

# MATERIALS MANAGEMENT

by

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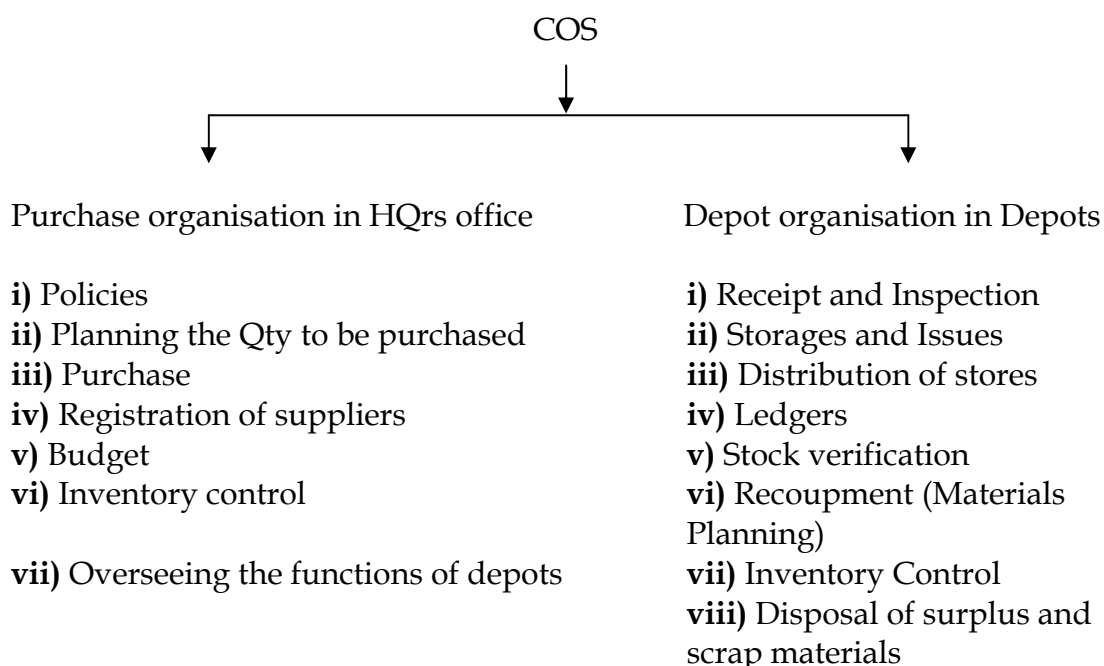
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**MEN; MONEY; MATERIALS** are in short supply.

## IMPORTANCE:

- i) Materials expenditure 33 to 40% of Total Expenditure. Railway Buys materials worth approx. 28,000 crore Rs./year.
- ii) Organisations profitability can be increased either by putting in more money input **or by savings due to better materials management** which includes availability at **right price; right time; right place and of right quality and in right quantity from a right source.**

## ORGANISATION:



## SOME DEFINITIONS:

1. **Stock Items:** Regular consumption with annual usage value over Rs. 5,000.
2. **Out of Stock %:**  $\text{Items O/s} \times 100 / \text{Total no of items stocked}$  (O/s % should be below 5%)

3. **Inventory:** Value of total items stocked including scrap plus value of items paid for but still in transit (should be least)
4. **Service Level:** % = No. of demands complied  $\times$  100 / Total no of demands received (Should be as high as possible say above 90% or 95%)
5. **Over stocks:** for 'A' and 'B' category items if value of stock is beyond 12 months consumption and for 'C' category items if the value of stock is over 24 months consumption.
6. **Inactive Items:** Items with no consumption for 12 months.
7. **Surplus items:** Items not moved or consumed during last 24 months
  - a) **Movable Surplus:** But likely to be issued during next 24 months.
  - b) **Dead Surplus:** Not consumed or issued during last 2 years and non likelihood or possibility of issue during next 2 years.

### OBJECTIVES:

Suppose one Railway stock 20000 items and needs a budget of Rs. 400 crore – money is short supply  
 Rs. 300 crore – In other words budget is cut by 25%.

Effect will be (i) Either 20000 items 3 months (ii) or 5000 items O/s for 1 year

Second option is preferred

**Materials Management:** aims at

- i). reducing O/s % below 25% to say around 5%
- ii). increasing service level to above 75% to say 90 to 95%

### CODIFICATION OF ITEMS:

Till 67-68 railways followed alfa-numeric system. With the computerisation 8 digit numeric system came in.

XX	XX	XXX	X
Main group	Sub group	Item number	Check digit

### Main groups:

00 – 09	Steam Locos and Fittings
10 – 19	Diesel Locos and Fittings
20 – 29	Electric Locos and Fittings
30 – 39	Carriage & Wagons Spares
40 – 49	Electrical stores
50 – 59	Signal & Telecom stores

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 98                      Scrap

## P.L. Books (Price List) will contain

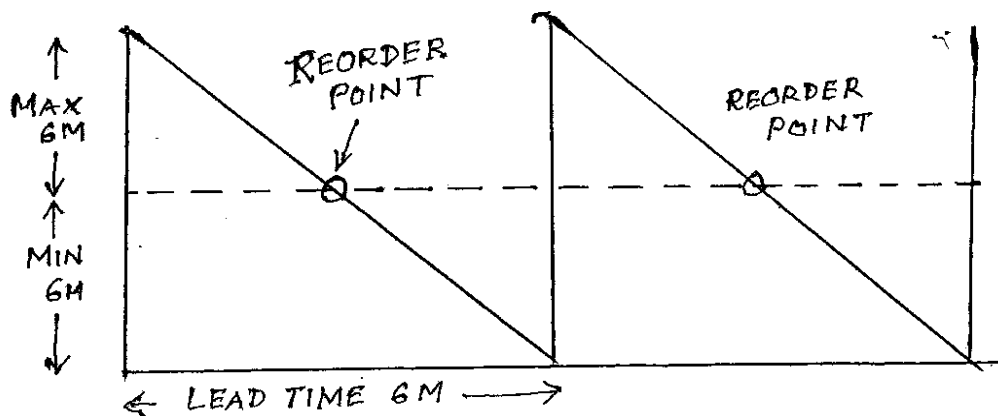
- i) Item Code or P.L. Number\
- ii) Description. Drg & Specification
- iii) Unit of accountal
- iv) Stocking railways and depots

## CATEGORIZATION OF STORES

- i) **Ordinary stores:** Items with regular consumption
- ii) **Emergency stores:** Not required regularly. Have to be kept to meet emergency situation like loco breakdown etc. where stock out cost will be too much items like spare parts of rolling stock machinery etc. fall in this category.
- iii) **Special stores:** Stores required for works and other special purposes

## MATERIAL PLANNING

### 1) MAXIMA & MINIMA SYSTEM



Quantity recouped = (Max + Minima + Pending Demands) - (Stock + Dues)

EOQ = Economic order quantity =  $\sqrt{2.D.Co / Ci. I}$

Where: D = Estimated annual consumption

Co = Ordering cost

Ci = Price of item

I = Inventory carrying cost/item/year

**i) Annual estimate or review system:**

Being at present followed.

Fixed time table for receipt of 'balance return' from depots containing following information:

- a) Last 3 years consumption
- b) Stock position
- c) Dues position

Quantity required = (IP requirement to cover Lead time + C.P. requirement to cover 1 year requirement) - (Stock + Dues)

**ii) Fixed level system**

Essentially used for recouping emergency stores where demand is not regular. The moment there is an issue, the stock is recouped to originally fixed level.

## **INVENTORY CONTROL**

**i) Stock out cost:**

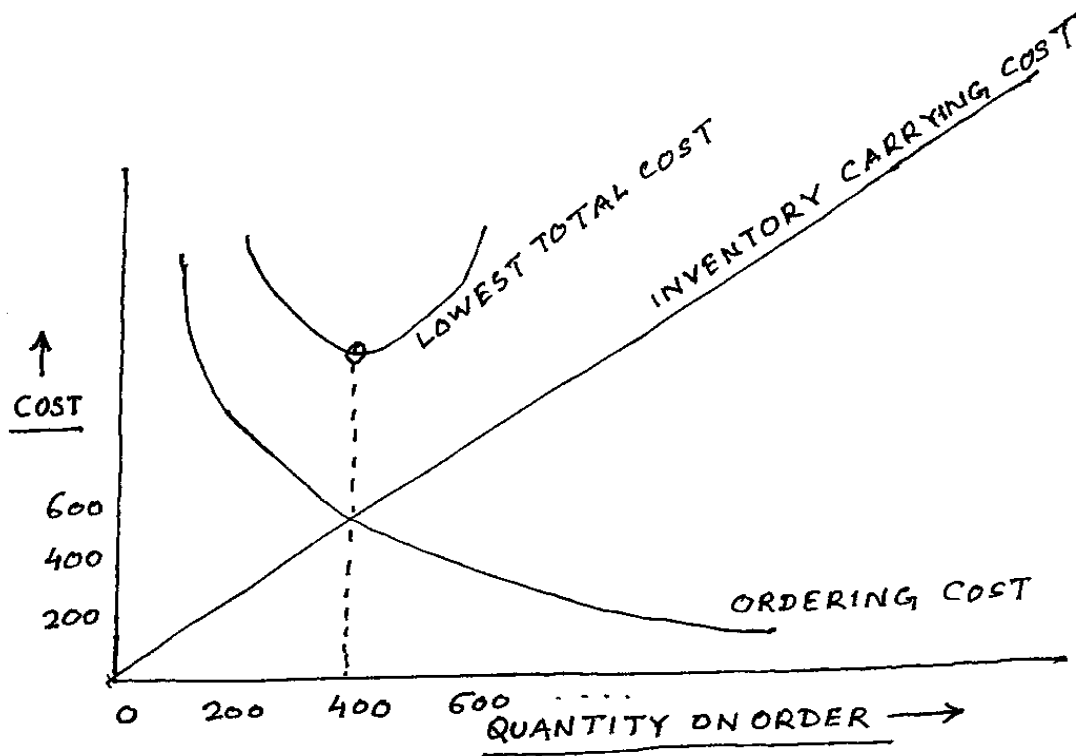
Loss due to non availability of materials

**ii) Inventory carrying or keeping cost:**

- a) Blocked capital
- b) Dividend to general revenues
- c) Cost of supervision
- d) Obsolescence
- e) Pilferages, breakages etc.

**iii) Ordering cost:**

- a) Checking the Demand/Specification
- b) Issues of tender enquiry
- c) Decision on tender
- d) Placing the purchase order
- e) Follow up with suppliers
- f) Receipt and inspection
- g) Payment of supplier's bill

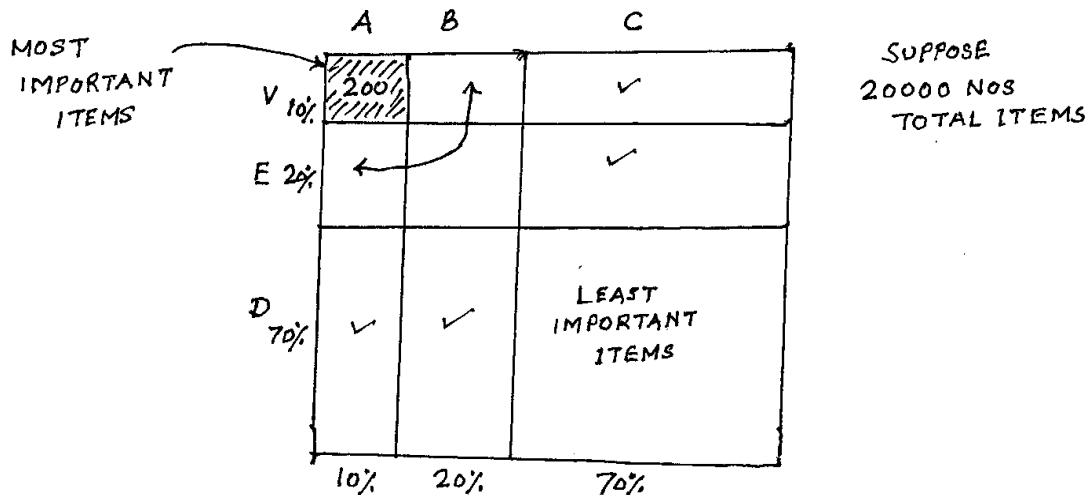


## INVENTORY CONTROL TECHNIQUES

- 1) Care in stocking new items
- 2) Proper forecast of annual consumption
- 3) Proper recoument policies
- 4) Selective management - ABC, VED analysis
- 5) Management by exception
- 6) Standardisation and variety reduction
- 7) Value analysis
- 8) Disposal of overstocks and surplus
- 9) Scrap disposal
- 10) Ordering with spread over delivery

A.B.C. and V.E.D. analysis

Category	% of items	% annual usage value
A or V - Virtual	10%	70%
B or E- Essential	20%	20%
C or D - Desirable	70%	10%



## PURCHASING OR PROCUREMENT:

### Agencies for purchase of Railway Stores:

#### 1. Railway Board:

- i) Complete rolling stock
- ii) Wheel tyres and axles
- iii) Petrol, diesel, kerosene
- iv) Special steels requiring imports
- v) Track items and track machines
- vi) Some Railway electrification items like O.H.E. equipment, contact wire etc.

Recently railway board vide letter no.: 99/RS(G)/779/13 dated 4.9.2001 has decentralised the procurement of many items like cloth, lubes; batteries; carriage fans; relays etc.

#### 2. DGS&D:

Enters into rate contract for items needed by all other ministries including railways like fans; bulbs; tubes; pipes and fittings, even computers, stabilizers etc.

#### 3. Zonal Railways:

All items required by railways with the exception 06 centralised items. Mico-spare are centralized with Southern Railway.

#### 4. Production Units:

Their own requirements plus centralized items such as cartridges bearings (centralized with ICF) or Diesel Loco spares (many of these are centralized with DLW).

## **TENDERS:**

- 1) Single Tender: For prop items no value limits
- 2) Limited/Bulletin Tender: Upto Rs. 5 lakh enquiry is sent to registered/approval suppliers.
- 3) Advertised Tender: For purchases over Rs. 5 lakh advertised in Indian News Papers.
- 4) Global Tender: For items requiring imports global publicity in given.

There is **Public Opening of tenders** valuing 5 lakh and above accounts and stores representatives open these in presence of tenderers reps. Offers are read out encircled and initialed by A/c and stores reps.

## **DECISION ON TENDERS:**

Stores officers in consultation with officer of consuming deptt. upto Rs. 5 lakh.  
Rs. 5 lakh and above Rs. 5 lakh  
Tender Committee of 3 officers  
Stores; consuming dept.; accounts given recommendations and accepting authority which is next higher accept them.

## **PURCHASE POLICIES:**

- i) Gr iv items reserved for NSIC registered small scale firms
- ii) For other items upto 15% price preference to small scale over large scale conditions apply
- iii) Purchase preferences to public sector undertakings.

E.M. and Security Deposit:

E.M. (Earnest Money) is taken alongwith tender as earnestness of offer

S.D. (Security Deposit) is taken at the time of placement of contract for satisfactory performances/execution of contract.

## **TYPE OF CONTRACTS:**

- 1) **Fixed quantity contracts**
- 2) **Rate contracts:** Rate is fixed duration of contract is fixed. Quantity is not fixed.
- 3) **Running contracts:** Duration of contract, rate and also quantity is fixed. Only  $\pm 30\%$  variation in qty is allowed.
- 4) **Service contracts:** Like fabrications, transportation contracts.
- 5) **Work contracts**

## **PENALTIES:**

- i) For Delays @ 2%/month or part there of delayed portion of supply as liquidated damages.
- ii) Risk purchase: For non-supply difference between new suppliers price and defaulters' price becomes recoverable.

## **Disputes:**

Settled through arbitration or court arbitrator appointed by GM

## **Receipt and inspection stocking and preservation (stock verification) issue (FIFO principle) distribution scrap disposal**

- i) Category-wise sorting
- ii) Survey by survey committee of stores and technical officers to recommend
  - a) Whether the scrap should be retained for railway's use after reclamation?
  - b) If so at what rate?
  - c) Whether the scrap should be sold off
- iii) These recommendations on survey sheet are put up to COS upto a value of Rs. 25000 beyond this it requires GM's approval
- iv) After this the disposal is done either through
  - a) **Direct sale:** Small value item are sold to Railway staff
  - b) **Auction:** After fixing up reserve pries, vide publicity is given for arranging public auction. Highest bidder gets the material.
  - c) **Tender Sale:** Rate contracts for lifting turning and borings and for selling unsold material after trying auctions.

## **Delivery:**

- i) After taking full payment
- ii) It is witnessed by stores; account and R.P.F. representative.