MATERIAL MANAGEMENT

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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.

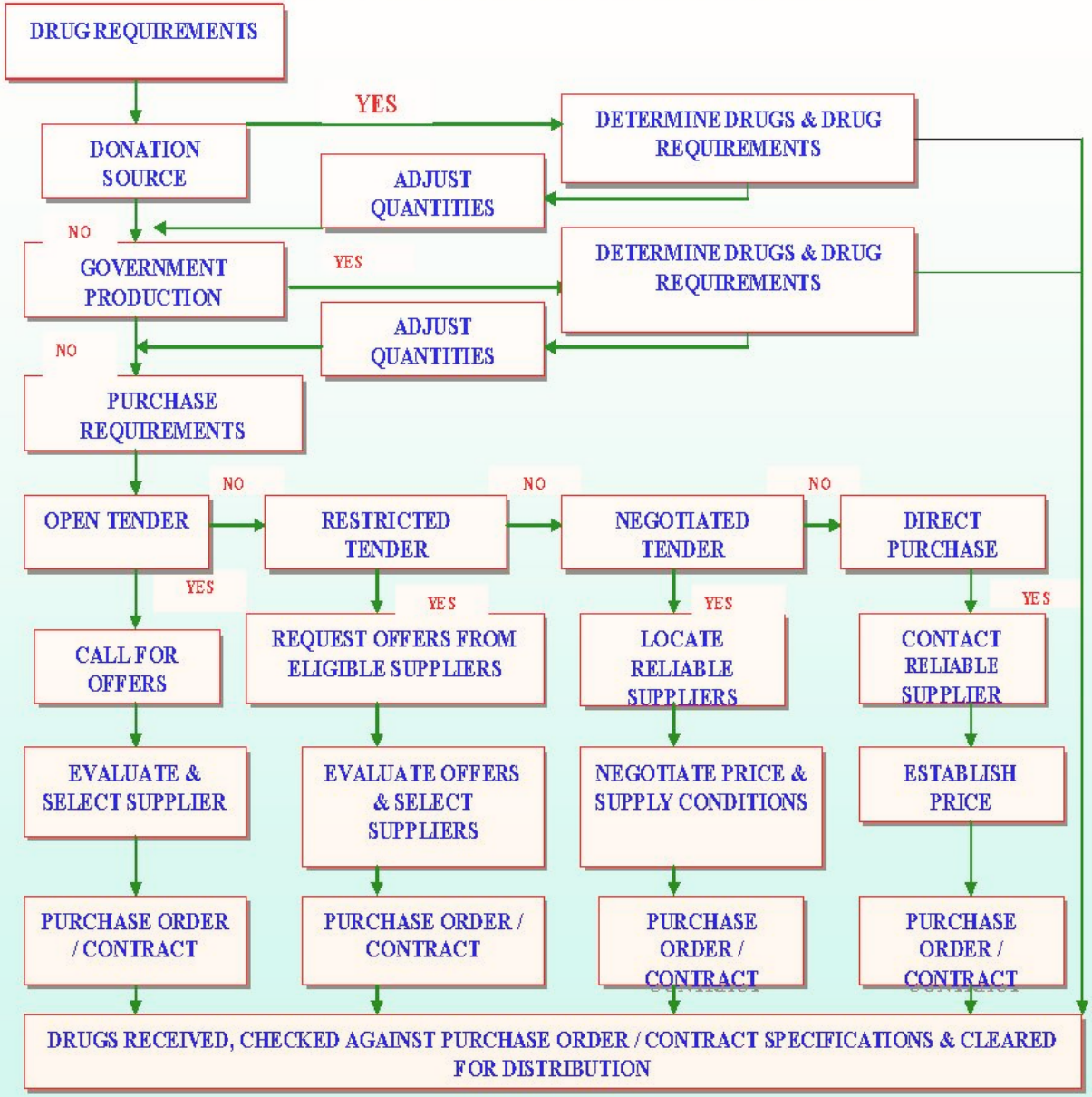
Procurement cycle

- 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



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

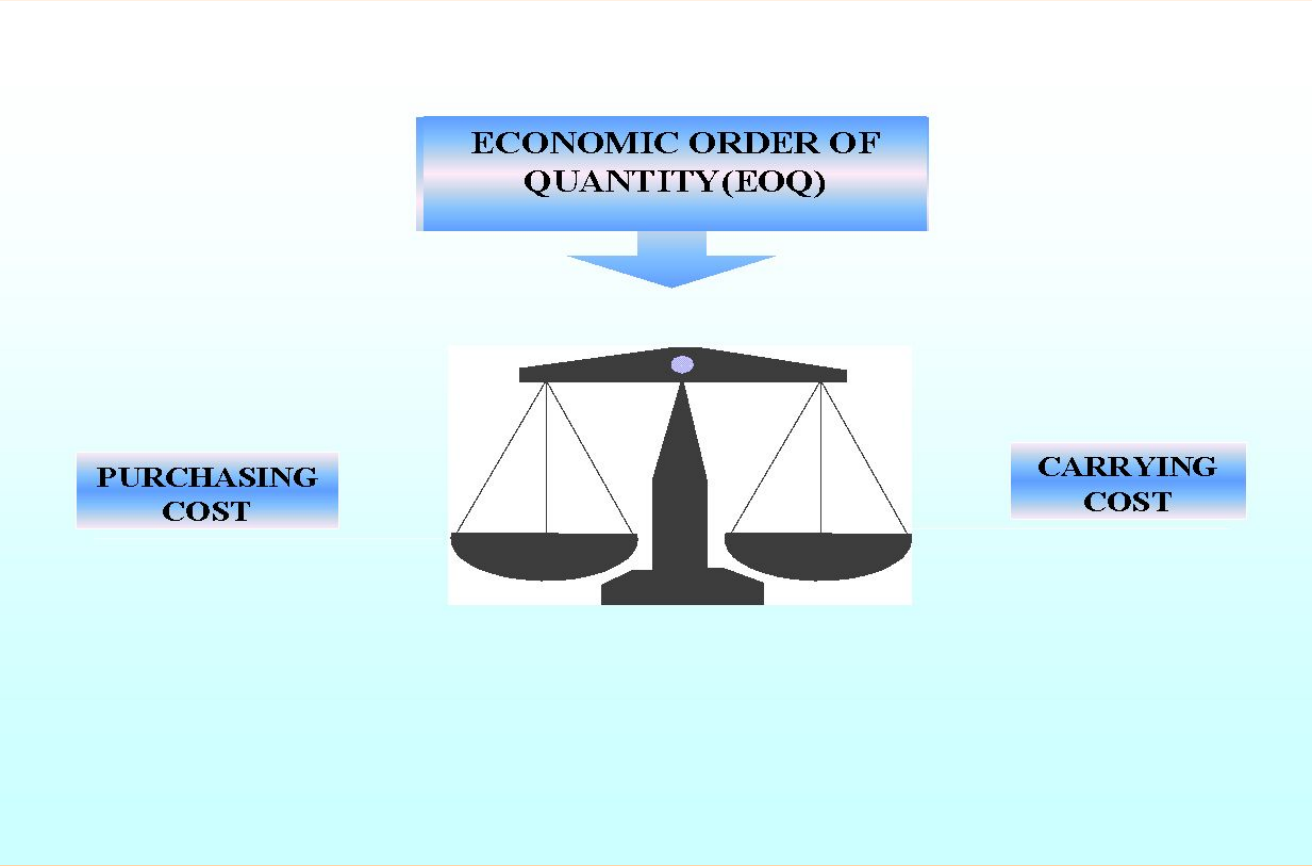
Functions of inventory control

- 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



- **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

ABC ANALYSIS WORK SHEET

10 %

20 %

70 %

ITEM %	ITEM	ANNUAL COST [Rs.]	CUMMULATIVE COST [Rs.]	COST %
A	1	90000	90000	70 %
	2	50000	140000	
B	3	20000	160000	20 %
	4	7500	167500	
	5	7500	175000	
	6	5000	180000	
C	7	4500	184500	10 %
	8	4000	188500	
	9	2750	191250	
	10	1750	193000	
	11	1500	194500	
	12	1500	196000	
	13	500	196500	
	14	500	197000	
	15	500	197500	
	16	500	198000	
	17	500	198500	
	18	500	199000	
	19	500	199500	
	20	500	200000	

‘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

	V	E	D		ITEM	COST
A	AV	AE	AD	CATEGORY 1	10	70%
B	BV	BE	BD	CATEGORY 2	20	20%
C	CV	CE	CD	CATEGORY 3	70	10%

CATEGORY 1 - NEEDS CLOSE MONITORING & CONTROL
CATEGORY 2 - MODERATE CONTROL.
CATEGORY 3 - NO NEED FOR CONTROL

SDE ANALYIS

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.

PROCURMENT 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
- Reputed manufacturer
- Availability of consumables
- Low operating costs

- Installation
- Proper installation as per guidelines

HISTORY SHEET OF EQUIPMENT:

History sheet

•Name of equipment •Code number •Date of purchase •Name of supplier •Name of manufacturer •Date of installation •Place of installation •Date of commissioning •Environmental control •Spare parts inventory •Techn. Manual / circuit diagrams / literatures	•After sales arrangement •Guarantee period •Warranty period •Life of equipment •Down time / up time •Cost of maintenance •Unserviceable date •Date of condemnation •Date of replacement

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

Acknowledgement

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