

**ASSESSMENT OF INVENTORY MANAGEMENT THE CASE OF  
MEKELE AIR BASE (NORTHERN AIR GROUP)**

**ETHIOPIA**

**SENIOR ESSAY**

***WORKU FENTABILE***

**September 2013**

**St. Mary's university collage, Addis Ababa center**

**ANALYSIS OF INVENTORY MANAGEMENT THE CASE OF  
MEKELLE AIR BASE (NORTHERN AIR GROUP).**

ETHIOPIA

*A senior Essay submitted to the Department of  
Accounting, St. MARY UNIVERSITY COLLEGE.*

**In partial Fulfillment of the Requirements for the Degree  
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By

**WORKU FENTABILE**

D 4 Acct 84184/02 A

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**St. Mary's university college, Addis Ababa**

## Abbreviations

DEPT = Department

EOQ = Economic order quantity

ETAF = Ethiopian air force

FIFO = First in first out

LDRN = Loss/Damage/ report

MGT = Management

MH = Material handling

MRP = Material requirement planning

NRTS = Not repair this station

R/M = Receiving memo

RPC = Repair processing center

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## CHAPTER ONE

### 1. Introduction

#### 1.1 Background of the organization

Although the Ethiopian air force has established with the emergency of Ethiopian aviation, it has set up in its form in July 27 1936. e.c.

At set out Ethiopian air force delivered 7 trainer and trainee of air craft from Sweden to solve the shortage of skilled man power in 1938 E.C the training was started in around akaki and the area is called "ormagarege" wich is Ethiopian road transportation authority garage hell.

But this place was not comfortable to flight for the fact that the area was not alternative runway and another place was selected in January 1938 EC the Ethiopian air force has gone the place 'KETTA' or now the Ethiopian air force in Deberzeit the Ethiopian air force flying school has started its regular and permanent training jobs in June 7.1939 EC .

For among three bass MEKELA air base one of the air base that found in north Ethiopia.

The main objective of air force

The need consistent with controlled modernization and improvement in in air force personnel and eqepemet and for keeping a head of any potional aggressor in technical advance affect in air force.

- a) The day to day activities of the air force its capabilities as aninsturements through which national police can implemented to promote place .
- b)To ensure consetenesy with expression by air force personnel in matter of police doctrine and when acting in an official public.

The mission of the organization

- To defense national air space .
- To provide air support to the ground force.
- To provide air search rescue.
- To provide air intelligent capability.

## **1.2 . Background of the study**

The importance of materials to the efficient operation of organization is increasing more than ever. It is virtually impossible to find an organization that does not use transformation or sale materials of one kind or another /tersin1994 :2/ manufacturing organization transform raw material in to finished goods. There for materials must be properly managed.

In case of Ethiopian air force supply department is to furnish the right amount of material at right time in serviceable condition and finale distribute in the user department. However

Ethiopian air force is to establish to discharge air force responsibility for the defense of national air space in the country and the mission Is to accomplish through the coordinated efforts of hundred and Thousands of people working in different career field like. Administration and finance. Logistics. Air craft technicians automotive technicians, radio technicians, flying schools and Other filed are involved.

## **1.3 Objectives of The Study**

The total /general objective of the study is to assess functions and important of inventory management system.

The specific objective

- To assess the nature, important and influence of organization inventory system .
- To evaluate the inventory management system that links to various ware house warehouse system in the given organization structure .
- To assess how material management department joins with other related organization and qualified employees are assigned.
- To evaluate how organization use ware house and inventory system to select qualified and skin supplies specialist.
- To assess how the items are move or flows from the control store to the user department.

## **1.4 Significant of the study**

- In conducting these paper the Ethiopian air force MEKELE air base and other resercherher could be beneficeiciary

- To show the relationship between learned in theory with the practical application in the organization.
- The study may help for other writer the organization also junior accounting and management students.

Generally the importance and impact of inventory management in Ethiopian air force sepacallay in MEKELA air base ..

### **1.5 Definitions of terms**

Inventory is an items materials quantity available in the stock by the ware house .

Ware house is a placewereto keep supplies or materials' in shed or open area for use at later date.

Ware house management is the controlling and coordination items to received and issued at right material's at rightspecification in right time.

Inventory management is the control of overall activities of materials relevant forms documents follow up flow from use requirement up to material received rather than delivered and issued and recording transaction.

### **1.6 Research Methodology**

#### **1.6.1 Data type of source of data**

Since to conduct the study on the importance and role of inventory management processes to concern the source of data available .I use both primary and secondary data. The primer data will be interview questionnaire and physical observation secondary data will be company manuals and documents catalogs and hand books.

#### **7.2 Sampling design and technique**

The targetedpopulation is taken only administration and logistics staff employee they are 225 in numbers .out of total 20% take a sample size 45 randomnessamplingmethods used .

Among 45 respondent 20 of them directly related to the supply careers and the remain 25 theme are other fields like accounting finance and purchasing department.

## **1.7 Limitation of the study**

The study only focused on the branch air force group in MEKELE air base included and limited in main head quarter / DEBERZET /

## **2 REVIEE AND RELATED LITERATURE**

### **2.1 Over view of material management**

Material management is management function designed to enhance, coordinate and control various activates including on activity to plan ,acquire, store handle, distribute, and use in order to optimize e all company resource and contribute to organization success and profitability.

The store should be consider as a temporarylocation for materials needed for operational purpose and should be planned, organized and operated in such a way that the periods of residence of each items is as short as possible consistent with economic operation.

The only reason for carrying operating stock is that the materials are needed, obsolete, redundant or surplus material is simply money seating on the shelf, requiring more money to be spent on its custody (Jessoph and marrision,1994 page4).

#### **Store function**

Once material are acquired it must be stored until the time of requirement by the end users. This proper storage and safe storage of material thus ,the very nature of the storage system is act as a buffer between acquisition and other various user department. Stores should consider as a temporary location for material needed for operation(jessoph and Morrision 1994,p1).

#### **2.1.1Types of stores**

According to Ethiopian air force handbook storage have two major parts(basic supply management courses 1991 page 10).

##### **2.1.1.1) Closed storage;**



There are different functions.

- a) General purpose ware house- this types ware house is used to for storage of many kinds of its and it is constructed with roof, side walls and end walls
- b) Refrigerated ware house; it is stored by perishable.
- c) Flammable storage ware house- used to store of highly combustible materials such as paint and oils.
- d) Dehumidified ware house- it is sealed and conditioned, and it has proved to the most economical and efficient methods of preservation.

#### **2.1.1.2.) open storage space;**

Is important in store vehicles and heavy construction equipment, such as power shaves and bulldozers etc.

#### **Receipt and inspection**

According to Ethiopians air force manual shows the receiving units and inspectors units share the same general area in the receiving warehouse. They work to gather as a team to process any transaction one of the duties of a receiving clerk is to prepare incoming shipment for inspection and receipt. When directed to do so by the supply inspector, you will be required to open the incoming containers, you must exercise care and caution to prevent damage to the contents.(Ethiopian air force basic supply management course 1991 page 32).

Goods may be received from outside suppliers, from user department and from other stores in the organization. Before establishing goods receiving reports the consignments should be examined, weighted, counted,etc. in most economical way to avoided unnecessary delay or expense.

#### **identification (codification of stock)**

The normalway to identify an items or by simple description which are way long and completed description of materials may uses for an item. Hence, it is useful precise and complete means of identification of stock item by using

letters, figures or combination of the two some of the principle advantages of coding system are .

- i. To avoided repeated use of description of title
- ii. Prevent duplication of items by accurately identifying items.
- iii. Assist standardization and reduction of activities
- iv. Forms a convenient base for the sorting and recording of document
- v. May be used as a store house location system.
- vi. Can be used as a basis for stock control account(Jessup and Morrison pp 24-322).

#### **Methods of coding**

- a. Coding by the natureof items ; involve the consideration of items by reference to their own characteristics. Under this system similar items are collected into a series of groups such as raw material, tolls, spare parts etc.it is to be founded in many different concerns and is very popular in practice.(Jessup and Morrison 1994 pp 24032 and ETAF basic supply 1991 page 24).
- b. Coding by end user; it involves arrange the code to correspond with purpose for which the various items are eventually employed. It is particularly used in originations that produce complex machines or assemblies(ETAF basic supply book 1991 page 24).

Whatever method of coding is followed, the symbols used the alphabetical numerical or alphanumerical among the code symbols, straight numerical codes(decimal system)tend to reduce error in transaction. The logical development coding system is for every symbol. Employed to have its own signifance so that it should be possible from inspection of the code letters or numbers to say

exactly what items it represented, giving sufficient detail in each case to identify the article precisely.

### **Issuance of stock**

The service given by the stores department to other department becomes efficiency of the stores organization by the standard of services provided to them.

The store keepers should have full details of the names designations and spacemen signature of all persons empowered to approve materials requesting and issue note.

The user should describe the specification and necessary information on the requesting documents. But in adequate or even in accurate, and storekeepers should be experienced enough and are expected to find out exactly what is wanted and see that it is supplied. According to Joseph and Morrison, 1974 (page 76-79) there are two common methods of issuing materials.

- 1) Issue on request; according to this method, the users come to the warehouse and represent a properly authorized issue or a similar voucher, giving the details of what is required. The store keeper then selects the items wanted and then over exchange for the document.
- 2) Schedule issues; in mass production schedules issue are exercised in cooperation with production control department that prepare schedules of issue, when production materials are issued in quantities and at time to correspond with the manufacturing program.

### **2.1.2 )Store lay out and locations**

#### **A .store lay out**

Proper arrangement and documentation of the storage space and storage facilities is help full in getting materials for production on time materials are requested fore store. Thus, arrangement of the shelves bin and space for the movement of materials handling equipment should facilitate quick location, with rowel and the reason for maintaining stock records are; to indicate the amount of any items at any item with out it Bing necessary transpiration

Of the desired materials. The lay out of the storage space should take in to account the site, shape and type of materials to be stored to good warehouse lay out attempts to achieve the following objectives;

- a. A straight –line flow of activity the storages areas with minimum bulk tracking.
- b. Minimum handling and transportation of materials.
- c. Minimum travel and waste motions for personnel.
- d. Efficient uses of space.
- e. Provision for flexibility and expansion of lay out.

According to ETAF manual 67-1 contains technical order, regulation and other publication. To lay out storage space properly you must follow definite principle and plan intelligently. You must use all available storage space to the fullest extent possible for the efficient storage of supplies larger and quantities of supplies.(ETAF basic supply management book 1991 p-12)

## B Location Numbering

Is question saying where in the building each items of stock is kept?

the following productions are performed.

- a. The warehouse area divided in to several section each of each can be given a letter or a number.
- b. Each stock of storage fixture in a section is also lettered or numbered commencing from one end.
- c. Each stock is identified by lateral block letter and longitudinal or blockletter. with in each block, every row of shelf is given number.
- d. Each raw is divided vertically in to column and horizontally in to shelf.
- e. Finally a particular bin is identified by reading the letters and numbers in lateral and longitudinal block, a row, column and shelves.

Generally there are **two** types of location numbering system. These are **fixed** and **random** systems.

In fixed location system the storage location of each item is static where as random location system an incoming items is stored in the first available bin or shelves but when it is with drawn the space available for any other incoming similar items

According to ETAF location system are identified by number and letters.

Example; 1A2B3C

1-ware house.

A-stock room

2-bay bulk

B –bin raw level

3 -bay sub division

C – bin sub division

### **Record keeping and inventory**

1. For the stock to be counted physically.
2. To establish a link between the physical stock and stores account.
3. To provide a means determining how much should be ordered to maintain stock at the required level. To this necessary for the records to indicate outstanding orders and quantities of allocated or reserved for special jobs.
4. To supply information for stock taking where by quantities of all items the store house ascertained by physical checking are compared with the corresponding quantity balances on the records.
5. To provide a method of informing store staff for the demanding party where the goods are located.
6. To serve the purpose of price list. If unit prices recorded they can be used to price transaction (Jessop and Morrison 1994 pp 86-87)

### **Stock taking**

In order to ensure proper control and verify the quantity balances of the entire range of items held in stock every inventory item should be counted physically and checked against its book balances by using whatever methods i.e. continuous or periodic. The latter is done once in a year closing the store for the day of stock taking, whereas the former is done throughout the year with a predetermined program while the normal business is going on as usual.

### **Purpose of stocktaking**

- ✓ To verify the accuracy of stock records.
- ✓ To support the value of stock shown in the balance sheet by physical verification.
- ✓ To disclose the possibility of fraud, theft or loss.
- ✓ To reveal any weakness in the system of the custody and control of stock.

There are two methods stock taking

1. **Periodic stock taking** under this method the whole of the stock is counted at the same time at the end of a given period usually at the financial year (annual inventory ).it is a difficult task since the job must be accomplished in a short of time .however it is ideal for responsible business.
2. **Continuous stock taking(cycle count)**; is a method where by stock is taken continuously through the year in accordance with predetermined programs so that each items physically verified without interrupting the production operation or upsetting storeroom are kept showing receipt issued and balance on hand 9there is perpetual inventory).

### **Material handling**

Is summarized as the techniques employed to move transport, store or distribution materials with or without the aid of mechanical appliances(Jessop and morruson 1994 p.283).

Material handling ; is a costly operation there fore the method and equipment should be efficient. The approach depends on the nature of the business, the kind of stock(raw material, supply and product)carried and the size of the accommodation. In small

storerooms hand tools can be used. Whereas in large storerooms mechanical equipment is used to move heavy items. Some manual handling is also used in such large stores besides overhead cranes, forklift truck and conveyors.

Material handling has three main aspects

- i. **Physical** ; the movement, handling and storage of material considered as material flow into through and a way from an enterprise.
- ii. **Management** effective planning, control and review and improvement of movement handling and storage of material and the associated management information.
- iii. **Technology** the techniques of movement handling and storage of material and associated management and information system.

### **Importance of material handling**

- Reduced handling cost
- Greater economic in use of space
- Reduced risk of damage to stock
- Reduced labor requirement
- Less fatigue
- Improved working condition

### **Scrap and surplus disposal**

a final objective of store control is the detection of incentive stock items that increase the inventory investment without contributing any corresponding service. so scrap and surplus materials are referred as materials put aside that demands additional cost for their custody.

## **2.2. Overview of inventory management**



**Inventories** consist of raw material components and accessories consumable, in process goods (work in process) and goods. Raw materials components and accessories are inputs in to the production process that will be transformed in to finished products.

Consumables are inventory items consumed in the normal functioning of an organization that are not related as part of the final product. In process goods are partially completed products that are still in production process.

### **2.2.1 inventory costs**

Inventory costs are associated with the operation of an inventory system. The main inventory costs are.

- ✓ Purchase (item) costs
- ✓ Ordering (set up) costs
- ✓ Carrying (holding) costs
- ✓ Stock out (depletion)

#### **Purchase (item) costs**

This is a cost of the item or money paid to the value of the goods purchased.

#### **Ordering (set up) costs**

Ordering costs include the cost of all activities required in issuing purchase order. It is comprised of costs like; writing the order, order followup, processing of invoices, preparation of payment, the costs of supplies, the costs of services such as computer time, telephone, fax machines, and postage expended in materials (Fogarty, 1991, 185-186). It is directly proportional with the number of orders processed.

#### **Carrying (holding) cost**

Carrying cost are those costs incurred by the very fact that an item is in stock. Included are the costs of the capital invested, the costs of the capital invested, the costs of deterioration, obsolescence, pilferage, insurance and taxes and the storage costs due to handling, security, space and record keeping.

requirements(foragargy, 1991,page 188).it is directly proportional with the number of orders processed.

Generally speaking, carrying costs rise and falls nearly preoperational with the rise and fall of inventory level.

Further, the inventory level is directly related to the quantity in which the ordered material is delivered .hence, costs of carrying inventory vary nearly directly with the size of carrying inventory vary nearly directly with the size of the delivery quantity(Dobler1996 page 523-524).

### **Stock out (Depletion)costs**

A stock out cost when is sufficient stock exists to fulfill a replenishment order. The sources of stock out costs are easy to describe, very difficult to calculate. If stock is not available. Two possible conditions, these are back order may exit(forgart, page 191) . in back order situation, the customer is willing to wait, to receive the item, whereas in no back order section, the customer does not wait; the order is lost, it includes costs like loss of customer good will and loss of sales.

### **2.2.2 inventory control**

Inventory provide inventory a rational approach by aiding the smooth flow of material, the effective utilization of facilities, and efficient materialhandling all better serve customers, inventories allows each unit enough independence to operation can be performedwithout excessive costs for set ups and ordering . this allows more efficient handling optimum quantity distributions.

Inventory play an important role in any organizationthus ,they directly affect material management. Ineventiroyes allows each unit enough independence to operation can be performed with our excessive costs for set up and ordering .

This allows more efficient handling optimum quantity.

### **2.2.4 inventory control technique**

Management of the store will have to ensure flat the stock type and level at any one time is in accordance with the company police .in order to achieve this ,some form of inventory control

techniques should be installed. an enormous variety of inventory management techniques exist, directly affecting inventory management operation. Each technique is specially design for controlling a given inventory situations considering such variable factor as the degree of uncertainty of demand for supply of materials, the cost developing and maintains the system and inventory accuracy requirements; this involves forecasting customer demand, ordering the right amount of products to replenish inventory on a timely basis. according to (K. K. Ahuja, 1992, page 147).

**Inventory management techniques are:**

➤ **Fixed order quantity system**

In the fixed order quantity system of inventory management, order is placed for the same quantity of material for each inventory cycle. This is often refers to as the re-order point (ROP) SYSTEM.

This technique allows inventories to be used until a critical inventory level is reached the quantity ordered is constant, but the time interval between orders is allowed to vary. Demand is satisfied until the order point is reached. At this point quantity can be developed by making an arbitrary judgment or calculating an economic order quantity (EOQ).

**The economic order quantity (EOQ)**

$$EOQ = \sqrt{\frac{2UO}{MC}}$$

Where

EOQ = economic order quantity

U = annual usage / unit

M = material cost

C = carrying cost %

O = ordering cost

➤ **Minimum maximum system**

Upper and lower inventory limits are established, through policy, to eliminate over loading of material handling to avoid exceeding older handling capacities with large number of small orders and to prevent production of quantities greater than actually required. This limit may be stated in physical terms. Such as no fewer than 20 units and no more than 680 units or in terms of requirements. Thus, the quantities orders are determined on this minimums or maximum.

➤ **Material requirement planning(MRP)**

Material requirement planning is considering a

scheduling inventory control material requirement planning is a computer system that coordinates the production schedule with requirement for raw material parts and sub assemblies and assemble used during each time period to support the proposed production schedules material requirement planning (MRP) can be used systematically to plan the timing of material which are closely matched to production requirement and quickly adapted to meet changes demanding production and supplier need. With this system, requirement for large raw materials and work in process inventories are deliveries of raw material parts. Sub assemble and assemblies to reduction (KK.AHUJA 1992 page210). In essence, material management must assure that the right materials are delivered, it necessary that incoming material can be increased or decreased in response to change in the production schedule, these control help to reduce labor, inventory and over head cost.

➤ **Physical inventory**

No matter how delinquently a store keeper performs the custodial jobs or how carefully an inventory clerk maintains records, some discrepancy between the actual and the stock card balance of inventory is bound to occur so every inventory items should be counted physically and checked

against its stock card balance at least once a year (KK. AHUJA, Page 220).

#### ***A Periodic inventory***

Taking physical inventory annually at the end of fiscal year .

#### ***B PERPETUAL INVENTORY***

The physical inventory operation goes on continuously without interrupting the product on setting store room activities.

#### ***C OBSOLETE AND DETERIORATE REPORTES***

In many organization materials ,which is believed to be obsolete and occupy salves in the store such as obsolete and scrape material should be made for their disposal. The physical steering shall review annually the inventory status and recommended which of the items have to be disposed, obsolete, scrape, surplus or deteriorate item.

#### ***D SHORTAGE AND OVERAGE***

The physical inventory may show average on certain items and shortage on other so such difference should not be adjustment or decision.

### **2.2.5inventory /stock/ classification and analysis**

To have a better control system the major activity to be done is the grouping of material. The following could be used as a classification approaches.

#### **i. Natural classification**

Among other system of classification generally items in store should be classified according to their natural groupings such as spare parts, chemicals and paints, fuel lubricant, constriction materials, finished products, fixed assets, accessories, stationery, offices supplies and other material.

#### **ii. Abc / parieto- classification/**

This involve grouping of materials in three classes based on their consumption value. This is border view to optimize working capital financing stock and to have better control.

**The statistics of this form of classification include.**

- ❖ Class “ A” could be 10 % of the item that represent over 70 % of consumption .
- ❖
- ❖ Class “B” could be 20% of items that represent 20 %of consumption value.
- ❖ Class “C” could be 70% of the items that represent 10% the consumption value.

By using classification the stores management can exercise different degree of control items.

In class “ A “ will have more frequent control over B and C and items class “B “ will have frequent control over class “C :items. There fore, in terms of control this implies that ;

- Class “A” requires highest level of control
- Class “ B “requires middle level of control
- Class “ c “requires lower level of control

ABC analysis stresses on reducing the idle capital involved in the inventory and may lose track of intrinsic importance of the items.

iii. **Vital, essential and desirable / VED/ classification**

In order to have smooth operation and give focused attention to some stock items. Stocks should as will be classified by vial, essential and desirable/VED/.

VED classification looks the items from their criticality as regards the smooth function of the production/operation/ system.

**Vital:** items are materials the will stop operation with out such items the system not work. This type of items requires critical attention of the mgt. E.G the carburetor of the car .

**Essential:** items needed quite often but the system can manage with out it for very short time period E.G the horn mirror.

**Desirable:** items are materials that used in the operation but could no in any way affect smooth operation. The require attention at ascertain frequency. E.G seat cover in a motor car.

### **inventory / stock control/**

The inventory and warehousing cycle is a unique because of its close relationship to other transaction cycle. Raw materials, finished goods,(that are purchased or donated).enter the inventory and warehousing cycle from the acquisition and payment cycle and the payroll and personnel cycle, respectively.

The inventory and warehousing cycle ends with the sale (distribution) of goods and collection cycle. The internal control inventory, especially tests of year end inventory balance and is often the most complex and time consuming part of the audit.

Complexity of the internal control of includes the following:

- Inventory is generally a major item on the balance sheet and it is often the largest item making up the accounts include in the working capital.
- The inventory in different location, which makes physical control and counting difficult
- The diversity of the items in inventories created difficulties for the controller. Such items in inventories created difficulties for the controller. Such items include chemical, electronic parts, spare parts, liquids items supplies etc. Are present problems of observation and valuation.
- The valuation of inventory is also difficult because of such factors as obsolescence and the need to allocate distribution costs to inventory.

- There are several acceptable inventory valuation methods but any given client must apply a method consistently from year to year.

### **documents and records**

Inventory takes many different forms depending on the nature of the business (organization). The most important inventory merchandise on hand, for distribution to include donated drugs, medical supplies, for use in production (distribution). The inventory and warehousing cycle can be thought of as comprising two separate but closely related systems involving the actual physical flow of goods and the other related cost.

#### **2.2. 6 process purchase orders (for purchased items only)**

The inventory and warehousing cycle begins with the acquisition of raw material for production. Whether inventory purchases relate to raw material (finished goods) for distribution it is essential that adequate controls over purchasing are maintained

Purchase requisitions are used to request the purchase department to purchase order inventory items. requisitioning may be initiated by stock room personnel when inventory reaches a predetermined level. Orders may be placed for the materials required to produce a customer or orders may be initiated on the basis of a periodic inventory count by a responsible person.

#### **8 receive purchased items (donated items)**

Receipt of the ordered materials is also part of the acquisition and payment cycle. Materials received should be inspected for quantity and quality. The receiving department produces a receiving report that becomes a part of the necessary documentation before payment is made. After inspection the material



is sent to the store room and the receiving documents are typically sent to purchasing, the store room, and the accounts payable control and accountability is necessary for all transfer.

### **Store raw materials:**

When materials are received, they are stored in the stock room until needed for distribution. Materials are issued out of stock to production upon presentation of properly approved material requisition or similar documents that indicate the type and quantity of materials needed. This requisition document is used to update the perpetual inventory master files and to make book transfer from the raw materials to distribution.

### **Process the goods**

The processing part of inventory and warehousing cycle varies greatly from company to company. The determination of the items and quantities to be issued is generally based on specific orders from customers. A separate production (distribution) department often is responsible for the determination of the type and quantities of distribution within the various departments, provision must be made to account for the quantity distributed control of scrap quality controls and physical protection of stock is needed.

### **Perpetual inventory master file**

One of the records used for inventory controlling method is the perpetual inventory. Separate perpetual records are normally kept for raw materials. Perpetual inventory can include only information about the units of inventory acquired, sold (issued), on hand they can also include information about unit costs, date received, date of issued, reference number etc.

### **2.2.7 documents and records for transferring inventory**

Transfer of inventory from store room to another storeroom (location to another location) must be separately are that the recorded and transfer exist the transfer that have actually taken place are recorded and the quantity description and date of all recorded transfers are must be accurate. It is necessary to understand the clients internal controls for records. That are sequence of internal goods transfer voucher examine the proper approval and compare the quantity description and date with the information on the raw material perpetual inventory master files.

### **Physical observation tests**

The most important part of observation of inventory is determining whether the physical count is being taken in accordance with the organization instructions. If the procedure requires one team to count the inventory and second team to recount it as a test of accuracy obtaining an adequate understand of the organization is even more important in physical observation of inventory than the most aspects of the audit because inventory varies so significantly for different companies common inventory observation procedures are:

- Select a random sample of tag number and identity the tag with that number attached to the actual inventory. Observe whether movement of inventory takes place during the count.
- Review receiving area for inventory that should be including in the physical count.
- Be alert for inventory that is a side or specially marked as indication of non ownership.
- Observe whether movement of inventory takes place during the count

- Recount clients counts to make sure the recorded counts are accurate on tags(also check description and unit of count such as dozen, quintal, liters each etc) and examine inventory description on the tags and compare with the actual inventory description for stock raw materials .(ARENS –LUEBBCKE PP 646-658 )

### **Control on plant assets**

An asset is whether movable or immovable it can be purchased or donated and its existence is must be more than one year that can be acquired by profit or not for profit organizations. These fixed asset or long lived assets often include both tangible and intangible. Tangible property consists of real property. These are the following buildings, furniture, equipment's are usually acquired by purchase under the accounting system used by the style clothing store a voucher is prepared to authorize payment for fixed asset.(pock palmer pp 430-432).

### **Existence of fixed asset**

All fixed asset must have a fixed asset registered cards that show date of purchase, unit cost, total cost type of the asset, method of depreciation and place of the asset. In testing for misstated or omitted plant assets we have to concentrate on such factors as whether new assets have been placed in service as of year end whether all disposals have been recorded and it must be properly reflected on the balance sheet at cost less accumulated depreciation.(LARRY-F.KONRATH PP494-495 )

## **CAPETER THEREE**

### **3. DATA ANALYSIS AND INTERPERTATION**

#### **INTRODUCTION**

In the pervious chapter the theoretical aspects of the study presented, when as this chapter devoted the presentation, analysis & interpret of data obtained from the employee who working in ware house and inventory management in ETAF. To these end to researcher used questioners, interview & direct observation for collect primary data and use organization manual in the secondary data.

#### **3.1. PRINCIPLE AND PROCEDURES OF SUPPLY MNGMENT**

As shown to organization manual to supply department shall ensure that unnecessary inventory cost are avoided or at least minimized. To this end to organization policies are as follow.

This end to organization policies are follow:-

- a) User department prepare material requirement plan, this plan also concerned with
  - Issue of substitute or interchangeable items.
  - Local repairs local manufacturer.
  - Cannibalization.
  - Issue of the next assembly.
  - Check alike items in receiving like or storage.
- b) Unnecessary items shall be disposed immediately and to collect one specific selvage area such material are write relevant.
- c) The procurement model handles to initial request for materials, request for vendor questions to fulfillment of purchased order & the tracking of such material.
- d) The organization has never established economic order quantity.

#### **3.2. RECEICVING AND ISSUING PROCEDURES**

According to interview & physical observation into following procedures available:-

##### **3.2.1. RECEIVING PROCEDURES**

- 1) Unpacked the container or boxes & pull out to packing list.

- 2) Using to packing list select to appropriate receiving memo for to incoming supplies receiving desk file.
- 3) Check to part number of to items received requested.
- 4) If the part number does not concede with what had been cited on to original purchase order, research for to part number in ETAF.
- 5) On all containers, boxes or cartage received to batch number so that this number serves the storage and issue Clark with to issue FIFO base.
- 6) Tag the part of each item.
- 7) Count to quantity received and after comparing what had been ordered complete the receiving memo part (goods received notes).
- 8) Prepare to receiving memo in six copies and distribute in
  - 1<sup>st</sup> ordering unit copy - sent to ordering department.
  - 2<sup>nd</sup> store record copy - sent to store man record section.
  - 3<sup>rd</sup> purchasing copy - sent to pursing department.
  - 4<sup>th</sup> accounting copy - sent accounting department.
  - 5<sup>th</sup> financing copy - sent finance department.
  - 6<sup>th</sup> store copy – filled in store and distribution section.

As far as concerning the dead stock, the organization has a lot of materials that are condemned but to mgt. didn't give any attention either to dispose or to use for other purpose. But what to researcher observed that, they use these materials for modification purpose when there is shortage of materials.

### 3.2.2. ISSUING POLICY

According to ETAF manual are the following policy and procedure are followed by:-

- To all activity and these supplies are issued initially from the base supply store.
- The Air Force uses number of forms to record to issue of supply to the customer.
- When the material on issued in using department in the form of DD from 1150 and 1150-1.
- A separate issue document as required for each property class or sub class condition and cost and cost category of supplies.

Generally Air Force supply department have two methods of issuing policy:-

1) PRE - POST ISSUE

- Under the pre - post issue method, the issue document DD form 1150 is recorded on the stock records before it's sent to the war house for further action.
- By using the pre- posting method, stock records personal determine from their recorded if there is a sufficient quantity of the item in stock to make the issue.

2) POST –POST ISSUE

Post - post is in which the DD form 1150 is recorded on the stock records after the property has been issued.

- In the post-post issue the DD form 1150 is sent direct to storage and issue section by the using activity.
- The issue Clark checks the locator file; enter the location on to reverses section by the using activity.

As I mentioned above, even though the organization has clear policy and procedure did not apply in practices. As the researcher observed, the physical moment of material is not based on the first - in - first - out methods, because materials are not stored according to selected classification i.e. under always better control method (ABC) and some times materials are issued while receiving takes place. This shows that the organization is not using the stated goods issuing procedures. The researcher suggests that, order to ensure the smooth flow of materials the organization has to use the stated policy and procedures.

### **3.3. INVENTORY MANAGEMENT**

Inventory management is to controlling of the over all activity of materials flow from user requirement up to material received rather than delivered, issue and recording transaction. To mange inventory means question of how much to order and when to order to be correctly answered. To see to problems associated with how much to order and when to order and to suggest solution.

In mentioned order, the organization didn't use EOQ model so as to answer the question of how much to order and when to order.

### 3.4. OBJECTIVES OF INVENTORY MANGEMENT

The main objective of inventory management in the ETAF organization to achieve to following things:-

- To ensure that to ware house is an organization as it as required to be facilitating smooth flow of materials in and out of to store.
- To ensure that no actual or opportunity east in sustained or keep due to either stock out or over stock.
- To ensure that necessary safety standards are put in appropriate place at a right time.
- Request forwarded to correct source of supply search for correct source.
- To check to movement of materials in and out of the store used in smooth and only made up on completing the necessary record.
- Follow up will be submitted to procurement branch if the request items until to reach the store on times.
- To facilitate services & user department with adequate information on they required for day to day decision with regarded to input requirement.
- Conditioning a pre-inventory dead line survey in condition with to stock and stock record personal. All these above motioned one up to eight points as manual of to organization are important and also on line with general principle of supply management.

### 3.5. RESULT OF QUESTIONNAIRES

Seventeen specific and four personal questions are prepared and distributed in 45 employees. Out of 45 employees 36 have returned to the questionnaires paper back and the remain nine becomes non - respondent. The sample size selected comprises of different educational level, age and structure and marital states.

The questions is used more of opened ended, which have agree, disagree and yes or no are included and also some option questions. Based on the questionnaires the following analysis and discussion is made.

#### 3.1. PERSONAL QUESTIONS

Table 3.1 Employee in age and group

Age of respondent	Sex		Total number	Percentage
	Male	Female		

20 - 25 years	-	7	7	19.44
26 -30 years	14	3	17	47.22
31- 40 years	11	-	11	30.55
Above 41 years	1	-	1	02.77
Total	26	10	36	100.00

Source: Primary Data Questionnaires.

As it is indicate in the above Table above, 7 (19.44 %) of the respondent found in to age group of 20-25 years, 17 (47.22 %) between 26 - 30 years, 11 (30.55 %) between 31 – 40 years and one (2.77 %) of to respondent are above 41 years.

From to majority of to response and personal observation it can be concluding that the organizations have young employees are high frequency.

Table 3.2 Employees in marital statuses

Statues	Number of respondent		Total number
	Male	Female	
Unmarried	15	6	21
Married	12	3	15
Total	27	9	36

Source: Primary Data Questionnaires.

As indicated Table above, 15 (41.7 %) of the respondent pointed that are male unmarried, 6 (16.7 %) of the respondent pointed that are female unmarried, 12 (33.33 %) of the respondent pointed that are male married, 3 (8.32 %) of the respondent pointed that are female married. From the majority of to response and personal observation, it can be concluding that the high frequency unmarried.

Table 3.3 Employees in Educational level

Education Level	Sex		Total number	Percentage
	Male	Female		
1 <sup>st</sup> Degree	10	-	10	27.78
Diploma	11	6	17	47.22
Certificate	3	3	6	16.67
12 Grade Complete	1	-	1	2.78
Under 12 Grade	2	-	2	5.56
Total	27	9	36	100.00

Source: Primary Data Questionnaires.



Based on the above Table above, 10 (27.78) of the respondent have 1<sup>st</sup> Degree, 17 (47.22 %) have Diploma, 6 (16.67 %) have certificate, 1 (2.77 %) have Grade 12 complete and 2 (5.56 %) have under 12 Grade. From to majority of the response and personal observation, it can be conducting that high frequency in Diploma.

### 3.2. SEPECIFIC QUESTION

Table 3.4 Satisfaction of working

S/no	Description	Number of response		Total
		Yes	No	
1	Are you satisfied working with in Ethiopia Air force?	30	6	36
	Percentage	83.3	16.7	100

Source: Primary Data Questionnaires.

As it is indicate Table above. 30 (83.3 %) of the respondent pointed that are the store managers to control materials in and out of the store and 6 (16.7 %) of to respondent pointed that are not the store managers to control materials in and out of the store. From the majority of the response and personal observation, it can be concluding that yes response have high frequency.

Table 3.6 Methods of recording Files system

S/no	Description	Number of response		Total
		Male	Female	
3	Methods of File?			
	Ascending	24	8	32
	Descending	2	2	4
	Total	26	10	36

Source: Primary Data Questionnaires.

Based on the above Table above indicate 32 (88.9 %) of the respondent pointed that are used are ascending order files, 4 (11.1 %) of the respondent pointed that are not abased on the above table 3.3. indicate, 32 (89.9 %) of the respondent pointed that are used on Ascending order files and 4 (11.1 %) of the respondent pointed that are not descending order files. From majority of the response and personal observation, it can be concluding that Ascending order files response is high frequency.

Table 3.7 Material properly tagged

S/no	Description	Number of response		Total
		Yes	No	
4	It all material properly tagged?	10	26	36
	Percentage	27.8	72.2	100

Source: Primary Data Questionnaires.

As it is indicate Table above, 10 (27.8 %) of the respondent pointed that are all material properly tagged and 26 (72.3 %) of the respondent pointed that are not all materials properly tagged. From to majority of the response and personal observation it can be concluding that yes response is high frequency.

Table 3.8 the organization issued olds first and new issued in last.

S/no	Description	Number of response		Total
		Yes	No	
5	During issue are the oldest items issued first and while they are being stored is the oldest item stored new item?	10	26	36
	Percentage	27.8	72.2	100

Source: Primary Data Questionnaires.

As it is indicate the above table 3.8, 10 (27.8 %) of the respondent pointed that are the issued item oldest first and new as last and 26 (72.3 %) of the respondent pointed that are not issued item oldest first and new as last. From to majority of the response and personal observation it can be concluding that No response is high frequency.

Table 3.9 materials keeping policy being maintained

S/no	Description	Number of response		Total
		Yes	No	
6	Are goods keeping policy being maintained?	8	28	36
	Percentage	22.2	77.8	100

Source: Primary Data Questionnaires.

As it is indicate the above table 3.9, 8 (22.2%) of the respondent pointed are good keeping policy Bing maintained and 28(77.8%) of the respondent pointed that are not goods keeping policy bing maintained. From the majority of the response and personal observation it can be concluding that no response is high frequency.

Table 3.10 all materials are stored serviceable.

s/no	description	Number of recepdant		total
		yes	no	
7	Are allmaterials stored serviceable?	12	25	36
	percentage	33.3	66.7	100

Source primary data questionnaire

As it is indicate the above table 3.7 12(33.3%) of the respondent pointed that are all materials stored serviceable an and 24(66.7 %) of the respondent pointed that are not all materials stored serviceable. From the majority of the

response and personal observation, it can be concluding that no response is high frequency.

Table 3.11 hazard material properly stored

s/no	Description	Number of response		total
8	Are hazard materials properly stored?	yes	No	36
		11	25	
	percentage	30.6	69.4	100

Source primary data questionnaires

Based on the above table above 11(30%) of the respondent pointed that are hazard materials properly stored and 25(69%)of the respondent pointed that are not hazard materials properly stored. From the majority of the response and personal observation it can be concluding no response is high frequency

Table 3.12 inventory counting method

s/no	Description	Number of response		Total
		yes	No	
9	Physical inventory	16	8	24
	Perpetual inventory	-	-	-
	Cyclic inventory	10	2	12
Total		26	10	36

Source primary data questionnaires'

As indicate the above table 3.9 24(66%) of the respondent pointed that are used physical inventory method and 12(33.3%) of the respond at pointed that are used in cyclic inventory method. From the majority of the response and personal observation it can be concluding that physical inventory is high frequency.

Table 3.13 the purchasing department to purchase request material before the expiry year.

S/no	Description	Number of response		Total
		agree	Disagree	
11	Do you agree that the purchasing dept to purchased based on the requested material before expiry of the budget year?	25	9	36
percentage		69.4	30.6	100

Source primary data questionnaire's

Ait is indicate the above table above 25(69.4%) of the respondent pointed that are the purchasing department to purchase based on the requested material before expiry of the budget year 9(30.6%) of the respondent pointed that are not the purchasing dept to purchase based on the requested material before expiry of the budget year. From the majority of the response and personal observation it can be concluding that yes response is high frequency.

Table 3.14 Legal authority of stock control format

S/NO	Description	Numbers of response		Total
		Agree	Disagree	
12	Is all stock control formats legally authorized?	27	9	36
percentage		75	25	100

Source primary data questioner..

Based on the above table 27(75%) of the respondent pointed that are all stock control formats legally authorized and 9(25%) of the respondent pointed that aren't legally authorized. From the majority of the response and personal observation, it can be concluding that yes response is high frequency.

Table 3.15 available of economic order quantity

S/NO	Description	Number of response		Total
		Agree	Disagree	
13	Do you think that your organization uses percentage EOQ?	6	30	36
	percentage	16.6	83.4	100

Source primary data questioners

Based on the above table 6(16.6%) of the respond at pointed that are organization uses percentage EOQ and 30 (83.4%) of the respondent that are not uses percentage EOQ . from the majority of the response and personal observation. It can be concluding no response is high frequency.

Table 3.16 All incoming materials inspected before received

S/NO	Description	Number of response		Total
		agree	Disagree	
14	Are you sure all incoming goods inspect before received	16	20	36
	percentage	44.4	55.6	100

Source primary data questionnaires

Based on the above table 16(44.4%) of the recepondat pointed that are all incoming goods inspect before received and 20(55.6%) of the respondent pointed that are not all incoming goods inspect before received from the majority of the response and personal observation it can be concluding no response is high frequency.

Table 3.17 right persons put at a right position

S/NO	Description	Number of total	
		respondent	Disagree
15	Do you think that right person is a	12	24

	right portion in your organization ?			
	percentage	33.3	66.7	100

Source primary data questionnaire's

Based on the above table 12(33.3%) of the respondent pointed that are the right person is in right place and 24(66.7%) of the respondent pointed that are not right person is right place. From the majority of the response and personal observation, it can be concluding no response is high frequency.

Table 3.18 use of material handling equipment

s/no	Description	Number of response		Total
		agree	disagree	
16	Do you agree that MHE use efficiently in your organization ?	15	21	36
	percentage	41.7	58.3	100

Based on the above table 15(41.7%) of the respondent pointed that are the material handling equipment uses efficiently and 21(58.3%) of the respondent pointed that are not the material handling equipment uses efficiently . from the majority of the response and personal observation it can be concluding no response is high frequency.

Table 3.19 uses of special storage

s/no	Description	Number response		Total
		agree	disagree	
17	Do you have a special storage in your organization?	8	28	36
	percentage	22.2	77.8	100

Source primary dates questionnaires

Based on the above table 8 (22.2%) of the respondent pointed that are a special storage use and 28 (77.8%) pointed that are a special storage use .from the majority of the response and personal observation it van be concluding no response is high frequency.

## **CHAPTER FOUR**

### **SUMMARY CONCLUSIONS AND RECOMMENDATIONS**

#### **SUMMARY**

In order to achieve the strategic objective, well-established and designed policy and procedure are crucial elements not only establishing and designing on paper, it should also be applied in daily activity of the organization.

As the study indicates that, even though ETAF has well designed policies and procedure in line with the general management principles, but in practices the organization did not follow the policies and procedure. According to questioners, interview and physical observation the researcher summarized as follows:

- ✓ The inventory martials do not have a proper place, there is no enough shelves and coding system. Since the bin cards are not used effectively it is difficult to know the quantity of each material received issued and on hand.



- ✓ The organization has never established economic order quantity (EOQ) so as to maintain optimum level of inventory.
- ✓ The issuing and receiving of material are not followed by the procedure that stated in the manual | catalog even some times materials are issued while receiving takes place|.
- ✓ The movement of materials is not based on first – in- first out / FIFO/ base , and no attention is given for the disposal of scrap, waste, selvage and obsolete materials.
- ✓ Inventory are not classified or arranged based on their account number, type, rate of consumption quality and size.
- ✓ The organization have no clear police, procedures and arrangement at right person in right position and also it is lack of qualified and professional employee in all department specially human resource, accounting and finance and supply management department.
- ✓ The is no proper recorded of material due in and due out and no shad the scrape material are exposed floods, rains and other natural hazard.
- ✓ Inside the warehouse bulk materials, chemicals spare parts and stationeries stored in one store room.

### **CONNCLITION AND RECOMMENDATION**

Based on the result of the study, the researcher has recommended some possible points in order to enable ETAF to have all effective and efficient inventory management . These possible recommended solutions are :

- Experienced and qualified workers are very important to facilitate inventory and

warehousing activity and Clint satisfaction. Thus the organization should hire experienced and qualified workers, give necessary training of existing staff members.

- The bin cards should continuously record which helps to know each type of material received, issued and on hand.
- In the warehouse materials should be properly arranged or classified under a better control /ABC/ analysis and also all materials have proper tagged.
- In order to answer the question of how to order and when to order, correctly the organization should establish economic order quantity /EOQ/ followed or guided.
- The materials which are exposed to floods, rain and moisture should have shed to protect from corrosion and other natural problem.
- The organization uses a goods keeping policy maintained, and uses a material handling supplies particularly in the rapid mechanization of handling device when you used the/ MHE/ to save time, labor and space cost, to prevent injury, personnel back strain, crushed toes and other injuries .
- The purchasing department to purchase request material before pass the expiry budget year at a right time to accomplish customer order to buy periodically. This may be solve the problems are:
  - A subsistence amount cash, tied up
  - Inventory carrying cost

- Obsolescence, deterioration and expiry of material.
- The material recording and filling system change manual system to computerized system.
- To establish more qualified and professional trained man power at right time to right place.
- To use a correct recording of due in and due out transactions and to cross check the balance between bin cards and stock record card similar amount and figure shown, and the prospective subordinate and managers to control materials in all department.
- To check the movement of material in and out of the store used in the smoothly and only made up on completing the necessary record and follow up will be submitted to procurement branch if the request item until to reach the store on time and to facilitate services in using department with adequate information they require for day to day action with regarded to input requirement.

## Appendix

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