CHAPTER 2

MATERIALS MANAGEMENT CONTROL

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Introduction

Material control means "The planning, ordering, organising, scheduling, inspection, and even warehousing the materials which are used in the manufacturing process" (1). If the materials are not handled in the best way, there is the possibility of loss due to disturbance in the manufacturing process on account of lack of proper maintenance. The system of cost accounting will help in the general maintenance of materials, but the stores should be large enough with all the facilities of storage and handling to reduce the wastages.

These stores should have the night security so that materials are not stolen. The stores facility should also be good enough so that materials do not get spoiled from evaporation, deterioration and even rusting. Again these stores should provide a continuous flow of materials for the production of goods.

2.1 Need for Material Control

Material control is the policy for better functioning of an organisation in the production, and storage even usage of materials in such a way as to provide a steady flow of materials without creating excessive investment in stores. There are two important sectors which are to be checked properly, the two lines which are to be looked into are overstocking and understocking.

2.1.1 Overstocking

Overstocking is a serious problem in the store because the longer period the materials are kept in store, greater the costs and expenses. Money capital held up in purchasing extra materials
and overstocking them can be better used in other ways for better returns. Again in overstocked store, there is the problem of space. A lot of money is spent in creating space for these materials because it requires payment of rent heating, lighting and other facilities in the store.

There are also additional expenses in purchasing the equipments for the storage or materials e.g. telephone, books, containers and other equipments for store handling. Again there are personnel costs in stores because when the store is overstocked more people have to be employed and due to this, more money is to be spent as salaries, wages to the staff for the work of storing, stock taking and even for security purposes.

When the store is overstocked the materials have to be checked if they have not deteriorated or evaporated and insured. In doing so, money is required thus creating additional expenses for the stores.

2.1.2 Understocking

Understocking implies that stores are not having enough materials, because there is not enough purchase of materials, something which makes lack of materials in stores. And because of this inadequate turnout in stock, we have to face the changes in the business and wages, salaries and other expenses are incurred without any return in the form of output and profit because there is no sales due to the stoppage of output. Then there is cancellation of orders because of the stoppage of output which brings delay of delivery and loss of good-will
which sometimes makes the business to pay penalty and other legal expenses.

There is increase in procurement costs. In order to obtain supply as early as possible, high prices and high transport costs are needed.

The result is disorganisation of production because of understocking which results in the stoppage and reduction of production which may bring about the irregularity and even cancellation of orders.

2.2 REQUIREMENTS OF A MATERIAL CONTROL SYSTEM

It is only after the Second World War that material management has been deemed to be a special work, hence it should be handled by professionally sound personnel in this field and it requires a well thought out system and that is the only way materials can be controlled properly."(2)

To have proper material control, we should give special attention to certain things. There should be proper organisation and coordination of the sectors of the business which are attached to the purchase, storage, payment of prices, testing, approving and even receiving of material. And through these departments, we get the best of results from the business transactions.

The order for purchase of materials is put before the purchase department under the power and orders of a trained purchasing officer.

Again a proper communication system should be installed and used with the correct instructions which are in the written form for
proper records. For better control, we should have budget of materials supplied and even that of all the used up equipments so that we get the proper record of their use.

Internal checkings are needed to make sure that all the undertakings and transactions which require purchase of materials and supplies are checked and approved by those people who are authorised to do so. The materials should be well stored and given the proper care, and this one can only work when there is good supervision.

There should be more accurate inventories so as to ensure good quality and the value of materials in stock. But to get the best out of it, we should not have overstocking, as it will increase expenditure and reduce profits and maximization of total profits in the long-run is the main object of business. Stores department has to look into the needs of all other departments and arrange the stores accordingly. Then only there will be proper management in other departments also.

2.3 TYPES OF MATERIAL CONTROL SYSTEM

To have total control of materials in business we should at least cover a very wide area starting from raw materials up to the produced goods and even its distribution. The best result of any business transaction depends on its proper organization "where we have the right goods produced at the right price, of right quality, at the right time and at the right place". And by having this, there will be an increase in production which will make the whole transaction more profitable. Full control of materials will ensure better profits. There should be
no loss of materials nor any spoilage of any material in store whether directly or indirectly. Then to have this control work done efficiently, there should be good attention paid to the following areas:

2.3.1 Material Budgeting:

Here we should have good budgeting so that we don’t get losses from sales and supplies because if we do get any loss in these, we shall have lost a lot in gaining the profits. We should again look into the engineering sector where we have specialists who know how to take care of the machines and equipments within the stores. We should again take much time to know about the quality of the product because if it is produced without the right quality, then sales will come down and thus profits will decline. Then we should know something about transportation of raw materials and produced goods to various destinations where we get customers. We should again know something about LIFO that is last in first out. This is where we have materials which have been purchased for the store. Last are again to be sold first, may be because of the expenses within the storage facilities. Again we have FIFO. Meaning, first in first out - that is those materials which were purchased to the stores first are to be taken out first, may be because they have overstayed in the stores or if they stay for longer there, they will get spoiled. And we can only get budgeted material cost by multiplying the quantities of materials by unit cost and if the unit costs are yet to change, we may have the assumption of LIFO or FIFO working and other average methods so as to get the
correct result with material budget control. We find that each product to be manufactured has its special budget whereby it prepares the budget of direct labour and even manufacturing overloads. And this is where we get the problem of balance and requirements of inventory levels and purchases solved through the right line of organization because of proper budgeting of materials. Sometimes materials are classified into direct and indirect materials. With direct materials we can get its working through the cost of finished goods whereas in the case of indirect materials, we can not trace the cost through manufactured goods. Mostly the direct materials go hand in hand with material budgeting.

We can get a purchase budget prepared giving all the specifications of the quantity of each type of raw materials which has been purchased.

But all in all, the budget of raw materials needs a full accounted and specified plan which will show a good purchase of raw materials with good inventory analysis and even the cost of raw materials used which will give a clear indication of good control line within the concerned transaction.

Each enterprise should develop its materials budget expressed in terms of units, if not in terms of rupees. A materials budget is a "Co-ordinated estimate of the consumption and purchases of materials in an organisation relating to a specified period". (6)

A materials budget offers a way to define the objectives of materials department which considers long as well as short-range requirements of materials necessary to make possible the current
as well as future operations of the organisation. For materials planning, materials budgeting is indispensable. Materials budgeting ensures better and effective materials planning which in turn helps in attaining the objectives of the organisation in an efficient manner.

P. Gopalakrishnan and M. Sundaresan in their book "Materials Management: An Integrated Approach" explained materials budgeting with the help of the following Exhibit:-

**Exhibit (2-1)**

- Requirements of materials
- Inventory of materials on hand
- Forecast of Price and rates
- Purchase Budget
- Actual purchases
- variance reporting for control

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**2.3.2 Variance Analysis Technique:**

The control technique associated with budgeting is variance analysis. Any deviation of actual performance from planned or budgeted performance is considered as a variance. Any classification, refinement, explanation or investigation of variance is referred to as variance analysis.
Inventory variances of raw materials, work in process and completed output in terms of quantity and price can conveniently be calculated with comparison to standards that have already been determined before production begins. Once variance have been identified and measured at appropriate level of detail, decision must be made as whether or not to investigate the variances.

Variance between standard and actual performance can be investigated and reported on a selective basis. A simple decision rule for this purpose might be to establish control limits, in either absolute rupees or in percentage terms. Any variance exceeding those limits will be more fully analysed to establish its causes and if possible to reduce or eliminate the variance.

For example, a control limit rule might be stated as "Any variance in excess of Rs 1000 or greater than 5 percent of the budgeted amount, will be subject to detailed analysis."(5)

When only those variance that violate control limits are reported and investigated, management's attention can then be directed to the more important problems.

This process essentially consists of three steps:

(i) The investigation decision—deciding whether or not to investigate a calculated variance.

(ii) The investigation process—finding the causes of those variances that are considered worth investigation.

(iii) The adjustment process—deciding what action to take in response to the ascertained cause of variance.
This could involve:
(a) Taking no action
(b) Adjusting the plan, budget or standard that was used to calculate the variance, or
(c) Adjusting the operations of the process/manufacturing system which is the subject of variance analysis.

These last three options correspond to conclusions that variance has either (i) no decision significance (ii) planning significance or (iii) control significance.

The frequency of variance reporting influences the planning and control effectiveness of a standard costing system. If variance are likely to deviate significantly from control limits, it is essential that variance be reported promptly enough to allow remedial action to be taken.

The term "cost variance" has been defined by I.C.W.A. London as "The difference between a standard cost and the comparable actual cost incurred during a given period". (6)

2.3.3 VALUE ANALYSIS V. ENGINEERING:

The term value analysis can be defined as "that technique which monitor all the functions and cost of production so as to determine whether the cost can be decreased and still maintain all good performance and quality of a product." (7)

During the world war II, many critical materials and components were difficult to maintain and obtain and because of this reason, many manufacturing companies in the U.S.A. had to come up with a solution of developing alternative materials and skills so as to keep the production going. The then vice president of purchasing
for the General Electric Company Mr. Harry Evlicher observed that many of the required substitutes resulted not only in reduced costs but also in functional product improvement and thus Mr. Evlicher assigned the work to L. D. Miles to develop a good approach to the investigation of function of cost and of existing materials. Mr. Miles took up this challenge and successfully pioneered the scientific programme called the value analysis.

Most of the time when Mr. Miles got changes made in any of the departments, he used to call a meeting wherein the suggestions were passed by all and agreed upon which led to better value analysis. According to Dean Ammer, "Value Analysis is the study of the relationship of design, function, and cost of any product, material or service with the object of reducing its cost through modification of design or material specification, manufacturing by a more efficient process, change in source of supply (external or internal), or possible elimination or incorporation into a related item." (6)

In the year 1954, the Navy Bureau of ships department adopted a modified version of general value analysis to reduce the cost of ships and other equipments. And in its application, the way directed was its efforts at cost reduction during the initial engineering stage and then called this programme value engineering. The technique of value analysis represents a powerful set of tools which can be used by management in controlling material costs. Most of these developments had taken place during the year 1947 when efficient techniques for cost reduction such
as value analysis, value engineering, value administration, value control and value management emerged. In this field, the technique which proved to be of great importance covered all the major areas of this sector. We see that Mr. M. C. Namara the Secretary of Defence was happy with the result that he specified the value analysis principle to be applied to all defence contracts which had some amount of dollars e.g. $100,000, and the reason why he wanted this is that he wanted to get the good value from the dollar spent. Even in the United Kingdom, the value engineering started to be recognized in the Ministry of Defence in all its contracts and agreements.

So many firms came to know that any of the values used whether engineering, administration, value control, value management or value analysis, so long as it has got some good saving potential, they should be used and then taken care of. Then these firms came to realize that firms with high turnover and generating even small savings at each point could generate good total savings. But all these took place in the case of those who had knowledge of the methods of production control and cost analysis.

The value of an item is determined in two ways, by its use value and willingness to have it. This is the demand side. For cost value, we should know the amount of money which has been spent in the production of the good, demand for the product and its supply because today you can sell a product at a high price, because of its high demand and tomorrow you may sell it at a lower price, may be because of its abundant availability.

The main objective of value analysis is to decide what is to be
done to the product to improve its performance. Always the objective of this is to reduce the cost of production so as to get the maximum profits. Then to solve any kind of problem which may arise within the firm, we should look into the following points and work upon them to the best of our ability. We would identify the problem and its sources, evaluate the function or the objective, analyse the cost and then provide the best solutions without high costs. For when there is reduction in cost of production, there will be high gains and more profits.

But before any firm does anything, it should have the best techniques of dealing with the problem so that there is some knowledge as to what should be done when the problem arises. We should have more experts working with (V.A) so that we get different ideas on the efficiency of all these people who will be having different experiences and skills. Then V.A. requires all factors within the organisation to be taken into account and the firm also is induced to pay much attention to purchase, production and even marketing which have to be put right so as to get costs reduced. India has now started to make use of the V.A. within its development sectors such as railways, army, air force and even in industries so that they can then attain the best out of it. Because with the help of V.A. we will have low costs which will create good room for more profit. So V.A is something which at least gives good knowledge of valueable ideas and indicates best policies for better management and administration, for better purchasing, manufacturing and even distributing goods and services with the least cost possible.
2.3.4 CODIFICATION AND STANDARDISATION

"Codification and standardisation are the detailed descriptions of materials, parts and even components which are used in making a product"(9). These descriptions help a lot because in any given field like engineering sector, they have so many parts which are used to make up one thing. So this description helps regarding its use, the size, the place where it is found in store and even its life time. In big factories, we have spare parts stores which contain so many parts or items. And because of this reason, we should get the identification of these parts by having codification and standardisation. Regarding variety reduction and standardisation, the committee on public undertakings mentions the following:"Another reason for large inventories was that the items of stores were of multitudious variety........he committee therefore desires that the matter should be pursued vigorously by public sector undertakings in coordination with the agencies."(10)

Within the scope of codification, we have numbers representing each item and these numbers have to indicate the group, subgroup, and the type of the item. Different companies have different types to be identified. Companies like General Electric, General Motors Company, Toyota Company, Sony, Sanyo and so many other companies have got their own different ways of coding their items and parts. We have other companies having good designs but which have the smallest possible number of items in the production sector.
To develop specifications, there should be balance between production, quality and product cost. Normally we have got three approaches which are used to accomplish this objective. First we have the formal committee approach, second we have informal approach and third we have the purchasing coordinator approach. We believe that all these three approaches are helpful to the engineering, purchasing, sales and production which include production control and quality control. If a new product design is proposed, all the members of the committee of different departments have to be made aware of it and a design becomes final only if it is approved by the committee.

To have good standardization, there is required good knowledge and competence of the experts to strike a balance between conflicting interests from the point of view of sound technological considerations.

2.4 Inventory Technique.

In business the most important thing is "to take care of each rupee, then the rupee takes care of itself". This should be the motto of an inventory controller.

The Dictionary meaning of "inventory" is "stock of goods". To the finance manager, inventory connotes the value of raw materials, consumables, spares, goods in progress, finished goods and scrap in which the company funds have been invested.

To quote Magee and Boonman, inventory control is "the technique of maintaining stock-keeping items at desired levels, whether they be raw materials, goods in process or finished products."
2.4.1 Methods of inventory classification:

The number of items in inventory is different from one company to another. In typical production company, inventory will be having as many as 10,000 to 30,000 different items. That way it is very necessary that planning and subsequent control of such an inventory are accomplished on the basis of knowledge about each of the individual items. Methods of classification emphasize on particular aspects. The table shows the various methods of classification. These methods emphasize on particular aspects. ABC emphasizes on value of consumption. The VED emphasizes criticality of a component and so on. According to the nature of inventories carried by an organisation, a suitable method of classification should be chosen.
TABLE (2-2)

Title: List of Classification methods, basis and uses. (14)

<table>
<thead>
<tr>
<th>Basis</th>
<th>Main use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ABC (Always Better Control)</td>
<td>Value of consumption To control raw material components and W.I.P. inventories in the normal course of business</td>
</tr>
<tr>
<td>2. HML (High, medium, Low)</td>
<td>Unit price at the materials Mainly to control purchases</td>
</tr>
<tr>
<td>3. XYZ</td>
<td>Value of items in storage To review the inventories and their uses at scheduled intervals</td>
</tr>
<tr>
<td>4. VED (Vital, essential, the desirable)</td>
<td>Criticality of component To determine the stocking levels of spare parts</td>
</tr>
<tr>
<td>5. FSN (Fast moving, slow moving, non-moving)</td>
<td>Consumption pattern of the component To control obsolescence</td>
</tr>
<tr>
<td>6. SDE (Scarce, difficult, easy to obtain)</td>
<td>Problems faced in procurement Lead-time analysis &amp; purchasing strategies</td>
</tr>
<tr>
<td>7. SOLF (Governament, ordinary, local foreign sources)</td>
<td>Source of the materials Procurement strategies</td>
</tr>
<tr>
<td>8. SDS seasonal, off seasonal</td>
<td>Nature of supplies Procurement/holding strategies for seasonal items like agricultural products</td>
</tr>
</tbody>
</table>

2.4.1.1 A.B.C. Analysis

In the 19th Century, an Italian economist named VILFREDO PARETO analysed the distribution of wealth in his country. He found that
the majority of the wealth was concentrated in the hands of relatively few individuals or, conversely that the majority of the people possessed only a small part of the wealth.

Statisticians took this same thinking pattern and applied it in other realms, calling it Pareto's law and it was found to hold true in various businesses and economic situations. Application of Pareto's law shows that inventory Rupee usage is invariably concentrated in relatively few of the items in the inventory or, conversely that the majority of the items constitute a small portion of the Rupee usage.

This law is known now as A.B.C. analysis or (Always Better control). It is a very effective tool for control and it helps to concentrate effort in areas which need it most with the least amount of controlling. This law has divided the inventory into three categories, about 10 percent of the items contribute 70 percent of value of consumption, 20 percent of the items contribute about 20 percent value of consumption and 70 percent of the items contributed the remaining 10 percent value of consumption.
"A" portion is at the top. It contains 10 percent of the items. The middle 20 percent are called "B" items and the bottom 70 percent are called "C" items.

The value of such analysis to management is quite clear as it provides a sound basis on which to allocate funds and the time of personnel in respect of better control over the individual items. It is reflected in minimizing inventory investment, in minimizing indirect costs associated with inventory and delivering of materials to production operations. The annual consumption value is the basis for classification and not the unit value.

ABC analysis should be periodically reviewed so that changes in prices and consumption are taken into account.

2.4.1.2 HML Method

HML method is similar to ABC analysis. But it considers the unit value of the item instead of the consumption value. It classifies the materials according to their unit value as high, medium or low valued items.

2.4.1.3 XYZ method

XYZ has the value of inventory stored as the basis of differentiation. It happens to take into consideration the value of the inventory once a year during the annual stock valuation. X items are those whose inventory values are high while Y items are those whose inventory values are medium and Z items are those whose values are low. When the XYZ and the ABC analysis are used, controls can be effected on the items according as they are AX, BY, or CZ categories.
2.4.1.4 VED method
This method is widely applicable in spare parts stockist shops. It is based on strategies different from those for raw materials because the consumption of spare parts is totally different from raw materials consumption. Spare parts are classified as vital, essential and desirable. From this classification, we can see that V class of spares have to be stocked adequately to ensure the operation of the plant because if V-items are not available, it can cause havoc and stop the wheels of the organization. If we combine ABC and VED method, we

2.4.1.5 FSN method
This method is largely applicable to control the obsolete items. Items are classified as fast moving, slow moving and non-moving items, the method being designated as F.S.N. method. It is applicable to raw materials and spare parts.

2.4.1.6 SDE method
This method is used in materials that are difficult to obtain. It is used to analyse lead-time and purchasing strategies. If there are any problems faced in procurement, we should apply this method.

2.4.1.7 GOLF method
This method is used in procurement strategies and the sources of materials and nature of suppliers will determine the quality and continuity of supply, lead-time, payments terms and clerical work involved. Government suppliers are designated as G, open suppliers as O, local suppliers as L, and foreign suppliers as F.
2.4.1.8 SOS method

S.O.S. method is largely used in regard to raw materials of agricultural products, because of their seasonal availability.
The price will usually be lower during the harvest time and hence the inventory manager will have to balance the holding costs and the lower prices during the harvest in deciding the levels for this class of items.

2.4.2 Methods of Valuation

Methods of valuing of materials are different from place to place and they range between market price and cost of procurement whichever is lower with regard to replacement cost. Every method has its own advantages and disadvantages. There are many valuing methods such as:

1. FIFO - First in First out
2. LIFO - Last in First out
3. J.I.T - Just in time
4. Zero Inventory
5. Simple average price
6. Weighted average price
7. Periodic simple average
8. Periodic weighted average
9. Standard price
10. Replacement price
11. Moving simple average price
12. Moving simple weighted average price
13. Inflated price.
EXHIBIT (2-3)

Methods of valuation of inventory

- Cost price
- National price (Standard price)
- Market price

- Specific price
- Chronological order price
- Average price

- NIFO
- FIFO
- FIFO
- LIFO
- Simple
- Weighted

- After every receipt
- Periodic
- Moving
- After every receipt
- Periodic
- Moving

2.4.2.1 FIFO - First-in First-out

From the name, we can understand that the materials which came in the beginning, should be issued first to be sold. This method ensures that materials are issued at actual cost and there will be no profit or loss if there are no fluctuations in prices and then the operation is quite simple. The number of entries in the issue column will increase as the price is too much
fluctuating. Then the arithmetic mistakes will also increase and every batch of production will have different materials costs.

2.4.2.2 LIFO - Last-in First-out
From the name, we can understand that the materials which come last, are issued first. In this method also, materials are issued at actual cost. The production is charged at the latest price and so, the production cost is likely to be high because the cost price is the same as in the record. But if its price falls, it will show higher profits.

2.4.2.3 JUST-IN-TIME OR HAND TO MOUTH METHOD
"Just-in-Time manufacturing system is a highly integrated production, sales and distribution system leading to continuous flow to produce the kind of units needed, at the time needed and in quantities needed. It entails the combination of purchasing, inventory control and production management functions. The ideal JIT manufacturing system can be achieved through four prerequisites; design of process, standardization of jobs, smoothening of production, and information system called Kandai (Yashuhiro, 1981).

"It manufacturing system is a comprehensive framework which enables one to conceive, design, implement and operate a manufacturing and supporting system, as an integrative whole, based on the principles of continuous improvement and elimination of waste." (16)
The major objectives of JIT manufacturing system are to eliminate waste in the form of inventory, excess lead time, over production, poor space utilization, and conventional waste such as scrap, rework, equipment downtime etc.

This system was first adopted in Japan during the 70s and now most of the developed countries are using this method. In JIT, usually the inventory is near to zero or it is sufficient just for few a weeks of production.

In the case of some highly valued materials, it is difficult indeed to draw the line between hand-to-mouth purchase and a purchase made to satisfy current operation requirements. In general, many firms consider a purchase quantity that provides from one to three months coverage as one which normally satisfies current operating requirements.

There are some reasons for pursuing a hand-to-mouth buying policy. If materials are purchased in an unstable market, hand-to-mouth buying saves money when prices are finding their levels, because the buyer dare not accumulate high-priced inventory. But when conducted over the duration of the entire price cycle, hand-to-mouth buying permits purchasing authority to buy their total requirements at approximately the average market price for the cycle.

In the event that a firm plans an engineering design change which renders some materials obsolete, hand to mouth buying prevents inventory losses in such circumstances.

Occasionally, firms require additional cash for operating purposes, they may also be forced to reduce the indirect expenses of carrying inventory.
2.4.2.4 ZERO INVENTORY SYSTEM.

An order can be placed following an item sale for replacement delivery. In such a system, there is no safety stock at the retail level. As an example, when a pair of shoes of a certain size is sold, a replacement order is placed. The retailer is out of stock of this particular size and style until the replenishment order is received from the warehouse. In such a system, the lag between sale (impulse) and order replenishment (response) may be considerable or a prolonged out-of-stock situation could develop at the retail level. In this type of inventory system, the only way to ensure rapid response is through an efficient communications network. Enterprises using the zero-response type of inventory frequently rely on high-speed store-to-distribution communication centers. The effect of a communication delay, either through mechanical failure or transmission error, can be serious. Delay increases the probability of an out-of-stock condition at the retail store and possible amplification of these problems throughout the supplies channel.

2.4.2.5 Simple Average Price

When we receive any goods we record them in the register of the stores. When the second batch of goods comes, we also register it at a new price. We add the previous price and the new price and divide their total by 2. In order to get a new price which is the price of the stock, this method is very simple to operate and gives reasonably valid figures when the prices do not fluctuate very much. But the method is not accurate, errors are possible.
due to approximations in the calculations. It may not be advisable to use it for high value items because of the errors.

2.4.2.6 Weighted Average Price
When the items are purchased, they are weighted by their respective quantities. The issue price is calculated after each purchase. This method is more accurate, but the calculation is the maximum because of the weightage factors. Price fluctuations are distributed in the valuation.

2.4.2.7 Periodic Simple Average
This method is like the simple average method but the difference is that instead of finding an average price for each issue, an average price is calculated for a period which may be quarterly, half yearly or yearly and the issues in that period are valued accordingly. This method is simpler than simple average method but as the values are available only at the end of a period, the quantum of calculation involved at these points of time would be unduly high. It suffers from the same drawbacks as the simple average valuation.

2.4.2.8 Periodic Weighted Average
Periodic weighted average method and the Periodic simple average are extensions of the simple average method. These are priced at the end of the period and the price is the weighted price of all the purchases during the period.
The calculations is done once in a period and the operation of the system is not tedious.
This method takes care of fluctuations in price and is quite accurate. This is one of the most popular methods.
2.4.2.9 Standard Cost

This method is used for forecasted unit. Price for a period is used to evaluate the issue. It takes into account the market conditions, usage rate, storage facilities, handling etc.... The actual price will surely be different from the forecasted price. The difference between the two helps to evaluate the performance of purchasing. There are errors intrinsic to the system and profit or loss depends on actual prices being lesser or greater than the forecast one. But the method is very simple to operate, and if pricing decisions are to be based on market conditions, this can be done easily by taking care of the variance between the market price and forecast price.

2.4.2.10 Replacement price

This method may be adopted for a certain category of items because of its relevance in an inflationary situation. The prices which are paid for the purchased goods are valued. The value of stock on hand would be given by the difference between the sum of purchase price and the sum of replacement prices. To implement this method is difficult. If the valuation is done periodically, the replacement price for the period can be the market price at the end of the period. Alternatively, replacement prices are available on the date of purchases. This method follows the market price, but its administering is quite difficult in actual practice which involves a large number of transactions.
2.4.2.11 Moving Average Price

This method permits usage figures to be brought up-to-date at regular intervals so that order quantities will reflect the latest changes in demand. Some companies are using four week moving average to measure demand. Each week, a new average demand is calculated. With the moving average, demand gradually changes to reflect current usage. Each week's demand is weighted equally. The weight, given the current usage, depends on the span of the moving average.

Other companies are using eight-weeks' average; but four-weeks' average is more sensitive to current demand than an eight-weeks average. An eight-weeks average is more likely to smooth out short-term random fluctuations that are not significant.

2.4.2.12 Inflated Price Method

The issues are made at inflated prices for accounting adjustments to cover loss or gain in the quantity of materials.

2.5 CONCLUSION

Inventory records help to solve the basic problems of inventory control by giving timely information both in physical and monetary terms. There are some items of inventory which need some special accounting treatment. Such items are those in transit, purchase orders, consignments and pledged goods. It is suggested that inventory in transit and inventory in stock should be shown separately in financial statements. Issued purchase orders are not part of inventory and therefore are not included in the inventory. It is suggested that purchase orders for
commitments which have been made already should be shown as a foot note in the balance sheet.

There are various accounting techniques which we have been discussing such as value analysis, variance analysis etc. These techniques are now-a-days being widely used by several industries.

Along with what we have already discussed, we will implement them with the discussion of some other techniques like probability theory, correlation and regression analysis, time series analysis, variability measurement, utility theory, index numbers, etc. Which can be utilized for this purpose.
REFERENCES


2. SATENDRAKUMAR and O.S.GUPTA, "Project on inventory planings and control in chemicals industries of South Gujarat", Department of Buisness and Industrial Management, Surat, 1973


4. AMMER DEAN, "MATERIALS MANAGEMENT.", Printice Hall of India, New Delhi, 1986.


