

ST. MARY'S UNIVERSITY COLLEGE
FACULTY OF BUSINESS
DEPARTMENT OF MANAGEMENT

**The Effects of Materials Management on Organizational Efficiency:
The Case of Anbessa City Bus Service Enterprise [ACBSE]**

**A SENIOR ESSAY SUBMITTED TO
THE DEPARTMENT OF MANAGEMENT BUSINESS FACULTY
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**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
BACHELOR OF ART IN MANAGEMENT**

BY
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SMUC
ADDIS ABABA

ST. MARY'S UNIVERSITY COLLEGE

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CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Many organizations whether it is profit making or not use different types of materials to accomplish its task. Companies face production shut down, lose their customers, stop their service giving through shortage of raw materials, merchandise and other materials like spare part. They not only face problem from shortage but also tie their working capital due to over stock. When over stock exists, there are costs that are incurred by the company these costs are space cost, handling cost, annual inventory costs, absolute cost, e.t.c. purchasing, acquisition of the right quality and quantity of materials or service from the right place, within the right time at right price (5R's) is another activity that require due consideration in the materials management set up. Unless these five R's are fulfilled in any materials management activity, the planning and budgeting of materials is simply spending time.

Companies, which are involved in transportation service (like Anbessa City Bus service enterprise, Walia Transport, and Ethiopian Airline), or those that have direct relationship with transportation activity having another mission like ministry of defense give due consideration for material management activity. This study focus on Anbessa City bus service enterprise spare parts management system that has 80 million birr amount of inventory at stock out of which 25 million birr amount of Local and foreign purchase per annum and 28 million birr of issuance for the same year (2000 budget year annual inventory report of the enterprise)

1.2. Background of Anbessa City Bus Service Enterprise (ACBSE)

Anbessa City Bus service Enterprise, the largest city transportation company in Ethiopia was established immediately after the Italian invasion in 1935 E.C by collections Vehicles and garage equipments from the invader. At that time its name was public transport and was guided by Italians and other foreigners. On December 02, 1944, it organized itself in to a share company by getting legal entity from the government. At that particular year the enterprise had only 10 buses to serve the people of Addis Ababa in four routes. In 1956 the Enterprise bought 20 Mercedes model buses and increased its routes to 14. The

managements was also shifted from foreigners to Ethiopians. In 1966 the Enterprise transferred its ownership from share company to public transport service in 1973 the enterprise bought 50 city buses and strengthened its transportation services.

In 1986 under proclamation number 187/86 it recognized itself by paid up capital of birr 14 million birr got its current name Anbessa City Bus service Enterprise. At that time the people of Addis Ababa increased tremendously the market system changed from command economy to market economy and the need of transportation service also become essential to fulfill this need, the enterprise bought 466 DAF model city buses from 1989 to 2000 E.C

Today the enterprise has 464 DAF City Buses, 60 Mercedes Buses in Addis Ababa and of Fiat Buses the enterprise gives transportation service for more than seven hundred thousand people per day through 93 routes in Addis Ababa around. To facilitate the transportation service and decrease the down time of buses the enterprise has its own garage that gives all types of maintenance service.

1.3. Statement of the Problem

Currently, the survival to any company in this competitive and complex world is highly dependent on its performance. However, company's performance is affected by internal and external factors. To decrease the internal factors departments of the company's should have smooth relationships. This is because the effectiveness of the materials management activity usually depends on the operational activity, financial strength, maintenance planning and human resource of the enterprise unless the materials management activities are responsive and economical the efforts of the enterprise will be largely wasted. The student researcher will try to evaluate the effectiveness and efficiency of ACBSE materials management activity. This encompasses the activity of inventory planning and controlling division, purchasing division, and storage and distribution division activity. According to the annual report the total inventory amounts more than 82 million birr out of which 94% is for spare post (ACBSE/FD/350/97) the study will focus on whether handling this much amount is necessary or not. In addition, the study will also try to investigate what impact the materials management activity has on other departments in particular on enterprise success.

1.4. Research Question

The study was designed to answer the following question.

- Does the spare management system of the enterprise address the need of the enterprise in general and user expectation in particular?
- How are inventories stocked at the stock?
- Is the purchasing system efficient and effective? If not why?
- What is the relationship b/n the three divisions (supplies, technical and purchasing)?
- Is purchasing division satisfied by its relationships with its local and foreign suppliers?
- Is skilled manpower available in each division?

1.5. Objective of the Study

General Objective

The general objective of this study was to investigate the effects of materials management on organizational efficiency in relation to Anbessa City Bus Service Enterprise [ACBSE].

Specific Objectives

The following specific objectives were drawn from the above general objective.

- Spot and discuss whether the spare management system of the enterprise addresses the need of the enterprise in general and user expectation in particular or not.
- Identify how inventories stocked at the stock.
- Make out if the purchasing system efficient and effective.
- Identify the relationship between the three divisions (supplies, technical and purchasing).
- Recognize the satisfaction level of purchasing division with respect to its relationships with its local and foreign suppliers?

1.6. Significance of the Study

The research would have the following importance for the department as well as for the enterprise:

- It helps inventory planning and controlling purchasing and storage and distribution division by pointing out their problem in performing their activities and by giving attainable suggestions and/or recommendations.

It may create awareness for the three divisions how (supplies, technical purchasing department) they are performing their duties and responsibilities.

- It may show (for the top management of the enterprise) much attention is given for spare part management activity by the enterprise.
- It may serve as an additional source for those who are interested in making evaluation on the effectiveness an efficiency of the spare part management.
- It may serve also as an assisting material for those companies who are involving in transportation activities in organized manner.

1.7. Scope of the Study

There are many transportation companies that give due consideration for materials management activities, however the research is conducted only for Anbessa City Bus Service Enterprise (ACBSE) which is composed of many departments (like operation department, finance department, technical department etc.) that have strong relationships with each other, however the study has focused only on procurement and supply department.

Though there are external factors that limit the materials management efficiency, the study focused only the internal factors. In addition, different materials need different management styles for economical benefits. However, this study focused on only spare parts among the different types of materials that are available at the stock, as it has significant effect on the organization's objective.

1.8. Research design and Methodology

1.8.1. Research Design

The main purpose of this study was to survey the effects of material management organizational efficiency of Anbessa City Bus. Therefore, the research method adopted in this study was descriptive survey.

1.8.2. Population and Sampling Technique

In order to get the necessary data out of the 3(three) department of a total population 30 questionnaires were distributed in supplies department. The interview was also conducted

supplies and technical department manager. In addition, discussion was held with purchasing division head.

1.8.3. Types of Data Used

The study was designed in such a way that it made use of both primary and secondary data. Primary data collection method was carried out by distributing questionnaires, which consists of both close and open-ended questions. Some interview was also administered to some supervisors and managers of (ACBSE). Moreover, the researcher has also employed secondary data. Secondary data was derivate from primary writing of others.

1.8.4. Methods of Data Collection

In order to collect data & methods:

- Interviewing department managers supplies dept, technical dept, & operation head
- Questionnaire method
 - Section head in different departments
 - Foreman, mechanics, inventory control, experts and other staff, storage stats and purchasers these respondents have college diploma & others
- Document Analysis
 - Reports of annual inventory
 - Sock movement, report of the year, half a year quarterly, monthly and daily base report.
 - ABC Analysis
 - Other Analysis

1.8.5. Methods of Data Analysis

The gathered data was organized, analyzed and presented by using statistical methods, including table and percentages.

1.9. Limitation of the Study

To accomplish this research, it is obvious that there was several factors which were regarded as constraints. From these factors, source material was the basic one. Furthermore, time and financial problem were also series restraints faced in this survey.

1.10 Organization of the Study

This research has integrated with four chapters. In the first chapter, the introductory part of the survey was presented. Moreover, the methodology employed to conduct the research has been presented in the same chapter. Chapter two, on the other hand, is devoted to deal with various literature reviews. Here under, different definitions etc were seen. Chapter three, being the main body or pillar of this work, is concerned with the interpretation and finding of the data gathered. The last chapter is reserved for summary, conclusions and recommendations to be made based on the findings of the research.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter deals with the review of literature related to the problem under discussion.

Introduction

To date, only the most progression firms realize that materials availability engineering/purchasing specification and fabrication cost are all factors that ultimately contribute to total material cost. These progressive firms also realize that all materials cost factor must be coordinated and controlled by a system oriented materials management department if total materials cost is to be minimized. In most business operation, for the short run the cost of materials is the last remaining cost that is truly variable-all other major costs either are fixed or tends to be semi fixed. Dobler Lee and Burt 914984,XIII) also explains why materials management is in need in industrialized world in the following manner.

As we are in the twenty-first century, the materials function will continue to assume increasing importance in the nations of the industrialized world. This is so because, the sky rocketing use of computer-based information systems, increasingly competitive international business activities, and growing materials shortage, highlight the importance and the opportunities for sophisticated management in the area of materials management. (Dobler Lee and Burt 1984:XIII)

This shows that there is a need of an integrated materials management activity for the success of an organization in decreasing its materials cost in particular and for company's success in particular.

2.1. Definition and Objectives of Materials Management

As we can see from the practical world, materials management is a general term composed of different activities from request of an item for purchase to distributing it to the user. According to Dobbler, Lee and Burt 91984:27) materials management is defined as 'a confederacy of traditional materials activities bound by a common idea-the idea of a integrated management approach to planning, accession, conversation and distribution of materials from the raw-materials state to the finished product-state.'

The materials management concept advocates the assignment of all major activities, which contribute to materials, cost to single materials management department. This includes the primary responsibilities which are generally found in the purchasing inventory management, traffic, receiving, warehousing, surplus and salvage, and planning and control. From these definitions, we can understand that materials management is parts of a field of management that focuses on from the acquisition phases of materials and services up to the receiving and storing phases. Its' main objectives is to integrate all the activities and costs of the materials and services transaction in one department.

2.2. Organization of Material Management

Depending on the mission that the organization disestablished for, the types of material it handle and the location of plants, different types of materials management organization are discussed here with their related advantages and disadvantages.

A good organization structure does not by it self-produce good performance just as a good constitution does not guarantee great presidents, good laws, or a moral society. But a poor organization structure makes good performance impossible, no matter how good the individual managers may be. To improve organization structure will there for always improve performance. Dobler, Lee and Burt (1984:515)

This implies that how a clear structuring of materials management activities is important for giving quick and accurate services for the user of the materials. This is because from the best activities that the materials manager handle, coordinating and facilitating these activities will improve the service and serve as backbone for any organization. One the relationships of materials management with regard to other departments and the overall organizational plan is finalized, the next step is to finalize the internal structuring of the department.

2.2.1. Organization by Commodities

According to Dobler, Lee and Burt (1984), items are classified according to their nature such as raw material bought to components, spares, imported items, finished goods and so, on, and these are assigned to individuals. Depending in the impotence of the

commodity group in respect of the operation of the company, workload will vary between the groups. This forms the basis for determining the staff in each commodity group. The advantage in this system is that there is no duplication of efforts as each commodity is separately handled. The group is intimately touched with its respective commodity market and hence it becomes specialized. Bulk buying and standardization are facilitating in each commodity group. However, this system requires many staffs to handle each type of commodities.

2.2.2. Organization Based on Location

According to Dobler, Lee and Burt, (1984) when an organization has several plants located in different parts of the country, there are two alternatives. One is to have a centralized organization located at the head quarters. The other is to have a decentralized material management set up in each location. There are several reasons favoring decentralization. Firstly, when distances between the plants are significant, the materials management function is impaired when controlled from head quarter, best in terms of cost and time. Secondly, the plants product lines play an important role. Each plant may require many unique materials and a materials management department located at the plant will be in a much better coordination with the plants production, finance and marketing departments. The disadvantage of this type of organization is that, items may be exposed to obsolescence, lesser control and expensiveness of unit price due to disintegration of activities.

Centralized materials management has its own benefit. These are combining the requirements and bulk purchase which leads to reduction of cost, transfer of materials in an emergency is possible, and surplus materials in one plant can be utilized in meeting the requirement of another plant. Since there is only one department dealing with various sources of supply, a high order of skill can be expected. This type of materials management organization has also its own disadvantage that it does not give quick response for the need due to transportation problem and unnecessary up and downs.

Generally speaking the advantage of one approach is the disadvantage of the others. Thus, a combination of both is often used to obtain the benefits from the features of each, while avoiding the disadvantages of both approaches. The most widely used arrangement is a

compromise designed to obtain the advantages of both methods. The mix usually takes the form of decentralize system, which centralized coordination and control.

2.2.3. Organization Based on Functions

The materials management department is structured on the basis of functions such as stores, transport, receiving, purchase and so on. These stores of different manufacturing division will be under one individual who will report to the materials manager. Purchasing activities will be under one individual who will report to the materials manager. Purchasing activities will be again under one individual who will report to the materials manager.

2.2.4. Special Requirement

For organization undertaking turn key projects, certain special aspects need to be considered for organizing materials management. According to Dobler, Lee and Burt (1984), these important aspects are-

- When the project schedule requires timely procurement of materials
- Storage at site where conversions stores management aspect are not reverent
- Flexibility of the set up to spot interchangeable materials and equipment between projects to avoid delay and idling of equipment.
- Ability to obtain or forecast costs which will assist in costing the entire project

Some times a dividing whose materials management functions are organized in multi-division organization. This has one advantage in that the materials management department is quick to grapple with the problems and needs and this facilities better coordination.

2.3. Materials Management Relation with Other Departments

Since materials management/supply management is responsible for supplying all materials and services for all departments in the organization it has direct and indirect functional relationship with them. Burt, Dobler and Starling (2003:41) explain the relationships of materials management department with other departments in the organization as:

A supply management department is the hub of a large part of company's business activity. By its very nature, supply management has continuing relationship with all other department in the firm, as well as with the firm's suppliers. Supply management operations cut across all departmental lines.

From this paragraph we can understand that materials management department is the corner stone of any organization that every department has relation directly or indirectly.

2.3.1. Supply Management and Engineering

Supply management, engineering and operation have many mutual problems. Design engineering greatly influences the amount of time supply management has to handle a procurement assignment. According to Burt, Dobler, and Starling (1963:41), "Engineering has the initial responsibility for preparing the technical specification for company's products and the materials that will go in to them." To exercise the responsibility effectively, engineering should have the assistance of supply management and operations. Supply management and engineering department occasionally differs in their concepts of materials problems. The engineer naturally tends to design conservatively; hence their specification may provide amply for quality, safety performance. The supply professional is more concerned with commercial issues such as cost and availability.

2.3.2. Supply Management and Manufacturing

Supply management and manufacturing department relation begins usually when new item is going to introduce in the company's production. Thus, the manufacturing department transmits its material requirement to the supply department. The supply department is responsible for delivering of the required materials timely. However conflicts may occur in delivering the required item on time. These may arise due to lack of sufficient time given by the manufacturing department to purchase-wisely, as much as possible.

2.3.3. Supply Management and Marketing

Supply management and marketing departments have relationship lies on price of items and sales forecast. Burt, Dobler and Starling explain the relationships of the two departments in the following manner.

Prompt communication to manufacturing and supply management of changes in sales forecast permits these departments to modify their schedules as painlessly and economically as possible. Supply management must immediately transmit to marketing, as well as to other management groups, information permits marketing to evaluate the effect of rise in price estimates given for future sales quotation, on current selling price, and on plans to future product line. Burt, Dobler, and Staling (2003:43)

These show that there is close relationship between the two departments not only in price and sales forecast but also in planning of future product quantity and quality.

2.3.4. Supply Management and Finance

The finance department and supply department relationship lies on the financial aspect of the enterprise. The finance department is responsible for two principal responsibilities, obtaining funds and overseeing their use.

Supply management is responsible for as much as 80 percent of many firm's financial chief officers and their key subordinates have an adverse interest in a cost-efficient supply management system "price advantage available the right time to buy from the standpoint of business conditions is not always the right time to buy from the standpoint of the company's treasury" Burt, Dobler, and Starling (2003:46)

If the supply management department makes commitments to take advantages of unusual low price without consulting the finance department, the company could find itself paying for these purchases with funds needed for other purposes. On the other hand, if the finance department does not strive diligently to make funds available for such favorable buying opportunities, the company may have to pay high prices later for the same material.

2.3.5. Supply Management and Information Technology

The interdependency between purchasing and information technology is in the development of a database which provides timely and accurate input to supply management for strategic planning and tactical activities.

2.3.6. Supply Management and Lawyers

Legal professionals should be frequently actively involved in correct negotiation and contract formation. In other cases, their role is review and approval of contracts developed by supply management professionals.

2.4. Materials Management Activities

As material management definition stated at the beginning of the chapter and other books, materials management is the function of planning, acquisition and storage and distribution of materials.

2.4.1. Purchasing

Many definitions are given by different authors in the fields of materials management; however, for the purpose of this study the student research will take only three definitions of purchasing. The first definition focuses on the activities performed by the purchasing section. According to Gopakrishnan and Sundaresan, (1977:5) "Purchasing is the selection of source of supply, finalization of terms of purchase, placement of purchase orders, follow up, maintenance of smooth relation with suppliers, approval of payments to suppliers, evaluating and rating suppliers."

Purchasing is also defined as "buying of materials and services of the right quality, the right quantity, at the right place, from the right source and at the time" (Dobler Lee and Burt, 1984:15)

H.K Compton (1972:2) also define purchasing as "the accusing stage of supplies from receipt of the 'notice of the need' to final clearance of the invoice including negotiation, placing purchase order, chasing delivery, record purchased and clearing price chaps on invoice."

From these definitions we can conclude that purchasing activities ranges from internal need requirement to external source selection, processing and finalizing the terms of contract.

Objectives of Purchasing

According to Dobler, Lee and Burth (1984:15) purchasing in all categories of industrial buying activities is used:-

1. To support company operations with an uninterrupted flow of materials and services;
2. To buy competitively and wisely;
3. to keep inventory investment losses at practical minimum;
4. to develop reliable alternative source of supply;
5. to develop good vender relationship and good contusing usplier relationship;
6. to achieve maximum integrated with the other departments of the firm;
7. to train and develop highly competent personnel who are motivated to make the firm as well as their departmental success;
8. To develop policies and procedures which permit accomplishment of the proceeding objectives at the lowest reasonable operating cost.

Policies of Purchasing

Centralization of Purchasing

Centralization of the purchasing function is essential of attainment of both optimums operating efficiency and maximum profit. Centralization of processing is concerned solely with the placement of purchasing authority. It has nothing to do with the location of buying personnel.

According to Dobler Lee and Burt (1984:15)

Centralization exists when the entire purchasing function is made the responsibility of a single person decentralization of business decide on source of supply, negotiate with venders directly, or perform any of the other major functions of purchasing.

Advantages of Centralization:

Seeting policies of purchasing as centralized or decentralized does not give guarantee by itself for the company's success. According to Dobler, Lee and Burt (1984)

- Duplication of efforts and haphazard purchasing practice are minimized by the central coordination of all company purchase.
- Quantity discounts are made possible by consolidating all company orders for the same purpose.

- Transportation saving are realized possible by the consolidation of orders and delivery schedules.
- Centralization develops purchasing specialists whose primary concern is purchasing. Purchasing specialists inevitably buy more efficiently than less skilled individuals whose view purchasing as a secondary responsibility.
- Suppliers are able to offer better prices and better services because their expenses is reduced
- Responsibility for the performance of the purchasing function s fixed with a single department head, there by facilitating management control.
- More effective inventory control is possible because of company wide knowledge of stock levels, materials usage, lead-time and price.
- Fewer orders are processed for the same quantity of goods purchased, thus reducing purchasing, receiving, inspection, and accounts payable expenses.
- Record keeping is reduced and at the same time made significantly more effective.

Despite the general advantage of centralization, complete centralized purchasing is neither always possible nor always desirable. Three types of situation justify some decentralization. The first is when companies process single natural raw materials. The second situation is that in technically oriented firms that are heavily involved in reasonable. The third situation is found in the operation of multi plant manufacturing firms.

Policies Affecting Vendors

When the purchasing policy of a company is set viewing from different angle is important. Policies set for keeping only the advantages of the company may have disadvantages for the vendors that have its own impact on the organization in turn. Dobler, Lee and Burt (1984), view the development of sound vendor relations for two reasons. First, good vendor relations contribute to the formation of a good public image.

Second, the treatment and service that a supplier give a customer depends to a great extent on the way the suppliers feels about the customer. However, it is in purchasing best interest to establish policies that promote favorable vender relation.

Sales people: The simplest thing a purchasing department can do to promote favorable vendor relation is to treat all sales people fairly and courteously.

Competitive bids: Most firms establish definite policies to guide all buying personnel in handling bidding activities, both before and after the issuance of request for bid. Dobler, Lee and Burt (1984:476) explain the necessity of policy setting about competitive bidding as:

“Nothing offers more potential Danger to a firm’s reputation for fair dealing than a poorly handled competitive bidding situation.”

Presale Technical service: The purchase of certain technical items requires the vendor to conduct a presale study of the buyer’s specific application of the item to be purchased.

Purchase of design work: when a buyer contracts for the design as well as the manufacture of a special component, they must be careful not to create a future supplier relation problem. One facet of the potential centers about the matter of ownership of the special design. The other facet is concerns the supplier recovery of sunk cost in design work and tooling.

Samples: One way to assess the quality of a product is to actually use or test a sample before ordering a significant quantity.

Plant visit: Every company should require its buyers, periodically, to visit the plants of major suppliers. According to Dobler, Lee, and Burt(1984) plant visits yields three distinct benefits. The first is to learn more about the current technical and manufacturing aspects of the materials he buyers. The second is to discover a great deal of “inside” information about specific suppliers’ strength and weakness.

The third benefit is to develop good relationship with supplier’s personnel.

Policies on Supply Source

Source of supply decisions frequently produce substantial impacts both in side and outside the buyers firm. For this reason it is essential that carefully conceived policies be

included in the policy manual to facilitate sound and consistent decision in the important area.

Ethics in Purchasing

Ethical Obligation

According to Dobler, Lee and Burt (1984), anyone in purchasing has ethical obligation to three groups of people: employers, vendors, and colleagues in the profession.

Obligation to the employers/buyers

- A buyer must protect any information that is confidential or proprietary to his/her employer.
- All buyers are obligated to protect and enhance the reputation of the firm
- A professional is obligated to do the best job possible to help their firms achieve all legitimate objectives
- Purchasing personnel must not become involved in any situation that dilutes their performance or the firm, in order to achieve personnel gain.

Goals of Purchasing

The basic objectives of the purchasing function are to ensure continuity of supply of the necessary materials and services for the organization. For ensuring this continuity, there are well known parameters such as right price, right quality, right time, right supplier, and right quantity.

Right price it is the primary concern of any organization to get an item at the right price. But price need to be the lowest price. However; it may be very difficult to determine the right price. According to Gopalakrishan and Sundaresan (1977) the tender buying system, proper planning, and price negotiation are possible solution for right price determination.

Right quality: For most people, practically quality seems increase as the price of an item increases. However, for professionals in the area of materials management it impels that quality is related with availability, measurability and understandability as far as possible. In order to determine in quality of a product, sampling schemes on incoming materials inspection will be useful. According to Gopalakrishnan (1977), quality is related with suitability and cost rather than to intrinsic excellence.

On the other hand: according to Dobler, Lee and Burt (1984) quality is directly related with function and cost. The best quality is that which can be purchased at the lowest cost to fulfill the need or satisfy the intended function for which the material is being purchased. A statement by Dobler, Lee and Burt explains quality as “It has no meaning in purchasing except as it is related to function and ultimate cost.”

Right time: to determine right time, the purchase manager should have lead time information for all products and analyze its components for reducing time. Lead-time is the total time elapsed between the recognition of the need of an item till the item arrives and provided for use. It covers the entire duration of the material cycle and consists of pre-contractual administrative lead-time. Since the inventory increases with higher lead-time, it is desirable to analyze each component of the lead-time so as to reduce price and time gap of requested items and entrance. While determining the purchase, the buyer has to consider emergency situation like floods, strikes, etc. Gopalakrishnan and Sundaresan (1977)

Right supplier: According to Gopalakrishnan and Sundaresan (1977:57) right suppliers are “the source from which the material is procured should be dependable and capable of supplying items of uniform quality.” The buyer has to decide which item should be dearly obtained from the manufacturer. Aspects such as source selection, source development and vendor rating are also important points to determine the right suppliers.

Right quantity: In the practical world, quantity purchased and unit price have inverse relation. That is when the quantity purchased increases, unit price of the item decreases due to quantity discounts given by suppliers and transportation firms. However, for materials manager, the right quantity is the most important parameter in buying. Concepts such as economic order quantity, Economic purchase quantity, fixed quantity systems will serve as broad guidelines.

Sentence given by Gopalakrishnan and Sundaresan is a correct ground to use or experience in deciding the quantity of an item to be bought. In addition, factors such as

price structures, discounts availability of the item, favorable reciprocal relations and make or buy consideration are very important. Gopalakrishnan and Sundaresan (1977)

2.4.2. Inventory Control

In recent years, there has been a growing emphasis on the importance of store control. This is hardly surprising when one considers the material cost element of an item. Different writers agree on one thing that the company. For example, Owler and Brown (1975) states:

The majority of industries, more than 50% of the total production, direct materials represents cost of a product. Large amount of capital invested are looked up in stocks of material and the cost of maintaining the stocks can amount to about 25% of the value of stock.

A planned flow of materials is essential to the efficient operation of a factory. Too great supplies of stock results in high store costs, excessive tied up capital, shortage of valuable space, stock losses and obsolescence. While a short supply resulted in reduced output and possibly panic buying. In material planning and control, the problem is to establish optimal stock levels and it will be appreciated that this is a difficult problem, because of this uncertainty of the supply and demand for materials.

As stated by Owler and Brwn, in large manufacturing companies where stock of direct materials and component parts consists of many thousands of difficult, if not impossible one. Recently attempts have been made to reduce this cost, while still maintaining a high degree of planning and control. Many large companies have introduced a system of system of analyzing stocks by value categories, so as to ensure that adequate attention can be paid to important stock items.

Function of Inventories

Generally speaking, inventories make possible smooth and efficient operation of a manufacturing organization by decoupling individual segments of the total operation. According to Dobler, Lee and Burt, purchased part inventories permit activities of purchasing departments personnel to be planned and conducted somewhat independently

of shop production operations. These inventories also allow flexibility for supplies in planning, production, and delivering an order for a given part.

Inventories of parts and components produced "in house" decouple the many individual machines and production process from various sub assembly and assembly activities. This enables management to plan production runs in individual production areas in manner, which utilize manpower and equipment considerably more efficiently than if all were tied directly to the final assembly line. Also, finished good inventories perform the function of decompiling the total production process from distribution demands. The well-planned and efficiently controlled inventories can contribute substantially to a firm's profit.

Inventory Analysis

Initial planning and subsequent control of such an inventory is accomplished on the basis of knowledge about each of the individual items and the finished products of which each is a part. According to Dobler Lee and Burt (1984,238),"the starting point for should sound inventory management is the development of a complete inventory catalogue, followed by through ABC analysis."

Inventory Catalogue

Inventories should be completely described, identified by part numbers and cross-indexed by user's identification number if necessary, and classified generally for indexing purpose.

According to Dobler, inventory catalogue has two important dividends. The first is it served as a medium of communications and the second is it serves for efficient inventory control operation. This is achieved by reduction of supPLICATE records for identical parts.

ABC Analysis; the 80-20 Concept ABC

Analysis uses unit price and annual consumption and lead-time of each individual item as a base for categorizing.

This calls for a study of each item in terms of its price, usage (demand), and lead-time as well as specific procurement of technical problems. Without the data provided by such a

study, an inventory manager normally does not have enough information to determine the best allocation of departmental effort and expense to the task of controlling thousand of inventory items.

According to Dobler Lee and Burt(1984),10 percent of the inventory items account approximately 75 percent of the investment, and only a quarter of the items make up approximately 90 percent of the total investment, the remaining 75 percent of the items constitute only 10% of the inventory investment. The analysis is easy to conduct once inventory has been properly identified and usage records have been maintained for a complete operating cycle. All items are simply ranked in order of their average investment (dollar usage).

Management can formulate policies about these categorized items for planning and controlling.

Some of these policies are about:-

- Degree of control-inventory 'A" items
- Ordering procedures-inventory "A" items
- Stock record-items need series follow up-and order frequency
- Priority treatment 'A" items need prior treatment
- Value analysis- inventory of "A" items

Other Analysis

There are different types of analysis other than ABC analysis, According to Stevenson (1989, 493-495), the following are some of the methods:

VED Analysis: Basis for classification is the critically of the item

V stands for vital items

E stands for essential items

D stands for desirability items

SED Analysis- basis of classification is scarcity

S stands for scarce items

D stands for difficult items

E stands for easy items

FNSD Analysis – base of classification is turnover of the items

F stands for fast moving items

N stands for normal moving items

S stands for slow moving items

D stands for deal stocks

XYZ Analysis- the basis for classification is closing or ending inventory of value of each item

X stands for items with high ending value

Y stands for items with medium ending value

Z stands for items with low ending value

JIT (Just in time)

It is an inventory system of Japanese, which is applied in Toyota Motor Company. This system says no need of inventory in stock when it is needed, items are delivered immediately. This system requires placing of order frequently, good relation with vendor, democratic management style, availability of the necessary type of items at right time and right price, and zero level inventories with zero level interruption. With JIT inventory system, the required materials arrive just at the moment they are needed for incorporation in to the item being assembled. Burt, Dobler and Starling (2003)

This system is not applicable in most developing countries that cannot afforded production of spare part and raw materials in their own country.

Types of Inventory Control System

As stated earlier in this sub title, Inventories carry huge amount of company's finance. Therefore, they need different types of alternative systematic approach for controlling purpose. The following two paragraphs are drawn from Stevenson (1989).

- a. **Cyclical Ordering System**:- it is a time-based system that involves scheduled periodic review of the stock level of all inventory items.
- b. **Flow control system**: It is a special variation of cyclical ordering system that is applicable in continuous manufacturing operation which produces the same basic product in large quantities day after day. Inventories are kept in stock very low.

- c. **Fixed Order quantity System:** it is based on order point and order quantity factors, rather than on the time factor. It needs the predetermination of n order point and fixed quantity to be ordered. It is used in satiable usage.

Two bins system is a special variation of fixed ordering point system that requires separation of inventories in two bins. When the lower bin contains the quantity of stock equal to the order point figure and the upper bin contains a quantity of stock equal to the difference between the maximum and the order point figure.

- d. **Material Requirement Planning (MRP) system:-**

According to Dobler, Lee and Burt (1984), it is a system that needs computer as a basic requirement and pre production schedule in weekly or monthly base.

To generalize none of the system is efficient and inefficient it depends on the situation to select the system. Several or all of them may be use advantageously for different material in a single firm.

Stock Levels and Simple Establishment

One of the major objectives of material planning and control system is to ensure that stock out does not occur and surplus stocks are not carried. According to Owler and brown (1975) there are different types of stock levels establishment. However, the simplest are the following one.

1. Re-order Level

This is the point at which it is essential to initiate purchase recursion for supplies of the material. It is calculated as $ROL = \text{maximum consumption times (x) maximum reorder period}$.

2. Minimum Stock Level

It is a level below that the stock should not be normally allows falling. If stock goes below this level, it is a real danger that shows operational storage. It is calculated as:

$$MSL = ROL - (NC \times NRP)$$

Where MSL = Minimum stock level

ROL = Reorder level

NC = Normal consumption

NRP = Normal reorder period

3. Maximum Stock Level

It is a level above which stock should not normally be allowed to rise. It is desirable that the level should be as low as possible, but of course it must allow for forecast usage of materials and time lags in deliveries. It needs the consideration of rate of consumption of the material, the time necessary to obtain delivery of the material, the reorder quantity for the material. It is calculated as:

$$\text{Max SL} = \text{ROL} - (\text{Min C} \times \text{min RP}) + \text{RQ}$$

Where Max SL = Maximum stock level
ROL = Reorder level
Min C = Minimum Consumption
Min RP = Minimum recorder period
RQ = Reorder quantity

Stock level can be also determined by statistical method that is beyond this study.

2.4.3. Receiving and Stores

Receiving and stores activities constitute the final link in the materials acquisition chain. Regardless of the efficiency with which all preceding inventories management and procurement activities have been conducted, the operating units will be supplied satisfactorily only if receiving and stores function effectively.

According to Dobler, Lee and Burt (1984), the receiving and store unit provides both services and control function. From managerial points of view, they exist for three reasons. First, they provide services to production. Second, the store organization acts as a custodial and controlling agency. That is, it is responsible for the safety and physical control of a substantial portion of a firm's current asset. Third, the existence of stores permits quantity buying and the attendant saving in price, paper work and handling.

The receiving section is responsible for the receipt, identification, and general inspection of all incoming materials. Receiving is also responsible for notifying all interested parties of the arrival and condition of incoming materials. The stores section is responsible for safe and ethically sound storage of all materials.

The store section must protect materials in its custody against pilferage, unauthorized usage, and unnecessary damage or deterioration. It must also satisfy, mark, and locate all materials in a manner that permits ready accessibility. Finally, the store must control the physical issuance of materials in a manner that provides effective service for the production operation and, at the same time, protects against unauthorized issuance.

Receiving of Materials

Receiving is essentially a clerical operation. Even if it is clerical activity, it is only at the receiving desk that purchasing control documents meet the physical materials themselves. Dobler, Lee and Burt (1984:407), explain the essentiality of receiving as follows.

Any problem or error in specific purchasing transactions should come to light during the receiving operation. The receiving report, which the clerk completes upon receipt of shipment, is the only document a firm possesses which details the material it has technically received. This document is used as the bases for invoice payment, for continued purchase negotiation, and for closing the order.

Receiving Procedures

In most companies the receiving procedures include the following:

- Unloading and checking the shipment;
- Unpacking and inspecting the material;
- Completion of the receiving report;
- Delivery of the receiving materials.

Store Systems

According to Dobler, Lee and Burt (1984), two basic store systems can be used in physically controlling stores materials: Closed store systems and open store systems. A single firm often employs both systems. The application of each system depends on the nature of the production operation and the way in which materials are used in it.

Closed System – this system is a closed store systems in which all materials are physically stored in a closed or control area. Wherever possible, the general practice is to maintain physical control by locking the storage area. As a rule, no one other than stores personnel

is permitted in the stores area. Materials enter and leave the area only with the accompaniment of an authorized document. This system is designed to afford maximum physical security and to ensure tight accounting control of control of inventory material.

Open System – The open system represents the second major type of store system. It finds its widest use in highly repetitive, mass production types of operations that exhibit a continuous and predictive demand for the same materials. In plants using the open stores system, no storeroom as such exists. Each material is stored as close to its points of use as is physically possible. Materials are stored in bins, on shelves, in racks, on pallets, in tote boxes, and so on much as they would be stored in the storeroom. However, the storage configuration at each workstation is arranged to fit the available space. Storage facilities are completely open, and any worker has access to any store facility.

Random Access Storage System – It is a unique type of closed storage system, used by relatively small number of large firms. In this system, no material has a fixed storage location. When an item is withdrawn from the stores, the storage space is available for any other incoming item having similar physical storage requirements. All materials are thus stored at random locations throughout the storeroom.

CHAPTER THREE

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the presentation, analysis and interpretation of the data.

The data are collected from three groups of employees in the organization. These are workers in supplies department', the user department (technical department manager) and purchasing department manager were interviewed. In addition reports of annual inventory and monthly stock moment report are deployed. Furthermore, the researcher of this study is involving in material planning and controlling division as an expert and acting division head. This assists to get clear and precise information in the data collection presses.

To collect enough data 30 questionnaires were distributed containing 28 questions each to be responded by the workers in supplies department and 27(90%) were returned completely and 3(10%) of the questionnaires were returned without response. The interview was also conducted successfully with supplies and technical department manger. In addition, discussion was held with purchasing division head.

3.1. Background Characteristics of Respondents

As indicated in the Table 1, most of the respondents (77.78%) have more than 5 years experience in supplies department. This shows that they have enough knowledge to answer the questionnaire and can also identify the strength and weakness of the department.

The respondents' educational qualification shows that 62.96% of the workers have certificate of vocational education, 18.52% have college diploma, 14.82% are grade 12 completion certificate and only 3.7% (one in number) have bachelor of degree.

Table 1: Background characteristics customers of respondents

№.	Item	Respondents	
		№.	Percentage
1	Age Group		
	A. 18-25	-	-
	B. 26-35	6	22.2
	C. 36.45	14	51.85
	D. >45	7	25.93
Total		27	100
2	Experience		
	2.1 General		
	A. <1	-	-
	B. 1-5	1	3.7
	C. 6-10	3	11.11
	D. 11-15	9	33.33
	E. >15	14	51.85
Total		27	100
3	2.2. In supplies Department		
	A. >masters degree and above	0	0
	B. Bachelor of Degree	1	3.7
	C. Colleges diploma	5	18.52
	D. Vocational School certificate	17	62.96
	E. Grade 12 completion certificate	4	14.82
	F. <Grade 12	0	0
Total		27	100

3.2. Analysis of the Findings of the Survey

Duties and Responsibilities of Supplies Department and Relationship of the Three Divisions' as well as other Departments

According to response by supplies department manager for the interview, the department is responsible for planning of material and service requirement of the enterprise, purchasing, storing (handling), distributing and controlling whether they are used for the

intended purpose or not. In addition, it is also responsible for selling of scrap parts by tender and increase additional income for the enterprise. In doing so, there is a strong relationship between the three divisions under the department. The purchasing division is responsible for buying the requested material by the inventory planning and controlling division and it hand over the purchased material to the storage and distribution division. The inventory planning and controlling division is responsible for planning the overall material requirement of the enterprise depending on past consumption analysis and compromises the user department requirement with the current stock balance and ability of the enterprise to purchase. In addition, the division is also responsible for controlling the issuance of the stored material for the intended purpose. The storage and distribution division is responsible for handling (Storing) of the purchased materials and distributing to the user accordingly. Furthermore, the division together with the purchase division is also responsible for collection and selling the scrap material for those who need the scrap.

Relationships of Supplies with Technical Department

According to the respond by the technical department manager for the interview question about their relationships:

They have direct relation in participation of deciding the quantity, brand, and quality of the purchased items. They have also direct relation in planning of their spare parts requirement, fulfill specification for technical equipment, and participate in technical evaluation of spare part and equipment purchasing process, requisition of items that are not held in stock when they need and participation in collection and sales of scrap marital. In doing so, there was occurrence of conflicts. However, these conflicts were solved by establishing technical committees to identify these conflicts and recommend solutions to that particular conflict.

In addition to the response given by the supplies and technical department Managers, a question was conducted to the respondents of the questionnaire: "How is your relationship with other section and departments?" Among 27 respondents 40.7 percent said as they have very close relationship, 51.85% respond as they have good relation, and 7.41% respond as they have bad relationship. This indicates, as there is good relation between the divisions and other sections of the enterprise.

Table 2: The fulfillment of spare part need of the enterprise

№.	Item	Respondents	
		№.	Percentage
1	Do you believe that the spare part management of the enterprise fulfills the need of the user?		
	A. Yes	3	11.11
	B. No	22	81.48
	C. No idea	1	3.70
Total		26	96.30

Source: Questionnaire, 2010

*One respondent did not respond.

From Table 2, we can understand that the supplies department did not fulfill the spare part need of the enterprise. In addition to the questionnaire distributed to the workers, an interview was conducted to technical department. "After your department transmits its spare part requirement, did you get the spare part on time?" The technical department replied for the interview that his department (the user) did not get the required spare part on time?" The technical department replied for the interview that his department (the user) did not get the required spare part on time.

What other department's vision as well as enterprise's activities affected by the inventory system, and in what cases?

From the organizational structure of the enterprise, the three interlinked departments (operation department, technique department and supplies department) that have direct relationship are under the control of deputy general manager and the whole activity of the enterprise seems lay in these three departments. This is because, the supply department plans purchase and distribute the spare parts needed for the maintenance of the buses. The technique department maintains the buses either by preventive maintenance schedule or by post brake down. The operation department makes rout for the buses and serve the people by giving efficient transportation service.

A question was raised for the technique department manager to clarify the effect of inventory management on their daily activity. “how many of the buses are maintained immediately and ready for routes after registered for maintenance?” and “how many of the buses are stopped because the lack of the spare parts?” He replied that out of many buses registered for maintenance, on average 65 buses get maintenance and will be ready for routes daily. However, on average up to 25 buses were stopped due to lack of spare parts on the date of the interview performed. These numbers of buses were stopped from two months to 24 months. On average they are stopped for the last 330 days.

When the student researcher tries to explore the stock movement report of the enterprise, the 9 months stock movement report of the enterprise during 2000 budget year (EC) shows that there is birr 58 millions of DAF model buses’ spare parts. The share of each DAF model city buses is 1:124,924 birr. That is spare part that worth 124,924 birr is stocked for one bus. This shows that there is enough amount of spare part at stock, however still the technique (user department) is in complaining about the stock. From this analysis we can understand that the stocks are not the necessary materials.

This shows that there is lack of spare parts in store and on time purchase of the required parts. In fact, this may not be from the problem of supplying timely, it may come from the nature of spare parts like crankshaft, turbocharger and short block that have expensive unit price to hold as stocks. On the other hand, there are parts like oil filter not available that should not be out of stock. Therefore, the technique department as well as the operation department is affected by these broken down buses not get maintenance on time. By the same reason, the enterprise’s mission “giving efficient transportation service” is also affected.

Table 3: The presence and application of rules and regulation

№.	Item	Respondents	
		№.	Percentage
1	It there any rules and regulation to handle the daily routine?		
	A. Yes	16	59.26
	B. No	9	33.33
	C. No idea	2	7.41
Total		27	100

Table 3: Continued

№.	Item	Respondents	
		№.	Percentage
2	How is your usage of these rules and regulations?		
	A. Always	2	12.5
	B. Sometimes	10	62.5
	C. Rarely	4	25
Total		16	100
3	If your answer is rarely for question 2, what are the reasons for rarely usage?		
	A. Not comply with the practical work	7	50
	B. Not distribute to all work area		
	C. Not cover the whole area of work	3	21.42
	D. No reason	3	21.42
		1	7.14
Total		14	100

Source: Questionnaire, 2010

From Table 3, we can understand that there are rules and regulations to handle the major activities of the purchasing, inventory planning and controlling, and storage and distribution division activities. However, when we see the practicality of the rules and regulations, either there is imbalance between the policies and the practical work, or not distributed to all workers, or the policies may not cover the whole work activity.

In addition to the distributed questionnaire, the presence and application of rules and regulation in the department was conducted to the supplies department manager. He replied that there are clear rules and regulations for purchasing, like centralized and decentralized purchasing, and other activity. But it has begun working form December 2006. There are also about stock level determination, but it is not interpreted in practical work. The entrances and issuance of spare parts from all stores are always based on rules and regulations.

Table 4: The presence of skilled manpower in three divisions of supplies department

№.	Item	Respondents	
		№.	Percentage
1	Is there enough skilled manpower in your section/division?		
	A. yes	12	44.44
	B. No	15	55.56
Total		27	100
2	Is there any mistake in raising purchase requisition?		
	A. Yes	7	25.93
	B. No	6	22.22
	C. No idea	14	51.85
Total		27	100
3	How is the occurrence of the errors?		
	A. Always	0	0
	B. No	7	100
	C. No idea	0	0
Total		7	100
4	Have you taken any training?		
	A. yes	16	59.26
	B. No	11	40.74
Total		27	100
5	How is the relationship of the training to your working area?		
	A. High relationship	5	31.25
	B. Some relationship	8	50
	C. Little relationship	0	0
	D. No relationship	3	18.75
Total		16	100

Source: Questionnaire, 2010

According to Table 4, more than 50 percent of the respondent said that there is no skilled manpower in their working area. In relation to this, mistakes are occurred sometimes when purchase request is transmitting to the purchasing division which leads this division either to buy wrong items or to reprocess the purchasing procedure. In addition, among the respondents 40.74 % did not take any type of training to upgrade their knowledge throughout their working life in the enterprise. On the other hand 59.26% of the respondent, have taken training. However 18.75% of the trained workers took training that is irrelevant in their area of working and 50% of the trained workers have taken training that has some relationship to their work. This shows that there is misuse of the training budget.

Table 5: Stock management systems: (inventory management, storage and purchasing)

No.	Item	Respondents	
		No.	%
1	Do you believe that materials management of the enterprise is traditional?		
	A. Yes	16	59.26
	B. No	6	22.22
	C. No idea	5	18.52
Total		27	100
2	Is your work assisted by computer?		
	A. Yes	7	25.93
	B. No	20	74.07
Total		27	100
3	How is your usage of computer?		
	A. High	2	28.57
	B. Medium	2	28.57
	C. Less	3	42.86
Total		7	100
4	Are requested items for purchase entered within short period of time?		
	A. Yes	2	7.41
	B. No	23	85.19
	C. No idea	2	7.41

Table 5: Continued

N ^o .	Item	Respondents	
		N ^o .	%
Total		27	100
5	When items are requested for purchase, do you believe the request is in planned manner?		
	A. Yes	15	55.56
	B. No	12	44.44
Total		27	100
6	If the answer is yes for question number 5, does the planning include:		
	A. All the items?	5	33.33
	B. Fast moving items only?	10	66.67
Total		15	100

Source: Questionnaire, 2010

From Table 5, we can understand that most of the materials management activities are performed in traditional manner except some divisions that are trying to practice the materials management science. As evidence, 59.26% of the respondent said that most activities are performed in traditional way, 74.07% of the respondent said that their work is not assisted by computer; it is done manually although it requires computer assistance. This creates errors in all areas of activities, need more human resource, and leads the workers to be boredom.

From Table 5, item number 4, more than 85% of the respondent said that items requested for purchase are not entered on time. This shows that whatever the reason is there is, a problem in purchasing activities. One statistics from inventory planning and controlling division shows that among 1339 line of item requested for purchase, only 382 lines of items (28.52%) are purchased, 102 lines of items (7.62) returned and 855 lines of items (63.85) are not purchased. Internal memorandum: (March 1998E.C). The requested, purchased and returned of the items during 9 months shown in table 5.

Table 6: Summary of requested, purchased, and returned items from 1-11-05 to 28-2-06

Item Group	Number of items	Percentage
Building	99	7.39
Fixed asset	54	4.03
Fuel	66	4.93
Printing	33	2.46
Other	19	1.42
Sanitary	7	0.52
Spare part daf	237	17.7
Spare part fiat	42	3.14
Spare part Mercedes	38	2.84
Spare part service car	193	14.41
Stationery	156	11.65
Sundry	32	2.39
Spare part Volvo	2	0.15
Tyre	38	2.84
Tools	17	1.27
Uniform	21	1.57
Various	285	21.28
Total	1339	100
Purchased	382	28.53
Returned	102	7.62
Not purchased	855	63.85
Total	1339	100

Source: Internal memorandum from inventory planning and controlling division, 1997E.C

The technical department manager also agrees with the purchase timing of the enterprise. Because the requested items are not purchased according to the requirement (needed time). Even they are not in full satisfaction with this activity.

In addition to the distribution questionnaire, the response of the supply department manager during an interview is that the most popular type of purchasing is hand to mouth

or petty cash purchase followed by Performa purchase. This shows that there is an unplanned purchase for purchase. However, the depth of the enterprise has also its own impact.

From the interview conducted on the supplies department manager, spare parts of DAF model buses worth's 58 millions birr are available at stock. The department also gives much emphasis on these spare parts. The department manager has criteria's for giving much emphasis. Among the criteria's movements of the items which are fast moving given consideration. However, the stock system does not consider the unit prices of the items. The inventory planning division is not activating price trend analysis.

From practical involvement of the student researcher in spare parts planning process and interview conducted to the inventory planning and controlling A/division head, there is no clearly set inventory control system. However, spare part items are requested for purchase in annual base. Sometimes when the requested items are not entered on time, there is a need to raise purchase requisition at any time.

Table 7: Ethical consideration of purchasing

№.	Item	Respondents	
		№.	Percentage
1	Is the materials management of the enterprise performing in good manner?		
	a. Yes	1	3.7
	b. No	23	85.19
	c. No idea	3	11.11
Total		27	100
2	Do you believe that there are unethical types of purchase in the enterprise?		
	A. Yes	9	33.33
	B. No	1	3.7
	C. Sometimes	13	48.15
	D. No idea	3	11.11
Total		26	100

Table 7: Continued

№.	Item	Respondents	
		№.	Percentage
3	In what condition do these unethical purchases condition occur?		
	A. purchasing from single supplier	7	31.82
	B. Purchasing at high price	6	27.27
	C. There is feeding of price for suppliers	4	18.18
	D. Other	5	22.73
Total		22	100
4	Is the materials management system transparency		
	A. Yes	4	14.81
	B. No	15	55.56
	C. No idea	8	29.63
Total		27	100

Source: Questionnaire, 2010

*One respondent did not give response.

From Table 7, we can understand that there seems an unethical activity in purchasing activity because 85.19% of the respondents replied that, the materials management activity of the enterprise is not performed in good manner. 81.18% of the respondent replied that there are unethical types of purchasing activities in the enterprise. Pertaining to the manifestation of the unethical activities, 31.82% replied that there is purchasing from single supplier. 27.27% of the respondents replied that there is high purchasing at high price. 18.18% replied that there is price leakage to the suppliers, and other types of unethical practice 22.73.

Even 55.56% of the respondent said that there is no transparency in the materials management activity.

Purchasing Satisfaction with Local and Foreign suppliers

When we see the purchasing satisfaction with the suppliers from local and abroad, according to the interview conducted with the purchasing division head. There are no reliable suppliers locally for purchase of spare parts. The suppliers could not supply the required items within their aforementioned date in the Performa invoice. They may take additional 45 to 50 additional days to supply the item. In addition they change the given price after they understand the importance of the items. This shows that the difficulty to maintain the stock levels for these items and it has also its own impact on the day to day activities of the enterprise.

According to the purchasing division head, foreign suppliers seem to be reliable. But the problem lies on with the long procedure in tender analysis, custom clearance and LC (Letter of credit) opening procedure. To decrease such problems however, the inventory controlling and purchasing divisions are now planning to practice independent purchase for very fast moving items, items that have normal movement and slow moving items.

Table 8: Workers satisfaction by their job

N ^o .	Item	Respondents	
		N ^o .	Percentage
1	Are you happy with your job?		
	A. Yes	14	51.85
	B. No	13	48.15
	Total	27	100
2	What is the reason for your dissatisfaction?		
	A. Repetitive and boring nature of the work	6	46.15
	B. Bulkiness of the work	0	0
	C. Other	7	53.85
	Total	13	100

Table 8: Continued

Nº.	Item	Respondents	
		Nº.	Percentage
3	Do you believe that there are any obstacles at your working area?		
	A. Yes B. No		
Total		22	100
4	How is the frequency of the occurrence of the obstacles?		
	A. Always	11	42.31
	B. Sometimes	15	57.69
Total		26	100

Source: Questionnaire, 2010

*One respondent did not give response.

From the given data in table 8, we can see that 48.15% of the respondents are not satisfied by their job. From the respondents that are not satisfied 46.15% are dissatisfied because of the repetitiveness of their daily work. 53.85% are dissatisfied because of causes such as unsafe work environment, disputable nature of their work, and impracticality of the enterprises working policy.

In addition, from the distributed questionnaire almost all 260 of the respondents have obstacles in their working environment. These obstacles occur to about 42.31% always, and to 57.69% they occur sometimes. Among the types of the obstacles occurred 11 are connected with the policy of the enterprise that does not fit to the practical working environment, 10 of the obstacles are connected with the enterprise's working systems that the works are not performed in planned manner, have long procedure to activate, and documentation problems, 2 of the obstacles are the problems of cooperation between the workers. 3 of the obstacles are the problem of resources like human resources and stationary. Furthermore, there are additional works other than specified in the job description that lead workers to dissatisfaction.

Other Related issues about the Systems of Storage and Receiving

When an interview was conducted to the supply department manager and technical department manager about the storage system of the enterprise, the storage system is fully a closed store system, which has its own procedure for entrance and issuance of an item. According to the supply department manager response, the entrance procedure includes:

- Inspections by the user department professional for the fitness of the item for the intended use.
- Inspection by the audit and inspection expert for the entrance of the item to the store. And also inspect whether the purchased item is according to the item specified in the purchase requisition.

In addition to the close types of question, the student researcher conducted open types of question. The result of the open question summarized as follows: Question: what do you suggest to make the inventory planning and controlling, purchasing, and storage and distribution activities more economical and systematic?

Table 9: Respondents' suggestion

N ^o .	Types of suggestion	Respondents	
		N ^o .	%
1	Assigning skilled manpower and give training.	7	
2	Planned, budgeted and on time delivery.	10	
3	Clear information flow and feedback from the user and subordinate.	4	
4	Preparing of working manual, policy, and procedure and adopting strictly	7	
5	Computerization of the inventory management.	8	
6	Decentralization of the purchasing activity and the main store.	2	
7	Need of smooth relationship and cooperation between each division as well as other departments.	2	
8	Need of transparency, safety for the workers, enough resource allocation, structuring the organizational structure and strict purchase follow-up	1 for each	

Source: Questionnaire, 2010

*One suggestion may be suggested by more than one respondent.

From Table 9, we can see that there is need of planned, budgeted and on time delivery. In addition, computerizations of the inventory management system, assigning skilled manpower, preparing working manuals are given much emphasis on respondent's suggestion.

When the interview was conducted, the technique department and supply department managers suggested about the purchasing, inventory planning and controlling, and storage and distribution division that:

- The workers under the three divisions (purchasing, inventory planning and controlling, and storage and distribution division) should be committed for their job and integrated each other.
- Skilled manpower should be assigned for each division.
- The workers should take related training to their job in the area of materials management.
- Planned request and purchasing should be practiced.
- Computerizing inventory management system should be adopted.
- Identification and report of dead items should be practiced.
- Adopting efficient system and assigning professional who fit to that system should be practiced.
- Study, revise, and adopt efficient structure in the organization.

CHAPTER FOUR

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary, conclusion and recommendations of the study.

The purpose of this study was to explore the effects of materials management on organizational efficiency, in Anbessa City Bus Service Enterprise. It was also to suggest possible solutions to the problem of inefficiency of the materials management, which leads the enterprise giving inefficient transportation service for the public. To attain this objective the student researcher has employed the descriptive survey method to collect information from employees of supplies department at ACBSE. In doing so, an interview was conducted, questionnaires were distributed and collected, and reports and documents were examined. The responses were also tabulated in the preceding chapter.

The following major questions were posed in an attempt to study the problem:

1. What is the relationship between the three divisions in suppliers department and with other departments in the enterprise?
2. Does the spare parts' management system fulfill the need of the enterprise?
3. What other departments as well as enterprises' activities affected by the inventory system? And in what cases?
4. Are there clear rules and regulations to handle the day-to-day activities of each division in supplies department?
5. Is there skilled manpower to handle the materials management activities?
6. Are the activities in supplies department done in systematic way and comply with the science of materials management?
7. Is the purchasing activity complying with the purchasing ethics?
8. Is the purchasing division satisfied by its relationship with its local and foreign suppliers?

4.1. Summary of Findings

The following summary of finding is drawn on the bases of the analysis of the data collected through various data gathering techniques:

1. Supplies department is responsible for planning, purchasing, handling (storing), distributing, and controlling the overall materials requirement of the enterprise in ACBSE. The department is composed of three divisions namely, Inventory planning and controlling division, purchasing division, and storage and distribution division. The department has direct relationship with technique department (user of the spare parts).
2. The supplies department could not fulfill the spare parts need of the enterprise. The user department is always complaining due to the lack of the necessary spare parts when they are in need. Due to the lack of the necessary spare parts, on average, 25 buses are stopped when this research was conducted. These buses were out of use for the last 330 days.
3. There are rules and regulation to handle the major activities of the purchasing, inventory planning and controlling, and storing and distributing activities. However, the applicability of the rules and regulations does not comply with the practical work, does not cover the whole areas of work, and/or is not distributed to all workers. In addition, there are no working manuals for each division.
4. There is no adequate skilled manpower in each division to handle the vast activities of supplies department. The workers have long experience to handle the day-to-day activities. However, some of the workers did not get any training through out their working life in the department. Some of the workers get training but not related to their areas of work.
5. Most of the stock management system of the enterprise is done in traditional manner. Most of the activities are performed manually.

The requested items are not entered within the required time; the widely adopted type of purchasing is hand to mouth (petty cash) purchase. From the 9 months stock movement report of the enterprise during 1997 budget year (EC) the share of each DAF model city buses is 1:124, 924 birr. That is spare part that worth 124,924 birr is stocked for one bus. In addition, there is no clearly settled inventory system adopted in the organization. As discussed under table III, V and VI the inventory system and stock level determined are not in practical activity.

6. The workers feel that materials management of the enterprise is not performing in good manner since they believe that there are unethical types of purchasing. The workers believe that there is purchasing of items from single supplier, purchasing at high price and lack of transparency in materials management activity.
7. The purchasing division is not satisfied fully by its local supplier. There are no reliable local suppliers; the suppliers could not get the item in the specified date in their Performa invoice. They need extra 45 to 50 days. Foreign suppliers seem to be better as compared to local suppliers.
8. Some of the workers in each division are not satisfied by their job due to different reasons like repetitiveness of their work, disputable nature of the work, impractical nature of the working policy, and the unplanned manner of the activity. In addition there is also lack of resources like stationery.

4.2. Conclusions

On the bases of basic question raised in chapter one and the summary of findings given above, the following conclusions are drawn.

1. The materials management activity of ACBSE is very essential in accomplishing the enterprise activities in particular and in building reliable infrastructure for the growth of the country in general. However, its activity does not fulfill the spare part requirement of the enterprise. Since, the required items are not available in the store, other department objectives are affected. These departments are mainly first, the technique department, which is responsible for maintain the broken buses and make ready for use. Second; the operation department that is responsible for making routes of buses and giving reporting service for the people of Addis Ababa and around. Third, the enterprises' mission in general is affected due to decreasing of buses on the routes daily.
2. Due to the lack of the necessary parts not only the technique department is affected but also the operation department as well as the enterprise is affected from giving efficient transportation service. From the data given, 25 buses are stopped for 330 days, and the enterprise daily passengers are about 600,000 on average by 464 buses. Therefore, the share of the 25 buses is 32300 ($600000/464 \times 25$) per a day. This shows that approximately more than 30000 passengers could not get on time service per a day.

On the other hand, from the 9 months stock movement report of the enterprise during 1997 budget year (EC) the share of each DAF model city buses is 1:124,924 birr. That is spare part that worth 124,924 birr is stocked for one bus. This shows that there is enough amount of spare part at stock, however still the technique (user department) is complaining about the stock. From this analysis we can understand that the stocks are not the necessary materials.

3. Policies, manuals, rules and regulations are very important to handle the daily activities fairly. Though there are rules and regulations in supplies department that are applicable practically without problem; there are also some polices, rules and
4. The workers in supplies department are experienced in their working area. It is obvious that work experience is very important for handling every activity. However, the experience is not assisted by related material management training in ACBSE. To handle stocks that amount more that birr 80 millions, only there are 4 college diploma holders and one degree holder in the three divisions as technical level. The degree holder is part of management body. This indicates that there is lack of expertise in materials management activity in the department.
5. Nowadays the world is in a dynamic technology. Using this dynamic technology in daily activities leads the enterprise to survive in the competitive world. However, most of the activities in supplies department are performing manually in traditional manner. This hurts the department in two ways. First, since the department activity highly depends on suppliers from local and abroad not copping up with the suppliers' technology and out side market, these leads the department to build negative relationship with them. Second, not using up to date technology like computer and related materials management technology programs in the daily activities of the three divisions will make the work repetitive, boring and full of errors. These lead the workers not to be satisfied by their job and bored off and absenteeism which in turn leads the enterprise to incur additional cost.
6. Ethics in purchasing are very important for the success of the department, the organization, the country and for the profession of purchasing in general. However, there seems unethical practice in the department. Some of the unethical practices are purchasing from single supplier and high price.

7. On time delivery of ordered items is important to fill the gap of need and supply of spar parts for any organization. However, most of the local suppliers are not delivering items on time. This leads the purchasing division to dissatisfaction by its local supplies.

4.2. Recommendations

In accordance with the summary of finding and conclusion drawn above, the following recommendations are forwarded to the problem under consideration.

1. Since the department is established for fulfilling the total requirement of the enterprise, the department should know its objective and act accordingly. To fulfill its objective,
 - a. Effective planning of materials in annual, semi-annual, monthly base and even the daily need/requirements of each material should be determined.
 - b. In the determination process items according to their usage and cost should be categorized, should be given much emphasis and immediate decision and action should be taken.
 - c. On the planning process of spare parts, experts from technical department should directly participate. The participation should not only be at departmental level but also at the expertise level.
 - d. Since planning is affected by different factors, smooth relationship in the three divisions as well as other departments should be built and maintained to exchange the stock status, purchasing status, market availability, purchasing lead time and criticality of the items.
 - e. The determined stock level and categorized items in relation with their usage and cost should be held in stock, purchased separately and should be treated especially.
2. Because polices are very important in handling the daily routine activities of any department, these policies, manuals, rules and regulations should be applicable in practical work. Thus, it is recommended to:
 - a. Study each activities and workflow in the department as well as sections that the department has direct relations.

- b. Revise these unpractical policies and suggest to the management body for decision better policy that comply with the practicality as well as the government policy.
 - c. Prepare and apply working manuals in each division.
 - d. Revise the working manuals as well as the policy rules and regulations continuously to cope up with the dynamic market situation.
3. Since, the department is responsible for vast and critical activity of the enterprise, and the enterprise can be efficient or inefficient depending on the performance of supplies department. Therefore, to make the department efficient, there is a need to assign skilled manpower on each activity. Therefore it is suggested that ACBSE should:
 - a. Revise the structure of the department and assign workers who fit for that structure.
 - b. Give training for workers that help them in practical application of work especially in the areas of materials management.
 - c. Initiate workers to upgrade them selves by training and competition.
 - d. Assign/transfer workers who are trained in materials management and working in other departments to supply department.
4. The department should cope up with the dynamic technology as well as the competitive market. To do so, up-to-date technology and systems should be applied in each division. The inventory system should be computerized and should be connected with the storage and distribution division and the purchasing system by local area network (LAN). This will minimize errors, repetitive nature of works and stress from workers. In general, using computer according to their need in each division should be adopted. Further more, applying different types of inventory system like flow control system and fixed order quantity system is important in decreasing stock out problem.
5. Ethical obligation of purchasing should be adopted in the division. Assigning professionals who give priority to their profession is important. In addition, policies should be set in treating sales people, in avoiding conflict of interest and accepting commercial briberies.

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DECLARATION

I, the undersigned, declare that this senior essay is my original work, prepared under the guidance of Ato Daniel Meread. All sources of materials used for the manuscript have been duly acknowledged.

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Date of submission: _____

SUBMISSION APPROVAL SHEET

This Senior Research Paper has been submitted to the Department of Management in partial fulfillment for the requirement of BA Degree in Management with my approval as an advisor.

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Date: _____