

- c) Developing the vendors to reduce cost, improve performance and affect growth by diversification and expansion.

Actions required by Industry in this regard are –

- 1) Allocating specified areas for vendors.
- 2) Identifying technocrats from amongst company employers, Qualified personnel willing to take risk.
- 3) Assisting the entrepreneurs in preparation of project report, negotiating with financial institution and other government agencies.
- 4) Assisting in the purchase and commissioning of capital equipment.
- 5) Providing complete know-how, drawings, gauges, fixtures and supplying or locating of source for raw material.
- 6) Providing specialized facility for material analysis, inspection, total maintenance etc. at reasonable cost.
- 7) Arranging quick payment, sorting out financial difficulties.
- 8) Monitoring vendors on performance.

**OBJECTIVES :**

Objectives of vendor rating are –

- H To motivate suppliers to improve performance.
- H To apportion orders to deserving vendors for overall cost reduction.
- H To select vendors for further development.
- H To reduce the cost of inspection of incoming lots by modifying sampling plans.

**METHODS OF VENDOR RATING :**

Methods of vendor rating are –

- Point method.
- Cost Ratio method.

H **Aspects covered and weight-age given for vendor rating are –**

- 1) Quality of suppliers weight-age 40 or 35%
- 2) Dependability on delivery or meeting of schedules 20%
- 3) Price 20 or 30%
- 4) Relationship in terms of giving suggestion, replenishment of rejections, helpfulness, financial aspects etc. 20 or 15%

**QUALITY RATING CAN BE ARRIVED AT BASED ON BEND IN FORMULA :**

$$= [ 70 + \frac{LR}{N} - 70 ] \times \text{Weight-age factor}$$

where N

LR = lot rating given by LR = 70-10 (p-p1)

$$\frac{P1 (100-p1)}{n}$$

- p = percent defective in the sample quantity inspected.
- p1 = A.Q.L. percent
- n = sample size
- N = number of lots submitted in a given period.

Alternatively a simplified method can be adopted where quality rating is further split up as

(a) Percent rejection =  $\frac{\text{Total no. of defectives found}}{\text{Total no.. of items inspected}}$

and points given =  $\frac{\text{AQL for the item X 25}}{\% \text{ rejection}}$

(b) consistency in quality and

$$= 10 \times \frac{\text{No. of lots accepted based on sampling plan}}{\text{No. of lots received}}$$

(c) reliability based on opinions of people concerned judged on following scale.

Good = 5, Satisfactory = 3, Poor = 1, Un-satisfactory = 0

For semi-finished items reliability can be combined with consistency and two aspects i.e. Quality and Consistency can be given weight-age of 30 and 10.

Timeliness of Delivery or ability to meet schedule,

$$\frac{\text{No. of times the suppliers Supplied in time}}{\text{Actual number of suppliers}} \times \text{Weightage factor}$$

Delivered within 2 days of the delivery date should be treated as timely supplies.

$$\frac{\text{Lowest price among the suppliers}}{\text{Price for that items as ordered}} \times \text{Weightage factor}$$

Replacement of rejection = 7  
 Fulfilness in emergency = 7  
 Response to queries = 3  
 Financial aspects = 3

Factors may judged on following scale for a & b –

- a) Satisfactory – 4, Poor – 2, Unsatisfactory – 0,
- b) Good –3, Satisfactory – 2, Poor – 1, Unsatisfactory – 0

We can also calculate

$$\frac{\text{Suggestion made by vendor}}{\text{Number of suggestions received}} \times \text{Weightage Factor}$$

Vendor rating is the total of the points for all the factors together and they can be grouped as –

- Excellent keep it
- Satisfactory
- Poor
- to be discontinued

Vendors can be arranged decending order, the no.1 rank getting all the preference for future orders etc.

The performance is affected by –

- (a) the relationship governed by status i.e. size of the vendor

- vendor - vendor equal status
- vendor - big manufacturer
- vendor - is small manufacturer

- (b) technically in capable due to personnel inspection method or due to inefficient methods or equipments.

- (c) lack of communication in terms of interpretations, use of gauge, etc.

Example of Vendor Rating is given below:

### VENDOR RATING EXAMPLE

| Vendor | Total Consign-ment reod | % acce-pted | Qty. Rating (%x35) | Avg. price /unit | Low-est/ act. ual price | Price Rat-ing %x30 | % on sche- dule | Deli-very rat-ing %x20 | Service No.of sug- ges- tion | % of tot. | Ser-vice rat-ing %x15 | Total composit rat-ing |
|--------|-------------------------|-------------|--------------------|------------------|-------------------------|--------------------|-----------------|------------------------|------------------------------|-----------|-----------------------|------------------------|
| A      | 100                     | 90          | 31.5               | 40               | 40/40 =1                | 30                 | 80              | 16                     | 1                            | 20        | 5                     | 80.5                   |
| B      | 60                      | 80          | 28.0               | 50               | 40/50 =0.80             | 24                 | 90              | 18                     | 1                            | 20        | 3                     | 73                     |
| C      | 50                      | 70          | 24.5               | 60               | 40/60                   | 20.1               | 100             | 20                     | 3                            | 60        | 9                     | 63.6                   |

#### H Cost I Ratio Method :

In this method identifiable purchasing and receiving costs are totaled I and related to the value of the lot received. Higher the ratio, lower is the rating. The items generally

considered are –

- (a) Visit to the vendors plant
- (b) Sample approval
- (c) Incoming inspection
- (d) Reworking cost

- (e) Value of rejected parts
- (f) Follow up cost, etc.

Examples of vendor rating is given below:

### **COST RATIO METHOD OF VENDOR RATING**

|    |                               |   |     |                    |
|----|-------------------------------|---|-----|--------------------|
| 1. | Visit of vendors plant        | - | Rs. | 100.00             |
| 2. | Sample approval               | - | Rs. | 200.00             |
| 3. | Incoming inspection           | - | Rs. | 75.00              |
| 4. | Manufacturing losses          | - | --- |                    |
| 5. | Reworking cost                | - | Rs. | 175.00             |
| 6. | Value of rejected parts       | - | Rs. | 325.00             |
| 7. | Miscellaneous cost            | - | Rs. | 25.00              |
| 8. | Follow up costs               | - | Rs. | 100.00             |
|    | <b>Total Cost</b>             | - | Rs. | <b>1,000.00</b>    |
|    | <b>Total cost of purchase</b> | - | Rs. | <b>1,00,000.00</b> |
|    | <b>Quality cost ratio</b>     | - |     | <b>1%</b>          |

#### **H Other Methods of Supplier Evaluation :**

**A. Supplier Quality Audit** – in this system a team from Vendor visits the Vendor and allocates points against a number of queries in a questionnaire. Actual working of the quality department is audited by examining records, analysis of the system and talking to people on the spot. If carried out periodically – will show up the changing conditions.

**B. Supplier Quality Assurance Certificate** – Vendors may be asked to send the inspection report of the samples taken from the lot being shipped. Acceptance can be based on these reports or on a reduced sampling basis.

**C. Supplier Source Inspection** - Vendors may be asked to keep the lot ready and vendors inspectors can go to vendors premises to check the items. Inspectors may be stationed during the processing of the batch also.

**D.** Acceptance can be based on the inspection reports by independent bodies, authorized to certify.

## **CHAPTER – XI**

### **SPARE PARTS MANAGEMENT**

#### **MANAGEMENT SPARE PARTS :**

The problem of spare parts management can be approached systematically and scientifically only if the mutual dependence of the policies and practices governing operations, maintenance and logistics is fully recognized at all levels. Although the term 'logistics' in its global sense includes the sense signifying only the inventory management function, because, in most fair-sized organizations, it is distinct from the maintenance functions.

The starting point for a systematic approach to spares management is, therefore, a usage or operational directive in broad outline, formulated initially at the time of the introduction of the equipment updated from time to time as changes are made in usage of the equipment.

The directive should invariably be drawn up in consultation with the maintenance and logistics personnel, in the light of the design and maintenance characteristics of the equipment on the one hand and the spare parts provisioning considerations on the other. Similarly, whenever usage plans have to be changed, the Maintenance and Logistics Personnel must be consulted because of the implications to them of the intended change.

In short, a disciplined approach to operations, maintenance and inventory management is essential if equipment are to be exploited for full and effective performance.

#### **DETERMINATION OF REQUIREMENTS :**

Requirement of spare parts for equipment arises on account of one or more of the following occurrences : -

- Maintenance routines
- Overhaul I routines
- Repairs occasioned by malfunctioning / failure / breakdown of the eqpt.