

**A SURVEY OF THE ORGANIZATION FOR MATERIALS
MANAGEMENT IN THE KENYAN MANUFACTURING FIRMS.**

BY

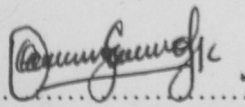
ONDIEK GERALD OCHIENG

**A MANAGEMENT RESEARCH PROJECT SUBMITTED IN PARTIAL
FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTERS
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DECLARATION

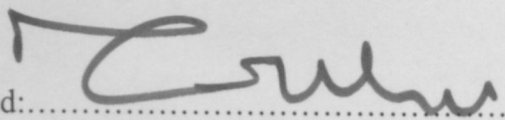
This research project is my original work and has not been submitted for a degree in any other University.

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

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The completion of this study was made possible by several people to whom I wish to acknowledge. My supervisor, Mrs. Zipporah N. Kiruthi, Lecturer in the Department of Management Science, deserves special thanks for the unqualified support, encouragement, guidance, advice, understanding and availability at all times.

DEDICATION

In memory of my late mother, Teressa Atieno Ondiek, for her unqualified love, undiminishing support, encouragement and more so sending a dream requesting me to pursue my education to the furthest I can.

I am also grateful to all other family members that is, Roseline (grandmother), Janet (brother), Evalor, Janet, Miriam, Veronica and Rosemary (Sisters), for the support and encouragement they gave me during my academic life.

I cannot forget to thank my close academic and social friend Damaris Okoko for the ideas and views we shared during our period together in MBA.

Let me not forget I am indebted to Alice, the secretary who typed my work, and the many others who cooperated with me and to all those people (not mentioned here) who worked so hard in one way or another to make this study successful. To you all, I say thank you.

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Last but not least, I am indebted to Alice, the secretary who typed my work; manufacturing firms, which cooperated with me and to all those people (not mentioned here), who worked so hard, in one way or another, to make this study successful. To you all, I say thank you.

ABSTRACT

Materials plays a big part in the manufacturing firms as it account for about 56% of the annual turnover. This research intend to analyse the attention and recognition the Kenyan manufacturing firms are giving to the materials management and whether Kenyan firms are practising the current materials management philosophies.

The motivation of the study was the fact that long-term success and survival of any organisation especially in a turbulent environment, like the one that is currently is experienced in Kenya, depends entirely on how well organisation are managing their costs .Secondly, the fact that currently companies are competing though cost reduction. The study was a survey of medium and large manufacturing firms based in Nairobi. The data was collected using a structured questionnaire consisting mainly of close-ended questions and some few open-ended questions. The data was collected between 22nd May 2000 and 31st July 2000. From a list of manufacturing firm's obtained from Kenya Industrial Research and Development Institute (KIRDI) directory of 1997, the researcher developed a sampling frame (See Appendix C). Out of the list, which is containing firms of all sizes, only medium and large firms were selected for the study.

The main objective of this study was to determine the kind of attention and recognition the Kenyan manufacturing firms are giving to material management. Besides, the following secondary objectives were investigated:

- i) To find out the proportion of annual turnover organizations spend on materials and materials related costs.
- ii) To establish the kind of organization structures existing for materials management.
- iii) To establish the usage of material management (MM) concept in the Kenyan manufacturing firms.
- iv) To establish benefits realised and problems encountered by the manufacturing organisation which have implemented materials management concept.

A sample size of 55 respondents was used in the study. The data collected was presented using tables. Data collected was analysed using descriptive statistics. Proportions, percentages, median and mean were used for analysing the data. The major findings were:

The Kenyan manufacturing firms are spending an average of 56% of their annual turnover on materials and materials related cost.

Regarding attention and recognition given to materials management, the Kenyan firms have not given a lot of attention to materials functions. The number of firms (23%) showed this where the incharge of materials was reporting directly to the chief executive officer.

Concerning the existence of a specific department for material functions, it was found that more large firms had departments dealing with materials as compared to medium firms. The indication was that large firms had more materials to manage and hence saw the need for a department.

It was found that several Kenyan firms were applying materials management concept although only very few applied it knowingly. Majority of the firms had their material functions performed by purchasing managers, general manager and production managers.

For the firms that had implemented the material management concept the benefits they expected and actually realised were: improvement in quality of inputs, reduction in conflict regarding material functions, quick response, better co-ordination, optimal stock level, stable manufacturing schedules and effective and efficient information flow.

It was also realised from the research that many organizations did not want to accept the inefficiencies in their system and therefore did not see any need for improvement.

The problems encountered by the material management approach were lack of flexibility, entrusting a lot of sensitive activities to one department and lack of well-integrated database to support information flow.

The conclusion drawn from the research was that Kenyan firms were not practising professionalism in materials management and that materials management was more suited for large firms.

Recommendations made were that, owing to the large sum of money companies were spending on materials and material related activities, a lot of emphasis and attention needed to be given to materials management. Materials management needs to be recognised as a top management function.

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CHAPTER ONE

1.1 INTRODUCTION

Currently the world is undergoing change, and the world market has become almost like a village market. Each country must strive to keep itself in business. Major Competition has moved from the market to the production floor. All organizations have been forced to look onto the cost of production so that they can compete through cost reduction. Backed with advanced technology, organizations are closely monitoring their cost and embarking on efficient and effective material management. For example, firms are moving from traditional methods of evaluating and selecting suppliers yearly to supplier management.

Material management is a concept which brings together under one management responsibility for determining the manufacturing requirement, scheduling the manufacturing process and procuring, storing and dispensing materials (Wild, 1995). As such it is concerned with and controls all activities involved in the acquisition and use of all materials employed in the production of finished goods.

Evans and others (1989), view material management to be concerned with planning, coordination and control of the acquisition, storage handling and movement of raw materials, purchased parts, semi-finished goods, and other materials that are an integral part of production process or service.

According to Fearon, Ruch and Witters (1988), organizations that have adopted the materials management organization concept have a single manager who is responsible for planning, motivating and controlling all those activities principally concerned with the flow of materials into and out of the organization.

Dobler and Burt (1996) postulates that materials management provides an integrated system approach to the coordination of materials activities and the total materials costs. They view it as something that advocates assigning to a single operating department all major activities, which contribute to the cost of materials. The objectives is to optimize performance of materials systems, as opposed to sub-optimizing the performance of individual operating units that are part of the material system.

The views given above clearly explain that materials management considers material flow as a system, which need to be integrated. The integration will help in monitoring and evaluation of the system.

The basic objective of materials management as explained by Chase (1989) is to ensure that the right item is at the right place, at the right time and at a reasonable cost. The intention of having materials management system in place is for solving materials problems from a total company view point (Optimize) by coordinating performance of the various materials flow. Fearon and others (1988) see the

introduction of computers as a great boost to the adoption of materials management, as materials functions have many common databases.

As noted by Chase (1989), materials management applies to the manufacturing function, extending from the receipt of materials from the vendors, through the manufacturing process, and into finished goods within the facility. According to his findings, the front-end of the total materials flow systems may be under the control of the purchasing department; flow within the manufacturing system itself left to the manufacturing manager; and the finished goods storage and distribution left to the marketing manager. In other words, the overall control of materials flow is often divided among three managers and this division has presented problems.

As reported by Chase (1989), many firms are taking a broader view of the entire flow, from purchasing to final delivery to the consumer, and are beginning to centralize the overall control.

Some reasons for this include: -

- (i) The trend toward minimizing all inventories brought on the adoption of system such as Just – in – Time (JIT).
- (ii) The rapidly changing range of products and the need for speedy delivery to the market.

- (iii) Shortened product life cycles, which necessitate knowledge and control of inventories in the various pipelines.
- (iv) Trends in the legal system, which holds manufacturer liable for product failures even though causes may be outside the productive system itself.

It was found that the single manager materials concept overcomes the shortcomings of the conventional organization, where the various materials functions are organizationally split. Fearon and others (1988) find that single manager material concepts recognizes:

1. Material decision as being additive and not independent of actions elsewhere.
2. The self interest and potential conflicting objectives of the individual materials functions and,
3. The need to concentrate authority and responsibility for materials to avoid buck-passing.

Many organizations have often used the material management concept unknowingly. Any organization in which at least three of the following function:
- purchasing, inventory, production scheduling and control, inbound traffic, warehousing and stores, incoming quality control report to a single responsible individual is said to practice the concept (Carter and Price, 1993).

Materials management has become typical form of organization in recent years. Time has come, when organization and its entire staff have to consider their decisions in relation to how they will affect materials side of the business. Materials related costs, that is, ordering costs, quality costs, holding costs and price paid for the item need to be managed collectively. It is realized that with an interest rate of say 20 percent, holding stocks becomes very expensive. If you could reduce the stock levels with Kshs. 1 million, you would save Kshs.200, 000 per annum.

It is clearly evident that materials management (MM) concepts enhances communication and coordination by bringing together to one responsible individual, all functions which are interrelated. This integration of interrelated materials functions is the basis of materials management concept.

1.2 DEFINITION

Materials Management:

The Chartered Institute of Purchasing and Supplies defines Material Management (Carter and Price, 1993) as,

The total of those tasks, functions, routines which concern the transfer of external materials and service into organization and the administration of the same until they are consumed or used in the process of production.

These functions of materials management include material planning and Control, Production Scheduling, Receiving Materials, Materials and Purchasing Research, Stores, Purchasing, In-plant materials movement, Traffic, Disposal of scrap and Surplus and Quality Control.

Ammer (1969) in Harvard business review gives a simpler definition of materials management as just a line of responsibility which begins with the selection of suppliers and ends when the material is delivered to its point of use.

Wild (1995) defines materials management as the methods and principals by which we endeavour to plan, organize, coordinate, control, and review the flow of materials throughout an organization. According to this definition, it offers, therefore, a means for the overall control of materials throughout an organization.

As viewed by Adam and Ebert (1992), materials management are activities relating to managing the flow of materials into and throughout an organization.

This study will adopt definitions given by Carter and Price (1993) and also Adam and Ebert (1992) and add that materials management involves stages of management from the point of planning to out source materials upto the point of physical distribution of finished products.

System

System is a set of interacting variables (Heizer and Render, 1996)

Sub-optimize

This is when a system is not operating at its best level (Fearon et al, 1988).

Strategy

A strategy is a set of plans and policies by which a company aims to gain advantages over its competition (Heizer and Render, 1996). It can also be viewed as a plan to achieve a mission.

1.3 STATEMENT OF THE PROBLEM

The current development in competition and technology has continually led management to refocus their effort to attain competitive advantage. This calls for the need to plan and utilize both physical and human resources effectively and efficiently and hence the need to modify methods, techniques and procedures that have been previously used. The emphasis has been on efforts to improve production chain of activities for ease of control and enforcing operation management strategic plans. A lot of concern has been more particularly shown in the management of materials and materials related to costs.

Organizations are faced with a lot of competition in the current markets. This has led to the need for coming up with better method of managing and measuring how resources are utilized by various jobs or products, and therefore be able to eliminate any wastage in the value chain. The new cost management methods

require having the right person doing the right job. In this case, the major concern is how materials functions are organized and actually who is responsible over these functions in the Kenyan manufacturing firms.

Second to establish who is responsible for materials functions. The researcher

A research, which was done in America, showed that materials contribute to almost sixty percent of the annual turnover in the manufacturing firms (Evans et al, 1987). This shows clearly that a lot of concern should be given to materials management to avoid unnecessary costs. Actually any function of the firm which accounts for well over half of its receipts certainly deserves a great deal of managerial attention.

Based on this, the following questions arise:

Several researches have been carried out by center for advanced purchasing (CAPS) to find out the level of usage of material management (MM) concept in organization. The studies were based in America. The CAPS study of 1979 when compared with the study done in 1988 showed an increasing trend in the use of materials management concept (Leenders et al, 1989).

What could be the Kenyan firms applying the materials management

The 1988 organization study by the Center for Advanced Purchasing studies shows that 204 out of 291 large organization used material management concept. And that in the 204 large organizations that used the MM concept, the purchasing, Inventory and Warehousing and Stores functions are included in the MM organization by almost equal number of firms (Leender et al, 1989).

This study intends to find out the level of attention that is given to materials in the in the Kenyan manufacturing firms.

Second to establish who is responsible for materials functions. The researches that have been done before have majorly dealt with approaches used in inventory management. Actually no research has been done on the status of materials management in Kenya. Hence the study is set to find out the current state of the application and practice of materials management concepts in medium and large Kenyan manufacturing firms.

Based on this, the following questions arise:

- (i) What kind of attention and emphasis are Kenyan manufacturing organizations giving to materials management?
- (ii) Who is responsible for materials functions in Kenyan organizations?
- (iii) How much are organizations spending on materials and materials related costs?
- (iv) To what extent are the Kenyan firms applying the materials management concept?

1.4 OBJECTIVES OF THE STUDY

- i) To determine the attention and emphasis that Kenyan manufacturing firms are giving to materials management

- ii) To find out the proportion of annual turnover organizations spend on materials and materials related costs.
- iii) To establish the kind of organization structures existing for materials management.
- iv) To establish the usage of material management (mm) concept in the Kenyan Organizations.
- v) To establish benefits realized and problems encountered by manufacturing firms, which have implemented materials management concept.

1.5 IMPORTANCE OF THE STUDY

It is hoped that this study will be of importance in the following ways.

1. To the owners of firms in making relevant decisions about materials management and hence cost reductions.
2. The study would sensitize top management on the areas of benefits in the use of an integrated materials management approach.
3. The study would help the top management in structuring the organizations and hence appropriate allocation of responsibility center.
4. This study is expected to stimulate interest among academicians and encourage further research in materials management and help in building the body of knowledge in materials management.

CHAPTER TWO

LITERATURE REVIEW

2.1 HISTORY OF MATERIALS MANAGEMENT

2.11. INTRODUCTION

Purchasing was generally considered as one of the most basic functions common to all organizations but was never given a lot of attention. Until, only the past two centuries has purchasing been addressed seriously in books, colleges and universities. It was first brought to limelight by Charles Babbage in 1832. The first course in purchasing & supply management was introduced by Harvard University in 1917. However, the first college textbook was authorized in 1933 by Howard Lewis of Harvard University. (Dobler and Burt, 1996; Fearon, Rich and Wieters, 1988).

Originally purchasing and materials management were done manually. The major attention during the time was on purchase price and avoiding shutdowns. Very junior people did the activities (Dobler and burt, 1996).

By the end of 1970s, the world of procurement changed and it has been changing upto now.

2.12 DEVELOPMENT STAGES

The following are the descriptions of the development stages by the activities involved as explained by Dobler and Burt (1996). The four stages are:

2.121 Reactive stage

These are the days when purchasing was just a clerical function. It only required high school education for one to perform the duties. Major activities were processing papers. People used to react with the situation or crisis as they come. Reporting was to lower level.

2.122 Mechanical stage

As noted by Dobler and Burt (1996), this stage was characterised by the following:

- i) It required some college education
- ii) Computer processing papers. Things were not fully manual as was in reactive stage
- iii) The activities were transaction driven
- iv) Reporting was still at lower level, but not as low as was in reactive stage.
- v) The primary focus was to keep production line running.
- vi) Major interest was in price reduction
- vii) Spot buy system was the one in use.
- viii) Poor information availability about quality and cost.

2.123 Proactive stage

This stage was much more an improvement of the first two stages. Here; the staff involved in the activities were professional people, they had proactive approach to issues, some long-term contracts were involved in the dealings, the cost of ownership were measured, suppliers were considered as resources, the in-charge were reporting to higher

management level, there was cross functional support to enable perfection of duties, continuous training and education were offered, purchasing was recognized as a very core-activity. Although there were still limited use of strategic information about quality, cost and suppliers in general. Some commodity strategies were also put into use.

2.124 Strategic Supply Management

At this stage, supply was a competitive weapon. Supply strategy was integrated with other SBU's strategy that is, it was integrated with marketing, finance and conversion strategy.

As explained in Dobler and Burt (1996), supply manager participate in new product development and are responsible for selecting sources, managing costs, developing and nurturing supplier partnership and strategic alliances, and issuing long-term agreement with selected suppliers.

Other characteristics of this stage include; measuring continuous improvements, optimizing cost of ownership, global focussing of issues, centralization of supply strategies, data available and were used, purchasing activity decentralized, monitoring of environment, managing of relationships and designing supply base.

2.13 EVOLUTION OF THE FUNCTION, THE PROCESS AND THE ORGANIZATION

Material functions are viewed to have developed from very far. It started by mere purchasing function, it then went to procurement process, and then it went to supply management until currently we are in materials management. The following are a brief explanation of what is involved at each level (Dobler and Burt, 1996).

2.131 Purchasing

At this stage, the purchasing function comprises the essential activities associated with the acquisition of materials, services and equipment used in operation of an organisation. Things were handled in a reactive manner. In as much as it could have been conducted more professionally with a managerial emphasis, it was still viewed largely as a group of tactical activities.

Inadequacies in this type of management system led to the development of the next concept.

2.132 Procurement

The procurement process or concept encompasses a wider range of supply activities than those included in the purchasing function. It broadened the view of purchasing as an activity, with more buyer participation in related material activities.

Actually this stage was considered to be more proactive with some little focus on strategic matters.

2.133 Supply Management

Supply management is a process responsible for the development and management of firm's total supply system both the internal and external components (Dobler and Burt, 1996). It performs the activities of purchasing function and procurement process and goes further than that as it is strategically focussed in nature.

Currently, this stage represents the most advanced stage in the evolutionary development of the purchasing/procurement/supply sphere of activity. The difference between it and its predecessors is that it focuses heavily on the strategic aspects of the key elements of a firm's supply system.

2.134 Materials Management

This concept is quite different from the three discussed above. It is basically an organisation concept and that, from a managerial perspective, it is designed to enhance co-ordination and control of the various materials activities. Its basis of argument is that a decision or action taken at any point in the materials chain usually impacts a number of other activities through a typical firm (Fearon et al 1988).

It is clearly noted by Fearon (1988) that material decisions are additive and not independent of actions elsewhere. I reiterate that the integration of interrelated material functions is the basis of material management concept.

2.2 CONCEPTUAL FRAMEWORK

According to Fearon, Rich and Wieters (1988), the materials management concept grew out of problems in the airframe industry during World War II. Production of an aircraft requires a large number of individual items, many of which are quite sophisticated and must meet stringent quality standard; these are procured from thousands of vendors located over a wide geographic area. Each item is vital to the total functioning of the end product. Considering that the aircraft were on a very high demand, and they were required very fast, there were bound to be a lot of errors and delayance. The objectives of materials management as explained earlier are solving materials problems from a total company viewpoint by co-ordinating performance of various material functions: providing a communication, network, and controlling materials flow. The introduction of computer into organizations provided a further reason to adopt materials management. The materials functions have many common data needs and can share a common database. The following diagram shows organization structure for materials management within the total company.

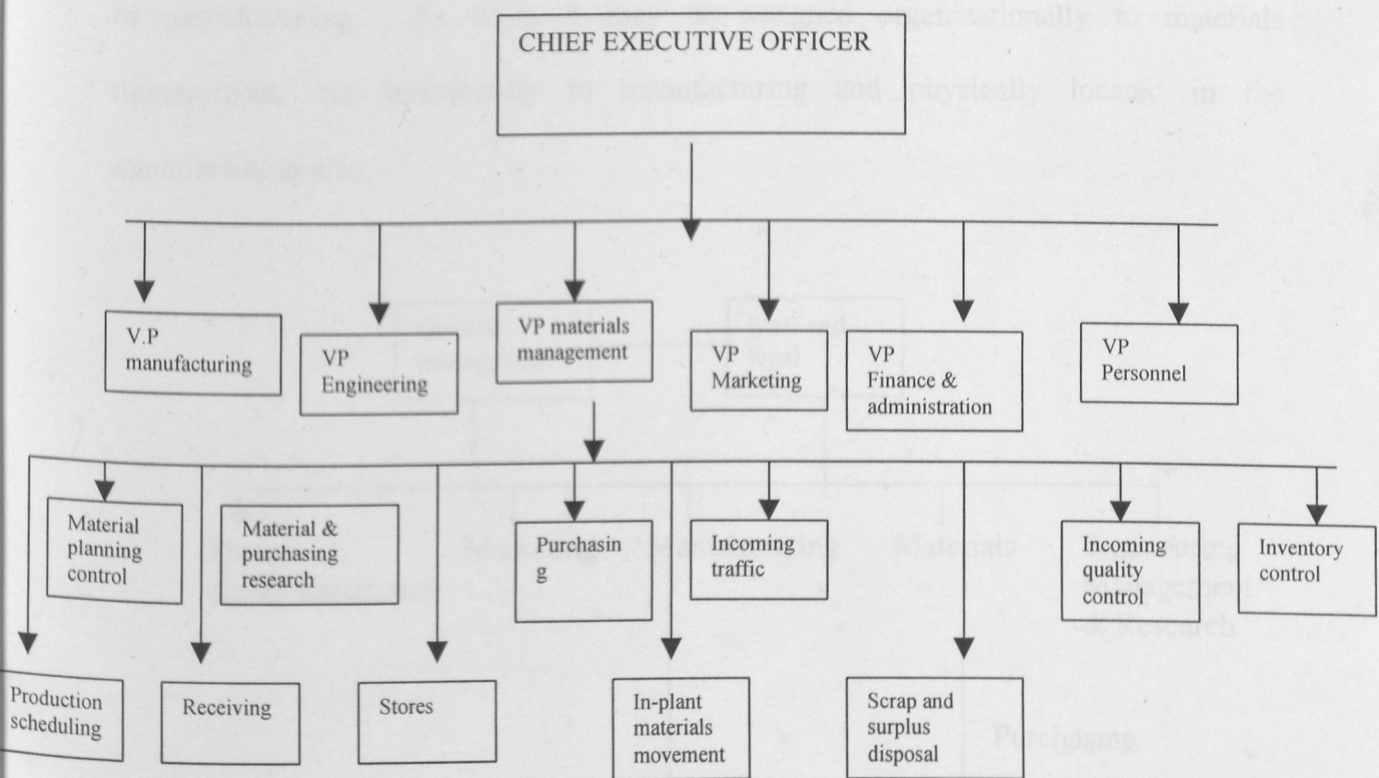


Fig. 1.1 Organization structure for material management within the corporate structure.

Source: Fearon, Ruch and Wieters(1988), pg. 127.

There is wide divergence of opinion about many aspects of materials management. Where the functions should be placed, what its responsibilities are, and whether it should be centralized or decentralized. While the final choice must always relate to the needs of the specific firm in question, the high cost of materials probably will support the current trend, which is to equate the materials management function with other main functions of the organization. According Chase (1989), such placement ensures executive-level attention to materials and gives the materials manager enough clout to be effective. A partial organization chart reflecting this placement is shown below in figure 1.2. Note the peculiar positions of production planning and control. This area is of utmost importance

to manufacturing. As such, it may be assigned organizationally to materials management, but functionally to manufacturing and physically located in the manufacturing area.

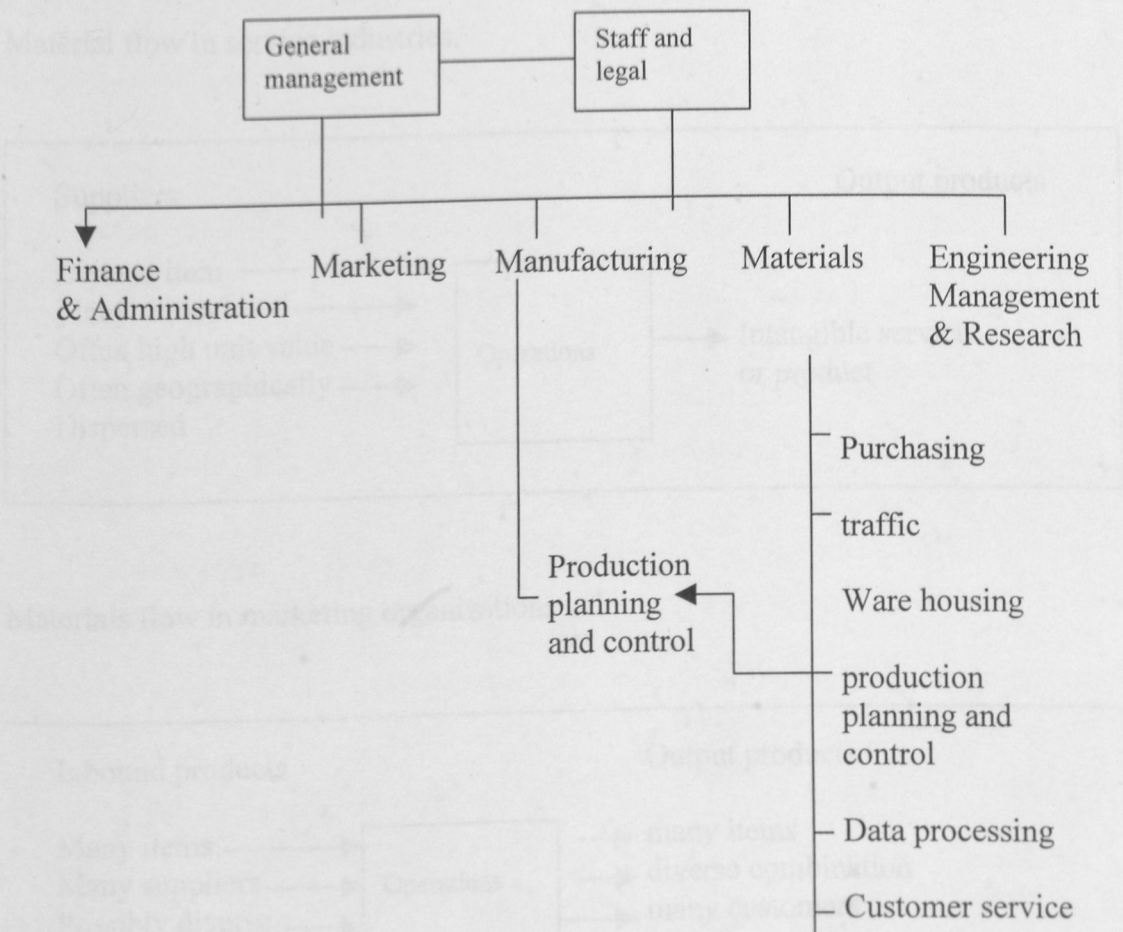


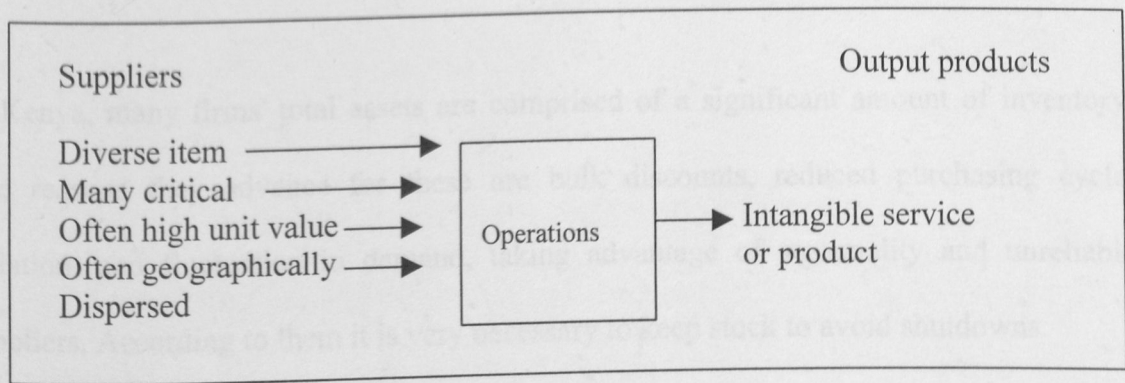
Fig: 1.2. Organizational chart showing materials management functions. Source: Chase (1989).

Problems encountered in materials management differ from industry to industry. According to Chase (1989), this is because of the types and numbers of product or service being created, the variations among suppliers and supply inputs, and economic factors,

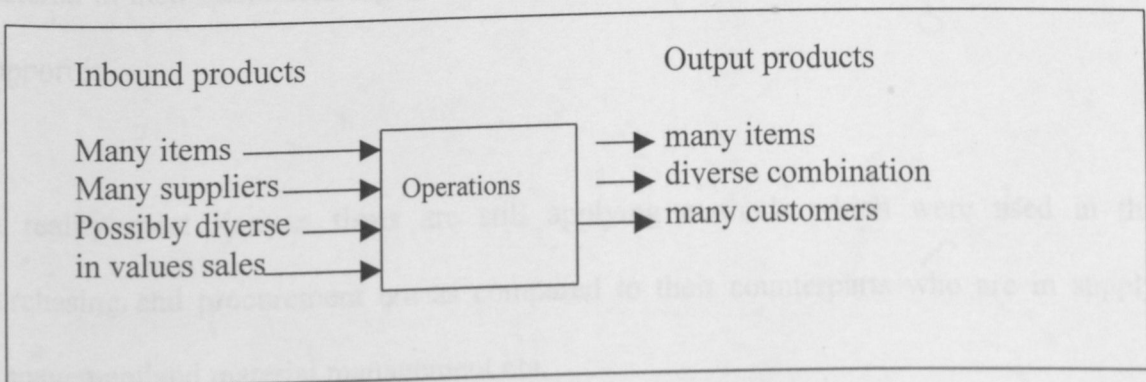
such as the values of the individual units of products or service. Figure 1.3 shows typical materials flow in three different industries; service, marketing and manufacturing.

Fig: 1.3 Materials flow in service, marketing and manufacturing industries, Chase and Aquilano (1989), pg. 706.

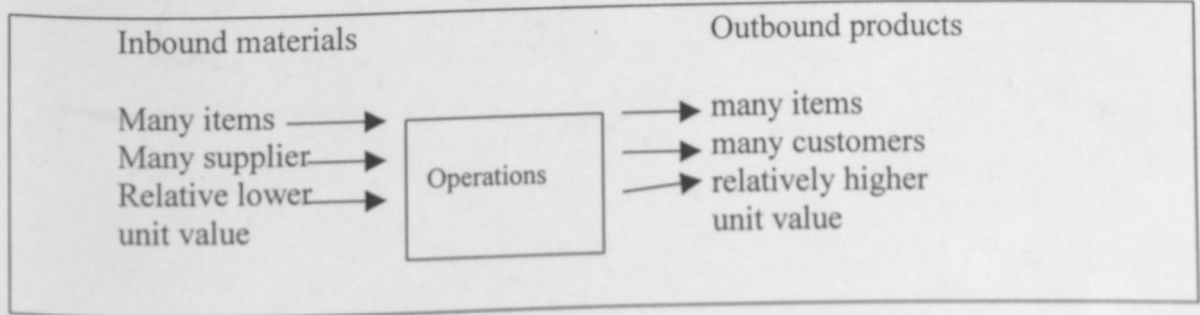
A. Material flow in service industries.



B. Materials flow in marketing organizations



C. Materials flow in manufacturing organizations



2.30 RELATIONSHIP BETWEEN MATERIALS MANAGEMENT AND OTHER KENYAN SITUATIONS

Majority of the Kenyan firms comprises of services and marketing industries. Infact if compared to America and Japan our reference in this study who have recognized and given attention to materials management, Kenya have very few manufacturing industries.

In Kenya, many firms' total assets are comprised of a significant amount of inventory. The reasons they advance for these are bulk discounts, reduced purchasing cycle, inflation, and fluctuation in demand, taking advantage of seasonality and unreliable suppliers. According to them it is very necessary to keep stock to avoid shutdowns.

Actually materials management concept applies best in large firms who are using a lot of material in their manufacturing. It also requires well co-ordinated information system to support it.

In reality most Kenyan firms are still applying methods which were used in the purchasing and procurement era as compared to their counterparts who are in supply management and material management era.

2.30 RELATIONSHIP BETWEEN MATERIALS MANAGEMENT AND OTHER ORGANIZATION FUNCTIONS

All organization functions must work as a team for organization to achieve its goals. The fundamental purpose of organization is to provide a structure that facilitates the motivation of people and the coordination of their efforts toward the common goals of the firm. A poorly designed structure can inhibit such accomplishment, just as a well-designed structure can facilitate them.

2.31 MATERIALS MANAGEMENT AND MANUFACTURING

Internal to the manufacturing firm, materials management refers to the movement of materials from the receiving dock, through the productive system and as completed goods to the loading dock. The following are the importance in this phase.

- i) where and in what form to store inventory
- ii) production – control system
- iii) Material handling and storage system.

Inventory stocking level

The materials manager in conjunction with production department will look into the inventory stocking level and come up with the most appropriate stock level. The amount of stock and when the stock should be held should depend on; (1) value added (2) the number of parts and finished goods available, (3) lead-time, (4) market characteristics.

Materials handling system

Order picking in most cases dwarfs all other cost centres in any break bulk warehouse operations. Controlling those costs therefore is essential to stay ahead of the competition¹. As argued by Chase & Aquilano (1989), the major problem today – especially in manufacturing is that material handling is an after-and-fact function, and not a “factory integrate”, that is, it should be the thread which ties the system together. They argue that materials handling is charged with moving, storing, and tracking all material, which occurs as a result of someone else doing the process planning and process scheduling. The material managers come in to tackle this problem.

Production control system

When the production control system is left fully on the hands of manufacturing department, conflict easily arises between material handling specialist and the production controller. From the standpoint of materials handling, production-control system that rigidly break production merely complicate matters.

Generally, the most optimal solution must be made between the material managers and production manager for the system to run smoothly.

1. AFRICAN REVIEW of Business and Technology, February 1999, Kenya.

2.32 MATERIALS MANAGEMENT AND FINANCE FUNCTIONS

The relationships between materials management and finances cover several important areas. The material manager relies on finance managers to accept the purchase proposal and avail finances in time. Whereas finance department relies on stores for information concerning the value of the stock held, and about items damaged and therefore written off the asset list. For accountants to prepare their books, they will require information from stores about the use of stocks, which aids their function of cost allocation.

2.33 ENGINEERING AND MAINTENANCE DEPARTMENT

Engineers are responsible for ensuring that the plant and machinery operated by the organization is kept in working order and is performing at its designed efficiency. The materials management must ensure that all the necessary spare parts; tools and equipment are available to them. The engineers must give the material managers a copy of their work schedule so that they can be supplied with what they want in time. Engineering department also provide specification for the materials to be purchased in the organization.

2.34 MARKETING AND DISTRIBUTION

The final phase of materials management is distribution of the finished product to the field. The distribution function sometimes termed as traffic, physical distribution, or logistics, is responsible for arranging the means of shipping finished goods and controlling inventory levels at various stock-keeping points in the field. (Chase, 1989).

The major concerns in managing distribution systems are deciding how much inventory is to be kept at each stock point and determining appropriate policies for inventory replacement. The basic objectives are to meet the customer's delivery requirements at a low cost. The materials management does analysis and comes up with a trade-off between warehousing and inventory costs and transportation costs.

The stores as a function under materials management is responsible for ensuring that all stocks held for sales are stored, issued and controlled as efficiently as possible. The sales staff will rely on stores to ensure that finished stock is available as and when required. The stores management must be aware of the forecasts of future sales, so as to be able to make plans in terms of stock level. (Fearon ET al, 1988)

In summary, all organization functions need each other for them to perfect their duties. It is also viewed that with the current system of cost control; all activities need to be done by the specialist (Carter and price, 1993). Materials functions are based done by material specialist. They need to be given a full responsibility to account for all material costs. The traditional organization had previously sub-divided material functions and hence it was very difficult to monitor and control material costs.

2.4 MATERIALS MANAGEMENT AND PRODUCTION AND OPERATION MANAGEMENT STRATEGIES

An effective manufacturing strategy requires manufacturing executives to have a strategic vision on how all the firm's productive resources relate to one another and to the environment.

As noted in Heizer and Render (1996), a strategic vision should recognize specific production capabilities that can be used as competitive weapons.

The 10 strategic and tactical production and operation decisions that support mission and implement strategies as follows (Heizer and Render, 1996):

1. Quality strategy - the customers' quality expectations must be determined and policies and procedures established to identify and achieve that quality. Materials manager participates in bringing in quality inputs.
2. Product strategy- product strategy defines much of the transformation process. Production cost, quality and human resource decisions interact strongly with the design of products. Product designs often set the lower limits of cost and the upper limits of quality.
3. Process strategy- process options are available for a product. Process decisions commit management to basic approaches to technology, quality, human resource utilization, and maintenance. Their expenses and capital commitments will determine much of the firm's cost structure. Materials functions have several

processes and commit a lot of organizational finances and therefore need to be given a lot of consideration.

4. Location strategy: – the nature and availability of raw materials affect facility location decisions. These decisions may determine the ultimate success of the operation. Errors made at this juncture may overwhelm other efficiencies.
5. Layout strategy – capacity needs, personnel levels, purchasing decisions and inventory requirement influence layout. Additionally, the processes and materials must be sensibly located in relation to each other.
6. Human resource strategy – human resources are an integral and expensive part of the total system design. Therefore the quality – of – work life provides, the talent in relation to each other.
7. Purchasing and Just-in-time strategy – these decisions determine what is to be made and what is to be purchased. Consideration is also given to quality, delivery, and innovation, at a satisfactory price. An atmosphere of mutual respect between buyer and supplier is necessary for effective purchasing.

Among the tactical decisions that are instrumental to organizational success and requires the decisions of a material manager include:

1. Inventory tactics – inventory decisions can be optimized only when consideration in light of customer satisfaction, suppliers, production schedules and human resources planning. An adaptive production system can work well in such situation. Partnerships between companies and their supplier would be adopted. Actually firms

will have to look hard at what competitive advantage it will give them. This is actually the work of a material manager.

2. Maintenance and Reliability tactics – decisions must be made regarding desired levels of reliability and maintenance. Plans for implementation and control of reliability and maintenance are necessary. Good communication between maintenance people and technical stores much is enhanced.
3. Scheduling tactics – feasible and efficient schedules of production must be developed; the demands on human resources and facilities must be determined and controlled.

The materials manager comes in handy to assist the organization in achieving its goals and objectives by implementing organizational strategies that are related to its functions. For example purchasing and just-in-time strategy is a very important strategy in a manufacturing organization and this can only be perfectly implemented by a material manager. Other strategies that require the decisions of material manager includes, location strategy that is, in relation to raw materials, layout strategy, quality strategy and product strategy. Materials manager participates in bringing in quality inputs.

The concept of materials management came in as an integration of all material functions which are important in an organization strategic decisions. Actually no department can work in isolation without the support from other departments. It is noted by Heizer and

Render (1996) that materials management plays a very big role for the implementation of operation management strategies.

2.5 PLANNING AND CONTROL OF MATERIALS

Planning and controlling the materials input calls for a thorough understanding of all the costs elements involved. The major cost elements considered here are quality costs, ordering costs, set-up costs, and shortage costs and purchase price. The person in-charge should strike a balance and come up with the most optimum stock level.

A reduction in the cost of materials can result in an increase in the percentage profits. Therefore the materials management departments performance can significantly affect the bottom line profit. Such a department is an extremely important and performs a specialized function, which should never be underestimated.

Albert Schepers, a business advisor with the former Cooper and Lybrand, now merged with pricewaterhouse, talked of keeping the right stocks to help reduce waste in companies, (Nation Newspaper, Tuesday, May 6, 1997).

Scheepers give the following reasons as to why companies keep stocks:

- i) To cater for irregularities in the supply. One may hold a month's production of raw materials because one never knows when the supplier can give them more raw materials.

- ii) Because one has to group the products before one can perform the next activity, it is no use sending out a truck with one bottle of tomato ketchup. It is better to stock up until one has a truckload of goods.
- iii) In order to keep clients happy, one has to instill buffers at various locations in the production process to keep the supply going.
- iv) To cater for unexpected increase in demand, it is advisable to make a bit more products than expected to sell (or show more products on the shelves of the shop than one customer can buy).

The reality is, without stock we cannot do business. Stocks are part of doing business and they will be the future. However, it is the level of stocks that cause threats for many Kenyan companies, as stock eat up a substantial part of the working capital.

As viewed by Jessop and Morrison (1996), organization holds stocks due to the following reasons: -

- i) Delivery cannot be exactly matched with usage day by day
- ii) Economics associated with buying or manufacturing in large facilities more than offset the cost of storage.
- iii) Operational risks require the holding of stock to guard against breakdown or programme changes.
- iv) For work in progress where completely balanced production flow is impracticable.

- v) For finished products where the holding of a buffer stock between production and the customer is desirable.
- vi) Owing to fluctuations in the price of a commodity it is desirable to acquire stocks when prices are low.
- vii) In order that materials may appreciate in value through storage for example timber wires and spirits.
- viii) In order that customers may be attracted by a range of product from which to select.

According to them, the weight to be given to each of these factors will depend upon the type of organization; the determination of requirements and the approach to stock control will naturally be influenced by the of the firms activity. Other factors like the lead-time, type of raw materials and accessibility will also influence.

2.6 MATERIALS MANAGEMENT ORGANIZATION

To better our understanding on materials management, it will be appropriate if we analyze different structures and orientation that organization have.

A Harvard Business Review Survey revealed four major types of materials management organization, as recorded in Carter and Price (1993). These are

- a) Integrated structure: This is a classical integrated materials management structure. It is where stores, purchasing, production planning and distribution and transport are centered under materials manager

- b) Distribution oriented: These are partially integrated organization in which the distribution and traffic function, the production planning and inventory control function report together. Here materials managers tend to integrate those materials functions that were closer to markets than sources of supply in integration.
- c) Supply oriented: These are partially integrated organization in which the purchasing functions and the production and inventory control report together. In such companies the two materials functions that report to the same manager are closer to the supply end of the material pipeline.
- d) Manufacturing oriented: This type of structure is organized around manufacturing, which is in the middle of the material flow.

As noted in Wild (1995), there has been argument for and against centralization of materials management. Whether the management of the entire flow into, through and from the operating system should be treated as a single integrated function, or a separate activity, has been a matter of consideration debate. Wild gives the following as the benefit of a centralized approach:

- a) Avoidance of problems of divided responsibility
- b) Avoidance of possible conflicting objectives and priorities
- c) Avoidance of duplications of efforts
- d) Ease of communication throughout the organization
- e) Ease of, and better representation of, the materials management function at board/policy level.

f) Economies of scale

Materials management is seen to contain the means for integrated control of the materials flow, the purposes of which are: -

- a) To have material available and as when required so that an even flow of work is maintained in production without excessive inventories.

The expenses associated with financing and maintaining inventories are a substantial part of the cost of doing business for many organizations. Inventory control represents one of the most important functions of operations management. Inventory and materials managers are faced with dual problems of maintaining sufficient inventories to meet demands and achieve productivity, while at the same time, incurring the lowest possible inventory cost. Basically, managers attempt to solve these problems by making decision with respect to questions as these: -

- i) How should inventory be monitored (the design problem)?
 - ii) How much should be ordered when the inventory for a given item is replenished (the planning problem)?
 - iii) When should the inventory for a given item be replenished (the control problem)?
- b) To optimize the input of material according to the potential sales and capacity of the manufacturing plant.
 - c) To ensure that the maximum value is obtained per unit of expenditure.

2.7 FUNCTIONS AND OBJECTIVES OF MATERIALS MANAGEMENT

Materials management works with all departments, they act as suppliers and customers to each other. The main objectives being to provide the right materials to the right operating point at the right time in a usable condition and at the minimum cost.

The following are the major functions, of materials management as explained by Carter and Price, (1993).

- a) Production and materials planning. To ensure efficient use of personnel, materials facilities and capacity. This also covers assistance in both long term and short-term planning with control over the materials used and issued.
- b) Material handling – with the responsibility of receiving, handling and physically moving materials to production.
- c) Procurement of goods. At the right time, the right quality and quantity and, of course, the right price, taking into account storage, delivery, handling costs and the maintenance of supplier relations.
- d) Distribution. Covering receipts, storage, dispatch of packed finished goods and registration of all transactions.
- e) Control of material cost, where costs arise material management must recognize reduction programs for planning, stocks, purchasing, material handling as well as providing an effective means of monitoring the effects of the programmes.
- f) Communication. To ensure a well-balanced and efficient communication system between the various activities.

As suggested by Evans and others, (1987) most organization sees material management functions as having the following objectives.

- i) Obtaining low prices for purchased items and transportation.
- ii) Maintaining high inventory turnover – that is a high ratio of sales to average inventory (resulting in less inventory investment).
- iii) Achieving low costs of receiving storage, and inspection.
- iv) Maintaining reliable delivery and continuity of supply.
- v) Maintaining consistent quality
- vi) Achieving low support personnel costs
- vii) Maintaining favourable supplier relations
- viii) Achieving development of personnel
- ix) Keeping adequate records and information.

As viewed by Carter and Price (1993), the main objectives of materials management is to satisfy the needs of all operations production line, the need arising from customer demand patterns, promotional activities and physical distribution schedules. It is the operating system that the materials manager views as the customer. The manager must work around the system until everything fits and the needs are satisfied.

Meeting these objectives requires organization and sound communication among the various managers and supervisors. The goals of different functions often conflict and hence making it difficult to have harmonious way of achieving the above objectives, for example, purchasing manager in an attempt to maintain low costs, may choose vendors

that have poor delivery records. This may potentially affect manufacturing if materials are not received on time. Manufacturing on the other hand requires adequate supplies of materials. This may lead to maintaining higher inventory levels than necessary. If not properly controlled, excessive inventory costs may result. Because of these potential conflict, many companies centralize their material management activities.

According to Dobler and Bunt (1996), the objectives of materials management can be viewed from three levels:

1. a very general managerial level,
2. a more specific functional or operational level
3. a detailed level at which precise strategic buying plans are formulated.

From a top managerial perspective, they talk of the five rights that management expects the department to achieve – the acquisition of materials:

1. Of the right quality
2. From the right supplier
3. In the right quantity
4. At the right time
5. At the right price.

From an operating or functional perspective, Dobler and Burt comes up with eight main objectives of material management. These are:

1. To support company operations with an uninterrupted flow of materials and services. Most companies have given this objective more emphasis to the extent of creating a department concerned particularly for it. The department is given the responsibility of coordinating and controlling of the supply activities.
2. To buy competitively. Buying competitively as explained by Dobler and Burt, means keeping abreast of the supply and demand that regulate prices and availability of materials in the marketplace. If you are purchasing similar material with your competitor, then you must buy it at the same price. A buyer who pays significantly more than his or her competitor does for a given material or service generally is not buying competitively.
3. To buy wisely. Buying wisely involves a continual search for better values that yield the best combination of quality, service, and price, relative to the buyer's needs. This involves consulting the users and letting them to define their needs. The needs are served with the most appropriate materials.
4. To keep inventory investment and inventory losses at a practical minimum. Although maintaining a large inventory is one way to achieve objective 1, it is also costly. A lot of money should not be held in unnecessary stock. Hence, the supply management job is to achieve a reasonable balance between the level of inventory required to support operations and cost of carrying the inventory. (Bowersox and Gloss, 1996).
5. To develop effective and reliable sources of supply. The company should have suppliers who are willing to work with them to solve the buying problems and to minimize its materials – related costs. For organization to compete effectively,

- the purchasing department must ensure that relationships between the organization and its suppliers are sound. This can help the organization to attain:
- a). Improved reliability of supplier in relation to agreed prices and delivery dates.
 - b) Action in emergency situation of overall shortages by preferential treatment on the part of the supplier.
 - c) Co-operation in relation to alternatives in specifications and design of products purchased.
 - d) Involvement in future development and investment schemes as envisaged by the supplier for the coming period. The two need to have collaborative relationships, which entails partnership type of relationship and strategic alliances.
- 6) To achieve maximum integration with other departments of the firm. It is very essential for the buyers to understand needs of the using departments, so that these needs can be translated into materials support actions good communication should exist between various department in the organization.
- 7) To handle the purchasing and supply management function proactively in a professional, cost-effective manner. The management should expect the above objectives to be achieved in a professional manner at a cost that is commensurate with their value to the total organization. Every activity involved should be value adding to the organization. (Dobler and Burnt, 1996).
8. To achieve maximum integration with other departments of the firm.

Generally, these objectives apply in principle to nearly all-industrial buying activities. Although organization differ on areas of emphasis. Some would emphasize on one objective than the other. A purchasing department is to obtain the greatest value from each dollar the purchasing department spends.

The third level focuses on the detailed objective that are developed when price buying plans are made (usually annually) for each of the major categories of material the firms uses in its operations when the firm makes its long-term and short-term plans, it usually incorporate strategic buying objectives. Those include plan quality, sourcing, pricing, production and inventory planning. The material managers are judged on how successful they have met the expected targets.

2.8 IMPORTANCE OF MATERIAL MANAGEMENT

In relation to the functions and objectives given above, Carter and Price (1993) acknowledge the following as the benefit of material management. These should include:

a) Improvement in:-

- i) Service level to customer
- ii) Company competitiveness
- iii) Company image
- iv) Standardization of procedures
- v) Company communication both internally and externally
- vi) Less departmental empire building
- vii) Allocation of responsibility where functional overlap occurs.

b) Reduction of costs by:

- i) Joint stock control of raw materials
- ii) Reduction in lead times and buffer stocks just-in-time.
- iii) Improved warehouse utilization
- iv) More accurate forecasts by working from a customer demand – pull systems.

Giving it a broader view Carter and Price, (1993) observes that the adoption of a material manager organization will generate a number of significantly valuable advantages in terms of total company control and materials control. It viewed that the appointment of a manager responsible for all aspects of materials management will assign total responsibility for the materials' part of the business. The materials manager will be a link between the material and non -material parts of the organization and should be reporting directly to the CEO. Other advantages are as follows:

- a) Identification of costs of materials flow through the organization enables the materials manager to pinpoint rising cost areas and to take appropriate action.
- b) Creation of a database for materials related information which management can use to assist in all decision-making activities related to materials.
- c) Improved total control of the organization thus enables a quick response to environmental and organizational change.
- d) Encourages and promotes interdepartmental co-operation and coordination, for example production control working closely with stores in its planning activities.

- e) Improved stock control and stock turnover. The materials management systems enable stocks to be reduced due to improved control and Interdepartmental Co-operation.
- f) Reduced transport costs. The close coordination between the materials based departments allows efficient use of transport services.
- g) Improved quality of staff. Given that the materials manager will promote team-based working and will offer greater promotion and staff development opportunities; the company will attract higher caliber of staff.
- h) Reduced materials obsolescence. The overall control system achieved with material management will reduce stock obsolescence and then reduce total materials costs.
- i) Improved quality control. The ability to impose standards is facilitated by a common material management policy in relation to quality control.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 POPULATION

The population of interest consists of all large and medium manufacturing firms in Nairobi. The researcher considered this population more appropriate because of the level of activity and resource employed in materials. In determining the size of the firm, several different measures have been used and accepted as appropriate. One of these measures is the number of employees in the firm (Kirkpartick, 1984; Kenya Industrial Research and Development Institute (KIRDI)). Other measures of size are capital employed, volume of sales turnover and level and type of technology used (Kukalis, 1991; Wordburn, 1984; Steel and age, 1984). Aosa (1992) in his study combined sales turnover and number of employees.

This study used the number of employees to determine the size of the firm. The criteria was adopted because of the following reasons. Firstly, the short time available for the study could not allow the researcher to establish the volume of sales turnover, capital employed or level and type of technology used by the firms. And also such information could not easily be accessed. Secondly, the availability of a list of names of the firms constituting the population of the study and categorization was obtained from KIRDI's directory of manufacturing industries of 1997. The categorization is shown in the table below:

Table 3.1 Size of firms

Size class code	Number of employees
A	5 – 19
B	20 – 49
C	50 – 99
D	100 – 199
E	200 – 499
F	Over 500

Source: Kenya Directory of manufactures industries, 3rd Ed. 1997.

In order to capture the interest of the research, firms with employees between 50 – 99 and 100 – 199 are considered as medium, that is, size class code C and D; whereas firms with employees over 200 are considered large. Ownership and type of product manufactured were also considered in constructing the sampling frame for the study. A total of 178 firms fall within this category.

The choice of Nairobi as the area to be covered by the study was mainly due to convenience in terms of accessibility, time schedule and financial resources available to the researcher. Also, according to KIRDI’s directory of manufacturing industries, most large manufacturing firms are located in Nairobi.

3.2 TYPE OF STUDY

This study is a sample survey, of descriptive type. It achieved its purpose by collecting and analysis data from a sample of 55 firms. Survey is viewed as being suited for descriptive research (Luck and Rubin, 1987).

Since the entire population of interest could not be covered, a survey was justified as this approach could allow generalization and hence representativeness.

3.3 SAMPLING

This study adopted stratified – random sampling. These were stratified on the basis of medium or large firms and whether local or foreign. Because each and every strata has its own special attribute.

A total of 55 firms were interviewed. This sample size was taken based on convenience and also because such sample size is considered large enough to provide a general view of the state of materials management in the manufacturing firms in the country and hence provide a basis for valid and reliable conclusions.

A simple random sampling technique was used to select the firms to be interviewed. The researcher collected and prepared a sampling frame of all the firms existing in each category, from the sampling frame, the sample to be interviewed was selected using random numbers generated from the random number tables.

3.4 DATA COLLECTION PROCEDURES

The research used primary data collected from the firms. Only the relevant persons were interviewed, this was a manager who had worked for the organization for at least one year. The interviews generally involved chief executive officers, purchasing managers, materials managers and logistics managers.

Data was collected using a structured questionnaire consisting mainly of closed-ended questions and some few open-ended questions. The questions were developed from a study of the pertinent literature. The questionnaire was self administered by the researcher, and his research assistant.

The questionnaire was divided into three parts. Part one captured background information about the company especially on ownership, nature of business, the asset base, annual turnover, the proportion of the annual turnover employed on materials and materials related costs, level of growth, size of the company and the number of department existing in the organization. Part two examined the position of materials management. Part three, assessed the application of materials management concepts.

3.5 DATA ANALYSIS METHOD

Data collected was analysed using descriptive statistics. Since the study is investigative in nature, proportions, percentages, median and mean was used to summarise the collected data.

For data that could not be quantified, qualitative analysis was applied. Content analysis is applicable in an open ended questions with an inexhaustive answers. It helps in extracting all the different factors, which have been mentioned by the respondents, and appears unique. These data analysis techniques were used in similar studies by Mentzer and Cox (1984), Wheelwright and Clarke (1976), Sparks and Mchurg (1984), Yego (1995), among others.

The analysis was tied to each objective so as to reach reliable conclusions. The statistical package (SPSS) was also employed to help analyze the responses

Table 4.11

Ownership	Number	Percentage
Private	30	84.3
Public	10	27.2
Joint Ownership	15	41.5
Total	35	100.0

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 PROFILE OF RESPONDENTS

Out of a total of 75 firms visited, only 55 firms accepted to be interviewed. This gives a response rate of 73%. A total of 55 respondents were interviewed in this study. The respondents were the chief executive officers, purchasing managers, management accountants, materials manager and logistic manager. The choice of the person to be interviewed was made depending on the person deemed responsible and conversant with materials management in the company. The researcher got the assistance from the Chief Executive officer and the Human Resource Manager in knowing who to interview in an organization.

4.1.1 Firm Size and Distribution

The sample characteristics here are presented in terms of biodata or respondents interviewed for example local, foreign and joint ownership and also whether the firm is medium or large.

Tale 4.11

Ownership	Number	Percentage
Local	30	54.5
Foreign	10	18.2
Joint ownership	15	27.3
Total	55	100.0

Source: Research data

Table 4.12

Size	Number	Percentage
Medium	35	63.6
Large	20	36.4
Total	55	100.0

Source: Research data

The data analysed contained 54.5% local companies, 18.2% foreign companies and 27.3% joint ownership. Further, 63.6% of the companies studied were from medium firms category and 36.4% were from large firm’s category.

4.2 BACKGROUND INFORMATION OF THE FIRMS

4.21 Firms Background Information

Table 4.21

Ownership	State		Number
	Listed	Unlisted	
Local	8	22	30
Foreign	4	6	10
Joint ownership	6	9	15
Total	18	37	55

Source: Research data

From the table above, it is clearly visible that 54.5% of the firms interviewed were local, 18.2% were foreign and 27.3% were of joint ownership. Further analysis shows that eighteen firms were listed in Nairobi stock exchange making 32.7% and 37 were not

listed making 67.3%. The sample selected considered factors like the population existing in each category and accessibility of the relevant information required for the research.

4.22 Annual turnover

Table 4.22

Levels of Annual turnover	Number	Percentage	Cumulative percentage
Upto Ksh 50 million	10	18.2	18.2
Ksh 51 million to Ksh 500 million	15	27.3	45.5
Ksh 501 million to 1 billion	14	25.5	71
Ksh 1.1 billion to 5 billion	9	16.3	87.3
Ksh 5.1 billion and above	7	12.7	100
Total	55	100	

Source: Research data

The result of table 4.22 shows that majority (27.3%) of the firms interviewed had an annual turnover of between Ksh 51 million to Ksh 500 million, followed by 25.5% of the firms with annual turnover of Ksh 501 to 1 billion. 18.2% had annual turnover of upto Ksh 50 million, 16.3% had Ksh 1.1 billion to 5 billion and lastly 12.7% had Ksh 5.1 billion and above.

4.23 Proportion of the annual turnover spend on material and materials related costs

TABLE 4.231

Proportion	Number	Percentage	Cumulative percent
0 - 20	0	0	0
21 - 40	9	16.4	16.4
41 - 60	21	38.2	54.6
61 - 80	25	45.4	100
81 - 100	0	0	100
Total	55	100	

Source: Research data

As the result indicates, majority (45.4%) of the firms interviewed spend between 61 – 80% of annual turnover on materials and materials related costs, 38.2% of the firms spend between 41- 60% and only 16.4% had expenditure of between 21% - 40%.

Table 4.232

Class interval	X (Mid-point)	Frequencies	XF
21 - 40	30	9	270
41 - 60	50	21	1050
61 - 80	70	<u>25</u>	<u>1750</u>
		Σf 55	Σxf 3070

Source: Research data

$$X = \frac{\Sigma xf}{\Sigma f} = \frac{3070}{55} = 55.8\%$$

From table 3.41 above, it was evident that Kenyan companies spend an average of 56% of their annual turnover on materials and materials related cost.

4.24 Company’s Growth Position

Table 4.24

Growth stage	Number	Percentages	Cumulative percentage
Initial stage	0	0	0
Growing	27	49.1	49.1
Maturing	23	41.8	90.9
Declining	5	9.1	100
Total	55	100	

Source: Research data

From tables 4.23, it shows that the firms interviewed were majorly in growing and maturing stage. The result indicates that 49.1% of the firms were in growing stages and 41.8% were on the maturing stage and only 9.1% were on the declining stage. There was no firm in the initial stage. This enabled the research to analyse the data without any doubt on the information given by the firms concerning the kind of structures existing or expected to be there.

4.3 TO ESTABLISH THE KIND OF ORGANISATION STRUCTURES FOR MATERIALS MANAGEMENT

Reporting and relations with other department is very important to be considered for effective and efficient running of the system. For example the executive to whom the purchasing manager reports to gives a good indication of the status of purchasing and

the degree to which it is emphasised within the organisation. If the chief purchasing officer or the overall manager in-charge of material functions has vice president status and reports to the CEO, this indicates that purchasing has been recognised as a top management function.

Table 4.31 The in-charge of materials functions reports (to whom)

Direct Report	Percentage
C.E.O	23%
General Manager	18%
Financial Controller	19%
Management Accountant	8%
Operation/Production Manager	21%
Logistics Manager	3%
Others	100%

Source: Research data

From the table 23% of the firms had the in-charge of materials reporting directly to the chief Executive officer. These showed that firms had already recognised the importance of material functions based on its impact on the organisational cash flow. It is also viewed that a good number of firms had the person in-charge of materials reporting to the production or operations manager. The reasons they advanced was that most materials functions fall within their department.

In quite a number of the firms, financial controller or management accountant controlled the materials functions. They argued that this approach helps them monitor the expenditures and cost controls.

4.43 The existence of a specific department for materials functions, by organisation size (sales in Kshs)

	Upto Ksh 50 million		Ksh 51 million to 500 million		Ksh 501 million to 1 billion		Ksh 1.1 billion to Ksh 5 billion		Ksh 5.1 billion and above		Total	
	No	%	No.	%	No.	%	No.	%	No.	%	No	%
With specific department	3	30	6	40	8	57	5	56	5	71	27	47
Without specific Department	7	70	9	60	6	43	4	44	2	29	28	53
Total	10	100	15	100	14	100	9	100	7	100	55	100

Source: Research data

The result from table 4.32 indicates that 27 of the 55 organisation or 49 percent had specific department that performed most of the material functions. Majority (71%) of the organisations with sales turnover of Kshs 5.1 billion and above had specific department dealing with material functions. For organisation that had this department, activities it performed majorly were; purchasing, receiving materials, inventory control, materials and purchasing research and materials planning and control.

4.4 APPLICATION OF MATERIALS MANAGEMENT CONCEPTS

In many studies done earlier in America and Japan, it was realised that many organisation sometimes adopt this approach of management unknowingly.

As viewed by Carter and Price (1993), any organisation in which at least three of the following functions; purchasing, inventory control, production scheduling and control, incoming quality control, warehousing and stores, materials and Technical stores report to a single responsible individual is said to practice the concept. The data analysis below takes this information into consideration.

4.41 Use of materials management by organization size (sales in Kshs)

	Upto Kshs 50 million		Kshs 51 million to 500million		Kshs 501 million to 1 billion		Kshs. 1.1 billion to 5 billion		Kshs 5.1 billion and above		Total	
	No	%	No	%	No	%	No	%	No	%	No	%
Organization does use materials management	6	60	8	53	9	64	6	67	6	68	35	64
Organization does not use materials management	4	40	7	47	5	36	3	33	1	14	20	36
Total	10	100	15	100	14	100	9	100	7	100	55	100

Source: Research data

The result from table 4.41 indicates that majority (64%) of the firms were using materials management. As the figures shows 35 of the 55 organization had their material functions organized in accordance to the requirement of the MM concept. The titles given to the person in-charge of material functions were varying from one organization to another. The titles that were most common were purchasing manager, logistics manager, and General manager. Although some organization had titles like supply chain manager, Raw material manager, Management Accountant, Operation manager, storekeeper, works manager and production manager. In some organization, it was the managing Director who was in-charge of material functions.

4.42 Benefits expected from implementing materials management concept

From the research, the researcher realised that only very few organization had implemented the method knowingly. The following are some of the benefit the companies expected by implementing MM concept:

Improvement in quality of input

By empowering the material manager and making him/her responsible and answerable to the Chief Executive officer, the manager will have the power to make decision leading to both competitive and wise buying decision. Because if the quality is compromised he/she shall be answerable.

No buck-passing of problem

Problem shall be easily traced and dealt with promptly without buck-passing. Department usually have their own specific objective and this sometimes are found to conflict with each other. Therefore if material functions are divided into different department, conflicts are likely to erupt and hence material management comes in as integrator.

Quick response

Improved total control of the organisation thus quick response to organisational and environmental demand. There will be timeliness of deliveries.

Better Co-ordinator

Encourages and promotes interdepartmental corporation and co-ordination. For example production control working closely with stores in its planning activities. This is seen to result into less interdepartmental conflict.

Optimal stock

The appointment of material manager to be responsible for all aspect of materials functions will make the management come up with the most optimal stock level. There will be savings made by not holding unnecessary stock that could have otherwise tied up capital.

Others benefits

Other benefit mentioned include; stable manufacturing schedules, optimum working capital, management of waste, good representation to leading to effective and efficient information flow, reduction in lead time, proper monitoring of purchase price.

4.43 Benefit Realised so far

According to the report got from the research, almost all the firms that had implemented material management claimed that they had realised the benefit they expected. Actually most respondents were very evasive in telling their weaknesses.

4.44 Problems encountered with the Approach

Some respondents (40%) agreed that had some few problems with the approach. Among the problems mentioned here were; that the approach is bureaucratic, two, the approach entrust a lot of sensitive activities to one department, three, the approach required a very magnificent data system. Otherwise majority (60%) of the respondents who answered these questions said they did not have a problem with the system.

4.45 Recommendation to other organization

The researcher wanted to find out whether the organisation that had implemented the system would be willing to recommend the same to other organisations. From the study 27 firms had implemented the MM concept and their response to this question were as follows:

Ownership	Recommend	Not recommended	Total
Local	3	7	12
Foreign	5	1	7
Joint	6	2	8
Total	17	10	27

Source: Research data

Among the firms that had implemented the materials management approach. 17 out of 27 that is, 63% accepted that they could recommend to other organization and 10 out of 27, which is 37% said that they could not recommend to other organization as that was their competitive weapon.

4.46 Intention of improving the system

This question was poorly answered. In the analysis, it was found that 40% of respondents evaded the questions, 25% said no improvement as the system was okey and 35% respondents positive. Among the improvement they mentioned were; computerisation of most of the departments so as to be able to get accurate and timely information, wastage analysis and further cutting down of costs.

CHAPTER FIVE

SUMMARY, DISCUSSIONS, AND CONCLUSIONS

This chapter summarizes, discusses and make conclusion on the findings of this study in relation to the objectives put forward in chapter 1. It also discusses the recommendations of the study its limitations and suggested areas for further research.

5.1 Summary, Discussions and Conclusion

This study sought to achieve five objectives namely, to determine level of attention and emphasis the Kenyan manufacturing firms are giving to materials management, to find out the proportion of annual turnover organizations spend on material and materials related cost, to establish the kind of organization structures existing for materials management. The study is also addressed to two other issues. These are; to establish whether the Kenyan manufacturing organizations have adopted the material management concept and for the firms applying it, what benefits and problems have they encountered with the approach.

The result of the study show that Kenyan manufacturing firms spend an average of 56% of their annual sales turnover on materials and materials related cost. Similar study, which was done in America in 1980 by Center for Advanced Purchasing Studies (CAPs), indicated that America firms were spending 60% of annual turnover on materials. They then embark on serious investigation on how to reduce this. Since their study of 1980,

they have given a lot of attention and emphasis on materials management. The resultant effect, as been an improvement in material management system and cost reduction.

Regarding the reporting system, only 23% of the firms studied had their person in-charge of material functions, reporting directly to the chief executive officer and the rest were reporting to other management position. These showed that majority (77%) of the firms have not given a lot of recognition to material functions in the organization. Any organization functions that consume more than half of its turnover need to be given a lot of attention. When the in-charge of material functions reports directly to the CEO, this is an indication that the position is recognized as a top management function. It also indicates that the position is very critical to the organization.

Generally factors which influence the level at which the material functions is placed in the organization structure cover a broad spectrum. Among the major ones are:

1. The amount of purchased material and other related costs as a percentage of either total costs or total income of organization. A high ratio emphasizes the importance of effective performance of the material function.
2. The nature of the products or services acquired. The acquisition of complex components or extensive use of subcontracting represents difficult purchasing problems. It evident in the Kenyan firms with international influence to be outsourcing some of their purchasing services.

3. The conditions in the market place for those products and services of vital importance to the organization.
4. The talent available for the assignment. Actually this where most Kenyan organizations has failed because there are very few people trained in purchase and supply management. That implies that many Kenyan Universities and colleges have not recognized purchasing and supply management or materials management as an important career.
5. Lastly, the problems and opportunities present in the purchasing and supply area to achieve organization objectives.

As for the existence of a specific department for material functions, the survey indicated that more large firms had departments dealing specifically with most of the material functions as compared to medium firms. And that, as the organization increases in size the more likely it recognises the need for such departments. Actually the report indicates that the need for such departments depended more on the amount of material used in an organization, computerization of the firm and the how difficult it is to source materials.

In the case of application of materials management concept, 64% of the firms were found to be using the approach, although most of them were applying it unknowingly. Majority of the firms had material functions performed by general managers and production

managers. The titles given to a person performing material functions varied from one organization to another.

The principal benefits expected in using material management concept were; improvement in quality of inputs, reduction in conflict regarding material functions, quick response to demands, better co-ordination, optimal stock level, stable manufacturing schedules, effective and inefficient information flow among others.

Most organization claimed that they had realised most of the benefits they expected from the responses given, and that nearly all organisation supported that their system were efficient. This was not 100% percent true. Observation made by the researcher showed that there were some problems, which the respondents were not ready to accept.

The problems encountered by the approach were; lack of flexibility, entrusting a lot of sensitive activities with one office and lack of an well-integrated database system to support information flow. Some respondents argued that the approach was bureaucratic in nature.

From findings of the study, the following conclusion can be made. Firstly, most Kenyan manufacturing organizations have not recognized professionalism in materials management. Most sensitive jobs like purchasing and supply are being done by non-professionals and that is a very great undoing in this harsh global competitive market.

Secondly, as noted from the research, not all organization can manage to adopt this approach of management. It most suited with large organization with a lot of cash employed in materials and with well managed database system. Otherwise small organization sees it as very expensive.

Next, most firms seems not to be ready for change and some owners holding management position tend to oversee all the activities of the organisation. In some firms proper organization structures were not followed. The owners ran most sensitive areas themselves.

With the tremendous improvements in information technology and communication, materials management is seen to improve in Kenya. The increasing emphasis on the competitiveness has led to a new emphasis on the competitive advantage through effective utilisation of organization resources. It is essential to address fundamental requirement of the business to gain competitive advantage. For organisation focussing on competitive through cost reduction, issues like competitive buying, buying wisely, effective and reliable sources of supply, to keep inventory investment and inventory costs at a practical minimum, are the in thing in current business.

The conclusion drawn from the research is that majorities of the Kenyan firms are not practising professionals in materials management and that materials management was more suited for large firms. Lack of enough people with know-how in materials management locally has actually contributed to lack of recognition of the same. As

compared to America and Japan, most Kenyan firms have a long way to go in-terms of effective and efficient materials management.

5.2 Recommendations

A rising from the finding of the study, some pertinent recommendations can be made. These recommendations are aimed at improving the state of materials management and hence competitiveness of the Kenyan firms.

Owing to the huge sum of money companies spend on materials, a lot of emphasis or attention need to be given to materials management to enable companies achieve best optimal cost structures. Materials management needs to be recognised as a top management function.

Organization need to create a department dealing material functions to enable easy control and monitoring costs related to materials and material related costs. The departments will make it easy to find the person accountable to these costs. The head of that department should be answerable to the chief executive officer to give the in-charge enough clout to control costs.

Another recommendation is that Kenyan Institution including Universities and Colleges should start courses on materials management, purchases and supplies and make them known to organizations.

5.3 Limitations of the study

When analysing the significance of the findings of this study, several limitations have to be taken into account. The most significant constraint of the study was time. The short time schedule given for the study could not allow a comprehensive survey to be carried out. As a result, few companies were visited.

Lack of adequate time was also a problem with the respondents. Some of the respondents were not able to get time out of their busy schedule to honour appointment for an interview as scheduled. As a result, the study suffered some degree of low response rate.

Another limitations pertain to the answers provided to the questions in the questionnaire. Some respondents could have given biased or dishonest answers and some avoided to some questions. The presence of the interviewer may also have had an effect on the way questions were answered and hence a weakness.

Also, some companies refused to answer the questionnaires. There were companies where research could not be done without the clearance from the Director and/or owners, who were not very easy to track.

It was also very difficult for the researcher to ascertain whether the people responding to the questionnaires were the appropriate respondents.

5.4 Suggested Areas for Further Research

This study was the first of its kind in Kenya. Therefore it opens up the field for interested researchers who wish to carry out research in the area. However, the researcher recommends the following areas for further researches:-

- i) As the researcher concentrated his study on manufacturing industries, a similar study should be conducted for firms in service sector in Kenya to establish how they are managing their materials.
- ii) The study should also be conducted in small enterprises to find out how they are managing materials.
- iii) A study should also be carried out in organization which have implemented materials management to confirm whether they have realised the benefits they claim.



UNIVERSITY OF NAIROBI
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DEPARTMENT OF MANAGEMENT SCIENCE

Telephone: 732160 Ext. 225
Telegrams: "Varsity", Nairobi
Telex: 22095 Varsity

P.O. Box 30197
Nairobi, Kenya

22 June, 2000

Dear Respondent,

I am a postgraduate student in the Faculty of Commerce, University of Nairobi. Currently I am conducting a management research project on "*Organization for Materials Management in the Kenyan manufacturing Firms*". This is in partial fulfillment of the requirement for the Master of Business Administration (MBA) Degree.

Your Company is one of those selected for the study. I am, therefore kindly requesting you to fill the questionnaire the soonest possible and to the best of your knowledge. The information you give is needed purely for academic research purposes and will therefore be treated with strict confidence. In no way will your name or that of your organization appear in the final report.

A copy of the final report will be made available to you upon request.

Your assistance and cooperation will be highly appreciated.

Thanking you in advance.

Yours faithfully,

ONDIEK GERALD OCHIENG
MBA II STUDENT

MRS. ZIPPORAH KIRUTHU
SUPERVISOR,
LECTURER DEPT. OF
MANAGEMENT SCIENCE



UNIVERSITY OF NAIROBI
FACULTY OF COMMERCE
MBA PROGRAMME - LOWER KABETE CAMPUS

Telephone: 732160 Ext. 208
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P.O. Box 30197
Nairobi, Kenya

DATE: 9TH MAY, 2000

TO WHOM IT MAY CONCERN

The bearer of this letter: GERALD OCHIENG ONDIEL

Registration No: D61/7798/98

is a Master of Business & Administration student of the University of Nairobi.

He/she is required to submit as part of his/her coursework assessment a research project report on some management problem. We would like the students to do their projects on real problems affecting firms in Kenya. We would, therefore, appreciate if you assist him/her by allowing him/her to collect data in your organization for the research.

Thank you.



LECTURER & CO-ORDINATOR, MBA PROGRAMME

MO/ek

APPENDIX B

QUESTIONNAIRE

A SURVEY OF THE ORGANIZATION FOR MATERIALS MANAGEMENT IN THE KENYAN MANUFACTURING FIRMS.

PART 1: BACKGROUND

1. Name of the company
2. Year of establishment.....
3. Describe the ownership of your company
Local []
Foreign []
Others []
4. Nature of business
5. Describe your annual turnover
Upto Ksh 50 million []
51 million – 500 million []
501 million – 1 billion []
1.1 million – 5 billion []
5.1 billion and above []
6. What proportion of your annual turnover do you spend on materials and materials related costs
0 - 30% []
31 – 50% []
51 – 70% []
71% and above []
7. How do you allocate these costs
♦ Direct materials costs (purchase price)..... %
♦ Indirect materials costs (e.g. handling cost, ordering costs)..... %

8. Describe the company's growth position
- | | |
|---------------|-------|
| Initial stage | [] |
| Growing | [] |
| Maturing | [] |
| Declining | [] |

9. Is your company listed in the Nairobi Stock Exchange?
- | | | |
|-----|-------|--------|
| Yes | [] | By who |
| No | [] | |

PART II: MATERIALS MANAGEMENT ORGANIZATION

10. How many departments does your organization have? Kindly list them.
-
-
-
-

11. List the type of materials used by your organization
-
-
-
-

12. Where are the materials used in the organization sourced?
- | | |
|------------------------|-------|
| Local | [] |
| Foreign | [] |
| Both local and foreign | [] |

13. How easily are materials accessible?
-
-

.....
.....

14 Kindly indicate the department responsible for and the person incharge of the following functions. Fill in the table below:

Functions	department	By who
i) Production scheduling		
ii) Materials planning and control		
iii) Receiving materials		
iv) Materials and purchasing research		
v) Stores/warehouse		
vi) Purchasing		
vii) Distribution and transport		
viii) In-plant materials movement		
ix) Incoming quality control		
x) Scrap and surplus disposal		
xi) Inventory control		
xii) Technical stores		

15. Do you have a department responsible for all materials functions?

Yes []

No []

16. Who is responsible for the management of materials related costs (eg inventory holding costs, orderings etc)

.....
.....
.....
.....

PART III: APPLICATION OF MATERIALS MANAGEMENT CONCEPTS

17. How do you judge the current state of materials management in your organization?

- Very efficient []
- Efficient []
- Indifference []
- Inefficient []
- Very inefficient []

18. What do you think are some of the most problem facing the organization as concerns materials management

.....

.....

.....

.....

19. Of all the problems you have mentioned which do you think is the most critical one?

.....

.....

.....

.....

PART III: APPLICATION OF MATERIALS MANAGEMENT CONCEPTS

For organization which have implemented materials management concept.(ie any organization in which at least three of the following function:- purchasing, inventory control, production scheduling and control. Inbound traffic, stores & warehousing, incoming quality control etc report to a single responsible individual is said to practice the MM concept).

20. Who does the person incharge of materials function report to?

.....

.....

.....

.....

21. What title does the person incharge of materials management given?

.....

.....

22 a) What benefits do you expect from implementing materials management? Kindly list

.....

.....

.....

.....

b) What have you realized so far? State or quantify, if possible

.....

.....

.....

.....

- 23. What problems have you encountered with the approach?
.....
.....
.....
.....
- 24. Would you recommend materials management system to other organizations?
.....
.....
.....
.....
- 25. What improvements do you plan for in your materials management systems?
.....
.....
.....
.....

PART IV
INTERVIEWEE PERSONAL DETAILS

- 26. Name of interviewee.....
- 27. Position of interviewee.....
- 28. The number of years the interviewee has worked for the organization.....
.....

KENYA DIRECTORY OF MANUFACTURING INDUSTRIES

Masaku Industries Cycle Co. Ltd	199	Acif Oil Refinery Ltd	9
Meru Central Farmers Co-Op Union	16	Acme Press (K) Ltd	103
Meru Confectionary	26	Adminal Shirt Factory	63
Meru Ginnery Ltd	62	Adoscope Ltd	202
Meru Tiles & Blocks Co	154	Adverco Ltd	88
Moon Industries Ltd	26	Aerad Lithographic Printers	103
Mountain Food Industries	6	Aero Instrument Service Ltd	200
Muisuni F.C.S. Ltd	37	Afken Ltd	51
Mulwa Millers	17	Afri-Tots Ltd	63
Mwea Cotton Ginnery	62	African Body Builders Co Ltd	196
Naciti Engineering Works	172	African Boot Co Ltd	79
Nanyuki Grain Millers	17	African Culture Sejer Industry	202
Ndolo Valley Enterprises	24	African Highland Produce Co Ltd	27
Nduki Engineers	180	African Packaging & Printing Ltd	98
Ngala Mwendwa Bakery	22	African Produce Dealers Ltd	83
Njoka Tanners Ltd	77	African Radiators Ltd	196
Nkuene F.C.S. Ltd	39	African Steel Fabricators Ltd	173
Nyaki F.C.S. Ltd	39	African Timber Ltd	83
Nyako's Clothing Factory	70	African Trade Agency Ltd	74
Nyambene Tea Factory	39	African Welding Works Ltd	168
Nyange Business Links Ltd	11	African Mfg Ltd	63
Nzaini Coffee Factory	39	Afro Asian Curios (K) Ltd	202
Refinoil Manufacturing Co. Ltd	12	Afro Design Ltd	88
Richard Musyimi Workshop	170	Afro Jewellers Ltd	202
Ritrikonye Enterprises Ltd	60	Afro Leather Goods Manufacturing Ltd	77
Ruiru F.C.S. Ltd	40	Afro Plastics Ltd	143
Rukiri Tea Factory	40	Afro Press	103
S.M. Nditi & Bro Saw Mill	85	Afro Tailors	63
Saj Ceramics Ltd	152	Afro Typesetters	103
Steel Tubes & Pipes Ltd	173	Afrofoams & Packaging Ltd	88
Tabere Concrete co. Ltd	161	Afrolite Industries Ltd	79
Tala Garments	72	Afya Enterprises Ltd	5
Tala Unga Industries	19	Aga Africa Ltd	190
Tanneries (K) Ltd	77	Agraphia Mfg Co Ltd	27
Thika Cloth Mills	54	Agro Steel Ltd	173
Ukamba Printing Press	119	Aguva Engineering Works	174
United General Workshop	170	Ahmed Brothers Ltd	55
Wason Timber Co Ltd	86	Aims Ltd	156
Woni Daily Shoe Makers	82	Airduct Engineering Ltd	170
		Ajay Garments	64
		Alai'Din Blacksmith & Sons	174
		Alarm Services (K) Ltd	190
		Alfa Printers & Publishers Co	103
		Alfa Products Ltd	174
		Alibhai Sharif & Sons Ltd	55
NAIROBI			
Abdulquid Frames	88		
Accounting Business Methods	103		
Acif Limited	60		

KENYA DIRECTORY OF MANUFACTURING INDUSTRIES

Allied Electronics Ltd	190	Automotive & Industrial Battery	
Allied Engineering Co Ltd	168	Manufacturers (K) Ltd	190
Allied Industries	64	Aviation Maintenance (EA) Ltd	200
Allied Investments Ltd	88	Avon Rubber Co. Ltd	141
Allied Printing Press	104	Avtar Engineering Works Ltd	191
Allied Rubber Industries	141	Aziz Din Nabi Bux	76
Allience Steel Works Ltd	174	B. A. T Kenya Ltd	50
Allile Association Ltd	143	B.D. Engineering Works Ltd	168
Alpa Nguvu Ltd	190	B.P.C. Industrial Lacquers Ltd	125
Alpha Inks Ltd	135	B.R. Icecream Products	2
Amalgamated Alloys Ltd	164	Babytots Ltd	64
Amalgamated Industries Ltd	98	Bakequip Manufacturers	171
Ambae Ltd	20	Ball Pens & Allied Industries	203
Ambica Foods Ltd	27	Banbros Limited	196
Angus Screen Print Ltd	104	Bandakshi Dass Brothers	51
Animal Feeds (K) Ltd	43	Bantaram & Co Ltd	88
Animatics Ltd	202	Baptist Publications House	104
Anoop Engineers	184	Bassie & Co Ltd	104
Apro Energy Enterprise Ltd	174	Bat Kenya Developers Ltd	1
Aquva Fabricators Ltd	170	Batister Gathuri & Co	64
Aromatic Foods Ltd	27	Baumann Engineering Ltd	184
Art Blocks (1975) Ltd	104	Baumann Kenya Ltd	87
Art Printers	104	Bawa Singh Arja Singh Co Ltd	89
Arthi River Marble & Granite Ltd	152	Bayer (EA) Ltd	203
Assia Phamaceutical (E.A.) Ltd	128	Bean Processing Plant	5
Asp Co. Limited	171	Beaver Paints (K) Ltd	135
Associated Battery Manufacturers		Belfast Millers Ltd	43
(EA) Ltd	190	Bel Mart (K) Ltd	8
Associated Gaskets Ltd	202	Belpem Manufactures Ltd	27
Associated Motors Ltd	196	Beta Engineering Co Ltd	175
Associated Nail Manufacturers Ltd	174	Beta Health Care Products (K) Ltd	128
Associated Packers Ltd	5	Bezo Garments Ltd	65
Associated Paper & Stationary	104	Bhachu Industries Ltd	196
Associated Press	104	Bhadesia N.N.	89
Associated Steel Ltd	171	Bhagwan Singh & Sons	89
Associated Vehicle Assemblers	196	Bhimji Ranji & Sons (K) Ltd	156
Atlantic Seramics Ltd	151	Bhupco Garments Factory	65
Atlas Clothing Co. Ltd	64	Bidco Industries Ltd	131
Atlas Fire Security (K) Ltd		Bido Garments	65
(Division Of Morrison)	203	Bids Match Ltd	135
Aturia Trading Co	77	Bids Socks Ltd	54
Aurora Baking Co Ltd	20	Bima Manufacturers Ltd	65
Auto Ancillaries Ltd	174	Biri Engineering Works	184
Auto Litho Ltd	104	Birindeli Signs Ltd	203
Auto Performance	174	Bishan Singh & Bros	89

KENYA DIRECTORY OF MANUFACTURING INDUSTRIES

Bizari Industries	27	Central Germents Mfg	66
Bluebird Garments Factory	65	Central Glass Industries Ltd	152
Bobmil Industries Ltd	58	Central Workshop Ltd	197
Bonar (EA) Ltd	55	Century Textiles Ltd	66
Bonari Machine Fabric Ltd	175	Ceramic Industries E.A. Ltd	151
Booth Manufacturing Africa Ltd	171	Ceramic Manufactures Ltd	151
Boutique De Famille	65	Chai Ltd	28
Brah Timber Industries Ltd	83	Chalange Cushion Mart	56
Brake Fluids (K) Ltd	203	Chamelesa Ltd	51
Brami Bros	89	Chandaria Industries Ltd	97
Brett & Co Ltd	171	Chemakura African Curios	78
B.R. Icecream Products	2	Chemiplas	80
Broco Engineering Enterprises Ltd	175	Choda Enterprises	197
Brooke Bond (K) Ltd	28	Choda Fabricators	197
Brother Knitwear Factory	65	Choice Ads	105
Brother Shirts Factory	65	Chui Enterprises	204
Brush Manufactures Ltd	203	Chui Manufacturers Ltd	144
Bupco Textile Mills Ltd	51	Chui Soap Factory (K) Ltd	131
Burns & Blane (K) Ltd	197	City Engineering Works (K) Ltd	171
Business Foams & Systems Ltd	105	City Printing Works Ltd	105
C & P Shoe Industries Ltd	80	Clasons Plastics Ltd	144
C.M.C. Aviation Ltd	200	Classic Printers & Stationers	105
C.M.C. Engineering Ltd	175	Clayworks Ltd	153
C.P.C. (K) Ltd	28	Coates Brothers (EA) Ltd	125
Cabroworks Ltd	156	Coca Cola (Mid Africa Ltd)	48
Cadbury Schweppes (K) Ltd	48	Cocker Dynamic Ltd	175
Califonian Cookies	21	Coffee Board Of Kenya	29
Campos Men's Wear	65	Cofresh Ltd	29
Canvas Manufacturers Ltd	55	Colas East Africa Ltd	157
Capital Concrete	156	Colgate Palmolive (EA) Ltd	131
Capital Knitwear Mills Ltd	65	Colour Packaging Ltd	106
Capital Printers Ltd	105	Colour Print Ltd	106
Car & General (Eutectic Division)	191	Commercial Refrigeration & Eng. Services	184
Car & General (Tyre & Rubber Division)	141	Concrete Pipes & Products (1970) Ltd	
Carbacid (Co2) Ltd	203	Concreters (1972) Ltd	157
Carbon Brushes Ltd	203	Congo Shoe Shop	80
Caribonium (EA) Ltd	203	Consolidated Asphalts	157
Carton Manufactures	98	Consultant (EA) Ltd	131
Cassin & Tonolo Ltd	184	Continental Industries	131
Cassman Brown & Co Ltd	157	Conzuki Co Ltd	157
Casta Chemicals Ltd	135	Coppers (k) Ltd	128
Caxton Press Ltd	105	Cooper Motors Corporation (K) Ltd	185
Ceebogh Ponds Ltd	131	Corvin G.F. Ltd	191
Centraco Chemical Ind. Ltd	131	Cosmic Press Ltd	106
Central Footwear	80		

Cosmo Plastics Ltd	144
Cotton Lint & Seed Marketing Board	61
Cow & Gate (K) Ltd	2
Crecent Stationers & Printers	106
Cremex Ltd	29
Crescent Investment Ltd	106
Crown paints	125
Crystal Palace	78
Cussons & Company Ltd	132
D.K. Paints International	125
D.L. Patel (k) Ltd	106
D.R. & Cremaster (K) Ltd	175
Dairy Den Ltd	2
Damji Devji Ltd	204
Darshan Singh & Co. Ltd	185
Dawa Pharmaceuticals Ltd	130
Dawning African Enterptises Ltd	175
Dawoods Fabrics Ltd	62
Deeko Kenya Ltd	98
Deepa Industries Ltd	29
Deline Steel Fabricators	171
Delux Cosmetics Ltd	132
Delux Printers	107
Denamal Garments Factory	66
Dentex Industries (K) Ltd	144
Dera Chemical Industries (K) Ltd	123
Derkaran Vallabhji Soni	204
Desai Printers (K) Ltd	107
Detergents Ltd	132
Devan (Plastic) R.H. Ltd	144
Dhiman & Sons Ltd	185
Diamond Commercial Trading Co	107
Diamond Concrete Co	158
Diamond International Radio Manufacturers Ltd	191
Diamond Press Trading Co	107
Diddy Pharmaceuticals	129
Dilbahar Hotel	25
Divanlal Adhavji & Sons	204
Dodhia Foam Ltd	89
Dodhia Packaging Ltd	98
Dodhia Saw Mills	84
Dogra Engineering	158
Dominion Engineering Works Ltd	89
Dorman & Co Ltd	29

Dowell Enterprises	136
Dubiois Oil Mill & Soap Manufacturers Ltd	10
Dunlop Kenya Ltd	154
Dynamic Heavy Industries	176
Dynamic Printers & General Agencies	107
Dynamic Printers & Stationers	107
Dynamos Engineering Works Ltd	185
E. A. Industries Ltd	132
E. A. Stationary Manufactures Ltd	108
E. African Printing & Publishing Ltd	108
E. African Venture Co	107
E.A Hydraulic & Metal Industries Ltd	185
E.A Metal Works	176
E.A. Engineering Works Ltd.	185
E.A. Hydraulic & Metal Industries Ltd.	176
E.A. Paper Bag Manufactures Ltd	99
E.A. Paper Industries	99
E.S.A. Stationary Manufactures	108
East African Spectre Ltd	176
East Afica Meat Products (1965) Ltd	1
East Africa Chains Ltd	204
East Africa Fine Spinners	51
East African Cables Ltd	191
East African Gemstones Ltd	204
East African Leather Factory	76
East African Optical Co Ltd	200
East African Oxygen Ltd	122
East African Packaging Industries	99
East African Portland	155
East African Records Ltd	204
Ebnet Africa Ltd	144
Economic House Group Ltd	84
Edaflam Plastics Ltd	144
Elephant Soap Industries	132
Elgon Factory Ltd	89
Elliot's Bakery Ltd	21
Elson Plastics (K) Ltd	145
Ely Chemicals	129
Elys Chemical Industries Ltd	129
Embassy Industries Ltd	99
Emco Glassworks Ltd	152
Emco Steel Works Ltd	164
English Press Ltd	108
Equator Press Ltd	108

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Equator Structures Ltd	176	General Printers Ltd	109
Equator Supermarket	205	George Williamson (K) Ltd.	186
Equatorial Publishers Ltd	108	Gilbeys (EA) Ltd	46
Eros Furnitures & Upholsters	89	Glacier Products Ltd	2
Eros Printers & Stationers	108	Gladhome Ltd	43
Erskin & Duncan Ltd	25	Gnanjivan Plastic & Rubber Ltd	141
Eski Stationers & Printers (K) Ltd	108	Gnanjivan Wire Galvanising Mills Ltd	177
Esso Standard (K) Ltd	136	Golden Grains Ltd	13
Euromica Ltd	99	Golitho Ltd	109
Europlastics	145	Gollards Productions	200
Excel Chemicals Ltd	29	Gom International Co Ltd	99
Ezzi Viny Products Ltd	145	Gopitex Knitwear Mills Ltd	58
F.K.W. Electricians (E.A) Ltd	191	Graphic & Industrial Inks (K) Ltd	136
Fabkits Ltd	58	Greenham Concrete	158
Fabmould Kenya Ltd	158	Gumchem (K) Ltd	136
Faif Management Ltd	122	H. Young & Co (EA) Ltd	197
Fame Furniture	90	Haco Industries Ltd	205
Far Fragrances	132	Hamid Wali Mohammed	186
Faram Timber & Hardware Store Ltd	158	Hammer's Engineering Ltd.	186
Farmers Choice Ltd	1	Hango Printers & Stationers	109
Federal Distributors & Co Ltd	132	Haraka Hosiery Manufacturers	59
Fine Knit (K) Ltd	51	Hardweels Ltd.	186
Fine Printers Ltd	109	Haria Trading Stores	56
Fine Wood Work's Ltd	90	Harris L.G. & Co. (EA) Ltd	205
Finlay Strammit Ltd	205	Hartz & Bell	172
Firestone (E.A) Ltd	141	Health & Beauty Products	133
Flat Printers & Stationers	109	Henkel Chemicals (EA) Ltd	136
Flora Garments Factory	67	Henkel Kenya Ltd	133
Foam Plastic Ltd	90	Herage Printers Ltd	109
Fornbit Ltd	136	Highland Canners	5
Fragrances E.A. Ltd	132	Hill Products (K) Ltd	177
Frajoh General Hardware Ltd	172	Hobra Manufacturing Ltd.	186
Francescon Marble And Granite	151	Hoechst East Africa Ltd	125
Frismils Industries (K) Ltd	136	House Of Manji Ltd	21
Frozen Food (K) Ltd	5	Hughes Limited	177
Furniture International Ltd	90	Hussein Glassware Mart Ltd	152
Furniture, Recording & Supplies	90	Hutching Biemer Ltd	90
Furries	78	Hydraulic Meters & Equipment Ltd	200
Galaxy Paints (K) Ltd	125	Hygiene Products Ltd	133
Galaxy Printers	109	Ideal Manufacturing Company	44
Galsheet Kenya Limited	165	Ideal Photo Engravers	110
Garment Exporters & Processors Ltd	52	Igloo Food Industries	2
Gathambana Engineering Works Ltd	168	Ilmorog Printers & Stationers	110
General Industries	205	Impala Glass Industries	152
General Plastic Ltd	145	Inder Singh Gill Ltd	91

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Industrial Automotive Ltd	191	Kanemco Metal Co Ltd	178
Industrial Plant (EA) Ltd	177	Kanti Industries Ltd	31
Industrial Refractories	154	Kapa Oil Refineries Ltd	10
Infusion (K) Ltd	129	Karama Mahfudth Bin Othaman	206
Inks (K) Ltd	126	Karania Packers	32
Insteel Ltd	177	Karimbhai K.M.H.	192
Insulated Electrical Conduit Ltd	191	Karkar Engineering Ltd	197
Inter Offset Printing (EA) Ltd	110	Karsan Murji & Co Ltd	158
International Aeradio (E.A) Ltd	191	Kartasi Industries Ltd	100
International Flavours & Fragrances	137	Karuri Metal Works	169
International Garments Mfg		Kawan Enterprises (K) Ltd	56
Interproducts (K) Ltd	133	Keafrik Stationers & Printers Ltd	111
Intersilk Germents MFG	67	Kehan Sing & Co Ltd	197
Itaaga Millers	13	Ken Aluminium	165
Ital Products Ltd	172	Ken Wheat Industries Ltd	14
J.F. Mcloy Ltd	192	Kena Pen Industries Ltd	206
J.K. Industries	146	Kenafic Diaries Manufactures Ltd	111
J.L. Morrison Sons & Jones (K) Ltd	133	Kenafic Industries Ltd	25
Jagat Singh & Sons	197	Kencake Bakery	21
Jagiwan Hirji & Sons	186	Kenfro Fibreglass Co Ltd	159
Jahkaria Packers	133	Kenpoly Manufactures Ltd	146
Jambo Biscuits	21	Kensisal Projects Ltd	206
Jambo Flour Millers Ltd	13	Kensmetal Industries Ltd	178
Jamnadas Jadavji	206	Kenson Engineering	165
Jamnadas Ramji & Co	67	Kentainers	146
Jaydees Knitting Factory Ltd	59	Kentaz Industries Ltd	63
Jethalal Kathadbhai	206	Kenwefers Ltd	21
Jiko Manufacturers Ltd	177	Kenwestfal Works Ltd	192
Jisaidie Cottage Industries	206	Kenwood Industries Ltd	91
Jivanlal Ordharji & Bros	206	Kenwool Enterprises Ltd	52
Joe Publication Ltd	110	Kenya Adhesive Products	122
Jogoo Industries Ltd	91	Kenya Art Centre Ltd	87
John Heffer Industries Ltd	99	Kenya Bed Sheets Manufacturers Ltd	68
John Heffer Mining Ltd	158	Kenya Box Body Builders	198
Johnson & Johnsons (K) Ltd	133	Kenya Breweries Ltd	47
Johnsons Wax (EA) Ltd	137	Kenya Canvas Ltd	56
Joint Graphics	110	Kenya Castings Ltd	187
Jomo Kenyatta Foundation	110	Kenya Clay Products Ltd	154
Joy Shoes Ltd	80	Kenya Clothing Factory Ltd	68
Jumbo Traders & Manufactures	91	Kenya Co-Operative Creameries	3
K. Kay Engineering Services Ltd.	186	Kenya Components Ltd	159
K.H. Karimbhai	146	Kenya Distillers Ltd	46
Kamco Engineering Works	186	Kenya Eng. Industries Ltd	167
Kamiti Tanners (K) Ltd	76	Kenya Fishing Industries Ltd	8
Kamp Lighting (1978) Ltd	192	Kenya Flour Millers Ltd	14

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