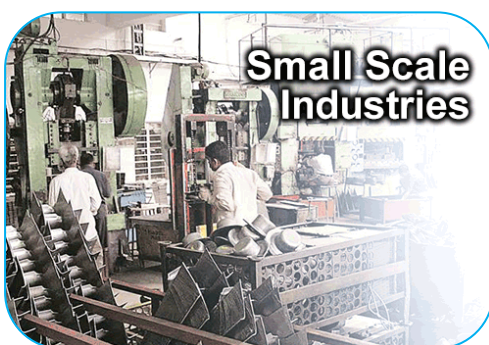




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A STUDY ON INVENTORY MANAGEMENT OF SMALL SCALE INDUSTRY IN MUZAFFARPUR

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ABSTRACT:

Generally inventories are required by Small Scale Industry for smooth functioning of its operational activities. It creates a link between production department and sale department. As per Accounting Standard – 2 “Valuation of Inventory” issued by the Institute of Chartered Accountants of India (ICAI) the word inventory refers to Raw Material, Work in Progress and Finished Goods. Generally, there is a time lag between the procurement of inventory and utilization of such procured goods. This time lag creates a need for maintaining adequate amount of inventories. In the absence of adequate inventory the process of production cannot be carried on smoothly as a result of which other operational activity also

get affected. On the other hand the cost of inventory should be minimized. The investment in inventory should be at optimum level. It should be managed properly. If the inventory is not managed properly then it leads to underutilization of capacity which results into loss of profit. For this purpose, the management of Small Scale Industry should always try to put neither excessive nor inadequate investment in inventory. The investment in inventory can be controlled by way of controlling over production planning, techniques of maintaining stocks items at desired level, procedure of purchase, transportation facility and other usage control. So, this paper attempts to focus on effect of inventory management on profitability of SSI in Muzaffarpur, Bihar. This paper also focuses on various techniques of controlling the inventory.

KEYWORDS: Introduction, Importance and Cost of Inventory, Techniques of Inventory Control.

INTRODUCTION:

In case of manufacturing concern, the term “inventory” includes raw materials; work in progress, finished goods and stores etc. However in case of trading concern it includes finished goods only. The interest in inventories comprises the most huge piece of current resources/working capital in the majority of the endeavors. The investment in

inventory should neither be excessive nor inadequate. It should just be optimum. The main aim of inventory management is to maintain optimum level of inventory. If there is excessive investment in inventory then it results into more cost of fund. Therefore it reduces the profitability of SSI. In this situation inventory may be misused, lost, damaged and holding costs of such inventory may be increased because large space is required to store such materials. At the same time, insufficient investment in inventory creates problems of

stock-out, interruption in production and selling operation. According to AS-2 “Valuation of Inventories” issued by The Institute of Chartered Accountants of India (ICAI), the term “inventory” includes following:

Raw Material: The term “Raw Material” includes physical commodities used to produce a final product. These raw materials are required to carry out production process of SSI without any obstacle in the process of production. The requirement of raw material will

- b. be determined by the rate of consumption in the industry and the time required between need of inventory and its availability in the industry.
- c. **Work in Progress:** It alludes to measure of crude materials go into the procedure of generation yet they are yet to achieve a last state of completed merchandise. The work-in-advance is that phase of stocks which are in the middle of crude materials and completed merchandise.
- d. **Finished Goods:** The finished goods represent goods in stock ready for sale and distribution. The purpose of maintaining finished goods is to ensure proper supply of goods to customers. The load of completed merchandise gives a cradle among generation and supply into the market. In other words, these goods may be sold to retailers or wholesalers or distributors or may be held for future sale.

The management of inventory is important from the following point of view:

- a. The SSI has to maintain adequate inventory for smooth production and selling activities.
- b. It has to minimize the investment in inventory to enhance profitability of Small Scale Industry.

Thus, the investment of funds in inventory is an important aspect of working capital management. Thus, it is fundamental to have legitimate control and the executives of inventories. The motivation behind stock administration is to guarantee accessibility of materials in adequate amount as and when required and furthermore to limit cost of interest in inventories. Since the inventory has a direct impact on profits of small scale industry so, it is goal of every manufacturer to manage inventory effectively and efficiently. If the inventory is not managed properly then it leads to under utilisation of capacity which results into loss of profit. In Muzaffarpur district, Small Scale Industry employs substantial number of the work force which mainly belongs to Narauli, Taraaura Village, Mushahari, Kanti, Bochaha, Bakhri etc. Therefore, efficient management of inventory is required for economical growth of Muzaffarpur district.

II. OBJECTIVE OF THE STUDY

1. To study the need and essentials of Inventory Control.
2. To study the effect of inventory management on profitability in Small Scale Industry.
3. To analyses different techniques of controlling over inventory.

III. RESEARCH METHODOLOGY

For the purpose of this study, I used secondary data to complete my study. The data was collected from secondary sources such as annual report, journal, article and textbook etc.

IV. REVIEW OF LITERATURE

Singh Pradeep (2008): In this study the author made an attempt to examine the inventory and working capital management (WCM) of Indian Farmers Fertilizer Co-operative Limited (IFFCO) and National Fertilizer Limited (NFL). After examining, the author concluded that the working capital position of both companies (IFFCO & NFL) is found satisfactory. In case of IFFCO the inventory should be improved because in this case the inventory was not maintained and utilized properly by the company. So that liquidity of company would be maintained properly.

Mishra (1975): In this study, the author focuses on six public sector enterprises. After studying he concluded that the inventory forms a major portion of working capital of the enterprises, the efficiency of working capital is very low in the selected companies, and in all selected cases Current Ratio and Liquid Ratio is greater than the standard set by the management.

V. IMPORTANCE AND COST OF INVENTORY

The inventories also provide cushion when there are errors in planning or a firm faces unforeseen fluctuation in supply and demand of inventories. The existence of inventories enables each department to work effectively and efficiently without unnecessary dependence on other departments. The SSI should maintain adequate stock of materials for its continuous supply. It is not possible for the industry to purchase raw material whenever it is needed. A time lag exists between demand for materials and its availability in the industry. The acquisition of raw materials may be delayed due to various causes like strike, transport disruption or short supply. So, the enterprise should maintain sufficient stock of raw materials.

Other factors of holding raw materials are quantity discounts and increases in anticipated price. The work in progress arises because of lengthy production cycle. The production cycle is the time-lag between input of raw material into process of production and finishing the final product at the end of such production cycle. An enterprise cannot produce immediately as and when goods are demanded by the customers. So, for supplying finished goods on a regular basis and to satisfy the sudden demand from customers, its appropriate stock has to be maintained by Small Scale Industry. The management of inventory is required because an industry hold inventory in different forms which are as under:

- a. **Transaction Motive:** The main objective of units of SSI is to perform transaction of goods and services within prescribed time limits which facilitates continuous production and timely execution of sales orders. If the sales order does not executed properly in time then it will directly affect the business of SSI and will also hamper the goodwill of enterprise.
- b. **Precautionary Motive:** The unpredictable cause changes in demand and supply of raw materials due to its unavailability in the market which will directly affect the production process of SSI. It will also impact on profit and loss of the business. Hence, this is necessary for the management to look into the precautionary motive.
- c. **Speculative Motive:** This motive analyses the ability of management to increase the profit of SSI at the time of changes in the market norms by way of speculation. This incites to keep inventories for exploiting changes in costs, sparing in re-requesting expenses and amount limits and so forth.

VI. RISK AND COSTS OF HOLDING INVENTORIES

The main objective of inventory management is to determine and maintain the optimum level of investment in inventories. The holding of inventories involves blocking of funds of a unit of SSI in Muzaffarpur. The various costs and risks associated in holding of inventories are given as under:

- a. **Capital Cost:** The amount paid to the supplier for procurement of inventories is treated as capital costs. The main investment of capital goes into the factor of inventories and it is the main factor of a unit of SSI in the process of production and smooth business activity. Hence, the capital cost must be maintained by the management of SSI otherwise the financial resources of SSI are blocked in maintaining of inventories. Along these lines the business needs to mastermind extra assets to meet the expense of inventories. The assets might be masterminded from claim assets or from pariahs. Be that as it may, in the two cases, the industry causes an expense. In the event that the assets are orchestrated from claim assets, at that point there is an open door cost of speculation however on the off chance that the assets are organized from untouchables, at that point industry needs to pay enthusiasm to outcasts because of which gainfulness of SSI will be decreased.
- b. **Cost of Stock-outs:** The stock out is a circumstance when the SSI isn't having units of a thing available however there is interest for that thing either from the clients or the generation division. It alludes to interest for a thing whose stock dimension is decreased to zero or lacking dimension. There is dependably an expense of stock out for example the SSI faces a circumstance of lost deals or rainchecks. In stock out situation, if the management will think to solve the problem of demand of finished goods then the raw materials will be purchased from local market on higher prices and it will reduce the profit of SSI. It is necessary for any business to maintain the supply of finished goods as per order. The stock out are quite often are expensive.

- c. **Storage and Handling Costs:** The storage of raw material and finished goods safely in godown is main factor in comparison with the production factor because the production and sale of goods are duly supplied from store. Hence, the safeguard of store and godown of SSI is important for management. The storage cost includes rent of godown, insurance, security cost and other incidental charges etc. The holding of inventories also involves costs on storage as well as handling of goods.
- d. **Cost of Ordering:** The expense of requesting is the expense of arrangement and execution of a request, including cost of desk work and speaking with provider for supply of merchandise. The all out yearly expense of requesting is equivalent to cost per request duplicated by the quantity of request put in a year.
- e. **Risk of Obsolescence:** The inventories may become obsolete due to improved technology, changes in requirements, change in customer's tastes etc. In the present scientific development of technology and daily changes in taste and fashion due to advertisement of new commodity in the market.
- f. **Risk of Price Decline:** There is always a risk of reduction in the prices of inventories by the suppliers in holding inventories. This may be due to increased market supplies, competition etc. in the market. The quality of the inventories may also deteriorate while these items are kept in stores for a long period of time.

VII. Techniques of Inventory Control

The effective management of Inventory requires an effective internal control system for inventories. A proper inventory control system not only helps in solving the acute problem of liquidity but also increases profits of industry. If the inventory is managed properly then requirement of working capital is reduced upto reasonable extent. The following are the important tools and techniques of inventory management and control:

- A. Determination of Economic Order Quantity (EOQ)
- B. Determination of Stock Levels.
- C. Determination of Safety Stocks.
- D. A.B.C. Analysis
- E. VED Analysis
- F. Inventory Turnover Ratios
- G. Aging Schedule of Inventories
- H. Just in Time (JIT) Inventory

A. Determination of Economic Order Quantity (EOQ)

- a. The Economic Order Quantity (EOQ) is the span of the parcel to be bought which is financially reasonable. This is the amount of materials which can be bought at least expenses. At the end of the day, it is the time when the all out expense of inventories for example conveying cost and requesting cost are limited. A choice about the amount to arrange has extraordinary criticalness in stock administration. The amount to be acquired should nor be little nor enormous on the grounds that expenses of purchasing and conveying materials are high. In deciding financial request amount it is expected that cost of an overseeing stock is made of exclusively of two sections for example requesting costs and conveying costs.
 - i. **Ordering Costs:** These are costs that are related with the obtaining or requesting of materials. These expenses include:
 - ii. Inspection expenses of acquired materials.
 - iii. Cost of stationery, composing, postage, phone charges and so on.
 - b. Expenses brought about on transportation of products acquired.
 - i. **Carrying Costs:** These are costs for holding the inventories. These costs won't be brought about if inventories are not conveyed. These expenses include:

- ii. The cost of capital put resources into inventories. An intrigue will be paid on the measure of capital secured up inventories.
- iii. Cost of capacity which could have been utilized for different purposes and protection cost Cost of waste in treatment of materials

Assumptions of EOQ: While calculating EOQ the following assumptions are made:

- a. The supply of merchandise is tasteful. The merchandise can be obtained at whatever point these are required.
 - b. The quantity to be purchased by the concern is certain and the prices of goods are stable.
 - c. The stock-outs are not allowed and the lead time for supply is known and fixed.
 - d. The cost per unit of material is known and it is constant.
 - e. Annual Consumption requirement of Raw Material is known in advance.
 - f. The Ordering Cost (Per Order) and Carrying Cost (Per Unit/annum) are known and constant.
- Economic Order Quantity can be calculated with the help of the following formula:

$$EOQ = \sqrt{\frac{2AS}{C}}$$

Where, A = Annual consumption in rupees.

S = Cost of placing an order.

C = Inventory carrying costs of one unit per annum.

The EOQ can be diagrammatically presented as:

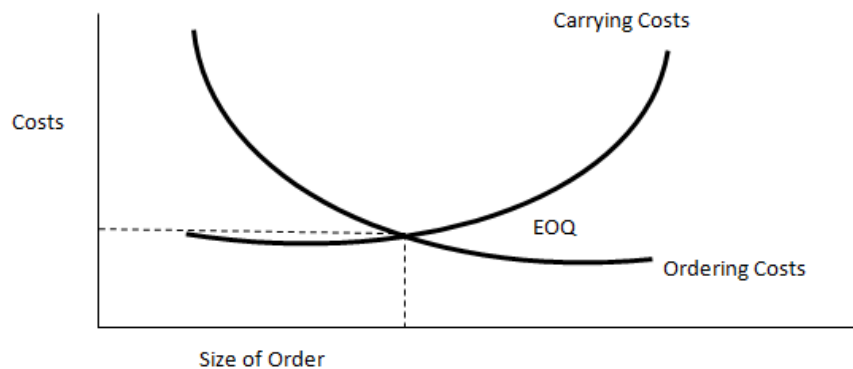


Figure 1.1: Economic Order Quantity

[Sources: CA. Ashish Kalra's Financial Management P.No. 7.30]

B. Determination of Stock Levels

In the event that the stock dimension is close to nothing, the firm will confront visit stock-outs including substantial requesting cost and if the stock dimension is too high it will be pointless tie-up of capital. In this manner, a proficient stock administration necessitates that a firm ought to keep up an ideal dimension of stock where stock expenses are the base and in the meantime there isn't stock-out which may result in loss of offer or stoppage of creation. Different stock dimensions are talked about in that capacity.

a) **Minimum Level:** This speaks to the amount which must be kept up close by consistently. On the off chance that stocks are not exactly the base dimension, at that point the work will stop because of lack of materials. Following variables are considered while fixing least stock dimension:

i. Lead Time: A buying firm requires some an opportunity to process the request and time is additionally required by providing firm to execute the request. The time taken in preparing the request and after that executing it is known as lead time.

ii. Rate of Consumption: It is the normal utilization of materials in the manufacturing plant. The rate of utilization will be settled on the premise past encounters and creation plans.

iii. Nature of Material: The idea of material additionally influences the base dimension. In the event that material is required uniquely against uncommon requests of client, at that point least stock won't be required for such materials.

Minimum stock level = Re-ordering level - (Normal consumption x Normal Re-order period)

b) Re-ordering Level: At the point when the amount of materials comes to at a specific figure then new request is sent to get materials once more. The request is sent before the materials achieve least stock dimension. Reordering level is fixed among least and greatest dimension. The rate of utilization, number of days required recharging the stock and most extreme amount of material required on any day are considered while fixing reordering level.

Re-ordering Level = Most extreme Consumption x Maximum Re-request period

c) Maximum Level: It is the amount of materials past which a firm ought not surpass its stocks. On the off chance that the amount surpasses most extreme dimension limit, at that point it will overload. A firm ought to abstain from overloading on the grounds that it will result in high material expenses.

**Maximum Stock Level = Re-ordering Level+ Re-ordering Quantity
(Minimum Consumption x Minimum Re-ordering period).**

The Maximum Level will depend upon the following factors:

- i. The availability of capital for the purchase of materials.
- ii. The maximum requirements of materials at any point of time.
- iii. The availability of space for storing the materials and possibility of fluctuations in prices.
- iv. The rate of consumption of materials during lead time and the cost of maintaining the stores.
- v. The nature of materials, if it is perishable in nature then it cannot be stored for long.
- vi. Availability of materials. If the materials are available only during seasons then they will have to be stored for the rest of the period.
- vii. The possibility of change in fashions will also affect the maximum level.

d) Danger Level: It is the dimension past which materials ought not fall regardless. On the off chance that threat level emerges, at that point quick advances ought to be taken to renew the stock regardless of whether more expense is brought about in organizing the materials. In the event that materials are not orchestrated quickly there is plausibility of stoppage of work.

Danger Level = Normal Consumption x Maximum reorder period for crisis buys

e) Average Stock Level: The Average Stock Level held on average throughout the year. The average stock level is calculated as such:

Average Stock level = Minimum Stock Level + ½ of re-order quantity

Or (Maximum Stock Level + Minimum Stock Level) / 2

C. Determination of Safety Stocks: The measure of security stock is where the complete expenses, related with wellbeing stock are at least. The Safety stock is a cushion to meet some unforeseen increment in use. It vacillates over some stretch of time. The interest for materials may vacillate and conveyance of stock may likewise be postponed and in such a circumstance the firm can confront an issue of stock-out. The stock-out can demonstrate expensive by influencing the smooth working of the worry. So as to ensure against the stock out emerging out of use changes, firms more often than not keep up some edge of security or wellbeing stocks. Two expenses are engaged with the assurance of this stock for example opportunity cost of stock-outs and the conveying costs. In the event that a firm

keeps up low dimension of wellbeing regular stock out will happen bringing about enormous open door cost. Then again bigger amount of wellbeing stock includes higher conveying costs.

D. ABC Analysis: The ABC analysis is a powerful tool in the direction of cost reduction, because it helps to control inventory items with a selective approach. Under ABC investigation, the materials are partitioned into three classes viz, A, B and C. Past experience has demonstrated that very nearly 10 percent of the things add to 70 percent of estimation of utilization and this classification is called 'A' Category. Around 20 percent of estimation of utilization and this classification is called 'A' Category. Around 20 percent of the things contribute around 20 percent of estimation of utilization and this is known as class 'B' materials. Class 'C' covers around 70 percent of things of materials which contribute just 10 percent of estimation of utilization. There might be some variety in various associations and a change can be made in these rates. The ABC analysis can be presented in the following table:

<i>Class</i>	<i>No. of Items (%)</i>	<i>Value of Items (%)</i>
A	10	70
B	20	20
C	70	10

'A' category of items can be controlled effectively by using a regular system which ensures neither over-stocking nor storage of materials for production. Such a system plans its total material requirements by using budgets. The stocks of materials are controlled by fixing certain levels like maximum level, minimum level and re-order level.

'B' category of items, as the sum involved is moderate, the same degree of control as applied in 'A' category of items is not warranted. The orders for the items, belonging to this category may be placed after reviewing their situation periodically.

'C' category of items, there is no need of exercising constant control. Orders for items in this group may be placed either after six months or once in a year, after ascertaining consumption requirements. In this case the objective is to economies on ordering and handling costs.

E. VED (Vital, Essential and Desirable) Analysis: The VED Analysis is used to monitor and control of stores and spares by classifying them into three categories viz. Vital, Essential and Desirable. The mechanics of VED analysis are similar to those of ABC Analysis. The VED analysis is done to determine the criticality of an item and its effect on production and other services. It is specially used for classification of spare parts. If a part is vital it is given 'V' classification, if it is essential then it is given 'E' classification and if it is not so essential, the part is given 'D' classification. For 'V' items a large stock of inventory is generally maintained, while for 'D' items, minimum stock is enough. The analysis classifies items on the basis of their criticality for the small scale industry.

Vital: Vital category items are those items without which the production activities or any other activity of the company, would come to a halt, or at least be drastically affected.

Essential: Essential items are those items whose stock - out cost is very high for the small scale industry.

Desirable: Desirable items are those items whose stock-out or shortage causes only a minor disruption for a short duration in the production schedule. The cost incurred is very nominal.

In fact, in the inventory control of spare parts and components it is advisable, for the organization to use a combination of ABC and VED Analysis. Such control system would be found to be more effective and meaningful.

F. Inventory Turnover Ratio:

The Inventory Turnover Ratio is used to evaluate the performance of the inventory function. It is used to measure the inventory management efficiency of a SSI. It is also a measure of the number of times inventory is sold or used in a financial year. A higher value indicates better performance and lower value means inefficiency in controlling the levels of inventory. A lower inventory turnover ratio may be an indication of overstocking, obsolescence, or deficiencies in the product line or marketing effort.

The formula for Inventory Turnover Ratio is as under:

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

G. Aging Schedule of Inventories

The Aging Schedule of Inventory is classification of inventories in accordance with age (days) assist in identifying inventories which are moving slowly into production or sale thereby helping in effective control and management of inventories. It must include two schedules, firstly an asset-aging schedule and secondly a liability-aging schedule. Each schedule must record the value of assets or liabilities held over all holding periods.

H. Just in Time (JIT) Inventory

Just-in-Time (JIT) Inventory Management in the SSI is aimed at monitoring the process of inventory in such a manner as to minimize the costs associated with control and maintenance of inventory. It refers to an inventory management system with objectives of having inventory readily available to meet demand. It is a technique of inventory management which says that the item will be ordered only if it is needed for shipping or manufacturing. The item may be ordered a few days back depending on the delivery time promised by the supplier. It keeps inventory levels low by only producing for specific customer orders.

DISCUSSION

The administration of Small Scale Industries needs to give legitimate consideration on stock administration. The administration of inventories incorporates appropriate arranging of acquisition of materials, bookkeeping, taking care of and putting away of these materials and so on. The account supervisor will endeavor to put less in stock in light of the fact that for him it is an inactive speculation, though creation administrator will accentuate to secure more stock as he doesn't need any intrusion underway because of deficiency of stock. The motivation behind stock administration is to keep the stocks so that neither there is over-loading nor under-stocking. The over-stocking will mean decrease of liquidity for example outpouring of assets; whereas under-stocking refers to stoppage production process or operating activity of industry. Therefore, the investments in inventory should be kept at optimum level. An efficient system of inventory management will determine what and how much to purchase and where to store.

The objective of inventory management is to determine and maintain the optimum level of inventory. The optimum level of inventory lies between the two danger points of excessive and inadequate inventories. The principle destinations of stock administration are to do operational and budgetary movement of the business. The operational destinations imply that the materials and extras ought to be accessible in adequate amount to the generation division so that, the procedure of creation isn't upset without stock. The money related target implies that interests in inventories ought not stay inactive and least working capital ought to be obstructed in it. Coming up next are the targets of stock administration :

- a. To guarantee right quality products at sensible costs. An obvious responsibility with respect to the stock ought to be fixed at different dimensions of the board.

- b. To monitor cost of material with the goal that they contribute in diminishing expense of generation and by and large expenses of the business.
- c. To kill duplication in requesting and issuance of stocks. It tends to be conceivable with the assistance of concentrating buys.\
- d. To guarantee constant supply of materials and completed merchandise with the goal that creation ought not endure whenever and the clients request ought to likewise be fulfilled.
- e. To limit misfortunes through decay, pilferage, wastages and harms of materials and furthermore to encourage outfitting of information for present moment and long haul arranging and control of stock.
- f. To guarantee never-ending stock framework with the goal that materials appeared in store records ought to be really lying in the godown.

To keep up interests in inventories at the ideal dimension as required by the operational and deals exercises and furthermore to maintain a strategic distance from both circumstance of over-stocking and under-stocking of stock.

CONCLUSIONS AND SUGGESTIONS

The better inventory management technique adopted by the industry will help in solving problems that SSI would be facing in respect to availability of inventory and it will also help in reducing the total cost of inventory. On the basis of above study, I suggest that the Small Scale Industry situated in Muzaffarpur district should follow Economic Order Quantity (EOQ) for optimum purchase and the industry should maintain safety stock in order to maintain adequate stock to avoid stock out situation. This situation ensures continuous flow of production in the Small Scale Industry. Hence, it will help in reducing the overall cost of inventory as a result of which profit of industry will be increased. The stock can be controlled by adopting the concept of ABC Analysis, by maintain various stock level (such as Minimum Stock Level, Maximum Stock Level, Re-Order Level etc.) or other techniques suggested in the present study paper. Accordingly, the profit of Small Scale Industry situated in Muzaffarpur district can be enhanced by reducing the overall cost of inventory. It can be possible only when the inventory of Small Scale Industry is managed properly.

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