CHAPTER – I

INTRODUCTION

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1.1 Introduction:

Inventory Management is one of the areas covered by the whole process of management. For the balanced growth and efficient running of the enterprise, it is necessary that inventory cost,inventory supply and inventory utilization are so controlled that they lead to:

(a) the maximization of production,

(b) the reduction in the cost of production and distribution, and

(c) the maximization of the margin of profit.

Inventory management helps in reducing material cost, preventing a large amount of capital being locked up for a longer period and improving the capital turnover ratio.

Inventory management is a service function affecting the flow of material in a manner in which it helps in conserving the materials cost, best utilization of materials and maintaining the quality of both incoming and outgoing materials.

The following are some dictionary meanings of "Inventory":

> *Inventories constitute the largest component of current assets in many organizations.*[1]

Inventory is defined as "the sum of the value of raw materials, fuels, lubricants, spareparts, maintenance, consumables, semi-processed materials and finished goods stock at any given point of time.[2]

Inventory would be the amount of raw materials, fuel and lubricants, spareparts and semi-processed material to be stocked for the smooth running of the plant.[3]

Inventory is defined as "an idle resource of any kind having an economic value.[4]

Inventory is a list or schedule of articles comprised in an estate.[5]

Classification of Inventories/
Contents of Inventories:

Following classification of inventories may serve as a guideline for all practical purposes:

(a) Production Inventories:

Raw material, parts and components which enter into production and form part of the product during conversion process.

(b) M.R.O.Inventories:

Maintenance, repairs and operating requirements inventories which are consumed during the production process but do not form part of the product.

(c) In-process Inventories:

Semi-finished parts and components which enter into

production at various stages and then form part of the final assembly.

(d) Finished goods Inventories:

End-products which are ready for sale and delivery.

1.2 Purchasing:

Purchasing is one of the most common, at the same time a strategic, activity of the business. The success of any business activity is contingent upon having materials stores and supplies, machines and equipments, available in proper quantity with proper quality at the proper place and time and at proper price. Failure on any of this point leads to the cost and reduces the profit margin.

Purchasing has been defined by Westing and Fine as:

> *a business activity directed to securing the materials, supplies and equipment required in the operation of an organization.*

In recent years, experts have given a broader meaning to purchasing, as follows:

> *Purchasing means a policy well-planned, properly co-ordinated and covering a wide range of control to the selection of materials, sources of supply, the follow-up, to ensure timely deliveries, a complete inspection for quality and quantity, well-planned procedures free from much formalities, and development of uptodate methods and techniques*

of higher standard to reveal efficiency and economy.

Importance of Purchasing:

Purchasing is a primary function of a manufacturing concern. Proper sales cannot be made unless materials being used for manufacture are purchased.

Efficient operation of an industry depends upon proper turnover of investment. The purchasing department arranges its purchases so as to ensure receipts of proper materials when required in sufficient quantities and at the same time, it must not increase investment beyond that required to meet the current needs.

Purchasing Department keeps contacts with vendors, and market trends and the manufacturing and marketing policies of the industry make it possible for this Department to contribute invaluable help in framing plans, whether for initiation of raw product, scheduling of production, determination of marketing policies or for other branches of the industrial operation.

Object of Purchasing:

(a) To avail the material supplies and <u>equipments at minimum possible cost</u>:

Materials, supplies and equipments are the basic inputs in manufacturing operations. The minimization of cost of

such inputs increases the productivity and resultantly, the profitability of the operations.

(b) To ensure a continuous flow of production:

Purchasing Department helps in ensuring the uninterrupted production flow through continuous supply of raw materials, components, supplies, tools, etc.

(c) To ensure the asset turnover:

The efforts of Purchase Department result into formation of fixed assets and maintenance of a certain level of investment in inventories. The investment in fixed assets and also in the inventories should be kept at minimum in relation to the corresponding volume of sales. This will increase the turnover of the asset and thus, the profitability of the Company will get enhanced.

(d) To develop the alternate sources of supply:

Exploration of alternate sources of supply of materials increases the bargaining ability of the buyer, minimization of cost of materials and increases the ability to meet the emergencies.

(e) To establish and maintain good relations with suppliers:

Maintenance of good relations with the suppliers helps in evolving a favourable image in the business circles. Such relations are always beneficial to the buyer in terms of charging of reasonable price. Preferential allocation of materials in case of shortages, intimation

about forthcoming shortages, information about the newly developed substitutes, etc.

(f) To achieve maximum integration with other Departments of the Company:

The purchase function is related with the following other departments of the Company:

- Production Department, regarding material specifications, flow of materials, suggested supplies for certain items, etc.
- Engineering Department, for the purchase of tools, machines and equipments.
- Marketing Department, regarding the forecast sales and its impact on procurement of materials, impact of quantity of input on quality of output and sales.
- Finance Department, for the purpose of maintaining levels of materials for meeting working capital needs, tapping the quantity discount, etc.
- Personnel Department, for the purpose of manning and developing the personnel of Purchase Department maintaining vendor relationship, etc.

(g) To train and develop the personnel:

Purchasing Department is maintained with varied types of personnel. The Company should try to build an imaginative employee-force through training and development. This will ensure management succession along with a connected personnel work and provided

with an opportunity to fulfill their aspirations through getting promotions on higher positions.

(h) Efficient record keeping and management reporting:

The periodic reporting to the management about the purchase activities is also one of the important activities which justifies the independent existence of a Purchase Department. The records and papers are kept by the Purchasing Department and provide a tool for reporting.

Purchasing Principles:

The success of any manufacturing activity is largely dependent on the procurement of materials under the following basic principles:

(a) to purchase the right quality of materials;

(b) to purchase the materials in right quantities;

(c) to make them available at right time;

(d) to purchase the materials at right place;

(e) to purchase the materials from the right source.

Duties and Responsibilities of the Purchasing Department:

(a) Issuing purchase orders,

(b) Interviewing salesmen,

(c) Negotiating with vendors,

(d) Selecting Vendors,

(e) Analysing bids and prices,

(f) Making adjustments with vendors,

(g) Maintaining recordsd of vendors,

(h) Developing new sources of supply,

(i) Follow-up on orders,

(j) Maintaining a catalogue library,

(k) Disposing off scrap and surplus materials,

(l) Checking and approving invoices,

(m) Scheduling purchases and deliveries,

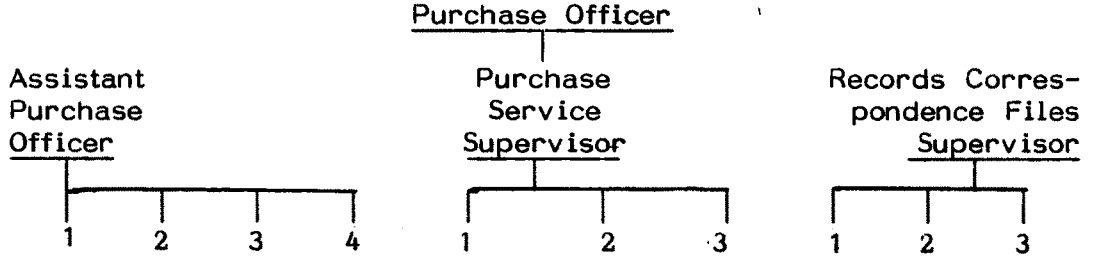
(n) Determining buying time,

(o) Checking requisitions,

(p) Determining how much to buy.

Organization of Purchase Department:

The organization of the purchasing department usually comprises three major sections, Buying, Purchase Service, and Records. Buying is concerned with the actual purchase of materials. After placement of the order, the purchase service group becomes responsible for it and acts as a liaison between the Company and the vendor. The record section maintains records of purchase costs, quotations, etc.



Assistant Purchase Officer:

1. Buyer Electrical Components
2. Buyer Hardware
3. Buyer Steel
4. Buyer Fabricated Items

Purchase Service Supervisor:

1. Clerk Hardware and Steel
2. Clerk Fabricated Items
3. Clerk Electrical Components

Records Correspondence Files Supervisor:

1. Order Clerk
2. Record Clerk
3. File Clerk.

Method of Purchasing:

(a) Purchasing strictly by requirement:

In this method of purchasing, purchases are made only when needed. Goods are usually not purchased regularly, but are bought to meet a specific need. In this system, the main duty of the purchasing section is to know the resources of reliable firms.

(b) Purchasing for a specific future period:

Supplies are often procured for specific future period. These items are standardized products and are purchased regularly in relatively small quantities. Even for the same general class of materials, the period covered

by such purchasing is not fixed.

(c) Market Purchasing:

The method requires a comprehensive study of general market trends and procurement of materials that are required in the light of reasonable market expectations. This system is closely associated with planned production schedules.

(d) Group Purchasing:

This system of purchasing has full advantage of saving that naturally accrue by placing one order for a number of small items rather than placing a large number of small orders. It also saves the supplier from a great deal of clerical detail and delivery costs.

(e) Contract Purchasing:

Contract purchasing is the purchasing under contract. Under this method, generally the delivery of needed materials is spread over a period of time. Price may or may not be fixed. Price concessions are often available due to contracting to purchase large quantity.

(f) Speculative Purchasing:

Speculative purchasing has two aspects, one consists of buying in excess of requirements when the market is low, with the idea in mind of selling the surplus when the market price rises; the second aspect of speculative purchasing is buying in excess of current

needs when the price is low, with the expectation that price will rise, thereby saving the Company's considerable money.

(g) Scheduled Purchasing:

It is closely associated with carefully controlled production. It offers to the suppliers some of the advantages of production control within the plant and thus enables them to plan their production and control their quality more effectively. It tries to minimise the inventories carried by the buyer and allows the supplier to exercise control on his inventories more closely.

Centralized and Decentralized Purchasing:

If a company operates only one plant, a central purchasing department, or atleast one person in charge of all purchasing, is the best arrangement. If the company has more than one plant, the factors which must be considered to find out to what extent to centralize are:

(a) Degree of geographical separation of plants;

(b) Essential homogeneity of products manufactured;

(c) Type of materials forming bulk of purchases;

(d) Whether items are bought in large volume and are peculiarly susceptible to market changes;

(e) Location of suppliers, etc.

In case of decentralized purchasing, each plant has its own purchasing agent, who purchases independently of other plants and other purchasing agents. Decentralized purchasing is more commonly used where the different plants require different types of materials.

Purchases Budget:

Before placing any order for the materials, the head of purchase department will prepare the purchase budget or production target for the factory, as a whole, for the particular period. Purchase budget means and includes the total requirement for the material of the factory for a particular period. While preparing the purchase budget, the purchase manager should take into consideration the number of points which are as under:

(a) Requirements of the materials with the quantity and quality as mentioned in the production target;

(b) Present stock position;

(c) The dates on which materials needed;

(d) Prices of materials and sources of supply;

(e) Cash position to settle the accounts of suppliers;

(f) Transport facilities available;

(g) Receiving arrangement and inspection of materials;

(h) The nature of the material - shrinkage, obsolescence insurance and storing capacity available.

Preparation of the purchase budget will facilitate the purchase manager to decide what to purchase, when to purchase, where to purchase and at what price to purchase. It will also help to avoid over-stocking and non-availability of materials.

Purchase Procedure:

The organization designs its own organizational structure and it tries to adopt a most suitable procedure to achieve the best results.

A procedure adopted by the purchase department of a particular organization may not be suitable for the purchase department of any other organization and some adjustments may be required. The size of the organization, the type and the nature of product, type of material's purchased, sources of supplies, terms and conditions of purchase, financial requirements and several other factors may influence the purchasing method and procedure.

Normally, the following procedure is adopted in making a purchase for an organization:

(a) Indenting department or inventory control section placing the purchase requisition with the purchase department;

(b) Enquiry to supplier;

(c) Receiving quotations from supplier;

(d) Preparing Comparative Statement;

(e) Approving the supplier;

(f) Placing an order with the supplier;

(g) Sending the copies of purchase order to -

i) Indenting department,

ii) Inventory control section,

iii) Accounts department,

iv) Stores department;

(h) Following up the order;

(i) Receiving of supply from the supplier by the stores department;

(j) Inspection at the receiving section;

(k) Receiving the inspection report;

(l) Requesting the accounts department to make the payment.

Documents Used During Purchase Procedure:

(a) Purchase Requisition:

Purchase requisition is a written list of materials for recoupment, sent to the purchase department for their procurement. It is submitted to the head of purchase department and is generally prepared in triplicate, one is sent to purchase department, the second to the materials control department, and the last is retained by the requisitioning department as a copy for future reference.

(b) Purchase Order:

Purchase order is a legal document for all practical purposes and is prepared with great care and in all details, so as to help the supplier to supply the materials of right quantity and at right time.

Purchase order is an order to the supplier to supply the required materials as per the quotations submitted by him in accordance with instructions contained therein.

(c) Comparative Statement:

The comparative statement is also known as comparative schedule of quotations. this is prepared often on the receipt of quotations from suppliers with a view to compare their prices, terms, conditions, etc., and to select one of the suppliers whose terms are favourable to the organization. A comparative statement is an important document which should be carefully kept in record for future reference and guidance.

(d) Suppliers' Quotations:

On enquiry, the suppplier quotes his prices and the terms and conditions of the supply of materials to the purchase department, indicating the quality, quantity, time of delivery, price discount and other concessions in his reply to the enquiry. This is one of the important documents and requires proper and careful handling in the purchase department.

(e) Invoice or Bill:

Invoice or bill is a statement of materials supplied and price charged from the supplier. The supplier usually despatches the invoice or bill along with materials for payment. Invoices are received along with materials by the stores department. For making correct payment and for the materials which have actually been received and for avoiding any double payment, it is necessary that the stores department should enclose a certificate to the effect that materials have been received in the ordered quantity and quality. The purchase department on receipt of the invoice, scrutinizes and passes it for payment and sends it to the accounts department.

1.3 Receipt and Inspection:

Efficient organization demands that there should be proper verification and inspection of goods as soon as they arrive at factory. Receipt and inspection are two important functions of purchasing and store-keeping. Inspection of materials follows the purchasing and is carried out before the goods are stored in the stores section.

Procedure for Receipt and Inspection:

When a supplier sends the goods to the purchaser, he usually sends along with them, an invoice (or delivery

note) for the goods. An invoice means a statement giving the description of quantity, price, method of packing, means of transportation of the goods. The invoice may be accompanied by:

(a) Railway receipt,

(b) Lorry receipt,

(c) Bill-of-lading.

The material is generally received by the store-keeper. Immediately on receipt of the material, he checks whether the conditions of the orders have been complied with or not. This he does by checking the invoice against the purchase order.

Receipt of Consignment:

A responsible person should be sent to the railway goods office or transport office to receive the consignment. He should carefully examine the outward condition of the packages for any damage or loss and also ensure its correct weight before taking delivery. Material received by post or by road directly at the factory is received by the receiving section or the store-keeper.

Inspection of Goods:

As far as possible, arrangement should be made for carefully opening the cases for inspection of the goods.

This is arranged by the store-keeper in the presence of an inspector or a representative of the department requiring the goods. Proper facilities for opening the packing and testing and weighing the material should be provided for.

A duplicate voucher is prepared. Both of these are handed over to the consignee along with the goods. One is retained by the consignee and the other is handed back to the agent as certificate of receipt.

A simple register of receipt of invoices under process or objections is maintained. Normal invoices may be treated as bills and processed alongwith the purchase order for payment.

Documents Used In Receipt and Inspection:

(a) Delivery Note:

This is a document commonly used by the supplier or distributor as information for and proof of delivery. It lists the packages and goods being sent by any transport means. The driver of delivery vehicle hands two copies with the consingment to the consignee (purchaser), who signs one copy as an acknowledgement of receipt. This copy is returned to the supplier (consignor) as a proof of safe delivery. The purchaser retains the original.

An inspection is made for quantity, quality and breakages. An inspection note and goods receipt note may be prepared by the inspectors or persons verifying and certifying the correctness of the material.

(b) Invoice:

An invoice is a detailed statement from the supplier to a purchaser giving the description of material, its quality, quantity, price, method of packing, means of transport, etc. It also shows the price and charges due to packing, forwarding, insurance, taxes, etc.

(c) Receipt Voucher:

Receipt voucher is not a separate document, but the receiving department who has received the goods invoice in duplicate/triplicate may stamp the vouchers and return one copy to the supplier as token of having received and verified the goods for payment.

(d) Stores Daybook:

Stores received are usually packed in different types of packages and are received by different methods of transport or through agent delivery. All such consignments are received and immediately entered in the Stores Daybook.

(e) Material Receipt Advice:

As soon as the consignment is received by the stores department, especially in large companies, a 'Material

Receipt Advice' is sent to the following sections for information:

i) Inventory control section,

ii) Purchasing Section,

iii) Consuming or Receiving Department.

Such an advice acts as an advance information to help them plan their storage activities. When the received material will occupy a large storage space, an intimation is sent to the concerned department to enable them to make available the required space.

(f) Goods Inward Note/Goods Received Note:

Materials purchased are passed into the custody of the store-keeper when they have been inspected and approved. Even for articles which have been made in their own factory, inspection is carried out and then passed into stores as stock. In order to keep the accounting uniform, it is desirable that the Goods Inward Note be prepared. The store-keeper receives all the materials on the basis of the Goods Inward Note. It is filled by an inspector, who inspects the consignment and certifies the materials as required by the receiving section or the store-keeper. A number of copies of the Goods Inward Note are usually distributed to the following departments:

i) Accounts department,

ii) Purchasing section,

iii) Stores,

iv) Inventory control section

v) Receiving section,

(g) Inspection Note:

After the material has been received, removed from the packing and compared with the purchase order and found correct, an inspection request is sent to the indentor in duplicate who checks up the quality of the material.

(h) Material Transfer Note:

Material transport note is prepared when material or equipment are to be transferred from one section to another or from one job to another job, or in case of dead stock items, from one person to another.

(i) Bin-Card:

'Bin-card', as the name suggests, is a card placed near a bin. It records issue and receipts as they happen and give the balance at any time. One card is, therefore, maintained for each item. It shows its part number and description size and specification, location of storage, unit of issue, receipt, issue and balance in hand. A Bin-card may also indicate minimum, maximum and ordering levels, so that the stock clerk, when checking the balances, may make a note of depleted stocks and place orders for fresh quantities. In this way, it is an extract of the stock register for each individual item, showing the real position in hand and that consumed. These cards are the practical links between the physical stocks and the stores accounts and offer a mutual check between the two.

(i) Stock Register:

A stock register is maintained by every store and is kept in the stores office. It is the basic reference material to all the items stocked in a store. The stock register in modern stores is maintained in loose leaves, one leaf for each item. It usually contains the following information:

- Name of company,
- Description of articles,
- Specification,
- Unit,
- Location : Shed No.
  Rack No.
  Bin No.
- Material code no.
- Stock level : Maximum
  Minimum
- Receipt - Date and Month
- Suppliers' Bill : No. and Date
  Supplier's Name & Address
- Receipts - quantity and total value,
- Issue - Date, month, stores (requisition slip) No. and quantity,
- Balance - Cost Point - Balance in stock,
- On indent - Indent no. and date, quantity.

Inspection:

Inspection, in store-keeping terminology, means comparison or checking of quality, size of material received in store, with mutually agreed standards. Inspection is an essential tool of quality control of all goods and materials purchased and received in the stores.

The quality of a product means the sum total of the number of related characteristics of a material comprise:

(a) Shape,

(b) Colour,

(c) Dimensions and weight,

(d) Composition,

(e) Strength,

(f) Workmanship of finish, etc.

In case of procurement of purchase of goods, it is necessary to ensure that only those goods which were ordered have been delivered and that they conform to the specifications asked for by the purchaser.

Inspection of Quality:

All purchased material should be inspected for quality. Quality is always related to the end product. Good quality will, therefore, mean that the material received

conform to the standard agreed upon or entered in the purchase order. The receiving section of the stores department, which is under the control of the head store-keeper, inspects all the articles for quality.

Methods of Inspection:

(a) Visual Method:

It is the most common method employed for examining all those materials where quality can be verified by looking at the material, e.g.

i) All packages can be examined for any damage,

ii) Breakage of material,

iii) Articles of furniture,

iv) Raw material such as timber, coal, pig iron, etc.

v) Supplies and finished articles such as nuts, bolts, rags, etc.

(b) Chemical Examination:

This type of inspection is usually performed on various types of chemicals and other materials.

(c) Mechanical Tests:

These are commonly performed on incoming raw materials in the stores. The main objective is to determine the strength of the materials or their specifications. Various types of measuring tools such as steel rule, micrometer, dial gauge, 'go' and 'no-go ' gauges and

even X-ray technique are used to determine any defect or irregularity in the size. Liquids may be mechanically examined for their density and specific gravity. Strength of materials at site or to be received in stores department is usually tested by means of hardness test.

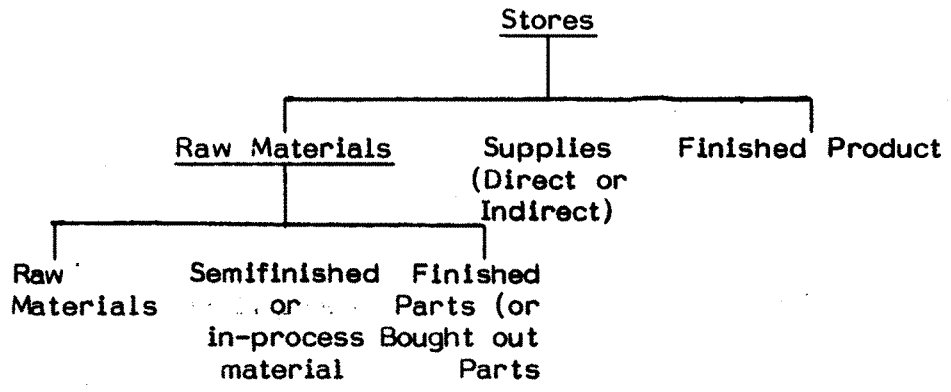
Inspection for Quality:

All purchased materials should be counted and inspected as soon as they are received in store. If supply is made in packing cases, it is first necessary to count the packages and then the number of cartons has to be counted which may be laborious job in case of large supply. The usual thing done in such cases is to random check samples 10% samples checking means 10 cartons out of 100 are checked.

1.4 Storage:

A store is required to handle various types of materials and products, depending upon manufacturing organization or commercial organization.

In a manufacturing organization, stores material can be classified as shown in the following chart:



(a) Raw Material:

These are the basic materials which undergo changes through manufacturing process to become the finished product. They also constitute materials with the help of which articles are manufactured, e.g. coal, iron and steel, timber, leather, cement, lime, chemicals, Raw materials are further classified into:

i) Direct Materials,

ii) Indirect Materials.

i) Direct Raw Materials:

It is that which forms a part of the product. It is the material which can be measured and charged directly to the cost of the product. This material can be identified in the product, e.g. steel in the manufacturing of car; fruit in the canning industry, timber in furniture-making, turpentile oil and spirit in paint.

ii) Indirect Raw Materials:

These are the raw materials that cannot be traced as part of the product. They help in the

manufacture but do not form part of the finished product, e.g. lubricants used in machines, cotton waste for cleaning the machines and parts and tools used in machines.

(b) Serviceable and Unserviceable Materials:

Those materials which have gone out of order temporarily but can again be put to use after repair are called serviceable materials. On the other hand, materials those are damaged or scrap materials which have gone out of order permanently and cannot be put to usable condition, such materials are called unserviceable amterials, e.g. worn-out tools; steel chips from machines, scrap materials, cloth-cuttings in a dress-making factory.

(c) Finished Articles or Materials:

They are the products or materials which have been fabricated completely as sub-units or sub-assemblies of a final finished product. They are complete in themselves and have indpendent functions to perform in the finished product. They are so complicated that independent manufacturers develop them and manufacture them in more economical way than it would have been possible by the main product manufacturer.

(d) Semi-finished Materials:

Semi-finished materials or products are the articles which have been fabricated or manufactured so as

to form part of a finished product. Such component are manufactured by different supplies and are finished and fabricated by the main manufacturer.

(e) Perishable Materials:

Perishable are those materials that will not last long. These materials are shortlived and decay easily. Milk, fruits, vegetables, eggs, etc., are all perishable materials. Most of the chemicals are perishable materials. Special care has to be taken to store them. Their life can be prolonged by storing them in cold storage.

(f) Packing Materials:

Packing material is used to:

i) contain the product,

ii) protect it against loss, damage or theft,

iii) carry it safely from one place to another,

iv) Advertise the product and increase its show, appeal and promote its sale.

(g) Empties;

Empties refer to empty packing cases or other packages. Generally, they refer to old used packages which have been scrapped after use. In case of wooden packages, these may be reused, but in most of the cases, such material is disposed off as scrap, e.g. wooden cases as boxes, metal containers as barrels, drums or cans, glassware as bottles, jars, etc.

(h) Furniture:

Contents or articles needed in a house or a place which are moveable are called 'furniture', e.g. chair, cupboards, etc. Furniture items are usually bulky and require large storage space. They also get easily damaged. While in storage, care should, therefore, be taken to preserve them in storage.

(i) Dead Stock Items:

Dead stock items are all those items which are in the form of finished product and on which capital has been spent for the purpose of making or aiding production. In economic sense, deadstock items are capital goods and capital goods are those goods which aid in production.

(j) Chemicals:

Chemicals are the articles in powder, liquid or tablet form, used as medicine, insecticides, etc. Chemicals are used in industry for a large number of applications. Chemicals are stored in moisture-proof bags, small plastic bags, bottles, jars, ampulses, aluminium foils, etc.

Types of Stores Depot:

Depending upon the size of the plant, products being manufactured or stored, the stores may be classified into:

i) Main or General Stores,

ii) Branch Stores,

iii) Tool Stores,

iv) Warehouses.

Storage Equipment:

Qualities (desirable features) of Storage Equipments:

Storage equipment should be so designed, constructed and fabricated that it can meet as many of the following requirements as possible:

(a) Ease of Handling:

Storage equipment should permit the stores to be handled with ease and convenience. Their deposits and removal from the bins or racks should not be difficult.

(b) Suitability:

Bins, racks or containers should suit the materials stored and also the method of handling. They should prevent duplication of transfer and facilitate their stock verification.

(c) Preservation:

The equipment should be such as to preserve the material in serviceable condition without damaging and deteriorating. It should also protect the material from neighbouring materials with sharp projections.

(d) Strength:

The equipment should be strong enough to protect the stores material from mechanical damage. The equipment should not fail due to over-loading as this might damage the stores material.

(e) Security:

The expensive and valuable goods should, as far as possible, stored in bins or almirahs with locks. Stores should not be accessible to everyone. Store issue should be arranged through special counters.

(f) Tidy Storage:

Bins or containers should be such that they hold the stores without getting them mixed up with other stores resulting in wrong issue. Their design and shape should allow tidy storage of goods.

(g) Flexibility:

Storage equipment should allow for flexibility of stores' location and layout and facilitate change or modification or shifting without much trouble.

(h) Safety:

Equipment should ensure safety of stores and the persons handling them. They should provide for suitable protection or arrangement for the stores from falling and prevent sliding of materials that are stored vertically.

(i) Fire Precaution:

Storage equipment should, as far as possible, reduce or prevent fire hazard, steel equipment is best for this purpose. Wooden equipment is not safe.

(j) Cost:

The cost aspect may be one of the major considerations to keep the inventory carrying costs as low as possible. This feature may be of utmost importance to small and medium organizations whose objective may be to maintain the inventory cost as low as possible, so as to have an optimization. A proper balance is to be struck by sacrificing some of the above qualities.

Nature of Storage Equipment:

Storage equipment can be built or fabricated from the following material:

(a) Reinforced Cement Concrete:

RCC-built bins, shelves, special storage space or rooms, etc., are immobile. They are also safe and fireproof. Besides, they also give a tidy appearance. Permanent storage space provided right in the initial planning of organization facilitates RCC design storage.

(b) Woode:

Wooden storage equipment have been the most popular equipment. They are cheap. They can be easily and

quickly constructed. They do not damage. Wooden equipment are light in construction.

(c) Steel:

Steel equipment is expensive but has definite advantages over the R.C.C. and wood. A wide variety of steel equipment is now available in the country and is being used in preference to wooden equipment. It consists of angle iron or steel sheet pressing frame work with steel sheets covering its sides. Shelves are usually made adjustable so that shelf height can be varied according to the requirement.

Types of Storage Equipment:

(a) Bays: Bays, also called aisle, are the passages between two rows of racks or almirahs in a storeroom. The term also refers to the space between two rows or racks or almirahs. A storeroom is arranged in small rows of racks, bins or almirahs, so that they form either single type or double type bays.

(b) Racks:

A rack is a framework in which various articles can be kept. It may consist of shelves with front and back side open. Racks may be:

i) Steel racks,

ii) Wooden racks,

iii) Concrete racks.

Racks may be further classified into :

i) Bin rack,

ii) Bar rack - Horizontal bar rack,

- Vertical bar rack.

Stores Layout:

In some of the poorly organized companies, any vacant area or leftover space not covered by production equipment becomes a storage yard scattered with heaps of material. In contrast, one comes across properly laid out, well-equipped and neatly maintained stores where minimum of handling is involved and space fully utilized upto the ceiling heights.

Some of the aspects to be taken into account regarding the layout of stores are given below:

(a) Provision for easy receipt, storage and disbursement of materials, nearness to point of use;

(b) Minimum handling and transportation of materials, good accessibility for handling equipment and personnel;

(c) Adequate capacity, provision of flexibility for future expansion;

(d) Efficient utilization of floor space and height;

(e) Clear identification of material, quick location of items, ease of physical counting which reduces paper work and record keeping;

(f) Protection against waste, deterioration, damage and pilferage.

Identification of Materials:

Sheets and planks, rods, bars, flats and tubes are generally identified by painted bands to indicate their material specifications. The identification means tracing the part number or code number, description, specification including composition, size, source of supply, batch number, etc. Proper identification avoids issue of wrong items, helps in sorting out materials of different specifications.

Some of the methods of identifying materials are given below:

(a) Tagging or Labellings:

Identification tags made of paper board, tin plate, cloth tape, either retained along with the material or affixed on them.

(b) Writing or Plating:

The details required can be written on the cartons, drums or on items in ink, glass-making crayons, paints, etc. Vibrating marking tools also can be used.

(c) Stamping, Embossing or Etching:

Metal punches can be used to stamp the identification code on the metal components or items. Where stamping operation is not desirable, the code number could be etched by chemicals or by sand blasting.

1.5 Issue to Production:

Issue of Material and **Return of Material:**

Procedure for Issue of Material:

The storekeeper issues the material on receipt of a requisition signed by the competent authority of the operating department. The requisition must furnish certain particulars, which are considered essential for good storekeeping:

a) Class and reference number or description of item wanted;

b) Quantity required and unit of issue;

c) Place of delivery of material;

d) Work order number and chargeable head;

e) Signature of the person making out and authorising;

f) Requisition Number;

g) Date of signing;

h) Initials or signature of person receiving material;

i) Initials or signature of store-keeper.

Material issue requisition are made out in duplicate from bound books with printed consecutive numbers and with every alternative sheet perforated and are supplied to each department. They contain the date, the necessary particulars of stores requisitioned, such as quantity and description, order or job number to which the material is to be charged, department number, signature of the party making it, space for the initials of the issuing store-keeper and the signature of the person receiving the material; whereas the perforated copy will be torn off and issued to the stores, the carbon duplicate copy will remain with the maker in a bound form by way of a permanent record.

Record of Material Issued:

On the receipt of material issue requisition, the store-keeper issues the materials and receives the signature of the person receiving the material. He then enters in the bin-card the date, requisition number and quantity issued and adjusts the balance column. After initialling the stores requisition, he passes it on to the cost department for entry by the stores department. The entry showing the issue of quantity is then made in the stores record card bearing the same bin-number. The stores accountant then inserts on the stores requisition the price of the material issued, which he ascertains from the stores record cards. The object of inserting the price is to enable the issue of materials

to be charged to different jobs or departments at the actually paid price.

1.6 Recording:

Stock Records (Record Keeping)

It is necessary to decide how much information is shown on the records, where they are to be kept and where they are entered by pen and ink method or by machine method. All these question deserve the closest scrutiny, because the number of transactions handled by the stores department is frequently very substantial and where many thousands of documents are being processed in the course of a year's business. In practice, therefore, when a system of stores recording is being set up, it is important to examine every detail very carefully to make sure that the entires to be made on the stock records are limited to what is essential for efficient working.

Stock records are expected to show particulars of receipts, issues and balances remaining in stock for each individual item held in the storehouse, from day-to-day. Because a system of records of this kind indicates, at any time, the quantity of goods in hand.

Purpose of Stock Records:

(a) To indicate the amount of stock of any item at any time without counting it physically;

(b) To establish a link between the physical stock and the stores accounts. All receipts and issues entered in detail on the stock records are subsequently posted in value to the stores account;

(c) To provide a means of provisioning, i.e. determining how much should be ordered to maintain stock at the required level;

(d) To supply information for stock taking whereby the quantities of all items in the storehouse ascertained by physical checking are compared with the corresponding quantity balance on records;

(e) To provide a method of informing storehouse staff of the location of goods in the store house;

(f) To serve the purpose of pricelist. If unit prices are given on the stock records, they can be used to price all store documents which are posted to the records.

Bin-Cards:

These cards are usually very simple, giving a description of items, including its vocabulary number, the unit of issue, the quantities received and issued and the balance remaining in the bin.

Stock Records Cards:

As opposed to Bin-cards, stock record cards are kept together in one place. It is difficult to generalize on this point, but there is much to be said for holding the records in, or very near to, the storehouse building. If this is done, contact between the clerk keeping the records and the storehouse staff responsible for receipts, issues and stock-taking is easy; and querries or mistakes can be settled quickly without the need for telephone calls or written inquiries and explanations. At the same time, the transit of the various documents used is limited the minimum and there is, therefore, a better opportunity of keeping the records uptodate.

Stock records can be kept in three ways:

i) showing quantities only,

ii) showing quantity and unit price,

iii) showing quantity, unit price, the value of each transaction and the total value of the balance of stock.

Stock Review Cards:

These cards are completely separate from the normal stock records and are specially designed to give all the information necessary for provisioning. One card is prepared for each item of stock and, at the time when

that item is reviewed for provisioning purpose upto date details of the balance of stock. Outstanding orders and past cnsumption are transferred from the stock record to the stock review card, which is then sent to the person responsible for provisioning to deal with in his own time, while the stock record is left undisturbed.

Stock Recording Systems:

Basically, all recording can be done by manual posting where volume and complexity of the documents handled is of major proportion, mechanized methods are often found to be more effective. Accounting machines are frequently employed for other purpose, such as financial and cost accounting, wages, production control and sales, and it may be necessary to relate the methods used in the stores department to those in operation elsewhere in the organization.

Manual Stock Recording System:

(a) Hand-posted stock recording system:

  i. Loose cards,

  ii. Loose leaf books,

  iii. Visible index,

  iv. Slip posting.

(b) Manual punched cards

(c) Mechanical stock recording system:

  i. Keyboard ledger posting system,

ii. Mechanized punched card installation,

iii. Electronic computers.

Pricing Methods:

(a) First-in First-out:

This method operates under the assumption that the materials which are received first are issued first and, therefore, the flow of cost of materials should also be in the same order. Issues are priced on the same basis, until the first batch received is used up, after which he price of the next batch received becomems the issue price. Upon his batch being fully used, the price of the still next batch is used for pricing and so on.

(b) Last-in First-Out:

This method operates on the assumption that the receipts of materials are issued first for production and earlier receipts are issued last, i.e. in the reverse order to FIFO. It uses the price of the last batch received for all the issues until all units from this batch have been issued after which the price of the previous batch received becomes the issue price.

(c) Highest-in First-out:

It assumes that the issues should always be made at the highest value of the receipts and the closing

stock should always remain at the minimum value. Under-valuation of closing stock leads to creation of secret reserve.

(d) Specific Price:

Where materials are purchased for a particular job, they should be charged to that particular job at their actual cost. This method can always be used where materials are purchased and set aside for a particular job until required for production.

(e) Base Stock Price:

This method of pricing is based on a realistic assumption that a certain level of stock shall always be maintained and cannot be used unless an emergency arises; for instance, when supplies of materials are delayed and production must continue. This minimum stock is in the nature of a fixed assets and is known as base stock. The stock in excess of base stock would be treated in accordance with one or the other method, e.g. LIFO, FIFO, average, etc.

(f) Simple Average Price:

Simple average price is the average of the prices without any regard to quantities. The calculation of simple average price involves adding of different prices and dividing by the number of different prices. The method operates under the principle that when materials

are purchased in lots and are put in store, their identity is lost and, therefore, issues should be valued at the average price of all the lost in store.

(g) Weighted Average Price:

Weighted average price is calculated by dividing the total cost of materials in stock by the total quantity of materials in stock. This method averages prices after weighting (i.e. multiplying) by their quantities. The average price at any time is simply the balance value figure divided by the balance units figures. Issue prices need only to be computed on the receipt of new deliveries and not at the time of each issue as in the case of LIFO and FIFO. Thus, as soon as a fresh lot is received, a new issue price is calculated and all issues are then taken at this price until the receipt of the next lot of materials.

(h) Periodic Simple Average Price:

This method is similar to the simple average price except that here the issue price is calculated at the end of each period (normally, a month) covering the prices at which purchases were made during the period and not at the occassion of each issue of material.

(i) Periodic Weighted Average Price:

The periodic weighted average price is the weighted average price of materials purchased during a period.

It is calculated by dividing the total cost of materials purchased during a period by the total quantity of materials purchased during that period. A new average price is calculated at the end of each period (normally a month).

(j) Moving Simple Average Price:

This price is obtained by dividing the total of the periodic simple average price of a given number of periods by the number of periods, the last of the period being that for which material issues are valued. The calculation of moving simple average price requires of decision upon the number of periods (months), i.e. 3, 5, 7, etc.

(k) Moving Weighted Average Price:

This is a derivation of the weighted average method. To obtain the weighted average price, the weighted average price of a given number of periods (including and preceding the period of accounting) have to be added and divided by the number of periods.

1.7 Materials Control:

Objectives of Inventory Control:

(a) To minimize idling of men and machines, which may arise due to shortage of raw materials, supplies and spareparts;

(b) To provide efficient and smooth service to the customers;

(c) To keep to ' minimum capital locked up or investment on inventories;

(d) To keep to minimum inventory carrying costs, i.e. expenses involved in storing and handling inventories.

The first objective requires holding large inventories as big as possible: whereas the second objective requires holding only sufficient inventories.

Scope of Inventory Control:

(a) Defining policies to guide the inventory control programme;

(b) Determining the most appropriate organization structure;

(c) Determining economic order quantities;

(d) Determination of stock-out;

(e) Determining safety stock;

(f) Determining lead time;

(g) Determination of inventory status;

(h) Minimizing handling and storing costs;

(i) Effective running of stores which may include effective layout, effective utilization of storage space and equipment and simplified but efficient receiving and issuing procedures.

Problems of Inventory Control:

The angle of each department in the enterprise is

generally different. Each department looks at inventories in a different manner. The production department wants to keep the inventories at a sufficient level at all time. Since production department is interested in producing at minimum possible cost and keep the workers occupied all the time, it wants a continuous production for which regular flow of inventories in sufficient quantity and of required quality is a must. The production department wants to maintain the tempo.

The sales department, on the other hand, is interested in ensuring maximum customer service for which it always wants good stock of all the finished products. The transport department is interested in keeping its fleet intact and all the time in serviceable condition for which the department needs sufficient stock of spare parts, consumable items, etc., at its disposal.

The finance department, on the other hand, may all the time, feel that inventories are consuming capital and locking up the capital. If the capital is freed from there, the department may feel, then the working capital so freed from inventories may start earning a good return. The finance department thus looks at inventories in isolation.

The individual department thinking poses a problem to the inventory control, which has to reconcile the conflicting claims of different nature within the framework of the policies

and programmes of the enterprise.

Concepts of Inventory Control:

(a) Inventory Carrying Cost:

Inventory is money but is not at all like money in a bank. It is money on which you may pay interest instead of earning interest. After a year, Rs.100 in a bank may fetch you Rs.104, but after a year on the shelf, Rs.100 of inventory will naturally be worth less than Rs.100. Besides, it will also cost Rs.12 or more as carrying cost. Inventory not only ties up capital but also costs a good deal to carry over. Hence, the concept, Inventory Carrying Cost, which is a hidden cost, in the sense, is considerable and has to be accounted to for. Inventory carrying cost can be divided into three main components:

i. Capital cost,

ii. Cost of storage and handling,

iii. Cost of deterioration and obsolescence and other losses.

Inventory carrying cost vary from organization to organization and are between Rs.15 to Rs.30 for Rs.100 worth of stored material per year, depending upon the above factors.

(b) Stock Out Cost:

Stock out simply means the non-availability of the stocks, the consequences of which are serious and may result in a breakdown of production operation or delaying the operation. What will be the result if materials and spareparts are not available on time and in adequate quantity?

i. Workers will sit idle,

ii. Machines will become idle or under-utilized,

iii. There will be hold up of production,

iv. There will be less profits,

v. Commitments of supply of products will not be met.

Thus, the Firm will loose its reliability.

Due to all the above factors, there will be apparent or hidden losses of money which it may not be possible to express in quantity.

(c) Control Levels:

To ensure the steady and efficient functioning, the stores department fixes the various stock levels, which are explained as follows:

i. Maximum level - Maximum level representts the level which the stock in hand is not allowed to exceed. This is because if the stock exceeds this level, it will: (a) involve more investment, (b) require more space for storage, (c) involve more carrying cost. Stocks in excess will also prevent the

management from taking advantage of price fluctuations and favourable market conditions. The fixation of maximum level depends on the following factors:

a) Rate of consumption of the materials,

b) Time necessary to obtain the deliveries,

c) Amount of money available,

d) storage space available,

e) Possibility of losses due to evaporation,

f) Market condition, seasonal and price fluctuations,

g) Economic order quantity,

h) Government restrictions,

i) staff and other facilities available for the maintenance of stores and the maintenance cost involved,

j) Need of safety stock.

ii. Minimum level - Minimum level points to the level below which the stock in hand shall not be allowed to fall. This limit is fixed in order to avoid the possibility of the suspension of production due to storage of materials. It is necessary that the stock on hand shall always be kept a little above this level to be on the safer side but never to fall below this level.

iii. Danger level - This level is below the minimum level and represents the stage of which emergency and immediate steps have to be taken for getting

the stock replenished. It is fixed taking into account the time required to get the materials by the quickest possible means of transport.

iv. Order level - This is the quantity of stock level fixed between the maximum and minimum levels of stock. When this level is reached, it becomes the duty of the stores in-charge to initiate purchase so as to replenish the stock within reasonable time. The objective of fixing up the re-order level is to restock the material at the lowest cost, insuring at the same time, the uninterrupted operation of the manufacturing organization.

v. Safety stock - Safety stock is the minimum quantity of materials kept in stock. Safety is, therefore, also referred to as 'minimum inventory', 'buffer stock' or 'reserve stock'. A safety stock is a cushion to prevent stockouts. It is an insurance against emergencies. The provision for safety stock thus assumes greater importance in the face of uncertainties in the consumption as well as delivery pattern.

vi. Economic Order Quantity - Economic order quantity is the most economical purchase order quantity or lot size which keeps a balance between inventory carrying costs and ordering costs. These two

types of costs, opposed to one another, i.e. whereas inventory carrying cost increases, ordering cost decreases with quantity of purchase order.

These requirements are conflicting and there is a particular quantity at which the sum of both the ordering and inventory carrying costs are minimum. This quantity is called as the 'Economic Ordering Quantity'.

Tools of Inventory Control:

ABC Analysis:

Control of inventory in an undertaking requires staff, paper-work, procedures, checks and balances all these and, therefore, inventory control is expensive. Some inventories are very expensive and require rigid control even at the risk of some stock out. This is done to avoid blocking up of money or capital in expensive inventories. But some other items may be very cheap and need not have any control. So, what is required is not a policy of uniform rigid control for every type of inventory. A selective inventory control policy is only desirable. Therefore, the degree of control required for each item should be analysed. This is best done by the ABC analysis.

ABC analysis is a new technique of classifying and controlling production and store inventories, both purchased and manufactured, in accordance with the value of the item.

It is the starting point for material management.

ABC analysis or classification is the principle of selective control of inventories and a technique of grouping thousands of stock items handled by an organization.

The principle involved is that the degree of control on stock items and amount of safety stock carried should vary directly with the consumption value of the items involved.

The following inventory requirements were worked out for a medium sized organization:

Item	Price/Unit (Rs.)	Annual Consumption or Withdrawals (Units)	Annual Consumption (Rupees)
X	0.05	10,000	500
Y	100	860	6,000
Z	2,000	6	12,000

So, far the above organization, the following classification of inventory based on their annual consumption value can be set.

Limits	Items	Classification
a) Above Rs.10,000	Z	A
b) Between Rs.2,000 and 10,000	Y	B
c) Upto Rs.2,000	X	C

Techniques of Inventory Control:

(a) Fixed Order System:

According to this system, materials are replenished as and when required, as per predetermined policy. Certain replenishment points are fixed and when materials reach those points, appropriate action is taken. This system is also known as "Review System". The following methods are used under this system:

i. Bin-Card Method:

Bin cards are periodically inspected, stock position is reviewed and action for replenishment is taken from time to time. This is a very simple system and involves no problem, either for reviewers or for those who are responsible for the replenishment and control of inventories.

ii. Stores Record Card Method:

Here daily statement of storeroom operation in the form of stores day sheet is used. Day sheet is sent to the materials control department which compiles a card known as Stores Record Card. The compilation work may also be done by the stores department. Thus, the stock position is daily revealed and on the basis of the information so received, action is taken for the replenishment and control of inventories.

iii. Allocation Method:

In this method, materials are allocated at the time of the preparation of production programme, which is reviewed periodically. This method is useful when production is carrried out under purchase contracts. A simple equation given below forms the basis of the placement of an order with the suppliers:

Total amount of order + Balance amount in hand = Total allocated amount + Amount available.

iv. Demand and Supply Method:

This method implies the study of the demand of organization in correlation with the supply position in the market. Planning is done to ensure the demand and supply position in the market. Planning is done to ensure the demand and supply of each item at the lowest cost possible and the lowest possible inventory in consistence with the requirement.

(b) Two-Bin System:

The two-bin system is based on the segregation of the total into two bins - one sufficient to satisfy the demand between the arrival of one order and the placing of the next order, the second contains enough stock to satisfy probable demands during lead time. This is the oldest system and is still in popular use.

(c) Kardex System:

Among different techniques of controlling inventory, this is comparatively of recent origin. In this system, cards are vertically arranged in a metallic tray and kept in Kardex cabinets. Postings in these cards may be done manually. But now-a-days, computers are taking the place of manual posting.

The Stock Control Card is designed to handle pricing of receipts and issues. Cards with different colours signals are used for indicating information such as items locally purchased, imported or otherwise, orders placed, binned, etc.

Miscellaneous (Terms and Documents)

(a) Bill of Material:

When any of the units of the organization receives a work order, the concerned foreman prepares a list of all the materials required for the execution of that order. The list includes all the details regarding quality, quantity, etc., of the materials required. This list is known as 'Bill of Materials'. The Bill of Materials so prepared is sent to the storekeeper for verification and checking the availability. If the materials are not available in the stock, he initiates the replenishment and informs about the proximate date of arrival of the materials needed.

Classification and Codification of Stores:

In an organization, there are numerous items of materials for the purpose of effective control and it is necessary to classify them into groups and designate to them a code number or a symbol. It is not possible to use the normal names of individual items when thousands of items in raw material stock and finished parts form an inventory of an organization.

Long description of inventories are awkward and, therefore, these are generally replaced with codes or symbols for their easier identification and location. This is done by issuing to all concerned, a store vocabulary or master list showing the product groups and their code numbers.

Classification of Materials:

It is very important to divide store materials and parts suitably. There are different methods of classifying the stock. These are:

(a) General Classification:

i. Raw materials,

ii. Supplies,

iii. Work-in-progress,

iv. Finished product.

(b) ABC Classification:

i. 'A' Category,

ii. 'B' Category,

iii. 'C' Category.

(c) Classification according to Manufacturing Process:

i. Pre-process stock - raw materials, bought parts, consignment, stock, etc.

ii. Intermediate stock,

iii. Finished goods or products,

(d) Classification of Inventory:

i. Production inventory,

ii. MRO inventory (includes maintenance, operations, repairs, supplies),

iii. In-process inventories,

iv. Finished goods inventories,

v. Materials in transit.

(e) Classification by End Use:

i. Production store,

ii. Non-production store.

Stock Verification:

Stock verification is necessary to ensure the correctness of stocks held with the accounts to avoid any last minute production hold-up due to shortage in material in stock, to take into account physical inventory losses due to pilferage, deterioration, shelf-life, expiry, misplacement, etc. It may bring to light any irregularities and reduce stores staff to maintain their records correctly and uptodate.

Without stock verification, discrepancies in stock position may go undetected over a long period.

Mainly three methods of stock verification are common, which are explained here:

(a) Annual Stock Verification:

Generally, at the end of the fiscal year, the plant is shut down for a couple of days and all physical transactions are suspended for "Annual Stock Taking". Advance preparations are made to fix up the stock verifiers. Physical counting takes place and the physical stock is counter-checked with the card balance and wherever a discrepancy is observed, a 'Stock Verification Note' is prepared. On the cards, it is a general practice to draw a red line after the last entry shown and the balance in stock written and signed with date.

(b) Continuous Stock Verification or Perpetual Inventory:

A few items are verified daily and thus, the entire list of items in the stores is covered twice or thrice during the year in rotation. The method of verification and paper work procedure is the same as in Annual Stock Taking, but this involves fixing up a small group of stock verifiers and helpers to assist on the job.

(c) Low Point Inventory Verification:

If the stock verification is carried out when the stock

of any items reaches its lowest, it saves the counting time and efforts. However, this puts an irregular load on the stores personnel and no shutdown of the plant is necessary.

The stock balance is minimum just before a new consignment of an item is added to the stock. Hence, stock verification is carried out. On the balance of material left in stores before adding the fresh incoming stocks.

Codification of Stores:

Codification of store item means giving them a code number or a symbol. Codification is very useful for the stores department. It saves considerable time and it helps in the simplification, standardization, identification and classification of the stores. Coding is done by using letters or figures or a combination of both, e.g. a wooden packing could be assigned a code as: (a) 4300, (b) PW (c) pbv20, etc.

Methods of Codification:

(a) Alphabetical Codification:

This is also called 'symbolic codification'. Under this system, alphabetical symbols are used to identify the items, e.g. the following letters may be used to classify and identify stores:

A : Capital stores,

B : Raw material,

C : Tools,

D : Spareparts.

(b) Mnemonic Codification System:

When we use letters to help memory, we call such a system a 'mnemonic system'. This system is a special application of the alphabetical system. The alphabets are allotted to an item according to its initials, e.g.

R : Rubber

P : Paint

SC: Screw

BB: Ball bearing.

The advantage of this system is that it is very easy to remember and needs a brief symbol.

(c) Numerical codification:

This is very simple method under which numbers are used to represent stores items. The numbers are assigned in such a way that each number indicates the nature of item, e.g.

0 : Raw Material	00 : Timber
1 : Bought-out items	01 : Rubber
2 : Gauges	02 : Metals
3 : Piece parts	03 : Plastics

(d) Decimal Codification System:

This method is similar to the numerical system. It is based upon 10 units of decimal numbers, ranging from 0 to 9. The number before a decimal point indicates sub-assembly and those following the decimal point, the past number of sub-assembly, e.g. 15,02. 15 is wheel assembly of a motor cycle and 02 indicates tube. This is cleared as below:

15, Wheel

15,01 Tyre

15,02 Tube

15,03 Rim

15,04 Spokes, etc.

(e) Alpha-numeric Method:

This is one of the most effective method of coding store materials and parts. It is a combination of the letters and number systems. Letters are used to indicate names of materials and the numbers are used to indicate specification (size, etc.), e.g.

PS 142 Plastic sheet 1/4" II trade

PS 101 Plastic sheet 10mm thick I grade

(f) Colour Codification System:

This system uses colour-markings. Common colour codes for metals are as follows:

Iron Green

Steel Blue

Copper Red

Aluminium Black.

Dead Inventory:

Every organization has some stock which is of no further use. Therefore, money invested on such stock cannot be realised or fully realised. However, it occupies space which could be better utilized for storing other items. It is only desirable that steps should be taken to recognize such inventory and once recognized or located, it should be immediately weeded out or dispoed off.

Nature of Dead Inventory:

Dead inventory may consist of the following categories of items or materials in a storehouse:

(a) Surplus inventory,

(b) Obsoletes,

(c) Deteriorated stock,

(d) Stock of unserviceable machines, plant and equipment,

(e) Scrap and waste stock.

(a) Surplus Inventory:

Stocks which are surplus to current and possible future requirements are called 'surplus inventory'. Surplus inventory may be formed as a result of the following:

i. When the materials purchased are in excess of normal use;

ii. Spare parts of a machine which has become worn out and has been replaced;

iii. Purchase of wrong items.

The most common cause of inventory is usually the error in determination of requirements.

(b) Obsoletes:

This represents the stock which may be in good working condition, but which has become suplus due to the following reasons:

i. Changes in design of product,

ii. Change in the manufacturing process,

iii. Arrival of new machinery with a higher production rate.

(c) Deteriorated Stock:

Stock that becomes deteriorated in store and in the course of time and must be written off is called 'deteriorated inventory'. Food products, chemicals, medicines, may deteriorate and become useless faster. Metal products may become oxidised or rusted. Paper may become discoloured. Deteriorated products, therefore, are the dead inventory and have to be scrapped.

(d) Stock of old and worn-out machines, plant and (machinery) equipment:

An organization has also to carry sometimes old and worn out machines, plant and equipment, which have become unserviceable and have lost their usage value. Such items have ultimately to be disposed off as scrap.

(e) Scrap and Waste Stock:

A storeroom has also to carry scrap and waste stock which are dead inventories. Scrap materials or "Scrap" applies to ferrous materials, and "metals" to non-ferrous production, waste, lathe turnings, machine tool chips or cuts, etc. "Waste" applies to non-metallic materials like used packing cases, papers, rags, rubber, wood, etc.

Disposal of Dead Inventory:

A Committee should go into the following aspects of disposal of dead inventory:

(a) Whether dead (scrap, waste, obsolete) items can be made use of by any section or department in its present or other form;

(b) Whether written off items could be retrieved, repaired or brought back to usable condition;

(c) Whether any expensive or scarce material could be recovered;

(d) Whether any other industry could make use of the (surplus or scrap) dead items;

(e) In what manner could written off items fetch maximum price when disposed off.

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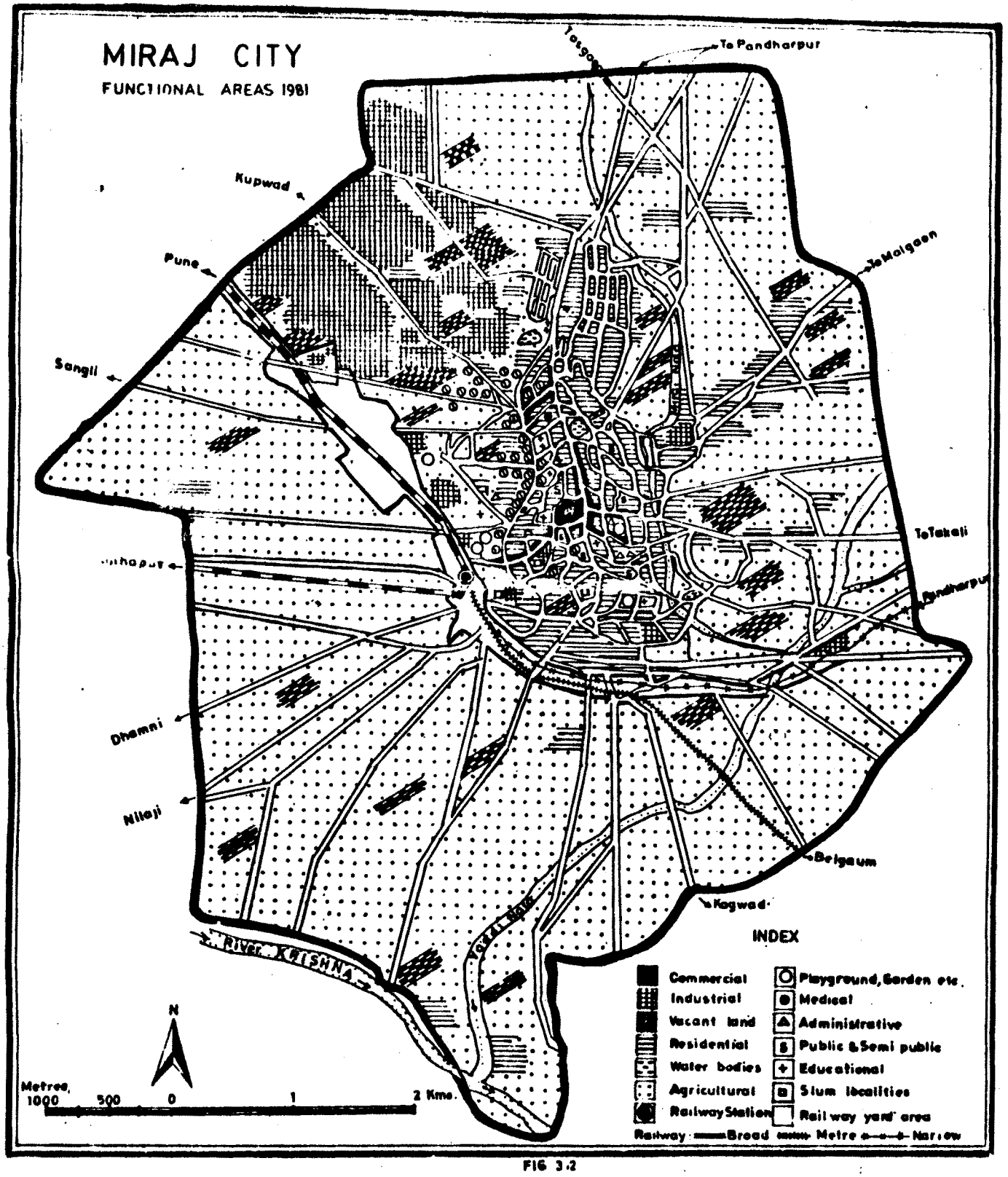
MIRAJ CITY
FUNCTIONAL AREAS 1981
To Pandharpur
Kupwad
Pune
To Malgaon
Sangli
To Takali
Dhamni
Nilaji
Belgaum
Kagwad
River KRISHNA
INDEX
Commercial
Industrial
Vacant land
Residential
Water bodies
Agricultural
Railway Station
Playground, Garden etc.
Medical
Administrative
Public & Semi public
Educational
Slum localities
Railway yard area
Railway Broad Metre Narrow
N
Metres
1000 500 0 1 2 Kms.

FIG 3.2