MATERIAL MANAGEMENT
Definition

It is concerned with planning, organizing and controlling the flow of materials from their initial purchase through internal operations to the service point through distribution.

OR

Material management is a scientific technique, concerned with Planning, Organizing & Control of flow of materials, from their initial purchase to destination.
AIM OF MATERIAL MANAGEMENT

To get

1. The Right quality
2. Right quantity of supplies
3. At the Right time
4. At the Right place
5. For the Right cost
PURPOSE OF MATERIAL MANAGEMENT

• To gain economy in purchasing
• To satisfy the demand during period of replenishment
• To carry reserve stock to avoid stock out
• To stabilize fluctuations in consumption
• To provide reasonable level of client services
Objective of material management

Primary
• Right price
• High turnover
• Low procurement
• & storage cost
• Continuity of supply
• Consistency in quality
• Good supplier relations
• Development of personnel
• Good information system

Secondary
• Forecasting
• Inter-departmental harmony
• Product improvement
• Standardization
• Make or buy decision
• New materials & products
• Favorable reciprocal relationships
Economy in material management

• Containing the costs

• Instilling efficiency in all activities
Four basic needs of Material management

1. To have adequate materials on hand when needed
2. To pay the lowest possible prices, consistent with quality and value requirement for purchases materials
3. To minimize the inventory investment
4. To operate efficiently
Basic principles of material management

1. Effective management & supervision It depends on managerial functions of
   - Planning
   - Organizing
   - Staffing
   - Directing
   - Controlling
   - Reporting
   - Budgeting
2. Sound purchasing methods
3. Skillful & hard poised negotiations
4. Effective purchase system
5. Should be simple
6. Must not increase other costs
7. Simple inventory control programme
Elements of material management

1. Demand estimation
2. Identify the needed items
3. Calculate from the trends in Consumption during last 2 years.
4. Review with resource constraints
Functional areas of material management

1. Purchasing
2. Central service supply
3. Central stores
4. The print shops
5. The pharmacy
6. Dietary
& Linen services
PROCUREMENT

1. Directorate general of supply & disposal (DGS & D, Govt. Of India]

2. Medical stores depot (M. S.D. Government of India, Ministry of H & FW]

3. Private or public sector undertakings.

4. Receiving donations.
Procurement cycle

- Review selection
- Determine needed quantities
- Reconcile needs & funds
- Choose procurement method
- Select suppliers
- Specify contract terms
- Monitor order status
- Receipt & inspection
Objectives of procurement system

• Acquire needed supplies as inexpensively as possible
• Obtain high quality supplies
• Assure prompt & dependable delivery
• Distribute the procurement workload to avoid period of idleness & overwork
• Optimize inventory management through scientific procurement procedures
FLOW OF PROCUREMENT DECISIONS

DRUG REQUIREMENTS

DONATION SOURCE

ADJUST QUANTITIES

GOVERNMENT PRODUCTION

ADJUST QUANTITIES

PURCHASE REQUIREMENTS

OPEN TENDER

RESTRICTED TENDER

NEGOTIATED TENDER

DIRECT PURCHASE

REQUEST OFFERS FROM ELIGIBLE SUPPLIERS

LOCATE RELIABLE SUPPLIERS

CONTACT RELIABLE SUPPLIER

EVALUATE OFFERS & SELECT SUPPLIERS

NEGOTIATE PRICE & SUPPLY CONDITIONS

ESTABLISH PRICE

PURCHASE ORDER / CONTRACT

PURCHASE ORDER / CONTRACT

PURCHASE ORDER / CONTRACT

PURCHASE ORDER / CONTRACT

DRUGS RECEIVED, CHECKED AGAINST PURCHASE ORDER / CONTRACT SPECIFICATIONS & CLEARED FOR DISTRIBUTION

YES YES

DETERMINE DRUGS & DRUG REQUIREMENTS

DETERMINE DRUGS & DRUG REQUIREMENTS

ADJUST QUANTITIES

NO NO

NO NO NO

NO NO NO

YES YES

FLOW OF PROCUREMENT DECISIONS

CALL FOR OFFERS

CALL FOR OFFERS

REQUEST OFFERS FROM ELIGIBLE SUPPLIERS

LOCATE RELIABLE SUPPLIERS

CONTACT RELIABLE SUPPLIER

EVALUATE & SELECT SUPPLIER

EVALUATE OFFERS & SELECT SUPPLIERS

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DRUGS RECEIVED, CHECKED AGAINST PURCHASE ORDER / CONTRACT SPECIFICATIONS & CLEARED FOR DISTRIBUTION
Open tender
• Public bidding, resulting in low prices
• Published in newspapers
• Term - 4 weeks
• Quotations must be sent in the specific forms that are sold, before the time & date mentioned in the tender form
• In technical items, ‘two packets or two bins’ system is followed. Offers are given in two separate packets.
• Technical bid
• Financial bid

Cont......
• First technical bid is opened & short listed
• Then financial bid of selected companies are opened & lowest is selected
• Delayed tenders & late tenders are not accepted. But if, in case of delayed tenders, if the rate quoted is very less, then it can be accepted.
• Quotations are opened in presence of indenting department, accounts & authorized persons of party
• Validity of tenders – generally 90 days
**Earnest money**

2% of the tender amount or as decided has to be paid along with all quotations. In case of default 1/5 is withheld

**Restricted or limited tender**

From limited suppliers (about 10)

Lead-time is reduced

Better quality

**Negotiated procurement**

Buyer approaches selected potential Suppliers & bargain directly

Used in long time supply contracts

**Direct procurement**

Purchased from single supplier, at his quoted price

Prices may be high

Reserved for proprietary materials, or low priced, small quantity & emergency purchases
**Rate contract**
Firms are asked to supply stores at specified Rates during the period covered by the Contract

**Spot purchase**
It is done by a committee, which includes an officer from stores, accounts & purchasing departments

**Risk purchase**
If supplier fails, the item is purchased from other agencies & the difference in cost is recovered from the first supplier
Points to remember while purchasing

• Proper specification
• Invite quotations from reputed firms
• Comparison of offers based on basic price, freight & insurance, taxes and levies
• Quantity & payment discounts
• Payment terms
• Delivery period, guarantee
• Vendor reputation
  (reliability, technical capabilities, Convenience, Availability, after-sales service, sales assistance)
• Short listing for better negotiation terms
• Seek order acknowledgement
Storage

- Store must be of adequate space
- Materials must be stored in an appropriate place
- in a correct way
- Group wise & alphabetical arrangement helps in
  identification & retrieval
- First-in, first-out principle to be followed
- Monitor expiry date
- Follow two bin or double shelf system, to avoid
  Stock outs
- Reserve bin should contain stock that will cover
  lead time and a small safety stock

Issue & use
Can be centralized or decentralized
Inventory control

It means stocking adequate number and kind of stores, so that the materials are available whenever required and wherever required. Scientific inventory control results in optimal balance.
Functions of inventory control

• To provide maximum supply service, consistent with maximum efficiency & optimum investment.

• To provide cushion between forecasted & actual demand for a material
Economic order of quantity

EOQ = Average Monthly Consumption X Lead Time [in months] + Buffer Stock – Stock on hand

ECONOMIC ORDER OF QUANTITY (EOQ)

PURCHASING COST

CARRYING COST
• **Re-order level:** stock level at which fresh order is placed.
• **Average consumption per day x lead time + buffer stock**
• **Lead time:** Duration time between placing an order & receipt of material
• **Ideal – 2 to 6 weeks.**
ABC ANALYSIS
(ABC = Always Better Control)

This is based on cost criteria.

It helps to exercise selective control when confronted with large number of items it rationalizes the number of orders, number of items & reduce the inventory.

About 10 % of materials consume 70 % of resources
About 20 % of materials consume 20 % of resources
About 70 % of materials consume 10 % of resources
‘A’ ITEMS

Small in number, but consume large amount of resources

Must have:

• Tight control
• Rigid estimate of requirements
• Strict & closer watch
• Low safety stocks
• Managed by top management
‘C’ ITEMS
Larger in number, but consume lesser amount of resources
Must have:

• Ordinary control measures
• Purchase based on usage estimates
• High safety stocks

ABC analysis does not stress on items those are less costly but may be vital
<table>
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‘B’ ITEM

Intermediate

Must have:

• Moderate control
• Purchase based on rigid requirements
• Reasonably strict watch & control
• Moderate safety stocks
• Managed by middle level management
VED ANALYSIS
• Based on critical value & shortage cost of an item
  – It is a subjective analysis.
    • Items are classified into:
      Vital:
        • Shortage cannot be tolerated.
      Essential:
        • Shortage can be tolerated for a short period.
      Desirable:
        ▪ Shortage will not adversely affect, but may be using more resources. These must be strictly Scrutinized

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>E</th>
<th>D</th>
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<td>BD</td>
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<td>CV</td>
<td>CE</td>
<td>CD</td>
<td>CATEGORY 3</td>
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</tbody>
</table>

CATEGORY 1 - NEEDS CLOSE MONITORING & CONTROL
CATEGORY 2 - MODERATE CONTROL.
CATEGORY 3 - NO NEED FOR CONTROL
**SDE ANALYSIS**
Based on availability

- **Scarce**
  - Managed by top level management
  - Maintain big safety stocks
- **Difficult**
  - Maintain sufficient safety stocks
- **Easily available**
  - Minimum safety stocks

**FSN ANALYSIS**

- Based on utilization.
  - Fast moving.
  - Slow moving.
  - Non-moving.
  - Non-moving items must be periodically reviewed to prevent expiry & obsolescence

**HML ANALYSIS**

- Based on cost per unit
  - Highest
  - Medium
  - Low

This is used to keep control over consumption at departmental level for deciding the frequency of physical verification.
PROCUREMENT OF EQUIPMENT

Points to be noted before purchase of an equipment:

• Latest technology
• Availability of maintenance & repair facility, with minimum down time
• Post warranty repair at reasonable cost
• Upgradeability
• Reputable manufacturer
• Availability of consumables
• Low operating costs

• Installation
• Proper installation as per guidelines
**HISTORY SHEET OF EQUIPMENT**

**History Sheet**

<table>
<thead>
<tr>
<th>Name of equipment</th>
<th>After sales arrangement</th>
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<tbody>
<tr>
<td>Code number</td>
<td>Guarantee period</td>
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<tr>
<td>Date of purchase</td>
<td>Warranty period</td>
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<tr>
<td>Name of supplier</td>
<td>Life of equipment</td>
</tr>
<tr>
<td>Name of manufacturer</td>
<td>Down time / up time</td>
</tr>
<tr>
<td>Date of installation</td>
<td>Cost of maintenance</td>
</tr>
<tr>
<td>Place of installation</td>
<td>Unserviceable date</td>
</tr>
<tr>
<td>Date of commissioning</td>
<td>Date of condemnation</td>
</tr>
<tr>
<td>Environmental control</td>
<td>Date of replacement</td>
</tr>
<tr>
<td>Spare parts inventory</td>
<td></td>
</tr>
</tbody>
</table>
| Techn. Manual / circuit diagrams / literatures | }
Maintenance sheet:

Annual maintenance contract [AMC]

- Starting date
- Expiry date
- Service / repair description
- Materials / spares used
- Cost of repairs

  - In-house
  - Outside agency
EQUIPMENT MAINTENANCE & CONDEMNATION

Maintenance & repairs:
Preventive maintenance
Master maintenance plan
Repair of equipment
PREVENTIVE MAINTENANCE

• Purchase with warranty & spares.
• Safeguard the electronic equipments with: (as per guidelines)
  • Voltage stabilizer, UPS
  • Automatic switch over generator
• Requirement of electricity, water, space, atmospheric conditions, etc. Must be taken into consideration
• Well equipped maintenance cell must be available
• All equipment must be operated as per instructions with trained staff
• Monitoring annual maintenance contracts. (AMC)
• Maintenance cell
• Communications between maintenance cell & suppliers of the equipment.
• Follow-up of maintenance & repair services

• Repair of equipment
• Outside agencies
• In-house facility
CONDEMNATION & DISPOSAL

Criteria for condemnation:

The equipment has become:

1. Non-functional & beyond economical repair
2. Non-functional & obsolete
3. Functional, but obsolete
4. Functional, but hazardous
5. Functional, but no longer required
PROCEDURE FOR CONDEMNATION

1. Verify records.
2. History sheet of equipment
3. Log book of maintenance & repairs
4. Performance record of equipment
5. Put up in proper form & to the proper authority
DISPOSAL

1. Circulate to other units, where it is needed
2. Return to the vendor, if willing to accept
3. Sell to agencies, scrap dealers, etc.
4. Auction
5. Local destruction
CONCLUSION

Material management is an important management tool which will be very useful in getting the right quality & right quantity of supplies at right time, having good inventory control & adopting sound methods of condemnation & disposal will improve the efficiency of the organization & also make the working atmosphere healthy any type of organization, whether it is Private, Government, Small organization, Big organization and Household.

Even a common man must know the basics of material management so that he can get the best of the available resources and make it a habit to adopt the principles of material management in all our daily activities.