Chapter - 3

INVENTORY PLANNING AND CONTROL

Inventory constitutes a significant part of current assets in a large majority of companies in India. Because of the large size of inventories maintained by firms in India, a considerable amount of their funds are blocked in them. It is therefore, absolutely necessary that inventories must be managed efficiently and effectively in order to avoid unnecessary investment in them and thereby to improve the firm's profitability as reduction in "excessive" inventories carries a favourable impact on the company's profitability.

In our country a huge amount of money is tied up in inventories. Till recently, excess inventory cost was passed on to consumers. But in today's competitive world it is neither desirable nor economically and ethically acceptable to transfer that cost to consumers.

Inventory in an industrial unit includes raw materials, work-in-process, component of finished part and finished goods in store either waiting to be used or sold, or in the process of being manufactured.[1] Various authors have defined inventory differently. For instance, Love[2] defines inventory as a quantity of goods or materials in the control of an enterprise and also as an aid to the use or sale of goods in an idle or unproductive state. This definition suggests that the existence of an inventory reflects

a temporary gap between two activities, viz., supply and demand. Usually supply precedes and contributes goods to the inventory while demand succeeds and depletes the inventory. Heiser[3] defines inventory as invested funds in finished goods, production-in-process and raw materials, stressing the investment aspects of the inventories. Some others[4] define inventory from financial and operational aspects. All these definitions emphasise the maintenance of inventory from the financial angle. However, both the view-points stress that inventory is maintained for operational smoothness. Beatty[5], however, has classified inventory into "stores" and "stocks". Stores are the raw materials waiting to be assembled at different points of manufacturing and to be turned into finished products. Stocks, on the other hand, are defined as finished products awaiting sale. This classification is mainly based on budgeting and control aspects of inventory planning and control. For the purpose of our study, we have aggregated four major components of inventory to define total inventory, as given below :

$$TI = \sum_{t=1}^{4} I_t$$

Where,

TI = total inventory

t_1 = Raw material and consumable stocks purchased from the supplier and stored, to be used as

inputs in production process.

t_2 = Work-in-process inventories are semi-manufactured products. They are partially completed final products which are still in the production process. They represent both the accumulation of partially completed work and the quantity of material awaiting further processing.

t_3 = Finished goods inventories are final products and are stored for sale & distribution. These inventories are required for smooth marketing operations.

t_4 = Stores and spares inventories are the materials and spare parts used in plant and machineries.

After finalising the conceptual frame of the term 'inventory' and reviewing the standard literature on the subject of inventory management we may assert that a company should maintain an adequate stock of materials for continuous production. It is not advisable to order raw material just when it is needed because there is a time lag between ordering and receipt of inventory. The stock of raw material can cushion the factory from fluctuations in the rate of supply, or transport disruption, or short supply, interruption by strike, or national disasters, etc.[6] Further, factors like quantity discount and anticipated price rise make

it advantageous to hold inventories.[7] The work-in-process inventory builds up due to production cycle. Till the production cycle is completed, the stock of work-in-process has to be maintained. Therefore, industrial units should try to make the production cycle shorter. The inventories of finished goods exist because production of goods and sales are not instantaneous. So it is kept to meet sudden increase in demand from customers' or the peak season demand. Failure to satisfy customers demand would mean loss of company's sales and so a reduction or decline in profit.

Thus, the level of different total inventory components, as per our accepted concept of total inventory, must be kept at an optimum level, to reduce different costs and improve profitability. This may be possible through better inventory planning and control. It may, therefore, be desirable to find out the prevailing system of "Inventory Planning and Control" in the sample industrial units. The basic assumption in this exercise is that unless industrial firms introduce standard and well accepted techniques of management system, they cannot achieve efficiency in managing their inventory, even if external pressures are compelling.

In view of this, we investigated the presence or otherwise of effective techniques of inventory planning and control in our sample industrial firms. The impact of the NBLS on the inventory management efficiency can be better ascertained and understood

with this background. The main findings of the survey, therefore, are briefly stated below.

Knowledge base of respondents

As a first step in eliciting information on the application of modern inventory control techniques in the respondent industrial units, it was deemed appropriate to assess the understanding and knowledge base, of the executives dealing with materials, in respect of the techniques and procedures relating to the management of inventory. It may be observed here, that the understanding of the responding executives was fairly high about the techniques and procedures. A compiled view of the concepts of techniques and procedures of inventory control that emerged in the survey is given here :

(1) According to the survey, the major means of controlling inventories are (a) planning inventory operations, (b) fixing responsibility for performance, and (c) measuring the results.

(2) Accordingly, the inventory control procedures, include
   (i) Determining the standards of inventory quantity.
   (ii) Designing and maintaining an adequate control system.
   (iii) Checking the physical quantities against inventory records.

(iv) Reducing wastage through salvage-operations.

(v) Proper handling of stores.[8]

(vi) Setting up a method for allocation of materials to orders, which are in process.

(vii) Creating stores-accounts which will control the store room and will not be controlled by it.[9]

(viii) Making arrangements for proper identification and coding.

(ix) Employing well-trained and capable persons for implementing the system.

(x) Ensuring proper co-ordination among relevant departments.[10]

(xi) Ratio analysis applied to measure the results.

(xii) Turnover analysis.

(3) The respondents could clearly distinguish between internal control system and management control systems. According to their understanding, internal control systems are designed to safeguard the inventory of the firms, to prevent fraud, theft, or damages to physical units and to protect the integrity of the inventory records. Management control systems, on the other hand, are designed to determine the optimum quantity of inventory to be purchased or manufactured and the relevant optimum

price. It is also designed to minimise the cost of maintaining inventory by determining the optimum inventory levels. [11]

(4) The respondents, by and large agreed that Inventory Turnover Ratio, Inventory Budget, R.O.D., Mini-max control, Determination of Inventory Levels, Inventory Profile, Stock-outs, ABC Analysis, periodic inventory checking or perpetual inventory system have great utility in management control system.

After this, at the second stage, an attempt was made to ascertain the weaknesses in the existing systems of inventory control in the sample units. The overall situation appeared as given below:

(i) **Absence of the use of turnover ratio**

The efficacy of inventory control can be measured through a package of turnover ratio viz., inventory-turnover ratio, raw materials turnover ratio, work-in-process turnover ratio, finished goods turnover ratio etc.

But many of the sample enterprises do not compute any of the above mentioned turnover ratios and thereby are being deprived of one of the principal techniques of inventory control.

(ii) **Inadequate ratio analysis**

Inventory ratio is found to be used by the management for inventory planning and control. But a scrutiny of the annual accounts shows that the enterprise managements do not use the above ratios. However, some of them were found to compute current ratio and quick ratio to evaluate the liquidity position. Thus the lack of ratio analysis adversely affects inventory control.

(iii) **Absence of ABC analysis**

ABC analysis is a basic analytical management tool which enables top management to place the efforts where the results will be greatest.[12] But many sample enterprises do not use this method for inventory control. This impedes effective cost control.

(iv) **Inadequate budgetary control**

Budgetary control can be effectively used provided the system of budget preparation, variance analysis and action, based on deviations, are appropriate and timely. It was noticed that the budgets of the sample enterprises were incompletely prepared and variances seldom analysed. Moreover, enterprises did not prepare separate inventory budgets. Due to these factors, inventory control through budgets was not effectively done.

(v) **Negligence of level control**

Level control is a simple but effective instrument of inventory

control as it indicates when action needs to be taken. Although the sample enterprises theoretically fix the levels, most of them do not follow them in practice.

(vi) Causes of Store Loss not adequately attended

The main causes of store losses were reported to have originated from mis-handling, low quality purchases and improper storage facilities. But the relevant authorities do not seriously analyse these causes and take preventive action against them, in many cases.

Hence, inventory control - which could have been an immensely effective tool - has been turned into a useless one by the negligence of the enterprises. This only has a negative effect on the financial performance of the enterprises.

To conclude, it may be observed that inspite of the knowledge of various inventory control and management techniques, the industries in practice do not apply them effectively and inventory decisions are based on some considerations other than the real and genuine needs and situations in the enterprises.

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