



## EFFECT OF DURABILITY OF ELECTRIC POWER DISTRIBUTION MATERIALS ON CUSTOMER SATISFACTION AT THE KENYA POWER AND LIGHTING COMPANY, UASIN GISHU COUNTY, KENYA

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### ABSTRACT

Contemporary business markets highly competitive, irrespective of the sector. Therefore, the demand for quality is the single most critical fact for companies to survive in the marketplace. The study investigated the influence of TQM implementation on customer satisfaction. Based on the study, this paper discusses the durability of materials used in the distribution of power and its connection to customer satisfaction in Uasin Gishu County. An exploratory study design was adopted. The study targeted employees of the Kenya Power and Lighting Company (KPLC) (internal customers, 489) and customers being served by the KPLC (external customers, 32,750) in Uasin Gishu County. A sample of 30% of the employees was computed. This yielded 147 employees. The employees were then sampled using proportionate random sampling technique. To compute the sample of external customers, Reid and Boore's 1991 formula (since the population is greater than 10,000) was used to get 395 respondents. External customers were sampled using proportionate sampling technique. Data were collected using questionnaire. After data collection, responses from questionnaire items were cross-checked to facilitate coding and processing for analysis using Statistical Package for Social Sciences (SPSS) computer programme version 20.0. Responses to open-ended questions were analysed through coding themes and quotas that emerged. The themes emerging from secondary data were identified to augment primary data. Qualitative data were transcribed and organized into themes in order to check on their frequencies based on the research objectives. Analysed data were presented in form of cumulative frequency tables, percentages, charts and graphs. Although the respondents indicated that KPLC used durable materials in the supply of power, the same respondents indicated that power supply was generally ineffective. The study recommends that the company should establish quality management systems according to the requirement of ISO 9000 effectively for effective TQM implementation and for the success of the company.

**Keywords:** Effect, Durability, Electric Power Distribution Materials, Customer Satisfaction, Kenya Power, Lighting Company, Uasin Gishu County, Kenya

### INTRODUCTION

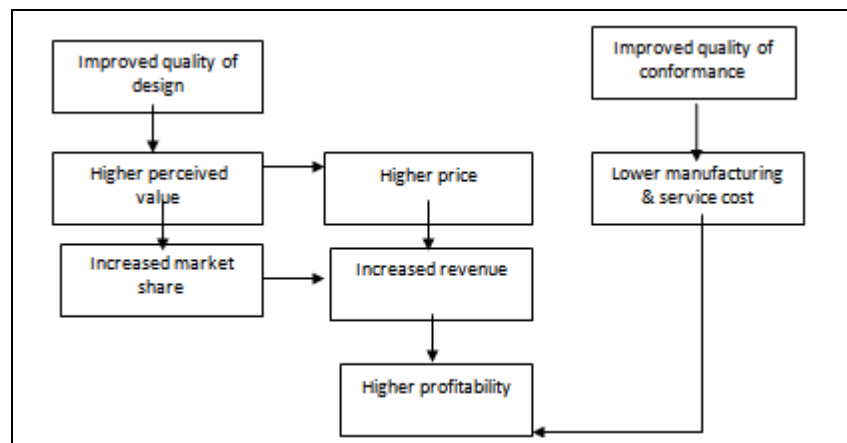
Durability of equipment used in service delivery is a factor of Total Quality Management (TQM). TQM is a management system for customer focused organizations that involve all employees in continual improvement of all aspects of the organization. Organizations that adopt total quality management benefit through improved quality, employee participation, teamwork, working relationships, customer satisfaction, employee satisfaction, productivity,

communication, profitability and market share. Smith (2007) has found links between total quality management and organizational strategy. Similarly, Harber and Aosa (2002) maintain that total quality management has moved beyond being an important operational-level element, to being a vital strategy for all organizational aspects and disciplines. As such, the fundamental performance of a firm can be enhanced through lowering production costs and providing exceptional customer satisfaction Pride (Kapoor, 2010).

As much as TQM is important to the performance of the organizations, the way it is implemented will greatly affect its effectiveness. According to Ilies (2011), to achieve TQM implementation, it is necessary to be aware of issues such as involvement of management in the improvement process of quality, changes in the organizational culture, continuous improvement, attitude, communication and recognition performance; managers' behaviour and teamwork programs to meet customer expectations. Measurement of customers' satisfaction at KPLC in relation to TQM implementation remains a critical element that KPLC need to address, thus the impetus of the current study.

### Importance of Total Quality management in Organizations

The importance of TQM lies seen in many spheres. A successful implementation of TQM helps the organization to focus on the needs of the market; facilitates to inspire for top quality performer in every sphere of activity; provides the framework necessary to achieve quality performance; helps to continuously examine all processes to remove non-productive activities and reduce waste. In other words, the benefits of successful TQM include reduction of the cost of running a business; increase in market share; company morale improvement and guarantee of company competitive edge (Himanshu, 2009). These benefits have been summarized in Figure 1, which is a modification from *The Management & Control of Quality* by Evans and Lindsay (2012).



**Figure 1: Quality and Profitability Relationship**

### The Concept of Customer Satisfaction

Customer satisfaction is conceptualized as being transaction-specific meaning it is based on the customer's experience on a particular service encounter (Cronin & Taylor, 1992). Moreover, some think customer satisfaction is cumulative based on the overall evaluation of service experience (Jones & Suh, 2000). These highlight the fact that customer satisfaction is based on experience with service provider and also the outcome of service (Culiberg & Rojšek, 2010).

Customer satisfaction is considered an attitude (Yi, 1990). In the case of grocery stores, there is some relationship between the customer and the service provider and customer satisfaction will be based on the evaluation of several interactions between both parties (Akhtar, Zameer & Saeed, 2015).

Therefore, this study considered satisfaction as a part of overall customer attitudes towards the service provider that makes up a number of measures (Levesque et McDougall, 1996). Giese and Cote (2002) clearly state that there is no generic definition of customer satisfaction and after carrying a study on various definitions on satisfaction they came up with the following definition, “customer satisfaction is identified by a response (cognitive or affective) that pertains to a particular focus (i.e. a purchase experience and/or the associated product) and occurs at a certain time (i.e. post-purchase, post consumption)”.

From this definition, it is clear that the consumer’s satisfaction is determined by his/her experience at a company and this is supported by Cicerone *et al.* (2009) and Suresh chander *et al.* (2002) who believe customers’ level of satisfaction is determined by their cumulative experiences at all of their points of contact with a supplier organization. According to Huddleston *et al.* (2008), if the shopping experience provides qualities that are valued by the consumer then satisfaction is likely to result. Fornell (2012) clearly defines customer satisfaction as an overall post-purchase evaluation by the consumer and this is similar to that of Tse and Wilton (1988) who define customer satisfaction as the consumer’s response to the evaluation of the perceived discrepancy between prior expectations and the actual performance of the product or service as perceived after its consumption. These definitions consider satisfaction as a post purchase response and in the case of KPLC, experience is important in evaluating customer satisfaction. According to Wicks and Roethlein (2009), customer satisfaction can be formed through an affective evaluation process and this affective evaluation is done following the purchase experience by the consumer.

Organizations that consistently satisfy their customers enjoy higher retention levels and greater profitability due to increased customers’ loyalty (Wicks & Roethlein, 2009). This is why it is vital to keep consumers satisfied and this can be done in different ways and one way is by trying to know their expectations and perceptions of services offered by service providers. In this way, service quality could be assessed and thereby evaluating customer satisfaction.

In this study, the researcher used customers to evaluate service quality by considering several important quality attributes at KPLC. Firms must take improvement actions on the attributes that have a lower satisfaction level. This means customer satisfaction was considered on specific dimensions of service quality in order to identify which aspects customers are satisfied with. In a study of managers in Denmark, Italy, Scotland, the US and Japan, Tomlinson *et al.* (as cited in Wood, 1997) have found that the European and American firms tend to see customers (closely followed by owners) as the most important stakeholders, whereas the Japanese gave much more weight to employees and the ‘public at large’.

Younis (1997) have examined the limits to Customers’ expectations of public sector services in the United Kingdom. Younis identified and examined factors, which include customer awareness, limits of tolerance, personal and collective values, limits of empowerment, and the politics of quality. Younis concluded that to achieve TQM and delight the customer, then organizations should first concentrate on activities which may serve a variety of interests instead

of goods and services, and processes that produce goods and services. Thereafter, the organization ought to carry-out a multi-criteria decision analysis to judge which strategies and tactics are likely to increase quality levels.

Al-Khalaf (1995) undertook a study of Brighton (Colorado) Police department's effort to change its image from one where citizens were extremely dissatisfied with the service it was offering. In a programme to alter the culture and the structure of the service, long-and short-term goals were developed with the intention of providing services with which the citizens could be satisfied. The police department experienced a transformation from a bureaucratic culture to a quality culture, with a primary goal of serving the people with respect and dignity. An improvement in customer satisfaction was reflected in 98% of the respondents who believed that the police were doing a good job in serving them. Furthermore, complaints dropped from 32% to zero. Al-Khalaf concluded that as citizens become aware of their service needs, quality improves and the limits of quality become redefined.

Rao *et al.* (1996) reports that in a survey of 20 of the 23 companies by the General Accounting Office (USA) that had received site visits to evaluate their application for Baldrige National Quality Award examined *employee relation* as a key indicator or workforce participation. The study focused on employees' satisfaction, attendance, turnover, safety and health and number of suggestions made to improve quality. The average rate improved on all measures. However, one company found employee satisfaction had declined, but it was attributed to concern about merger. Operating procedures were measured along eight dimensions ranging from errors to cost savings to timeliness of delivery. Only two companies reported a decline on two of the dimensions. One negative was a company reporting 0.1% decline from a high of 97 in on-time delivery. Another was a company reporting declining inventory turnover because of a weak industry demand; however, its turnover was better than the industry average. Customers' satisfaction indicators used were complaints and retention rates.

Overall, customers' satisfaction did not decline for any company. One company did receive more customer complaints, but that was a result of implementing a new complaint-handling system. Retention rates were generally high-up to 90%. Finally, financial performance indicator recorded an increase in market share by 13.7%.

The average annual increase was 1.3% in return on assets and on sales. Sales per employee improved in all reporting companies by an annual average of 8.6%. Gakuo (2005) reporting on the findings of a research espouses that it costs five times as much to get a new customer than it does to keep one old one. Only 4% of dissatisfied customers bother to complain, a whopping 96% take their business elsewhere. To add salt to injury, every dissatisfied customer tells eleven other people about their dissatisfaction. With this mix of researchers' opinions, it is not clear then whether then TQM should be focused on customer satisfaction or employees of an organization. This study sought to bridge this gap in literature.

### **The Concept of Service Quality**

Service quality is considered an important tool for a firm's struggle to differentiate itself from its competitors (Ladhari, 2009, p.172; Varma, 2015). The relevance of service quality to companies is emphasized here especially the fact that it offers a competitive advantage to companies that strive to improve it and hence bring customer satisfaction. Service quality has received a great deal of attention from both academicians and practitioners (Negi, 2009) and services marketing

literature service quality is defined as the overall assessment of a service by the customer (Eshghi *et al.*, 2008, p.121). Ghylin *et al.* (2007, p.76) points out that, by defining service quality, companies will be able to deliver services with higher quality level presumably resulting in increased customer satisfaction. Understanding service quality must involve acknowledging the characteristics of service which are intangibility, heterogeneity and inseparability (Parasuraman *et al.*, 1985; Ladhari, 2009). In that way, service quality would be easily measured.

In this study, service quality is defined as the difference between customer's expectation for service performance prior to the service encounter and their perception of the service received. Customer's expectation serves as a foundation for evaluating service quality because, quality is high when performance exceeds expectation and quality is low when performance does not meet their expectation (Asubonteng *et al.*, 1996). Expectation is viewed in service quality literature as desires or wants of consumer i.e., what they feel a service provider should offer rather than would offer (Parasuraman *et al.*, 1988). Perceived service is the outcome of the consumer's view of the service dimensions, which are both technical and functional in nature (Gronroos, 1982).

The customer's total perception of a service is based on his/her perception of the outcome and the process; the outcome is either value added or quality and the process is the role undertaken by the customer (Edvardsson, 1998). Parasuraman *et al.* (1988) define perceived quality as a form of attitude, related but not equal to satisfaction, and results from a consumption of expectations with perceptions of performance. Varma (2015) defines service quality as the difference between a customer's expectation and their actual experience. Service quality can be seen as the difference between the service provided by the service provider and the quality of performance. Therefore, having a better understanding of consumers' attitudes will help know how they perceive service quality at KPLC, Uasin Gishu including Eldoret regional office.

Negi (2009) suggests that customer-perceived service quality has been given increased attention in recent years, due to its specific contribution to business competitiveness and developing satisfied customers. This makes service quality a very important construct to understand by firms by knowing how to measure it and making necessary improvements in its dimensions where appropriate especially in areas where gaps between expectations and perceptions are wide. In the context of KPLC, the researcher is not only interested in learning more about the factors associated to service quality perceived by customers and how service quality is measured but also provide a direction for improvement of service quality in order to attain TQM Policy on customers' satisfaction.

Douglas and Connor (2003) emphasize that the consumer who has developed heightened perception of quality has become more demanding and less tolerant of assumed shortfalls in service or product quality and identify the intangible elements (inseparability, heterogeneity and perishability) of a service as the critical determinants of service quality perceived by a customer. It is very vital to note here that, service quality is not only assessed as the end results but also on how it is delivered during service process and its ultimate effect on consumer's perceptions (Douglas & Connor, 2003). At KPLC, consumers regard tangible products as being very important during purchases. However, the intangible elements of service quality also account greatly for customer satisfaction or dissatisfaction. This means there is a need to understand customer's expectation regarding service quality.

### **Relationship between Service Quality and Customer Satisfaction**

According to Sureshchandar *et al.* (2002), customer satisfaction should be seen as a multidimensional construct just as service quality meaning it can occur at multi levels in an organization and that it should be operationalized along the same factors on which service quality is operationalized. Parasuraman *et al.* (1985) suggested that when perceived service quality is high, then it will lead to increase in customer satisfaction. He supports that fact that service quality leads to customer satisfaction and this is in line with Saravana and Rao (2007) and Lee *et al.* (2000) who acknowledge that customer satisfaction is based upon the level of service quality provided by the service provider.

According to Negi (2009), the idea of linking service quality and customer satisfaction has existed for a long time. He carried a study to investigate the relevance of customer-perceived service quality in determining customer overall satisfaction in the context of mobile services (telecommunication) and he found out that reliability and network quality (an additional factor) are the key factors in evaluating overall service quality but also highlighted that tangibles, empathy and assurance should not be neglected when evaluating perceived service quality and customer satisfaction.

This study was based only on a specific service industry (mobile service) and we think it is very important to identify and evaluate those factors which contribute significantly to determination of customer-perceived service quality and overall satisfaction. Fen and Meillian (2005) have found that both service quality and customer satisfaction have a positive effect on customer's re-patronage intentions showing that both service quality and customer satisfaction have a crucial role to play in the success and survival of any business in the competitive market. This study proved a close link between service quality and customer satisfaction.

Su *et al.* (2002) carried a study to find out the link between service quality and customer satisfaction, from their study, they came up with the conclusion that, there exist a great dependency between both constructs and that an increase in one is likely to lead to an increase in another. Also, they pointed out that service quality is more abstract than customer satisfaction because, customer satisfaction reflects the customer's feelings about many encounters and experiences with service firm while service quality may be affected by perceptions of value (benefit relative to cost) or by the experiences of others that may not be as good.

### **Statement of the Problem**

The impact of TQM implementation on service delivery and business value is an important issue for researchers, resource managers and other stakeholders. TQM and service delivery include productivity enhancement, profitability improvement, improved work relations, competitive advantage and efficient use of resources at both intermediate level and organizational level (Parasuraman, 2005). While institutions invest heavily in Total Quality Management resources both in developing and developed countries, much attention has not been given to the understanding of how TQM creates value in business especially in developing countries (Devaraj 2003). Considering the enormous benefits that are experienced by multinational organizations on the adoption of TQM, the local business organizations have moved to adopt TQM.

Sessional Paper No.4 of 2004 and the Energy Act No.12 of 2006 show that energy sector is a major contributor to the GDP in Kenya The institutional arrangement in the electricity sub sector in Kenya comprises - the Ministry of Energy (MOE), Energy Regulatory Commission (ERC),

Kenya Generating Company (KenGen), Kenyan Power and Lighting Company (KPLC), the Rural Electrification Authority (REA), Kenya Electricity Transmission Company (KETRACO), Geothermal Development Company (GDC) and Independent Power Producers (IPPs) (ROK, 2012).

KPLC has been a monopoly in the distribution of electricity since its split from the East Africa Power and Lighting limited in 1983. Nonetheless, it has been implementing turnaround strategies in its operations since 1996. Other improvements in areas such as pre-paid metering, feeder maintenance on high voltage electrical power lines, introduction of National Call Centre (NCC), new cooperate logo and use of mobile money transfer (M-PESA in payment of bills). KPLC has also undertaken a restructuring program that led to achieving ISO 9001: 2000 certifications. According to Half year 2013/2014 Customer Satisfaction Survey drafted by Consumer Option Limited (January, 2014), a myriad of problems that cut across Kenya Power and Lighting Company were identified. First, customers were found to have low customer knowledge on processes and systems concerning the KPLC's products and services.

Second, customers had low trust and confidence with the brand of KPLC. Third, customers viewed KPLC as a rich, old and arrogant company and they looked forward to seeing a new rival company to the market to compete with it. Fourth, it was noted that the response time for the planned power outages and interruptions took a long time to be attended to. With TQM in place, one would expect that such complaints become a thing of the past. Clearly, this scenario points to a disconnect between TQM implementation and service delivery. On the basis of this endeavour, the study the durability of materials used in the distribution of power and its connection to customer satisfaction in Uasin Gishu County.

## **MATERIALS AND METHODS**

The study adopted an exploratory research design. This design was considered appropriate for collecting data necessary to determine the influence of TQM on customer satisfaction. The study was conducted at the KPLC Regional offices in Uasin Gishu County. Uasin Gishu County is located in the west of the Rift Valley. The regional offices in Uasin Gishu County process and receive customers from a wide area: Eldoret Municipality and its environs; Kesses and its environs; Tarakwa and its environs, and Kamagut and its environs. These areas were selected because they are the major centres with high population of customers in Uasin Gishu County as per KPLCs operation in transmitting electricity to customers.

The study targeted the line managers and customers being served by KPLC (both internal and external customers) in Uasin Gishu County. The KPLC office in Uasin Gishu had a labour force of 489 employees as at 2012 (KPLC Human Resource database, 2012) (*This does not in any way contravene the publication regulations since at Moi University, it is a requirement that publications are done prior to defence of the thesis*). Of these employees, 19 were serving as line managers. A total of 32,750 customers were being served by KPLC offices in Uasin Gishu County by 2012. Census sampling technique was employed in sampling the line managers. This is because, the population of the line managers was considered too low to attract any further sampling. This yielded a sample of 395 customers. Convenient sampling technique was further employed in selecting participants. This meant that only those customers who were willing to participate in the study were given questionnaires to fill.

Data for the study was collected using questionnaire tool. After data collection, responses from questionnaire items were cross-checked to facilitate coding and processing for analysis using Statistical Package for Social Sciences (SPSS) computer program version 20.0. Open-ended questions were analysed through coding themes and quotas that emerged. The themes emerging from secondary data were identified to augment primary data. Qualitative data were transcribed and organized into themes in order to check on their frequencies based on the research objectives.

Qualitative data were analysed thematically basing on emerging quotas in form of cumulative frequencies, means and percentages. To establish the influence of TQM implementation on customer satisfaction, a multivariate regression analysis was computed. Variables of customer satisfaction which were investigated in this study were categorized into two (core and relational) in order to enable the computation of the regression analysis. Customer satisfaction was modelled using a multivariate regression analysis which linked customer satisfaction to the core and relational dimensions of service quality. Hence, stepwise multiple regressions was performed with the core (products quality, assurance, responsiveness, reliability) and relational dimensions (employee courtesy, tangibles) as independent variables and customer satisfaction as dependent variable. Analysed data were presented in form of cumulative frequency tables, percentages, charts and graphs.

## RESULTS AND DISCUSSION

### Customer Satisfaction on Durability of Materials used

The study sought to establish the durability of materials used by KPLC in power transmission. Like the other attributes, responses were gathered from both internal and external customers. Responses were ranked on a five-point Likert scale as follows: 1-Very dissatisfied; 2-Dissatisfied; 3-Neither Satisfied nor dissatisfied; 4-Satisfied; 5-Very Satisfied. A summary of the responses that were obtained from the customers are summarized in Tables 1 and 2.

**Table 1: Customer Satisfaction of Durability of Materials used**

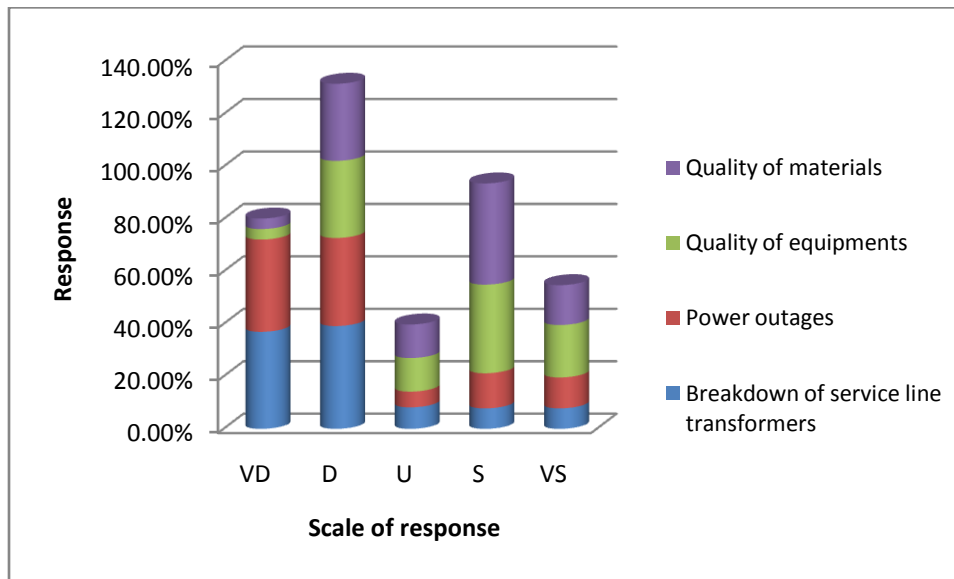
Statement	1	2	3	4	5	Mean
There are frequent breakdown of service line transformers	187	196	42	36	39	<b>2.088</b>
Frequent power outages are worrying	176	168	30	67	59	<b>2.330</b>
KPLC tends to use substandard equipment	20	147	64	169	100	<b>3.364</b>
KPLC tends to use substandard materials	20	147	64	193	76	<b>3.316</b>
<b>Aggregate mean</b>						<b>2.775</b>

**Table 2: Percentage rating of Customer Satisfaction of Durability of Materials used**

Statement	1	2	3	4	5
There are frequent breakdown of service line transformers	187(49.1)	196(51.4)	42(11.0)	36(9.4)	39(10.2)
Frequent power outages are worrying	176(46.2)	168(44.1)	30(7.9)	67(17.6)	59(15.5)
KPLC tends to use substandard equipment	20(5.4)	147(38.6)	64(16.8)	169(44.4)	100(26.2)
KPLC tends to use substandard materials	20(5.4)	147(38.6)	64(16.8)	193(44.4)	76(26.2)

For purposes of clarity, these responses have been illustrated in Figure 2 below.





*Key: VD-Very Dissatisfied; D-Dissatisfied; U-Neither Satisfied nor dissatisfied; S-Satisfied; VS-Very Satisfied*

### Figure 2: Customer satisfaction of durability of materials used

Responses on this attribute generally indicated that customers were dissatisfied with the durability of materials used by KPLC in the supply of power. This is indicated by the aggregate mean value of 2.775. On the scale provided, this value falls between dissatisfied and neither satisfied or dissatisfied. For instance, most customers observed that frequent breakdown of line transformers was a common phenomenon and therefore were dissatisfied with this component of service delivery (mean, 2.088). Similarly, most customers (mean = 2.330) were worried with the frequent power outages.

Commenting on the durability of materials used by KPLC in service delivery of power transmission, a dissatisfied customer opined as follows:

...I honestly do not understand why a company like KPLC which enjoys all the monopoly should have problems with transformers that keep breaking down or frequent power outages...this is just a case of poor quality transformers.... (KPLC Customer, Personal Communication, 2017).

While resonating with the sentiments of the customers as presented in Table 1, Stevenson (2007) avers that customer focus is one of the eight quality management principles that form the basis of the latest version of ISO 9000).The TQM approach supports the fact that TQM is customer focused: find out what the customer wants; design a product or service that meets or exceeds customer wants; design processes that facilitates doing the job right the first time; keep track of results and extend these concepts to suppliers. It is by ensuring that the quality of materials and equipment used in power supply is appropriate that KPLC can claim to be customer focus.

Buttressing this argument is Himanshu (2009) who argues that focusing on both internal and external customers' needs or understanding the customers is the driving force behind TQM schemes. The author classifies quality function deployment (QFD) as a critical customer attributes' identification tool, that links customer attributes and design parameters. This is described by Stevenson (2007) as a philosophy of seeking improvement to all factors related to

the process of transforming inputs into outputs on an ongoing basis, putting quality of the output into consideration.

## CONCLUSION AND RECOMMENDATIONS

Majority of the customers believed that the equipment and materials employed by KPLC in supplying power were of good quality. The study recommends that the company should establish quality management systems according to the requirement of ISO 9000 effectively for effective TQM implementation and for the success of the company. Flexibility of the organizational culture will determine the success or failure of implementing TQM in KPLC. Resistance to change, lack of commitment and cascading the programme to the bottom of the pyramid will definitely slow down implementation of TQM in KPLC.

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