AN ASSESSMENT OF INVENTORY MANAGEMENT AND CONTROL SYSTEM IN THE CASE OF TSEDEY MINERAL WATER FACTOR

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Acronyms

EOQ	Economic Order Quantity
FIFO	First In First Out
JIT	Just-In-Time
LIFO	Last In First Out
MNG	Moving, None Moving and Ghost Item
MRO	Maintenance, Repair and Operating
MRP	Material Requirement Planning
SDE	Scarce, Difficult and Easily Items
VED	Vital, Essential and Desirable Items

Abstract

The focus point of this paper is inventory management and control system of Tsedey Purified Mineral Water Factory. The main objectives of the paper are to assess identify the inventory control system, the challenges of inventory management and control system, etc. of origin Purified Mineral Water Factory. We use primary and secondary data to collect information about the factory and analyzed this information by using descriptive method. We also use judgmental or purposive sampling technique. The main findings of the paper are the factory uses ABC and VED classification system to classify its inventory, the factory's main challenges regarding to the inventory is lack of skilled man power, wastages of inventory item in the factory are significant amount, the with respect to the security of inventory the factory allows only store keepers have the access to inventory; etc.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Inventory control goes back further than writing there were simpler inscription in Egypt and Babylonians warehouses and granaries, with pictures that represented the inventory owner and numbers representing amounts in stock and taxes due. The urge to make flow of goods and services more efficient is perhaps identical with the urge of civilization itself. The world's earliest known writing (5300 years) described inventory owners, amounts and suppliers (Dreyer, 2009).

The inventory is one of the main factors that determine how well businesses work and make profits. It is healthy and important for all businesses to operate and manage their inventory well so that.

Turnover rates will minimize as product quality and product increases. The focus and objective of the inventory management control is to maintain on optimum level of the inventory and its investment. Many of the businesses today have succeeded in making plans and improvements for their inventory system and management. (www.against world control. Blogspot.com, 2012) Generally, inventory management control system works pretty similar for almost all business the differences. Though, might include a few changes in methods and work outs depending on business motivation, goals and future accomplishments. The simplest method for inventory management system is periodic inventory system. This method is visual methods where the purchase person would review the stock daily to look for items and observe whether they are scarce, overload, or if there are any improvement to be done. Another method, puerperal inventory methods, allows managers to keep daily records of the inventory which include the quantity or the total amount of items in stock, withdrawals, sales and deposits to ensure the amount of cash flow projection and make sure that there are no mistakes in orders and receipts to avoid customer negative feedback and turn over. The classification inventory management control system is also well known and best control system that works effectively. In this method, items are classified separately in groups according to the annual cost of items used and the ranks of usage.

1.2 Statement of the Problem

A successful business relies on many factors, one of which is a reliable inventory management system. Inventor management consists of everything from accurate record-keeping to shipping and receiving of products. Inventory management is properly maintained then the company's supply chain running smoothly and efficiently.

However, through observation and personal contact with the employees of the organization, the following are some of the problems with inventory systems on Tsedey purified mineral water factory: Through preliminary observation and personal contact with the employees of the organization we are reached up on some points that are related to the problems like unqualified employees, who either don't have enough experience or don't have adequate training, in charge of inventory. It may face difficulties in achieving factory's objective. The other problem is misplacement of inventory in store. This may lead to higher inventory costs because the items must be re-ordered plus, the company must spend the time for employees to track down the misplaced items. There is also excess investment in inventory which comes with excess stock. Excess stock levels Cause many different costs that can be mitigate by levelling the inventory. And also there are company.

Costs dollars tied up in capital that is directly linked to the original purchase of the goods and there are associated costs to store the inventory (carrying cost) (Bhat, 2003:570). Therefore, the studies will asses' inventory management and control system of Tsedey purified mineral water factory and forwarded some recommendation.

1.3 Research Question

Specifically, this research assesses the inventory control system on Tsedey purified mineral water by trying to find answer for the following key problem areas.

- How the Tsedey purified mineral water factory accurately and completely record the inventory physical flow?
- What are the methods that the company follows for proper authorization of goods to be ordered or sold?
- What are the problems of inventory management and control system?

- What is the company overall internal control system looks like?

1.4 Objective of the Study

• General Objective

To assess inventory management and control system inTsedey purified mineral water factory.

• Specific Objectives

In addition to the above general objective the study will have the following specific objectives:

- To assess the inventory physical flows are accurately and completely record.
- To assess the goods to be ordered or sold in the factory follow proper authorization.
- To assess the problem of inventory management and control system.
- To assess the company's overall internal control system look like.

1.5 Scope of the Study

This paper is aimed at assessing inventory management system of Tsedey purified mineral water. The paper will be limited to the accounting and management procedures related to the inventory items in this company.

1.6 Significance of the Study

The research would have the following significance or importance:

- The paper provides for us is to know deep and vast knowledge about inventory management and internal control system.
- Will provide recommend to Tsedey purified mineral water about their inventory control System.
- It will be useful for other companies as one reference in their effort about their inventory control system.

- Other researchers who undertake study on inventory control may use this study or paper as one source of references.

1.7 Organization of the Paper

The study consists of four chapters. The first chapter deals with the introductory aspects of the study. The second chapter comprises the inventory management control related literature review (Both, theoretical and empirical). The third chapter deals with the study. Chapter four is about data presentation and analysis. The final chapter present the summary, findings, conclusion and recommendation part followed by bibliography, appendixes, etc.

CHAPTER TWO

LITERATURE REVIEW

2.1. Theoretical Literature Review

2.1.1. Nature and Definition of an Inventory

The term inventory refers to any resource that has a certain value, which can be used at a future occasion when the demand arises. Alternatively, inventory may be defined as stock of items kept on hand by an organization to be used to meet customer demand. For many firms inventory is the largest current asset. Inventory is usually thought in terms of stock of material or idle good that are held by an organization for use sometime in the future. Inventory also includes partially finished products at different stages of a manufacturing process, raw materials and components, resources, finished products, labour or cash. (Bhat, 2003:567)

In an organization, the importance of inventory can be recognized for the following reasons:

Inventories are resources acquired at a cost, there by locking up substantial Working capital

Inventories allow for smooth flow of production process by ensuring that adequate supply Of raw materials, components and manufacturing items are available to the production process.

Inventories serve as buffers against uncertain and fluctuating usages and reduce stock - out-Situations. Therefore avoiding production hold Ups and loss of customer good will. (Ibid)

2.1.2. Merchandising Companies Compared with Manufacturing Companies

Most merchandising companies purchase their inventory from other business organization in a ready- to-sell condition. So, its cost of goods sold simply the purchase price of the product it sells. In Merchandise Company, the operating cycle consist of the following transaction:

- Purchase of merchandise;
- Sales of merchandise; and
- Collection of account receivable from customer (Meigs, Meigs, Bettner, andWhittington 1996:201)
- A manufacturing company, however, produces the good that it sells. As a consequence, its cost of goods sold consist of various manufacturing costs, including the cost of material, wages earned by production workers, and variety of other costs related to the operation a production facility. (Ibid:853)

In manufacturing companies there are three types of inventory:

- Material Inventory;
- Work in Process Inventory; and
- Finished Goods Inventory (Ibid)

2.1.3. Classification of Inventories

Inventories are classified in the following ways:

Production Inventories: - include raw materials, parts and components which Enter the firms' product in the production process. These may consist of two general types:

i. Special items manufactured to company specification, and
ii. Standard industrial items purch

Work In Process Inventories:- is the stock of items currently being transformed into a final product found at various stages in the (Ibid)

- MRO Inventories: - MRO (Maintenance, Repair and Operating) include

  Supplies which are consumed in the production process but which do not become parts of the product (e.g. lubricating oil, soap, Machine, repair parts). (Ibid)

- Finished Goods Inventories: - These are completed products ready for

  Shipment. (Ibid)

2.1.4. Purpose of Holding Inventory

The primary purpose of inventory is to uncouple the various phase of operations. Raw Material inventory uncouple a manufacture form its vendors. Work-in-process inventory uncouple the various stage of manufacturing and finished goods inventory uncouple a manufacturer from its customer. (Schroeder; 1989:417)

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Within the overall uncoupling purpose, there are many reasons to carry inventory. These are:-

To Protect Against Uncertainties: - In any inventory system, there are Uncertainties in supply, demand and lead time. Safety stocks are maintained in inventory to protect against those uncertainties. (Ibid)

To Allow Economic Production and Purchase: - It is often economical to Produce materials in lots. In this case, a lot may be produced over a short period of time and then no further production is done until the lot is nearly depleted. This makes it possible to spread the set up cost of the production machines over a large number of items. It also permits the use of the same productive equipment for different products.

To Cover Anticipated Changes in Demand or Supply:-There are several Types of situations where changes in demands or supply may be anticipated. One case is where the price or availability of raw materials is expected to change. Another source of anticipation is a planned market promotion where a large amount of finished goods may be stocked prior to a sale. (Ibid)

To provide for Transit: - transit inventories consist of materials that are no their Way form one point to another. These inventories are affected by plant location decisions and by the choice of carrier. Technically speaking, inventories moving between stages of production, even with in a plant, can be also classified as transit inventories. (Ibid: 418)

To Maintain Flexibility in Scheduling: - costs and complexities related to Scheduling personnel and equipment sometimes make it desirable to produce at times and in quantities that do not directly correspond to current demand. (Stevenson, 1989:489)

2.1.5. Concept of Inventory Management

Inventory management is the process of efficiently overseeing the constant flow of units into and out of an existing inventory. This process is usually involves controlling the transfer in of units in order to prevent the inventory form becoming too high, or dwindling to levels that could put the operation of the company in to Jeopardy. Competent inventory Management also seeks to control the costs associated with the inventory, both from the perspective of the total value of the good included and the tax burden generated by the cumulative value of the inventory. (WWW.barcodesinc.com, 2013)

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. The second is 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 level. The third is inventory management has to do with keeping accurate records of finished goods that are ready for shipment. (Ibid)

2.1.6. The Need for Inventory Management

The following are some of the benefit of inventory management:

- Inventory management can help business be more profitable by lowering their cost of Goods sold and/or by increasing sales. (Hilton, 1994)
- Conduct and inventory management that answers the following questions:
- What is your inventory turnover (the number of times the inventory is rotated in a year) performance?
- If you can improve your inventory turnover performance, how much will your gross profit increase?
- How accurate are your records?

- Are you losing (and sales revenue) because your inventory records are not accurate enough - they show you have some in stock but actually, none? (Hilton, 1994)
- Inventory management can improve customer service. (Ibid)
- Inventory management can reduce inventory cost. (Ibid)
- Inventory management can increase productivity. (Ibid)
- Inventory management can prevent poor inventory record accuracy. (Ibid)

2.1.7. Activities of Inventory Management

The inventory control is mainly concerned with the following activities:

- Planning the Inventory: on the basis of the production schedule prepared from The sales forecasting in continuous production and customer order in intermittent production, the periodic requirements of the inventories are planned in advance. (Chunawalla, 2004: 537)
- of Inventories:- The inventories are procured from the selected Suppliers according to the planned requirements. This is done through the determination of inventory needs, contacting the suppliers, comparing their quotations, selecting the suppliers, and placing the purchase order with the selected suppliers. (Ibid)
- and Inspecting of Inventories: - the incoming materials are Received, verified with the purchase order and packing slip and are inspected to the verification of the quality. (Ibid)
- Storing and Issuing the Inventory: as noted above, the inventories are Procured in advance of their use. They are stored till they are issued to the respective production departments. The stored inventories are issued to the respective production department against the authorized material requisition. (Ibid)
- Recording the Receipt and Issues of Inventories: Inventories are properly Recorded in the bin card and attached to each bin (i.e., the container in which the inventories are stored) and in the stock ledger. At the end of each transaction, the entries are made in the receiving or issuing columns and the balance is struck. (Chunawalla, 2004: 537)

- Physical Verification of Inventories: At the end of specified period the Physical quantities of the inventories are verified with the book balance and the discrepancies are ascertained. The discrepancies analyzed and the reasons for the inventory losses are located. (Ibid:538)

Follow up Functions: inventory control also involves the analysis of the excessive usage of the inventories. It tries to find out the reason for such excessive consumption of raw materials and parts. (Ibid)

- Material Standardization and Substitution: inventory control also aims to standardize the materials and to search for cheaper substitute. Value engineering is popular control technique which searches for cheaper substitutes. (Ibid)

2.1.8. Decisions in Inventor Management

Executives or managers are always facing the following questions regarding to the inventory decisions:

If the item of inventory is to be purchased, when to order? And how much to order? And

If the item of inventory is to be manufactured, when to start the production run?

And how much to produce in one production run? (Kumar and Ghosh, 2003:172)

2.1.9. Information to Inventory Management for Inventory Analysis

The following are the type of information required for an inventory analysis:

Analyze the Demand Pattern:- inventory decision heavily depend on demand. If the expected demand is very high, then it is true that you should keep the large amount of inventory in your store. (Stevenson, 1999:490). Demand for the good may be deterministic, that is to lie, the pattern of demand is known with certainty or may be stochastic or probabilistic, in which case the demand distribution has to be determined through an analysis of the past data. (Kumar and Ghosh, 2003:175)

Determine the Lead Time Pattern:- lead time means the time gap between placing and receiving and order. It is the length of time receiving and ordering the item. The lead

time may be zero, constant or a random variable. The data regarding the lead time are analyzed and the distribution of the lead time determined. In all circumstances, a short term lead time is favoured. This is usually true for urgent or immediate needs or inventory, (Ibid)

Reviewing The Inventory Accounting System or Policies: - there are two Types of policies (systems) for the inventory management regarding to review the inventories. These are:

Periodic Inventory System: - in case of this system the quantity and value ofinventory is found out only at the end ofaccounting period after having a physical verification (examination) of the units in hand. The system does not provide information regarding the quantity and value of material in hand on continuous basis. The cost of material used is obtained by adding the total balance of inventories during the period to value of inventory in hand in the beginning of the period and subtracting the value of inventory at the end of the period. (MacheshWari, 2000: 67)

Perpetual Inventory System:- in contrast to the periodic inventory system, the perpetual inventory system uses accounting records that continuously disclose the amount of the inventory. A separate account for each type of inventory is maintained in a subsidiary ledger. The balances of the accounts are called the book inventories of the items on hand. (Fess and Warren, 1987:352)

Identify the Costs Associated With the Inventory

Costs on inventory consisting of three basic costs. These are:

Ordering costs and acquisition costs: - which are costs associated with the placement of an order for the acquisition or replenishment of stock of inventory. Ordering cost per year vary with the number of orders placed a year. Costs incurred each time an order is made can include requisition cost, purchase orders transportation and shipping, receiving, inspection, handling and placing in storage, accounting, bill payment and auditing cost. (Bhat, 2003:570)

Carrying (Holding) Costs: It includes all expenses incurred by finals because of the volume of inventory carried. As inventory increases so do these costs. They can be broken down in to three categories: (Arnold, 2007:246)

Capital Cost: money invested in inventory is not available for other uses and as such represents a lost opportunity costs. The minimum cost would be the interest last by not

investing the money at the prevailing interest rate, and it may be much higher depending on investment opportunities for the firm. (Ibid)

Storage Cost: storing inventory requires space, workers and equipment. As inventory increases, so do these costs. (Ibid)

Risk Costs: The risks in carrying inventory are:

Obsolescence: loss of product value resulting from a model or style change or technological development

Damage: inventory damaged while being held or moved.

Pilferage: good last, strayed, or stolen.

Deterioration: Inventory that rots or dissipates in storage or whose shelf life is limited. (Arnold, 2007:246)

Shortage costs or stock out costs: this occurs when customer demand cannot meet because of insufficient inventory on hand. Shortage may result in permanent loss of profit. Shortages can also cause customer dissatisfaction and a loss of good will which may result in permanent loss of customer and future sales. In some instances delayed deliveries to customer due to shortages may result in specified penalties the form of price discounts or rebates. When demand is internal, shortage can cause work stoppages in the production process and creates delays resulting in downtime costs and cost of lost production. (Bhat, 2003:570)

The three costs are related to each other in some way or the other. The ordering cost per year decreases as the order size (i.e., the quantity ordered in each order) increased, thereby decreasing the number of orders per year. However, an attempt to place a few orders per year results in bigger order size which in turn increase the average inventory held and the carrying cost or holding cost. Shortage occurs because it is too costly to carry inventory in stock. As a result shortage costs are inversely related to carrying costs. As the amount of inventory on hand increases, the carrying cost increase while shortage costs decrease.(Ibid)

The objective of inventory management is to employ an inventory control system that will indicate how much should be ordered and when orders should be placed in order to minimize the sum of the three costs, i.e. ordering costs, carrying costs and shortage costs.(Ibid)

B. Selecting Appropriate Cost Flow Assumptions

A major objective of inventory management is the proper determination of income through the process of matching appropriate costing against revenue. It requires assigned of proper Cost to inventory as well as good sold, however, it should be noted that assigning of such costs need not confirm to the physical flow of good. (Macheshwari; 2000:679)

The various methods for assigning historical costs to inventory and goods sold are being explained below.

Specific Identification: according to this method each item of inventory is identified With its cost. The total of various costs so identified constitute the value of inventory. This method is generally used when the material or good have been purchased for a specific job customer. Such materials or goods when received are earmarked for the job or customer for whenever demanded (Macheshwari; 2000: 679)

This method is best suited to inventories of high priced, low volume items. This is the only method exactly parallels the physical flow of the inventory. If each items in the inventory is unique. As in the case of valuable paintings, custom Jewellery, and most real estate, specific identification method is clearly the logical choice. (Meigs, Meigs, Bettner, and Whittington, 1996: 472)

The specific identification method has an institute appeal, because it assigns actual purchase costs to the specific units of merchandise sold or in inventory. However, when the units inventory are identical (or nearly identical). The specific identification may produce misleading statements by implying differences in value which-under current market condition-do not exist. (Ibid)

First in First out (FIFO) Method:- this method of costing inventory is based on the Assumption that costs should be charged against revenue in the order in which they were incurred, hence the inventory remaining is assumed to made up of the most recent costs. (Fess and Warren, 1984:356). Over the last 50years, we have lived in an inflationary economy which means that most prices tend to rise over time. When purchase costs are rising, the FIFO method assigns lower (order) cost to the cost of goods sold and the higher (More recent) costs to the cost of goods sold remaining in inventory. (Meigs, Meigs, Bettner, and Whittington, 1996:472)

By assigning lower costs to the, FIFO usually causes a business to report somewhat higher profits than would be reported under the other inventory valuation methods, some companies favours the FIFO Method for financial reporting purpose, because their goal is to

report the highest net income possible. For income tax purpose, however, reporting more income than necessary results in paying more income taxes than necessary. (Meigs, Meigs, Bettner, and Whittington, 1996:472)

Last In First Out (LIFO) Method:

This method is based on the assumption that last items of material or goods purchase are the first to be issued or sold. Thus, according to this method inventory consists of items purchased at the earliest cost. This method emphasis the matching principle because current costs are properly match against current revenue. This is the matching principles income measurement is carried out. (Macheshwari, 2000:682)

Income tax consideration, however, provide the principal reason for the popularity of the LIFO method. Remember that LIFO Method assigns the most recent inventory purchase costs to the cost of goods sold. In the common situations rising prices, these "most recent" costs are also the highest costs. By reporting a higher CGS than results from the other inventory valuation methods, the LIFO method usually results in lower taxable income. In short, if inventory costs are rising, a company can reduce the amount of if income tax obligations by using the LIFO method in its income tax returns. (Meigs, Meigs, Bettner, and Whittling ton, 1996:474).

Weighted Average Method: this method of inventory valuation is based on the assumption that all goods are commingled and that no particular batch of goods is retained in the inventories. Thus, the inventories are valued on the basis of average prices paid for the goods, weighted according to the quantity purchased of each price, (Mosich.1989:413).

Identical items will have the same accounting values only under this method. The method properly recognized that when a customer buys a good it is not necessary to know exactly which good the customer selected for the bin in order to measure the cost Of good sold. Therefore, weighted average method avoid the short coming of specific identification method it is not necessary to keep track of the specific items sold and of those still in inventory. (Meigs, Meigs, Better, and Whittington, 1996:472)

As discussed in the earlier sections, the method of valuation of issues is independent of the method of valuation of inventories, which is a part of balance sheet of the company. The various factors considered in the selection of the method of valuation of inventories are:

- Nature of inventory
- Trends of price fluctuation.
- Inventory Turnover
- Value of the inventory
- Tax laws. (Saxena, 2003).

2.1.10. Selective inventory Management and control analysis

Selective inventory management and control analysis are based on the principle that it is impossible to manage and control every items in inventory holdings in the same way and skill so as to meet the two brood objectives of inventory control, i.e., to reduce investment in inventories, and also to avoid stock outs and shortages. Selective inventory management and control analysis, therefore concentrates on those items where it is justified either due to essentiality or amount of money involved. In other word, the approach is to evaluate a trade-off between the cost of inventories as against cost of control (Sharma, 1999: 532).

Were some of the common analysis used for exercising selective control techniques are being discussed.

A-B-C Control Analysis

It is difficult and very costly to give equal attention to all the items of inventory. A-B-C analysis is meant for relative inventory control in which maximum attention can be given to items which consume more money and a fair attention can be given to medium value items, while the attention for low value can be reduced to routine procedure only. Thus, we see that control policies for A,B and C items based on two principles, namely

To keep capital tied up inventories as low as practicable; and

To ensure that all the material would be available when required. (Sharma, 1999: 532)

The A-B-C analysis is an effective tool for controlling raw material, components and consumable stores inventories, in the normal course of business. It should be reviewed periodically so that changes in price and consumption are taken in to account. The predictability would depend on the pattern of fluctuations. (Kumar and Ghosh 2003:184)

VED Analysis

This analysis categories items according to their criticality and its effect on production and other services. It is specially used for the classification of maintenance spares. The “V” in V-E-D stands for “Vital” items without which production would come to a half. ”E” stands for “Essential” item for want of which temporary losses in or dislocation of production occurs. “D” denotes “Desirable” items - all other items which are necessary but do not cause any immediate loss in production. The stock out of desirable items may entail nominal expenditure in procurement and cause minor disruption for a short duration. (Ibid: 185)

SDE Analysis

This analysis is based on the availability position of each items. In this analysis2 “S” refers to scarce items, which are in short supply and their availability is scarce. This includes imported items. “D” refers to difficult items, which cannot procured easily. “E” refers to Easily Available items. (Sharma, 1999:536)

MNG Analysis

In this analysis, “M” refers to moving items. These items are consumed from time to time.“N” refers to Non-moving items. These items are those items which are not consumed in lost one year.“G” refers to Ghost items. These are those items which had nil balance both at the beginning and at the end of the last financial year and there were no transaction (receipt or Issues) during the year. These are non-existing items for which the store-keeper keeps bin-cards showing nil balance. (Ibid)

2.1.11. Economic Order Quantity

EOQ the calculating method used to determine the best level of inventory for production while being the most cost effective for holding and ordering EOQ, as it is referred to, has been around since the rise of modern manufacturing processes back in the early 20th century. The first model for calculating EOQ was designed in 1913 by F.W.Harris. (Www. Askdeb.com, 2013)

EOQ is attempts to minimize the costs of ordering and holding inventory; it attempts to minimize total inventory cost by answering the following two questions:

- Much should I order? (EOQ)
- How often should I place each order? (Cycle time). (Hilton, 1994:407)

The following are the basic Assumptions of EOQ model:

- Demand is known with certainty.
- Demand is relatively constant over time.
- No stock out are allowed
- Orders are delivered at once.
- All costs are assumed to be known and constant.
- All orders are placed independently or no joint orders. (Hilton, 1994:407)

The formula of EOQ is as follows:

$TC= K(D/Q) + HC(Q/2)+DC$

Where As: K= order cost per year H= Carrying Cost Per unit

D= annual demand in units C= Cost of individual item

EOQ= Economic order quantity TC= Total Annual Inventory Cost (Optimal recorder quantity)
Q= Reorder Quantity (Ibid)

As long as the data used for the calculation is accurate, this formula is a good method for determining EOQ. However, many inventory management systems are plugged with inaccurate data, Miscalculations, such as exaggerated costs are common mistakes.(WWW.askedb.com,2013)

2.1.12. Material Requirement Planning (MRP)

MRP is a computer based information system designed to handle ordering and scheduling of dependent demand inventories (e.g., raw materials component parts, and sub-assemblies). A production plan for a specified number of finished products is translated in to requirements for component parts and raw materials working backward form the due date, using lead time and other information to determine when and how much to order. Hence, requirements for end items generate requirements for lower level components, which are broken down by planning period (e.g. weeks). So that ordering, fabrication, and assembly can be scheduled for timely completion of end items while inventory levels are kept reasonably low. MRP is as much a philosophy as it is a technique, and as much as approach to scheduling as it is to inventory control. (Stevenson, 1999:619)

MRP offers number of benefits for typical manufacturing or assembly type of information, including:

- How level of in process inventory.
- The ability to keep track of material requirements.
- The ability to evaluate capacity requirements generated by a given master schedule.
- A means of allocating production time. (Stevenson, 1999:639)

2.1.13. Just-In Time (JIT)

JIT refers to a production system in which both the movement of goods during production and deliveries from suppliers are carefully timed so that at each step of the process the next (usually, small) batch arrives for processing just as the preceding batch is completed thus the name, just in

time. The result is a system with no idle items waiting to be process, and no idle workers or equipment waiting for items to process. (Ibid: 658)

JIT phenomenon is characteristics of lean production systems, which operate with very little "fat" (e.g. excess inventory, extra workers, and wasted space). JIT pertains to the timing of the flow of parts and materials through the system, and the timing of services. Companies that employees the JIT or lean production approach typically enjoy a competitive advantage over companies that use a more traditional approach: they have lower processing cost, fewer defectives, greater flexibility, and are able to bring new or improved products to the market more quickly. (Ibid)

The ultimate goal of JIT is a balanced system, that is, one that achieves a smooth, rapid flow of materials through the system. The degree to which the overall goal is achieved depends on how well certain supporting goals are achieved. Those goals are:

- Eliminate disruptions.
- Make the system flexible.
- Reduce set up times and lead times
- Minimize inventory
- Eliminate waste. (Ibid: 662)

2.1.14. Internal Control of Inventories

The term internal control has been defined as the Whole system of control, financial or otherwise, established by the management in order to carry on business of the company in an orderly manner, lifeguard its asset and secure as far as possible the accuracy and reliability of its record. The simple word it means a number of checks and internal controls on various activities of the business. (Saxena, 1990:44)

Internal controls over inventories are safeguard the inventory and properly reporting it in the financial statements. These internal controls can be either preventive or detective in nature. A preventive control is designed to prevent error or misstatements from occurring. A detective control is designed to detect an error or misstatement after it has occurred. (Warren, Reeve and Fess, 2005:35)]

The need for internal control is common to all organizations. Internal control is all measures taken by management to ensure that the organization:

- Operates efficiently and effectively,
- Produce reliable financial information's and
- Complies with applicable laws and regulations.

In short, internal control consists of those measures designed to keep the business on track. (Meigs, Meigs, Bettner, and Whittington, 1996:305)

2.1.14.1. Guidelines for Achieving Strong Internal Control over Inventories

I. Establish Clear Lines of Responsibility:- Every organization should indicate clearly the persons of department responsible for such functions as sales, purchasing, receiving incoming shipments, paying bills, and maintain accounting records. The lines of authority and responsibility can be shown in an organization chart. (Ibid: 306)

ii. Establish routine procedure for processing each types of transaction If management is to direct the activities of a business according to plan, every transaction should go through four separate steps: it should be authorized, approved executed and recorded. (Ibid)

• Subdivision of Duties: - perhaps the most important concept in achieving internal Control is an appropriate subdivision or separation of duties. Responsibilities should be assigned so that no one person or department handle a transaction completely from beginning to end. When duties are divided in this manner, the work of one employee serves to verify that of another and any errors which occur tend to be detected promptly. (Meigs, Meigs, Bettner, and Whittington, 1996:306)

• Internal Auditing: virtually every large organization has an internal auditing staff. The objectives of internal auditors are to monitor and improve the system of internal control. Internal auditors test and evaluate internal controls in all areas of the organization and prepare reports to top management on their findings and recommendations. (Ibid: 308)

• Financial Forecasts: A plan of operation is prepared each year setting goals for each Division of the business. Actual results are compared with forecast amounts month by month. This comparison strengthens control because variations from planned results are investigated promptly. (Ibid)

- Competent Personnel: Even the best designed system of internal control will not Work well unless the people using it are competent. Competent and integrity of employees are in part developed through training programs, but they also are related to the policies for selection of personnel and to the adequacy of supervision. (Ibid; 309)

- Rotation of Employees: the rotation of employees form one job to another may Strengthen internal control. When employees know that another person will soon be taking over their duties, they are more likely to maintain records with care and to follow established procedures. The rotation of employees also may bring to light errors or irregularities caused by the employee formerly performing a given task. (Ibid)

- Serially Numbered Documents: documents such as checks, purchase orders, sales Invoices, etc. should be serially numbered. If a document is misplaced or concealed, the break in the sequence of numbers will call attention to the missing item. (Ibid)

2.1.14.2. The Role of Business Documents

Strong internal control requires subdivision of duties among the departments of the business. How does each department know that the other departments have fulfilled their responsibilities? The answer lies in the use of carefully designed business documents, some of the more important business documents used in controlling purchase of inventory are the following. Meigs, Meigs, Bettner, and Whittington, 1996: 309).

- Purchase Requisition: it is issued when quantity on hand falls below established Reorder point. It is initiated by departmental sales managers or stores department. Then this sent to original to purchasing department, copy to accounting department. (Ibid: 310)

- Purchase Order: is issued when order is placed; indicates type, quantities and prices of inventory ordered. Usually initiated by purchasing department. Then sent original to selling company (Vendor, supplier). Copies to department requisitioning goods and the accounting department. (Ibid)

•Invoice: is confirms that goods have been shipped and request payment. Mostly initiated by seller (supplier). Send to accounting department of buying. (Ibid).

- Receiving Report: Based on count and inspection of goods received. It is initiated By receiving departments of buying company. Sent to original to accounting department, copies to purchasing department and to department requisitioning goods. (Ibid: 311)

- Invoice Approval Form: Based up on the documents listed above; authorizes Payment of the purchase invoice. It is initiated by accounting departments of the buying company. Sent to fiancé department, to support issuance of check; returned to accounting department with a copy of the check. (Ibid)

2.1.15. Errors, Frauds and Control Activities

For each major transactions cycle, controller considers the error or frauds that occur and then identify control activities that could serve either to prevent or to detect the errors or frauds. In view of the concept of reasonable assurance, a controller must have a general understanding of how employees could make errors or intentionally commit and conceal frauds. Te risk of undetected error or frauds could be affected by number of situations that need exist only occasionally to result in materials misstatements, such as;

- Transactions are not authorized
- Transactions are approved but do not confirm to what is authorized
- Inventories and other tangible assets, blank forms, or accounting records are exposed to unauthorized access.
- Inventories and other tangible assets written off are exposed to unauthorized use or disposal.
- Accounting policies are not formally authorized and documented, or financial presentations do not confirm to authorize policies. (Ricchiute, 1998:245)

Any of these situations could present opportunities for intentional frauds and therefore should be considered by a controller when evaluating control effectiveness. But to commit and conceal a fraud, an employee would need access both to asset and to records: accesses to assets are needed to commit a fraud, and accesses to records are needed for concealment. After

considering the types of error or frauds that could occur, a controller next consider control activities that management has implemented to detect or prevent the errors or frauds. (Ibid)

One of the control activities is test of control. The purpose of test control is testing the effectiveness of the design or the operation of an internal control policy or procedures. Test of control address three questions:

- Were the necessary control activities performed?
- How were they performed? And
- By whom were they performed? (Ibid: 246)

2.2. Empirical Literature Review

In 2007, Arega, Behailu, Berhanu, EshetuGizaw, and Tadu Berta was worked a research paper on the tittel of "inventory management and controlling system in Meta abo Brewery Share company". And also in 2009, GizawBekurtsion and mohammedAbera worked a research paper on the title of "An assessment of inventory management system on ALSAM trading PLC." The objectives of the Former (2007) paper are to discuss the nature, aim and challenge of inventory management and control, and evaluate the controlling mechanisms of obsolete inventory.

As discussed in chapter one, the objectives is to assess the overall inventory management and control system in Tsedey mineral water, assess the inventory physical flows are accurately and completely record, assess the accounting principles used to measure and analyze the inventory, etc. our objectives are more wider and provide good sand detailed knowledge and information about the study company than the above two research papers in terms of mentioning and explaining the overall management and accounting principle.

In the methodology's part, they used semi-structured personal interview, personal observation and questionnaires as a primary source. Their secondary sources are the cost records, and other published and unpublished documents inside the company. The data analysis methods used are descriptive analysis and other statistical tools such as tables, percentages and ratio.

As we discussed in chapter one, our methodologies are totally the same as the papers we mention in the above.

Based on the data collected by the above researchers from primary and secondary data sources, the conclusions in the former (2007) worked paper on the Meta Abo brewery share company was storage of raw materials not in good conditions, there is no timely disposal of obsolete spare parts,

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Research Design

A descriptive study was used to employee with an assumption that it helped to generate adequate information about the major challenges in the internal control over inventory. Descriptive research studies, which are concerned with describing the characteristic of a particular or group.

3.2 Population and Sampling Techniques

Out of the available departments in the enterprise, the purchasing department, finance department and store department will be taken as the major focus of attention in the study. Responsible individuals for various positions will be contacted for the required data and information necessary for the study by using judgmental sampling method.

Among the selected departments there are 53 employees; out of these employees the researcher select 16 employees by judgmental or purposive sampling the technique. The selection criteria are availability for our questioners and direct relationship to inventory record and inventory items.

3.3 Method of data Collection

Primary Data

The primary data was collected from primary sources by the use of Semi structured interview for finance manager, personal observation and questioners.

Secondary Data

The source of secondary data was published and unpublished documents inside the company.

3.4 Data Analysis Method

The method used for data analysis was the descriptive analysis and also use statistical tools such as tables and percentages will be used.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

Till now we are discussed the theoretical and historical part of inventory management and control system deeply and empirical part roughly. Thus in this chapter we entails the practical analysis of Tsedey purified mineral water factory's inventory management and control system in terms of its effectiveness and efficiency of the factory's overall performance.

Accordingly, structured questionnaires were prepared and distributed to 16 employees, of which 12 questionnaires are returned.

4.1. Personal Information of the Respondents in the factory

Item 1	Sex	Respondents	
		Number	Percentage
	Male	10	83.34 %
	Female	2	16.66 %
	Total	12	100 %
Item 2	Age		
	18-25 yrs	3	25%
	26-3 yrs	6	50%
	33-40 yrs	1	8.33%
	Above 40 yrs	2	16.64%
	Total	12	100%
Item 3	Education background		
	Certificate	0	0%
	Diploma	8	66.67%
	First degree	3	25%
	Second degree	1	8.33%
	Other	0	0%
	Total	12	100%
	1-5 years	10	83%
	6-10 years	1	8.33%
	11-15 years	1	8.33%
	Above 15 years	0	0%
	Total	12	100%

Table 4.1: Personal Information Response (source: own survey, 2021)

The above table tells us about the personal information of the workers that work in Tsedey purified mineral water factory.

According to the first item, that is the gender, 83.34% (10) of the majority accounts to male and 16.66 (2) are female. Saying this does not mean that there are not much female workers in the factory. But in these departments like store, production, purchasing and other related to the inventory, men has the upper hand.

In the second item, the respondents ages are shown, the majority holds almost 75% (9) are between the ages 18-32 years and the other constitutes 25% (3) that is the ages above 32 years. As observed,there are many young workers that constitute this factory in these related departments like store, production and purchasing and others.

In the third item educational status is shown as follows 66.67% (8) have diploma, 25% (1) have degree and 8.33% (1) have a second degree holder. In this judgmental selected sample, no one has claimed as certificate and others.

In relation to the experience that they have gained in the Tsedey purified mineral water factory and other factory and other factories in the same position shown in item four, at total of 83.34% (10) respondent have spent 1-5 years, 8.33 (1) of the respondent have spent 6-10 years. And 8.33% (1) of the respondent have spent 11-15 years. In this judgmental sampling method no one has above 15 years' work experience.

4.2 Analysis and interpretation of the study

The Type of the Factory and Its Inventory Management Practices

The Type of the Factory

Tsedey purified mineral water factory is the type of manufacturing company. If one company is a manufacturing company that in the manufacturing and processing of items and can in either creation of new commodities or in value addition, Tsedey purified mineral. Water factory is manufacturing and processing of bottled water. the factory as a manufacturing sector can generate a lot of wealth, generating employment, introducing latest techniques, real earning from shipments, with the implementation of the concept of eco-friendly environment, etc.

4.2.1. Types of Inventories in the Factory

As we gained information through the interview from Tsedey purified mineral water factory have the following inventory types.

I. Raw materials: - the factory has raw materials such as poly sheet, labels, jar steel, cap, Handle, Performa, different concentrate, chemical, spare parts, etc.

II. Operating supplies; - in Tsedey operating supplies are material which aid in the Manufacturing of the product but not part of it.

III. Office supplies; - they represent papers, pencils forms envelops, which are used in the Factory.

IV. Finished products; - these are the products which result from the manufacturing process Of raw materials and others Tsedey purified mineral water factory has different types of finished product as part of inventory. These includes Tsedey purified mineral water in 0.5, 1.0, 1.5, 2.0 litters bottle and 5 gallon returnable polycarbonate jar.

Tsedey purified mineral water factory also use the moving time of inventory as the classification criteria. So the factory classifies its inventory as follows.

1. Fast moving items;-within a year. E.g. raw materials
2. Medium moving items; - from 1-3 years. E.g. office equipment
3. Slow moving items; - above 3 years. E.g. equipment
4. Dead items;-

As shown in the above, the factory properly classifies its inventory. This uses for the company to manage and control its inventory appropriately.

4.2.1.2 Regular Purchase of Inventory in the Factory

According to respondent's response, Tsedey purified mineral water factory make regular purchase of inventory make regular purchase of inventory in every three months from local and abroad suppliers.However, if the factory production spare parts and other urgent need occur make purchasing of inventory even within a day.(questionaries')

4.2.1.3 Factory's System to Manage Its Inventory

According to the respondent response and observation Tsedey purified mineral water factory use periodic inventory system to manage its inventory. The reasons behind the use of this system by Tsedey purified mineral water are for inventory valuation for financial reporting purpose where a physical count of the inventory is performed at specified interval. and also this inventory system only keep track of the inventory at the beginning of the period, the purchase made and the sales during the same period and this is recorded under the asset section of the balance sheet. .(sources open ended questionaries')

4.2.1.4 Factory's Type of System Used to classify its Inventory Items

According to the respondents and interviewee response, Tsedey purified mineral water classify its inventories according to their price or cost and their criticality. The former classification said to be the ABC classification and the letter is VED (vital, essential and desirable) classification. ABC is effective tool for the factory to control raw material, components and consumable stores inventories, in the normal course of maintenance spares. .(sources questionaries')

4.2.2 Inventory Valuation Method and Inventory Cost of the Factory

4.2.2.1 Inventory Valuation Technique of the Factory

According to the respondent response of our questionnaire and interview question, Tsedey purified mineral water factory uses the weighted average cost flow assumption. Whatever the average used, the issues will be coasted at the average price irrespective of the lot from which the issues is made. The average price does not change with issues but it will change with a fresh supply when a new average will be calculated. The methods sales clerical labour and adhere to the costing principle. In periods of fluctuating price, the average method will be even cut the fluctuations.

The following are conditions following weighted average cost flow assumption in Tsedey purified mineral water factory:

- When the market price of the water is subject to constant fluctuation, the weighted average method makes the up warred or downward friend more gradual.
- When material used in producing water are consist largely of small items issues in small quantities, the weighted average method may be used conveniently.

According to the interview response, the advantage that the Tsedey purified mineral water factory can achieve through the use of weighted average cost flow assumption includes:

- This method stabilizes different costs related to the mineral waters.
- The method is free from objection by the income tax authority.
- It's most acceptable method of pricing issues.

4.2.2.2 Inventory Cost of the Factory

In Tsedey purified mineral water factory, the three major costs that are relevant and which should be determined are; ordering (procurement), carrying and shortage cost.

I. Procurement Cost

According to the interviewee response, in the factory, procurement or acquisition cost contributes to the cost of generating and processing order and related paper work. It includes the factories:

- Expenses related to the information processing of purchase requisition and purchase order.
- Portion of wages of purchasing, receiving inspection production control personal of factory.
- Expenses related to tendering perform involves offer analysis and selection of the winner.
- Expenses related to services like telephone, fax, etc

These costs are generally fixed in the factory regardless of the size of the order, it's true that a large order may require more time and cost to purchase than a small order. But increase in procurement cost is small. (Source factory document)

II. Carrying (Holding) Costs

According to the interviewee response, in Tsedey purified mineral water factory, the factory's carrying (holding) cost is the cost that is in incurred as a result of maintaining stock items.

The following are the main element of carrying cost of the factory.

- Interest charges on inventory investment.
- Insurance cost related to storage building and material handling equipment.
- Obsolescence and deterioration cost.
- Warehouse space utilization cost.
- Property taxes.
- Material handing expense.
- Opportunity cost.

III. Shortage Costs

According to the interviewee response, in Tsedey mineral water factory, the stock an item is depleted an order for that item must either wait until the stock replenished or be cancelled.

There is a tread off between carrying stock satisfy demand and the cost resulting from stock out. This balance in Tsedey mineral water factory is same times difficult to obtain, since it may not be possible to estimate the last profit, the effect of last profit customers, or lateness penalties. Frequently, the assumed shortage cost is little more than a guess, although it is usually possible to specify a range of such costs. Established the correct quantity to order from vendors or the size of lots submitted to the Tsedey purified mineral water factory's productive facilities involves a search of three individual costs.

4.2.3 Inventory Parameter Level of the Factory

4.2.3.1 Factory Determining Inventory Level in the Factory

In Tsedey purified mineral water factory, the amount of inventory carried is determined by a number of factory such;

- lead time
- Safety stock
- Storage space
- Availability of supply.

According to the interviewee response, in the factory, the highest peak of inventory level is reached when a new shipment is received. The lowest level is experienced when usage, during the load time, is greater than planned or when deliveries are late to the factory. Safety stocks are influenced by uncertainties of demand and lead time of the factory and protected against a stock out from the factory.

4.2.3.2 Parameters of Inventory Being Used by the Factory

In every factory safety stock level should decide very carefully as low level may lead to stock out position and higher level mean blockage of capital and also every factory has maximum stock, itDesignated the upper limit of the inventory and largest quantity which in the interest of the economy should generally kept in stores.

Item	Respondent		
	Response	Number	Percentage
Does your inventory system being used in your company provide a determined inventory	Yes	12	100%
	No	0	0%
	Total	12	100%

Table 4.2: Response of Parameters of Inventory Being Used questionaries,2021

Determining the inventory level is important in the Tsedey purified mineral water factory knowing what level of stock should at some period will determine the effectiveness of inventory

usage in the factory. In the above response all 100% (12) of the respondent replied that they use a pre-determined inventory parameter level.

4.2.3.3 Material Requirement Planning (MRP) in the Factory

According to the respondents and interviewee response, Tsedey purified mineral water factory use MRP system to create a schedule for identifying specific parts and material required to produce end items, the exact number needed, and dates when order for these material should release and be received or completed within the production cycle. The main purpose of the company's MRP system is to control inventory levels. Assign operating priorities for items, and plan capacity to load the production system objectives of MRP in Tsedey purified mineral water factory are to improve customer service, minimize inventory investment, and maximize production operating efficiency.

4.2.3.4 Economic Order Quantity (EOQ) in the Factory

According to the respondents and interviewee response, the quantity to be ordered in Tsedey purified mineral water factory at one time is known as order quantity and should be determined with good care. In the factory, if it's small, a number of orders will have to be placed in a year involving costs in terms of clerical labour, material handling, etc. Also there will be loss in terms price and transport costs.

Large orders avoid these losses and will leads and to economy intransport costs and price concession, but there will be costs in terms interest payments for the money locked up and in terms of storing costs an order should be large enough to enable the factory to earn proper discounts and to take advantage of bulk transport but it should not be too large to involve too heavy payment of interest.

Thus, factors influencing the size of EOQ depend up on the following factors in Tsedey purified mineral water factory:

- Purchase price per unit for different ordering quantities.
- Cost of purchasing per unit for different ordering quantities.
- The size of average inventory in respect of various ordering quantities.
- Inventory storage charges per unit.
- Inventory carrying charges for different ordering quantities

4.2.4 Possible Sources of Problems and Wastages of Inventory Item in Factory

4.2.4.1 Possible Sources of Problems in Factory's Inventory Management

Item	Respondent		
	Response	Number	Percentage
What are source of problem in inventory management	Lack of skilled man power	9	75%
	Limitation of capital	0	0%
	Policies procedures and principles of the organization regarding inventory control	3	25%
	Total	12	100%

Table 4.3: Source of Problem in Inventory Management Response

As indicated in the above table 75% (9) of respondent believe that inventory management problem arises due to lack of skilled man power. 25% (3) of the respondent mention the problem raised due to polices procedures and principle of the factory regarding inventory control. In this judgmental sampling method no one explain limitation of capital as a constraint.

The above percentage indicates that, significant factor affecting overall performance of inventory management and control of Tsedey purified mineral water factory is lack of skilled man power.

4.2.4.2 Wastage of Inventory Items in the Factory

Item	Respondent		
	Response	Number	Percentage
How often wastage of inventory Your company?	Frequent	5	41.67%
	Less Frequent	6	50%
	Infrequent	1	8.33%
	Total	12	100%

Table 4.4: Wastage of Inventory Items Response

According to table 3.4, 41.67% (5) of the respondents replied that wastage of inventory item in the company is frequent.50% (6) and 8.33% (1) of the respondents indicates that wastage of inventory item is less frequent and insignificant respectively.

The respondent's percentage, majority of employees believes that wastage of inventory item in the company is significant amount.

According to the interviewee response, Tsedey purified mineral water factory recognizes the high level of wastage of inventory items in the factory. Thus in the near future the factory chiefly uses the following methods for minimizing wastages.

Comparisons; - cost per unit of output regard materials in one period is compared with that in another period. Comparisons used to know the efficiency and in efficiencies of one periodcompared with another period. This comparison also used to understand about the reasons and results behind the in efficiency.

- Standards;- for the purpose of finding out the existence of in efficient or wastage, it is essential to know beforehand what quantity of raw materials are required to make one units of finished goods. (source; interview)

4.2.5 Internal Control over Inventory in the Factory

If the inventory contains mostly raw material, keeping track of it's essential for ensuring that the production process using it will not run short of materials. This means that it need to implement system of controls, either to prevent theft or to ensure that the manufacturing operations does not run short of inputs.

The following, are the key internal control areas that use in the Tsedey mineral water factory. The data gained through open ended questionnaire from the judgmental selected samples that work in the factory.

4.2.5.1Segregation of Duties in the Factory

Item	Respondent		
	Response	Number	Percentage
Are inventory control personnel segregated from purchasing, receiving, shipping production and recording function in your	Yes	10	83.34%
	No	2	16.66%
	Total	12	100%

Table 4.5: Response about Segregation of Different Duties

From the table 3.5 majority of the respondent 83.34% (10) have answered that inventory control personnel is segregated from purchasing ,receiving, shipping, production and recording function

in the factory. The rest 16.66% (2) have answered that inventory control personnel is not segregated.

From the interviewee response and the indicated above percentages, there is segregated of duties among different organizational structures. It is important for the company segregated (separate) the authorization transactions, recording of transactions, and custody of inventory. There are four guidelines that implemented by Tsedey purified mineral water factory for segregated of duties to prevent intentional and unintentional errors and frauds in inventory.

- Separation of inventory from different assets.
- Separation of authorization of transaction from the custody of inventor

- Separation of duties with in the accounting section function.
- Separation of operational responsibilities from record keeping.

4.2.5.2 Establishment of Clear Lines of Responsibilities in the Factory

Item	Respondent		
	Response	Number	Percentage
Is there any clear lines of responsibilities are established in your company	Yes	11	91.67%
	No	1	8.33%
	Total	12	100%

Table 4.6: Response About of Clear Lines of Responsibilities

According to table 3.6, 91.67% (1) of the respondents are answers that there is clear lines of responsibilities are established in our company. 8.33% (1) of the respondents replies that there are no clear lines of responsibilities.

The respondent response shows that there is clear lines of responsibilities are established. The lines of authority and responsibility in Tsedey purified mineral water factory can be shown in an organization chart. The organization chart should be supported by written job description and responsibilities of each person or department appearing in the chart.

4.2.5.3Routine Procedures of the Factory

Item	Respondent		
	Response	Number	Percentage
Is there routine procedures for processing each Type of transaction in your company?	Yes	10	83.34%
	No	2	16.66%
	Total	12	100%

Table 4.7: Response about Factory's Routine Procedures

We see in table 3.7 that, 8.34% (10) of the respondent replied that there is routine procedures for processing each type of transaction in our factory.

The rest 16.66% (2) of the respondents answers that there is no routine procedure

According, the majority response is towards the present of routine procedures for processing each type of transactions in Tsedey purified mineral control system and check and balance.

4.2.5.4 Restriction of Inventory Accesses to Authorized Personnel in the Factory

Item	Respondent		
	Response	Number	Percentage
Is access to inventory restricted to Authorized personnel in your factory?	Yes	10	100%
	No	2	0%
	Total	12	100%

Table 4.8: Response about Restriction of Inventory Access

According to table 4.8, 100%(12) of the respondents response that in Tsedey purified mineral water factory access to inventory is restricted to only for authorized personnel. Thus this implies that the factory has effectiveness and efficiency of operation

4.2.5.5 Insurance Coverage in the Factory

Item	Respondent		
	Response	Number	Percentage
Is insurance coverage maintained and periodically reviewed for all inventory in Your factory?	Yes	12	100%
	No	0	0%
	Total	12	100%

Table 4.9: Response about Insurance Coverage

Existence of insurance for all inventory items helps to minimize or transfer the risks faced on inventory items. The above table 4.9 shows a question asked to know if each inventory items are insured and periodically reviewed in Tsedey purified mineral water factory.

The entire respondents respond that the factory's inventory has insurance coverage and the premium is renewed annually. So is one of the mechanisms to protect or respond to risks that inventory items face.

The entire respondents respond that the factory's inventory has insurance coverage and the premium is renewed annually. So is one of the mechanisms to protect or respond to risks that inventory items face.

4.2.5.6 Inventory Documents Used By the Factory

Tsedey purified mineral water factory use different documents for the requisition, receiving, purchasing, controlling and checking of its inventory. They are printed and pre-numbered. The number of copies required and there distribution is shown on the document itself. The factory uses the information from these documents for controlling and checking of its inventory. (factory document) As indicated in the manual of the factory and the following documents are used by Tsedey purified mineral water factory.

I. Goods Receiving Note: - this document is initiated by store for receipt of purchase goods, Equipment or other goods returned to store of the factory.
II. Returned Goods Receiving Note: - this document is initiated by store of the factory for Receipts of excess goods from the user or surplus parts, repaired components internally or externally.
III. Bin card: - it is prepared by stores for the purpose of identifying factory's stock items at Their locations. In the factory bin cards are prepared for all stock items. All receipt and issues in the factory are recorded on the cards.
IV. Inventory Tag:-Tsedey purified mineral water factory prepared inventory tag and attached To each stock item by stores to identify stock items.
V. Stores Requisition note: - this document is used by the factory's user department to Request for goods from stock.
VI. Stores issue voucher: - this document is prepared based on the stores requisition not by Appropriate store personnel after confirming that required goods are available in stock.
VII. Out stock goods notification slip: - this document is prepared by store of the factory when

The stock item required by user departments, is not available, totally or partially in stocks forwards it to inventory control to check it and inventory control section in turn, and passes it to purchasing to replenish the stock. The second copy remains with the stores.

The following question regarding the opinion of the selected sample towards the business documents used by the factory.

Item	Respondent		
	Response	Number	Percentage
Business documents used in your factory help full to control the inventory.	Yes	12	100%
	No	0	0%
	Total	12	100%

Table 4.10: Response about Factory's Business Document

Based on the above table 4.10, all of the respondents are saying that business documents used in the factory is help full to control the inventory, but the problem arises due to execution arrangements.

4.2.5.7 How Much Different Department Work Together Satisfy Factory's Objective

Interaction of different department in the factory:

Item	Respondent		
	Response	Number	Percentage
How do you explain the purchasing production and marketing departments' cooperation's to satisfy factory's Objective?	Excellent	0	0%
	Very Good	1	8.33%
	Good	11	91.67%
	Poor	0	0%
	Total	12	100%

Table 4.11: Response about Cooperation of Different Departments

As indicated in table 4.11, 8.33% (1) of the respondent replied that the cooperation of different departments are very good the other 91.67% (11) 0f the respondent answer that the cooperation of different departments are good. None of the respondents are replied excellent and poor.

4.2.5.8 The Problems in the Process of the Purchasing Department

	response	Respondent number	Percentage
Do you think there are problems in the Process of the purchasing department?	Yes	9	75%
	No	3	25%
	Total	12	100%

Table 4.12: Response of Problems in the Process of Purchasing Department

Regarding the problem in the process of purchasing department as indicated in table 3.12, 75 %(9) of respondents say the factory have problem in the purchasing departments. The rest 25 %(3) of the respondents response no problem in process.

Among the respondent they say "yes" for the above listed question, the possible reasons are:

- Poor in supply
- Proper timing is violated
- Hack of cost effectiveness

4.2.6. General improvement in relation with inventory

4.2.6.1Improvement in Relation with Inventory Control in the Factory

Item	Response	Respondent Number	Percentage
Does your company show improvement in relation with inventory control in the Past two years?	Yes	10	83.34%
	No	2	16.66%
	Total	12	100%

Table 4.13: Response Regarding Improvement of Inventory

From the table 4.13, 83.34 %(10) of the respondents respond that there is important in relation with inventory control. 16.66 %(2) of the respondents say that there is no improvement in inventory control.

Improvement of availability of proper documentation.

Improvement in segregation of duties and responsibilities.

Among the respondents they say "yes" for the above table 3.13, specify the following Improvement:-

Improvement in allocation of finished goods store from production store.

Improvement in strengthen the capacity of purchasing department.

4.2.6.2. Evaluation of Factory's Inventory Control Practice in General

Item	Respondent		
	Response	Number	Percentage
How do you evaluation your factory inventory control practice In general?	Excellent	0	0%
	Very Good	1	8.33%
	Good	11	91.67%
	Poor	0	0%
	Total	12	100%

Table 4.14: Response of Evaluation of Factory's Inventory Control Practice in General

We have seen that the factory has improved compared to past on the basis of inventory management. In the above table 3.14, the respondents were asked to evaluate the practice the factory undertakes to control inventories, and 8.33% (1) respondents replied that the factory has been doing quite remarkable very good. The other 91.66% (11) of the respondents have said it is been doing well in the practice of controlling inventories.

4.2.7 Comments on Suggestion

Each respondents were asked if they could comments on the overall inventory management practices in the factory; some have suggested that the company recruit additional workers, so that the work could be faster, develop a new system around store areas, try to change the policies that this factory follows, and the last but not the least, some workers concentrated on strengthening the purchasing department.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Summary of Findings

The objective of this study is to address the inventory management and control systems practical of Tsedey purified mineral water factory and to find out the problems related with inventory management and control system.

The method used to prepare this research is judgmental or purposive sampling technique to pick subjects from the population and types of data to be collected in primary and secondary data obtained through questioners, interviews and participatory observation method in addition to this the research design is description research study.

The method in analyzing and presentation data using descriptive analysis method like percentage tables. The research analysis can be summarized as follows.

Of the respondents, 83.34% (10) of the respondents are male and 16.66% (2) are Female.

75% (9) of the respondents are between the ages 18-32 years and the other 25 %(3) are The ages above 32 years.

All of the respondents are above diploma level.

All of the respondent, 100% (12) believe that Tsedey purified mineral water factory is The type of manufacturing company.

As a result in analysis indicated, all of the respondents, 100 %(12). Say that Tsedey Purified mineral water factory make regular purchase of inventory in every three months from local and abroad suppliers,

The study confirmed that, all of the respondents, 100% (12) answer that, Tsedey purified Mineral water factory use periodic inventory system to manage its inventory. The reason is for inventory valuation for financial reporting purpose.

According to the analysis, all of the respondents, 100 %(12), believe respondents that Tsedey purified mineral water factory uses weight average inventory valuation technique. The reasons behind the use of this system are;

According to the analysis, all of the respondents, 100 %(12), believe respondents that Tsedey purified mineral water factory uses weight average inventory valuation technique. The reasons behind the use of this system are;

For stabilizing different costs related to the mineral waters

Free from objection by income tax authority

Most acceptable method of pricing testis

The study indicated that, all 100% (12_) respondents believe that in Tsedey purified Mineral water factory, the amount of inventory is determined by a number of factory's, such a lead time, factory stock, storage space and availability of supply.

As confirmed by the study, all 100 % (12) respondents respond that in Tsedey purified Mineral water factory there are there major costs that are relevant and which should be determined are ordering (procurement), carrying and storage costs.

The study indicated that all 100% (12) respondents respond that Tsedey purified mineral Water factory classify its inventory by ABC classification and VED classification ABC is effective tool for the factory to control raw materials and operating supplies URD is used for the classification of maintenance spares.

As indicated in the analysis 75% (9) of the respondents believe that inventory Management problem is arises due to lack of skilled moon power.

As indicated in the analysis, all 100% (12) respondents answers that Tsedey purified mineral factory use MRP system to create a schedule for identifying the specific parts and material required to produce end items, the exact number needed, and dates when order for these materials should be released and be received or completed within the production cycle,

As indicted in the study, all 100% (12) respondents respond that Tsedey purified mineral Water factory use EOOQ for determining inventory level with good care.

As indicated in the study, 100% (12) of the respondents replied that Tsedey purified Mineral water factory use a predetermined inventory parameter level such as factory stock, maximum stock and average inventory stock.

The study indicates that, 50% (6) of the respondent replied that wastage of inventory Item in Tsedey purified mineral water factory is less frequent. The factory use methods such as compassions and standards for maintaining wastages inventory item.

The study indicates that, majority of the respondents 83, 34 % (10) have answered that An inventory control personnel is segregate from purchasing, shipping, production and recording function in the factory.

The study indicates that, 91.67 %(11) of the respondents are replied that there is clear Lines of responsibilities are established in the Tsedey purified mineral water factory.

As indicated in the study, 83.34 % (10) of the respondents replied that there are routine Procedures for processing each type of transaction in the factory.

According to the study, 100 % (12) of the respondents respond that in Tsedey purified Mineral water factor access to inventory is restricted to only for authorized personnel.

According to the study, the entire 100% (12) respondents respond that the factory's Inventories have insurance coverage and the premiums reviewed annually.

As indicated in the study, all 100% (12) respondents are saying that business documents used in the factory is helpful to control the inventory.

As indicated in the study, 91.67% (11) of the respondents answer that the cooperation of different department are food.

According to the study, 75% (9) of the respondent replied that there are problems in the process of the purchasing department.

According to the study, 83.34% (10) of the respondent respond that there is Improvement in relation with inventory control.

According to the study, 91.66% (11) of the respondents have said it is been doing well in the practice of controlling inventories.

5.2. Conclusions

Based on the above summary of the paper, it is possible to take some concluding remarks as follows;

As for the level or the requirement of inventory is concerned, the factory has no Problem in fulfilling the minimum level.

The major factor affecting the overall performance of inventory management and control of Tsedey purified mineral water factory is lack of skilled man power.

The major parameters that determine the effectiveness and efficiency of inventory Usage in Tsedey purified mineral water factory or safety stock, maximum stock and average inventory for stock.

In Tsedey purified mineral water factory, there is significant level of wastages of Inventory items in the company.

There are routine procedures for processing each type of transactions in Tsedey purified Mineral water factory. This helps the factory for effective internal control system and check and balance.

Tsedey purified mineral water factory have insurance coverage and the premium Reviewed annually so, this is one of the mechanisms to protect or respond to risks that the inventory items face.

In order to minimize the theft of inventory, the factory formulates a regulation that Restricts the employees not get in to the store unless they are the store keepers.

In Tsedey purified mineral water factory, there are problems in related to the process purchasing department. These problems are poor in supply, violation proper timing andlack of cost effectiveness.

Tsedey purified mineral water factory shows improvement forwards the inventory control in the past two years. This improvement is mainly due to the establishment of purchasing department.

With regard to inventory documents, the factory uses documents such as purchase requisition, goods receiving note, bin card, store issue voucher, and inventory tag. These documents are serially numbered and the distribution indicated on it. Thenumerical sequencing of such documents helps to ensure that all are counted for. The factory uses these documents t control its inventory over cost, values and location.

5.3.Recommendations

Based on the conclusions, the following points are forwarded as a recommendation• Start up business without much money, periodic inventory system is much better. However, as business grow and large, the perpetual inventory system is appropriate.

So Tsedey purified mineral water factory could be use perpetual inventory system.

One of the inventory management problem is lack of killed man power this problem could be eliminated through be giving effective training about the inventory as a wholefor the existing workers and/or by hiring competent employees.

The inventory management problem is factory's policies procedures and principles,this problem also should be eliminated by awarding its employees about the overall factor's policies, procedures and principles.

Wastages of inventory items in the factory are significant amount. So, productivityimprovement department work hard to eliminate or reduce wastages of inventory items. The success of every company is mainly in the fate of purchasing department. Thus, the factory should be improving the purchasing department through hiring competent and experienced employees towards the purchase.

With respect to physical security of the inventory, even though only store keepers have the access to the ware house and issue materials wanted for other employees of the factories have also access to the ware house. Such threats the security of the inventories of the factory.

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Questionnaire for factory

Neima Siraj, BA- In Accounting and Finance

Wolkite University

Dear Sir/Madam:

The enclosed questionnaire is designed to gather information about AN ASSESSMENT OF INVENTORY MANAGEMENT AND CONTROL SYSTEM IN THE COST OF TSEDEY MINERAL WATER FACTOR. The information you provide in response to the questionnaire used as part of the data needed for the study- The results of the study are expected to contribute to the understanding an assessment of inventory management and control system in the cost of Tsedey mineral water factor.

Please note that there is no need of writing your name on the questionnaire.

I would also like to assure you that the information you provide will be treated as strictly confidential and your participation in this study is greatly valuable.

Your honest and thoughtful responses are highly appreciated.

Personal Information of the Respondents in the Factory

Response of Parameters of Inventory Being Used

Item	Respondent		
	Respons	Numbe	Percenta
Does your inventory system being used in your company provide a determined inventory parameter such as safety stock maximum stock And average inventory for stock?	Yes		
	No		
	Total		

Possible Sources of Problems in Factory's Inventory Management

Item	Respondent		
	Response	Number	Per
What are source of problem in inventory management	Lack of skilled man power		
	Limitation of capital		
	Policies procedures and principles of the		
	Total		

Wastage of Inventory Items in the Factory

Item	Respondent		
	Response	Numb	Percent
How often wastage of inventory Your company?	Frequent		
	Less Frequent		
	Infrequent		
	Total		

Segregation of duties in the Factory

Item	Respondent		
	Respons	Numb	Percenta
Are inventory control personnel segregated from purchasing, receiving, shipping production and recording function in your Factory?	Yes		
	No		
	Total		

Establishment of Clear Lines of Responsibilities in the Factory

Item	Respondent		
	Respo	Number	Percentage
Is there any clear lines of responsibilities are established in your company	Yes		
	No		
	Total		

Routine Procedures of the Factory

Item	Respondent		
	Respo	Numb	Percenta
Is there routine procedures for processing each Type of transaction in your company?	Yes		
	No		
	Total		

Restriction of Inventory Accesses to Authorized Personnel in the Factory

Item	Respondent		
	Response	Numbe	Percentag
Is access to inventory restricted to Authorized personnel in your factory?	Yes		
	No		
	Total		

Insurance Coverage in the Factory

Item	Respondent		
	Respon	Number	Percentage
Is insurance coverage maintained and periodically reviewed for all inventory in Your factory?	Yes		
	No		
	Total		

Factory's Business Document

Item	Respondent		
	Respo nse	Num ber	Percentag e
Business documents used in your factory help full to control the inventory.	Yes		
	No		
	Total		

How Much Different Department Work Together Satisfy Factory's Objective

Item	Respondent		
	Response	Num	Percentag
How do you explain the purchasing	Excellent		

production and marketing departments' cooperation's to satisfy factory's Objective?	Very Good		
	Good		
	Poor		
	Total		

The Problems in the Process of the Purchasing Department

	respo	number	Percentage
Do you think there are problems in the Process of the purchasing department?	Yes		
	No		
	Total		

Improvement in Relation with Inventory Control in the Factory

	Respo nse	Number	Percentage
Does your company show improvement in relation with inventory control in the Past two years?	Yes		
	No		
	Total		

Evaluation of Factory's Inventory Control Practice in General

Item	Respondent		
	Response	Numbe	Percenta
How do you evaluation your factory inventory control practice In general?	Excellent		
	Very Good		
	Good		
	Poor		
	Total		