and not just frontline service staff, puts its customers first. All activities, from the planning of a new product to its production, marketing, and after-sales care, should be built around the customer. Every department and every employee should share the same customer focused vision. This can be aided by practicing good customer relationship management and maintaining a customer relations program (LeBoeuf, 2000).

Quality is defined as meeting or exceeding customer expectations. The goal is to first identify and then meet customer needs. TQM recognizes that a perfectly produced product has little value if it is not what the customer wants. Therefore, we can say that quality is customer driven. However, it is not always easy to determine what the customer wants, because tastes and preferences change. Also, customer expectations often vary from one customer to the next. For example, in the auto industry trends change relatively quickly, from small cars to sports utility vehicles and back to small cars. The same is true in the retail industry, where styles and fashion are short lived.

Companies need to continually gather information by means of focus groups, market surveys, and customer interviews in order to stay in tune with what customers want. They must always remember that they would not be in business if it were not for their customers. Focusing on customers is stressed by most authors of TQM literature to be an important part of TQM.

2.5 Continuous Improvement and Construction of Power Line Projects by REA

Continuous improvement (CI) is a philosophy that Deming described as consisting of improvement initiatives that increase the success and reduce failures as well as companywide process of focused and continuous incremental innovation. According to Kossof (1993) total quality can be achieved by constantly pursuing continuous improvement through the involvement of people from all organisational levels. Traditional systems operated on the assumption that once a company achieved a certain level of quality, it was successful and needed no further improvements, this was their main drawback. However, the way companies implement continuous improvement is by studying business practices of companies considered ñbest in class.ò This is called benchmarking.

The ability to learn and study how others do things is an important part of continuous improvement. The benchmark company does not have to be in the same business, as long as it excels at something that the company doing the study wishes to emulate. When an organization implements a program to repeatedly improve processes, itôs called Continuous Process Improvement, or CPI. CPI programs such as Lean, Six Sigma, is famous for setting in motion a combination of philosophy, management framework, and supporting tools to evaluate and improve operational processes in an on-going manner. Continuous improvement will ensure that the firm improves total quality leading to competitiveness in the market.

CI is a process which requires clear comprehension of organization objectives and process of measuring effectiveness and efficiency. Critical elements such as good leadership and objectives of company are critical in the process. Success of this process is more or less influenced by commitment of leadership (Jiri, 2000). According to IAEA (2016) strategy adopted in continual process should be flexible enough to allow the selection of the most appropriate approach for each improvement. Rigid strategies hinder effective use suitable tools and methodologies hence should be avoided.

Several items are involved in the cycle of CI which includes establishing customer requirements, meeting the requirements, measuring success, and continuing to check customersô requirements to find areas in which improvements can be made (Esin, 2008). Customers can be either internal or external depending on their location in the organization. Customers inside the organization are internal while those outside the organization. Internal customers usually work towards external customer satisfaction. Measures like service flow, ROI, profits and material flow fail when continual improvement process is not duly implemented (Chang, 2005).

Chang (2009) revealed that CI is one of the critical areas of focus in an organization. It entails modern quality research and practice. An organization should be in capacity to improve its quality of product and service henceforth minimizing cost burden to the customers. Due to increased competition in the market, continual improvement is necessary. Continual improvement is a management strategy which is an integral part of TQM. Fauzin, Arsono & Bambang (2016) asserted that CI is a gradual, planned and organized systematic approach for an organization to ensure continuity in incorporating different phases on implementation. CI sustains organizationôs ability. There are several approaches of measuring continual improvement which include customer service, complaints, requests for replacements and returns.

According to Jiri (2000) performance management and continuous performance improvement are significant in every organization especially when intending to achieve international competitiveness and sustained growth. CI is all about activities that facilitate products, services and processes to be produced effectively at reduced cost and improve quality. The improvements are either breakthrough or incremental. CI demands for effective project management because it is related to vision, mission and goals of the organization. Lack of CI in leadership of an organization leads to market share loss to competitors. In order to maintain organizational culture, CI is undertaken (Fauzin, Arsono & Bambang, 2016)

2.6 Employee Empowerment and Construction of Power Line Projects by REA

In the motivational approach pioneered by Conger and Kanungo (1988), empowerment was conceptualized as psychological enabling. The authors defined empowerment as a process of enhancing feelings of self-efficacy among organizational members through the identification of conditions that foster powerlessness and through their removal by both formal organizational practices and informal techniques of providing efficacy information. This definition implies strengthening the effort to performance expectancy or increasing employee feeling of self-efficacy. According to Conger and Kanungo, the effect of empowerment is initiation and persistence of behaviour by empowered employees to accomplish task objectives. These definitions are derived from the management theory of power and authority delegation that gives an employee the right to control and use organisational resources to bring desired organisational outcomes.

Thomas and Velthouse (1990) extended this approach by viewing power as energy: to empower is to energize. According to these authors empowerment is associated with changes in cognitive variables (called task assessments), which determine motivation in workers. Spreitzer's (1995) model, based on the Thomas and Velthouse (1990) approach, defines empowerment as increased intrinsic motivation manifested in four cognitions: meaning (value of work goal or purpose), competence (self-efficacy), self-determination (autonomy in initiation and continuation of work behaviours), and impact (influence on work outcomes).

2.7 Theoretical Framework

This section reviews the theories related to total quality management. The theories include; Total Quality Management theory, Demingôs theory and Philip Crosby theory.

2.7.1 Total Quality Management theory

TQM theory holds that ñquality can only be defined by those who receive the product or service, including stakeholdersò. Accordingly, public managers should engage their staff in identifying the organizationôs internal and external stakeholders and determine the criteria that each use to judge the organizationôs successfulness. This process suggests

that the effective organization is one that satisfies the expectations of the customersô at large (Oakland, 2003). Service organizations and manufacturing companies both convert inputs into output products or services through a productive process. Both manufacturing and service industries use the same kinds of input resources such as physical facilities, capital, materials, equipment, and people. In some instances, the processes and products are similar (Yang, 2006). Quality service can be defined as how well the service does what the customer thinks it is supposed to do. However, the differences between providing services and manufacturing products make the management of service quality a challenging process. TQM theory therefore, may be seen to refer to creating a set of customer-based practices intending to improve quality, reduce costs and enhance process improvement with an ultimate goal of achieving customer satisfaction and loyalty.

2.7.2 Deming's Theory

Demingôs theory of profound knowledge is a management philosophy grounded in systems theory. It is based on the principle that each organization is composed of a system of interrelated processes and people which make up systemôs components. The success of all workers within the system is dependent on managementôs capability to orchestrate the delicate balance of each component for optimization of the entire system (Bowen, 2010). The system of profound knowledge is based on system appreciation to understand the company's processes and systems, variation knowledge to understand the occurrence of variation and their causes, knowledge theory to understand quality programs and psychology knowledge to understand human nature. In his fourteen points, he proposed that among other points, top management commitment, positive corporate culture, employeeôs education and training and proper communication system is paramount in implementation of TQM.

The Shewart Cycle which is about learning what works and what does not and ongoing improvement in a schematic way. He further noted that if a company focuses on costs, the costs rise while quality deteriorates (Kenya Institute of Management, 2009). This is consistent with the theory of constraints discussed by Zadry and Yosuf (2006). Theory of

Constraints (TOC) which is a set of concepts, principles and tools that can be used to improve management of systems and maximize performance by identifying the most restrictive limiting factor that constraints the systemôs performance and managing it. It focuses on improving performance rather than reducing costs. This study was anchored on these two theories in that: it takes all the organizationsô systems to have a successful implementation of TQM and the organization performance is highly dependent on its ability to continuously improve on management of its systems.

2.7.3 Philip Crosby Theory

Philip Crosby theory also credited the initiation of TQM movement. He argued similarly to Deming but pointed out that money spent on quality is money well spent. Management is commitment to quality. Crosby defines quality as adherence to requirements and prevention is best way to ascertain quality. Also, he posed challenge that zero mistakes is the performance standards of quality. Furthermore, Crosbyôs theory stated that quality is the measured by the price of nonconformity. More precisely consistency in producing conforming products and services at optimum price should be the ideal target.

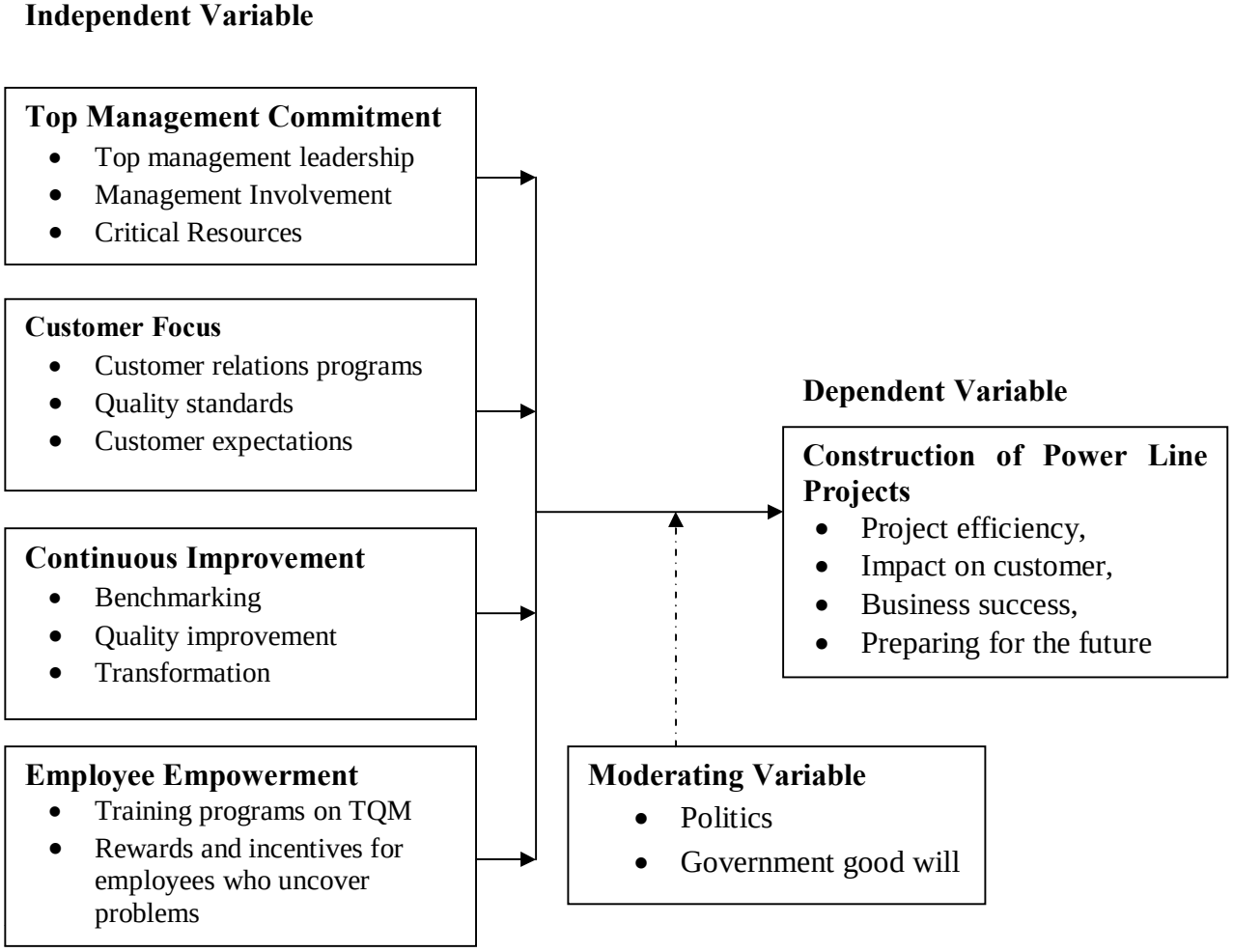
Continuous quality improvements can be achieved through total commitment from management. This is realistic where quality leadership in an organization is manifested. Significantly, an organization should form quality improvement teams to champion for quality improvements in the management, product and service. Specifically, each department should nominate a person to the team for quality in the organization to create equal opportunity for participation. Also, each quality improvement activity should have metrics for measurement.

Every organization that strives at achieving TQM then it should be able to determine the cost of quality and gains attributed to improvements. Effective management should be in a position to encourage its employees to fix their mistakes and create zero-defect committee. Also, every member staffs in that organization should comprehend steps to quality. In order to keep quality management root causes of errors need to be established and eliminated from the system or process. Communication on both current and

anticipated nonconformance issues should be done to permit timely corrections. Hackman (1995) pointed out that an organization is combination of several departments which involve different sectors in the economy hence there is need to address collectively by representation from all functions. Life span of an organization is determined by the commitment to continuous improvement.

2.8 Conceptual Framework

In this study, the dependent variable is construction of power line projects while the independent variables TQM practices which are: Top management Commitment, Customer focus, continuous improvement and employee empowerment. The variables and their relationship are as shown in Figure 1.



Top management leadership is the degree of which top management sets up TQM objectives and strategies, provides and allocates necessary resources, contributes in quality improvement efforts, and assesses TQM practices on construction projects (Saraph *et al,* 1989). Many TQM gurus such as Deming (2013), Crosby (2012), Oakland (2012), Kanji and Baker (2012) and Feigenbaum (2015) pointed the vitality role of top management commitment and leadership in TQM implementation. The commitment of top management is generally a preliminary point for implementing and practicing TQM in the organization (Ahire & Ravichandran, 2001). It is impracticable to adopt TQM and incorporate TQM without strong top management support (Flynn, 2015).Top management carries the primary responsibility for commitment to quality and support efforts necessary to successful use of TQM practices (Crosby, 2012), hence, the most

critical factor that contributes to successful TQM program is top management (Ramirez, 2013).

Shiba *et al.* (2003) defined a customer as the person or group who receives the work that one carries out, and asserts that a business function without a customer should not be performed. On ensuring customersô needs and requirements are achieved the organisation becomes competitive in the industry hence continually improving on achieving higher quality standards to the customer.

Jiri (2000) defines CI as a result or product achieved in an organization after certain changes are made. It cuts across all levels in an organization such as leadership, people and processes. Consequently, according to Kaynak (2002) it should direct an organization to better prices, cost and productivity. This process can be effectively conducted through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review. Since is a continual process management device how to improvement effectiveness in organization operations instead of waiting problems to emerge. These improvements vary from small step ongoing continual improvement to strategic breakthrough improvement projects.

Part of the TQM philosophy is to empower all employees to seek out quality problems and correct them. With the old concept of quality, employees were afraid to identify problems for fear that they would be reprimanded. Often poor quality was passed onto someone else, in order to make it ñsomeone elseôs problemò. The new concept of quality, TQM, provides incentives for employees to identify quality problems. Employees are rewarded for uncovering quality problems, not punished. In TQM, the role of employees is very different from what it was in traditional systems. Workers are empowered to make decisions relative to quality in the production process. It is prudent when employees are empowered and trained continuously in the organisation they will perform accordingly.

Hart (2014) described quality as taking three meanings; getting the job done on a timely manner, ensuring that the fundamental features of the final initiative fall within the mandatory criteria, and lastly, receiving the job done within the boundary of the financial plan. A quality construction project has to cover the above three dimensions and quality

in construction is basically related with adherence to stipulations and appropriateness of use. In such industry, quality is referred to satisfying the requirements of the relevant individuals namely the designer, the constructor, the regulatory entities and the owner (Ferguson & Clayton, 2014). The ISO 9000 certification in the construction industry brings about the development of the firmôs reputation that is related to quality assurance in the engineering and construction project management (Bubshait & Al-Atig, 2012). Moreover, most companies often make use of the ISO certification to market their services.

In the current times, TQM has been increasingly adopted by construction companies to assist in determining solutions to quality management as prior industries have aimed to and thus, it is logical that TQM may also be invaluable in the construction industry. Quality management primarily offers the firm with two competitive factors namely product quality and customer service (Gonsalves, 2012). Manufacturers in the international arena have been reported to effectively compete due to their great degree of process improvement in quality and customer-service aspects. On a similar line, quality management offers a competitive edge in the manufacturing as well as service industries.

However, the construction industry appears to be cautious in employing TQM practices as their short-term benefits are not significant and such an industry expect timely outcome (Love, Li, Irani, & Holt, 2011). Adoption of TQM is a complicated process (Pheng & Teo, 2004) as it is built on philosophy, principles, procedures and practices that are needed to satisfy customers and achieve productivity and business performance in the industry. The challenges in adopting TQM has also been reported by other studies like Motwani (2013) who contended that TQM implementation is riddled with monumental organizational transformation that requires the entire modification of its culture, process, strategic priorities and beliefs.

To this end, the alternative in the construction industry is re-engineering, a process that has been found to be effective for improvement more than business process re-engineering (BPR) and is superior to enhancements stemming from the implementation of TQM (Abdul-Hadi, Al-Sudairi, & Alqahtani, 2015). This urged researchers to

recommend the combination of TQM and BPR for a superior result. For instance, in the South African high-tech industry, the failed TQM adoption was reported to be isolated and fragmented (Winzker, 1999). It can thus be stated that in order to successfully compete in the global market, quality is not enough and quality method of a holistic nature that consists of extensive company spectrum and characteristics is recommended (Winzker, 2013).

National governments wish to achieve high levels of national electricity self-sufficiency to secure stable and reliable supply (Van de Graaf & Colgan 2017; Hawker, 2017; Moore 2017). National electricity sovereignty in Southern African Power Pool (SAPP) is an example of political dependencies created by high levels of electricity exports from South Africa to Botswana, Lesotho, Mozambique, Namibia, Swaziland, Zambia and Zimbabwe. Current efforts such as Swaziland's ambitious renewable energy expansion goals following the 2016 Paris Agreement are likely to be partly motivated by reducing these dependencies, which led to the highest electricity tariffs in the region (African Development Bank 2013). Second, different levels of institutional weakness and political instability in the twelve SAPP countries imply that different international network designs lead to greatly differing political risk characteristics of the network.

Politics further influence national electrification policy issues such as management of state-owned enterprises, tariff setting and subsidy distribution. While such factors are highly relevant, network designers cannot influence them significantly. By contrast, energy security and risks of relying on politically volatile countries for imports strongly depends on network design (African Development Bank 2013).

Electricity transmission and distribution lines are overhead construction all over the world. These are prone to weather related disturbances like lightning strikes that occur during storms and result in short circuits and severe voltage surges, leading to power interruption that affect the majority of customers in the immediate neighborhood and beyond. The result is similar even if the lightning strike is not direct but within the vicinity of the power lines. Overhead power lines are also prone to disturbances from strong winds that cause the conductors to clash thereby causing short circuits and hence

power outage. In the rainy season, strong winds are common that are often accompanied by lightening thunder. Moisture has the effect of reducing the insulating properties of air. If at the same time there are strong winds that sway the conductors, the likelihood of a flashover is very high. Birds like to perch on power lines and will occasionally cause short circuits (Odhiambo, 2014).

2.9 Research Gaps

A review conducted by Zakuan *et al.* (2012) on critical success factors of TQM in Higher Education Institutions shows that the success of an institution depends on its quality management strategy on how it identifies, classifies, analyzes, and reacts to the changes in quality requirements. This is consistent with the findings of Sharp *et al.* (2000) on their study on factors affecting successful implementation of ISO 9001: 2000 and Kasongo and Moono (2010)ǿs study on factors that lead to successful implementation of TQM that identified management strategy as one of the critical factors in implementing quality systems. Baidoun (2003) also conducted an empirical study on critical factors of TQM in Palestinian organizations and found out that top management commitment and involvement demonstrated by: development of clear organization mission, development of quality policy and values, setting of realistic quality goals, proper planning on quality management and creating quality management structure creates quality awareness and improve implementation of quality management systems. In addition, quality management philosophy makes it easy to implement quality programs (Murphey, 2009). This study focused on TQM in higher education institutions. The current study aims at establishing the influence of TQM practices on the construction of power line projects by Rural Electrification Authority Kenya.

Findings of Jamali *et al*. (2010) in their study titled: An Investigation of Critical Success Factors identified training as one of the most critical factors in construction of projects. TQM practices require adequate relevant employeeǿs skills and knowledge on quality which can only be achieved through continuous training. Training empowers employees to take part in continuous improvement initiatives that are essential in project completion (Oluwatoyin & Oluseun, 2008). Employees at all levels must accept quality education

and training as it helps employees at their levels to understand quality management initiatives and their roles in implementing of projects (Arshida & Agil, 2012).

An empirical study conducted by Samir (2003) on critical factors of TQM in Palestinian organizations showed a positive relationship between employees training and education and successful project completion. It associated employee training and education with employee empowerment and improved performance of their roles in quality management. Another study by Yu Chu and Wang (2001) on TQM factors affecting the implementation decisions and processes of ISO quality management systems in Taiwanôs public sectors revealed that team leaders involvement, employees training and development, employee awareness among other factors are critical in implementation of quality initiatives. Employees feel involved in quality management initiatives when given timely training on quality programs and therefore give it a positive approach reducing employee resistance. The above studies focused on TQM in Palestinian organizations and Taiwanôs public sectors respectively, the findings cannot be generalized to a Kenyan situation. This study aims to fill the research gap by establishing the influence of TQM practices on the construction of power line projects by REA in Kenya.

The finding of Wali and Boujelbene, (2011) in their study on cultural influences on TQM implementation in Tunisian firms revealed a positive relationship between a good organizational culture and project success. They found out that, organizations with a culture that is open to change and that embraces to new ideas and ways of doing things are more likely to succeed in their projects. This is because such an environment motivates employees and support innovation. From the discussions, it is quite evidence that top management commitment, customer focus, continuous improvement and employee empowerment are TQM factors influencing construction of power line projects. The above study focused on TQM in Tunisian firms. The findings cannot be generalized to a Kenyan situation.

From the empirical studies, there is no study which has covered TQM practices on the construction of power line projects. This study aims to fill the research gap by

establishing the influence of TQM practices on the construction of power line projects by REA in Kenya.

2.10 Summary of Literature Review

Chapter two covers literature reviewed on the influence of TQM practices on the construction of power line projects. It synthesizes the literature on the following themes: - top management commitment and construction of power line projects, customer focus and construction of power line projects, continuous improvement and construction of power line projects, employee empowerment and construction of power line projects. From the literature, most of the studies had focused on the TQM factors effect on construction of power line projects. They identified TQM factors that need attention for the construction of power line projects. The factors include top management commitment, customer focus, continuous improvement and employee empowerment. Itôs quite clear that in order to cut cost of rework and correction of errors everybody must be involve TQM practices and it must be done in every department and stages in construction. It is also noted that TQM practices has much benefits to the organizations such as improved business quality, increase customer satisfaction, reduce cost and save time. Most construction companies had not embraced TQM practices because of the unawareness of its professionals on the principles and techniques therefore more efforts must be made to incorporate TQM courses in the engineering programs to ensure construction of power line projects.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the intended research design for the study, the target population for the study, the sampling procedure to be used in conducting the study, methods of data collection, instrumentation issues with regard to validity and reliability, operational definition of variables, method of data analysis to be used in conducting the research and finally the summary of the chapter.

3.2 Research Design

Research design implies the conditions needed for data collection as well as analysis, in a method that aims at combining significance to the purpose of research with procedural economy (Babbie, 2002). The study was conducted using a descriptive survey research design. Miller (2011) explains that a descriptive design entails precise measurements and the reporting of the distinctiveness of elements of a certain phenomenon that is being investigated under research, and offers descriptions of phenomena, events and situations. The method was ideal for this study because it allows a methodical and well organized description that is valid, accurate and reliable. The study employed both explanatory and descriptive analysis. It was explanatory in the sense that the problem was examined with an aim of establishing the casual relationships between variables. On the other hand, the study qualifies as descriptive since it seeks to portray the phenomenon through describing events, situations and processes.

3.3 Target Population and Sample Size

Ngechu (2010) defines the term population as a distinctly definite set of services people, events, elements or group of items or households under a research-based investigation. Always, the target population exhibit varied characteristics and is also referred to as the theoretical population. The target population had the members of a group that the researcher concentrates on. The target population in this study was 40 respondents which comprised of the project team and stakeholders of Rural Electrification Authority during the power line construction process.

Table 1: Target Population

Category	Members	Percentage
Stakeholders	23	58%
Project Team	17	42%
Total	**40**	**100%**

Since the target population is not too large (less than 100), the study conducted a census on the whole population (n=40). According to Mugenda 2003, a small population requires total enumeration or census to be able to obtain statistically significant results.

3.4 Data Collection Instruments

The study developed the instruments with which to collect to collect the necessary primary. Questionnaires are commonly used to obtain important information about the population. According to Cordell (1996), a self-administered questionnaire is the only way to elicit self-reports on peopleôs opinion, attitudes, beliefs and values.

The questionnaire has items aiming at answering the study questions and it meets the research objectives. The choice of this tool of data collection is guided by the time available and the objectives of the study. Questionnaire provided a high degree of data standardization and adoption of generalized information amongst any population. Semi structured questionnaire was used to collect data. The closed ended questions were used for easy coding and analysis while the open ended questions are used to elicit more information from respondents to complete any missing links. These types of questions are accompanied by a list of possible alternatives ranging from strongly disagree to strongly agree, from which respondents were required to select the answer that best describes their situation i.e. strongly disagree on the one extreme to strongly agree on the other.

3.5 Pilot Testing of the Instruments

Pilot testing is meant to ascertain viability of the study tools. Orodho (2005) points out that piloting is the pretesting of research instruments of a selected sample, which is identified from the actual sample, in this case, the questionnaire. According to Mugenda

and Mugenda (2003) a pretest sample should be between 1 to 10% of the sample size. A sample of at least 10% of the sample size which is 4 respondents were distributed for purposes of piloting.

3.5.1 Validity of the Instrument

Martin and Ac Field (2005) explains that validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. In other words, does the research instrument allow you to hit "the bullôs eye" of your research object? There are two aspects of validity:

Internal validity - the instruments or procedures used in the research measured what they were supposed to measure.

External validity - the results can be generalized beyond the immediate study.

3.5.2 Reliability of the Instrument

Reliability is the degree to which an assessment tool produces stable and consistent results. Denscombe (1998) defines reliability as extent to which results are consistent over time. It is therefore accurate representation of the total population under study. If the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable. The reliability of the items to be used to measure critical success factors was established by calculating the Cronbachôs alpha through the use of the Statistical Package for Social Sciences (SPSS). This method is appropriate owing to the fact that it requires only one administration of the test. The questionnaire was considered reliable if they yielded a reliability coefficient of 0.753 and above (Kothari, 2004).

According to Mugenda & Mugenda, (2003) a reliability below 0.4 is unreliable, 0.4-0.5 as poor, 0.5-0.6 as acceptable, 0.6-0.7 as good, 0.7- 0.8 as very Good and above 0.8 as excellent. According to Table 4.2 the reliability test at 0.786 was excellent.

A pilot study was carried out to determine reliability of the questionnaires. The pilot study involved the sample respondents among management staff. Reliability analysis was subsequently done using Cronbachôs Alpha which measured the internal consistency

by establishing if certain item within a scale measures the same construct.

Table 2: Reliability

Scale	Cronbach's Alpha	Number of Items
Top management commitment	0.811	5
Customer focus	0.776	3
Continuous improvement	0.800	5
Employee empowerment	0.792	3

Source: Author, (2018)

Gliem and Gliem (2003) established the Alpha value threshold at 0.6, thus forming the studyôs benchmark. Cronbach Alpha was established for every objective which formed a scale. The table shows that top management commitment had the highest reliability (Ŭ= 0.811), followed by continuous improvement (Ŭ=0.800), employee empowerment (Ŭ=0.792) and of customer focus (Ŭ=0.776). This illustrates that all the four variables were reliable as their reliability values exceeded the prescribed threshold of 0.7.

3.6 Data Collection Procedure

The researcher with the help of two trained research assistants administered the questionnaires to the population to fill the questionnaire. The researchers used drop and pick later method in which the targeted group was given time to complete the filling and hand back the duly filled questionnaire. This was done during the regular break times at 1-2pm and 4-6pm. The process took an estimated period of two weeks.

3.7 Data Analysis Techniques

Analysis of data is a process of examining, inspecting, interpreting the meaning of the data that was collected, organized, and displayed in the form of a table, bar chart, line graph, or other representation with the goal of discovering useful information, suggesting conclusions, and supporting decision-making. Data analysis involves looking for patterns, similarities, disparities, trends, and other relationships and finding out what these patterns might mean (Cooper & Schindler, 2003). The data obtained for this research was analyzed using the Statistical Package for Social Science (SPSS version 20.0), excel and

other relevant data manipulation tools. Data presentation is the method by which people summarize, organize and communicate information using a variety of tools, such as diagrams, distribution charts, histograms and graphs. Data presentations was made in pie charts, bar graphs, tables, line graph and diagrams. A regression model was applied to determine the relative importance of each of the variables with respect to construction of power line projects.

The regression model to be used is as follows:

$$Y = ß_0 + ß_1X_1 + ß_2X_2 + ß_3X_3 + ß_4X_4 + Ů$$

Where:

Y = construction of power line projects, $ß_0$ = Constant Term, $ß_1$= Beta coefficients, X_1= top management commitment, X_2= customer focus, X_3= continuous improvement, X_4 = employee empowerment, Ů= error term (residual term that includes the net effect of other factors not in the model and measurement errors in the dependent and independent variables).

3.8 Ethical Considerations

The ethical issues related to the study was addressed by maintaining high level confidentiality of the respondents and never intending to use of the respondents was optional and was not to be disclosed to protect their rights. All the personal details was limited to general information. Before administering the questionnaire, the researcher and enumerators explained to the respondent the purpose of the study and guarantee their confidentiality and only proceed should the respondent give their consent else another respondent was selected. Only adults above 18 years of age were selected for the study.

3.9 Operationalization of Variables

Definition of variables is illustrated in the table below. The table states the research questions and explains the variables in the study and the indicators that the study seeks to investigate. The table also shows the data collection instruments and how the data was analyzed to answer the research questions.

Table 3: Operationalization Table

Research Questions	Variables	Indicators	Data Collection Instruments	Measuring Scale	Data Analysis
To what extent does top management commitment influence the construction of power line projects by rural electrification authority Kenya?	Top management leadership style	Top management leadership Management Involvement Critical Resources	Questionnaire	Ordinal	Frequency and percentages
How does customer focus influence the construction of power line projects by rural electrification authority Kenya?	Customer Focus	Customer relations programs Quality standards Customer expectations	Questionnaire	Ordinal	Frequency and percentages
To what extent does continuous	Continuous Improvement	Benchmarking Quality improvement	Questionnaire	Ordinal	Frequency and percentages

improvement influence the construction of power line projects by rural electrification authority Kenya?		Transformation			
What is the influence of employee empowerment on the construction of power line projects by rural electrification authority Kenya?	Employee Empowerment	Training programs on TQM Rewards and incentives for employees who uncover problems	Questionnaire	Ordinal	Frequency and percentages

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter covers data presentation and analysis. The main objective of the study was to establish the influence of total quality management practices on the construction of power line projects by Rural Electrification Authority Kenya. In order to simplify the discussions, the researcher provided tables and figures that summarize the collective reactions and views of the respondents.

4.2 Response Rate

Table 4: Response Rate

Questionnaires	Frequency	Percent (%)
Stakeholders	17	50%
Project Team	11	35%
Non-response	6	15%
Total	**34**	**100.0**

Source: Author, (2018)

A total of 40 questionnaires were distributed to the respondents. Out of these, 34 questionnaires were returned duly completed. This represents a response rate of 85%, which is within what Castillo (2009) prescribed as a significant response rate for statistical analysis and established at a minimal value of 50%. This was therefore considered a representative sample for further analysis, with the findings tabulated as shown in Table 4.

4.3 General Demographic Information

The study sought to enquire on the respondentsô general information including gender, age and level of educational. This general information is presented in subsequent sections.

4.3.1 Gender of the Respondents

The respondents were also asked to indicate their gender. The results are as shown in the Table 5**.**

Table 5: Gender of the Respondents

	Frequency	**Percent**
Male	19	54.8
Female	15	45.2
Total	**34**	**100**

As per the results, 54.8% of the respondents were male while 45.2% were female. This shows that all the study was gender sensitive and did not show bias to any particular gender when selecting respondents for the survey.

4.3.2 Age of the Respondent

The respondents were also requested to indicate their respective ages. The results are as shown in Table 6.

Table 6: Age of the Respondent

	Frequency	**Percent**
Below 25 years	2	5.9
25- 50 years	18	52.9
Above 50 years	14	41.2
Total	**34**	**100**

According to the study findings, 52.9% of the respondents were aged between 25-50 years, with 41.2% being aged above 50 years, and the remaining 5.9% aged below 25 years. This clearly implies that majority of senior managers and project management team in REA have the required experience to offer efficient services. With more than 95% of respondents being 25 years and older, it is imperative to conclude that the respondents had enough expertise to run rural electrification projects in their areas of specialization, as well as manage funds meant for the said projects. The study therefore

concludes that most of the respondents were mature enough to understand the subject of the study and give reliable and relevant information concerning the subject matter.

4.3.3 Education Level

The respondents were also requested to indicate their education level. The results were as shown in Table 7.

Table 7: Education Level

	Frequency	**Percent**
Diploma and below	14	41.2
Bachelor degree	17	50
Postgraduate Diploma	2	5.9
Masterôs degree/PhD	1	2.9
Total	69	100

From the findings in table 4.5, it observed that more than 50% of the respondents have university degree and above, a clear indicator of high literacy levels in the area. This shows that majority of the respondents are well learned enough to comprehend the subject matter of the study. This goes a long way in explaining the significance of electrification in the area, with so many educated and learned individuals selected to spearhead the team. With so many respondents indicating that they are well educated, it would not be absurd to find all rural electrification projects well managed and progressing at stipulated pace.

4.4 Determinants of TQM Strategies of REA Kenya Power Line Projects

This section presents the findings on determinants of REA power line project TQM strategies. These include management commitment, customer focus, continuous improvement, as well as employee empowerment.

4.4.1 Top management commitment

Table 8: Top management commitment and Construction of Power Line Projects

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev.
Top management clearly understands the fundamental spirits and principles of quality management	1	1	0	2	27	4.968	1.891
The departmental heads accept responsibility for quality of goods	1	0	1	5	26	4.839	1.815
Quality management is incorporated in the companyôs vision	0	1	0	6	24	4.452	1.680
The companyôs plan always incorporate external customers, suppliers and suppliers	0	0	1	5	25	4.645	1.748
Data is analyzed using computer for managers to make decisions	1	0	1	4	25	4.677	1.744

Source: Author, (2018)

The respondents were asked to indicate their level of agreement on statements about influence of top management commitment on construction of power line projects. From the findings respondents agreed that top management clearly understands the fundamental spirits and principles of quality management as shown by a mean of 4.968, the departmental heads accept responsibility for quality of goods as shown by a mean of 4.839, data is analyzed using computer for managers to make decisions as shown by a mean of 4.677, the companyôs plan always incorporate external customers, suppliers and suppliers as shown by a mean of 4.645 and quality management is incorporated in the

companyôs vision as shown by a mean of 4.452. The findings concur with the findings of Sharp *et al.,* (2000) who argues that quality issue has become of great importance to every organization and no management can afford to let nature take its course when it comes to quality.

4.4.2 Customer Focus

Table 9: Influence of Customer Focus on Construction of Power Line Projects

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev.
The company responds quickly to customers complaints	3	1	1	4	25	4.645	1.748
The company has effective process for resolving customer complaints	1	3	1	5	24	4.516	1.672
The company undertakes customer orientation	2	1	1	7	23	4.290	1.609
The company has effective process for conflict resolution methods	3	3	2	5	21	4.107	1.008
The company responds to customer complaints promptly	2	4	2	7	19	4.062	1.092

Source: Author, (2018)

The respondents were asked to indicate their level of agreement on statements about influence of customer focus on construction of power line projects. From the results the respondents agreed that the company responds quickly to customers complaints as shown by a mean of 4.645, the company has effective process for resolving customer complaints as shown by a mean of 4.516 and that the company undertakes customer orientation as shown by a mean of 4.290. TQM require organizations to develop a customer focused operational processes and at the same time committing the resources that position

customers and meeting their expectation as an asset to the financial wellbeing of the organization. The study findings were in agreement with the findings of LeBoeuf (2000), which found that achieving customer focus involves ensuring that the whole organization, and not just frontline service staff, puts its customers first.

4.4.3 Continuous Improvement

Table 10: Influence of Continuous Improvement on Construction of Power Line

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev.
The company undertakes quality audits and evaluation regularly	1	1	0	4	25	4.645	1.748
The company uses customer complaints as a method to initiate improvements in current processes	1	1	0	5	24	4.484	1.676
The company evaluates the performance of suppliers	1	0	1	7	22	4.194	1.529
The company improves employees competencies through trainings	1	0	0	5	25	4.581	1.756
Regular departmental and employee appraisals carried out	1	0	1	4	25	4.677	1.744

Source: Author, (2018)

The respondents were asked to indicate their level of agreement on statements about influence of continuous improvement on construction of power line projects. From the findings it showed the respondents agreed that regular departmental and employee appraisals carried out as shown by a mean of 4.677, the company undertakes quality audits and evaluation regularly as shown by a mean of 4.645, the company improves employees competencies through trainings as shown by a mean of 4.581, the company

uses customer complaints as a method to initiate improvements in current processes as shown by a mean of 4.484 and the company evaluates the performance of suppliers as shown by a mean of 4.194. Continuous improvement process requires clear comprehension of organization objectives and process of measuring effectiveness and efficiency (Jiri, 2000). Several items are involved in the cycle of continuous improvement which includes establishing customer requirements, meeting the requirements, measuring success, and continuing to check customersô requirements to find areas in which improvements can be made.

4.4.4 Employee Empowerment

Table 11: Influence of Employee Empowerment on Construction of Power Line

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev.
The employees are provided with feedback on their quality performance	2	3	1	3	25	4.742	1.735
All employees believe that quality is their responsibility	3	1	1	5	24	4.548	1.668
Is the workforce well motivated to undertake quality improvement	1	1	1	6	22	4.258	1.520
Employees feel appreciated for their input	3	4	2	5	20	4.019	1.089
Employees feel obligated to ensure quality work is done	3	2	2	6	21	4.026	1.201

Source: Author, (2018)

The respondents were asked to indicate their level of agreement on statements about influence of employee empowerment on construction of power line projects. From the

findings the study revealed that the respondents are provided with feedback on their quality performance, and they all believe that quality is their responsibility as shown by a mean of 4.548. It was also noted that the workforce is well motivated to undertake quality improvement. According to Conger and Kanungo (2007), the effect of empowerment is initiation and persistence of behavior by empowered employees to accomplish task/objectives. It gives an employee the right to control and use organizational resources to bring desired organizational outcomes. Empowerment is associated with changes in cognitive variables (called task assessments), which determine motivation in workers. Empowerment is described as increased intrinsic motivation manifested in four cognitions: meaning (value of work goal or purpose), competence (self-efficacy), self-determination (autonomy in initiation and continuation of work behaviors), and impact (influence on work outcomes).

4.4.5 Construction of Power Line Projects

Table 12: Construction of Power Line Projects

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev.
TQM has improved project efficiency	1	1	2	6	24	4.452	1.680
TQM has improved customer service	2	3	1	6	22	4.258	1.520
TQM has influenced business success	1	3	1	5	24	4.516	1.672
TQM has helped in preparing for the organization future	2	1	2	4	25	4.645	1.748
TQM enhances organization and planning of new projects	1	1	3	4	25	4.645	1.748

Source: Author, (2018)

Respondents were asked to indicate to what extent they agree with the statements about construction of power line projects. From the finding the study revealed that TQM has helped in preparing for the organization future as shown by a mean of 4.645, TQM has influenced business success as shown by a mean of 4.516, TQM has improved project efficiency as shown by a mean of 4.452 and TQM has improved customer service as shown by a mean of 4.258.

Table 13: Stakeholders Opinion on Construction of Power Line Projects

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev.
Initial contact between contractors and landowners generally does not occur until after a certificate of need is granted	1	0	0	6	10	4.467	1.437
landowners feel left out of the early stages of the decision-making process	0	1	0	7	9	4.200	1.287
The impression that the route has already been decided often gives landowners a sense of powerlessness	1	0	1	7	8	4.000	1.128
Confusion about the specific impacts to property values resulting from power lines contributes to landowner frustration.	1	0	1	5	10	4.667	1.409
Neighboring property owners often feel that they should be compensated for view shed impacts to their property	1	1	0	4	11	4.933	1.560

Source: Author, (2018)

Stakeholders were requested to indicate the extent to which they agree with statements about construction of power line projects. From the findings the stakeholders agreed that Neighboring property owners often feel that they should be compensated for view shed impacts to their property as well as shown by a mean of 4.933, Many landowners feel that an annual payment would better compensate the added costs and lost revenue associated with infrastructure on their property as shown by a mean of 4.867, Confusion about the specific impacts to property values resulting from power lines contributes to landowner frustration as shown by a mean of 4.667, Landowners feel that energy generation infrastructure is much better compensated than transmission infrastructure as shown by a mean of 4.600, Initial contact between developers and landowners generally does not occur until after a certificate of need is granted as shown by a mean of 4.467, they feel left out of the early stages of the decision-making process as shown by a mean of 4.200 and The impression that the route has already been decided often gives landowners a sense of powerlessness as shown by a mean of 4.000.

4.5 Correlation Analysis

The correlation analysis is used to analyze the association between independent and dependent variables. The study used the Pearson Moment Correlation analysis to determine the association between top management commitment, customer focus, continuous improvement and employee empowerment with construction of power line projects by rural electrification authority Kenya. The results were as shown in Table 4.9.

Table 4.1: Correlations Coefficient

		Construction of power line projects	Management commitment	Customer focus	Continuous improvement	Employee empowerment
Construction of power line projects	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	31				
Management commitment	Pearson Correlation	.823**	1			
	Sig. (2-tailed)	.001				
	N	31	31			
Customer focus	Pearson Correlation	.792**	.659	1		
	Sig. (2-tailed)	.003	.062			
	N	31	31	31		
Continuous improvement	Pearson Correlation	.775**	.616	.538	1	
	Sig. (2-tailed)	.004	.058	.079		
	N	31	31	31	31	
Employee empowerment	Pearson Correlation	.791**	.593	.554	.664	1
	Sig. (2-tailed)	.002	.083	.064	.179	
	N	31	31	31	31	31

Source: Author, (2018)

The results revealed that there was a strong positive correlation between Top management commitment and construction of power line projects by rural electrification authority Kenya as shown by r = 0.823, statistically significant p = 0.001<0.01; there was a positive correlation between customer focus and construction of power line projects by rural electrification authority Kenya as shown by r = 0.792, statistically significant P = 0.003; there was a positive correlation between continuous improvement and construction of power line projects by rural electrification authority Kenya as shown by r = 0.775, statistically significant P = 0.004; there was a positive correlation between employee empowerment and construction of power line projects by rural electrification authority Kenya as shown by r = 0.791, statistically significant P = 0.002. This implies that Top management commitment, customer focus, continuous improvement and employee empowerment with construction of power line projects by rural electrification authority Kenya are related.

4.6 Regression Analysis

4.6.1 Model Summary

Model summary is used to analyze the variation of dependent variable due to the changes of independent variables. The study analyzed the variations of construction of power line projects due to the changes Top management commitment, customer focus, continuous improvement and employee empowerment.

Table 14: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.835[a]	0.697	0.689	0.0215

Adjusted R squared was 0.697 implying that there was 69.7% variation of construction of power line projects due to the changes Top management commitment, customer focus, continuous improvement and employee empowerment. The remaining 30.3% imply that there are other factors that lead to construction of power line projects by rural electrification authority Kenya which could not be captured within the confines of the

study. R is the correlation coefficient which shows the relationship between the study variables. From the findings, it was noted that there was a strong positive relationship between the study variables as shown by a 0.835 correlation co-efficient.

4.6.2 Analysis of Variance

The analysis of variance ANOVA is used to determine whether the data used in the study is significant.

Table 15: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.174	4	3.044	47.754	.001[b]
	Residual	1.912	30	0.064		
	Total	14.086	34			

From the ANOVA statistics, the processed data (population parameters) had a significance level of 0.001. This shows that the data is ideal for making conclusions on the populationôs parameter as the value of significance (p-value) is less than 5%. The F calculated was greater than F critical (47.754 > 2.689). This shows that Top management commitment, customer focus, continuous improvement and employee empowerment significantly influence construction of power line projects by rural electrification authority Kenya.

4.6.3 Beta Coefficients

Table 16: Model Beta Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.967	0.146		6.897	0.001
	Top management commitment	0.433	0.099	0.293	5.374	0.007
	Customer focus	0.476	0.102	0.468	6.647	0.005

Continuous improvement	0.480	0.085	0.405	6.024	0.002
Employee empowerment	0.429	0.092	0.413	6.728	0.008

The regression equation was

$$Y = 0.\square\square\square + 0.\square\square\square\square_2 + 0.\square\square\square\square_2 + 0.\square\square\square\square_2 + 0.\square\square\square\square\square_2$$

The equation above reveals that top management commitment, customer focus, continuous improvement and employee empowerment, the variables significantly influence construction of power line projects by rural electrification authority Kenya as shown in Table 16.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presented the discussion of key data findings, conclusion drawn from the findings highlighted and recommendation made there-to. The conclusions and recommendations drawn were focused on addressing the objective of the study. The study sought to establish the influence of total quality management practices on the construction of power line projects by Rural Electrification Authority Kenya.

5.2 Summary of the Findings

5.2.1 Top Management Commitment

On Top Management Commitment in quality management practices on the construction of power line projects, the study revealed that management clearly understands the fundamental spirits and principles of quality management and are ready to accept responsibility for quality of services since the success of any critical decision made in an organization is highly dependent on top management support and commitment. (Sharp *et al.,* 2000) top management must play a leading role by making available the critical resources, establishing an organization wide quality policy that is well communicated to all stakeholders, establishing a quality management structure and managing the entire process through close monitoring and evaluation. This must be supported by an organization culture and climate of open cooperation and team work among stakeholders in quality management.

5.2.2 Customer Focus

In the case of customer focus in quality management practices on the construction of power line projects, the study revealed that that the company responds quickly to customers; this is because they understand that quality of service is customer driven. The company has also employed an effective process for resolving customer complaints. The company also undertakes customer orientation this is because they understand that a

customer focused operational processes and meeting customerôs expectation has an asset to the financial wellbeing of the organization and quality of service. (LeBoeuf, 2000) all activities, from the planning of a new product to its production, marketing, and after-sales care, should be built around the customer. Every department and every employee should share the same customer focused vision. This can be aided by practicing good customer relationship management and maintaining a customer relations program.

5.2.3 Continuous Improvement

In the case of continuous improvement in quality management practices on the construction of power line projects, the study revealed that the company undertakes quality audits and evaluation regularly also the company improves employeesô competencies through trainings. This is because the company has knowledge that quality can be achieved by constantly pursuing continuous improvement through the involvement of people from all organizational levels. In order to improve its current processes the company uses customer complaints as a method to initiate adjustments needed. This according to Esin (2008) includes establishing customer requirements, meeting the requirements, measuring success, and continuing to check customersô requirements to find areas in which improvements can be made.

5.2.4 Employee Empowerment

In the case of employee empowerment in quality management practices on the construction of power line projects, the study revealed that the workforce is well motivated to undertake quality improvement. The management motivates its workers because they understand that intrinsic motivation improves value of work goal or purpose, it improves self-efficacy and self-determination of its employees and influences the work outcomes. Conger and Kanungo (2007), the effect of empowerment is initiation and persistence of behavior by empowered employees to accomplish task/objectives. It gives an employee the right to control and use organizational resources to bring desired organizational outcomes.

5.3 Discussion of Findings

5.3.1 Top Management Commitment

Following regression of the study model, it was found that the top management commitment is statistically significant to construction of power line projects by rural electrification authority Kenya as shown by (ϐ = 0.433, P = 0.007). This shows that top management commitment had significant positive relationship with construction of power line projects by rural electrification authority Kenya. This implies that a unit increase in top management commitment will positively influence construction of power line projects by rural electrification authority Kenya.

5.3.2 Customer Focus

Customer focus is statistically significant to construction of power line projects by rural electrification authority Kenya as shown by (ϐ = 0.476, P = 0.005). This shows that customer focus had significant positive relationship with construction of power line projects by rural electrification authority Kenya. This implies that a unit increase in customer focus will positively influence construction of power line projects by rural electrification authority Kenya.

5.3.3 Continuous Improvement

Continuous improvement is statistically significant to construction of power line projects by rural electrification authority Kenya as shown by (ϐ = 0.429, P = 0.008). This shows that continuous improvement had significant positive relationship with construction of power line projects by rural electrification authority Kenya. This implies that a unit increase in continuous improvement will positively influence construction of power line projects by rural electrification authority Kenya.

5.3.4 Employee Empowerment

Employee empowerment is statistically significant to construction of power line projects by rural electrification authority Kenya as shown by (ϐ = 0.480, P = 0.002). This shows that employee empowerment had significant positive relationship with construction of power line projects by rural electrification authority Kenya. This implies that a unit increase in employee empowerment will positively influence construction of power line projects by rural electrification authority Kenya.

5.4 Conclusion

Construction of power lines is a key aspect in the economy of any country worldwide. Access to electricity is important for development due to its linkages to agriculture, education and health. The availability of power lines in the country is, therefore, an essential aspect for the growth and development of the country and the construction of power lines projects are inevitable. Limited access and use of energy significantly slows down economic and social transformation. The contribution of key management is very important for the project because they work hard to ensure the projects are done and are of great quality.

The study further reveals that customer focus was found to significantly influence the construction of power line projects by rural electrification authority Kenya. The study also revealed that there was positive relationship between customer focus and construction of power line projects by rural electrification authority Kenya. From the findings the study concludes that customer focus will positively influence construction of power line projects by rural electrification authority Kenya.

The study further concludes that continuous improvement influences the construction of power line projects by rural electrification authority Kenya. The company undertakes quality audits and evaluation regularly. Establishing customer requirements and continuing to check customersô requirements to find areas in which improvements can be made facilitates the quality of work done and quality construction of power line project.

The study also concludes that employee empowerment is statistically significant to construction of power line projects by rural electrification authority Kenya. Motivated employees improve value of work and this ensures quality work.

5.4 Recommendations

The study recommends that the management of Rural Electrification Authority Kenya should establish a team from inside or outside the company for training and educating its employees and to work out special programs to deal with the requirements of design changes. The study also recommends that the management of Rural Electrification Authority Kenya should ensure continuous check on customersô requirements to find areas in which improvements can be made this will ensure total quality is achieved.

Since Top Management plays a critical role in any key business decision and in the success of Rural Electrification Authority Kenya Administration's the study recommends that training courses for top management in TQM concepts should be organized occasionally. Also choice of top management should be done through efficient and effective mechanisms proposals.

The study further recommends that the management should ensure that the whole organization, and not just frontline service staff, puts its customers first; this will ensure that they meet customer expectations thus achieving quality.

5.5 Suggestions for Further Studies

The study suggests same study to be conducted in other types of organizations. Another research in the area of the influence of governance structures on project implementation and project completion can be conducted. Also further study can be carried out to establish the influence of TQM practices on service delivery in the Rural Electrification Authority.

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APPENDICES

Appendix I: Transmittal Letter

Dear Respondent,

I humbly request you to participate in my study titled ñInfluence of total quality management strategies on the construction of power line projects by Rural Electrification Authority Kenya.ò

Kindly answer the questions in the attached questionnaire as accurately as possible. Your response is confidential and anonymous and shall be solely used for academic purposes.

Kind tick in the box **[**√**]** corresponding to whatever your choice is.

Thank you in advance.

Yours,

Magembe Stephen Mairura

Appendix II: University Authorization Letter

UNIVERSITY OF NAIROBI
OPEN, DISTANCE AND e-LEARNING CAMPUS
SCHOOL OF OPEN AND DISTANCE LEARNING
DEPARTMENT OF OPEN LEARNING
NAIROBI LEARNING CAMPUS

Your Ref:

Our Ref:

Telephone: 318262 Ext. 120

Main Campus
Gandhi Wing, Ground Floor
P.O. Box 30197
NAIROBI

REF: UON/ODeL/NLC/29/410

6th November, 2018

TO WHOM IT MAY CONCERN

RE: STEPHEN MAGEMBE MAIRURA - REG NO: L50/64104/2010

This is to confirm that the above named is a student at the University of Nairobi, Open Distance and e-Learning Campus, School of Open and Distance Learning , Department of Open Learning pursuing Masters of Art in Project Planning and Management.

He is proceeding for research entitled" **Influence of total quality management strategies on the construction of power line projects by rural Electrification authority Kenya."**

Any assistance given to him will be highly appreciated.

UNIVERSITY OF NAIROBI ODEL CAMPUS
P.O. Box 30197,
06 NOV 2018
NAIROBI
NAIROBI LEARNING CENTRE

CAREN AWILLY
CENTRE ORGANIZER
NAIROBI LEARNING CENTRE

Appendix III: Questionnaire

Part A: Demographic Information

1. What is your Gender? Male [ ] Female [ ]

2. What is your age?

<25 years [ ] 25-50 [ ]

55 years and above [ ]

3. What is your highest academic qualification?

High school [ ] College cert [ ] Diploma [ ]

Degree [ ] PG Diploma [ ]

Masters [ ] PhD [ ] Others- Specifyé é é .

4. What role do you play in KURA?

Senior Manager [ ] Project Supervisor [ ]

Stakeholder [ ] Project Team Member [ ]

Part B: Total Quality Management

5. Please indicate the extent to which the following total quality management strategies has influenced the construction of power line projects? Where **1 – Strongly disagree; 2 -Disagree; 3 - Neutral; 4 - Agree; 5 - Strongly Agree**

	1	**2**	**3**	**4**	**4**
Top Management Commitment					
Top management clearly understands the fundamental spirits and principles of quality management					
The departmental heads accept responsibility for quality of goods					

Quality management is incorporated in the companyôs vision					
The companyôs plan always incorporate external customers, suppliers and suppliers					
Data is analyzed using computer for managers to make decisions					
Customer Focus					
The company responds quickly to customers complaints					
The company has effective process for resolving customer complaints					
The company undertakes customer orientation					
Continuous improvement					
The company undertakes quality audits and evaluation regularly					
The company uses customer complaints as a method to initiate improvements in current processes					
The company evaluates the performance of suppliers					
The company improves employees competencies through trainings					
Regular departmental and employee appraisals carried out					
Employee empowerment					
The employees are provided with feedback on their quality performance					
All employees believe that quality is their responsibility					
Is the workforce well motivated to undertake quality improvement					

Part C: construction of power line projects

6. Please indicate the extent to which you agree with the following statements about construction of power line projects? Where **1 – Strongly disagree; 2 -Disagree; 3 - Neutral; 4 - Agree; 5 - Strongly Agree**

	1	**2**	**3**	**4**	**4**
TQM has improved project efficiency					
TQM has improved customer service					
TQM has influenced business success					
TQM has helped in preparing for the organization future					

THANK YOU