An Assessment of the Effects of Inventory Management Procedures on Performance of Kengen

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Abstract- The scope of inventory management in the 21st Century concerns the fine lines between replenishment lead time, carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, available physical space for Inventory, replenishment, returns and defective goods, and demand forecasting in East Africa firms are striving to manage this element of Inventory to the best of their knowledge due to the cost implication involved in improper management of Inventory (Lysons& Farrington, 2006). Many organizations have adopted the use of Inventory control procedure as its positive effects are more than the negative ones. Performance of an organization is proved to be increasing with the effectiveness and type of inventory control procedures used. This research therefore critically assessed inventory control procedures of KenGen with a view of other organizations. The purpose of the study was to assess the effects of Inventory Management Procedures on performance of KenGen based on the Inventory classification, storage methods, Material codification and Material inspection. The descriptive aspect of the research design was used in establishing the company performance and the analytical research design was used to establish relationship between inventory management procedures and performance of KenGen. The target population of this study was200 workers with a sample size of 133. This study used semi-structured questionnaires with both closed and open ended questions to collect primary and secondary data. The filled in and returned questionnaires were coded and entered into a statistical package for sciences Version 22.0. Descriptive statistics such as means, standard deviations as well as regressions analysis was done to establish relationships between the variables of the study and performance of KenGen. Many organizations have adopted the use of stock control procedure as its positive effects are more than the negative ones. Performance of an organization is proved to be increasing with the effectiveness and type of stock control used (Bailey, 2008).This research therefore critically examined stock control procedures of KenGen with a view of other organizations.

Index Terms- Inventory Management, Logistics, enterprise resource Planning system, Just in Time

I. INTRODUCTION

Inventory management is an ongoing and dynamic process. To keep out the inefficiencies in system, process and physical operations, calls for active management participation and continuous improvement in all processed and systems that are involved in inventory management. It is all about knowing what is on hand, where it is in use, and how much finished product results. Inventory can mean different things and depends on the industry the firm operates in. It includes; Raw materials and components from suppliers, Work in progress or part finished goods made within the business, Finished goods ready to dispatch to customers ,Consumables and materials used by service businesses.

Lysons (2006) says that, inventory management involves a process of efficiency overseeing the constant flow of units into and out of an existing inventory. This process usually involves controlling the transfer in of units in order to prevent the inventory from becoming too high, or dwindling to levels that could put operation of the company into jeopardy. Competent inventory management also seeks to control the costs associated with the inventory, both from the perspective of the total value of the goods included and the tax burden generated by the cumulative value of the inventory.

Inventory managers are concerned with cost, criticality and contribution of their holdings, ordering and maintaining inventory has several costs. These include capital costs, administrative cost, storage charges, shrinkage, taxes and insurance. Most of these vary directly with the average quantity of inventory held. Obvious strategies for cost avoidance would be reduce or eliminate inventories. That probably cannot be done in very many cases. Most Firms in the United States of America, west and Eastern Europe determine the level of inventory necessary to provide an acceptable level of customer service and manage that size of inventory as efficiently as possible. According to Ballou(2000) Firms like Nissan uses Just in Time method of Inventory management hence keep zero or very minimal inventory.

Inventory availability is the most important aspect of customer service. The goal of inventory management is therefore to increase financial returns on inventory while simultaneously increasing customer service levels (Frazelle, 2002).In this context, the primary goal of inventory is to provide the right item, at the right location and time, at the lowest cost. To meet this goal, inventory professionals work with two major (and sometimes conflicting) objectives in mind: Maximize customer service (that is, provide material when the customer needs it) and minimize inventory dollars (that is, control the number of dollars invested in parts and material). Transit agency executives are interested in meeting both of these objectives. Inventory management departments must work with purchasing departments and customers to reconcile the two conflicting objectives.

Sumil (2007) states that, inventory management requires demand forecasting that is having some record of what sold and what did not sell through the year. Analyze that data. Break the inventory down into categories and try to correlate the categories with customers. Trends or patterns will likely emerge. Depending on what business you are in, these might correspond to the rhythm of the seasons, or they could relate to the financial year ends of your biggest customers.

Organizations uses inventory control to minimize idle time caused by shortage of inventory and non-availability of inventories as per requirement to keep down capital investment in inventory. According to Sumil(2007), increasingly integrating financial data such as accounts receivable with sales information that includes customer histories is what most firms do. The goal is to control inventory quarter to quarter so it does not come back to bite the bottom line.

Key components of an integrated system are general ledger, electronic data Interchange, database connectivity and connections to a range of vertical business applications. According to Lyson (2006),accompany recognizes that customer is always the ''King'' thus the organization ensures the availability of materials in the store so as to prevent any disruption during production process. The company recognizes that customer satisfaction in a manner that the inventory control managers defines how often inventory levels are reviewed to determine when and how much to order. It is performed on either a perpetual or a periodic basis. Inventory manager's implements inventory on the basis of forecasted demand of product availability.

Automation can dramatically impact all phases of inventory management, including counting and monitoring of inventory and anticipating inventory needs, including inventory handling requirements. This is true even of stand – alone systems that are not integrated with other areas of the business, but many analysis indicate that productivity and hence profitability gains that are garnered through use of automated systems can be increased even more when a business integrates its inventory control procedures with other systems such as accounting, production to better control inventory levels. (Weelearjan,2007).

Inventory control can be done through introduction of different measures so as to prevent the company from incurring unnecessary losses made by different departments. There are measures which can be put in place to ensure that the stock is well controlled and the organization is performing well too. KenGen has existed for many years with the objectives of providing better consistent services to customers and maximizing profits .To date the company does not focus on how much of each stock items firm should hold in the store, how much should be ordered at a given time and what point more stock should be ordered, this has greatly affected performance especially the production, sales and reducing on its financial performance. Sumil (2007), concludes that, It is therefore important for an organization to have a sound, effective and well-coordinated inventory control management procedures to help it perform and to have a competitive advantage in the current competitive business environment.

Statement of the problem

Most Organizations have not yet adopted inventory control management tools and systems in purchasing and supply hence they are facing the challenge of stock out cost. According to Tersine (2008) this simply means the non-availability of the stock. This is serious in KenGen and may result in delaying the operation. This stock out is multisided in the loss of machine and man-hour, the loss of service to customers, the loss of goodwill, the loss of lagging behind in competition and loss of profit.

The scenario becomes even more damaging especially for a power production company which requires stock of a variety of items for the purpose of replacement whenever there is a break down. The challenge is that of identifying different spares or materials required. According to Skeet (2001) when there is no order and effective management of inventory procedures to retail outlets, they are bound to operate in a loss and facing possible liquidation due to heavy stock out cost, perforation, obsolescence and unnecessary locking capital in stock inventory.

Kenya Electricity generating company (KenGen) keeps different types of products ranging from chemicals, machine components, hardware materials, electrical materials, Fuels and lubricants forcing it to be much careful in storage hence increased performance. Over the past years, KenGen has experienced a lot of challenges while trying to carry out its inventory management and materials control processes. This could be partly attributed to challenging Inventory control management practices. Skeet (2001) assets that, an organization experiences frequent stock out cases, pilferages and theft, stock deterioration and damage, overstocking leading to tying up of capital in stock and over/under valuation of stock. Previous researchers have concentrated on carrying out research on effective Inventory control procedures, importance of Inventory control management on organization performance, leaving out an assessment of the effects of Inventory Management procedures on an organization performance. This problem has therefore led to the researcher to carry out the research on an assessment of effects of Inventory control procedure on performance of KenGen.

The researcher is keen to find out the relationship between Inventory Control Procedures and performance of KenGen and some of the problems hindering the smooth operation of KenGen. The study realizes that Inventory management involves determining the purchasing practice and techniques and strategy. The purpose of the study was to assess the relationship between Inventory Control procedures and its impact on the performance of KenGen.

Objectives of the study

General Objectives

The general objective of this study was to assess the effects of Inventory Control Procedures on performance of KenGen.

Specific Objectives

i. To determine how Inventory classification contributes to performance of KenGen.
ii. To determine how storage methods adopted by KenGen contribute to the control of stock.
iii. To find out how Material codification contributes to the performance of KenGen.

iv. To find out how Material inspection assists in the performance of KenGen

RELATED LITERATURE

Theoretical Framework

A theory is an organized system of accepted knowledge that applies in a variety of circumstances to explain a specific set of phenomenon. There are four theories of inventory management that include, Materials requirement planning (MRP).Just In Time (JIT), ABC Analysis and Economic Order Quantity (EOQ).

a. Materials Requirement Planning (MRP)

According to Biederman, (2004), one of the assumptions behind the lot sizing models is that demand for an item is independent of all other demands. This situation is true for most manufactures of finished goods. However sub-assemblies, raw materials and parts do not exhibit this independence. Demand for these items is dependent on the assembly schedule for finished goods. Similarly, many Maintenance, Repair Operations(MRO) items which are Supplies consumed in the production process but which do not either become part of the end product or are not central to the firm's output, MRO items include consumables (such as cleaning, laboratory, or office supplies), industrial equipment (such as compressors, pumps, valves) and plant upkeep supplies (such as gaskets, lubricants, repair tools), and computers, fixtures and furniture. The replenishment of these items depends on maintenance schedule. Recognition of the existence of demand dependence lies behind the techniques known as materials requirement planning (MRP).

MRP Systems attempt to support the activities of manufacturing, maintenance or use by meeting the needs of the master schedule. in order to determine needs, MRP systems need an accurate bill of materials for each final product or project. These bills can take many forms but it is conceptually advantageous to view them as structural trees. Seven general types of structural tree can be identified. Process industries such as oil refiners, drug and food manufacturers generally take a few raw materials and make a much larger number of end products.

Manufactures/assemblies such as the automobile companies make a number of components purchase others and assemble them into finished products. Each type of firm can use MRP profitably but the greatest complexity of its operations. The goals of MRP are to minimize inventor, to maintain a high service coverage and to co-ordinate delivery schedules for manufacturing and purchasing activities. These aims often conflict in other systems but under MRP are achievable simultaneously. The feature and ability of modern MRP systems to allow rapid re-planning, searching and in response to the changes of dynamic environment are responsible for attractiveness of MRP. (Chopra&Meidl,2001).

b. Just In Time

Although the history of Just In Time (JIT) traces back to Henry Ford who applied Just in Time principles to manage inventory in the Ford Automobile Company during the early part of the 20th Century, the origins of the JIT as a management strategy traces to Taiichi Onho of the Toyota Manufacturing Company. He developed Just in Time strategy as a means of competitive advantage during the post-World War II period in Japan.

The post-World War II Japanese automobile industry faced a crisis of existence, and companies such as Toyota looked to benchmark their thriving American counterparts. The productivity of an American car worker was nine times that of a Japanese car worker at that time, and Taiichi Onho sought ways to reach such levels.

Just in time (JIT) is a production strategy that strives to improve a business' return on investment by reducing in-process inventory and associated carrying costs. Just in time is a type of operations management approach which originated in Japan in the 1950s. It was adopted by Toyota and other Japanese manufacturing firms, with excellent results: Toyota and other companies that adopted the approach ended up raising productivity (through the elimination of waste) significantly. To meet JIT objectives, the process relies on signals or Kanban between different points, which are involved in the process, which tell production when to make the next part. Kanban are usually 'tickets' but can be simple visual signals, such as the presence or absence of a part on a shelf. Implemented correctly, JIT focuses on continuous improvement and can improve a manufacturing organization's return on investment, quality, and efficiency. To achieve continuous improvement key areas of focus could be flow, employee involvement and quality. (Bailey et al, 2005).

Just In time relies on other elements in the inventory chain as well. For instance, its effective application cannot be independent of other key components of a lean manufacturing system or it can "end up with the opposite of the desired result. In recent years manufacturers have continued to try to hone forecasting methods such as applying a trailing 13-week average as a better predictor for JIT planning; however, some research demonstrates that basing JIT on the presumption of stability is inherently flawed.

Christopher (2005) defines JIT as the uninterrupted flow of 100% acceptable materials delivered on due date as option cost 100% of time. the cited authors relate this definition for dozens of techniques including supplier certification materials, requirements planning, MRP Manufacturing resource Planning, (MRP 11), bar coding systems, contracting, electronic data interchange (EDI) Value analysis and work simplification. This type of purchasing production and inventory control has the great advantage of locating and fixing quality problems immediately. Christopher (2005) makes the point, 'It is like large rocks under the water in a lake". If the water level is too high one can see the necks and avoid the danger. Similarly if the inventory is small, the defects are spotted and corrected immediately. There is less scrap and remark, and quality improves dramatically. The supplier provides full time on site personnel who attend design-engineering meeting, investigates their products and use the company's purchase orders to affect delivery. (Christopher, 2005).

c. ABC Analysis

Lysons & Farrington (2006) defines ABC Analysis as a method for inventory categorization used in inventory management and/or materials management. In this approach normally 3 types of inventory items are separated: A Items: these require tight control and Just-in-time management, because even if they are present only in small numbers, they make up a large percentage of Inventory on a cost basis Items: these can be less tightly controlled because they are

less expensive than A-Items, C Items: these require only very limited or no control, because they are large in numbers and very cheap.

Smarus (2008) contents that; a big organization has a large number of items. All items cannot be given equal attention, it is therefore essential to determine the items or group of items that deserve the maximum control. One of the most important considerations for control is the value of the annual consumption of inventory items. It has been observed that a small number of inventory items consume a very large share of inventory consumption during the year. Further a little larger number of inventory items covers a moderate share of annual inventory consumption. This brought out the concept of ABC analysis.

In his study, Christopher (2005) found out that,ABC analysis is an important tool to control inventory investment in an organization. It provides good guidelines for adopting appropriate purchasing policy for different categories of items and also for amount of attention, which is required from different levels of management, to be given to various items. Any stock is segregated into different sections. These items are classified into 3 sections, A, B and C. The logic of segregating these items into sections is that section A consists of limited number of items that are very expensive. Section B has items that are not expensive and the number of units that is to be ordered is also not very large. The section C consists of numerous items, which have a low monetary value. The logic behind such segregation is that every section is viewed differently by the cost accountant, due the difference in order time, reorder time and delivery period. For example, though the unites in section A are less, their monetary value is also high and so is their delivery period. The ABC analysis is a simple and probably the most effective of all stock control methods.

Bierderman (2004) stressed that, maintaining inventory through counting, placing orders, receiving stock, takes personnel time and costs money, ABC analysis helps in placing the orders, deciding the quantity of purchase, safety stock thus saving the organization from unnecessary stock outs hence enhancing effecting inventory management.

d. Economic Order Quantity Model

Chopra &Meidl(2001) defines EOQ as an inventory-related equation that determines the optimum order quantity that a company should hold in its inventory given a set cost of production, demand rate and other variables. This is done to minimize variable inventory costs. The equation is as provided below.

$$EOQ = \sqrt{\frac{2SD}{PI}}$$

Where:

S	=	Setup	costs
D	=	Demand	rate
P	=	Production	cost

I = Interest rate (considered an opportunity cost, so the risk-free rate can be used)

The EOQ formula can be modified to determine production levels or order interval lengths, and is used by large corporations around the world, especially those with large supply chains and high variable costs per unit of production.Despite the equation's relative simplicity by today's standards, it is still a core algorithm in the software packages that are sold to the largest companies in the world.

The purpose of using the EOQ Model in this research is to assess the effect of Economic Order Quantity in enhancing the effect of Inventory Management Controls. Schroeder (2000) asserts that the ordering quantities which minimizes the balance of cost between inventory holding costs and re-order costs is what is known as economic Order Quantity . To be able to calculate a basic EOQ, certain assumptions are necessary that states that there is a known constant, stock holdings and ordering cost. Interestingly the rates of demand are known of which price are constant per unit. In addition replenishment is made instantaneously that is, the whole batch is delivered at once hence no stock-out allowed.

In his study, Dave (2001) found out that the addition number of units of inventories enables the company to minimize the total costs of inventory such as holding costs, order cost and shortage cost. Schaider (2001) echoed his sentiments by stating that EOQ attempts to estimate the best order quantity by balancing the conflicting cost of holding stock and of placing (Ordering) the replenishment orders.

Schaieder (2001) States that, EOQ Contributes to strategic inventory management since it is used as part of a continuous review inventory system, in which the level of inventory is monitored at all times, and a fixed quantity is ordered each time the inventory level reaches a specific re order point. He stressed that factors such as new product lines, promotional lines, outstanding orders and minimum order quantities are to be considered when ordering for the Inventory. According to Schaider (2001), ordering a large amount at one time will increase holding costs, while making more frequent orders of fewer items will reduce holding costs but increase order costs, the EOQ model finds the quantity that minimizes the sum of these costs and interestingly Lyson& Farrington (2006) asserts that EOQ is a model for making such kind of decisions.

Conceptual Framework

Conceptual framework is an analytical tool with several variations and contexts. It is used to make conceptual distinctions and organize ideas. Strong conceptual frameworks capture something real in a way that is easy to remember and apply. The conceptual framework in this study will give an overview of the independent variables and dependent variables that defined the objective of the research. The independent variable included; Inventory classification, Storage Methods, Material Codification and Material Inspection.

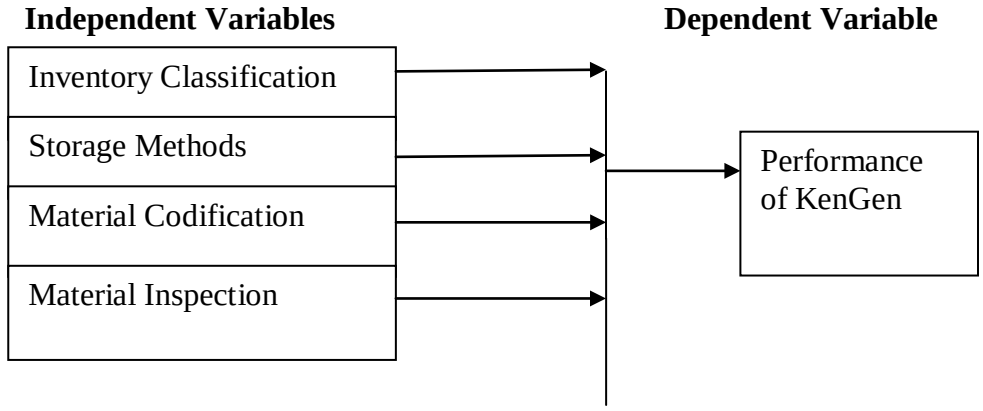

Figure 2.1 Relationships between Variables in the Study

Inventory Classification

There are a number of techniques which play an important role in the inventory control Programme. The techniques are very helpful in rationalization of inventory control approach and assist in formulation of inventory control policies. Stocks classification is done for strategic review, some of these techniques used by organizations are; Vital Essential and Desirable (V-E-D), in their Study.Ballou(2000) found out that Inventories also need to be classified according to Vital, Essential and Desirable (V -E-D), which in essence means that stress is more on importance rather than on *v*alue. The VED analysis is done to determine the criticality of an item and its effect on production and other services

Again, inventories may also be classified according to Fast-moving, Slow-moving and Non-moving items in order to see the rapidity of their use and towed out the unnecessary ones. This is aimed at keeping the total inventory size down and reduces investment. Thus; selective control may be exerted under different types of classification according to necessity. A single-type approach may not prove fruitful under all circumstances. Another technique is Fast, Slow &Nonmoving Analysis (FSN). According to Kumar (2007), in fast moving slow moving and non-moving of inventory classification. Here, classification is based on the pattern of issues from stores and is useful in controlling obsolescence. To carry out an FSN analysis, the date of receipt or the last date of issue, whichever is later, is taken to determine the number of months, which have lapsed since the last transaction. The items are usually grouped in periods of 12 months.FSN analysis is helpful in identifying active items which need to be reviewed regularly and surplus items which have to be examined further. Non-moving items may be examined further and their disposal can be considered.

Storage Methods

Ballou (2000) concurs that, Storage methods are vital aspects to be considered when an organization is setting up a warehouse, in line with that it will enable an organization to store its materials safely and securely for operational efficiency. Stock Control involves acquisition of Storage systems, storage systems refer to the techniques used to keep inventory safely and free from deterioration through conservation in the organization, eliminate cases of damages of materials, theft, pilferage, overstocking and obsolescence. Cases of stock outs of materials are as a result of poor documentation, poor monitoring of inventory levels and lack of control of stock movement within the stores.

Schaider (2000) states that, materials are equivalent to money and proper storage and great attention have to be paid to the proper storage, so that they are free from damage and possibilities of pilferage. Stores record such as bin card should give accurate balances as verified form time to time by the auditors. There are various storage methods -inventory control model that a company adopts in the control of its inventory. They include; Periodic Stocks Review and two Bin systems

Periodic stock review ascertains that this method involves fixing for each commodity, stock levels which are recorded in the stock control system and used as a means of indication on when some action is necessary. There are various kinds of stock levels, but the fundamental controls are minimum, ordering, hastening and maximum levels. (Saleemi,2007).

The minimum stock level is the amount expressed in unit of issue below which the stock of any given commodity should not be allowed to fall. When the level is reached it triggers off urgent action to bring forward delivery of the next order. Itis also called the danger level. In fixing the minimum level the main factor to be to be taken into Account is the effect which a run-out of stock would have upon the flow of work or operations.

The maximum stock level is the amount expressed in units of issue above which the stock should not be allowed to rise. The purpose of this level is to curb excess investment. In fixing a maximum the main consideration is usually financial and the figure is arranged so that the value of the stock will not become excessive at any time.

The reorder level is the amount expressed in unit of issue at which ordering action is indicated in time for the material to be delivered before the stock fall below the minimum. Two main factors are involved in deciding the ordering level ;first the anticipated rate of consumption and the estimated time which will elapse between the raising of a provision demand and the actual availability of goods in store after receipt and inspection. The hastening stock levels is the amount expressed in unit of issue at which it is estimated that hastening action is necessary to

request suppliers to make early deliveries. It is fixed between the minimum and the ordering levels. (Saleemi, 2007).

Two bin systems is used to establish a connection between the order and reorder procedures. As mentioned above, from the point of view of a producer, uneven supply of stock and odd consumption is not very healthy. Such unevenness is sorted by two-bin system. In such a system, the stock is sorted into two bins, or piles. The first stock (bin 1), is the larger of the two and is used up between the times periods that lasts from purchase of stock till the reorder. The second stock (bin 2), can be used from the time when the reorder is placed till the order is actually received. The second stock has a considerable amount of standby that can be used for emergencies.(Smarus, 2008).

Material Codification

Sree Rama Rao (2008) asserts that, Codification of materials can also be termed as the identification of materials. This deals with uniquely identifying each item in the inventory. It is useful in requisitioning items or the operational departments, in placing of orders by the purchase department, in receiving and expediting the items on receipt from the supplier, in having a unique record of each of the items in stores and in work-in-process or in warehouse so as to facilitate the control over the inventory levels, and also in having a good control over the loss, deterioration, obsolescence, non-movement, or pilferage of the items in the inventory. Unique identification of the materials – whether they are raw materials, work-in-process or finished goods – is the first step towards a good materials management system. Without it, the control over inventory by rigorous exercises such as inventory techniques is not very effective. Without it, confusion might prevail in the operational departments. Moreover for a good quality control system a unique identification is a pre-requisite. There are many other advantages such as variety reduction and standardization.

Weelearjan (2000) concurs that, Codification is another important element of inventory control activities. It helps in avoiding duplication of items in the inventory and enables correct entries in the bin cards, Inventory control cards and account codes.Codes, including barcodes, can make the whole process of stock control much easier. It includes allocating codes to all groups of items in the store for ease of control and tracking. Sree Rama Rao (2008) further confirms that, For the purpose of identification and convenience in storage and issue of materials, each item of material is given a distinct name. Such a process of giving distinct names and symbols to different items of materials is called codification of materials. Good store-keeping requires proper classification and codification of various items of stores on stock. Stores are generally classified either by their nature or by their usage. The former method of classification or classification by the nature of materials is most commonly used. Under this method of classification, the various items of stores are divided into specific groups like construction materials, belting materials, consumable stores, and spare parts and so on. All the items are grouped, so that each item of stores will be conveniently codified on alphabetical, numerical or alpha-numerical basis and given a distinctive store code number. Numerical codification system is each item is allotted a number, the numbering may be straight or in groups or blocks. This method is very suitable for those companies where the number of items is very large.In alphabetical codification, each item is denoted by a combination of the alphabets, for example, A for nut, B for screw and so on. This system is not suitable if there is large number of store items. In alpha-numeric codification, alphabets along with numbers are used for coding. The decimal codification system is more commonly used. The number of digits in the code will depend upon the extent of classification required. The greater the number of details to be covered, the greater will be the number of digits. This system of inventory control makes it quick and easy in identifying of materials; it helps to ensure a proper material control, saving of time in material handling and eliminates the chances of wrong issue.

Material Inspection

In their study, Patric&Bruce (2000) found out that, quality is important all along the supply chain, whether its checking quality at the supplier, monitoring quality along the production line, or checking final quality of the finished items before it is delivered to the customer. However, one area that is very important in the monitoring of quality is the inspection of items that arrive at the facility from your suppliers. Ensuring that the parts and raw materials are of the correct quality or specifications before the item even enters the plant are a key aspect of ensuring total quality of the finished goods. Inspection, in this context, means the examination of incoming consignments for quantity and quality. Very often there is a separate inspection department which does this work, but otherwise goods are inspected by stores personnel. Whatever the system of inspection in force, it is the duty of the stores function to see that the inspection is done before items are accepted into stock. Quality assurance activities, and 'co-maker' relationships between buyers and suppliers, have reduced the extent to which the inspection of incoming goods is undertaken, but it remains an important activity. There are various methods of inspection which can be adopted by the inspection committee they include Visual Inspection and sampling.

Visual Inspection is an inspection method where items that arrive at the receiving dock are first visually checked for defects or obvious issues. Items that are in packaging may also be rejected if the packaging is damaged. The quality department may have specific instructions for the warehouse depending on the item that is being received.

Sampling method is when an inbound delivery arrives for a large number of a particular part; the warehouse may not be required to inspect each and every item. In these cases the quality department may suggest a sample of the delivery be inspected. The sample size may be determined by the quality department and may depend on the required level of inspection, the quantity of the items received, and the past performance of the vendor to produce items meeting the necessary specifications. When the sample has been selected the items can then undergo visual inspection at the receiving dock or detailed inspection by the quality department. Samples of chemical materials may require through testing in the lab to determine whether the inbound delivery meets the required specifications.(Lysons& Farrington, 2008).

METHODOLOGY

Research Design

According to Kothari (2008), a research design is a systematic plan to study a scientific problem. The design of a study defines the study type, research question, hypothesis, independent and dependents variables, experimental design, and, if applicable, data collection methods and statistical analysis plan.Research design is the framework that has been created to seek answers to research questions (Muaz &Mohammed, 2013).

This study was descriptive in nature. Mugenda & Mugenda (2003) explain that descriptive design attempts to provide further insight into the research problem by describing the variables of interest. Descriptive survey was most appropriate for this study as it's a method of collecting information by interviewing or administering a questionnaire to a sample of individuals (Orodho, 2003). Inventory management affects organization performance and the aim of this research is to find out the effects of the various variables identified earlier on the inventory management procedures and their contribution on organization performance and this is the reason a descriptive design is best suited in this research. This reseach involves collecting information from only a portion of the population of interest, thus a sample survey was carried out. This is because the design produces higher response rate and the better data quality can be provided (Cooper, 2003).

Target Population

Mugenda(2003) defines target population as the specific population about which information is desired. The population for this study were staff members of Kenya Electricity Generating Company comprising of different departments that include Supply Chain, Mechanical, Finance, technical and operations all based at Kipevu Diesel Plant Mombasa.

Table 3.1 Target Population

[1] Department	[2] Target population	[3] Total percentage (%)
1. Supply Chain	[4] 9	[5] 5
2. Mechanical	[6] 65	[7] 32
3. Finance	[8] 6	[9] 3
4. Technical Services	[10] 40	[11] 20
5. Operations	[12] 80	[13] 40
[14] **Total**	[15] **200**	[16] **100**

Sample and Sampling Techniques

Mugenda & Mugenda (2003) define a sampling frame as a list, directory or index of cases from which a sample can be selected. A sample is defined as a smaller group obtained from the accessible population (Mugemda & Mugenda, 2003). Mugenda further explains that the sample should be carefully selected so as to be representative of the whole population with the relevant characteristics. Cramer & Howitt (2004) define it as a set of entities drawn from a population with the aim of estimating the characteristics of a population.

According to Kothari (2008), stratified random sample increases a sample statistical efficiency and provides data for analyzing various populations. Stratified sampling involves the division of a population into smaller groups known as strata. The study will employ stratified and simple random sampling techniques to develop the sample components.

Kothari (2008) discussed that, if a population from which a sample is to be drawn does not constitute a homogenous group, stratified sampling technique is generally applied in order to obtain a representative sample of the target group.

Determining sample size is a very important issue because samples that are too large may waste time, resources and money, while samples that are too small may lead to inaccurate results. Stratified random sampling technique was used to select a sample for the study. Mugenda & Mugenda (2003) explain that, the goal of stratified random sampling is to achieve desires representation from various sub groups in the population. In this study, Five sub groups were identified from which the sampling will be done; Supply chain, Mechanical, finance, technical services and operations.

The researcher determined the minimum sample size needed to estimate a process parameter through population mean μ. The study population is made up of 200 members with 5 stratum hence the population mean is 40. To come up with a precise sample size, the researcher used Yamane (1967) simplified formula to calculate the size at 95% confidence level and p=0.05. The formula produces an effecve method of determining sample size as shown below:-

$$n = \frac{N}{1 + N(e)^2}$$

Where n is the sample size, N is the population size, and e is the level of precision. When this formula is applied to the above sample, we get Equation as:-

$$n = \frac{200}{1 + 200\ (0.05)^2}$$

$$= 133$$

$n_h = (N_h / N) * n$

where n_h is the sample size for stratum *h*, N_h is the population size for stratum *h*, N is total population size, and n is total sample size.Ccategorizations of employees' respondents is as per table 3.2.

Table 3.2 Sampling and sample size

[17] Department	[18] No. of Staff	[19] Sample Size [20] $n_h = (N_h / N) * n$
[21] Supply Chain	[22] 9	[23] 6.0
[24] Mechanical	[25] 65	[26] 43.0
[27] Finance	[28] 6	[29] 4.0
[30] Technical Services	[31] 40	[32] 27.0
[33] Operations	[34] 80	[35] 53.0
[36] **Total**	[37] **200**	[38] **133**

Data Collection Instruments

Research instruments are measurements tools which were designed to obtain data on the research topic. Questionnaires were administered on the targeted population within the various departments. This was necessary so as to find out their views at different departments. Kothari (2004) defined a questionnaire as consisting of a number of questions printed or typed in a definite order on a form or set of forms. The researcher preferred to use this instrument as is free from bias from the interviewer, respondents have adequate time to give well thought out feedback large samples can be reached as well.

Data processing and Analysis

Kothari (2008) defines analysis as the computation of certain indices or measures along with searching for patterns of relations that exist among data groups. It is made up of qualitative statistics; analyzing information in a systematic manner in order to come to a useful conclusion and recommendation. The statistical method for this study was descriptive and inferential statistics. After the fieldwork, the data was coded and tabulated by use of tables. Data analysis was done using Statistical Package for Social Sciences computer software (SPSS version 20.0) for windows. Descriptive statistics such as mean, percentage and standard deviation will be used to present the various characteristics for the data sets. For this kind of study, descriptive analysis is the best and has been supported by such scholars as (Schaieder & Qing2001). According to Kothari (2008), correlation analysis studies the joint variations of two or more variables Correlation of positive one means a strong relationship between the independent variables and the dependent variable. A positive coefficient ranges from 0 to 1.0. Tables and charts will be used to present the results of the study.

A multivariate regression model was used to link the independent variables to the dependent variable as follows;

$$\mathbf{Y= \alpha +\beta_1 X_1 +\beta_2 X_2+\beta_3 X_3 +\beta_4 X_4 + \varepsilon}$$

Where:

Y = Performance of KenGen
$\mathbf{X_1}$ = Inventory Classification
$\mathbf{X_2}$ = Storage Methods
$\mathbf{X_3}$ = Material Codification
$\mathbf{X_4}$ = Material Inspection

In the model , α= the constant term while the coefficient $\beta_i i = 1…5$ was used to measure the sensitivity of the dependent variable (Y) to unit change in the predictor variables X_1 ,X_2 ,X_3 ,X_4. ε is the error term which captures the unexplained variation in the model.

RESEARCH FINDINGS AND DISCUSSION

Response Rate

Response rates are calculated by dividing the number of usable responses returned by the total number eligible in the sample chosen. (Mitchell 2009) argues, with documentation from others, that the survey response rate should be calculated as the number of returned questionnaires divided by the total sample which were sent for the survey initially out of 133 questionnaires distributed for data collection, 120 of them were returned and used for data analysis. Therefore the response rate for this study was 120/133*100= 90% and the remaining 10.0% (N=13) was non respondents. The 90.0% is considered adequate response rate (Mugenda & Mugenda 2010). The reliability of the data correction questionnaire is discussed in the next sections under reliability.

Reliability of the Questionnaire

Cronbach's test of reliability was performed purposely to determine reliability of the test instrument. On running the reliability procedure some items had to be removed as they had quite unusually low inter-item correlation. Consequently the number of remaining items in each variable and their corresponding reliability score are as shown in table 4.1. For each variable, the number of items retained for further analysis is shown in the last column.

Table 4.1: reliability of variables based on Cronbach's alpha level

Variable	Cronbach's alpha	No. of items
Material Classification	.763	4
Storage Methods	.829	4

Material codification	.911	4
Material inspection	.738	4
Organizational performance	.756	5

Note: An alpha level> .7000 threshold is acceptable.

Demographic profile of respondents

Gender, age, highest education attained and position held by the respondent were the demographic variables considered for this study. All these variables were measured as categorical variables under nominal level scale of measurement. These variables give an insight about the sample characteristics that took part in this study. Frequency distribution of findings in table 4.2 shows that the female respondents were 29% and 71 % were male. The huge difference could be attributed to the fact that most of the non-respondents were of ages of 18- 25 years. On the respondents' education level,(men=32, female=8).

A majority of respondents, 35.8%, were in 36-45 years age bracket and 31.7 were over 45 years age. However only 15.8% was between ages 18-25 years. Those with degree and postgraduate holders were the majority, 57.5%, followed by diploma, 32.5% and certificate were only 10.0 %. These respondents were from different job levels; top level, 83%, middle level, 60.0% subordinate, 21.7% and general worker, 10.0%. So the foregoing distribution of demographic characteristic describes the sample from which data was collected for analyzing the relationship between the staff's level of education and performance of KenGen.

Table 4.2: demographic profile of respondents

		N	Percentage
Gender of respondent	Female	35	29%
	Male	85	71%
Age in Years	18-25yrs	19	15.8
	26-35 Yrs	20	16.7
	36-45 Yrs	43	35.8
	Over 45 Yrs	38	31.7
Highest education attained	Certificate	12	10.0%
	Diploma	39	32.5%
	Degree & Postgraduate	69	57.5%
Job Level	Top Level	10	8.3
	Middle Level	72	60.0
	Subordinate	26	21.7
	General Worker	12	10.0

Descriptive statistics of study variables

The term descriptive statistics deals with collecting, summarizing, and simplifying data. It seeks to achieve this in a manner that meaningful conclusions can be readily drawn from the data. In this study, the descriptive statistics specifically sought to gauge the level of the independent variables (classification, storage method, codification and material inspection) and independent variable, organizational performance. The responses were captured on a 5-point Likert scale ranging from 1-Strongly disagrees to 5-strongly agree. The mean and standard deviations of these responses were calculated to gauge the mean level of the variable and its variability (standard deviation, SD).

Inventory classification

Material classification system used in KenGen was assessed using four sub-variables. The analysis result in table 4.3 below shows that materials are clearly classified, mean=4.52. The classification system is based on rate of usage (that is, Fast-moving, Slow-moving and Non-moving items), mean= 4.33, the materials are classified based on usage, mean=4.21, and always all the inventory is classified on the basis of its importance and not its value, mean=3.90.This has been supported by Ballou (2000) who found out that, Inventories need to be classified according to Vital, Essential and Desirable (V -E-D), which in essence means that stress is more on importance rather than on value. The VED analysis is done to determine the criticality of an item and its effect on production and other services

According to Kumar (2007), in fast moving slow moving and non-moving of inventory classification. Here, classification is based on the pattern of issues from stores and is useful in controlling obsolescence. To carry out an FSN analysis, the date of receipt or the last date of issue, whichever is later, is taken to determine the number of months, which have lapsed since the

last transaction. The items are usually grouped in periods of 12 months.FSN analysis is helpful in identifying active items which need to be reviewed regularly and surplus items which have to be examined further. Non-moving items may be examined further and their disposal can be considered.

Therefore at KenGen the respondents agreed that, items are assessed in terms of the rapidity of their use and importance in production process, materials are well and clearly classified purposely to keep total inventory size and cost down.

Table 4.3: Inventory classification in KenGen

	N	Mean	Std. Deviation
1. Material are well and clearly classified	120	4.52	.608
2. System of classification is based on rate of usage	120	4.33	.473
3. Classification is according to usage	120	4.21	.408
4. Inventory is classified based on its importance rather than its value (VED)	120	3.90	1.048

Material storage method

Material storage at KenGen Company was measured using four variables and the findings presented in table 4.4. The findings indicated that there is enhanced inventory management, mean=4.70, the materials are stored according to their respective groups mean=4.46, First-in-first-out system used and the stock levels are well monitored mean=4.03. Ballou (2000) concurs that, Storage methods are vital aspects to be considered when an organization is setting up a warehouse, in line with that it will enable an organization to store its materials safely and securely for operational efficiency. Stock Control involves acquisition of Storage systems, storage systems refer to the techniques used to keep inventory safely and free from deterioration through conservation in the organization, eliminate cases of damages of materials, theft, pilferage, overstocking and obsolescence. Cases of stock outs of materials are as a result of poor documentation, poor monitoring of inventory levels and lack of control of stock movement within the stores.

This is confirmed by scholars such as Schaider (2000) who asserts that, materials are equivalent to money and proper storage and great attention have to be paid to the proper storage, so that they are free from damage and possibilities of pilferage. Stores record such as bin card should give accurate balances as verified form time to time by the auditors. There are various storage methods -inventory control model that a company adopts in the control of its inventory. They include; Periodic Stocks Review and two Bin systems

According to the employees who took part in this study, storage procedures of material at KenGen was proper and orderly. That is to say, there are proper documentation and dating of materials to minimize obscelence; the stock levels are well monitored and there is likely to have minimum pilferage and expired material as First-in-first-out basis is used.

Table 4.4: Material storage at KenGen

	N	Mean	Std. Deviation
1. There are proper material documentation	120	4.70	.603
2. Stored according to material groups	120	4.46	.634
3. First in first out system used (FIFO)	120	4.39	.626
4. Material stock level are monitored effectively	120	4.03	.869

Material coding at KenGen

Material coding at KenGen was measured using four variables and findings tabulated in table 4.5. The findings indicated that, at KenGen the material coding is strategic mean=4.54, incoming materials are well classified for coding mean=4.48, the material coding system is effective mean=4.12, and also the electronic devices adopted by KenGen for material coding has somehow enhanced inventory management mean=3.62,

Scholars such as Weelearjan (2000) concurs that, Codification is an important element of inventory control activities. It helps in avoiding duplication of items in the

inventory and enables correct entries in the bin cards, Inventory control cards and account codes.Codes, including barcodes, can make the whole process of stock control much easier. It includes allocating codes to all groups of items in the store for ease of control and tracking this increases efficiency and effectiveness in inventory management.

These findings therefore indicate that at KenGen, materials are strategically coded, all the incoming materials are grouped for coding for ease of control and monitoring, the devices used enhances inventory management hence material coding in KenGen is effective.

Table 4.5: Material coding

	N	Mean	Std. Deviation
1. Strategic material coding system	120	4.54	.660
2. Incoming material classified for coding	120	4.48	.502
3. Material coding is effective	120	4.12	.918
4. Electronic devices enhance inventory management	120	3.62	1.589

Material inspection at KenGen Company

Material inspection at KenGen was the fourth independent variable considered. It was measured using four sub variables. Based on the findings in table 4.6, it was clear that materials received are thoroughly inspected mean=4.98. The procured materials are inspected against set standards mean=4.73, the KenGen tender committee is well composed mean=4.33, and sub-standard materials are not accepted mean=3.80. According to the respondents it is evident that, it is important to comprehensively inspect materials upon receipt, materials should be inspected against some set standards, and Tender processing committees should be well composed this will ensure that substandard goods or materials get rejected at the receiving point enhancing quality of goods, works and services as supported by Patric & Bruce (2000) who found out that, Quality is important all along the supply chain, whether its checking quality at the supplier, monitoring quality along the production line, or checking final quality of the finished items before it is delivered to the customer. However, one area that is very important in the monitoring of quality is the inspection of items that arrive at the facility from your suppliers.

Table 4.6: Material inspection at KenGen Company

	N	Mean	Std. Deviation
1. Material received are comprehensively inspected	120	4.98	.129
2. Material inspected against set standards	120	4.73	.444
3. Tender Committee well composed	120	4.33	.873
4. Substandard materials are totally not accepted	120	3.80	1.728

Inferential statistics

This section covers the findings of regression and correlation analysis. It includes direction and magnitude of relationship, Goodness of fit Model and Test of significant of model.

Correlation analysis

Correlation coefficient is a single number that describes the degree of the relationship between two or more variables. A Pearson correlation indicates the direction, strength and significance of the bivariate relationships of two variables. According to William (2003) theoretically there could be a perfect positive correlation between two variables which is by 1.0 or a perfect negative correlation between two variables which is represented by -1.0.

Table 4.7: Pearson Correlation coefficient matrix

	Classification	Storage	coding	Inspection
classification	1	.513**(.000)	.707**(.000)	.763**(.000)
Storage	.513**(.000)	1	.730**(.000)	.607**(.000)
Coding	.707**(.000)	.730**(.000)	1	.668**(.000)
Inspection	.763**(.000)	.607**(.000)	.668**(.000)	1
Performance	.680**	.424**	.707**	.814**

Note: (1) **. Correlation is significant at the 0.01 level (2-tailed). (2) P-values are in parentheses. (3) all p-value<0.001)

Correlation analysis was performed between all the IV independent variables. The resultant correlation matrix is presented in table 4.7 above. From the tabulated result, it was deduced that the correlation of one variable to its own self equals to 1. There was moderate positive correlation between material classification at KenGen and storage methods with the value being 0.513, this indicates that when the materials are well classified either according to their usage or type the storage method will be efficient. Storage method was found to be positively and significantly correlated with material coding, significant value of 0.730, this is because it is through the coding of materials that determines how the materials are stored for instances the codes that relate to machine spares will be stored differently this enhances retrieval of stock and ease of stock take. Similarly material inspection was found to be strongly and positively correlated with material coding with the significant value of 0.607.

In conclusion, an increase in efficiency and effective classification of material, material storage, inspection and coding will be accompanied by increased performance and vice versa. Therefore these four variables' level of efficiency can predict the level of performance at KenGen.

Regression analysis

Regression analysis was undertaken with respect to performance of KenGen as the dependent variable and the four independent variables; Storage methods, inventory classification, material coding and material inspection. Multiple linear regression analysis is a general statistical technique used to analyze the relationship between a single dependent variable and several independent variables (William 2009). It is one of the most extensively used multivariate statistical techniques for testing hypotheses and predicting values for dependent variables. Data was input into the SPSS software and the results obtained shown in table 4.7.1 below.

Table 4.7.1: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.881[a]	.775	.768	.38815

The model summary shows the ratio of variation in the response variable, in this case performance that can be attributed to the predictor variables in the model; it is called the coefficient of determination. Therefore from the model summary table 4.8; the four IV independent variables correctively accounted for about 77.5% of the variations in performance (R square=.775) and the remaining, 22.5% can be attributed to other factors not captured in the model.

Table 4.7.2: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	59.848	4	14.962	99.309	.000[b]
	Residual	17.326	115	.151		
	Total	77.174	119			

A. Dependent Variable: Performance

B. Predictors: (Constant), Inspection, Storage, Material Classification, Coding

This study used ANOVA to establish the significance of the regression model with a significant error level of .05. The model was statistically significant in predicting youth participation in given that the regression model had a probability of less than 0.05% of giving a wrong prediction hence high reliability of the result.

Estimated Model of Coefficient

From the established linear equation model below;

$\mathbf{Y= \alpha +\beta_1 X_1 +\beta_2 X_2+\beta_3 X_3 +\beta_4 X_4 + \varepsilon}$

Where Y = Performance of KenGen
α = Constant
$\mathbf{X_1}$ = Inventory Classification
$\mathbf{X_2}$ = Storage Methods
$\mathbf{X_3}$ = Material Codification
$\mathbf{X_4}$ = Material Inspection
E = stochastic term or error term
$\mathbf{\beta_1, \beta_2, \beta_3, \& \beta_4}$ = Regression coefficient
As depicted by Table 4.7.3 below,

Table 4.7.3 Coefficients 1

Coefficients Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.968	.481		2.013	.046
	Material classification	.144	.153	.072	.944	.347
	Storage	.701	.122	.386	5.726	.000
	Coding	.820	.118	.546	6.953	.000
	Inspection	.790	.080	.739	9.932	.000
a. Dependent Variable: PERFORMANCE						

From chapter 3, the estimated regression model was $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$. Therefore using the multiple regression coefficients in table 4.10 above, the fitted regression model would be: $-Y = .968 + .144X_1 + .701X_2 + .820X_3 + .790X_4$.

From the standardized Beta;

$\beta_{1=}$ .144; Shows that a unit increase in material classification results in 0.144 increase in performance of KenGen other factors held constant.

$\beta_{2=}$ .701; Shows that an increase in storage methods results in 0.701 increase in performance of KenGen other factors held constant.

$\beta_{3=}$ .820; Shows that an increase in Material Coding results in 0.820 increase in Performance of KenGen other factors held constant

$\beta_{4=}$ .790; Shows that an increase in material inspection results in 0.790 increase in Performance of KenGen other factors held constant

From the regression analysis, the higher the absolute value of the beta coefficient of the four variables, the higher the contribution that the independent variables have on the dependent variable (performance). Therefore, coding of material had highest contribution (β=.820, p<.001) on performance of KenGen, then followed by inspection procedures (β =.709, p<.001), storage methods (β=.701, p<.001), and material classification was least and insignificant contribution to performance (β=.144, p=.347).

The main objective of the study was to assess the effects of inventory management procedures on performance of KenGen. Based on these findings, coding has the highest effect; inspection and storage had significant positive effect on the performance of KenGen. Therefore, efficient and effective coding, inspection and storage procedures of materials would be key to reduced spoilage, pilferage, loses stock-out costs and material theft at KenGen. Consequently there is therefore increase chance of meeting customer expectation through timely delivery of customer quality service or products.

II. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary of the Findings.

The study was undertaken at KenGen Company in Mombasa Kipevu power station to assess the effect of inventory control procedures on the performance of KenGen. To achieve this objective, four specific objectives were formulated and studied. Summary of the major findings has been designed according to each individual independent variable.

The first objective was 'To determine how Inventory classification contributes to performance of KenGen' analysis of data produced descriptive indicating that materials were well classified according to importance or grouping. It was found that material classification procedures positively correlated with performance. The regression result revealed that classification procedures had a significant positive effect on performance at KenGen. These finding are in line with what other studies found that material classification is essential in inventory management.

The second objective sought to determine the effect of storage methods on performance of KenGen. It was established that, at KenGen, storage procedures are effective, that is to say, they use first-in-first out procedures, materials well documented, and stock levels are well monitored. The storage procedures were found to correlate positively and significantly with performance. The effectiveness of storage methods and procedures had a significant effect on performance of KenGen. Therefore with proper storage records at KenGen, the company is able to determine the optimum order quantity that it should hold in its

inventory given a set cost of production, demand rate and other variables. For that reason variable inventory costs are likely to be minimal at KenGen. Consequently if this benefit is transferred to the customer by pricing its product/services competitively, then the company becomes more competitive in terms of production cost.

The third objective was material Coding. It was found that the coding of materials at KenGen help in properly identifying materials and it is effective. Example there is clearly coded materials. Proper material codification procedures was found to be positively and significantly related to performance. From the regression analysis, these procedures had a significant positive effect on performance at KenGen. So at KenGen, material duplication is minimal due to proper coding systems and procedures, materials are well trucked and only essential and necessary materials for production or any other use are acquired at the right time. The implication is that reduced loses through theft, expiry, obsolesce are minimal. Therefore production costs are consequently lowered to the advantage of the company.

Finally the fourth and last specific objective sought to determine the effect of material inspection procedures on performance of KenGen. It was established that the inspection procedures put in place were quite effective in ensuring only quality materials are allowed into the store which are comprehensively inspected against set standards. The inspection level of materials and thoroughness positively and significantly related with performance. The inspection level had positive effect on performance, the effect was significant. The findings are in agreement to other studies that quality is a key objective of procurement and essential to organization performance. Therefore the materials used for production at KenGen were of quality and therefore quality production was obtained. Quality being one of the critical factors customers' value, then KenGen customers are satisfied in terms of quality.

In summary the inventory procedures adopted at KenGen were found to be effective. They result to proper inventory management. Inspection ensured quality materials are procured, proper records ensured that there are the right materials at the right time and right place. Consequently there was minimum production cost due to minimal losses.

III. Conclusions

Based on the findings above, the study found that classification of materials was important in improving performance of KenGen. An improved classification system (example, classifying items as either fast-moving, or slow-moving or non-moving goods) would have a positive effect on inventory management and consequently the organizational performance. Also the study concludes that effective and efficient storage procedures have positive effect on inventory management. The organizations which do monitoring stock levels would minimize stock costs, idle stock, theft and pilferage.

The study further concluded that effective coding of all materials acquired would result to effective inventory management. That is to say, the materials which are strategically coded according to the class the material belongs would enhance inventory management at KenGen. This would not only reduce material loses; it would also improve material trucking and monitoring stock.

Recommendations

The study revealed that, the business world is becoming more and more competitive. Companies compete to produce products and services that retain customers. Customers can be retained through quality and competitively priced products. To achieve these, companies have to procure quality materials through inventory classification, storage methods, material codification and material inspection.

The study therefore recommends that:-KenGen should invest and ensure proper inspection of all materials as one of its source of competitive advantage.

Good store-keeping requires proper classification and codification of various items of stores on stock. Therefore KenGen should consider classifying materials either by their nature or by their usage and also classify other materials in terms of their criticality in the production process.

The study also recommends that Procuring entities like KenGen to invest in modern state of the art inspection equipments to enhance the quality and conformity of the materials procured. By so doing the company would produce quality products and therefore remain competitive in the market.

The study further recommends that, there is need for the procuring entities to adopt E-procurement and processes such as strategic Supplier Relationship Management (SRM), this will enhance quality of products, reduce non-conformity, reduce lead time, assist in stock level monitoring and reduce storage cost as the suppliers will be able to supply as and when required.

Limitations of the Study

Various challenges were faced during the study, key among them being limited financial resources to cover all expenses that would have been necessary for the study. Some respondents were outright hostile and felt that some information may lead to too much exposure on the institution and were therefore not willing to disclose all that was necessary. Majority of the senior and middle level management did not have time to respond to questionnaires and therefore delegated to junior staff members who did not have all the requested information and were not willing/ able to go back for clarification or more information since they view the exercise as of a purely academic nature rather than a basis for future research and which may result in mutual benefit. Also the study was carried out in one of the KenGen's power station this may not depict the true picture of inventory management in relation to KenGen as an organization.

Suggestions for further study

This study confined itself to determine the effect of inventory procedures on performance of KenGen, therefore this study recommends that further research be undertaken to simultaneously consider other factors which might influence organization performance like employee motivation, training, government policies and emerging issues in public procurement. To this end the study recommend those stakeholders and other organizations, to relook into their inventory management procedures seriously as their source of better performance.

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