ASSESMENT OF WAREHOUSE MANGEMENT OF ETHIOPIAN NATIONAL DEFENSE MAIN DEPARTMENT OF LOGISTICS IN ADAMA CITY

BY

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ASSESMENT OF WARE HOUSE MANGEMENT THE CASE OF ETHIOPIAN NATIONAL DEFENSE MAIN DEPARTMENT OF LOGISTICS IN ADAMA

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This is to certify that the thesis on Assessment of Warehouse Management Practice of Ethiopian National Defense Main Department of Logistics In Adama city prepared and submitted by Belayhun begashaw in partial fulfillment of the requirements for the Degree of Master of Arts in Logistics and Supply Chain Management complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Declaration

I, the undersigned, declare that this thesis entitled Assessment of warehouse management practice the case of national defense main Department of logistics in Adama is my original work, has not been presented for a degree in any other university and that all source of material used for the thesis have been duly acknowledged.

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This thesis has been submitted for examination with my approval as a university Adviser.

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Abstract

*In most developing countries like Ethiopia the practices of warehouse management are optimally underutilized and non-organized**.** There is a strong agreement on the need of researching the gaps and major challenges of warehouse management practices and recommend feasible solutions to the gaps. Undeniable warehouse management is an essential element of any supply chain management effectiveness. Thus, this study has been carried-out to assess the practice of warehousing management of spare parts chain management of the Ethiopian national defense main logistics department at Adama city. A mixed method of research design has been used to realize the objective just mentioned. Both primary and secondary sources were used. In today's global business environment, computer systems are involved in business process providing quality products and efficient services are vital to staying competitive. Warehouse must eliminate inefficiencies, monitor productivity, and continually improve their operational performance in order to keep pace. The sole purpose of conducting this research is to improve the warehouse management activities used in our present time, warehouse management data base technological development industry and the techniques that could improve the warehouse management in the organization. This research paper has been organized in to five chapters. The first chapter deals with Introduction which includes, background of the study, statement of the problem, basic research questions, objectives of the study, significance of the study, scope of the study, limitation of the study, organization of the study, and definition of terms. The second chapter contained related literature review which focused on theoretical framework, warehouse management conceptual issue, types of warehouses, purpose /functions of warehouse and characteristics of ideal warehouse. The third chapter contained research methodology with study area descriptions, study design, data collection methods and instruments, study population sample size and sampling technique, pilot test, method of data analysis, ethical consideration, validity and reliability. Chapter four also included data analysis, interpretation and discussion. The last chapter has contained summary, conclusion and recommendation the study. This study has been assessed based on heir relevancy priority.*

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CHAPTER I: INTRODUCTION

1.1. Background of The Study

Warehousing refers to the activities involving storage of goods on a large-scale in a systematic and orderly manner and making them available conveniently when needed. In other words, warehousing means holding or preserving goods in huge quantities from the time of their purchase or production till their actual use or sale (Frazelle, 2002). Warehouses are essential components of any supply chain. In a warehouse items are handled in order to level out the variability and imbalances of the material flow caused by factors such as seasonality in demand, production scheduling, transportation, and consolidation of items (Guet al., 2007). Inventories in warehouses are capital intensive assets that require storage areas, handling equipment, and information systems. In addition, warehouse operations are repetitive, labor intensive activities. The capital and operating costs of warehouses represent about 20- 25% of the logistics costs (Frazelle, 2002; Baker and Canessa, 2009). Therefore, improvements in the planning and control of warehousing systems can contribute to the success of any supply chain.

Warehousing played a role in the storage and exchange of goods for centuries. Long-term storage to provide product for future consumption has been a utility of warehousing both past and present. So that warehouses are essential components of any supply chain. In a warehouse items are handled in order to level out the variability and imbalances of the material flow caused by factors such as seasonality in demand, production scheduling, transportation, and consolidation of items (Guet al., 2007).

In the military operation, all the logistics activities are operated by equipping different materials such as food and cloth; ammunition, armaments and technical equipments, military and civil vehicles with spare parts, tiers etc, and those materials are fundamental and critical in executing military mission successfully. To help every military activity all of the logistics materials they will have their own warehouses according to the characteristics and feature of each goods (Frazelle, 2002).

In major military conflicts, logistics matters are often crucial in deciding the overall outcome of wars. More generally, for protecting and attacking every war or combat action, the logistics

material plays a great role and is fundamental for military strategy. By depending on the economy, internal and external treat of the country and situation, every nation has developed its own logistics principles, organization practices and these have evolve as a result of the nation's foreign and domestic policy, military doctrine, experience and geographical considerations (Baker, 2009).

Military equipment warehousing or warehouse management is "the physical movement of stock into, through, and out of a military store warehouse. Warehousing is a key element of military materials supply chain management. It ensures the constant availability and flow of essential quality for combat and peace time commodities, in appropriate quantities, in a timely and cost-efficient manner, through the supply chain process. Key warehousing functions include receiving, stocking materials, stock management, and distribution management (Chua, 2008).

Therefore, a well-functioning warehouse has a strong governance structure, a smooth operations management system, sufficient and qualified human resources, and the ability to monitor performance.

1.2. Statement of the Problem

The time-honored warehousing technique is becoming out of date since the last decade of the 20th century with introduction of some of the sophisticated techniques such as JIT (Just In Time), deployment of WMS, development of automation and control systems, operation of goods identification techniques. These new developments specially designed to enhance the return on investment of the businesses by optimizing the inventory levels and help in reducing the overall warehousing costs (Kumar, 2009). Warehouse management concept is based on delivering the product directly from the supplier to the wholesale outlet and shelf the products in the retail store eliminating the concept of warehousing which is now becoming more prominent in the customer because there is a drastic reduction in the costs of the businesses by eliminating the warehouse thus eliminating the inventory holding costs. As the distance between the supplier and the retailer increases, it builds up the need for a warehouse in between the geographical regions to reduce the transportation costs and to add some value adding activities to the products. There are also some other advantages such as consolidation and pooling if a warehouse is located between the supplier and the manufacturer. Acording to Kumar research the customer and supplier in the geographical problem transportation wastage and to add some value adding

activities to the products storage situation not well organization. Regardless of paradigmatic orientation, all research in the social sciences represents an attempt to provide warranted assertions about warehouse management (or specific groups) and the environments in which they live and evolve (Biesta & Burbules, 2003).

Every organization carries different kinds of inventories. All the materials purchased may not be consumed in production, sold for customers or for consumptions right after they are purchase. They may require some other time in the future. Inventories, according to Evans (1990:449), are any ideal goods or materials that are held for future use. Inventories should be put in a good place and handled properly until they are used (Queiroloet.al. 2002).

The maintenance, engineering and recovery dept has a significant contribution in the economic development of the nation by assisting through proper management of warehouse and by maintaining the warehouse spare parts to save unnecessary expenses of the nation economy. Ministry of defense warehouse departments has responsibility of providing received materials to customer.

To achieve its objectives and to fulfill the defense operation and satisfies its customers, maintenance, engineering and recovery department received and manage a wide range of spare part products which comes from both domestic and foreign sources. Those of all assets are gained from the nation's economy. As we know until now the defense budget is allocated from national income as others national minister offices, which mean all of the military material consumptions is depended on the country economy. Thus, every spare part materials which are purchased from local or abroad must be kept in proper warehouse with a complete warehouse management system.

Warehousing management is essential for the organization; however there are problems that occur for efficient and effective warehouse management from organization to organization. A proper warehousing management system is guaranty for organization assets to safeguard from different wastage like improper use of inventory, deterioration, fire accident, natural affects e.t.c.

Basically this study is on warehouse management practice of the main logistic in Adama. When there is no proper warehouse management, the defense mission and day to day army activity cannot be going well, and it affects the nation's security directly. If warehouse management is

weak, the accumulated spare parts will not manage properly and the mission of the national defense will be interrupted.

The study has been explore gaps of spare part warehouse management, storage system, shelves design standard and quality of construction, fire protection and warehouse personnel safety condition. Moreover the study has been showed the strengths and weaknesses of the warehousing management and practices provided under the departments and to recommend possible solutions to make the service better and improve future performances of the department. In the previous studies did not attempt to look spare part warehouse management system at Adama. The research was attempted to examine the management practices of the warehouse on maintenance, engineering and recovery department spare part warehouse provided under the main logistics department of the national defence by formulating the following central research questions.

1.3. Research questions

1. What are the practices of warehouse management in the Ethiopian National defense main Logistics department?
2. What are the present situations of warehouse stores activities in the Ethiopian National defense main logistics department?
3. What are the challenges influencing the stocked materials in the Ethiopian National defense main logistics department.

1.4. Objectives Of The Study

1.4.1. General Objective

The general objective of the study is to assess warehousing management practices of Ethiopian National defense main logistics department at Adama city.

1.4.2. Specific Objectives:

The specific objectives of the study are**:-**

1. To show the gaps spare part warehouse management activities of Ethiopian National defense main logistics department at Adama city.
2. To describe the practice of spare part warehouse storage activities of Ethiopian National defense main logistics department at Adama city.
3. To identify the challenges of spare part warehouse of the Ethiopian National defense main logistics departments at Adama city.

1.5. Significance of the study

In most developing countries like Ethiopia the practices of warehouse management are optimally underutilized and non-organized**.** There is a strong agreement on the need of researching the gaps and major challenges of warehouse management practices and recommend feasible solutions to the gaps. In the mean time, inappropriate warehouse management practices lead to resources safety complications. There for this research primarily served to mitigate the unpleasant consequences of the problem. This study would be having implications for warehouse management practitioners which ultimately work to heighten, the practices of warehouse management in the selected areas. More over different warehouse management manuals and policies should be based on the knowledge regarding the practices of warehouse management and the challenges affecting it. To this end this study would be have policy implications and delivered multifaceted purposes for the academia, government and other beneficiaries of the study.

The significances of the study are,

- It would be as an asset to the concerned bodies to be aware of the problem of spare part warehouse management practice in Adama,
- It would be help to develop the warehousing management practices and warehouse service, in order to make more efficient and fast the delivery services for users, and to maintain the spare part assets in proper way.
- It might be used as a facilitator for other studies, which focused on similar topics and issues, related to warehouse management, for potential researchers who are interested to know more about challenges of warehousing management.

1.6. Scope of the study

The geographical scope of the study, the warehouse management derived thereof, is confined towards examining the practical framework of Adama spare part and its accessories storehouse and in the study time starting from 2003 E. c when ministry of Defense began to implement Business Process Reengineering (B.P.R) in the ministry in general and warehouse store departments in particular.

1.7. Limitation of the study

The first limitation of the study was its coverage of only maintenance engineering and recovery department and spare part warehouse (supplier) and the two consumer garages such as janmeda heavy vehicles repair garage and mexico light and medium vehicles garage under main logistics departments which would not fully represent all warehouse practices under ministry of defense due to resource constraints. The second limitation of the study was difficulty of getting respondents and participants of the study at time of data collection due to time constraints. The third limitation of the study was shortage of secondary data sources regarding to warehouse management practices.

1.8. Organization of the study

This research study was organized in to five chapters. The first chapter has been deals with introduction which includes background of the study, statement of the problem, research questions, objectives of the study, scope of the study, limitations of the study, significance of the research, and organization of the study. The second chapter has contained related literature review which focuses on theoretical framework and conceptual issues of warehouse management. The third chapter has contained research methodology which is incorporated study area description , study design; data collection methods and instruments; study population, sample size and sampling, methods of data analysis used, and ethical considerations. Chapter four has contained findings of the study including data presentation and analysis of the findings. The last chapter would be provided discussion, implication and conclusion of the study. If it is necessary, a recommendation of the study has been also assessed based on heir relevancy priority.

1.9. Definition of terms

- **Warehouse-** refers to the activities involving storage of goods on a large-scale in a systematic and orderly manner and making them available conveniently when needed. (Teo 2008).
- **Private Warehouses** - The warehouses which are owned and managed by the manufacturers or traders to store, exclusively, their own stock of goods are known as private warehouses, (Alan, R., Phil, C. and Peter, B., 2010).

- **Government Warehouses** -These warehouses are owned, managed and controlled by central or state governments or public corporations or local authorities. Both government and private enterprises may use these warehouses to store their goods, (Alan, R., Phil, C. and Peter, B., 2010).
- **Storage** –Binning the consent material in their particular location, Tompkins et al (1984).
- **Inventory goods and service**- scheme include manual, card-oriented, and computer-operated systems, (Giannikas, 2013).
- **Eyeball**- method is that a predominantly good item may be out of stock for sometime before anybody notices (Giannikas, 2013).

CHAPTER II: REVIEW OF THE RELATED LITERATURE

2.1. Theoretical frameworks of warehouse management

In this chapter, theories related to the research issues which are relevant to the present thesis work are describe. The theoretical framework for Warehousing is briefly set up discussing all the important factors related to warehousing. The purpose of this part of the thesis work is to set up a basis for theoretical frame of warehousing concepts and investigate whether the warehouse gap and the theoretical benefits are likely to create some impact on the efficiency of the national defense warehouse management and also to find out whether they create some gaps real added value for the national defense warehouse management.

2.1.1. Product intelligence paradigm

An approach that can treat different product instances in a special way based on their specific characteristics and needs has been argued to bring special benefits both in manufacturing and in supply chain industrial contexts. Focusing on supply chain and logistics operations, the impact of such a product intelligence approach has been recently under consideration in a number of different areas such as road-based logistics, intermodal transportation and production logistics. Due to the rapidly changing preferences of customers, orders received by warehouse companies (especially third-party-logistics ones) increasingly exhibit special characteristics, such as smaller order size, higher product variety, request of shorter response time, and request for changes after the order has been initially created and placed. This means that although the traditional performance targets for warehouse services (e.g. warehouse utilization, tighter inventory control) still remain, in today's environment, they are subject to the specific, special needs of deferent customers. This is particularly true in third-party-logistics warehouses that manage a high variety of products and a big number of individual customers. Here, the operations are required to become more customer-oriented and more responsive to requests with different characteristics and needs in an efficient manner. Form this theory the warehouse management and utilization high variety operations takes place, the main target customer oriented and more responsive way of warehouse managements very important in this idea (Giannikas, 2013)..

2.1.2. Theoretical Inventory Control Model

Control of inventory, which typically represents 45% to 90% of all expenses for business, is needed to ensure that the business has the right goods on hand to avoid stock-outs, to prevent shrinkage (spoilage/theft), and to provide proper accounting. Many businesses have too much of their limited resource, **capital**, tied up in their major asset, **inventory**. Worse, they may have their capital tied up in the wrong kind of inventory. Inventory may be old, worn out, shopworn, obsolete, or the wrong sizes or colors, or there may be an imbalance among different product lines that reduces the customer appeal of the total operation. Inventory control systems range from **eyeball systems** to **reserve stock systems** to **perpetual computer-run systems.** Valuation of inventory is normally stated at original cost, market value, or current replacement costs, whichever is lowest. This practice is used because it minimizes the possibility of overstating assets (Giannikas, 2013).

The ideal inventory and proper merchandise turnover will vary from one market to another. Average industry figures serve as a guide for comparison. Too large an inventory may not be justified because the turnover does not warrant investment. On the other hand, because products are not available to meet demand, too small an inventory may minimize sales and profits as customers go somewhere else to buy what they want where it is immediately available. Minimum inventories based on reordering time need to become important aspects of buying activity. Carrying costs, material purchases, and storage costs are all expensive. However, stock-outs are expensive also. All of those costs can be minimized by efficient inventory policies (Giannikas, 2013).

2.1.2.1. The Eyeball System

This is the standard inventory control system for the vast majority of small retail and many small manufacturing operations and is very simple in application. The key manager stands in the middle of the store or manufacturing area and looks around. If he or she happens to notice that some items are out of stock, they are reordered. In retailing, the difficulty with the eyeball system is that a particularly good item may be out of stock for sometime before anyone notices. Throughout the time it is out of stock, sales are being lost on it. Similarly, in a small manufacturing operation, low stocks of some particularly critical item may not be noticed until there are none left.

2.1.2.2. Reserve Stock (or Brown Bag) System

This approach is much more systematic than the eyeball system. It involves keeping a reserve stock of items aside, often literally in a brown bag placed at the rear of the stock bin or storage area. When the last unit of open inventory is used, the brown bag of reserve stock is opened and the new supplies, it contains are placed in the bin as open stock. At this time, a reorder is immediately placed. If the reserve stock quantity has been calculated properly, the new shipment should arrive just as the last of the reserve stock is being used (Giannikas, 2013)

In order to calculate the proper reserve stock quantity, it is necessary to know the rate of product usage and the order cycle delivery time. Thus, if the rate of product units sold is 100 units per week and the order cycle delivery time is two weeks, the appropriate reserve stock would consist of 200 units (I00u x 2w). This is fine as long as the two-week cycle holds. If the order cycle is extended, the reserve stock quantities must be increased. When the new order arrives, the reserve stock amount is packaged again and placed at the rear of the storage area (Giannikas, 2013)

2.1.2.3. Perpetual Inventory System

Various types of perpetual inventory system include manual, card-oriented, and computer-operated systems. In computer-operated systems, a programmed instruction referred to commonly as a trigger, automatically transmits an order to the appropriate vendor once supplies fall below a prescribed level. The purpose of each of the three types of perpetual inventory approaches is totally either the unit use or the dollar use (or both) of different items and product lines. This information will serve to help avoid stock-outs and to maintain a constant evaluation of the sales of different product lines to see where the emphasis should be placed for both selling and buying (Giannikas, 2013)

2.1. 3. Physical, Conceptual and Process Perspective

The physical perspective covers the execution details of data warehouse processes. At the same time, the logical perspective is capable of modeling the structure of complex activities and captures all the entities of the Workflow Management Coalition Standard. Due to the data oriented nature of the data warehouse activities, their relationship with data stores is particularly taken care of, through clear and expressive semantics in terms of SQL definitions. This simple idea reverts the classical belief that data warehouses are simply collections of materialized views. Instead of directly assigning a naïve view definition to a data warehouse table, we can deduce its

definition as the outcome of the combination of the processes that populate it. This new kind of definition does not necessarily refute the existing approaches, but rather complements them, since the former provides the operational semantics for the content of a data warehouse table, whereas the latter give an abstraction of its intentional semantics. The conceptual perspective to uniformly capture any person, program or data store participating in the system. Furthermore, the process meta-model is linked to a quality meta-model, thereby facilitating the monitoring of the quality of data warehouse processes and a quality-oriented evolution of the data warehouse. (Giannikas, 2013)

2.1.4. Military equipments of logistic materials

In the military operation, all the logistics activities are operates by equipping different materials such as food and cloth; ammunition, armaments and technical equipments, military and civil vehicles with spare parts etc, those materials are fundamental and critical in executing military mission successfully. To help every military activity all of the logistics materials they will have their own warehouses according to the characteristics and feature of each goods (Frazelle, 2002).

In major military conflicts, logistics matters are often crucial in deciding the overall outcome of wars. More generally for protecting and attacking every war or combat action, the logistics material plays a great role and is fundamental for military strategy. By depending on the economy, internal and external treat of the country and situation, every nation has developed its own logistics principles, organization practices and these have evolve as a result of the nation's foreign and domestic policy, military doctrine, experience and geographical considerations.

Military equipment warehousing or warehouse management is "the physical movement of stock into, through, and out of a military store warehouse. Warehousing is a key element of military materials supply chain management. It ensures the constant availability and flow of essential quality for combat and peace time commodities, in appropriate quantities, in a timely and cost-efficient manner, through the supply chain process. Key warehousing functions include receiving, stocking materials, stock management, and distribution management.

2.2. General Overview of Warehouse Management: Conceptual Issues

2.2.1. Current Issues in Warehouse Management Systems

The main operations that almost every warehouse needs to plan and control are receiving inbound items from suppliers, storing the items, receiving orders from customers, retrieving the requested items and assembling the orders for outbound shipment, and shipping the completed orders to customers . In order to achieve higher performance for warehousing regarding capacity and throughput, and full the service at the minimum resource cost, warehouse resources (such as space, labor, and equipment) need to be carefully chosen, operated, and coordinated. Therefore, a Warehouse Management System (WMS) becomes essential since it provides, stores, and reports the necessary information to efficiently manage the row of products within a warehouse. Currently, in order for any standard WMS to be able to overcome today's challenges and retain its competitiveness, two are the main characteristics it should possess: a) flexibility in terms of being responsive to short-term changes of customer demands in a timely manner and b) adaptability in terms of being able to maintain the service level when mid-term changes/requirements are demanded by customers.

Although a WMS should be more responsive to changes in order to enhance its flexibility and adaptability, conventional paper- or spreadsheet-based WMSs are incapable of providing timely and accurate warehouse operation information since they rely heavily on members to enter information manually or through a barcode system. On one hand, researchers are trying to solve the issues of timeliness and accuracy on warehouse operations by capturing real-time information using Auto-ID systems and wireless sensor networks technologies. On the other hand, even though the information technologies mentioned above can provide more accurate and real-time information regarding operations, unexpected events and disruptions, the important challenge for warehouse managers to make decisions using this information in a short response still remains . On this direction, a significant amount of research has focused on developing decision support models (including heuristics and algorithms) which aim to optimally manage different warehouse operations.

2.2.2. Definition of warehouse management

There are several definitions existing as for warehousing management is concerned from different authors among them the most common & general definition is warehouse is a place that is used to hold necessary and sufficient materials which is needed by the firm including finished

goods for sale, goods in process of production, raw materials, and goods that will be consumed in the process (Teo 2008).

Warehousing management According (Queiroloet.al. 2002), Warehousing can be defined as the process in which three main functions are accomplished: receiving products from a source, storing products as long as necessary until they are requested (internally or externally) and retrieving the products when they are demanded (Chua 2008)..

Warehousing refers to the activities involving storage of goods on a large-scale in a systematic and orderly manner and making them available conveniently when needed. In other words, warehousing means holding or preserving goods in huge quantities from the time of their purchase or production till their actual use or sale. (CII Institute of Logistics, Chennai www.ciilogistics.com).

A warehouse is a commercial building used for the storage of goods. The most important element of warehousing is order processing which generally refers to the workflow coupled with delivering products ordered by a customer. The prime objective of most warehouses is to facilitate the movement of goods from suppliers through the supply chain to the end consumer while meeting the customers' demand in a timely and cost-effective manner. (Institute of Governance Studies BRAC University, Dhaka, Bangladesh March 2013)

A warehouse is “a commercial building for buffering and storage of goods, or an intermediate area for storage of raw materials or products until they are needed for production or consumption” (Chua & Teo 2008).

Warehouses are usually large plain buildings used for commercial purposes for storage of goods. Warehouses are commonly used by exporters, importers, wholesalers, manufacturers etc. Warehouses are usually equipped with loading docks to load and unload trucks and they have cranes and forklifts for moving goods, and are placed on ISO standard pallets loaded into pallet racks.

Some warehouses are fully automated where products are moved from one place to other with a system of automated conveyors and automated storage and retrieval machines which run by programmable logic controllers and also with logistics automation software. In an automated warehouse the tracking of materials is coordinated by warehouse management system (WMS), a database driven computer program. Logistics personnel make use of WMS to improve the

efficiency of the warehouse by maintaining accurate inventory levels taking into consideration warehouse transactions and directing put ways.

Usual warehousing continuously is declining since the last decade of the 20th century with the introduction of Just in Time (JIT) techniques which are specially designed to enhance the return on investment (ROI) of a business by mitigating in-process inventory. JIT concept is based on delivering product directly from the factory to the retail outlet without the use of warehouse, but in some cases like offshore outsourcing and off shoring in about the same time period, the distance between manufacturer and the retailer increases considerably in many regions which builds the need of at least one warehouse per region or per country for a given range of products in any typical supply chain. (Tompkins, Smith, 1998).

Recent developments in marketing field have led to the development of warehouse designing style, where the same warehouse is used for warehousing and also as a retail store. These types of warehouses are equipped with tall heavy duty industrial racks, with the items which are ready for sale are placed in the bottom parts of the racks and the palletized and wrapped inventory items being usually placed in the top parts. Exporters/manufacturers are using warehouses as a point of developing retail outlets in a particular region or country. The above concept cuts down the end cost of the product to the consumer which in turn enhances the production sale ratio. Warehousing concept is used as a sharp tool by manufacturers to reach directly to consumers by avoiding or bypassing importers or other middle agencies. (Tompkins, Smith, 1998).

The recent trends and pressures on supply chain / logistics-forever increasing customer service levels, inventory optimization, time compression and cost minimization –have inevitably changed the structure of supply chains and the location and working of warehouses within the supply chains network.

Certainly the old concept of warehouses as go downs to store goods has been outdated.

Warehouses perhaps better referred to as distribution centers; exist primarily to facilitate the movement of materials to the end customer. There are exceptions such as Strategic stock-holding, but in all commercial applications; effective and more efficient movement of materials to the customer is the key, even if some inventory has to be held to achieve this (Smith, 1998).

However, the concept of throughput rather than storage, and the pressure to optimize inventory with improved customer service level have also seen the development of distribution centers that

do not hold stock-the 'stockless depot' –such as trans-shipment depots with more cross-docking operations. This is very useful for different business groups with the complete facilities, but that can be determined by purpose of the companies and the organization conditions. For example more of the developing countries are obtained from abroad, it is also will be costly and expose for different frequent order and also may create out of stock, in case of this production or the mission can be interrupted. Unavailability of material in hand or store also very danger for economy and to achieve the organization mission (Mattsson, 2005).

2.3. Types of Warehouses

- Private Warehouses - The warehouses which are owned and managed by the manufacturers or traders to store, exclusively, their own stock of goods are known as private warehouses. Public Warehouses - The warehouses which are run to store goods of the general public are known as public warehouses. Anyone can store his goods in these warehouses on payment of rent.
- Government Warehouses -These warehouses are owned, managed and controlled by central or state governments or public corporations or local authorities. Both government and private enterprises may use these warehouses to store their goods.
- Bonded Warehouses - These warehouses are owned, managed and controlled by government as well as private agencies. Private bonded warehouses have to obtain license from the government. Bonded warehouses are used to store imported goods for which import duty is yet to be paid.
- Co-operative Warehouses - These warehouses are owned, managed and controlled by co-operative societies. They provide warehousing facilities at the most economical rates to the members of their society (Alan, R., Phil, C. and Peter, B., 2010).

2.4. Purpose and functions of Warehouse

According to (P.Gospalakishnan and M.Sanderson 1998). Warehouse play vital role in the operation of company it is direct touch with the user department in its day to day activities. The most important purpose solved by the stores is to provide uninterrupted directly with money is locked up in the stores. The functions of stores can be classified as followed- To receive row materials, components, tools, equipments and other items and account for them, To provide adequate and proper storage and preservation to the various items, To meet the demands of the

consuming departments by proper issues account and account for the consumptions, To minimize obsolescence, surplus and scrap through proper codification, preservation and handling, To insure good housekeeping to that material handling, material preservation, stocking, reception, and issue can be done adequately, To assist in verification and provide supporting information for the effective purchase action.

Warehousing, being an essential component of logistics, is a key aspect of modern supply chains and plays a critical role in the success or failure of businesses today (Frazelle, 2002a). Warehousing is one of the important auxiliaries to trade. It creates time utility by bridging the time gap between production and consumption of goods.

Warehousing is costly in terms of human resources and of the facilities and equipments required, and its performance will affect directly on overall supply chain performance. Inadequate design or managing of warehouse systems will jeopardize the achievement of required customer service levels and the maintenance of stock integrity, and result in unnecessarily high costs. (CII Institute of Logistics, Chennai www.ciilogistics.com).

Appropriate warehousing infrastructure involves considerations of efficient layout, appropriate storage installations (e.g., pallets, shelving), good housekeeping, safety, quality control, and stock management. (CII Institute of Logistics, Chennai www.ciilogistics.com).

As identified by Tompkins et al (1984) traditionally the basic warehousing functions include: receiving, identification and sorting, dispatching to storage, placing in storage, storage, retrieval from storage, order accumulation, packing, shipping and record keeping. Warehouse functions are emerged with different idea including like providing protection to goods against heat, wind, storm, moisture, etc. and also cut down losses due to spoilage, wastage etc

Warehouses perform the following functions.

1. **Storage of goods**- The basic function of warehouses is to store large stock of goods. These goods are stored from the time of their production or purchase till their consumption or use.
2. **Protection of goods**- A warehouse provides protection to goods from loss or damage due to heat, dust, wind and moisture, etc. It makes special arrangements for different products according to their nature. It cuts down losses due to spoilage and wastage during storage.
3. **Risk bearing** - Warehouses take over the risks incidental to storage of goods. Once goods are handed over to the warehouse-keeper for storage, the responsibility of these

goods passes on to the warehouse-keeper. Thus, the risk of loss or damage to goods in storage is borne by the warehouse keeper. Since it is bound to return the goods in good condition, the warehouse becomes responsible for any loss, theft or damage, etc. Thus, it takes all precautions to prevent any mishap.

4. **Financing-** When goods are deposited in any warehouse, the depositor gets a receipt, which acts as a proof about the deposit of goods. The warehouses can also issue a document in favor of the owner of the goods, which is called warehouse-keeper's warrant. This warrant is a document of title and can be transferred by simple endorsement and delivery. So while the goods are in custody of the warehouse-keeper, the businessmen can obtain loans from banks and other financial institutions keeping this warrant as security. In some cases, warehouses also give advances of money to the depositors for a short period keeping their goods as security.
5. **Processing** - Certain commodities are not consumed in the form they are produced. Processing is required to make them consumable. For example, paddy is polished, timber is seasoned, and fruits are ripened, etc. Sometimes warehouses also undertake these activities on behalf of the owners.
6. **Grading and branding**- On request warehouses also perform the functions of grading and branding of goods on behalf of the manufacturer, wholesaler or the importer of goods. It also provides facilities for mixing, blending and packaging of goods for the convenience of handling and sale.
7. **Transportation**- In some cases warehouses provide transport arrangement to the bulk depositors. It collects goods from the place of production and also sends goods to the place of delivery on request of the depositors (Alan, R., Phil, C. and Peter, B., 2010).

The warehouse processes according to Berg (2007) are;

1. **Receiving**-This includes the physical unloading of incoming transport, checking, recording of receipts, and deciding where the received goods are to be put away in the warehouse. It can also include such activities as unpacking and repackaging, quality control checks and temporary quarantine storage for goods awaiting clearance by quality control station

2. **Inspection-** Quality and quantity check of the incoming goods for their required characteristics

3. **Repackaging**- Incoming lot may be having non-standard packaging which may not be stored as it is in the respective location. In those cases these materials have to be pre packed in unit loads/pallet loads suitable for storage.

4. **Put away** – Binning and storing the goods in their respective locations including the temp locations from the receiving docking area.

5. **Storage** – Binning the approved material in their respective locations.

6. **Order-Order picking / selection** –Goods are selected from order picking stock in the required quantities and at the required time to meet customer orders. Picking often involves break bulk operations, when goods are received from suppliers in, say, whole pallet quantities, but ordered by customers in less than pallet quantity. Order picking is important for achieving high levels of customer service; it traditionally also takes a high proportion of the total warehouse staff complement and is expensive. The good design and management of picking systems and operations are consequently vital to effective warehouse performance

7. **Sortation** – This enable goods coming into a warehouse to be sorted into specific customer orders immediately on arrival. The goods then go directly to order collation.

8. **Packing and shipping** – Picked goods as per the customer order are consolidated and packed according to customer order requirement. It is shipped according to customer orders and respective destinations.

9. **Cross-docking** –Move products directly from receiving to the shipping dock – these products are not at all stored in the specific locations.

10. **Replenishing** – This is the movement of goods in larger order quantities, for example a whole pallet at a time , from reserve storage to order picking, to ensure that order picking locations do not become empty. Maintaining stock availability for order picking is important for achieving high levels of order fill.

2.5. Characteristics of Ideal Warehouses

In each of warehouses need adequate arrangements to keep the goods in proper conditions.

However, any warehouse is said be an ideal warehouse if it possesses certain characteristics, which are given below: Warehouse should be located at a convenient place near highways, railway stations, airports and seaports where goods can be loaded and unloaded easily, Mechanical appliances should be there to loading and unloading the goods. This reduces the wastages in handling and also minimizes handling costs. Adequate space should be available

inside the building to keep the goods in proper order. Ware houses meant for preservation of perishable items like fruits, vegetables, eggs and butter etc. should have cold storage facilities. Proper arrangement should be there to protect the goods from sunlight, rain, wind, dust, moisture and pests. Sufficient parking space should be there inside the premises to facilitate easy and quick loading and unloading of goods. Round the clock security arrangement should be there to avoid theft of goods. The building should be fitted with latest fire-fighting equipments to avoid loss of goods due to fire, Berg (2007).

CHAPTER III: RESEARCH DESIGEN AND METHODOLOGY

3.1. Description of the Study Area

This study has been focused on the consideration of warehousing management perform on the case defense main logistics department of spare part stockroom. The crucial task of the spare part warehouse system is to provide support to the army and thereby help to accomplish all military operations effectively. To guarantee this mission and hold the national defense to achieve its function objectives, the spare part warehouse operates as one of fundamental parts of the national warehousing system. The warehouse consists of military and civil vehicle spare parts, combat vehicle spare parts, different armament, and heavy guns spare parts for actual receiving, storage, delivery and managing of the total warehousing management systems that is originally controlled by the maintenance, engineering and recovery department head.

Department coordinators are planning and distribution of all the spare part equipment to the Ethiopian Army. Those of all material goods are critical, and obtained from the country economy by purchasing from local and outside factories. It is already known, Army is not profit oriented as any private production or any other companies. Its main objective is to serve the army needs and enable the army to successful accomplishment its missions. the specific tasks of the spare part warehouse unit is to provide sufficient and actual spare parts for military users by coordinating its warehouse managers and the assign warehouse personals to ensure the appropriate delivery of material supply in both peace and war time. It is clear that all users should get the required spare parts according to the service time of vehicles, combat vehicles and armaments other military technical equipments schedule and different unprepared conditions like industrial accident.

Furthermore warehouse plays significant roles to facilitate the necessary materials of the army to give fast response for the demand request from the clients; it is also can be realized by the proper management of that material starting from the receiving until they are delivered. The National defense forces of Ethiopia basically use all different type of civil and military transport vehicles, combat vehicles, armaments and heavy guns, and tiers. All consumptions of different items spare parts are used to achieve the assigned missions. According to the department head and warehouse manager, warehouse personnel's are accountable to manage and implement the warehouse activity in appropriate technique.

3.2. Research design

A mixed method of research design I used in this study. This type of research design has been employed to carry out the study. “It is a procedure for collecting, analyzing, and “mixing” both quantitative and qualitative methods in a single study or a series of studies to understand a research problem” (Creswell 2011). The basic assumption is that the uses of both quantitative and qualitative methods, in combination, provide a better understanding of the research problem and question than either method by itself. The researcher believed that for a better understanding of the issue covered in the study, this type of method is appropriate. Because this method enables to assess, describe, and interpret the warehousing management system, in order to assist the department and better design for appropriate warehousing management practice and a sustainable support of spare parts to the users at maintenance, engineering and recovery dept spare part warehouse.

Having identified the study as a mixed method, next the researcher determined the type of mixed methods design based on answering the basic questions like priority or weight, sequences of collecting data, ways of analyzing data and how to mix the data. Based on this reasons the researcher implemented the embedded design. According to John Creswell, (2011) the purpose of the embedded design is to collect quantitative and qualitative data simultaneously or sequentially, but to have one form of data play a supportive role to the other form of data. The reason for collecting the second form of data is that it augments or supports the primary form of data. In this study the second form of data (quantitative data) supported the qualitative data. So to meet these objectives, the research methodology has been carefully designed.

3.3. Source of data

In this study both primary and secondary source of data I used. The primary source of data has been collected from department heads, warehouse managers, and some warehouse personnel of Adama spare parts and other customers’ workers at Jan mida and Mexico garages, for the two garages has been prepared another question different from the main spare part warehouse of maintenance; engineering and recovery dept. Secondary data source was collected through assessed warehouse document, monitoring and evaluation report.

3.4. Study Population sample size and sampling

The necessary sample for the survey research has been selected by employing probability sampling techniques of sampling designed. The sample respondent has been determined by employing sampling technique depending on the sampling frame acquired from the administration of logistics department. Taking the overall homogeneity of the study population in to consideration, 94 sample respondents from the total 125 study population was selected at each selected destination, but four samples questionnaire not returned. Stratified random sampling technique I used by dividing the department and to give equal chance of being selected for each stratum. This sampling method was gave equal chance for selected department units and also it was free from sampling bias.

Krejcie and Morgan's (1970) published a formula for an effective and efficient method of determining a representative sample size of a given population using the following formula. Thus, in the present study the sample size was determined by using this formula.

$$S=\frac{X^2(NP(1-P)}{D^2(N-1)+x^2P(1-P)}$$

Where:

s = required sample size

X2 = the table value of 95% confidence interval

P = the population proportion (assumed to be 0.5 for it provides the maximum sample size)

D = the degree of accuracy expressed as a proportion (0.05)

N = the population size

Hence, in this study

X2 = 1.96 N= 125

D2 = 0.05 P = 0.5

$$=\frac{(1.96)^2(125)(0.5)(1-0.5)}{(0.05)^2(125-1)+(1.96)^2(0.5)(1-0.5)}$$

$$=\frac{3.8416\ (31.25)}{0.31+0.9604}$$

$$=\frac{120.05}{1.2704}$$

=94

Therefore, the result of the equation is 94 and 94 samples was taken from 125 population size for the questionnaire survey, but four participants not return question. The samples were drawn from existing employees of the warehouse, for two garages and department heads of maintenance engineering and recovery department. In order to make proportional stratified random sampling the sample has been divided in to the total number of department.

Purposive sampling technique was employed to select department heads and warehouse managers based on their position and knowledge about the topic and the responsible individuals for various positions has been conducted to the required data and information necessary for the study. Through these sampling techniques the researcher has been conducted the study in two consumer garages at Addis Ababa, one Adama spare part warehouse, and Addis Ababa department heads of maintenance, engineering and recovery department which are selected purposively for the interview questions.

Table of Respondent type

No	Target Departments	Population size	Sample size	Discard
1	Maintenance, engineering and recovery department	15	11	-
2	Adama spare part warehouse supplier managers and employers	35	27	-
3	Jan meda heavy vehicle repair garage end-users	40	28	2
4	Mexico light and medium vehicle referral garage end-users	35	24	2
	Grand Total	125	90	4

3.5. Data collection methods and Instruments

3.5.1. Questionnaire

Survey questionnaire research was the best way to collect a large amount of data from a large number of people in a short amount of time and peculiar to ask for people's self reported behavior or attitudes (Neuman 2006; Vanderstoep and Johnstone 2009). In developing countries, where information recording and keeping is very fragile and unreliable, survey is a standard tool to measure warehouse management practices and its challenges. The necessary data for the survey was collected by employing administered questionnaire. According to Vanderstoep and Johnstone (2009) this technique of face to face interview helps to come up with very thorough

data, and allows for probes and follow-up questions to tailor questionnaires based on respondents' unique knowledge or experience. The questionnaire has been administered both in Amharic and English to ease the interview processes. Finally the necessary orientation has been given to interviewers on how to interview the selected samples. The Questionnaire is a very useful tool to study in breadth and to give an overview about the issue to be studied. Thus, both closed ended and open ended questions were prepared to assess and described the warehousing management practice of the maintenance, engineering and recovery dept.

3.5.2. Interview

The Researcher was conducted key informant interview from key institutional stakeholders and who was selected in the course of this issue. I was took a serious of key informant interviews with a reasonable number of selected representatives until the data become saturated. These key informants were selected based on their relative possession of knowledge and practices about the practices of warehouse management under study. Key informant interview guide was prepared to accomplish the interview.

3.5.3. Secondary Data

Relevant secondary data related to warehouse management practices was assesses critically and utilize extensively in the study. To this end: Published and unpublished sources ,Journals, books, articles, and reports, assessment findings and brochures, Conference papers and bulletins , archival documents , has been used extensively, retrieved systematically and reviewed critically. The data collection technique used by this instrument was mainly focused on the assessment of performance appraisal documents and monitoring and evaluation reports taken during the preparation and implementation of result oriented performance appraisal. At this point in Ethiopian national defense warehouse documents was only personal evaluation. We cannot interoperate separately.

3.5.4. Observation

According to Russel (2005) Observation method of research is the way to the study of social process overtime and at large events taking place within a relatively limited area and time in which many people are present. Thus I decided to use observation method to collect data concerning the issue under study. Observational and recording parameters or checklists were set since it is impossible to observe and record everything. Recording both what I was saw and hear

and note taking on what I was observed and interpret has been used in the process to make observation. I was took field notes about the change on service delivery warehouse management in Adama, manager's encouragement and supervisors support to manage to implement the acquired Adama warehouse spare part.

3.6. Pilot test

Before the distribution of the questionnaires to the sampling population pilot test has been conducted maintenance engineering and recovery department heads, managers and worker of spare part warehouse for 10 people, this assessment help the researcher to get feedback as to whether or not the questionnaires is clear and helping to refine the questionnaire for the purpose of the research. The result of pilot test showed that 0.87. The according to this result there was no significant difference.

3.7. Method of data analysis

The quantitative data, was gathered through the use of survey questionnaire, has been analyzed by using descriptive statistics which incorporates the use of frequency and percentages was administered to make statistical test and inference of the quantitative data. The statistical analysis tool SPSS version 20.0 has been employed for doing the task of analysis. The qualitative data collected through other methods and has been mixed with quantitative data descriptive in word and lastly in the findings and conclusion presented concurrently alongside with the quantitative and qualitative data by hiring thematic analysis technique.

Data analysis was begun with a report on the number of returns and non-returns of the questionnaire instrument. After capturing this information about questionnaire response, the data analysis took in the form of a descriptive analysis of information collected by the questionnaire. Demographic and descriptive data has been analyzed by measuring the frequency distributions for the responses. Personal interview data was analyzed by reviewing notes from interviews and categorizing other quantitative data from the various topics revealed. This organized data then reviewed to identify specific information related to the warehouse management practices and to identify the benefits and challenges they faced in the implementation of warehouse jobs and the quantitative data has been analyzed by using statically methods.

3.8. Ethical Considerations

Before the start of data collection, the proposal was submitted to Addis Ababa university school of commerce department of logistics to be evaluated and get the necessary feedbacks. Supportive letters was delivered to warehouse department heads and other concerned data sources of the study. Oral consent was obtained from the respondents and confidentiality was assured for any information regarding this research. The researcher has been get full permission from the department management to dispatch the questionnaire, conduct interview and made document analysis from the concerned bodies. Accordingly, the researcher was met the selected participants and administered the questionnaire to respondents by orienting the purpose of the study, how they fill it out, where and when to submit the papers after they filled. By the same procedure all the papers was delivered to the researcher and the returned papers hopefully well done. The document analysis and interviews also conducted simultaneously.

3.9. Validity and Reliability

3.9.1. Validity

Two types of validity were addressed in the literature: internal and external validity. Internal validity deals with the question of to what extent the findings of the research match or accurately represent the reality or the phenomenon under investigation (Merriam 1998; Bush 2002). Bush proposes some methods that help to enhance internal validity as indicated below.

- Carefully choosing data sources and data generation methods;
- Recording decision making processes during the research;
- Carefully designing the questioners in order to avoid subjectivity and bias;
- Using triangulation of data sources and data generation methods;

As discussed above, the researcher has been tried to employ most of these methods. The implication of the internal validity the research result was high.

3.9.2. Reliability

Reliability of a study refers to the extent to which similar findings would be obtained if the same research problem is repeated or studied by others using exactly the same procedures that would be previously used (Gall et al. 1996; Merriam, 1998; Yin 2003). Reliability in social science qualitative researches is challenged given the fact that human behaviour is not static and other phenomenon keep on also changing. Nevertheless, although time lapse may have its impact on

the reliability of the study, the researcher was followed the right procedures and employed appropriate methodologies to ensure the reliability of the study, and to realize the study the questionnaires has been tested by cronbach alpha.

CHAPTER IV : DATA ANALYSIS, INTERPRETATION AND DISCUSION

Introduction

This chapter deals with the data analysis and interpretations of the information collected from maintenance engineering and recovery department, spare part warehouse Adama, "janmeda" heavy vehicles repair garage and mexico medium and light vehicles garage. The data collected from sample respondents via questionnaires are analysis and interpreted with the data interview and observation. Interview which had been conducted with two officers heads of Adama spare part warehouse, one officer from maintenance engineering and recovery department head and two officers from jan-meda heavy vehicles repair garage and mexico medium and light vehicles repair garage. The observation also was conducted Adama spare part warehouse. Thus outcome of all methods are presented here under.

4.1. Demographic characteristics of the respondents

Table 1: demography

Sex	**N**	**%**
Male	65	72.2
Female	25	27.8
Total	90	100.0
Age	**N**	**%**
18-25	13	14.4
26-30	11	12.2
31-35	33	36.7
36-40	19	21.1
41 and Above	14	15.6
Service year	**N**	**%**
Below 5 Years	17	18.9
6-10 Years	20	22.2
11-15 Years	4	4.4
16-20 Years	24	26.7
21 and Above	25	27.8
Total	90	100.0

Education qualification	N	%t
Grade 1-8	12	13.3
Grade 9-12	15	16.7
Diploma	26	28.9
BA/BSc	23	25.6
MA/MSc	14	15.6
Total	90	100.0

(Data source : questionnaire on personal background analysis in 2016)

There are 90 participants in this study as shown in the above table. The samples of this study were selected from in the Ethiopian national defense maintenance engineering and recovery department head, spare part warehouse and other branches (the two garages). Regarding sex distribution 65(72.2%) respondents were male and 25(27.8%) were female.

Age wise most of the respondents 33(36.7%) respondents are aged 31-35 followed by respondents aged above 41 which is 14(15.6%). 19(21.1%) respondents were 36-40, 13(14.4%) respondents 18-25. The remaining 11(12.2%) are aged from 26-30 years.

As revealed in the above graph majority of the respondents 25(27.8%) have served in national defense warehouse for more than 21 years, 24(26.7%) them served from 16-20, 20(22.2%) from 6 to 10 years and 17 (18.9%) below 5 years and 4(4.4%) respondents 11 to 15 years.

concerning education level 14(15.6%) hold second degree, 26(28.9%) diploma, 23(25.6%) first degree, 15(16.7%) secondary school and 12(13.3%) are primary school. To set up with the manpower, as the other fundamentals are attributes of knowledgeable manpower, it is taken as the center of gravity to the effort of building defense forces warehouse. The availability of manpower for the common defense of the country's national security, therefore, is determined by the size of its usable manpower-quantity and quality of the manpower. The quality of the manpower includes the education and other standards set by the needs of the defense forces to recruit manpower.

4.2. Data Interpretation, analysis and discussion of supplier responds

4.2.1. Warehousing management practice on the case of the organization

Table- 2- Warehouse management activities of suppliers

No	Questionnaires supplier	Strongly agree		agree		Neutral		disagree		Strongly dis-agree		total	
		N	%	N	%	N	%	N	%	N	%	N	%
	Sub section 2-1- warehouse management activities												
1	Do you use a computerized data base to manage the warehouse materials?	3	7.9	8	21.1	4	10.5	17	40.7	6	15.8	38	100
2	Is there a linked data communication between warehouse managers and warehouse data workers?	3	7.9	12	31.6	6	15.8	14	36.8	3	7.9	38	100
3	Do you have close relationship with all of the consumers?	3	7.9	8	21.1	7	18.4	16	42.1	4	10.5	38	100
4	Is there any complain coming from the customers in case of un-genuine and damaged materials?	5	13.2	23	60.5	3	7.9	4	10.5	3	7.9	38	100
5	For the coming customers' complain, have you a procedure or complain solving mechanism?	4	10.5	12	31.6	8	21.1	8	21.1	6	15.8	38	100
6	Do you have chained information communication with customers?	-	-	6	15.8	6	15.8	20	52.6	6	15.8	38	100
7	The warehouse workers, are they a professionals for the assigned position?	3	7.9	9	23.7	5	13.2	15	39.8	6	15.8	38	100

(Data source: questionnaire 2016)

The Table above is about the data base administration where has been placed. Regarding this question 3(7.9%) of the participants said strongly disagree. Whereas 8(21.1%) of the respondents reported that agree, 4(10.5%) said neutral, 17(40.7%) disagree, 6(15.8%) strongly disagree. The data shows that most of respondents responded that there is no data base technological administration in the warehouse. In other way interviewer I responded that there is no computer base data system in this warehouse. Technological information communication not implemented, and then we asked one spare part or equipments in the in guess. In addition to the second Interviewers answer: at all no communication in the data base system in the computer, our relation only on paper or orally. We have a great gap our supplier and consumer in this spare part warehouse specially. The goal of automating warehousing operations is to enhance efficiency of material handling through reduction of labor costs and increased throughput. The progress of systems created for warehousing is not very different from many other data base technology solutions in the sense that most of them are based on few core functionalities on top of which developers have started to add small features that they have seen as valuable for accomplishing specific tasks.

Advances in warehouse data base have made many developments in the warehouse efficiency possible. It is useful to think of warehouse data base technologies consisting of two elements. The first element involves the use of computers for planning and directing activities. The second is the degree of mechanization or automation. Naturally, the goal of automating warehousing operations is to enhance efficiency of material handling through reduction of labor costs and increased throughput. The progress of systems created for warehousing is not very different from many other data base technology solutions in the sense that most of them are based on few core functionalities on top of which developers have started to add small features that they have seen as valuable for accomplishing specific tasks (Jammes, 2013),.

A warehousing system refers to the combination of equipment, workers and operating policies that are used in a storage/retrieval environment. The simplest storage method is block stacking which is a typical method for stocking bulk items. Although block stacking is very cheap it results in low accessibility to items due to the honey combing effect. To enhance accessibility, most warehouses consist of parallel aisles with products stored along sides. Small items can

usually be placed in bin shelves storage drawers fairly efficiently while larger items are typically placed on pallet racks. Regarding the second question 3(7.9%) of the respondents reported that strongly agree, 12(31.6%) agree, 6(15.8%) neutral, 14(36.38%) disagree, 3(7.9%) strongly disagree. communication is always a great tool for the growth of any organization. Solidarity allows the sharing of information and helps to bright idea among the departments, teams and costumers in a warehouse. Proper computer technological relation is a good means to improve the skills and know how of warehouse personnel which in turn improves the overall standards of the warehouse. (Gunasekaran ,Marri, Menci, 1999).

The prime objective of most warehouses spare parts is to facilitate the movement of goods from suppliers through the supply chain to the end consumer while meeting the customers' demand in a timely and cost-effective manner. Regarding the third question 3(7.9 %) of the participants said strong agree, 8(21.1%) of the respondents responded that agree, 7(18.4%) said that neutral, 16(42.1%) disagree, 4(10.5%) strongly disagree. Most of respondents responded that the great communication between costumers and warehouse workers. Warehouse spare parts management is concerned with ensuring the communication of costumers that all the activities involved in warehousing are carried out efficiently and effectively by those employed in the warehouse.

The fourth question showed that,5(13.2%) of the respondents said strongly disagree, 23(60.5%) of the respondents reported that agree, 3(7.9%) neutral, 4(10.5%) disagree, 3(7.9%) strongly disagree. Most respondents responded they agree the customers was can explain their complains for responsible body the damaged materials. Problem of concentration of customers in only certain markets and inhomogeneous customer structure firstly they check un-genuine and damaged materials.

The Fifth question showed that 4(10.5%) respondents responded that strongly agree, 12(31.6%) agree, 8(21.1%) neutral, 8(21.1%) disagree, 6(15.8%) strongly agree. According to respondents they can explain their complains according to procedures. Basic procedure is without doubt partially responsible for some of operational accuracy issues. A procedure needs analysis of store related staffs should be undertaken. After that all personnel involved in store management (both internal and external staffs) should be procedure educated. Records of all procedure should be kept not only in Human Resource Management but also in any responsible body (Dobler, 1985).

The sixth question revealed in the chained information communication with customers according to respondents 6(15.8%), 6(15.8%), 20(52.6%), 6(15.8%), responded that agree, neutral, disagree and strongly agree respond to this question respectively. Warehouse plays a crucial role as part of the physical link or 'interface' between an organization and its customers. This interface is recognized as having important customer service and customer contact roles. Availability and delivery of goods to the 'right place at the right time in the right quantity' is vital to customers. The concept of customer service demonstrates a clear example of adding value. Costumer communication has enabled faster communication and information sharing among people and among organizations. Effective, reliable, and timely communication is vital in storage and distribution function in order to both satisfy customers and reduce inventory holding costs (Pannose, 2011).

The seventh question respondents responded that 3(7.9%) strongly agree, 9(23.7%) agree, 5(13.2%) neutral, 15(39.8%) disagree and 6(15.8%) strongly disagree. According to participants a great problem in Warehouse worker profession, Scholars argued that warehouse worker profession and knowledge Modern warehousing and storekeeping procedures were including shipping, receiving, issuing materials, proper and orderly storage, optimum space utilization and stock, inventory procedures. Materials, equipment and supplies used in a school district, Proper lifting techniques, Record-keeping techniques, Health and safety regulations, Interpersonal skills is using tact, patience and courtesy, Inventory methods and practice (Baker,1993).

The interviews data also showed that the head of warehouse have first degree, but other workers have not qualification, there educational levels under certificate, the workers take a short training. Position qualification standards encourage uniformity and equity in the qualification of positions by providing an established standard for common reference and use in different organizations, locations, or agencies. This "sorting out" and recording of like duties and responsibilities provides a basis for managing essential Federal personnel management programs, such as those for recruiting, placing, compensating, training, reassigning, promoting, and separating employees. Professional work requires knowledge in a warehouse management learning characteristically acquired through education or training equivalent to a bachelor's or higher degree with major study in or pertinent to the specialized field, as distinguished from general education.

Work is professional when it requires the exercise of discretion, judgment, and personal responsibility for the application of an organized body of knowledge that is constantly studied to make new discoveries and interpretations, and to improve data, materials, and methods.

There are situations in which an employee meets the formal education requirements for a particular professional field but does not perform professional work. This may be due to a lack of professional work to be done, or it may be because the organization and structure of the assignment does not require a professionally qualified employee. In such situations, the position is classified in an appropriate nonprofessional series, based on the duties and responsibilities assigned and the qualifications required to do the work.

4.2.2. Gaps in Warehousing Management Practices of the case Organization

In medium and large spare part warehouse, effectiveness of production orders is dictated largely efficient technical maintenance of machinery and devices. Disposing adequate places of spare parts storage allows ensuring a proper conservation and repair of damaged equipment. It should be noted that storage may operate correctly only when technical documentation is available. Due to complexity and dependence of particular machines and equipment, its lack may result in large financial losses. Storage of production inventory plays an important role in realization of fundamental production processes in a company. The purpose of maintenance a high level of resources of raw materials ensures consistent production flow and protection from unexpected events, while reducing an uncertainty connected with quality and term of realized deliveries (Tompkins, and Smith, 1998, 2013).

Table -3- spare part storage activities

No	Questionnaires supplier	Strongly agree		agree		Neutral		disagree		Strongly disagree		total	
		N	%	N	%	N	%	N	%	N	%	N	%
	Sub section 2-2. **spare part storage activities**												
1	During the time of materials receiving, do you have inspection procedures?	8	21.1	12	31.6	3	7.9	14	36.8	1	2.6	38	100
2	Is prepared, convenient material receiving space?	9	23.7	10	26.3			16	42.1	3	7.9	38	100
3	Is there favorable road infrastructure to move the materials from received place to store location?	4	10.5	8	21.1	6	15.8	12	31.6	8	21.1	38	100
4	Do you use loading and unloading equipments to transport and to put the materials at the needed place?	8	21.1	16	42.1	4	10.5	9.	23.7	1	2.6	38	100
5	Is the storage space Partitioned properly for different activities and materials?	7	18.4	12	31.6	3	7.9	11	28.9	5	13.2	38	100
6	There is optimal utilization of storage space?	1	2.6	4	10.5	4	10.5	17	44.7	12	31	38	100
7	The current storage construction, is convenient for good housekeeping and easily movement of materials?	10	26.3	20	52.6	-	-	4	10.5	3	7.9	38	100

(Data source: questionnaire 2016)

The first question In the case of materials receiving and inspection procedures the participants responded that 8(21.1%) strongly agree, 12(31.6%) agree, 3(7.9%) neutral, 14(36.8%) disagree and 1(2.6%) strongly disagree. Majority respondents responded that disagree in time of material receiving and inspection procedures there is problem to get spare parts in the ware house. Management of spare parts storage, due to specific features of this stock, requires taking into account many additional factors of demand, which in case of regular stock are not. Differences can be observed during the procurement process, while buying a much smaller number of highly differentiated products, due to current needs of maintenance schedule (Saxena , 2003).

The second question in the material receiving space, the respondents responded that 9(23.7%) strongly agree, 10(26.3%) agree, 16(42.1%) disagree and 3(7.9%) strongly agree. According to most respondents reported that no material receiving space for spare part storage in defense spare part warehouse management system. Exchange materials order accounting is not an effective method of achieving individual spare parts receiving, material receiving space very important for exchange spare parts in the warehouse.

The third question road infrastructure to move the materials from receiving and allocation to store, the participants reported that 4(10.5%), 8(21.1%), 6(15.8%), 12(31.6%), 8(21.1%) responded that strongly agree, agree, neutral, disagree and strongly disagree respond to this question respectively. Majority respondents reported that disagree in the road infrastructure to move materials in the warehouse.

The fourth question loading and unloading equipments for transport the participants reported that 8(21.1, 16(42.1%), 4(10.5%), 9(23.7%), 1(2.6%) responded that strongly agree, agree, neutral, disagree and strongly disagree respond to this question respectively. According to most respondents reported that in the transportation loading and unloading equipments agree. In the warehouse safely loading and unloading logging equipment for transport. The documents and interview shoed that loading and unloading machines have its weakness like no speed, small in number and backward. The operator only practiced, not requirement the problem training, service time and situation anonymous.

In my observation showed that equipments spare parts loading and unloading we use in the warehouse. The operators of fork left untaught. The operators are necessary to become more technological-oriented and more responsive to requests with different characteristics and needs in a powerfully loading and unloading. Form this idea the warehouse management and utilization high variety operations takes place, the main target technological sloping and more quick to respond way of warehouse managements very essential in this suggestion.

The fifth question optimal utilization of storage space the respondents reported that 7(18.4%) strongly agree, 12(31.6%) agree, 3(7.9%) neutral, 11(28.9%) disagree, 5(13.2%) strongly disagree. According to most respondents reported that optimal utilization of storage space in modernity way to use in the warehouse spare parts. Floor stacked storage; used container for storage is perhaps the most basic form of warehouse storage consisting of minimal physical infrastructure requirements and is unadvisable. It is generally used when dealing with large quantities of palletized products and when available warehouse height is the main concern.

The seventh question, current storage construction, is convenient for good housekeeping and easily movement of materials the participants reported that 10(26.3%) strongly agree, 20(52.6%) agree, 4(10.5%) disagree, 3(7.9%) strongly disagree, the data showed that majority respondents reported that they agree in the current storage construction, it is convenient for good house keeping and easily movement of materials. Storage of warehouse inventory plays an important role in realization of fundamental construction processes in a warehouse. The purpose of maintenance a high level of resources of raw materials ensures consistent warehouse flow and protection from unexpected events, while reducing an uncertainty connected with excellence and expression of realize deliveries.

4.2.3. Challenges of Warehousing Management of the case Organization.

Ensuring safety and security of the materials and equipments stored in the warehouse, and the manpower involved in the warehouse is also an important function of warehouse management.

Table-4- warehouse safety in suppliers.

No	Questionnaires supplier	Strongly agree		agree		Neutral		Disagree		Strongly disagree		total	
		N	%	N	%	N	%	N	%	N	%	N	%
	Sub section 2-3- warehouse safety measures												
1	To protect unexpected fire accidents in the warehouse, have prepared complete fire protection equipments?	2	5.3	10	26.3	4	10.5	12	31.6	10	26.3	38	100
2	During emergency, do you have a prepared exit door?	-	-	5	13.2	5	13.2	14	36.8	14	36.8	38	100
3	Is there a clear alarm signs to get helps?	4	10.5	7	18.4	6	15.8	8	21.1	13	34.2	38	100
4	To protect warehouse workers damages, have they a complete safety wearing and personal damage protection equipments?	-	-	4	10.5	3	7.9	11	28.9	20	52.6	38	100
5	The warehouse workers, are trained to save themselves and warehouse damages?	2	5.3	6	15.8	3	7.9	12	31.6	14	36.8	38	100

(Data source: questionnaire 2016)

According to national defense main logistics department spare parts warehouse Ensuring safety and security not only materials and equipments but also worker are very important components and they have to be worn along with warehouse management. First question regarding this participants were asked Ensuring safety and security of the materials and equipments of warehouse. To protect unexpected fire accidents in the warehouse, have prepared complete fire protection equipments participants reported as 2(5.3%) strongly agree, 10(26.3%) agree, 4(10.5%) neutral, 12(31.6%) disagree, 10(26.3%) strongly disagree. Then most respondents responded that disagree in protection unexpected fire accidents in the warehouse. Generally the spare part warehouse were not safely and security to protect unexpected fire accidents in the warehouse.

The second question posed for participants is related to during emergency they have exit door the participants reported that 5(13.2%) agree, 5(13.2%) neutral, 14(36.8%) disagree, 14(36.8%) strongly disagree. According to participants most responded that there is no emergency exit door in the warehouse, but It is very important for in the time of accident, in the Ethiopian national defense huge equipments and military tools, then in the time of accident the exit door very necessary for emergency time.

The third question clear alarm signs to get helps in the accident the spare part warehouse respondents responded that 4(10.5%) strongly agree, 7(18.4%) agree, 6(15.8%) neutral, 8(21.1%) disagree, 13(34.2%) strongly agree. Majority respondents reported that 13(34.2%) strongly agree; it showed that no clear alarm sign to get helps in the time of accidents. The purpose of the employee alarm systems standard is to reduce the severity of workplace accidents and injuries by ensuring that alarm systems operate properly and procedures are in place to alert employees to workplace emergencies. My observation and interviewer responded that for protecting and attacking every war or combat action, the logistics material plays a great role and is fundamental for military strategy. By depending on the economy, internal and external treat of the country and situation, every nation has developed its own logistics principles, organization practices and these have evolve as a result of the nation’s foreign and domestic policy, military doctrine, experience and geographical considerations.

The fourth question to protect warehouse workers damages, they have not a complete safety wearing and personal damage protection equipments according to respondents responded, the data showed that 4(10.5%) agree, 3(7.9%) neutral, 11(28.9%) disagree, 20(52.6%) strongly disagree. Majority respondents reported that strongly disagree in the protection equipments in the warehouse safely wearing and personal damage. Employees working around hazard materials or machinery shall not wear loose clothing (e.g. saris, dangling neckties, necklaces) or unrestrained long hair. Loose clothing, jewelry, and unrestrained long hair can become ensnared in moving parts of machinery or contact chemicals. Finger rings can damage gloves and trap chemicals against the skin (Sharma,2006**).** Where contact with hazardous materials with your protective clothing is likely, such as during spill cleanup or pesticide application, polyethylene- coated or similar protective clothing should be used to provide additional protection. The limitations of the protective clothing must always be understood, particularly in situations where contact with the material is likely. Employees should know the appropriate techniques for removing protective apparel, especially any that has become contaminated. Special procedures may need to be followed for cleaning and/or discarding contaminated apparel. Chemical spills on leather clothing accessories (watchbands, shoes, belts and such) can be especially hazardous because many chemicals can be absorbed in the leather and then held close to the skin for long periods. Such items must be removed promptly and typically be discarded to prevent the possibility of chemical burns. In addition, protective aprons and sleeves may be required when working with large volumes of corrosive material (Nair, 1998).

Fifth question the warehouse workers are trained to save themselves and warehouse damages the respondents reported that 2(5.3%) strongly agree, 6(15.8%) agree, 3(7.9%) neutral, 12(31.6%) disagree, 14(36.8%) strongly disagree. Majority respondents responded that 14(36.8%) strongly disagree in the training of worker in the time warehouse spare parts damage. The lack of basic skills training is undoubtedly partially responsible for some of operational accuracy issues. A training warehouse damages needs analysis of store related staffs should be undertaken. After that all personnel involved in store management (both internal and external staffs) should be trained warehouse protection in the time of accidents. Records of all trainings should be kept not only in Human Resource Management but also in Store. For example in the time of interview as some of the staffs are not efficient in using computer they should be given necessary training (Murthy,200

4.3. Data Interpretation, analysis and discussion of customers responds

4.3.1. Warehousing Management Practices of the Case Organization

Table-5-warehouse management practice

o	Questionnaires for consumers	Strongly agree		agree		Neutral		Disagree		Strongly disagree		total	
		N	%	N	%	N	%	N	%	N	%	N	%
	Sub section 2-1- warehouse management activities												
1	They have computerized data base system to manage and control the warehouse materials.	2	3.8	11	21.2	7	13.5	21	40.4	11	21.2	52	100
2	There is proper data communication between warehouse managers and warehouse data workers.	-	-	8	15.4	11	21.2	21	40.4	12	23.1	52	100
3	As consumer, you have close relationship with spare part warehouse.	1	1.9	11	21.2	10	19.2	21	40.4	9	17.3	52	100
4	There were complains claimed by you because of un-genuine/poor spare part warehouse administration and damaged materials.	1	1.9	2	3.8	24	46.2	9	17.3	12	23.1	52	100
5	They have a procedure or solving mechanism for customers' complains	1	1.9	11	21	8	15.4	25	48.1	7	13.5	52	100
6	You have a chained information communication with spare part warehouse.	-	-	13	25	4	7.7	26	50	9	17.3	52	100
7	The warehouse workers are professionals for the assigned work position.	1	1.9	2	3.8	24	46.2	9	17.3	12	23.1	52	100

(Data source: questionnaire 2016)

In the first question the consumer responded that computerized data base system to manage and control the warehouse materials the participants reported that 2(3.8%) strongly agree, 11(21.2%) agree, 7(13.5%) neutral, 21(40.4%) disagree, 11(21.2%) strongly disagree. Majority respondents reported that no data base system in the ware house to manage and control the material.

In the second question the communication between warehouse managers and warehouse data worker the participants reported that 8(15.4%) agree, 11(21.2%) neutral, 21(40.4%) disagree, and 12(23.1%) strongly disagree. Majority respondents reported that disagree in the communication between warehouse managers and data worker. Communication between warehouse managers and warehouse data worker empowers your warehouse managers to get out of the office and back on the warehouse floor with the rest of your staff by enabling the extension of all the necessary desktop tools right to the palms of their hands. Utilizing devices that have data capabilities and are built to endure the harsh environment of the warehouse, managers can access all data base systems and workers with the push of a button. Now managers and worker can remain on the warehouse floor to protect productivity and throughput, yet maintain the real-time connection to co-workers, vendors, and associates needed to maximize on-the-job efficiency and effectiveness (Stock, and Lambert, 2001).

The third question in the relationship consumer and spare part warehouse the respondents reported that 1(1.9%) strongly agree, 11(21.2%) agree, 10(19.2%) neutral, 21(40.4%) disagree, and 9(17.3%) strongly disagree. Interviewer I responded that, we have relation our costumer, but it is very weak. The relations depend to not the interest of costumer, the interest of departments head. The other great problem of in the spare part warehouse supplier now they named equipments by code, but costumers now by name of equipments, there is no common understanding between them. It is a great gaps the suppliers and costumer.

Interviewer II also responded that the relation our costumers and suppliers depend to head of departments in the time equipments distribution. This relation twice in a year, but same times in the shortage of spare parts the head of leader decision we have relation in the special case. The other relation is in the warehouse between supplier and costumer in monthly report, phone and in the formal letters. The great problem of our relation is in question of spare parts in the warehouse very weak. The message from our study is that those who already excel at managing customer

relationships were best equipped to capitalize on the opportunities of the data base. These leaders were able to anticipate earlier how to use the relation to connect with their customers exploited it faster and implemented the initiative better. Relationship consumer and spare part warehouse management is a science primarily about specifying the shape and percentage of stocked goods. It is required at different locations within a facility or within many locations of a supply network to precede the regular and planned course of production and stock of materials. relationship consumer and spare part warehouse of inventory management concerns the fine lines between replenishment lead time, carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, available physical space for inventory, quality management, replenishment, returns and defective goods, and demand forecasting. Balancing these competing requirements leads to optimal inventory levels, which is an ongoing process as the business needs shift and react to the wider environment (Baker, 1993).

The fourth question complains claimed by consumers because of un-genuine/poor spare part warehouse administration and damaged materials the participants reported that 1(1.9%) strongly agree, 2(3.8%) agree, 24(46.2%) neutral, 9(17.3%) disagree, and 12(23.1%) strongly disagree, the data showed that majority participants reported that neutral in the case complain claimed ungenuine equipments or damage material.

The Fifth question procedures solving mechanism for customers complain the participants reported that 1(1.9%) strongly agree, 11(21.2%) agree, 8(15.4%) neutral, 25(48.1%) disagree, and 7(13.5%) strongly disagree. According to majority respondents reported those disagree in the procedures solving mechanism for customers complain. Complaints must be investigated by an employee of sufficient competence who, where appropriate, was not directly involved in the matter, the person who responds to complaints must have the appropriate authority to settle complaints or have ready access to someone who does, and responses to complaints should adequately address the subject matter and offer appropriate redress, which may include compensation. The firm should ensure that all relevant employees know about the procedure, there should be appropriate management controls, complaints should be handled fairly, consistently and promptly and firms should identify and remedy recurring or systemic problems (Hanna, 2003).

The sixth question the chained information communication with spare part warehouse the participants reported that 13(25%) agree, 4(7.7%) neutral, 26(50%) disagree, and 9(17.3%) strongly disagree. The data showed that most respondents reported that disagree in the chain of communication with spare parts in the warehouse, the effective management chained information communication with spare part warehouse logistics of the chained information communication is the powerful method for spare parts. The logistics management is difficult as the chained information communication spare part logistics process is complicated and the warehouses of the regional distribution centers and sales terminals are distributed and multi-level (Datta, 2005).

The seventh question workers profession and assign of position participants reported that 1(1.9%) strongly agree, 2(3.8%) agree, 9(17.3%) neutral, 24(46.2%) disagree, and 12(23.1%) strongly disagree. Most participants reported that 24(46.2%) disagree in the worker profession and assign position in warehouse managements.

4.3.2. Gaps in Warehousing Management Practices of the case Organization

Table-6- spare part warehouse storage activities in consumers

No	Questionnaires for consumers	Strongly agree		agree		Neutral		disagree		Strongly agree		total	
		N	%	N	%	N	%	N	%	N	%	N	%
	Sub section 2-2- spare part warehouse storage activities												
1	During receiving materials, the materials are passed through proper inspection procedures.	5	9.6	6	11.5	7	13.5	22	42.3	12	23.1	52	100
2	Convenient material receiving space is prepared.	6	11.5	11	21.2	6	11.5	25	48.1	4	7.7	52	100
3	There is Convenient road infrastructure to move the materials from receiving place to storage location.	6	11.5	11	21.2	7	13.5	24	46.2	4	7.7	52	100
4	Do you agree that they are using loading and unloading equipments for movement of heavy materials from place to place?	5	9.6	13	25	5	9.6	20	38.5	9	17.3	52	100
5	The storage space is partitioned properly for different activities and material items.	1	1.9	13	25	9	17.3	21	40.4	8	15.4	52	100
6	To what extent do you agree that the storage have a proper illumination and ventilation?	1	1.9	2	3.8	4	7.7	30	57.7	15	28.8	52	100
7	Do you agree that you do have chance to receive materials from anywhere else outside storage place? Like from container?	9	17.3	22	42.3	6	11.5	12	23.1	2	3.8	52	100

(Data source: questionnaire 2016)

In the first question took as receiving materials, the materials are passed through proper inspection procedures the respondents reported that 5(9.6%) strongly agree, 6(11.5%) agree, 7(13.5%) neutral, 22(42.3%) disagree, and 12(23.1%) strongly disagree. according to most participants disagree in the receiving of materials and its procedure, the consumer disagree. The storage procedures are served by automatic rack servers on guide rails. The storage units have to be moved to and from the warehouse by special transportation facilities. Safety features that are likely to be required are profile checking of the storage units on receipt and during travel, automatic utilization control of the storage place before the load is deposited, automatic path monitors for longitudinal and vertical travel, including automatic cut-off, and automatic monitoring of stock movement to aid the deposition and removal of stock materials procedure.

In the second question Convenient material receiving space is prepared the respondents reported that 6(11.5%) strongly agree, 11(21.2%) agree, 6(11.5%) neutral, 25(48.1%) disagree, and 4(7.7%) strongly disagree. Majority participants reported that disagree in the material receiving space.

The third question convenient road infrastructure to move the materials from receiving place to storage location the participants reported that 6(11.5%) strongly agree, 11(21.2%) agree, 7(13.5%) neutral, 24(46.2%) disagree, and 4(7.7%) strongly disagree, majority participants reported that there is no road infrastructure to move materials from receiving place in the Ethiopian national defense ware house.

In the fourth question loading and unloading equipments for movement of heavy materials from place to place the participants reported that 5(9.6%) strongly agree, 13(25%) agree, 5(9.6%) neutral, 20(38.5%) disagree, and 9(17.3%) strongly disagree, majority participants reported that 20(38.5%) disagree in the loading and unloading equipments for movement of heavy materials from place to place in the warehouse. Interview data showed that we have loading and unloading machines, but these machines have its weakness like no speed, small in number and backward. The operator only experienced, not qualification, the problem training, service time and situation unknown. In addition to Interviewer II and III answer:-yes, equipments spare parts loading and unloading we use in the warehouse. The operators of fork left untrained. Generally the operators are required to become more technological-oriented and more responsive to requests with

different characteristics and needs in an efficiently loading and unloading. Form this idea the warehouse management and utilization high variety operations takes place, the main target technological oriented and more responsive way of warehouse managements very important in this idea. Logistics involves improving the efficiency of flows; load units have become particularly important. They are the basic physical management unit in freight distribution and take the form of pallets, swap bodies, semi-trailers and containers. Containers are the privileged load unit for long distance trade, but the growing complexity of logistics required a more specific level of load management. The use of bar codes and increasingly of RFID (Radio Frequency Identification Device) enables a high level of control of the load units in circulation.

In the fifth question table--storage space is partitioned properly for different activities and material items the participants reported that 1(1.9%) strongly agree, 13(25%) agree, 9(17.3%) neutral, 21(40.4%) disagree, and 9(15.4%) strongly disagree, majority participants reported that 21(40.4%) disagree.

The sixth question table--- in the storage has a proper illumination and ventilation the participants reported that 1(1.9%) strongly agree, 2(3.8%) agree, 4(7.7%) neutral, 30(57.7%) disagree, and 15(28.8%) strongly disagree. According to majority participants reported that 30(57.7%) disagree; data showed that in the storage has not a proper illumination and ventilation.

In the seventh question table ---- in the outside storage place the participants reported that 9(17.3%) strongly agree, 22(42.3%) agree, 6(11.5%) neutral, 12(23.1%) disagree, and 2(3.8%) strongly disagree. According to majority participants report showed that 22(42.3%) agree, there is not outside storage place in Ethiopian national defense warehouse. Before warehousing operations start, the necessary emergency plans shall have been completed and distributed, the initial external safety inspection, shall have been carried out and a certificate of compliance with the provisions of this standard shall have been obtained.

4.3.3. Challenges of Warehousing Management of the case Organization

Ensuring safety and security of the materials and equipments stored in the warehouse, and the manpower involved in the warehouse is also an important function of warehouse management.

Table -7- warehouse safety activities

No	Questionnaires for consumers	Strongly agree		agree		Neutral		Disagree		Strongly disagree		total	
		N	%	N	%	N	%	N	%	N	%	N	%
	Sub section 2-3- warehouse safety measures												
1	There are complete and ready protection equipments of unexpected fire and other accidents in the warehouse.	3	5.8	9	17.3	8	15.4	23	44.2	9	17.3	52	100
2	Do you agree that there are enough and proper exit doors during emergency?	1	1.9	-	-	9	17.3	26	50	16	30.8	52	100
3	do you agree that there are clear and easy to use alarm signs to get helps?	2	3.8	4	7.7	6	11.5	25	48.1	15	28.8	52	100
4	Do you agree that there are complete safety wearing and personal protection equipments to protect warehouse workers from damage?	2	3.8	3	5.8	5	9.6	24	46.2	18	34.6	52	100
5	To what extent do you agree that the warehouse workers are trained to save themselves and warehouse from damages?	3	5.8	7	13.5	13	25	20	38.5	9	17.3	52	100

(Data source: questionnaire 2016)

According to respondents responded In Ethiopian national defense warehouse there is not complete and ready protection equipments of unexpected fire and other accidents in the warehouse,3(5.8%) participants said that strongly agree, 9(17.3%) participants responded that agree, 8(15.4%) participants responded that neutral, 23(44.2%) participants responded that disagree and 9(17.3%) participants responded that strongly disagree. Majority respondents responded that a great problem equipments to protect warehouse worker unexpected fire and other accident. Generally training and education, applying general safety principles—such as proper work practices, equipment, and controls—can help reduce workplace accidents involving the moving, handling, and storing of materials. Whether moving materials manually or mechanically, your employees should know and understand the potential hazards associated with the task at hand and how to control their workplaces to minimize the danger. Because numerous injuries can result from improperly handling and storing materials, workers should also be aware of accidents that may result from the unsafe or improper handling of equipment as well as from improper work practices. In addition, workers should be able to recognize the methods for eliminating—or at least minimizing—the occurrence of such accidents. Employers and employees should examine their workplaces to detect any unsafe or unhealthful conditions, practices, or equipment and take corrective action.

In the second question respondents responded that 1(1.9%), 9(17.3),26(50%) and 16(30.8%) strongly agree, neutral, disagree and strongly disagree respectively, then majority respondents responded that disagree in the case of there are not enough and proper exit doors during emergency of warehouse activity in Ethiopian national defense warehouse worker

The third question in the warehouse there is not clear and easy to use alarm signs to get helps. The respondents responded that 2(3.8%) strongly agree, 4(7.7%) agree, 6(11.5%) neutral, 25(48.1%) disagree and 15(28.8%) strongly disagree. Generally majority responded that 25(48.1%) disagree no alarm sigh any case the warehouse of Ethiopian national defense.

The fourth question safety wearing and personal protection equipments to protect warehouse workers from damage the respondents responded that 2(3.8%) strongly agree,3(5.8%) agree, 5(9.6%) neutral, 24(46.2%) disagree and 18(34.6%) strongly disagree. Most respondents responded that disagree in the case of safety wearing and personal protection equipments to protect warehouse and workers. Interviewer also reported that (explain that) in the case of shelter

in Ethiopian national defense warehouse no safety tools for warehouse worker. The warehouse safety tools are tuta, halemit, gonet, shoes and fire protection jacket all the above safety tools not found in this warehouse. Ensuring safety and security of the materials and equipments stored in the warehouse, and the manpower involved in the warehouse is also an important function of warehouse management.

The fifth questions in the warehouse workers are not give any training to save them and warehouse from damages the respondents responded that (3(5.8%) strongly agree, 7(13.5%) agree, 13(25%) neutral, 20(38.5%) disagree and 9(17.3%) strongly disagree. Majority participants said that disagree in the case of safety training.

The lack of basic skills training is undoubtedly partially responsible for some of operational accuracy issues. A training warehouse damages needs analysis of store related staffs should be undertaken. After that all personnel involved in store management (both internal and external staffs) should be trained warehouse protection in the time of accidents. Records of all trainings should be kept not only in Human Resource Management but also in Store.

CHAPTER V: SUMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary

The purpose of this study was to explore gaps of spare part warehouse management, storage system, shelves design standard and quality of construction, fire protection and warehouse personnel safety condition. Moreover the study was showed the strengths and weaknesses of the warehousing management and practices provided under the departments and recommend possible solutions to make the service better and improve future performances of the department. This was with intent to find out the weakness and strength of the ware house management system and recommend possible ways of alleviating the problems. To this end, basic questions addressing the issues related to such as activities of ware house management and usage of data base system in the ware house, professional competence of the employee in the warehouse and the personnel safety protection condition were all raised.

The study employed a mixed method of type were used which means by using qualitative and quantitative data method to address the following basic questions.

1. What are the practices of warehouse management in the Ethiopian National defense main Logistics Department?
2. What are the present situations of warehouse stores activities in the Ethiopian National defense main logistics department?
3. What are the challenges influencing the stocking of spare parts in the Ethiopian National defense main logistics department.

To address the research questions raised, the investigator reviewed the relevant literature, prepared a questionnaire for employees in the ware house and management staffs, and also interview guide questions on the basis of the reviewed literature to collect data from the subjects at sampled spare part ware house found at Adama city. Concerning the subjects of the study, all the sampled population was included.

Questionnaire, interviews discussion with selected groups, and relevant documents were used to collect the required data. The questionnaire included close-ended and few open-ended questions. The data obtained were analyzed and interpreted by using percentage and frequency. Based on this, the following major findings were drawn from the analysis.

- greater part respondents responded that on both suppliers and customers diploma, To begin with the manpower, as the other elements are attributes of qualified manpower, it is taken as the center of gravity to the effort of building defense forces warehouse. The availability of manpower for the common defense of the country's national security, therefore, is determined by the size of its usable manpower-quantity and quality of the manpower. The quality of the manpower includes the experience, education and other standards set by the needs of the defense forces to recruit manpower.
- Document as showed during evaluation time everything that I used for questionnaire, interview and observation data list were included, including all front repair corridors and central part of repair garages work accomplishment conditions of their strength and weaknesses.
- The data showed that majority suppliers and customers respondents responded that Gaps and challenges related to warehouse management influencing on the stocked materials to the current material flow, spare parts storage, technological usage, and human management system and warehouse protection (safety) conditions, and proposes an effective warehouse management system that cannot be applied at any warehouse.
- The data showed that most of suppliers and customers respondents responded that there is no data base technological administration in the warehouse. Advances in warehouse data base have made many developments in the warehouse efficiency possible. It is useful to think of warehouse data base technologies consisting of two elements. The first element involves the use of computers for planning and directing activities. The second is the degree of mechanization or automation. Naturally, the goal of automating warehousing operations is to enhance efficiency of material handling through reduction of labor costs and increased throughput.

- The data showed that majority suppliers and customers' respondents responded that disagree in the combination of equipment, workers and operating policies that are used in a storage/retrieval environment. Collaboration is always a great tool for the growth of any organization. Solidarity allows the sharing of information and helps to bright idea among the departments and teams in a warehouse. Proper computer technological relation is a good means to improve the skills and knowhow of warehouse personnel which in turn improves the overall standards of the warehouse. (Gunasekaran ,Marri, Menci, 1999).
- The data showed that majority suppliers and customers respondents responded that the moderate communication between costumers and warehouse workers. Warehouse spare parts management is concerned with ensuring the communication of costumers that all the activities involved in warehousing are carried out efficiently and effectively by those employed in the warehouse.
- In the chained information communication with customers according to suppliers and customers respondents reported that disagree in the case of chain information communication with customers not well organized, but Ethiopian national defense Warehouse spare parts plays a crucial role as part of the physical link or 'interface' between an organization and its customers. This chain is recognized as having important customer service and customer contact roles.
- On the subject of suppliers and customers majority respondents reported that disagree; this participants were asked Ensuring safety and security of the materials and equipments of warehouse not full fill. To protect unexpected fire accidents in the warehouse, have prepared complete fire protection equipments participants reported as Then most respondents responded that not agree in protection unexpected fire accidents in the warehouse.
- A large amount suppliers and customers respondents responded that not agree in protection unexpected fire accidents in the warehouse. Generally Ethiopian national defense warehouse were not safely and security to protect unexpected fire accidents.
- Mass suppliers and customers respondents reported that disagree; it showed that no clear alarm sign to get helps in the time of accidents.
- Majority suppliers and customers respondents responded that disagree in the training of worker in the time warehouse spare parts damage. The lack of basic skills training is

undoubtedly partially responsible for some of operational accuracy issues. A training warehouse damages needs analysis of store related staffs should be undertaken. After that all personnel involved in store management (both internal and external staffs) should be trained warehouse protection in the time of accidents.

5.2. Conclusions

Based on the major findings presented above and the framework utilized to guide the study, the following conclusions may be drawn.

- Ethiopian national defense warehouse can only be productive if there is effective and efficient management of human and material resources in the system by the computerized data base communication between warehouse managers and warehouse data workers. This paper examined the outputs from the national defense warehouse spare parts management system in Adama city warehouse spare parts and concluded that they have no data communication between warehouse managers and warehouse data workers activities of national defense warehouse data system. However, they had been linked with the numerous problems enabling the system, such as inadequate facilities like computerized data base system, poor criteria for select warehouse human resource and managers and frequent interference.
- The major problems that might have adversely affected the process and practice of no data base technological administration in the warehouse activities could appear to be: Not giving due attention to their data base technological work that could assess all the necessary resources, data base system and loading and unloading mechanized materials.
- They declare that attracting highly competent military equipment are their primary objectives for Ethiopian national defense. But there are no well-organized shelves and allocations of store materials system were not identified to improve their warehouse planning requirements. As well as Giving less value to safety and protection of accident issues in the warehouse.
- Selections of warehouse workers have clear and defined criteria on how to assign worker, combination of equipment, workers and operating policies by field of specialization, qualification and experience however, most of the warehouse spare parts have been managed by non-professionals and without relevant qualification and experience.

- Human resource is the most important resource and needs continuous training that can help to up-grade knowledge and skills of warehouse managements. However, attention that is given to training opportunities and staff development programs by the Ethiopian national warehouse spare parts have been found to be unsatisfactory. Data communications between warehouse managers and warehouse data workers are towards this issue have been observed to be weak.
- Even though not proportional with basic needs of facilities have been supplied to the minimum, then facilities such as computers, workshops and safety materials have been realized to be very scarce or non-existent.

RECOMMENDATIONS

Based on the findings and conclusions, the following suggestions are forwarded.

- They should have to provide an assured amount of resources like data base system, human and equipments for planning and managerial work, staff development activities like training opportunities and provision of computer systems facilities to their warehouse in order to create overall development. They should also create common understand for supplier and costumers which can enable them to solve common problems of data base computer systems.
- Review all the necessary resources, forecast the constraints and possible solutions based on deep-rooted study and come with a feasible guiding plan. The introduction of a computerized stock control system that allows the use of random locations and more accurate stock checks this should be improve the utilization of the storage area as well as providing;
- Should be Create both supplier and costumer participation and relation in developing their plans. Data communication between warehouse managers and warehouse data workers and other concerned individuals have to participate in the process of data base activities. This participatory approach of data communication between warehouse managers and warehouse data workers process should be helpful to include all the necessary inputs in planning to facilitate its implementation. Hence, data communication should be between warehouse managers and warehouse data workers should work cooperatively to maintain and improve these conditions to bring satisfaction and commitment for supplier and costumers.

- Follow-up, evaluate and make adjustments to their complete safety wearing and personal damage protection equipments activities when the need arises. The complete safety wearing and personal damage protection equipments activities should not be static so as to adopt new situations for the well-being of the school.
- All members of the warehouse managers and workers should be selected on the basis of clear and well-defined criteria. This enables to attract well qualified, experienced and with relevant educational background personalities to assume the positions of the warehouse managers and workers. It is not advisable that the posts without the necessary qualifications.
- Continuous effort should be made to fulfill facilities to accommodate the increasing national defense warehouse spare parts capacity. Particularly due attention should be given to fulfilling computers, workshops and safety materials.
- Finally, national defense warehouse spare parts are corner stones for any social, cultural and economic development of a country. it should be emphasized that the planning and managerial activities of national defense warehouse spare parts should be supported by those involved at various levels, such as communities, Ethiopia nation defense managers, Ethiopian government and research institutes of AAU so as to give directions for the national defense warehouse spare parts to their data base system, safety materials for workers and protect unexpected damages.
- This research may show the directions for other researchers to make further investigation on this topic.

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Appendixs

questionnaire

Addis Ababa University School of Commerce, Department of Logistics and Supply Chain Management.

Questions for assessment of warehouse management practice Ethiopian National Defence Main logistics Department spare part warehouse, MA of Logistics and Supply Chain Management.

Questionnaires to be file by employees of maintenance engineering and recovery department and Adama spare part warehouse members.

This questionnaire is for study purpose. Its main aim is to collect data on assessment of warehousing management practice on the case Ethiopian National Defence Main Logistics Department spare part warehouse on Adama. The success of the study greatly depends up on your genuine response to the questionnaires. Please make sure any information is not transmitted to anybody by any means and your answer will be kept confidential.

Dear respondents: please not that:-

- Don't write your name on the questionnaire.
- You should not contact other respondents to fill it.
- You need to respond all of the items.
- Put an (x) inside the box, and write for explain answer and give your comment on the provided space.

Part-one- demographic information of the respondents (A)

1. Gender male ☐ female ☐
2. Service year:
   Below 5 ☐
   5-10 ☐
   11-15 ☐
   16-20 ☐
   Above21 years ☐

3. Educational levels
   - 10th and 12th complete ☐
   - Certificate ☐
   - Diploma ☐
   - 1st degree ☐
   - 2nd degree ☐
   - others ☐
4. Age
   - From 18-25 ☐
   - From 26-30 ☐
   - From 31-35 ☐
   - From 36-40 ☐
   - Above 41 ☐
5. Working section_____
6. Position_____

Part-two- warehouse management practices.

The purpose of this part to obtain information regarding how implemented warehouse management practices in your warehouse.

Please indicate your level as agreement to the following statement using the scale provided.

5	4	3	2	1
Strongly agree (SA)	Agree (A)	Neutral (N)	Dis-agree (DA)	Strongly dis-agree (DA)

No	Questionnaires	SA	A	N	DA	SD
	Sub section 2-1- warehouse management activities (B)					
1	Do you use a computerized data base to manage the warehouse materials?					
2	Is there a linked data communication between warehouse managers and warehouse data workers?					
3	Do you have close relationship with all of the consumers?					
4	Is there any complain coming from the customers in case of un-					

	genuine and damaged materials?					
5	For the coming customers' complain, have you a procedure or complain solving mechanism?					
6	Do you have chained information communication with customers?					
7	The warehouse workers, are they a professionals for the assigned position?					
	Sub section 2-2- spare part storage activities (C)					
1	During the time of materials receiving, do you have inspection procedures?					
2	Is prepared, convenient material receiving space?					
3	Is there favorable road infrastructure to move the materials from received place to store location?					
4	Do you use loading, unloading equipments to transport and to put the materials at the needed place?					
5	The storage space, is it divided properly for different material items?					
6	Is the store properly illumination and ventilation?					
7	Is there any material stored out of the warehouse? Like in the container.					
	Sub section 2-3- warehouse safety measures (D)					
1	To protect unexpected fire accidents in the warehouse, have prepared complete fire protection equipments?					
2	During emergency, do you have a prepared exit door?					
3	Is there a clear alarm signs to get helps?					
4	To protect warehouse workers damages, have they a complete safety wearing and personal damage protection equipments?					
5	The warehouse workers, are trained to save themselves and warehouse damages?					

2.4. Generally, what looks like the administrative and total support activities of the spare part warehouse?

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2.5. If you have any idea about the strength and weakness, on the spare part warehouse organization and administration conditions.

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2.6. How do you explain the present relationship between spare part warehouse managements and the consumers?

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2.7. Please write down, if you have any unexplained idea and problems that you are observe in the warehouse.

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2.8. if you have any recommendation it must be.

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Interview questions

1, how do you explain the data capturing system, Is it supported by computer?

2, have a tightened relationship with your customers? Please explain?

3, all of the workers are specialized by the assigned positions?

4, do you use loading, unloading mechanized machines for materials movement?

5, how about warehouse workers safety materials, are they equipped completely?

Observation checklist

No	Observation issues	Very good	Good	average	poor
1	Warehouse allocation				
2	Shelves and allocation of store materials.				
3	Location of receiving section				
4	Aisle spaces to pass personnel and materials				
5	Location of delivery and shipping				
6	Fire protection materials conditions				
7	Personnel safety wearing equipments				
8	Causes for different damage around warehouse and other				

Addis Ababa University School of Commerce, Department of Logistics and Supply Chain Management.

Questions for assessment of warehouse management practice Ethiopian National Defence Main logistics Department spare part warehouse, MA of Logistics and Supply Chain Management.

Questionnaires to be file by employees of jan meda heavy vehicles repair garage and Mexico medium and light vehicles referral garage (they are consumers).

This questionnaire is for study purpose. Its main aim is to collect data on assessment of warehousing management practice on the case Ethiopian National Defence Main Logistics Department spare part warehouse on Adama. The success of the study greatly depends up on your genuine response to the questionnaires. Please make sure any information is not transmitted to anybody by any means and your answer will be kept confidential.

Dear respondents: please not that:-

- Don't write your name on the questionnaire.
- You should not contact other respondents to fill it.
- You need to respond all of the items.
- Put an (x) inside the box, and write for explain answer and give your comment on the provided space.

Part-one- demographic information of the respondents:

7. Gender male ☐ female ☐
8. Service year:
   - Below 5 ☐
   - 5-10 ☐
   - 11-15 ☐
   - 16-20 ☐
   - Above21 years ☐
9. Educational levels
   - 10th and 12th complete ☐
   - Certificate ☐
   - Diploma ☐
   - 1st degree ☐
   - 2nd degree ☐
   - others ☐
10. Age
    - From 18-25 ☐
    - From 26-30 ☐
    - From 31-35 ☐
    - From 36-40 ☐
    - Above 41 ☐
11. Working section_____
12. Position_____

Part-two- warehouse management practices.

The purpose of this part to obtain information regarding how implemented warehouse management practices in your warehouse.

Please indicate your level as agreement to the following statement using the scale provided.

5	4	3	2	1
Strongly agree (SA)	Agree (A)	I Don't know (N)	Dis-agree (DA)	Strongly dis- agree (SD)

No	Questionnaires	SA	A	N	DA	SD
	Sub section 2-1- warehouse management activities					
1	Have they a Computerized data base system to manage and control the warehouse materials?					
2	Is there a proper data communication between warehouse managers and warehouse data workers?					
3	As consumer, have you a close relationship with spare part warehouse?					
4	As a customer, Is there any complain, you were claiming by the cause of un-genuine and damaged materials for spare part warehouse administration?					
5	As a customer, have they a procedure or complain solving mechanism, for the provided claim by you?					
6	Do you have a chained information communication with spare part warehouse?					
7	The warehouse workers, are they a professionals for the assigned work position?					
	Sub section 2-2- spare part warehouse storage					

	activities					
1	During you are received the materials, do you observe the evidence of the materials as passed through inspection procedures?					
2	Is prepared, convenient material receiving space?					
3	Is there favorable road infrastructure to move the materials from received place to store location?					
4	Do you agree that, they are use loading, unloading equipment for movement of heavy materials from place to place?					
5	The storage space, is it divided properly for different material items?					
6	Does the store have a proper illumination and ventilation?					
7	Do you receive any material from other outside storage place? Like from container.					
	Sub section 2-3- warehouse safety measures					
1	To protect unexpected fire accidents in the warehouse, have prepared complete fire protection equipments?					
2	During emergency, do they have exit door?					
3	Is there a clear alarm signs to get helps?					
4	To protect warehouse workers damages, have they a complete safety wearing and personal damage protection equipments?					
5	The warehouse workers, are they trained to save themselves and warehouse damages?					

2.4. Totally, what looks like the administrative and total support activities of the spare part warehouse?

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2.5. If you have any idea about the strength and weakness, on the spare part warehouse organization and administration conditions.

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2.6. How do you explain the present relation between spare part warehouse managements and the consumers?

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2.7. If you have any unexplained idea and problems that you are observe in the warehouse. Please write down.

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2.8. If you have any recommendation must be.

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Computerized data base to management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	15.8	15.8	15.8
	Disagree	17	44.7	44.7	60.5
	Neutral	4	10.5	10.5	71.1
	Agree	8	21.1	21.1	92.1
	Strongly Agree	3	7.9	7.9	100.0
	Total	38	100.0	100.0	

Communication

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	7.9	7.9	7.9
	Disagree	14	36.8	36.8	44.7
	Neutral	6	15.8	15.8	60.5
	Agree	12	31.6	31.6	92.1
	Strongly Agree	3	7.9	7.9	100.0
	Total	38	100.0	100.0	

Relationship with all of the consumers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	10.5	10.5	10.5
	Disagree	16	42.1	42.1	52.6
	Neutral	7	18.4	18.4	71.1
	Agree	8	21.1	21.1	92.1
	Strongly Agree	3	7.9	7.9	100.0
	Total	38	100.0	100.0	

Professional workers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	15.8	15.8	15.8
	Disagree	15	39.5	39.5	55.3
	Neutral	5	13.2	13.2	68.4
	Agree	9	23.7	23.7	92.1
	Strongly Agree	3	7.9	7.9	100.0
	Total	38	100.0	100.0	

Chained communication

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	15.8	15.8	15.8
	Disagree	20	52.6	52.6	68.4
	Neutral	6	15.8	15.8	84.2
	Agree	6	15.8	15.8	100.0
	Total	38	100.0	100.0	

Procedure or complain solving mechanism

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	15.8	15.8	15.8
	Disagree	8	21.1	21.1	36.8
	Neutral	8	21.1	21.1	57.9
	Agree	12	31.6	31.6	89.5
	Strongly Agree	4	10.5	10.5	100.0
	Total	38	100.0	100.0	

Inspection Procedures

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	2.6	2.6	2.6
	Disagree	14	36.8	36.8	39.5
	Neutral	3	7.9	7.9	47.4
	Agree	12	31.6	31.6	78.9
	Strongly Agree	8	21.1	21.1	100.0
	Total	38	100.0	100.0	

Material Receiving Space

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	7.9	7.9	7.9
	Disagree	16	42.1	42.1	50.0
	Agree	10	26.3	26.3	76.3
	Strongly Agree	9	23.7	23.7	100.0
	Total	38	100.0	100.0	

Road Infrastructure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	21.1	21.1	21.1
	Disagree	12	31.6	31.6	52.6
	Neutral	6	15.8	15.8	68.4
	Agree	8	21.1	21.1	89.5
	Strongly Agree	4	10.5	10.5	100.0
	Total	38	100.0	100.0	

Partitioned for Different Activities and Materials

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	13.2	13.2	13.2
	Disagree	11	28.9	28.9	42.1
	Neutral	3	7.9	7.9	50.0
	Agree	12	31.6	31.6	81.6
	Strongly Agree	7	18.4	18.4	100.0
	Total	38	100.0	100.0	

Material Storage out of the Warehouse

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	7.9	8.1	8.1
	Disagree	4	10.5	10.8	18.9
	Agree	20	52.6	54.1	73.0
	Strongly Agree	10	26.3	27.0	100.0
	Total	37	97.4	100.0	
Missing	System	1	2.6		
Total		38	100.0		

Material Storage out of the Warehouse

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	7.9	8.1	8.1
	Disagree	4	10.5	10.8	18.9
	Agree	20	52.6	54.1	73.0
	Strongly Agree	10	26.3	27.0	100.0
	Total	37	97.4	100.0	
Missing	System	1	2.6		
Total		38	100.0		