THE ASSESSMENT OF THE EFFECTIVENESS OF INVENTORY MANAGEMENT IN REFERRAL HOSPITALS
CASE OF MUHIMBILI ORTHOPAEDIC INSTITUTE (MOI)
THE EFFECTIVENESS OF INVENTORY MANAGEMENT IN REFERRAL HOSPITALS
A CASE OF MUHIMBILI ORTHOPAEDIC INSTITUTE (MOI)

By
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A Dissertation Submitted to Mzumbe University, Dar es Salaam Campus College in Partial Fulfillment of the Requirements for the Award of the Degree of Master of Science in Procurement and Supply Chain Management (MSc-PSCM) of Mzumbe University

2013
CERTIFICATION

We, the undersigned, certify that we read and hereby recommend for acceptance by the Mzumbe University, a research report entitled The assessment of the effectiveness of inventory management in referral hospitals, A case of the Muhimbili Orthopaedic Institute (MOI) in fulfillment of the requirement for the Award of the Degree of Master of Science in Procurement and Supply Chain Management (MSc-PSCM) of Mzumbe University.

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This research paper was done in Dar es Salaam at the Muhimbili Orthopaedic Institute (MOI).

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May the almighty God bless you.
DEDICATION

This paper is dedicated to Mr and Mrs P.C.Fovo for their encouragement and endless support that got me here, my sisters Doreen Fovo and Maria Fovo and brothers Andrew Fovo and Alfred Fovo who endlessly encouraged me to complete this research paper.
ABSTRACT

The Fundamental objective of this research work was to assess the effectiveness of inventory management in referral hospitals. The study was conducted at the Muhimbili Orthopaedic Institute (MOI).

The purpose of a study of the assessment of effectiveness of inventory management in referral Hospitals was to explore the inventory performance at MOI and to know the strengths and weaknesses and to assess the profitability there from. The researcher used various data collection instruments including questionnaire, observation, unstructured interview and documentary sources. The methodologies used were both qualitative and quantitative approaches.

Through this study, the researcher revealed that, MOI is getting late deliveries which caused them to make rush orders while waiting for the suppliers to deliver their requirements, by doing so, the goods are obtained at a higher price and at a quality which could not be questioned since it is treated as emergency procurement.

The researcher recommended that MOI should carry out efficient and effective inventory management, monitoring and operate good inventory information management system in order to ensure realistic inventory forecasts and high turnover.
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CHAPTER ONE

OVERVIEW OF THE STUDY

1.1 Introduction
This chapter focuses on the background of the study, statement of the problem, research questions, significance of the study, scope of the study, organization of the study and limitations of the study.

1.2 Background of the Organisation
Muhimbili Orthopaedic Institute (MOI) is an autonomy public institution established by Act of Parliament No. 7 of 1996. It started to operate in February 1996. The organization aimed at providing equitable, affordable and accessible quality services as specialized in medical services in Orthopaedics, Traumatology and Neurosurgery. Establishment of MOI is in accordance to the on-going government reforms, Act No. 7 of 1996, the bilateral agreement between SAOT and MOH of 1993 and 1999 and other legal acts and policies of the government of Tanzania.

MOI is contributing to the overall reform of the Tanzania Health Sector, the Civil Service Department and finance. In this respect, MOI is a multipliable role model for the performance of duties in the public sector and is geared directly towards implementing cultural changes in solving existing problems in a constructive way.

The Tanzanian Government has accepted and recognized this concept. Managerial, financial and human resource development-concepts of MOI have become a replicable and important part of the Tanzanian hospital reform. For long-term commitments regarding maintenance, technical support as well as quality control of medical services, the government can count on international government and non-government organizations and others for the further development of MOI.

According to the approved organization structure of MOI the interrelation of the functions and responsibilities are presented. As can be observed, MOHSW has a
monitoring role that is realized through their participation in the Institute Board. For phase three of MOI a tripartite agreement has been signed between MOHSW, SDC and SAOT. For the successful implementation of phase three it has to be noted, MOI employees (all cadres) will have to be empowered through capacity building⁴.

The Overall Goal of MOI is to contribute towards the improvement of the health and well being of all Tanzanians, focusing at those most at risk and to encourage the health system to be more responsive to the needs of the people. Furthermore, to contribute to the development of cost effective and self-financing schemes in setting up a system of value for money within the existing budget constraints. The institute has two Specific objectives, firstly provide equitable, accessible and affordable preventive and curative care in Orthopaedics/Trauma and Neurosurgery to primary, secondary and tertiary levels care, strengthen the referral system in support of the primary health care system and technical clinical research. Once this is done, referral abroad can be reduced.

Lastly to act as a role model for efficient and effective hospital management with self-financing Private/ Public Mix concepts gearing at partial self-sustainability and operations within existing budgetary constraints.

The following are the main objectives for further development of MOI, Capacity building for medical services and management; Provision of quality medical services (tertiary level) with equal accessibility; Introduction of Maintenance and repair systems; Contribution towards the development and implementation of National policies and reforms; Development of effective management systems; To provide for hospital management conducive to self-sustainability on an autonomous basis; To improve the basic services for all the diseases of the musculoskeletal system; To improve Orthopaedics/Trauma services in the periphery through adequate training facilities, To produce the required personnel for the country in the field of Orthopaedics and Neurosurgery through appropriate training; To facilitate research activities in the field of Orthopaedics and Neurosurgery of University Institution

⁴ http://www.moi.ac.tz
standard; To reduce the number of referral patients outside the country and to provide for consultancy publication and general dissemination of materials produced in connection with the work and activities of the institute.

For each objective, expected outputs and achievements have been identified with supporting indicators and important assumptions.

In order to realize the above objectives, MOI has been established and recognized as role model for the government health sector reform in:

(i) Strengthening the referral system and restoration of the health pyramid.
(ii) Setting self-financing capacities while assuring equitable accessibility for the poor (public)
(iii) Capacity building in developing nursing and medical skills for all three levels of care (private/public mix)
(iv) Efficient and effective hospital management in all aspects.

The institute set strategic plan 2006/07-2011/12 which meant to achieve the desired priorities which are; sustainable services, sustainable growth and sustainable assets. As a public organization, MOI executes its procurement of works, goods, services and consultancy according to the Public Procurement Act No. 21 of 2004.

1.2.1 Background of the Problem

The research was conducted on the assessment of the effectiveness of inventory management in referral hospitals the case of Muhimbili Orthopaedic Institute (MOI). The research provides academic knowledge of conducting research and solutions for referral hospitals on how to manage well inventories. Senior management’s concern is managing inventory levels because the impact of changing the inventory management procedures on turnover is reflected in turnover growth. There is therefore need for study using company in a resource limited setting as a case study

2 http://www.moi.ac.tz/edmessage.html
to establish how inventory management practices affect turnover of an organization. Wawera et al; 2004.

Practically every hospital finds it necessary to hold inventory of various items and materials such as medicines, disposables, stationeries and medical equipments, because it would be practically impossible to operate with only one of each item to be used in office work. A reserve inventory of each item used frequently is therefore maintained, so that as items are used they can be replaced or replenished from the stocks held in reserve. Inventory management to a layman may be defined as a system used in a firm to control the firm investment in inventory. According to (T LUCY 1996), it involves the recording and monitoring of stock levels, forecasting future demands and decides when and how many to order.

Saxen (2003), argues that it is important to put in mind that there are several functions of Inventory Management these includes first : raw materials, meaning the raw materials that the company must keep on hand for production: secondly work in progress inventory which include any of the goods that are in the production process and finished goods (Inventory or products) that are already to ship to customers. Without Inventory Management it would be difficult for any company to maintain control and be able to handle the needs of the customers.

Pandey (1996) expresses that stock of finished goods has to be held because production and sales are not instantaneous. A firm cannot produce immediately when goods are demanded by a customer, therefore to supply finished goods on a regular basis stock has to be maintained for sudden demand from customers. In case the firm’s sales are seasonal in nature substantial finished goods inventories should be kept to meet the peak demand. Failure to supply products to customers when demanded would mean loss of the firm’s sales to competitors. Saleemi (2001) adds that having an adequate supply of a particular product to meet customer demand is crucial to both sales increase and customer service. If customers come to business to purchase a product and it is out of stock the sales is lost forever and the customer will probably go to competitors to find what they need.
Muhimbili Orthopaedic Institute (MOI) has the responsibility of purchasing pharmaceuticals, stationeries, disposables and other medical supplies for the smooth running of its daily operations. From time to time, items can run out of stock but efficient stock control will reduce or eliminate such happenings, and ensure that replacements are received in good time, condition and are available when required to replace those items used. Stores unit or department is an important element to the running of every hospital, simply because it will ensure that medicines as well as other medical supplies do not run out of stock thus enabling the patients to get the correct treatment at the right time and with minimum of inconveniences to both parties, that is patients and service providers.

A considerable amount of effort must be devoted in order to ensure that there is enough storage space with all storage facilities required for the smooth running of the store or warehouse, because on the other side this will ensure the value for money of the purchased items.

Mlinga (2008), argued that, there is numbers of problems that hinder value for money achievement in procurement, one of the problems is poor administration of what has been purchased. The researcher aimed to undertake the study due to the fact that seventy percent (70%) of the budget of the United Republic of Tanzania (URT) is spent on procurement, but no one is talking about were those items procured will be kept. The storage space must be bigger enough in order to allow the supplies officers to practice their profession on ensuring that for each item in store there is its minimum stock level, reorder level, reorder quantity, keeping the safety stock as well as issuing stocks basing on FIFO and FEFO basis.

Value for money is one of important pillar in public procurement, hence is an essential test against which a PE must justify a procurement outcome, when all relevant costs and benefits over the procurement cycle are considered because price alone is not a reliable indicator, because it cannot be realized by accepting the lowest price offer to meet mandatory requirement. Therefore it has to consider even the
inventory management costs in order to achieve the value for money in procurement for it enhances a balance of costs, risks, delivery and quality.

1.3 Statement of the Problem
Every organization needs inventory for smooth running of its activities. Inventories constitute most significant part of assets, if not used properly it will become liability. Inventory is the stock of any item or resource where as inventory management is the process of reducing inventory cost, keeping inventory from under stocking or over stocking and determining order and recorder points in order to achieve organizational goals. A.K. Data (2001),

Inventory management functions the integrated process that operation, the firms and the value chains inventory policy, the reactive, or pull distribution channel. An alternative philosophy is planning through the productivity schedules products movement and allocation thought the channel according to demand and product availability. Generally poor inventory management practices like overstocking, under stocking, bad issuing system and absence of stock taking are the main causes of poor management of inventories. P.Gopalakrishamn and M. sundaresan (2003).

Over stocking may result in damage of materials because of limited place to keep it. Under stocking on the contrary is maintaining small number of material below the demand of the firm, and in this case is MOI, it has negative impact on the over work of the organisation to achieve its goals goal. Bad issuing sometimes also sending the materials from store without keeping the requisition of user department. If the materials at certain area cannot be controlled it is difficult to properly record incoming and outgoing materials. Donald J.Bowersox and David J.closs (1996).

Thus, it is very essential to have proper control and management of inventories. The purpose of inventory management is to ensure availability of materials in sufficient quantity as and when required and also to minimize investment in inventories. Because of the large size of the inventories maintained by MOI, a considerable amount of funds is required to be committed to them. It is therefore absolutely
imperative to manage inventories efficiently and effectively in order to avoid unnecessary investments.

Effective inventory management at MOI has not been achieved despite the existence of professionals in the stores and supplies unit which has direct influence to the effectiveness of the hospital activities. Various techniques such as ABC and Reorder level failed to be applied in order for the management to minimize investment in inventory.

This is one of the problems facing various referral hospitals and other organizations in Tanzania leading to the poor performance in managing inventories and even the PPA talks about how to procure and how to dispose what was procured, but it doesn’t show where to store and the way of how to manage inventories, (PPA, 2004), that is why even in the external audit exercise most of the referral hospitals are poorly executed, hence audited scored below average marks. Excess stock, or excess inventory and sometimes running out of stock have been happening several times and is the result of bad management of stock demand or of material flow in process management and sometimes is caused by users requesting items that later they do not use them. Excessive stock is also associated with loss of revenue owing to additional capital bound with the purchase or simply costs of storage consumed.

An essential aspect of managing any organisation that sells physical goods is determining how many goods to produce and how large of a stock of goods to keep on hand for sale. Goods that are available sale are referred to as a firm's inventory or stock. Keeping a large amount of inventory on hand can be advantageous in that it reduces the chance of running out of a product, but a large inventory can also have several notable disadvantages like storage costs and deterioration or obsolescence.

Regarding storage costs, holding a large volume of items on hand means the organisation needs a large amount of space to store its inventories. Storage space like warehouses and storage rooms cost money to build, rent and maintain. Storage facilities require workers to categorize and organize items and transport items from one place to another. In addition, high levels of inventory can lead to higher
insurance costs. On the side of deterioration and obsolescence some organisations sell goods that tend to deteriorate or perish over time. Keeping a large amount of perishable inventory on hand risks the possibility that the hospital will be unable to sell some of the inventory in time before it goes bad, which can force to throw away product thus leading to the misuse of the public money.

Similarly, certain types of products, such as medicines tend to become obsolete unknowingly like a case of chloroquin for the treatment of malaria. Keeping a large inventory of such products is risky because patients cannot buy them because they are dangerous for their health. It is against this backdrop the researcher aimed at conducting the study on the effectiveness of inventory management in referral hospitals in order to be able to provide recommendations on how to increase effectiveness and efficiency together with how to improve the services provided to patients.

1.4 Objectives of the Study
The general objective of this study is to evaluate the effectiveness of inventory management that is to say, from inspection, receiving, storage and until the stored goods are being issued to the final consumers.

1.4.1 Specific objectives of the study
The following are specific objectives of study
(i). To identify the types of inventory control systems applied by MOI.
(ii). To examine how inventory management function is critical for the organization.
(iii). To investigate how the existing inventory management system support the stores management and financial accounting practice of the organisation.
(iv). To examine the factors affecting inventory management practice of the organisation.
(v). To determine the level of users satisfaction on delivered goods.
1.5 Research Questions

1.5.1 General Research Question

How effective is inventory management carried out at MOI?

1.5.2 Specific Research Question

This study intended to find answers to the following question:

(i) Is the management aware of the inventory management for procured goods?
(ii) What effects does inventory management information system provide in controlling inventories?
(iii) Do the Supplies department/ Unit exist?
(iv) Do external auditors audit the management of inventories?
(v) What are the inventory management techniques adopted by MOI?
(vi) What is the relationship between inventory management and patients’ satisfaction?

1.6 Scope of the Study

The researcher conducted the study and collected data from only one of the public institution, Muhimbili Orthopaedic Institute (MOI) that was because of limited time and budget constraints. The study was conducted to various departments and units of that particular organization including Finance, pharmacy, supplies, Administration, Procurement management unit (PMU) and other staff who were important for the study.

1.7 Significance of the Study

First and foremost, it is hoped that this study will significantly help all referral hospitals in the URT to manage their inventories in order to minimize losses occurred due to breakages, obsolete, expiring of inventories and loosing sales. These are among the problems that MOI has been facing that need to be addressed in order to meet the goals established regarding properly managing inventories as well as minimizing losses because even in the statement of financial position (Balance Sheet), Inventories forms a greater part in terms of amount than other parts of it.
A study of inventory management was undertaken in order to know the inventory performance at MOI and to know the strengths and weaknesses and to assess the profitability there from. The findings, suggestions and recommendations of the research study will form the basis for improving inventory management in referral hospitals, as they are expected to effectively improve on the quality of inventory management system and employ competent personnel.

The researcher’s findings provide the data base for further study by future researchers as well as form part of literature for further studies. The researcher’s suggestions and recommendations will be used by the referral hospitals, public institutions and other parastatals for managing inventories properly.

1.8 Organization of the Study
The Research Report consisted of chapter one to chapter five. Chapter one consists of background information and the problem setting, statement of the problem, research questions, research objective, significance of the study and organization of the study. Chapter two contained theoretical bases of the research, empirical analysis of past study, conceptual framework and measurement strategies of concepts and variables. Chapter three contained research philosophy, the research strategies, types of measurement, data collection methods, types of data, sampling techniques, reliability and validity of data, management and analysis of data. Chapter four dealt with the presentation of the collected data, analysis of them and a discussion of what has been found. Chapter five contained the findings of the researcher found during his research study as well as researcher’s conclusions and recommendations.

1.9 Limitations
During the research process, the researcher encountered some problems that in one way or the other hindered or otherwise complicated the study. These problems included the following inter-alia:
1.9.1 Poor Response from Respondents
As the researcher has pointed out in the methodological part of the research proposal, that data collection tools such as questionnaires and interviews were used during the study. It however, happened that some respondents were in busy managerial positions; thus made them scarcely available to provide necessary information.
In addition to that, some respondents occupying junior positions in the organization could not reveal the real situations of their organization simply because they were not the spokesmen to their departments. Also some respondents did not return the questionnaires mailed to them thus leading the researcher to apply other data collecting instruments such as documentary review instead.

1.9.2 Scattered Respondents
As the matter of fact, the random selection of respondents complicated the study as the researcher came to realize that some respondents were on a shift basis, that is, some of them are having the night shifts thus making it difficult to access them all.

1.9.3 Shortage of Fund
In conducting this research, the researcher faced financial problems due to the fact that he is self sponsored. It therefore made it difficult for the researcher to accomplish the preparations for the research proposal and the report itself on time as it was otherwise required by the researcher’s supervisor.

1.9.4 Time Factor
This forces the researcher to concentrate his study in only single organization due to inadequate time to carry out the study in other referral hospitals within the United Republic of Tanzania.

1.9.5 Accessibility of Data
The researcher faced some obstacles to access some of the data, but due to the good approach and patience of the researcher helped in obtaining the required data.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction
This chapter provides detailed information that includes conceptual definition, theoretical bases of the research, empirical analysis of past studies and the conceptual framework and measurement of the variables regarding the inventory management. The researcher focused on literature pertaining to referral hospitals which are public institutions, inventory management, inventory management variables like inventory monitoring and inventory information management are critically reviewed and how they relate to the effectiveness of managing inventory. In any business or organization, all functions are interlinked and connected to each other and are often overlapping. Some key aspects like supply chain management, logistics and inventory form the backbone of the business delivery function. Therefore these functions are extremely important to marketing managers as well as finance controllers.

Inventory management requires constant and careful evaluation of external and internal factors and control through planning and review. Most of the organizations have a separate department or job function called inventory planners who continuously monitor, control and review inventory and interface with production, procurement and finance departments.

Inventory management is a very important function that determines the health of the supply chain as well as the impacts the financial health of the balance sheet. Every organization constantly strives to maintain optimum inventory to be able to meet its requirements and avoid over or under inventory that can impact the financial figures. Public Institution can be defined as an organization found and united for a specific purpose. However, from an Institution perspective, Inventory management is the flow of materials or goods from the supplier into the organization and until they are issued to the final consumers.
2.2 Theoretical Part

Inventories are classified as current assets because typically they will be sold within the year or during a firm’s normal operating cycle if it should be longer than a year for retailing firms, inventories are often the largest and most valuable current assets. (Pandey 1998). Inventories are the merchandise owned by the company and held for resale to customers in the ordinary course of business. (Walgemack et al, 1982). The words inventory and stores are sometimes confused these must therefore be clearly understood stores means all those articles which are kept in stores while inventory comprise stores as well as materials in transit materials in products finished products and stocking company’s shows rooms and distribution centers which have not been sold out.

Inventory management is the overseeing and controlling of the ordering, storage and use of components that the organisation will use in the production of the items, it will sell as well as the overseeing and controlling of quantities of finished products for sale. A business's inventory is one of its major assets and represents an investment that is tied up until the item is sold or used in the production of an item that is sold. It also costs money to store, track and insure inventory. Inventories that are mismanaged can create significant financial problems for a business, whether the mismanagement results in an inventory glut or an inventory shortage.

Successful inventory management involves creating a purchasing plan that will ensure that items are available when they are needed but that neither too much nor too little is purchased and keeping track of existing inventory and its use. The relative importance of inventory management to an organization can be arrange by the overall investment in inventory and the magnitude of materials costs for all products. Inventory so late one part of the system from the next to allow each work independently absorb the stock of for cost errors, and permit the effective utilization of inventory management to control the lot sizes to that the overall costs associated with the purchase or manufacture are at a minimum. Poor inventory management implies having enough item available when needed but not so much that an
unnecessarily cost surplus incurred inventories are assort of lubrication for the supply production supply distribution system that protects it from excessive friction.

Two common inventory-management strategies are the just-in-time method, where companies plan to receive items as they are needed rather than maintaining high inventory levels, and materials requirement planning, which schedules material deliveries based on sales forecasts. Inventory management is comprised of two major activities which are the control of inventory and the planning of inventories. The purpose of inventory management being to satisfy customer demands and minimization of stock handling costs in order to achieve higher stock turnover rate inventory control involves managing the inventory that is already in one’s warehouse, knowing what products are in stock, their quantities, cost and location. (Hsu and Kleiner, 2001). Inventory management is the process of efficiently overseeing the constant flow of units into and out of an existing inventory. This process usually involves controlling the transfer in of units in order to prevent the inventory from becoming too high, or dwindling to levels that could put the operation of the company into jeopardy.

On the other side effective Inventory management may be said to be planned method where by investment in inventories held in stocks is maintained in such a manner that it ensures proper and smooth flow of materials needed for production operations as well as sales while at the same time, the total costs of investment in inventories is kept at minimum. Competent inventory management also seeks to control the costs associated with the inventory, both from the perspective of the total value of the goods included and the tax burden generated by the cumulative value of the inventory.

Balancing the various tasks of inventory management means paying attention to three key aspects of any inventory. The first aspect has to do with time. In terms of materials acquired for inclusion in the total inventory, this means understanding how long it takes for a supplier to process an order and execute a delivery. Inventory management also demands that a solid understanding of how long it will take for
those materials to transfer out of the inventory be established. Knowing these two important lead times makes it possible to know when to place an order and how many units must be ordered to keep production running smoothly. Calculating what is known as buffer stock is also key to effective inventory management. Essentially, buffer stock is additional units above and beyond the minimum number required to maintain production levels. For example, the manager may determine that it would be a good idea to keep one or two extra units of a given machine part on hand, just in case an emergency situation arises or one of the units proves to be defective once installed. Creating this cushion or buffer helps to minimize the chance for production to be interrupted due to a lack of essential parts in the operation supply inventory.

Inventory management is not limited to documenting the delivery of raw materials and the movement of those materials into operational process. The movement of those materials as they go through the various stages of the operation is also important. Typically known as a goods or work in progress inventory, tracking materials as they are used to create finished goods also helps to identify the need to adjust ordering amounts before the raw materials inventory gets dangerously low or is inflated to an unfavorable level. Inventory management has to do with keeping accurate records of finished goods that are ready for shipment. This often means posting the production of newly completed goods to the inventory totals as well as subtracting the most recent shipments of finished goods to buyers.

When the company has a return policy in place, there is usually a sub-category contained in the finished goods inventory to account for any returned goods that are reclassified as refurbished or second grade quality. Accurately maintaining figures on the finished goods inventory makes it possible to quickly convey information to sales personnel as to what is available and ready for shipment at any given time. Effective inventory management is all about knowing what is on hand, where it is in use, and how much finished product results. The objective of inventory management is to provide uninterrupted production, sales, and/or customer-service levels at the minimum cost. Since for many companies inventory is the largest item in the current assets category, inventory problems can and do contribute to losses.
Inventory is an asset that is owned by a business that has the express purpose of being sold to a customer. This includes items sold to end customers or distributors. It includes raw materials, work in process, and finished goods. The management of inventory is a key concern of all businesses.

If a company's inventory level is too low, it risks delays in fulfilling its customers orders. If the inventory is too high, it is tying up dollars that can be better used in other areas. It also risks obsolescence and spoilage. Successful businesses keep their inventory turns high, but also keep their service level at or above the standard. (Michelle Taras & John Taras CPIM, PMP). A company's merchandise, raw materials, and finished and unfinished products which have not yet been sold. These are considered liquid assets, since they can be converted into cash quite easily. (http://www.investorwords.com/2589/inventory.html). Donnelly (1990) states that inventory management and control process are very useful in determining the optimum level of inventories and finding answers to the problem of economic order quality, the re-order point and safety stock.

Inventory planning involves determining when to order items, how much to order forecasting demand and stock replenishment, identifying the most effective source of supply, Inventory information management system and Inventory monitoring. Inventory management requires constant and careful evaluation of external and internal factors and control through planning and review. Most of the organizations have a separate department or job function called inventory planners who continuously monitor, control and review inventory and interface with production, procurement and finance departments. (http://www.managementstudyguide.com)

For an operations manager, inventory management can be defined as the process of ensuring a continuous, sufficient supply of the materials, goods, and/or spare parts necessary for optimal operations while minimizing the costs. (Max Muller, 2011) Explained Major issues relating to preparing contract for supply of goods includes;
Referral means the recommendation of a medical or paramedical professional. A referral is usually necessary to see any practitioner or specialist other than your primary care physician (PCP), if you want the service to be covered. The referral is obtained from your PCP, who may require a telephone or office consultation first. It can refer both to the act of sending you to another doctor or therapist, and to the actual paper authorizing your visit. (Medterms, Last Editorial Review: 4/27/2011).

Referral Hospital can be defined as any process in which health care providers at lower levels of the health system, who lack the skills, the facilities, or both to manage a given clinical condition, seek the assistance of providers who are better equipped or specially trained to guide them in managing or to take over responsibility for a particular episode of a clinical condition in a patient.

Furthermore, higher-level hospitals in developing countries do not treat only referred patients; tertiary hospitals are frequently the first point of contact with health services for many patients. Differentiating referral hospitals from district hospitals, therefore, requires consideration of the different resources used by different levels of hospital. Such a differentiation will tend to revolve around three features, the availability of increasingly specialized personnel, of more sophisticated diagnostic technologies, and of more advanced therapeutic technologies and that permit the diagnosis and treatment of increasingly complex conditions. (Al-Mazrou, Al-Shehri, and Rao 1990).

2.2.1 What the Institute Wants to Obtain

(i) To determine type of inventories that are being envisaged
(ii) Is it for regular recurring need with many available suppliers or not, because this will enable to determine easily the risk involved hence finding the way to reduce such risk
(iii) To see if the goods acquired need to be designed afresh or are standardized already off-the shelf.
2.2.2 What the Institute Wants to Avoid

(i) Strategic choice for example level of inventory to avoid stock out, law quality product, payment in advance and others.

(ii) To look on the consequences of what MOI tries to avoid, for example it wants to pay thirty days after a complete delivery of the ordered goods, is it acceptable to the supplier.

(iii) To ensure the best quality and performance, the Institute might seek performance bonds or completion bonds from suppliers as a contractual tool to ensure success.

2.2.3 Ways of Protecting the Institute When Things go Wrong

(i) By keeping inventories, enable the Institute to extract itself from the late delivery by suppliers.

(ii) In the case of force majeure (unforeseen events) have to be decided earlier in the contract about how the emergency inventory will be purchased.

2.2.4 What Should Be Included or Excluded in a Contract of supply of Goods

(i) To put appropriate terms that is clearly understood by parties in the contract, especially when buying internationally.

(ii) All procedures involved should be reflected in the contract.

2.3 Empirical Studies

2.3.1 Studies from Abroad

2.3.1.1 Scotland Experience

According to review of public procurement and inventory management in Scotland there are various fiscal and legal documents detailing the requirements for specification which put upon those responsible in procuring and managing inventories in public offices and governance positions; these include EU Legislation for Public Procurement, Public Finance and Accountability Act 2000, Local Government Act 2003.
2.3.1.2 South Africa Experience

In South Africa the total procurement in different organs of the state was estimated by Rand 56 million. This amount called for strict control through good financial governance (Radebe & Manuel 1997). According to the Green paper (1997), without a sound specification the objective of procurement and inventory management cannot be attained. It is therefore clear that the public sector procurement system can be used to attain certain social economic objectives. This however will not be achieved without adhering to sound specifications which includes the principle value for money, good financial control, ensuring that all contractors have good standing in so far as their tax and services changed obligations are concerned. (Radebe&Manuel, 1997).

2.3.1.3 Australian Experience

In Australia for example if one is to prepare tender documents where Australia United States Free Trade Agreement (AUSFTA) applies, has to keep in mind that technical specification or any other prescription doesn’t unnecessarily create obstacles to trade between Australia and USA.

Otherwise the specifications should be basing on the international standards where they exist, unless their use would in one way or another impose greater burdens than use of Australian local standards. Actually the nature and complexity of the requirements can cause mismanagement of procurement thereby leading to the mismanagement of inventories because most of inventories are current assets so they are not expected to stay in a warehouse for more than a year. (ASTMA, 2005).

2.4 Inventory Management Components

Inventory management includes inspection of the incoming goods, receiving, storage, inventory control and preparing purchase requisition when inventories reach the reorder level, that is, it involves inventory monitoring and inventory information management. (Krejewski and Ritzman 1999).
2.5 Relationship of Variables

2.5.1 Inventory Monitoring

It involves routine administering and evaluating of all the performance indicators in the whole process of inventory management. The effective inventory monitoring system enables the management to obtain the right information in order to practice the variety reduction in inventories thus enabling the required return on investment. Inventory management system must be consistent with the operating environment through monitoring.

2.5.2 Inventory Management System

This involves the data processing in order to obtain the accuracy of inventory information. The system must provide information in real time in order to ensure timely and correctly management of inventory. (Everett and Ebert, 1992)

2.6 Costs Associated With Inventories

From the managerial point of view: two categories of costs are associated with inventories (lyson and Farrington 2006) also state that the economies of inventory management and stock control are maintained by the analysis of the costs incurred in obtaining and carrying inventories under these categories.

2.6.1 Cost of Acquisition

Many of the costs incurred in placing an order is incurred irrespectible of the size for example, the cost of an order will be the same respectable of weather. Preliminary costs-preparing the requisition, vendor selection, negotiation, cost-order preparations stationeries postage, Post placement cost, progressing receipts of goods material handling inspection and payment of invoices. (Kakuru 1996).

2.6.2 Holding Costs

These are cost incurred for maintaining a given level of inventory. These costs are usually expressed as a figure and as a percentage of the average inventory (Donnelly Gibson 1990).
Carrying costs include storage costs, insurance costs, taxes, determination and obsolescence. If a firm maintains high level, the carrying costs will be high which will lead to a rise in the market. A high price will be attached to such goods which will lead to low sales and eventually low profits.

2.6.3 Stock out Cost
These are costs of being without inventory. Stock out costs are the most important costs that the firm endeavor to avoid by maintaining a certain level of stock in the stores for continuous production. Such costs include costs of production stoppages caused by work in progress stock outs and raw material, loss of future sales because customers may go elsewhere which will lead to loss of customer goodwill and hence loss of profits. (Lucy 1996).

2.6.4 Delivery Costs
Having determined the trucking costs, the delivery cost added to the figure will produce a total distribution cost. Sometimes there is only the one journey from origin to the customer, in which case the need to break down the cost into trunk and delivery components is unnecessary.

The problem concerns multi-drop delivery and in particular the route. In this case a distribution network is constructed which includes all the known variables, for example:

(i). Distance from origin to delivery zone (the “stem” distance)
(ii). Number of drops
(iii). Distances between drops
(iv). Vehicle capacity
(v). Average volume of each drop
(vi). Frequency of drops
(vii). Loading and unloading times
(viii). Drivers’ hours considerations.
Moreover, choosing the right channel of distribution is crucial in getting inventories to the target organization. But that alone is usually not enough to assure that inventories are available at the right time and in the right quantities. Whenever the inventory includes a physical goods, place requires physical distribution decisions. Physical distribution is the transporting and storing of goods to match target customers’ needs with a firm’s marketing mix within individual firms and along a channel of distribution. In reality, customers do not care how a product was moved or stored or what some channel members had to do to provide it (William, 1987).

2.6.5 Customer Service
Customer service is defined as a combination of:

(i). Pre-transaction elements, which are concerned with customers’ service policy such as statements of service policy, corporate programs, etc.

(ii). Transaction elements, which are concerned with those elements directly related to the physical transaction or distribution. Under this heading would be included stock availability, order cycle time, order status information, order preparation and delivery reliability.

(iii). Post-transaction elements, which involve those elements that occur after delivery, such as warranty, customer complaints procedures, replacements, disposal etc. (Rushton et al. 1991).

2.6.6 Elements of Customer Service
According to Rushton the following are the elements of customer service;

(i). Stock availability

(ii). Order status information

(iii). Order cycle time

(iv). Delivery reliability

(v). Delivery alternatives

(vi). Delivery time

(vii). Complete delivery of order

(viii). Condition of goods

(ix). Methods of ordering
(x). Invoicing procedures
(xi). Invoice accuracy
(xii). Claims procedures
(xiii). Complaints procedures and
(xiv). Order size constraints.

User departments normally think in terms of the physical distribution, customer service level, how rapidly and dependably an organisation can deliver what they want. Most physical distribution decisions involve trade-offs between costs, customer service level, and sales. If the customer service level is wrong, if inventory availability is not dependable or timely, users will raise a lot of complains. Either way, providing a higher service level will increase physical distribution costs. The higher cost of physical distribution may result in a higher total purchase costs.

2.7 Conceptual Framework

The relationship between management of the Institute, Procurement management unit, supplies Unit and user departments at work place:

Figure 2.1: Diagram of Conceptual Framework

The diagram above depicts the existing relationship between the Management, PMU, Supplies Unit and User departments at work place. Ideally it is known that PMU at work place has the duty to purchase all the Institute requirements, and it must perform according to the requirement of the Public Procurement Act (PPA).
The Supplies unit has the duty for the proper inspection of all the incoming goods, receiving and storing them until they are issued to various user departments and patients. Normally user departments order items from store after getting approval of their requisition from their heads of departments.

The Executive director is the one who oversees all the activities of MOI and he is making sure that the Institute follows the PPA.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction
This chapter provides detailed information pertaining to the research design/strategies, and types of measurement, method of collecting data, sample and sample size, sampling procedure, area of the study, reliability and validity of data, data management and data analysis.

3.1.1 Area of Study
The study was conducted at MOI. This is a Government Institution responsible for providing medical services. It is located within the Muhimbili Complex in Dar es Salaam. The researcher because of its active involvement in the management of its inventories chose the organization. This fact actually qualified MOI to be a reliable source for the data needed for the study. In addition to that, the researcher chose MOI in order to combat the threat of shortage of fund simply because the researcher works to the particular organization and therefore enabling the reduction of some costs regarding transport charges and data collection.

3.2 The Research Strategies
Kothari, (2004) states that, different research designs can be conveniently described if we categorize them as; research design in case of exploratory research study, research design in case of descriptive and diagnostic research study and research design in case of hypothesis-testing research study.

In this study, the researcher used the case study research design. This is the design that involves an in-depth and detailed study of a unique phenomenon whereby a single unit is extensively studied in its natural setting. This design was preferred because it allowed the researcher to apply all the possible data collection techniques namely; observation, questionnaires, interviews and documentary review.
3.2.1 Exploratory
Exploratory research design is the one used when the phenomenon under study is not very clear hence the research problem is not well defined. Appropriate approaches used in exploratory study are survey research and Case studies.

3.2.2 Descriptive
The study also uses this approach because research problem is clear to the researcher. Therefore this study uses both approach descriptive and exploratory studies.

3.3 Types of Measurement
3.3.1 Nominal Scale
Is simply a system of assigning number, symbols to events in order to level them. Nominal scale simply describes difference between things by assigning them to categories.

3.3.2 Ordinal Scale
Is scale that places event in order or rank but there is no attempt to make the interval of scale equal in terms of some rule.

3.3.3 Interval Scale
is the scale from which the response can be put on interval or scale but scale does not have the absolute zero value.

3.3.4 Ratio Scale
Is a scale which has an absolute or true zero of measurement i.e. the responses are in the form of ranges from zero.

This study used nominal scale because the responses were simply put in groups i.e. differences between things were described by assigning them in categories. This nominal scale enabled the researcher to assign subjects to certain categories or groups.
For example with respect to the variable of gender, respondents grouped into two categories male and female. These two groups were assigned code numbers 1 and 2. These numbers served as simple and convenient category labels with no intrinsic value, other than to assign respondents to one non-overlapping or mutually exclusive category.

3.4 Data Collection Methods and Approach

Data were collected through different tools which included questionnaire, observation and unstructured interview.

These tools are appropriate to the study because questionnaires are faster and provide great degree of control on data gathering process and cost effective process. Interview has high level of objectivity and enabled the researcher to gather relevant data

(i) Questionnaire

Open ended and closed ended questions helped to save time and give respondents a freedom to give out their views.

(ii) Interview

The researcher used unstructured interview where the respondents were asked unstructured questions. This included stores and supplies officers who are always involved in the whole process of receiving storage and issuing goods to user departments.

(iii) Observation

The researcher made observations through his participation in the supplies and stores activities. The researcher was a participant as an observer. Under this method, all categories of data were observed in the field.
(iv) **Documentary sources.**
The researcher accessed various records in search of secondary data. Also different websites were visited as indicated in the bibliography of this work. This approach enabled the researcher to obtain not only specific data but also the general reports of the supplies function and all operations at large.

The researcher used all these research tools in order to complement each other, as there was no guarantee for effectiveness by using either one of them. The researcher was able to test the reliability and validity of the given information from all these tools through comparison in order to come with relevant findings as presented in the next chapter. Interviews, for example, were used to get information from the top executives because they had many managerial responsibilities, which denied them enough time to deal with questionnaires. The researcher accessed documentary sources to get some information that could not be obtained elsewhere except in office files as seen in different tables throughout this paper.

### 3.5 Types of Data

While deciding about the method of data collection to be used in the study the researcher considered types and categories of data. All qualitative and quantitative data were collected from both primary and secondary sources.

The study used both primary and secondary sources of data collection, to make the research findings complete.

#### 3.5.1 Primary Data

Therefore fresh data were collected for the first time from the respondents during the research study involving three tools, which are questionnaires, interview and observation.
3.5.2 Secondary Data
The researcher collected secondary data through looking into files, annual reports, periodicals, manuals and text book.

3.6 Sampling Techniques
The researcher used probability sampling technique in collecting data from individuals selected among the departments and units who included administration, accounts, PMU, pharmacy, store and supplies, theatre and technical services.

3.7 Sampling Procedures
There are two main approaches for selecting samples. One is known as probabilistic sampling and the other is non-probabilistic sampling. Probabilistic sampling uses the laws of statistical/mathematical probability to obtain samples from a population. It is objective and it permits the researcher to make statistical inferences on the population with specific limits of accuracy. Non-probabilistic sampling is subjective and although useful approach in real life, does not permit the researcher to make statistical inferences.

The researcher used probability sampling technique for selecting individuals who provided data for the study. That was because of the importance of the information required in decision-making with respect to representation, convenience, and cost effective of the particular approach.

3.8 Reliability and Validity of Data
Reliability has to do with accuracy and precision of measurement procedures, a measuring instrument is reliable only if it provides consistent results the validity of data.

Validity is briefly defined as the degree to which the findings are interpreted in a correct way and reliability is the degree to which the findings are independent of accidental circumstances of the research.
3.8.1 Reliability of Data
A measuring instrument is reliable if it provides consistent results”.
Although random error always exists regardless of the procedures to be used in this study, the researcher tried to minimize the errors to ensure the reliability of the findings.

3.8.2 Validity of Data
Validity refers to the extent to which a test measures what actually wish to measure. In other words validity is the extent to which differences found with a measuring instrument reflect true differences among those being tested Kothari (2004).

The study adopted different important methods and various techniques to ensure validity of measuring instrument in collecting data, thus field observation and preliminary survey were carried out to ensure validity of gathered data. The researcher ensured that data were collected from authoritative personnel in order to maintain the validity of data.

3.9. Analysis of Data

3.9.1 Data Management

3.9.2 Data Analysis
In this study the researcher analyzed data through descriptive data analysis method of which tables, were used.

The researcher also used several means including computer Programs such as MS – excel where necessary in analyzing and verifying information obtained from respondents.
CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS
AND SUMMARY

4.1. Introduction
This chapter presents the data collected during the study, analyzes and discusses the findings. The assessment of the service level which is provided by supplies unit to user departments, simply because the supplies unit is the one responsible for inspection, receiving, storage and issuing all kinds of inventories including materials and equipments to various departments.

4.1.1 Attribute of the Analyzed Data
Data collected were analyzed focusing on the objectives of the study to be achieved and each group was analyzed independently through the sample selected by the researcher and then compared to other. Following are the description of data collected as shown below.

4.1.2 Details of Data Collected
Management awareness of the inventory management for procured goods.
To obtain data regarding this research objective, the researcher explored the following: availability of skilled personnel and knowledge regarding inventory management.
Basing on the above question, the researcher formed various questions in the questionnaire for the study.

Also the researcher sought to know if the organization had sufficient skilled personnel to manage inventories.

The response was that forty four respondents which is equal to 88% said yes and six respondents equaling 12% said no.
Table 4.1: Existence of Sufficient Skilled Personnel for Monitoring Inventories

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequencies</th>
<th>% Ages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>44</td>
<td>88%</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100%</td>
</tr>
</tbody>
</table>

On the empirical study case of Tanzania stated that failure of the client to appoint an experienced Supplies manager with requisite educational background results in poor inventory management.

From the analysis above the greater percentage of staff comments that the organization has enough sufficient skilled personnel to manage inventories.

4.1.2 The Staff that have an idea on inventory management

Table 4.2 shows the analysis of one of the question; asked by the researcher to the respondents in order to recognize if they have idea of inventory management Procedure. The response was that forty one respondents that are 82% said yes and nine respondents that is 18% said no. as described on the table below:-

Table 4.2: Indicate the Responses of Staff that Have an Idea on Inventory Management

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequencies</th>
<th>% Ages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>41</td>
<td>82%</td>
</tr>
<tr>
<td>No</td>
<td>9</td>
<td>18%</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100%</td>
</tr>
</tbody>
</table>
Thus greater percentage of staff have an idea of inventory management and the researcher congratulates MOI and advised to train all responsible staff to be competent on inventory management because it will increase the value for money in what will be procured.

Awidi, (2008), value for money in procurement is therefore not about achieving the lowest initial price, but rather achieving the optimum balance between relatively low costs, high productivity and successful outcomes.

Table 4.4 shows the analysis of question that asked the respondents if they have attended any training or seminar about contract management fourteen 72% said No and three, 28% said yes.

Table 4.4: Indicating the Responses on Staff’s Attendance of Training or Seminar about Inventory Management

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequencies</th>
<th>Ages%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>14</td>
<td>28%</td>
</tr>
<tr>
<td>No</td>
<td>36</td>
<td>72%</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100%</td>
</tr>
</tbody>
</table>

According Dobbler and Burt (1998), gives a list of objectives of contract and inventory management one of that objective are;

Ensure that the staff of both organizations i.e. buyer and suppliers understands their responsibilities under the contract.

Dobbler and Burt (1990) contend that, “Although a legalistic approach to purchasing is in most cases unnecessary, every buyer nevertheless must protect his or her company against potential legal problems. The buyer’s major responsibility in this regard is to ensure that each purchase is satisfactorily drawn and legally binding.
Mlinga (2005) mentioned problems associated with mismanagement of contract where some are from the supplier side and others are from the buyer side from which lead to mismanagement of inventories, such are:

(i). Failure of the client to appoint experienced stores and supplies staff with requisite educational background and experience.

(ii). Setting of unrealistic project targets especially the construction period, in this case the design and construction of the storehouses.

(iii). Poor pre–contract arrangements, including embarking on the procurement process with incomplete designs and follow-ups for late deliveries.

(iv). Failure of PEs to appoint a competent goods inspection and acceptance committee- this leads to delivery of substandard or expired goods.

(v). Failure to link the deliveries with the intended specifications of the product

(vi). In many cases there is delay in the delivery of goods with non-invoking of liquidated damages clause.

(vii). Delayed payments by the PEs and

(viii). Failure of the PEs to abide to on the warranty conditions.

4.1.3 Deliveries of Goods

Inventory management ensures that Goods ordered are timely delivered in specified quality and quantity at the contracted cost. With inventory management, suppliers are obliged to perform and meet the requirements of the contract and the organisation is obliged to manage inventories and thereafter to effect payment to supplier.

Effectiveness of inventory management is related to the research objective of the study. It was aimed to assess the awareness of management of the Effectiveness of inventory management.

The respondents were requested to state if they were satisfied with the services and goods delivered by the suppliers at MOI, 54% of the respondents agreed with the statement while the other 46% respondents did not agree, the highest percent of respondents showed that, they are not satisfied with the goods delivered by the suppliers.
Table 4.5: Indicating the Responses that are Satisfied with the Goods Delivered by the Suppliers at MOI

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequencies</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>27</td>
<td>54%</td>
</tr>
<tr>
<td>No</td>
<td>23</td>
<td>46%</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100%</td>
</tr>
</tbody>
</table>

(PPA 2004) also provides that where receipt of goods delayed, or seems likely to be delayed beyond time for delivered stated in the contract, the procuring entity shall seek reports and explanations from the suppliers or their agents and may institute liquidated damage/charges as may be provided for in the contract.

The researcher observed that there was no proper follow up to suppliers after the preparation of LPOs. The responsible officers only awarded the contract to suppliers and preparing LPOs and left the suppliers to make a decision on the time of delivery alone. No legal actions were taken to these suppliers for late deliveries.

Mlinga (2005) noted that one important aspect of contract management is to follow up on the state of what has been bought after it has been delivered, to ensure that the PE is satisfied.

**From Interview**

The researcher was used unstructured interview were by a large number of interviewees state that the management needs more attention in the whole process of inspection, receiving and managing inventory, hence needs more staff to organize and managing inventories.
Lack of Skills
Few interviewees comment on this, that it needs the special skills to manage inventory at MOI, since the inventory management needs professions it sometimes be difficult to manage it when some items require special treatments like to be stored in the refrigerator or require certain level of temperatures, they comments that it needs more staff who are qualified to manage them.

Poor Reliability
Interviewees who suggested on this factor comments that most of local suppliers who are supplying goods to the organization are not aware about inventory management, that is why some of them use local laborers who do not have knowledge of managing inventories thus during the time of packing goods at the suppliers premises sometimes they put them upside down leading to the leakage on those liquid materials.

Benefit Suggestion
All suggestions for benefit collected from respondents by interviews are:-
(i). To appoint receiving supervisors and involve them fully.
(ii). To increase transparency in the procurement and stores and supplies activities.
(iii). To train staff on inventory management in order to be up to update.
(iv). To motivate the staff who are dealing with stores and supplies.

From Observation
The observation system based on how inventory information management system applied by observing how inventory is being managed within the departments of MOI after being issued from store. This is summarized below:-
Table 4.6: Summary of study observation

<table>
<thead>
<tr>
<th>DEPARTMENTS</th>
<th>LEVEL OF INVENTORY MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>20%</td>
</tr>
<tr>
<td>Accounts</td>
<td>30%</td>
</tr>
<tr>
<td>PMU</td>
<td>50%</td>
</tr>
<tr>
<td>Laboratory</td>
<td>40%</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>90%</td>
</tr>
</tbody>
</table>

Through observation the percentage provided according to the application of modern inventory information management system in referral hospital which is used to simplify the system and other works though application of preparing goods received notes (GRNs), analyzing of data and issuing process compared with paperwork application on the same functions.

But observation based on contract management allows the application of procurement possible. However the inventory information management system available in the organization as described on the table above does not manage the automate the whole system of managing inventory as needed.

Proper inventory management will results into:-

(i). Economy and efficiency in the use of public fund and in the implementation of projects including the provision of related goods and services.

(ii). The best interests of a referral hospital in giving all eligible suppliers equal opportunities to compete in providing goods and or materials.

(iii). The importance of integrity, accountability, fairness, and transparency in the whole process of procurement, storage of procured goods and until they are issued to user departments.
4.1.4 Types of Inventories Managed at MOI
Normally there are five categories of inventories (stocks) managed at MOI, the first one is the stationery stocks, secondly is the disposable stocks, thirdly is the workshops stocks, the forth one is theatre stock and lastly is the pharmacy stocks.

4.1.5 Effectiveness of Inventory Management
In order to establish the effectiveness of stock out checking mechanism in the inventory management system of MOI. The following responses were established.

Table 4.7: Effectiveness of Managing Stock Outs

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large extent</td>
<td>21</td>
<td>42</td>
</tr>
<tr>
<td>Small extent</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Moderately</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Not at all</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

According to Table 4.7, there exists a good stock out warning mechanism in the inventory management system of MOI portrayed by the results 42 percent of the respondents.

4.1.6 The Extent to Which Stock Becomes Obsolete at MOI Stores the Respondents’ Answers Were As Follows,

Table 4.8: Extent to Which Stock Become Obsolete

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large extent</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Small extent</td>
<td>29</td>
<td>58</td>
</tr>
<tr>
<td>Moderately</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Not at all</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>
The finding in Table 4.8 indicate that stock became obsolete at a small extent represented by 58 percent this indicates that there is an efficient system to handle inventory.

Extent to which physical inventory varies from the system’s stock taking, the following responses were given.

Table 4.9:  Extent to which Physical Inventory Vary at Stock Taking

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large extent</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Small extent</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>Moderately</td>
<td>24</td>
<td>48</td>
</tr>
<tr>
<td>Not at all</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Results in Table 4.9 indicate that physical inventory varied moderately at stock taking indicated by results 48 percent implying that inventory monitoring system were effective.

To obtain information on the extent to which economic order quantities are achieved the respondents provided the following information.

Table 4.10:  Extent to which Economic Order Quantities are achieved

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large extent</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>Small extent</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Moderately</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td>Not at all</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>
Results in table 4.10 above shows that Economic Order Quantities are achieved to a large extent as reflected in results above with (36%) however there was minimal difference between respondents who said moderately.

4.2 Effectiveness of Inventory Information Management Systems

To establish the effectiveness of inventory management information system the respondents were asked how long it took to update the system and the responses were;

Table 4.11: How long it takes to update the System

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately</td>
<td>29</td>
<td>58</td>
</tr>
<tr>
<td>Daily</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>Weekly</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Results above indicate that the system is updated immediately with the transactions made as indicated by the respondents with (58%).

To obtain information on how fast the system generates the required information for corporate use respondents were asked and the following were the responses

Table 4.12: How fast the System Generates Required Information

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately</td>
<td>29</td>
<td>58</td>
</tr>
<tr>
<td>Daily</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Weekly</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>Monthly</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>
Results indicate that information was obtained for corporate use by the system immediately as the respondents respond immediately with (58%) this indicated that the information collected was relevant to the organization whenever it was required.

To establish how often the system was backed up, respondents were asked the question whether the system was backed up the following results were obtained.

**Table 4.13: How often the System is backed up**

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>Daily</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Weekly</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Monthly</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Results above reflect that the system is backup immediately as shown by respondents immediately as respondents in table9 with (50%) by the respondents this meant that loss of information was not essay after the transaction was made.

To obtain information on how often the stock items are forecasted the respondents were asked whether the items ordered were forecasted and the following responses were obtained.
Table 4.14: How Often Items Ordered Are Forecasted

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately</td>
<td>22</td>
<td>44</td>
</tr>
<tr>
<td>Daily</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Weekly</td>
<td>17</td>
<td>34</td>
</tr>
<tr>
<td>Monthly</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Results in table 4.14 above show that items that are ordered and forecasted were ordered immediately as reflected in the table 10 above with (44%) indicating clear estimations in transactions.

To establish how often the organization carries out demand forecasting respondents asked whether demand forecasting is done often and following results were obtained.
Table 4.15: How Often Demand Forecasting is done

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Daily</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Weekly</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>Monthly</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Results in table 4.15 above show that demand forecasting is done weekly as indicated in the table from which 36 percent of the respondents commented on that.
CHAPTER FIVE

CONCLUSIONS, RECOMMENDATIONS AND POLICY IMPLICATIONS

5.1 Introduction
This chapter presents findings, conclusions and recommendations of the study. Proper inventory management in referral hospitals should result to value for money, economy and efficiency in the use of public funds. The study was based much on increasing efficiency of inventory management in referral hospitals.

This chapter consists the facts relating to the study whereby the study was about assessment of the effectiveness of inventory management in referral hospitals. The major objective of inventory management in referral hospitals is to ensure that procuring entity gets what is really wanted.

All procurement of goods should have to be accompanied by the contract prior to the services. By viewing inventory as a potential source of cost reduction and as a measure of efficiency, referral hospitals must focus on improving the management of their inventories this is because the need for inventory is driven by customer demand, the parts, materials, and supplies required by various departments and other customers, in this case patients, in order to perform the day-to-day activities required by the hospital.

5.2 Summary of the study
The major aim of the study was to establish the degree of effectiveness of inventory management in referral Hospitals and to recommend on the necessary actions to be taken into account for the betterment of managing inventories.

The main objective of the study was to find out how inventories are managed at MOI, whereby the Specific Research Objectives were to assess the effectiveness of management of inventories for procured goods, assess the strategies employed at MOI in administering inventories, evaluating if the stores and supplies unit meet the
requirements of the best techniques for the storage of goods thereby achieving the value for money procurement, determining if the suppliers are capable of reducing the level of out of stock through delivering the ordered goods at the right time, right quantity, right quality and in the right condition and are delivered from the right supplier and on top of that determining if the Public Procurement Act is being followed.

Summary of the key findings

- Through this study, the researcher revealed that, MOI is getting late deliveries which caused them to make rush orders while waiting for the suppliers to deliver their requirements, by doing so, the goods are obtained at a higher price and at a quality which could not be questioned since it is treated as emergency procurement.

- By the nature of operations of MOI, which is to provide health services to the public, these emergency procurements of which quality could not be guaranteed, is very dangerous for the health of Patients.

- A method employed in managing MOI inventories is jointly resolving issues between MOI and its suppliers. This method has somehow proved satisfaction as both parties tried to manage to fulfill their contractual obligation without much complication and develop mutual relationship between parties.

- Inventory management with the support of the inventory information management information system indicated that they were directly influenced the Hospital performance, because it is essential as it is an item in the statement of financial position, formerly called a Balance sheet and it involves more than forty percent of the value on that particular financial position.
However, MOI put less emphasis on the inventory management because it’s Stores and Supplies Unit has got a very little storage space that forces most of its inventories to be stored on a random basis thus leading to the whole process of storing and issuing to be done with a lot of inconveniences.

Secondly objectives of the study was to assess the awareness of the inventory management, a good inventory management should start from inspection stage up to the receiving and storage of delivered goods. The researcher observed that the staff are aware to the procedures of inventory management but they are few to accomplish their job effectively.

The inventory information management system does not provide the required efficiency because it does not provide the required reports with a hundred percent accuracy, thus affecting the minimum stock levels, reorder levels and even the economic order quantity, this gap affected the accuracy of the demand forecasting.

The results in this study further revealed that inventory information management system and improper inventory management and monitoring affected turnover, setting of safety stock, reorder cycles and Economic Order Quantities based on demand cycles and information on demand data when monitored efficiently would help to achieve optimal turnover and at the same time reducing the rate of items to become obsolete or expired unnecessarily.

5.3  Recommendations

On the basis of the key study findings, this study recommends the following:

- MOI should carry out efficient and effective inventory management, monitoring and operate good inventory information management system in order to ensure realistic inventory forecasts and high turnover.

- While high levels of inventory can be a disadvantage, carrying too few goods on hand can also be harmful to the organisation. If it runs out of a certain
product, it could miss out on potentially profitable sales, and this could cause customers and or patients to give their business to the competitors.

- The most critical stage of effective inventory management is the receiving dock. Errors made in receiving flow through the building, creating other problems along the way. As with any aspect of inventory control, strong managers look keenly at the three pillars of fulfillment control: people, system, and process.

- Another stage that must be considered by the management of MOI is the Leverage Technology. Data automation provides engineering constraints on errors. MOI can gain a lot of efficiency and accuracy in receiving by incorporating the Hospital Information Management System into the stores system.

- This reduces the chances of receiving to the wrong purchase order or the wrong items. It must have established processes for receiving, cycle counting, auditing and problem solving when exceptions arise. Effective inventory management must be measurable.

- Managers must decide on an inventory level that balances the risk of running out of products with storage costs and the other negative aspects of holding too much inventory because even in the statement of financial position, formerly known as balance sheet, more than forty percent of its value fall on the inventories.

- Considering the importance of demand forecasting in achieving a good turnover, information that is required as input to demand forecasts must be consistent and based on patients needs. Therefore hospitals must strive to see that there is continuous monitoring of inventories, such that the decision rules that include safety stock reorder points and EOQ on which forecasts are
based are up to date and are based on historical data from past sales but also analyzed patients based information.

- MOI should identify slow moving stock and damages, regular cycle counts should be carried out. This will reduce the cost of stock verification at the end of the accounting periods because it may no longer be necessary to close the Institute for long periods to handle stock reconciliations.

- Intervention particularly for MOI optimization of its turnover. This includes automation and instituting an automated customers and or patients relationship management module to capture lost sales for accuracy of demand forecasting information.

- Some measures to be taken by MOI out of which the important ones are to put more emphasize on post contract award management and providing regular updates of specification techniques since technology is dynamic. These will ensure timely delivery of goods in the correct quantities and to the quality specified in each procurement contract as well as timely payments to suppliers.

- There must be Clear and frequent communication between Procurement management unit, Supplies departments and other user departments in order to ensure efficient material flow from the storehouse to the customer, effective physical control, accuracy of posting inventory data.

In addition to providing quality materials to patients, inventory management must establish, by centralizing decision making and issue resolution, a full-time authority responsible for materials.

The stores and supplies unit or department must work closely with the procurement department to forecast and plan the transit material requirements and to monitor the effectiveness and cost efficiency of the supplier's material-related activities.
Inventory management may be a stand-alone function or a part of another area within the supplies department with the daily duty of monitoring and ensuring that whatever has been stored is ready for use with minimum of inconveniences.

The stores and supplies department must ensure that they perform well in the distribution of inventory materials to all storage spaces or using locations, it is also responsible for the physical security and safekeeping of material at all stores locations and for all storekeeping activities, including material receiving, and material picking and issuing.

Other responsibilities include; maintaining accurate inventory records, managing the physical layout of storehouses, including bin cards location assignments; determining the physical movement and distribution of material throughout the organization, receiving and storing material, Issuing stock material in response to a material request from customers, Conducting cycle counts, annual stocktaking exercise, or both, Reconciling discrepancies between cycle count and annual physical inventory, Working with procurement departments to resolve vendor-related problems with timing, quality, quantity, and delivery.

The material planning and control unit must be introduced and it has to be responsible for inventory planning and control, including planning materials requirements on the basis of customer forecasts and then monitoring usage against the plan.

It will also be responsible for developing replenishment strategies and determining the required quantity and availability of material to meet customer needs. Additional responsibilities include; Classifying or stratifying stock material into commodity classes, using such methods as the ABC system of inventory control. Also Making sure material is on hand when needed, determining where and how much material is stocked including storehouse locations and remote sites, Projecting material demand, Deciding whether to use stock or nonstock items, Maintaining the
catalog of inventory items and assisting purchasing departments with determining the best supply method.

On the other part, Customers, in this case user departments who directly serve the patients, also are responsible for providing proper information in order to ensure that material is on hand and available when needed. Their responsibilities include:

(i). Ensuring that material requests are authorized and complete
(ii). Writing all material specifications properly
(iii). Completing purchase requisitions for nonstock materials
(iv). Determining material needs and schedules
(v). Identifying "must-have" material at remote sites
(vi). Controlling expensed items
(vii). Providing quality feedback to inventory management about its level of service
(viii). Adhering to inventory security and record-keeping policies and procedures.

On management side, they have the overall responsibility for inventory planning and control, ensuring storekeeping, storeroom security, material handling and distribution, shipping, receiving and proper inspection. In other words, they are responsible for ensuring the availability of material to meet patients’ needs.

Management is also responsible for setting inventory goals and objectives, in accordance with the overall goals and objectives, and ensuring constant adherence to inventory management policies and procedures. These policies and procedures include; controlling inventory investment in Tanzanian shillings, establishing performance measures, monitoring inventory performance, centralizing or decentralizing decision making and issues resolution, monitoring the effectiveness and cost efficiency of inventory activities, developing long-range plans for new and existing parts acquisition, inventory levels, warehousing, and distribution, overseeing the addition of new items to and the
removal of obsolete items from inventory, Analyzing processes, Determining requirements and Assessing new information systems and technologies.

According to: Sherrie Scott of Demand Media, management must oversee the flow of products and services in and out of an organization. An organisation may decide to incorporate one key inventory management technique or combine a variety of techniques to meet organizational needs.

Organisations must utilize inventory management strategies to create invoices and purchase orders, generate receipts and control inventory-related accounting. To efficiently manage inventory, organisation must keep track of how often the inventory turns.

This means to keep track of how often inventories are being sold in its entirety, or its financial equivalent. As you determine the number of turns you have a month, you learn to order just the right quantity of replacement goods. Managing inventory helps you keep your budget on track and enables you to efficiently manage your operating capital.

According to Denise Brown of Demand Media; the following ways if followed properly, the inventories will be effectively managed, these are:

(i) Assess the type of inventory you keep. If you manufacture goods, you must have raw materials on hand to create your product. To sell finished goods, you need an adequate supply of materials on hand to meet your sales needs.

(ii) Track market trends. If some items are selling while others are not, take steps to only keep saleable goods on hand. Delete non-saleable items from your inventory.

(iii) Determine the quantity of goods you need to keep on hand. Consider the amount of storage space you have as well as how much it costs to have goods delivered to you. Opt to keep smaller quantities if supplies are readily available. Keep a larger inventory on hand if reordering and delivery takes
time or if you might run out of merchandise to sell. Consider whether you receive volume or shipping discounts for large orders.

(iv) Identify a minimum stock level. Reorder goods when you reach that level so you don't run out of inventory. Know what the reorder lead time is and factor that into reordering goods.

(v) Keep goods shelved so that you implement FIFO, or first-in, first-out, inventory management. This is especially important if you have perishable inventory.

(vi) Track your inventory, either manually or with a computerized system. Track each item's description, value, location and supplier. Keep notes on how long it takes to reorder each item. If you do this manually, use cards for each product. Use Radio Frequency Identification (RFID) technology to track products via a computerized system. The computer can identify when to place orders.

(vii) Take steps to keep your inventory secure from thieves and shoplifters. Watch for any signs of employee theft as well. Set RFID tags to sound an alarm if an unauthorized person moves them. Put inventory in a secure location that has limited access to only those individuals responsible for handling inventory.

(viii) and lastly Install point-of-sale (POS), programs on your cash registers to automatically track sales of finished goods for you

Management must make sure that inventories are always readily available in the store. The reason behind this is that, time is needed to complete each stage of a supply chain. In order to avoid long wait time, inventory must be available to satisfy consumer demand.
The goal of having this inventory available is to avoid consumer dissatisfaction, potentially resulting in loss of sales. Secondly, exact demand cannot be predicted.

Inventory is often kept in stock to absorb the shock of erratic demand. Finally, economies of scale exist. It is often more economical to buy a unit in mass rather than in smaller quantities. This incentivizes organisations to hold inventory.

Though holding inventory is necessary, doing so is costly. Therefore, managing inventory becomes essential; it allows a company to minimize cost while continuing to meet customer demand.

Managing inventory must be done effectively and often across many locations for a variety of products in different sizes, colors, and with varying features.

An organisation strives to manage the precise amount and location of distinct products and track each product until the point of sale.

Also the policy-level decisions affect the entire inventory and are generally made by the individual who has overall responsibility for directing inventory management. The participation of the MOI’s top management is also essential for establishing the importance of inventory performance and for directing the focus of inventory activity through defining and monitoring specific goals and objectives. Decision making at this level must focus on establishing overall goals, strategies, or both for Customer service, Inventory investment, Inventory accuracy, Inventory support and automated support systems and other technology.

Another important thing that is worth noting to the government in general and MOI, particularly the officials entrusted in reviewing the public procurement act simply because it considers a lot on how to perform effectively the whole procurement and disposal process.

But it doesn’t consider the other part of stores and supplies that is responsible for storage and maintaining the bought goods, materials and spare parts before reaching the final users. This led to many referral hospitals to provide a very little storage
space thus minimizing the efficiency of the officials working in that particular stores or warehouses.

Above all these, the management must consider the daily routine activities are done properly like Accurate receiving, appropriate technology, and proper standards enforced through cycle counts and auditing. These are the key support structures to effective inventory management. With these in place, the Hospital will have the visibility necessary to increase efficiency and profitability.

Finally, the manipulation of information to find patterns is increasingly giving organisations a competitive edge over the others. Therefore need to introduce decision support tools that will analyze customer/patient relationship management information and use it to categorize products and services that will improve turnover.

5.4 Recommendations for further study

This research considered two inventory management practices variables namely inventory monitoring and inventory information management and their effect on turnover.

The research did not quantify the effect these two variables have on turnover. Further research needs to be done to quantify this effect so that hospitals can easily simulate and extrapolate variances for each variable.

With the increasing need for effective operations management, referral hospitals now require that costs and cost centers be well managed and controlled. Consequently stores, as cost centers must be well managed.

In practice firms spend an inordinate amount of resources i.e. time and money managing and directing their suppliers to ensure that critical inventory/stock control levels are maintained and the vital flow of products needs for operation continue.

In contemporary hospital operating environments, significant developments have emerged in stores and inventory management aspect. Stores and inventory management is now appreciated as a value adding activity able to make a
contribution to the profitability performance of an organization if managed in a more effective and efficient manner.

Therefore, hospitals must find ways for ensuring such effectiveness and efficiency. The use of advanced technology demands that organisations go automation.
### Research Work Schedule

<table>
<thead>
<tr>
<th>No.</th>
<th>ACTIVITY</th>
<th>NUMBER OF DAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>REPORTING TO THE FIELD PLACE AND UNDERSTANDING THE ENVIRONMENTS</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>PLANNING AND DESIGNING THE RESEARCH PLAN AND PREPARING RESEARCH PROPOSAL</td>
<td>28</td>
</tr>
<tr>
<td>3</td>
<td>COLLECTION OF DATA AND ANALYSIS</td>
<td>28</td>
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<tr>
<td>4</td>
<td>ANALYSIS OF DATA</td>
<td>14</td>
</tr>
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<td>5</td>
<td>FINALISING REPORT AND SUBMISSION</td>
<td>14</td>
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### Budget for the Research

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>AMOUNT</th>
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<tbody>
<tr>
<td>TRANSPORT COSTS</td>
<td>500,000/=</td>
</tr>
<tr>
<td>STATIONERY COSTS</td>
<td>1000,000/=</td>
</tr>
<tr>
<td>DATA COLLECTION AND ANALYSIS COSTS</td>
<td>400,000/=</td>
</tr>
<tr>
<td>MISCELANEOUS EXPENSES</td>
<td>600,000/=</td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td>2,500,000/=</td>
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APPENDICES

Executive Questionnaire
Please put a tick against the space provided and for questions requiring explanations try to be as brief as you can.

1. Are there sufficient skilled personnel for monitoring inventories?
   (i). Yes (   )
   (ii). No (   )

2. Do the staff from other departments have an idea on inventory management?
   (i). Yes (   )
   (ii). No (   )

3. Is there staff attendance on training or seminar about inventory management?
   (i). Yes (   )
   (ii). No (   )

4. Are you satisfied with the goods delivered by the suppliers at MOI?
   (i). Yes (   )
   (ii). No (   )

5. What is the extent to which physical inventory vary at stock taking?
   (i). Large extent (   )
   (ii). Small extent (   )
   (iii). Moderately (   )
   (iv). Not at all (   )
6. What is the extent to which economic order quantities are achieved?
   (i). Large extent
   (ii). Small extent
   (iii). Moderately
   (iv). Not at all

7. How long it takes to update the system?
   (i). Immediately
   (ii). Daily
   (iii). Weekly

8. How fast the system generates required information?
   (i). Immediately
   (ii). Daily
   (iii). Weekly
   (iv). Monthly

9. How often the system is backed up?
   (i). Immediately
   (ii). Daily
   (iii). Weekly
   (iv). Monthly

10. How often items ordered are forecasted?
    (i). Immediately
    (ii). Daily
    (iii). Weekly
    (iv). Monthly

11. How often demand forecasting is done?
    (i). Immediately
    (ii). Daily
    (iii). Weekly
    (iv). Monthly