IMPLEMENTATION OF QUALITY MANAGEMENT IN THE KENYA'S GEOTHERMAL ENERGY SECTOR; A CASE OF GEOTHERMAL DEVELOPMENT COMPANY

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DECLARATION

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

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This management project has been submitted with my approval as the University supervisor.

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ABSTRACT

The Geothermal Development Company (GDC) is a 100% state-owned company, formed by the Government of Kenya to fast track the development of geothermal resources in the country. Geothermal energy is ISO certified and fully complies with quality standards and regulations in its operations. The main objectives of the study were to determine the quality management implementation in GDC, to establish the benefits of quality management and to establish challenges of quality management implementation. Data collection was done through the use self-administered questionnaires. Analysis was done using frequency distributions and percentages to determine the profile of respondents and QM implementation, benefits and challenges were analyzed using means scores and standard deviations. The findings revealed that the most popular quality management practices adopted by GDC were: quality control, quality assurance and continual improvement. According to the findings, the benefits of implementing quality practices were: elimination of defects and wastes, reduced complaints, constant improved products and processes, organization development, increased efficiency greater consistency and improved customer satisfaction. From the results the main challenges affecting implementation of quality management in GDC were: lack of management commitment, resistance to change, negative employee attitude and internal politics. In conclusion, implementation of quality management should be encouraged in the parastals and private sectors in large for it has led to more gain in GDC in only the last three years of practice.

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LIST OF ABBREVIATIONS

GDC-Geothermal Development Company

GDP-Gross Domestic Product

ISO-International Standard Organization

MW-Mega Watts

SPSS-Statistical Program for Social Sciences

TQM-Total Quality Management

QA&S-Quality Assurance and Safety

QM-Quality Management

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Quality management is becoming increasingly important to the leadership and management of all organizations. Provision of high quality services has attracted a lot of attention in senior management to most organizations globally. Companies that report high productivity have been proved to implement quality management. Quality management leads to increased satisfaction of all stakeholders for example employees, suppliers and customers (Ahmed, 2012).

Abdullah et al., (2009) notes that Total Quality Management (TQM) can be implemented in any sector of the economy for instance the public sector, manufacturing, service and education. The resulting outcome is reduced costs, increased productivity, and improved financial performance. The application of quality management procedures, tools and techniques in organizations is becoming popular because they form a strategic foundation for generating competitive advantage and improving organizational performance. Implementation of quality management requires a good strategy that is reliable to the organization

Campatelli et al., (2011) contends that in the public sector, quality management is viewed by many from within the public sector as the solution to the principal criticisms of public services: their alleged inefficiency, wastage and remoteness from those who are mandated to serve the public. The capacity of quality management to reduce inefficiency derives from its claims to reduce the estimated one third of an organization′s effort spent dealing with errors and inconsistencies. (Anderson et al., 1994).

In Kenya the energy sector faces problems in its implementation of quality management , drilling is quite new in the country and the professionals in this field are very few this makes it difficult to deliver and provide quality services to the public. The process of drilling takes 60-80 days but due to the rock formation and the down time and lack of experienced personnel in Menengai it takes 90-100 days.

1.1.1 Quality Management

Application of Quality Management procedures, tools and techniques in organizations is becoming popular because they form a strategic foundation for generating competitive advantage and improving organizational performance. Due to increased need to remain competitive in the market, quality management implementation is to these successes. The importance of quality to the competitiveness and effectiveness of these services is also broadly accepted. Quality management (QM) initiatives in service companies have been an ongoing effort. In any economy the public service is held responsible for providing quality services to the public to increase the level of satisfaction and confidence in service delivery (Blackburn and Rosen, 1993).

Delivery of quality services can be viewed as a multi-dimensional construct, Chorn (1991) asserts that the efforts for providing quality services is aimed at improving service and quality both front and back end to be more effective. According Comrey (1978) the consumer population today has greater expectations and demands than ever before. This is because customers are more aware of their consumer rights. They have more choice, more influence and more information acquired through experience and advertising (Brown, 2000).

1.1.2 Implementation of Quality Management

Quality management tools are essential in achieving quality in an organization. There various challenges that prevent implementation of quality management in most organizations for example: the public sector and service organization's bureaucracy this negatively impacts on the performance of these institutions and this makes it difficult for them to provide world class quality services to their customers and improving customers services (Malec, 1992). To ensure successful implementation of quality management, implementers of quality management should reward truly exceptional individual performance and increase capacity for proper cooperation and coordination of all channels involved in process improvement. A lean and efficient organization can easily perform better than a wide and bureaucratic system of an organization (Miller, 1992).

Quality assurance policies of the firm should be clearly defined and understood by all employees. Implementers of quality management for example quality assurance

managers should ensure proper monitoring and evaluation in their activities within and outside the organization to ensure that all the operations of the firm fully complies with quality management as stipulated in the company's policy. In most cases the developing economies face challenges in implementation of quality management as compared to developed countries. Ater (2013) notes that although most firms in the developing economies appreciate quality management they face a number of challenges in implementation of quality practices making it difficult for them to fully comply with quality management. The fact that drilling in Kenya is a new concept there are a number of challenges faced by Geothermal Development Company, Some of these challenges include: lack of quality equipment and modern technology, lack of qualified and experienced personnel, high cost of drilling equipment and hash conditions in the drilling areas.

There are four major practices involved in the implementation of the quality management that we will look at in this study namely; Quality planning, quality control, quality assurance and quality improvement.

Quality Planning is related to a company's mission to ensure that it delivers quality products and services that will keep their customers satisfied. Having implemented such a plan, it is good for business, because only customers who are satisfied with what you offer will be happy to do business with you, and therefore, keep coming back. In order to ensure that you only continue to produce and release fantastic products at a great value, you need to have an organized and through quality management plan. The first thing to do to create an efficient system is to identify the right objectives the main being customer focus, and then define the various employee roles and responsibilities. It's important to design a structure for coordination. Most companies usually set up several teams to take charge of various standards and responsibilities. Then finally set up the schedule definition and plan task. This involves defining specific tasks that must be accomplished and decide the specific time frame in which they must be completed.

Quality control in relation to customers would be the continuous act of making sure products, designed and manufactured, are produced to meet and exceed the needs of customers. The purpose of quality control is to make sure that certain processes are

performing up to a company's set standards. Effective control requires one to define measure, compare, evaluate, correct, and monitor. The statistical process control tries to correct processes that are not in line with the predetermined limits and also capability studies the output standards to make sure they are up to specifications.

Inspection is the examination of outputs of a process to determine whether it is acceptable amongst their standards. In most cases, the key issues in the inspection process include where to inspect in the process, how often to inspect, and whether to inspect on-site or in a laboratory. The statistical process is also used to evaluate the output of a process and to determine if it is statistically acceptable. The main tool of the statistical process is control charts and run tests. Process capability studies are also used to determine if the output of the process will satisfy specifications. Process capability can provide valuable information to managers in terms of reducing costs and avoiding problems created by generating output that is not within specifications or even needed.

Quality assurance is focused on planning, documenting and agreeing on a set of guidelines that are necessary to assure quality. The typical outcomes of the QA planning activities are quality plans, inspection and test plans, the selection of defect tracking tools and the training of people in the selected methods and processes. The purpose of QA is to prevent defects from entering into the solution in the first place. In other words, QA is a pro-active management practice that is used to assure a stated level of quality for an IT initiative. Undertaking QA at the beginning of a project is a key tool to mitigate the risks that have been identified during the specification phases. Communication plays a pivotal role in managing project risk, and is crucial for realizing effective QA. Part of any risk mitigation strategy is the clear communication of both the risks, and their associated remedies to the team or teams involved in the project.

Quality Improvement; when developing the Quality Improvement Plan, organizations need to consider that a key factor of quality improvement is that everyone involved should perceive a need to find better ways of meeting the needs of consumers and the organization. The Quality Improvement Plan should outline what areas require improvement, how the need was identified, how the organization intends to carry out

those improvements, the timeframes and designated responsibilities, reporting arrangements including responsibilities for this, and the evaluation processes including the expected outcomes / improvements. Organizations should select a systematic methodology to progress through the stages of quality improvement. Many such methods have been developed, but perhaps the most well-known is that of the PDSA (Plan, Do, Study and Act) cycle, and Deming's 15 PDCA (Plan, Do, Check and Act) cycle.

1.1.3 Energy Sector in Kenya

The energy sector in Kenya is regulated by the Energy regulatory Commission, this commission was enacted in 2006 under the Energy Act No. 12 of 2006. Energy in Kenya describes energy and electricity production, consumption, import and export in Kenya. The current effective installed electricity capacity in Kenya is 1,533 MW. Electricity is supply is sourced from hydro and fossil fuel sources (ERC, 2013). Just until recently Kenya lacked significant domestic reserves of fossils fuel. The country has over the years imported substantial amounts of crude oil and natural gas which may change with the discovery of oil reserves in Kenya which relied on oil imports to meet about 42% of its energy needs in year 2010.The connectivity to the national grid in Kenya is at 32%. Kenya Power has connected over 400,000 new customers in the last one year bringing the total number of electricity consumers to over 2.8 million as at end of June 2014 (ERC, 2014).The energy sector implements quality management through ensuring that it provides quality services to its customers through addressing their complaints.

Some of the challenges include low investment in the power sector by private investors, high cost of rural electrification, limited distribution capacity, limited capacity during peak demand, grid-system losses and weaknesses limited reach in rural areas, over-reliance on hydro power which constitutes about 70-80 per cent of the total electrical power hence this has caused the country to power rationing in times of drought, resulting in the use of very expensive power generation (ERC, 2014). It is therefore important that the government address the high electricity tariffs to the manufacturing industry to make Kenyan goods competitive both locally and internationally and to exploit other alternative sources of energy, including power resources such as solar, wind, coal and bio-gas this has triggered the need to respond

to the challenges in order to cope and adopt to environmental changes (ERC, 2014). Kenya Electricity Generating Company (KenGen) and Geothermal Development Company aim at raising the country's geothermal output from the current 200MW, to 1 GW by the year 2018[12] and 5 GW to the grid by 2030.[13] This is all against a potential of 10 GW in Kenya.

1.1.4 Geothermal Development Company

The Geothermal Development Company (GDC) is a 100% state-owned company, formed by the Government of Kenya to fast track the development of geothermal resources in the country. The creation of GDC was based on the government's policy on energy Sessional paper No. 4 of 2004, and the energy Act No.12 of 2006 -which un-bundled the key players in the electricity sector to ensure efficiency. Kenya's GDP is expected to grow by at least 10% from 2012. In Vision 2030, Kenya aspires to become a mid-income economy. To attain Vision 2030, the government's forecast is to generate 15000MW, 5000MW will come from geothermal. Today, the total effective installed capacity stands at 1533 MW (GDC, 2014).

Geothermal energy is ISO certified and fully complies with quality standards and regulations in its operations. GDC has Quality Assurance & Safety's (QA&S) department which ensure conformity of the quality management system through implementation of the ISO 9001:2008. This is achieved through continual Improvement of the quality system, safety culture to impart a consistent safety culture across the whole organization through execution of safety programs which become part and parcel of work activities. In addition, the department ensures compliance to International Standards through carrying out rigs and tools inspections as well as calibration of measuring equipment to ensure that international standards and compliance with occupational safety and health regulations.

Implementation of quality management, quality assurance department executes quality management planning in order to define the quality, resources, and activities relevant to the implementation of the company's Quality Management System. QA&S department has a service charter that binds all its employees in implementation of quality management, the charter provides clear guidelines on how to achieve

international quality certifications and maintaining international certifications. This helps employees and the management to easily comply with quality management policies and standards in their duties since they understand the processes and the procedures (Ministry of Energy and Petroleum, 2013).

1.2 Statement of the Problem

Quality management plays an important role in enhancing customer satisfaction which is key for the success of organization. Most organizations in both the public and the private sector practice quality management as a strategy to improve competitiveness in quality and service delivery. However, implementation of quality management is challenging, in most cases the private sector has been more successful in quality management and implementation compared to the public sector.

Research has been carried out globally and locally in this area, Adolfas (2010) carried out a research showing that organizations with different quality management system implementation patterns have significantly different performance outcomes. A mature quality management system should include a consideration of success factors for the benefits of quality management system implementation from the early phases of its planning and designing processes. By requiring that all processes and procedures be documented, the ISO 9000 standard is undoubtedly commonly associated with control-oriented organizations. There is an interesting relationship between the reasons of ISO 9001 quality management systems implementation and the corresponding performance outcomes. Very important is correct maintenance of a quality management system during the post-certification period. Baloyi (2013) did a research on implementation of total quality management in the South African organizations specifically manufacturing industry that sought to outline ways in which total quality management, implementation and quality improvement is applied and utilized in within ASSA ABLOY (SA). His conclusion was Top management support on quality policy was a concern to the employees. Employees seem not to be getting enough training on quality related matters and their training needs were not fully addressed. Easton (1993) contends that in the public sector, quality management is viewed by many from within the public sector as the solution to the principal criticisms of public services: their alleged inefficiency, wastage and remoteness from those who are mandated to serve the public. The capacity of quality management to

reduce inefficiency derives from its claims to reduce the estimated one third of an organization′s effort spent dealing with errors and inconsistencies. (Anderson et al., 1994)

A number of studies have been done on quality management in the education sector and manufacturing firms. Ater (2013) carried out a study to find out the challenges facing the implementation of total quality management in public secondary schools in Migori County. The study found that organizational culture, management commitment, resources and organization played a role in TQM implementation. Ogada (2012) revealed the sugar manufacturing companies appreciated the importance of quality management improvements. The results showed that availability of resources was critical in achieving quality management of sugar manufacturing firms. These studies were too broad and failed to address the problem of this study which is to determine the quality assurance implemented by Geothermal Development Company in implementation of quality management.

This study is geared towards answering the following questions: what are the quality management practices in Geothermal Development Company in Kenya? What are the benefits of quality management practices used by Geothermal Development Company in Kenya? What are the challenges of quality management practices implementation faced by Geothermal Development Company?

1.3 Objective of the Study

i. To determine the quality management implementation in the Geothermal Development Company in Kenya.

ii. To establish the benefits of quality management by Geothermal Development Company in Kenya.

iii. To establish challenges of quality management implementation by Geothermal Development Company in Kenya.

1.4 Importance of the Study

This study will be of benefit to the following stakeholders: Parastatals will gain more insight from the findings of this study into the steps, benefits and challenges in the implementation of Quality Management in Geothermal Development Company and ways of dealing with these challenges.

The study will be beneficial to policy makers and the government through putting proper measures to ensure that the public sector and other sectors of the economy abide and comply with the Quality rules and standards.

The study will serve as a point of reference to researchers and academicians interested in this area or other related topics since it will add to the bank of knowledge to students of operations management and other related disciplines.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Quality management is an important component for most organization that seeks to provide quality services to its customers. Most companies lack implementers of quality management skills making it difficult to compete in global market. In reference to Juran and Deming (1950) numerous approaches have been developed in trying to improve company performance. The approaches are personified in a set of quality management practices called Total Quality Management. In relation to these guidelines, different techniques have been used in implementing quality management practices in organizations especially different models of TQM. Quality management (QM) involves a strategic choice and integrated organizations' philosophy for management that enhances efficiency and effectiveness towards attaining a sustainable competitive advantage (Goldberg and Cole, 2002).

2.2 Quality Management

Quality Management is mainly achieved through customer satisfaction as well as other benefits that accrue to all members of the organization and society at large. Broadly speaking, TQM is a viewpoint for managing ways of doing things in an organization which is aimed at ensuring that the stakeholders' objectives and expectations are met in an efficient and effective manner without tampering with ethical values and principles (ISO 8402, 1994).Companies have implemented and observed TQM practices throughout the world. Many organizations have arrived at the conclusion that effective implementation of TQMP improves their competitive abilities and provide room for strategic returns in the market place (Anderson and Lehmann, 1994).

Several studies shows that implementation of TQM practices gives firms an edge in competing globally (Easton, 1993). Various researchers reported that the adoption of TQM has led to a tremendous improvement in quality, performance and competitiveness in only 20-30% of firms that have implemented these practices (Benson, 1993).From the survey of most manufacturing firms in Georgia, the importance of TQM go hand in hand with improved quality, team work spirit, participation of employees, good working relationships, customers satisfaction, organizations profitability and enlarged market share. (Wiele & Williams, 2000)

Schonberger (1992) pointed out that quality management has a fundamental meaning within many business sectors globally. From the study, the most important thing is to ensure that a company's Goods and services are consistent with quality management practices.

2.3 Quality Management Implementation

Quality management tools are essential in achieving quality in an organization. There various challenges that prevent implementation of quality management in most organizations for example: the public sector and service organization's bureaucracy this negatively impacts on the performance of these institutions and this makes it difficult for them to provide world class quality services to their customers and improving customers services (Malec, 1992). To ensure successful implementation of quality management, implementers of quality management should reward truly exceptional individual performance and increase capacity for proper cooperation and coordination of all channels involved in process improvement. A lean and efficient organization can easily perform better than a wide and bureaucratic system of an organization (Miller, 1992).

Quality assurance policies of the firm should be clearly defined and understood by all employees. Implementers of quality management for example quality assurance managers should ensure proper monitoring and evaluation in their activities within and outside the organization to ensure that all the operations of the firm fully complies with quality management as stipulated in the company's policy. In most cases the developing economies face challenges in implementation of quality management as compared to developed countries. Ater (2013) notes that although most firms in the developing economies appreciate quality management they face a number of challenges in implementation of quality practices making it difficult for them to fully comply with quality management .

2.4 Benefits of Quality Management Practices

Total quality management is a general philosophy of gradually improving the operations of a business. This is done through the application of rigorous process analysis by every involved employee and business partner (Greasly and Filippini, 2004). TQM is usually applied at the tactical, front-line level, where production,

clerical, and low-level managers are deeply involved. There are certain benefits of quality management practices are customer satisfaction, organizational development, competitive advantage, cost reduction, staff retention, improved employee satisfaction, increased returns, continuous reviews and increased efficiency improves relationships with strategic partners. Firms that perform well globally observe high standards of quality in their operations; this is important in achieving value added good and services leading to increased customers satisfaction (Williams and Wiele, 2000).

Customer Satisfaction is a major long-term benefit of Quality Management. QM aims at improving quality, and identifies the best measure of quality as matching customer expectations in terms of service, product, and experience. QM interventions quantify problems and aim to achieve the best state defined in terms of such customer expectations. Some examples of the application of Quality Management to improve customer satisfaction include: Reduction of waiting time by changing the method of appointment scheduling or client handling, making changes to the delivery process so that the product reaches the customer faster and better quality products requiring no repairs improving customer loyalty.

Kaynak (2003) heralds a change in the work culture by educating all employees on quality and making quality the concern of everybody, not just the Quality Control department. The focus on quality leads to a proactive work culture aimed at preventing mistakes rather than correcting mistakes. QM focus on teamwork leads to the formation of cross-departmental teams and cross-functional knowledge sharing. Such interventions lead to many benefits such as: Improvement in communication skills of individual employees and overall organizational communication, Knowledge sharing, resulting in deepening and broadening of knowledge and skill-set of team members, and the making of a learning organization and flexibility for the organization in deploying personnel, contributing to right sizing, and ensuring cost competitiveness.

QM practices give firms an edge in competing globally (Easton, 1993). In the new business environment marked by demolition of barriers and free flow of information and products, organizations retain their competitive advantage by reducing prices,

improving existing products and innovating new products. QM is a business strategy that allows organizations to achieve all this and much more. QM demolishes the myth that increased quality results in increased costs and decreased productivity. QM proves that quality is actually the key to decreased costs, and better productivity and positions quality as a critical component of strategic business advantage.

Cost Reduction is achieved through quality management by elimination of defects and waste, which reduces production costs in a business. As teams gather to identify and eliminate weaknesses in the business, the company continues to enjoy reduced costs and higher profit. Quality improvement teams can eliminate defects, reduce lead time and identify redundancies in the production process that can significantly add to the profit the company earns (Federal Quality Institute, 1992).

Staff Retention is achieved through staff competence, training and development are maintained, which helps to keep your business at the forefront of its industry. One may also provide evidence of formal education where required (e.g. mandatory in fields like drilling, nursing and engineering). This is a motivation to retain the staff in the organization, Federal Quality Institute (1992). Once workers understand their participation and involvement in Quality Management is essential to its success, morale and productivity improve. Workers become empowered through participation on quality improvement teams. Businesses can improve morale further by recognizing improvement teams that make meaningful changes in the production process.

Increased Efficiency is also a major goal in the implementing of Quality Management in a business is to enhance process efficiency and achieve productivity, by eliminating problems that arise in work systems and processes. It addresses key areas that need modifications, unnecessary tasks, redundant processes, as well as unproductive activities (Federal Quality Institute, 1992)..

Spencer, (1994) resources play a critical role in empowering teams to put their ideas into practice Unless the institution‘s own resource allocation mechanisms parallel the devolution of responsibilities to teams explicit in TQM programs, in reality that devolution will be little more than a cosmetic exercise, and empowerment will be no more than a slogan, as observed by (Scholtes, 1988). Once workers understand their participation and involvement in Quality Management is essential to its success,

morale and productivity improve. Workers become empowered through participation on quality improvement teams. Businesses can improve morale further by recognizing improvement teams that make meaningful changes in the production process to reduce or eliminate waste.

According to Williams and Wiele, 2000, Quality Management System-based experiences have shown tangible results due to improved process efficiencies and optimal resource management. Close and continuous monitoring of economic, social and environmental metrics has improved financial performance by way of increased productivity and timely cost-control.

There are also continuous reviews. Quality Management System standards implemented at the ITA provide a set of clear instructions as to the conduct of Continuous process reviews and audits share (Easton, 1993). Conducted at pre-determined intervals both internally and externally, such reviews and audits bring about continuous improvement and effective decisions based on live-data and facts, (Dixon, Nanni and Vollman, 1990).

Implementation of quality management improves relationships with strategic partners. QM as a recognized benchmark enables the standardization processes, scope as well as process-tracing documentation and supplier evaluation in such a manner that the superior quality of suppliers are comfortable with and confirm to with ease, towards mutually beneficial supplier relationships, (Dixon, Nanni and Vollman, 1990).

2.5 Challenges in the Implementation of Quality Management

There are various challenges faced by most organizations during implementation of quality management practices. These challenges create a hindrance towards successful implementation of quality management practices making it difficult for an organization to provide quality services to the customers and other stakeholders, Ngure (2012). This poses a huge risk to a firm in its efforts to build a good corporate reputation to achieve organizational goals. The major challenges being organization's culture, lack of management commitment, Resistance to change, lack of resources, lack of Qualified and Experienced Staff, negative employee attitudes, Lack of leadership for quality, Lack of customer focus, competitive market and poor planning.

Organizational culture is one of the major causes of failure in a QM program as pointed out by Kekale (1998), QM requires a change of culture which is notoriously difficult to bring about and takes time to implement Organizational culture is a wider and deeper concept in any organization, the culture of any organization comprises attitudes, experiences, beliefs and values of an organization. It is a collection of values and norms that are shared by people and groups in an organization, these norms however control the way they interact with each other and with the stakeholders outside the organization. Organizational values are beliefs and ideas about what kinds of goals members of an organization should pursue and the ideas about the appropriate kinds or standards of behavior that organizational members should use to achieve corporate goals (Kaynak, 2003).

According to the recent research, organizational culture is one of the major causes of failure in a TQM programs as pointed out by Kekale (1998), therefore it is important to take a closer look to the culture of an organization and its effects to total quality management practices. Schein (1986) states that "the term 'culture' should be reserved for the deeper level of basic assumptions and beliefs that are shared by members of an organization, that operate subconsciously, and that define in a 'taken-for-the granted' fashion an organization's view of itself and its environment. This approach to the organizational culture allows us to try and understand "why organizations do some of the things they do and why leaders face difficulties in implementing quality practices in an organization.

Lack of Management Commitment is a challenge that could heavily affect the implementation of quality management. The development of leadership theories and quality management practices share common objectives of improving organizational performance through working together between the employees and top management. There is no clarity on specific forms of leadership styles that is most effective in an organization that is pursuing quality management practices. It is however evident that the role of leadership is a key factor in effective quality management in organizations since theoretical evidence has shown that leadership is a key ingredient in implementation of quality management practices (Greasly and Fillipini, 2004).

Leadership plays a fundamental role in ensuring long-term commitment to innovation and creativity. The fact that we have few professionals in Geothermal Development Company makes it difficult to implement quality practices due to lack of experienced and competent implementers of quality management practices. The management of most energy generating organization has to undergo for training programs outside the country since we have few professionals in quality management practices in developing economies. This is very costly for the organization and might negatively impact on its profits (Idris & Ali, 2008).

Resistance to Change is a hindrance that affects the implementation of the quality management in many companies. Some of the employees that join Geothermal Development Company from other organizations are likely to resist the new change as they try to adapt to a new environment. The fact that Geothermal Development Company is quite new in Kenya, professionals in implementation of quality management practices are also few and this might prevent successful implementation of quality practices in the organization. Implementation of TQM enables organizations to continuously improve quality of their products and service to meet and satisfy changing customer‘s needs. This takes place within a dynamic changing environment brought about by competition and demand for higher quality. Ngure (2012) in his study to determine the effect of change management initiatives on TQM implementation in the manufacturing sector in Kenya notes that changes are inevitable hence if these effects are identified and analyzed, mitigation plans can be drawn to avoid those that may impact negatively on successful implementation of TQM.

Lack of adequate modern technologies for example information communication technology is a major challenge in implementation of quality management practices especially in the developing economies. For example GDC lacks modern plants for drilling; and thus leading to inefficient delivery of services and lack of customer satisfaction. Schonberger, (1992), total most companies do not involve quality in their strategic plan; little attention is paid to TQM in terms of human and financial resources. Much of the attention is drawn to increasing profit margins of the organization with little regard as to whether their offers and supply to customers are of expected quality. There is paltry budgetary allocation made towards employee

training and development which is critical for total quality management implementation. Without an appropriate and empowering budgetary process many of the TQM objectives are difficult to realize as they lack a relevant driving mechanism. In particular, the success of teamwork and empowerment so central to TQM is inextricably linked to the budgetary process (Vollman, and Cameron, 1998).

Spencer, (1994) resources play a critical role in empowering teams to put their ideas into practice Unless the institution‘s own resource allocation mechanisms parallel the devolution of responsibilities to teams explicit in TQM programs, in reality that devolution will be little more than a cosmetic exercise, and empowerment will be no more than a slogan, as observed by (Scholtes, 1988).Real delegation of authority, which is the essence of empowerment, requires a real and effective control over resources. Training and development has been recognized as essential to the implementation of TQM. One of Deming's 14 points was that all employees must be trained in quality improvement techniques. Companies committed to TQM invest in training (Sangeeta et al., 2004).

Lack Qualified and Experienced Staff has always been a challenge in upcoming sectors but with proper training, motivation and the right attitude this is solved. In developing economies like Kenya, implementation of quality management practices is a challenge due to lack of qualified and experienced employees in quality management, this pose a challenge to most organizations making it difficult for them to provide quality services (Vouzas, 2004), Qualified employees play a critical role in implementation of quality management practices since they understand the processes and procedures required in implementation of quality.

The negative employee attitudes often are expressed in popular sayings, such as "It's not my job" and "If I am not broke, don't fix it. Such attitude sayings stem from the popular notion that management is always right and therefore employees are" only supposed to implement management decisions without questioning. Lethargy is further propagated through management's failure to train employees on TQM fundamentals that build better attitudes by involving them in teams that identify and solve problems. Such training can transform employees from being part of the problem to part of the solution. This will foster motivation and creativity and build

productive and healthy attitudes that focus employees on basic fundamentals, such as: keep customer needs in mind, constantly look for improvements, and accept personal responsibility for your work.

Lack of leadership for quality has made the lower employees of an organization to leave the quality implementation to be a management's job (Greasly and Fillipini, 2004). In addition, quality has not been taken as a joint responsibility by the management and the employees. Coupled with the notion that management is infallible and therefore it is always right in its decisions, employees have been forced to take up peripheral role in quality improvement. As a result employees who are directly involved in the production of goods or delivery of services are not motivated enough to incorporate quality issues that have been raised by the customers they serve since they do not feel as part of the continuous process of quality improvement. Moreover, top management is not visibly and explicitly committed to quality in many organizations.

Schonberger, (1992), most companies are not customer driven. They tend to concentrate much on profit-oriented objectives within a given time frame. Little (if any) market research is done to ascertain the product or service performance in the market relative to its quality. Such surveys are regarded by most organizations as costly and thus little concern is shown to quality improvement for consumer satisfaction.

A competitive market is a driving force behind many of the other obstacles to quality. One of the effects of a competitive market is to lower quality standards to a minimally acceptable level. This barrier to quality is mainly a mental barrier caused by a misunderstanding of the definition of quality. Unfortunately, too many companies equate quality with high cost. Their definition leads to the assumption that a company can't afford quality. A broader definition needs to be used to look at quality, not only in the company's product, but in every function of the company, Samson & Terziovski (1999).

All company functions have an element of quality. If the quality of tasks performed is poor, unnecessary cost is incurred by the company and, ultimately, passed to the customer. QM should work by inspiring employees at every level to continuously

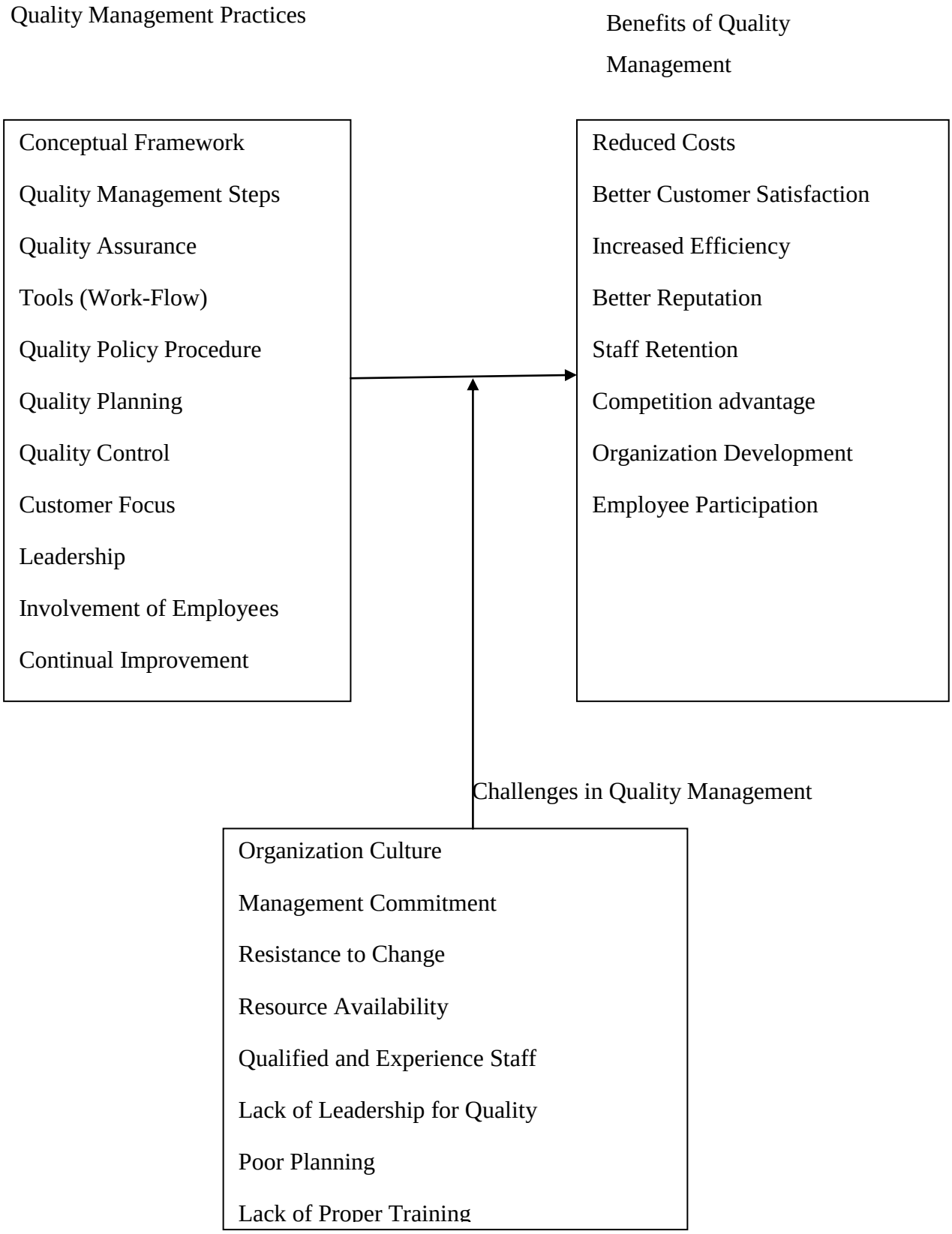
improve what they do, thus rooting out unnecessary costs. Done correctly, a company involved with QM can dramatically reduce operating costs. The competitive advantage results from concentrating resources (the employees' brainpower) on controlling costs and improving customer service.

Deming (1989) highly emphasized on the importance of proper planning. Poor planning lead to a project that costs more, takes longer to complete, and causes more frustration than it should. Companies using TQM should always strive towards impressing upon owners the need to spend money and time on planning. If management took reasonable time to plan projects thoroughly and invest in partnering to develop an effective project team, a lot could be achieved in terms of product performance as these investments in prevention- oriented management can significantly improve the quality of the goods or services offered by an organization.

Firms that perform well globally observe high standards of quality in their operations; this is important in achieving value added good and services leading to increased customers satisfaction (Williams and Wiele, 2000).Most employees working for Geothermal Development lack the necessary training on how to run, manage and maintain the plant, new recruits lack tutors to introduce them to the plant and engage them in training and mentorship programs in order to develop and sharpen their skills in the concept of drilling and managing the plan.

2.6 Conceptual Framework

Figure 2.6 Conceptual Framework



CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the methodology that was used to collect data. It focuses on the statistical techniques used to test the research framework, the identification of quality management practices, the benefits and the challenges faced by GDC in implementation of quality management practices in Kenya. The chapter focuses on the research design; research instruments, data collection and data analysis procedures.

3.2 Research Design

This study was a descriptive study. It largely focused on the practices used in the implementation of quality management their benefits and challenges faced. Descriptive survey means looking at something in entirety. Descriptive surveys are useful for collecting information about people's attitude, opinion or habits. It is collected by interviewing or administering a questionnaire to a sample. For this study, the researcher used a questionnaire. It therefor follows that this study benefited from surveys because of their descriptive, explanatory and exploratory possibilities.

3.3 Choice of the Case Study

GDC is now five years old and the second company that majors in the promotion of rapid development of geothermal resources in Kenya through surface exploration and drilling for steam. Therefor being quite new in the country the implementation quality management is important for standardization. No study on quality management implementation has been done in this sector. The local studies done in the education and manufacturing sectors were too broad and failed to address the problem of this study which is to determine the quality assurance implemented by Geothermal Development Company in implementation of quality management.

3.4 Data Collection

The study was self-administered questionnaires. The questionnaires were administered by a "drop and pick later" method at an agreed time with the researcher. The questionnaire was organized in four structured sections. Section A, contained questions on the background of GDC. Section B of the questionnaire addressed the implementation of quality management, Section C the benefits of quality management and section D the challenges faced in the implementation of the quality management.

The target population in this study was all GDC employees; however the respondents for the study were quality assurance manager, operations manager, QA&S departmental staff and two (2) quality assurance liaison officers from each of the seventeen (17) departments. The target group was highly regarded as respondents since they were deemed to fully understand the implementation process of quality management at Geothermal Development Company in Kenya.

3.5 Data Analysis

The completeness and accurate response of the questionnaire was checked upon completion of the data collection process. Data analysis is the process of bringing order structure and meaning to the mass of information collected. This was findings are relate to the problem provide insights that are critical to decision-making. Considering the primacy of analysis, the researcher used the SPSS (Statistical Program for Social Sciences).

Data from the completed questionnaires was summarized, coded and tabulated. Descriptive statistics such as mean, standard deviation and frequency distribution was used to analyze the data. Data presentation was done by the use of charts, graphs, percentages and frequency tables.

Data relating to Section A of the questionnaire was analyzed using frequency distributions and percentages to determine the profile of respondents. Data relating to Section B, C & D of the questionnaire was analyzed using mean scores and standard deviations.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This section covers the summary data analysis and interpretations of findings, results and discussions. This study was set to determine the quality management implementation in the Geothermal Development Company in Kenya**,** to establish the benefits and challenges in the implementation of quality management by Geothermal Development Company in Kenya.

The response for this study was 30 out of the target population of 34 respondents'. This represents 88.24% of the respondents, 2 of the distributed questionnaires were defective, 2 of the respondents cited busy schedules as the reasons for not responding.88% response was considered a sufficient representation of the population for this study.

4.2 Demographic Data

This section contains findings on the general information of the repondents. Data is analysed using frequency distributions and percentages to determine the profile of respondents.

4.2.1 Work Station

The respondents were asked to specify their work station since GDC has three operational areas i.e, Nairobi Nakuru and Naivasha. The data were analysed and results shown in the Table 4.1.

Table 4.1 Work Station

Work Station

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nairobi	2	6.67	6.67	6.67
	Nakuru	24	80.00	80.00	86.67
	Naivasha	4	13.33	13.33	100.0
	Total	30	100.0	100.0	

Source: Research Findings

From the findings in Table 4.1, the results showed that most of the employees worked in Naakuru this was represented by 80%, 13.33% of the respondents worked in Naivasha and only 6.67% of the respondents worked in Nairobi. This was an indication that most of the employees interviewed were in Nakuru.

4.2.2 Employee's Department

When asked about the department that the employees worked, it was revealed that 60% of the employees interviewed worked in the technical departments, 40% of the respondents were in quality assurance and other supporting departments. This was an indication that the employees understood the concept of quality managment.

4.2.3 Job Group

The study sought to find out the various job groups of employees in Geothermal Development Company in order to ascertain whether they had accumulated adequate experience on implementation of quality. The data were analysed and results shown in the Table 4.2.3.

Table 4.2.3 Job Group

Job Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GD1-GD3	0	0	0	0
	GD4-GD6	10	33.3	33.3	33.3
	GD7-GD9	17	56.7	56.7	90
	GD10-GD13	3	10	10	100
	Total	30	100.0	100.0	

Source: Research Findings

From the findings in Table 4.2.3, 33.3% of the employees interviewed were in the job group (GD4-GD6), 56.7% in the job group (GD7-GD9) and only 10% of the respondents were in job group (GD10-GD13) which shows that they had adequate experience to answer questions in relation to implementation of quality management.

4.2.4 Years of Service in the Organisation

With regard to the years that the employees had served in the organisation, it was observed that 70% of the respondents had worked in the organisation for more than 4 years while only 30% of the employees had worked in the organisation for less than 4 years.This implied that the respondents had gained enough experince to provide accurate and reliable information in relation to implementation of quality managemnt practices in GDC.

4.2.5 Customers

The findings showed that the customers for the orgnisation were mainly the government agencies, the public and other departments in Geothermal Development Company. This was represented by 35%, 29% and 94% of the respondents respectively.

4.3 Implementation of Quality Management

This section contains findings on the quality management implementation from the standards, policy and the practices involved.

4.3.1 ISO Standards and Quality Policy

The respondents were asked whether the organisation implemented ISO in defining metrcis and measures to be used, the respondents unanimoulsy agreed that the organisation implemented ISO when defining the measures to be used. The respondents were also asked if they developed a clear departmental quality policy, the findings showed that all the departments had developed a clear quality policy.

4.3.2 Departmental Structure

The respondents were asked whether the structure of the organisation had changed since ISO certification. The respondents concurred that they had experienced a tremendous change in the strcture of the organisation especially in streamlining departmental actvities through creation of various sections.

4.3.3 Quality Improvement Program

The researcher sought to find out the projected period for quality improvement program. The data were analysed and results shown in the Table 4.3.3.

Table 4.3.3 Quality Improvement program

Quality Improvement Program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Periodic	24	80	80	80
	Long term	6	20	20	100
	Short term	0	0	0	0
	Others	0	0	0	100.0
	Total	30	100.0	100.0	

Source: Research Findings

From the findings in Table 4.3.3, 80% of the respondents indicated that the quality improvement program was periodic while the other 20% of the respondents agreed that the quality improvement program was long term. This implied that the quality improvement program was periodic in GDC.

4.3.4 Extent of Implemeting Quality Management

The study sought to find out the extent the organization implemented quality management practices. The responses were on a likert scale where 1= No extent, 2= Little Extent, 3=Moderate extent, 4=Large Extent and 5= Very Large extent. The analysis was done using mean and standard deviations. The means were interpreted; For instance 2.41 means the practice had little extent, 3.16 means the practice had moderate extent. The results are presented on Table 4.3.4

Table 4.3.4 Extent of Implementing Quality Management

Quality Management Practices	**N**	**Mean**	**S.D**
Quality Planning	30	2.41	.571
Quality Policy Procedure	30	2.42	1.144
Customers Focus	30	3.16	1.002
Quality Control	30	3.42	1.004

Quality Assurance	30	3.45	.855
Tool (Work Flow)	30	2.47	.874
Leadership	30	2.51	.654
Involvement of Employees	30	2.53	.644
Continual Improvement	30	3.47	.702
Average		**2.871**	**.839**

Source: Research Findings

From the Table 4.3.4, the results proved that the most popular quality management practices were: quality control, quality assurance and continual improvement with a mean score of 3.42, 3.45, and 3.47. It was further observed that quality planning, quality policy procedure, tool (work flow) and involvement of employees were less implemented in Geothermal Development company with mean scores of 2.41, 2.42, 2.47 and 2.53 respectively.

4.4 Benefits of Quality Management

The researcher examined the benefits of quality management implementation in the oragnisation. The responses were on a likert scale where 1= No extent, 2= Little Extent, 3=Moderate extent, 4=Large Extent and 5= Very Large extent. The analysis was done using mean and standard deviations. The means were interpreted; For instance 2.45 means the benefits were experienced at little extent, 4.48 means the benefits were experienced at large extent. The results are presented on Table 4.4

Table 4.4 Benefits of Quality Management

Benefits of Quality Management	N	Mean	S.D
Reduced Costs	30	2.45	.571
Bettter Customer Satisfaction	30	4.31	.985
Increased Efficieny	30	4.46	.941

Better Reputation	30	3.47	1.004
Reduced Employee Turnver	30	2.35	.545
Enhancement of the Organisation Competitive Advantage	30	2.67	.874
Organisation Development	30	4.51	.654
Constant Improved products, processes and Systems	30	4.48	.644
Elimination of defects and waste	30	4.85	.702
Enhanced Shareholder and Stakeholder Value	30	3.45	.772
Increased Job Secuirty	30	2.45	.556
Timely Production	30	2.47	.675
Reduced Complaints	30	4.83	.875
Improved Employee Participation	30	3.42	.752
Greater Consistency in the activities	30	4.42	;656
Improved Risk Management	30	2.43	.545
Incraesed Financial Performance	30	2.45	.762
Improvement in Internal Communications	30	2.43	.657
Average		**3.27**	**.7356**

Source: Research Findings

From Table 4.4, it was observed that the benefits of implementation of quality practices were as follows: elimination of defects and wastes, reduced complaints, constant improved products and processes, organisation development, increased effcieny, greater consistency and improved customer satisfaction in the activties with mean scores of 4.85, 4.83, 4.48, 4.51, 4.46, 4.42 and 4.31. Further, the analysis revealed that reduced employee turnover, reduced costs, increased job security, increased financial performance, improved internal communications, increased job

security, impoved risk management and timely production with a mean score of 2.35, 2.45, 2.45, 2.45, 2.43, 2. 43 and 2.47 were not part of the benefits as a result of of quality management in GDC.

4.5 Challenges of Quality Management Implementation

The study sought to find out the challenges faced by Geothermal Development Company in the implementation of quality Management. The responses were on a likert scale where 1= No extent, 2= Little Extent, 3=Moderate extent, 4=Large Extent and 5= Very Large extent. The analysis was done using mean and standard deviations. The means were interpreted; For instance 2.51 means the challenges were faced at little extent, 4.21means the challenges were faced at large extent. The results are presented on Table 4.5

Table 4.5 Challenges of Quality Management Implementation

Parameter	N	Mean	S.D
Rigid Organization Culture	30	2.51	.895
Lack of Management Commitment	30	4.85	.991
Resistance To Change	30	4.87	.845
Inadequate Resources	30	3.30	.772
Lack of Qualified and Experience Staff	30	3.01	.789
Inadequate Leadership for Quality	30	2.49	881
Inadequate Planning	30	3.32	.741
Lack Of Proper Training	30	3.17	.876
Lack of customer focus	30	2.31	.665
Negative Employee Attitude	30	4.52	.805
Lack of effective measurement of quality improvement	30	3.69	.744
Poor inter-organizational communication	30	3.51	.759
Internal politics	30	4.21	.861
Quality is Expensive	30	2.34	.745

Takes a long time to show results	30	2.35	.657
Average		**3.36**	**.802**

Source:Research Findings

From the findings in Table 4.5, the results showed that the main challenges affecting implementation of quality mangement in Geothermal were as follows: lack of management commitment, resistance to change, negative employee attitude and internal politics with mean scores of 4.85, 4.87,4.52 and 4.21. Further, the analysis showed that lack of customer focus, quality being expensive and the fact that quality implementation takes a long time to show results did not inhibit the process of quality implementation.

4.6 Discussion

The capacity of quality management to reduce inefficiency derives from its claims to reduce the estimated one third of an organization′s effort spent dealing with errors and inconsistencies. (Anderson et al., 1994). According to the findings, elimination of defects and wastes was the major benefit in GDC after the implementation of QM.

From the analysis, it's evident that the most popular quality management practices adopted by Geothermal Development Company are: quality control, quality assurance and continual improvement. On the contrary, quality planning, quality policy procedure and involvement of employees and tool (work flow) were less implemented.

The main challenges affecting implementation of quality management in GDC were as follows: lack of management commitment, resistance to change, negative employee attitude and internal politics. The study concluded that that lack of customer focus, quality being expensive and the fact that quality implementation taking a long too long to show results were not the main challenges facing GDC in implementation of quality management. According to Ater (2013) organizational culture, management commitment and the availability of resources were the manager challenges a public secondary school in Migori county.

Ogada (2012) revealed the sugar manufacturing companies appreciated the importance of quality management improvements. The results showed that

availability of resources was critical in achieving quality management of sugar manufacturing firms. In the contrary availability of resources in GDC is not a challenge.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

From the findings, the response for this study was 30 out of the target sample of 34 respondents'. This was considered a sufficient representation of the whole population. In reference to the length of service, the results showed that most of the employees worked in Nakuru this was represented by 80%, 13.33% of the respondents worked in Naivasha and only 6.67% of the respondents worked in Nairobi. This was an indication that most of the employees interviewed were from Nakuru.

When asked to comment on the department that the employees worked, it was revealed that 60% of the employees interviewed worked in the technical departments, 40% of the respondents were in quality assurance and other supporting departments. The study further revealed that, 33.3% of the employees interviewed were in the job group (GD4-GD6), 56.7% in the job group (GD7-GD9) and only 10% of the respondents were in job group (GD10-GD13) which shows that they had adequate experience to answer questions in relation to implementation of quality management.

When asked about the years of service that the respondents had served in the organization, it was observed that 70% of the respondents had worked in the organization for more than 4 years while only 30% of the employees had worked in the organization for less than 4 years. This implied that the respondents had gained enough experience to provide accurate and reliable information in relation to implementation of quality management practices in GDC.

The findings also showed that the customers for the organization were mainly the government agencies, the public and the other departments in Geothermal Development Company. This was represented by 35%, 29% and 94% respectively. The employees were asked whether the organization implemented ISO in defining metrics and measures to be used, the respondents unanimously agreed that the organization implemented ISO when defining the measures to be used. It was also observed that all the departments developed a clear quality policy.

In regard to whether the structure of the organization had changed since ISO certification, the respondents concurred that they had experienced a tremendous

change. The major change was the structure of the organization especially in streamlining departmental activities through creation of sections. It was further unearthed that 80% of the respondents indicated that the quality improvement program was periodic while the other 20% of the respondents agreed that the quality improvement program was long term. This implied that the quality improvement program was periodic in GDC.

According to the respondents, it was revealed that the most popular quality management practices were: quality control, quality assurance and continual improvement with a mean score of 3.42, 3.45, and 3.47. It was further observed that quality planning, quality policy procedure, tool (work flow) and involvement of employees were less implemented in Geothermal Development Company with mean scores of 2.41, 2.42, 2.47 and 2.53 respectively.

From the findings, it was observed that the benefits of implementation of quality practices were as follows: elimination of defects and wastes, reduced complaints, constant improved products and processes, organization development, increased efficiency greater consistency and improved customer satisfaction in the activities with mean scores of 4.85, 4.83, 4.48, 4.51, 4.46, 4.42 and 4.31. Further, the analysis revealed that reduced costs, reduced employee turnover, increased job security, increased financial performance, improved internal communications, increased job security, improved risk management and timely production with a mean score of 2.45, 2.35, 2.45, 2.45, 2.43, 2.43 and 2.47 were not part of the benefits as a result of quality management in GDC.

The results showed that the main challenges affecting implementation of quality management in GDC were: lack of management commitment, resistance to change, negative employee attitude and internal politics with mean scores of 4.85, 4.87, 4.52 and 4.21. The analysis also showed that lack of customer focus, quality being expensive and the fact that quality implementation takes a long time to show results did not inhibit the process of quality implementation.

5.2 Conclusions

The study concluded that the most popular quality management practices adopted by Geothermal Development Company are: quality control, quality assurance and continual improvement. The results also showed that the importance of implementation of quality practices were as follows: elimination of defects and wastes, reduced complaints, constant improved products and processes, organization development, increased efficiency greater consistency and improved customer satisfaction.

The major benefits GDC has experienced due to the QM implementation are, elimination of defects and wastes, reduced complaints, constant improved products and processes, organization development, increased efficiency greater consistency and improved customer satisfaction

On the third objective on establishing the challenges faced during the implementation of quality management. The study concluded that the main challenges affecting implementation of quality management in GDC were: lack of management commitment, resistance to change, negative employee attitude and internal politics with mean scores of 4.85, 4.87, 4.52 and 4.21. The study concluded that lack of customer focus, quality being expensive and the fact that quality implementation takes long to show results were not the main challenges facing GDC in implementation of quality management. While the main challenges were elimination of defects and wastes, reduced complaints, constant improved products and processes, organization development, increased efficiency greater consistency and improved customer satisfaction.

5.3 Recommendations

The study recommends that organizations that aspire to be leaders in quality management should benchmark themselves with the best performing firms globally in order to find out the quality management practices that the firms use in enhancing competitiveness. This will provide more insights on the best quality management practices to increase profitability and competitiveness locally and internationally.

The study further recommends that the public sector should create more awareness of departmental procedures on how quality management should be implemented and

practices to incorporate; this will provide an enabling environment for the public sector and government ministries to be able to implement quality effectively without hindrances.

According to the study findings, it was found that resistance to change was the main challenge facing GDC in quality management implementation. The study recommends that the management should communicate effectively to the employees on the importance of the new change and the benefits that the change is likely to bring to the organization if it's successfully implemented. Management should recruit competent and self-motivated employees and who are ready and willing to be flexible to ensure that quality management practices are implemented successfully in the organizations.

The study findings also revealed that the other challenges that negatively impacted on quality management in the organization were lack of management commitment and poor attitude by the employees. The study recommends that the top management should be self-motivated and fully committed to the organization growth. Positive attitude is very important to every employee in any institution and therefore this should be a key requirement in the candidates looking for employment.

The Energy Regulatory Commission (ERC) should ensure all quality management practices are implemented effectively through conducting regularly audits to ensure that all parastatals comply with quality standards, policies and procedures in order to effectively provide quality services to the public.

5.4 Limitations of the Study

The public service sector works under high confidentiality and therefore most of the respondents agreed to fill the questionnaire on condition that the information could be treated with a lot of confidentiality and it was only for academic purposes.

5.5 Suggestions for Further Studies

Future researchers and academicians should research on the implementation of quality management practices in the private sector for example the banking industry or the insurance industry and find out the most used quality management practices, the

benefits of quality management and the challenges faced by these companies in implementation of quality management.

It would be interesting to conduct further studies on all parastatals on the implementation of quality management, the benefits of quality management and the challenges faced by the parastatals in implementation of quality management. The findings and conclusions made and conclusions drawn on concrete facts.

Future researchers and academia's should carry out further studies on the implementation of quality management in the public sector, laying more focus on the government ministries since this study was limited to GDC. The conclusions can be drawn on the best quality management practices to be implemented by the government ministries.

REFERENCES

Adolfas Kaziliūnas (2010). The Implementation of Quality Management Systems in Service Organizations Mykolas Romeris University, *Faculty of Politics and Management, Department of Management*.

Abdullah, S.L, Golhar, D.Y, Waller, M.A (2009).Development and validation of TQM implementation constructs", *Decision Sciences*, Vol. 27 No.1, pp.23-56

Ahmed, R., & Ali, S. (2012). Implementing TQM Practices in Pakistani Higher Education Institutions. *Journal of Engineering and Technology Sciences*, 2, 26

Anderson, J.C, Rungtusanatham, M, Schroeder, R.G, Devaraj, S (1995).A path analytic model of a theory of quality management underlying the Deming Management Method: preliminary empirical findings, *Decision Sciences*, 26(5),637-58.

Ater, A. (2013). Challenges Facing the Implementation of Total Quality Management Practices in Public Secondary Schools in Kenya (A survey of schools in Migori County, *Unpublished MBA Project*, Kenyatta University

Baloyi, Themba Amukelani, (2013) the application, utilization and implementation of total quality management in the South African manufacturing industry: a case study, Department of *Electrical & Electronic Engineering Science* (ETDs)

Benson, G, Saraph, V, and Schroeder, R.G (1991).The effects of organizational context on Quality management, *Management Science*, 37(9), 1107-24

Blackburn, R, Rosen, B (1993).Total quality and human resource management: lessons learnt from Baldrige award-winning companies, *Academy of Management Executive*, 7 :(3), 49-66

Brown, C (2000).Total quality management in hospitality: an application of the EFQM model, *Tourism Management*, 17 :(3), 191-201

Campatelli, G., Citti, P., & Meneghin, A. (2011). Development of a simplified approach based on EFQM model and six Sigma for implementation of TQM principles in a university administration. *Total Quality Management and Business Excellence*, 22(7), 691-704.

Deming, W.E (1989), Quality Management Practices, *Academy of Management Review*, 19 :(3), 392-418

Dixon, J.R, Nanni, A.J, Vollman, T.E (1990), "The new performance challenge: measuring operations for world-class competition", *Business One, Irwin,* Homewood, IL

Easton, J.M., (1993) Implementation of Total Quality Management in public organization, *Journal of operation Management*, 7 100-102

Federal Quality Institute (1992).*Quality Improvement Prototype Award, 1993 Application*, Washington, DC,

Flynn, B.B, Schroeder, R.G, Sakakibara, S (1994).A framework of quality management research and an associated measurement instrument, Journal of *Operations Management*, 11,339-66.

Goldberg, C., Cole.K (2002), *Strategic Management and Marketing in the Service Sector*, Marketing Science Institute, Cambridge, MA,

Greasly, C, Filippini R (2004).TQM impact on quality conformance and customer satisfaction: A causal model, *International Journal of Production Economics*,

Idris, F., & Ali, K. (2008). The impacts of leadership style and best practices on company performances: Empirical evidence from business firms in Malaysia. Total Quality Management & Business Excellence.

Juran, J.M, Bingham, R.S (1974).Service industries, in Juran, J, Gryna, F, Bingham, R (Eds), *Quality Control Handbook*, McGraw-Hill, New York, NY

Kaynak, R.L (2003), *Quality Control in Service Industries*, American Management Association, New York, NY.

Kekale, T. (1998). The Effects of organizational culture on successes and failures in implementation of some total quality management approaches. Ph.D. thesis: University of Vaasa, Acta Wasaensia. 65.

Kirk, H.F, Rice, J (2000).Quality Management Practices, *Journal of operations a management*, 34,111-17.

Lambert, E., and Standing, E., (2008).Total quality management Practices: are they compatible, *Academy of Management Executive*, 8(1), 68-76.

Malec, W.F. (1992).A funny thing happened on the way to quality, *Public Utilities Fortnightly*, 16-18

Miller, V. (1992).Business is Runyon's watchword for TVA, *Chattanooga News-Free Press*, LVI, No. 286, June, 1-2

Ministry of Energy and Petroleum (2013).Geothermal Development Company, AccessedFrom,http://www.gdc.co.ke/index.php?option=com_content&view=article&id=162&Itemid=156

Mwangi, N. (2011). Challenges of implementation and maintenance of ISO 9001:2008 quality management systems' case study of Kenya organizations, *Unpublished MBA Project*, Kenyatta University

Ngeta, J. (2009).A Survey of Implementation of World Class Manufacturing Practices: Case of listed Companies. *Unpublished MBA Project*, University Of Nairobi.

Ngure, D. (2012) Effect of change management initiatives on total quality management implementation in Kenya's manufacturing sector: a case of central glass industries, Kenya. Unpublished work

Ogada, A. (2012). Quality management practices adopted by sugar manufacturing companies in Western Kenya, *Unpublished MBA Project*, University of Nairobi

Okwiri A. (2012). Quality Management Core Practices. A Participatory Action-Based Case Research on Non-Integrated Implementation. *Unpublished MBA Project*, University Of Nairobi

Method: insights from an Italian context, *Journal of Operations Management,* 77-95

Samson, D, Terziovski, M (1999).The relationship between total quality management practices and operational performance, Journal of Operations Management, 17 393-409

Sally‘s, (2002).Total Quality Management in education. *Stylus Publishing USA*

Scholtes, P.R (1988).The Team Handbook: How to Use Teams to Improve Quality, Joiner Associates, Madison, WI

Schonberger, R.J (1992).Total quality management cuts a broad swath through manufacturing and beyond, *Organizational Dynamics*, 20, 16-28

Spencer, B.A (1994).Models of organization and total quality management: a comparison and critical evaluation", Academy of Management Review, 19 No.3, 446-71

Vollman, B.A, Cameron, K.S (1998).Organizational quality: an examination of the Malcolm Baldrige National Quality framework, *Research in Higher Education*, 39 :(5), 491-512.

Vouzas, D.A (2004). The contributions of total quality management to theory of work performance, *Academy of Management Review*, 19 :(3), 510-36.

Williams A. and Wiele (2000). The contributions of total quality management to theory of work performance, *Academy of Management Review*, 19 :(3), 510-36.

APPENDICES

Appendix I: Questionnaire

Introduction

The questionnaire has been designed to collect data on quality management in Geothermal Development Company. The information obtained from this study shall be kept confidential, and shall be used strictly for academic purpose only. Your participation is highly appreciated.

SECTION A: GENERAL INFORMATION

1. Name (Optional): _____
2. Station: Nairobi ☐ Nakuru ☐ Naivasha ☐
3. Department:_____
4. Job Group: **GD1-GD3** ☐ **GD4-GD6** ☐ **GD7-GD9** ☐ **GD10-GD13** ☐
5. Years worked at GDC: _____
6. Who are your customers? _____

SECTION B: IMPLEMENTATION OF QUALITY MANAGEMENT

7. Do you use ISO standards in defining the metrics and measures to be used?
   Yes [ ] No [ ]
8. Has your department developed a clear quality policy?
   Yes [ ] No [ ]
9. Has your department structure changed since ISO certification
   Yes [ ] No [ ]

10. If Yes Explain;

_____

_____

_____

11. Your department quality improvement program can be described as?

    a. Periodic [ ]

    b. Long term [ ]

    c. Short term [ ]

12. To what extent has the organization implemented Quality Management. Indicate the extent of the implementation for each of the following items relating to the implementation using the scale 1= No extent, 2= Little Extent, 3=Moderate extent, 4=Large Extent and 5= Very Large extent.

		1	2	3	4	5
i	Quality Planning					
ii	Quality Policy Procedure					
iii	Customer Focus					
iv	Quality Control					
v	Quality Assurance					
vi	Tools (Work-Flow)					
vii	Leadership					
viii	Involvement of Employees					
ix	Continual Improvement					

13. Others, Specify and rate appropriately;

_____

_____

_____

SECTION C: BENEFITS

14. To what extent has the organization realized each of the following benefits as a result of quality management implementation. Indicate the extent using the scale: 1= No extent, 2= Little Extent, 3=Moderate extent, 4=Large Extent and 5= Very Large extent.

		1	2	3	4	5
i	Reduced Costs					
ii	Better Customer Satisfaction					
iii	Increased Efficiency					
iv	Better Reputation					
v	Reduced employee turnover					
vi	Enhancement of the organization competitive advantage					
vii	Organization Development					
viii	Constant improved products, processes and systems					
ix	Elimination of defects and waste					
x	Improved and innovative processes					
xi	Enhanced shareholder and stakeholder value					
xii	Increased job security					
xiii	Timely production					
xiv	Reduced Complaints					
xv	Improved employee participation					
xvi	Greater consistency in the activities					
xvii	Improved risk management					
xviii	Increased Financial Performance					
xix	Improvement In Internal Communications					

15. What other benefit(s) does your department gain with the implementation of quality management? Kindly rate appropriately.

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SECTION D: CHALLENGES

16. To what extent has the organization faced each of the following challenges in the implementation of quality management. Indicate the extent using the scale: 1= No extent, 2= Little Extent, 3=Moderate extent, 4=Large Extent and 5= Very Large extent.

	Parameter	**1**	**2**	**3**	**4**	**5**
i	Rigid Organization Culture					
ii	Lack of Management Commitment					
iii	Resistance To Change					
iv	Inadequate Resources					
v	Lack of Qualified and Experience Staff					
vi	Inadequate Leadership for Quality					
vii	Inadequate Planning					
viii	Lack Of Proper Training					
ix	Lack of customer focus					
x	Negative Employee Attitude					
xi	Lack of effective measurement of quality improvement					
xii	Poor inter-organizational communication					
xiii	Internal politics					
xiv	Quality is Expensive					
xv	Takes a long time to show results					

17. Other challenges on the implementation of quality management in the organization? Kindly rate appropriately.

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