



OVERVIEW OF MATERIAL MANAGEMENT

MATERIAL MANAGEMENT

Definition

An approach for

- Planning
- Organizing
- Controlling

All the activities

Principally concerned with
the flow of material in the organization

MATERIAL MANAGEMENT

**Who is
the best**

Material Manager ???



MATERIAL MANAGEMENT

Objective of Organization

To Maximize Rate of Return

$$\begin{aligned} \text{ROR} &= \text{Profit/Investment} \\ &= (\text{Revenue-Cost})/\text{Assets Value} \end{aligned}$$

Price cannot be increased beyond
in competitive market

MATERIAL MANAGEMENT

Objective of Organization

Investment on Assets already done cannot be reduced

Only scope is to reduce the Cost

Cost

Manpower

Material

MATERIAL MANAGEMENT

Objective of Organization

Cost of Manpower

Cannot be reduced drastically

Cost of Material contributes about 27%

Can be reduced

Importance of Material Management

MATERIAL MANAGEMENT

As per Yearbook 2018-19

No. of Stores Depots – 262

No. of Items – 1.3 Lakh

Revenue Generation – Rs. 4192 Crore
through Scrap

MATERIAL MANAGEMENT

Store Purchase for Year 2018-19

	(Rs. in Crores)
Stores for Operation, Repairs and Maintenance	13,424
Stores for Construction	2,956
Fuel	16,565
Stores for Manufacture of Rolling Stock and Purchase of Complete units	29,189
<hr/> Total	<hr/> 62,134

MATERIAL MANAGEMENT

For Year 2018-19

Store Purchase - Rs. 62,134 Cr

Procurement Agency wise

Zonal Railways/PUs – 63%

Railway Board – 36%

DGS&D – 1%

Source wise

PSU – 20% Others – 80%

Purchase from Small Scale Industries – Rs. 6270 Cr

Purchase from Indigenous Source – 98%

MATERIAL MANAGEMENT

Famous 5 Rs of Material Management

- Of the Right Quality
- In the Right Quantity
- At the Right time
- From the Right Source
- At the Right Price

MATERIAL MANAGEMENT

Roles in Indian Railways

- Planning
- Procurement/Purchasing
- Warehousing
- Inventory Control
- Distribution

Disposal of Scrap/Surplus/Obsolete
Cost Reduction

MATERIAL MANAGEMENT

As Compared with the Original Definition

<ul style="list-style-type: none">• Planning• Cost reduction• <i>Provision of Fund</i>	Planning
<ul style="list-style-type: none">• Procurement/ Purchasing• Warehousing• Distribution	Organizing
<ul style="list-style-type: none">• Inventory Control• <i>Order on Time</i>• Disposal of Scrap/Surplus	Controlling

MATERIAL MANAGEMENT

Material Planning is a trade off

Between

Cost of Stock Out

(Cost of Downtime of Assets)

Vs

Cost of Inventory Carrying Cost

(Capital Blockage + Cost of Theft/Obsolete)

MATERIAL MANAGEMENT

Broad Categorization of Materials

- Stock Items
- Non-Stock Items



MATERIAL MANAGEMENT

Stock Items

- Stocking
- Indenting
- Purchase

done by Stores department

MATERIAL MANAGEMENT

Every Stock Item has unique

PL (Priced Ledger) No.

- Eight Digit Unique Number
- 2:Main Group
- 2:Sub Group
- 3:Serial Number
- 1:Check Digit

MATERIAL MANAGEMENT

Non-stock Items

- Indenting

done by User department



MATERIAL MANAGEMENT

**Material Required is procured by
Store Department**

Manufactured by Shop

Or

Trade (Market)



MATERIAL MANAGEMENT MONITORING

Planning

- ABC Analysis

- Pareto Chart as per Annual Consumption value item wise in descending order

- A Category – Value 70% Items 10%

- B Category – Value 20% Items 20%

- C Category – Value 10% Items 70%

MATERIAL MANAGEMENT MONITORING

Planning/ Recoupment

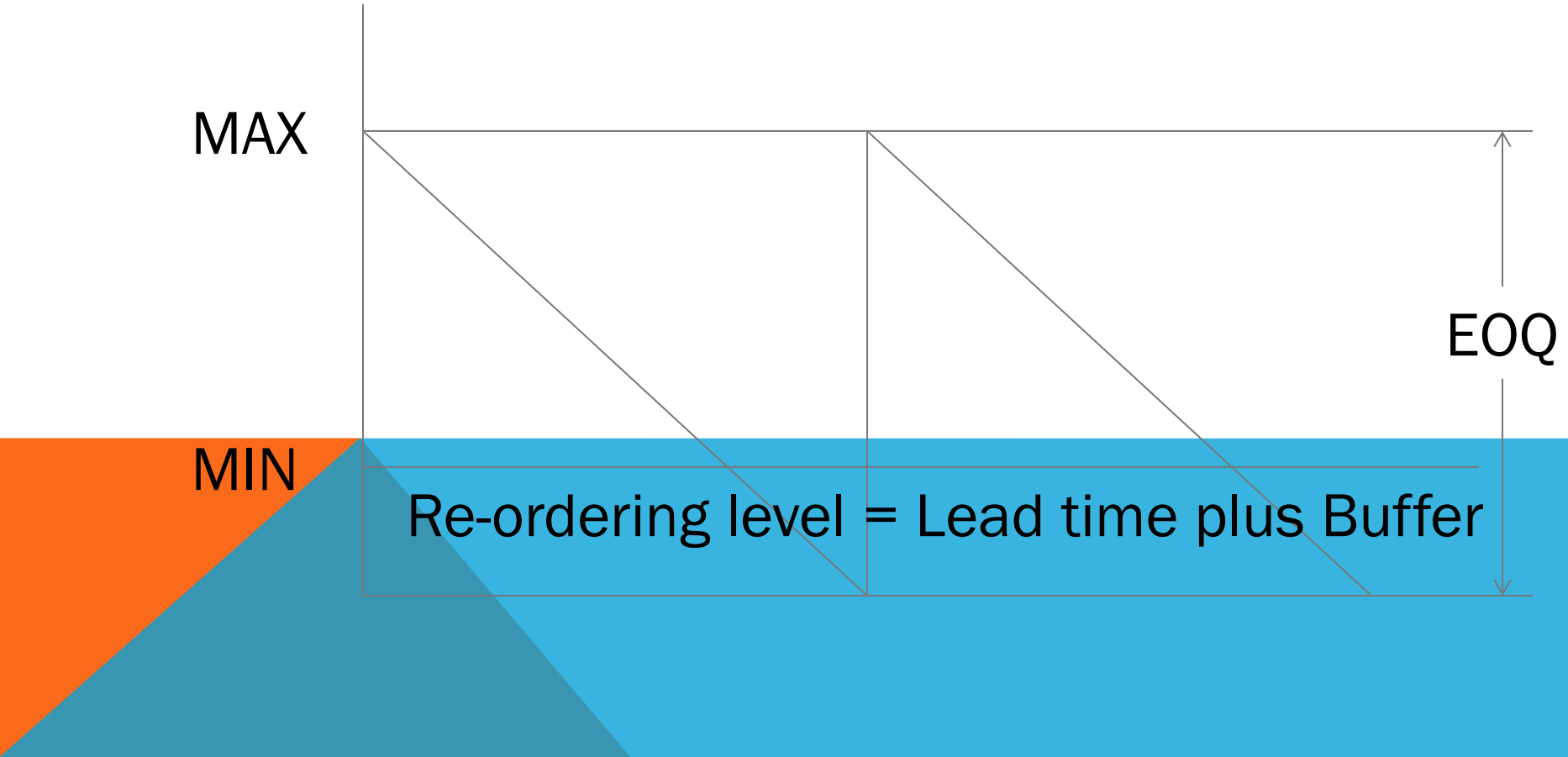
- Mainly Three Systems of Recoupment
 - Maximum-Minimum Method
(Economic Order Quantity Model)
 - Annual Recoupment Method

Fixing a level of Emergency Stores

MATERIAL MANAGEMENT MONITORING

Planning/ Recoupment

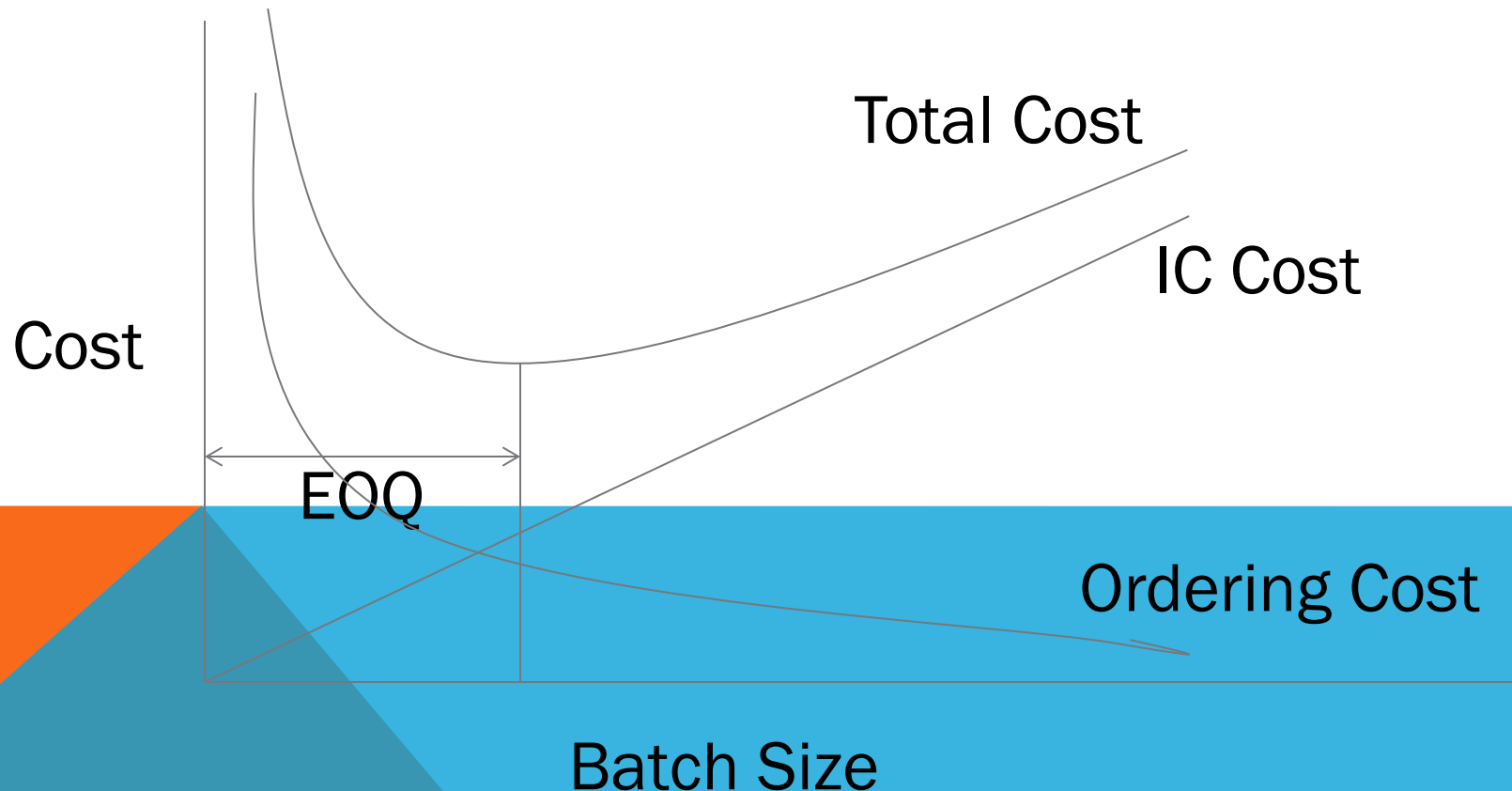
- Maximum-Minimum Method



MATERIAL MANAGEMENT MONITORING

Planning/ Recoupment

- Maximum-Minimum Method



MATERIAL MANAGEMENT MONITORING

Planning/ Recoupment

- Maximum-Minimum Method
 - Regular Monitoring is required
 - Used for mainly Shop Manufactured Items
- Not used for Majority of Items

MATERIAL MANAGEMENT MONITORING

Planning/ Recoupment

- Annual Recoupment System
 - Used for Majority of Items
 - Material recouped for One Year
Called Contract Period

Fixed Calendar for Group wise items

To facilitate to combine demand of all depots

MATERIAL MANAGEMENT MONITORING

Planning/ Recoupment

- Annual Recoupment System
 - Depots send recoupment demand to HQ prior to contract period
 - Interval from sending demand to beginning of contract period

Called Interim Period

MATERIAL MANAGEMENT MONITORING

Planning/ Recoupment

- Annual Recoupment System
 - Interim Period (For JMP Stores Depot)
 - A & B Category Items
 - 11 months to 12 months
 - C Category Items
 - 11 months to 13 months
 - Cloth Items
 - 16 months

MATERIAL MANAGEMENT MONITORING

Planning/ Recoupment

- Annual Recoupment System
 - Recoupment Sheet to contain demand for
Contract Period
Interim Period
 - Also considered
 - Stock in Hand
 - Covered dues – Purchase Order in place
 - Uncovered dues – Case processed but no PO

MATERIAL MANAGEMENT MONITORING

Planning/ Recoupment

- Fixing a level of Emergency Stores
 - Upper Limit is fixed
 - Whenever item is issued

Recoupment is done to bring stock to
Upper limit fixed

Mainly used for items of Accident Relief
Trains etc.

MATERIAL MANAGEMENT MONITORING

Planning/ Cost Reduction

- Standardization
- Value Analysis
- Import Substitution

Variety Reduction

MATERIAL MANAGEMENT MONITORING

Planning/ *Provision of Fund*

- Projection by Consignee
 - During Budget Estimate (BE)
 - In Nov for Next Year
 - Demand No. 5 6 7 8 10 16
 - PU-27 Stock Items
 - PU-28 Non-stock Items

MATERIAL MANAGEMENT MONITORING

Organizing/ Procurement

- Purchase from Trade
 - Outside Parties
- Indent on Railway Workshop
 - To manufacture

Identical to Make or Buy Decision

MATERIAL MANAGEMENT MONITORING

Organizing/ Procurement

- Purchase from Outside Parties
 - Direct Purchase by Railway Administration
 - Purchase by Centralized Agency
 - Railway Board DLW CLW COFMOW ICF etc.

Through Central Purchase Organization

- DGS&D
- GeM

MATERIAL MANAGEMENT MONITORING

Organizing/ Procurement

Direct Purchase by Railway Administration

- Global Tender
- Open Tender
- Limited Tender
 - Bulletin Tender
 - Quotation Tender
- Special Limited Tender
- Single Tender (PAC Type)
- DGS&D Rate Contract
- GeM

MATERIAL MANAGEMENT MONITORING

Organizing/ Procurement

- Tender Finalization
 - Tender Committee
 - Evaluation of Offers
 - Price Quality Conditions
 - TC Minutes

Acceptance by Accepting Authority

- Issuance of Purchase Order


MATERIAL MANAGEMENT MONITORING

Organizing/ Procurement

- Issuance of Purchase Order
 - Pre-check by Accounts Deptt
 - if value > Rs. 8 lakh other items
Rs. 15 Lakh Safety Items

MATERIAL MANAGEMENT MONITORING

Organizing/ Procurement

- Type of Stores Contract
 - Rate Contract
 - Rate is fixed, Quantity Variable
 - No need for full procurement process
 - Fixed Quantity Contract
- 

MATERIAL MANAGEMENT MONITORING

Organizing/ Procurement

- Delivery Period
 - Supplier to supply within DP
 - Extension should be an exception
 - No correspondence with supplier
 - from Store side after expiry of DP

Firm should apply for extension

- DP may be extended
- With or without penalty

MATERIAL MANAGEMENT MONITORING

Organizing/ Procurement

- Inspection of Material
 - By Agencies (Nature and Value)
 - RITES RDSO (> Rs. 5 Lakh letter 6-9-17)
 - By Consignee (Value is less)
- Bill Passing

95-98% against proof of inspection and dispatch (If inspected by RITES/RDSO etc)

MATERIAL MANAGEMENT MONITORING

Organizing/ Warehousing

- Receipt of Material
 - Formalities
 - Valid Delivery Period
 - Inspection at consignee
 - Sample Approval etc.

Storage of Material

Group wise

- Priced Ledger No. wise

MATERIAL MANAGEMENT MONITORING

Organizing/ Warehousing

- Issuance of Material to the users
 - Formalities
- Regular Monitoring to avoid Stock out
- Different ward for Obsolete/Surplus Materials

Identification of Dead Surplus items
Inactive for 24 months

MATERIAL MANAGEMENT

Organizing/ Distribution

- Stores depot at one place
 - May cater to
 - Workshops
 - Divisions
- Necessitates Transportation to send materials to field units

Distribution based on

- Quantity Pending and Stock in hand

MATERIAL MANAGEMENT

Controlling/Inventory Control

- To keep Inventory Cost Low
- Capital Blockage Low
- Better Inventory Turn Over Ratio
 - A Category stock - 3 months on average
Achieved by Phased delivery
 - B Category stock - 6 months on average
 - C Category stock - 12 months on average

MATERIAL MANAGEMENT MONITORING

Controlling/Inventory Control

- Monitoring
 - A Category – by COS/CMM every month
 - B Category – by Dy CMM every 6 months
 - C Category – By AMM every 12 months
- Stock Verification

A Category – Six months

B Category – Once in a year

C Category – Once in two years

MATERIAL MANAGEMENT

Controlling/Inventory Control

- Inventory Turn Over Ratio

$$= \frac{\text{Inventory value on 31}^{\text{st}} \text{ March} \times 100}{\text{Value of Total issue in Whole Year}}$$

Should be around 9%

As per Yearbook 2018-19

TOR – 9% (Without Fuel) 6% (With Fuel)

MATERIAL MANAGEMENT

Controlling/Inventory Control

- Compliance Percentage

Target for Vital and Safety items is
100%

For other items should be 95%-98%

MATERIAL MANAGEMENT

Controlling/ *Order on Time*

- Annual Recoupment System
 - To check
 - Order placed with Delivery Period
 - Matches with Contract Period

Is supplier failing to comply the order

MATERIAL MANAGEMENT

Controlling/ Disposal of Scrap

- Identification of
 - Scrap
 - Obsolete
 - Non-moving items

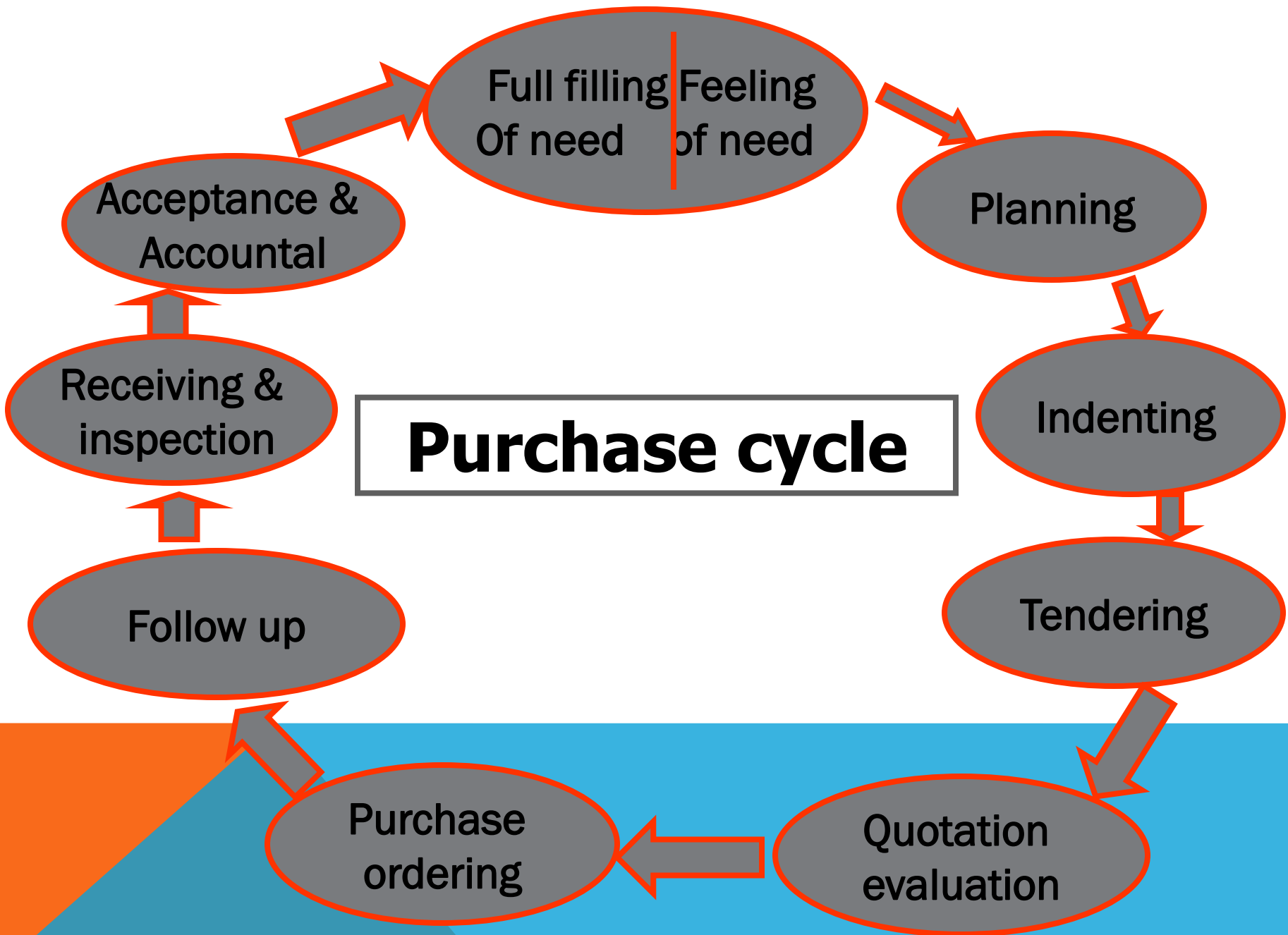
MATERIAL MANAGEMENT

Controlling/ Disposal of Scrap

- Lot Formation
- Auction of Scrap
- Time for depositing money
- Sell Order issued
- Handing over scrap to purchaser

Delivery of Scrap in presence of

- RPF Consignee DMS



Purchase cycle

Full filling Of need / Feeling of need

Planning

Indenting

Tendering

Quotation evaluation

Purchase ordering

Follow up

Receiving & inspection

Acceptance & Accountal

MATERIAL PLANNING

Non-stock Items

Flow Chart of Non-stock Items purchase

- Preparation of Indent
- Finance Vetting if Required
- Submission of Indents to AMM/COS
- Processing of Indent at AMM
- Issue of Purchase Order
- Receipt of Material

Accountal in DBR

Acceptance of Material

- Bill Passing

MATERIAL PLANNING

Planning in a Section

- Right Quality
 - Clear and Unique Specification of item required (No Ambiguity)
- Right Source & Price
 - Standardization of Items
(Avoid Customization)

MATERIAL PLANNING

Planning in a Section

- Right Quantity Assessment
 - Items to be categorized as
 - Must Change Items
 - Condition Based Items
 - Consumables

Calculation of Annual Average Consumption

MATERIAL PLANNING

Planning in a Section

- Right Quantity Assessment
 - Calculation of Annual Average Consumption
 - = Item required per Coach/Wagon X
replacement percentage X
No. of Schedules per Year X
Allowance (For Non-Schedule arising)
- ** 100% for Must Change Items

MATERIAL PLANNING

Planning in a Section

- Right Time
 - Raising Signal in time for demanding the material (Considering Lead time)

MATERIAL PLANNING

Planning in a Section

- Imprest Stores
 - To deal with day to day activity at workplace
 - Under SSE
 - Material is demanded in the format from Feeding Stores Depot
(Under Stores Department)
Normally kept at 2-3 months stock level

MATERIAL PLANNING

Imprest Stores

- Book-keeping
 - Ledger of Materials
 - Entry of Incoming & Issued Material
- Stock Verification by Stock Verifier
 - Cross Checking of Book Balance with Ground Balance
 - Once in three years

MATERIAL PLANNING

Imprest Stores

- Continuous Monitoring of Stock level
 - Chasing with feeding depot when stock goes below 1 month
- To Assess whether AAC is in accordance with Consumption

AAC Calculation and comparing with existing

MATERIAL PLANNING

Imprest Stores

- Generate demand from Feeding Depot
 - Status of Pending demands
 - Chasing of Materials
- Generate Non-stock Indents for
 - Non-stock items
 - Specification
 - Price
 - Likely Sources

MATERIAL PLANNING

Imprest Stores

- Process for Stocking a Non-stock item
Non-stock items in regular use
Should be stocked
- Process for AAC revision
If there is mismatch between
AAC calculated and Existing AAC

Arrange for Consignee Inspection of
Materials

MATERIAL PLANNING

Imprest Stores

- Identification of Inactive/Surplus Items
 - To highlight these items to all concerned
 - To stop procurement
 - For information to other stores
 - To collect if required by them

MATERIAL PLANNING

Imprest Stores

- Disposal of Inactive/Surplus/Obsolete Materials
 - Deposit to Feeding Depot in format
- Deleting from Stock Register after disposal

MATERIAL PLANNING

Imprest Stores

- Getting Material in Emergency
 - On assistance basis from other Imprest Stores
 - Less paper work & Resistance
 - (Only debit to be accepted)

MATERIAL PLANNING

Imprest Stores

- Getting Material in Emergency
 - From Other Stores Depot

Purchase Order to be issued

by Feeding Stores depot to Other stores
Depot

Involves Paperwork

But Systematic & Consumption reflects in
Data of Stores Department
Provides basis for AAC revision