

CHAPTER – VIII

EVALUATING MATERIALS MANAGEMENT PERFORMANCE

INTRODUCTION :

Performance must be measured against standards of operation and materials budgets. This is the control segment of materials management. The evaluation performance must consider the following :

- H Operating costs including maintenance and the reduction of functional operating expenses but excluding salaries and training expenses.
- H Materials procurement and availability, that is, materials are made available at the lowest ultimate cost, optimizing and reducing purchase prices and transportation cost and improving vendor and carrier performance service.
- H Inventory investment, which includes reduction of inventory investment costs in line with expanding business and the need for better service.
- H Records and reports, which must be accurate and timely.
- H Customer Service.
- H Cost reduction and the fact that materials management is one of the few functions where many savings can be translated directly into profit.
- H Management Controls, that is, establishment of proper controls and feedback to determine problems situations, report them to management and correct them.
- H Utilization of facilities.

CRITERIA FOR SUCCESS OF MATERIALS MANAGEMENT :

The criteria for successful materials management performance vary from company to company as do objectives, functions, organizations and activities. The overall criteria must include meeting objectives and plans, meeting and improving standards and budgets and developing a materials attitude through out the company.

There are two basis to view performance. First, performance is measured against the total or ideal; it is a target that will never be reached. The thinking behind this view is that everyone must continue to strive higher and never become complacent with the success of any activity. Properly handled, it is an excellent motivating force, and frustration will not result. However goals are difficult to set, hard to achieve, and impractical to measure when compared to the ideal.

The second view is a compromise that accepts more realistic standards and objectives such as suitable materials, effective transportation, practical use of space, and the like. It

is from this view that success of materials management must be evaluated. Success is assured when the conditions listed exist.

- H Realistic materials management, objectives are set to provide improved customer service at the lowest feasible costs in line with corporate objectives.
- H Minimum budgets are established for operation of materials management function to provide for efficient performance of activities, actual expenditure are in balance with the operating budget.
- H Training programmes are established for all personnel including an outside course for everyone at least once in 2 years.
- H Employee performance is reviewed at least once in each year and compensation is commensurate with this performance.
- H Employee motivation and morale are at a high level.
- H The organization provides for fulfilling materials objectives, delegation and acceptance of responsibility and authority, descriptions and qualifications for all jobs, and statements of policy.
- H Procedures and instructions are written, approved, and reviewed with employees.
- H Materials and substitutes where practical are available to fulfil production needs in line with and corporate policy and to establish a satisfactory overall turnover rate.
- H Materials are delivered to satisfy the requisitions.
- H Purchases are made at prices consistent with the lowest ultimate cost of purchase, usage and storage.
- H Inventory investment is in line with both lowest carrying cost and corporate customer – service policy.
- H Production is scheduled in economic quantities to utilize facilities and personnel to satisfy customer service policy.
- H Realistic cost reduction goals are set to improve corporate profit and the goals are met.
- H Management controls and exception reporting are established for all major activities representative of functional operations.
- H Vendors and carriers are properly chosen, are treated fairly, and an ethical relationship exists with each.
- H The materials manager established, in co-operation with the systems department, a programme for integration and computerization of major activities.
- H A-B-C inventory policies are established and utilized to provide emphasis on A and less on C items.
- H Transportation rates are the lowest allowable and each rate has been reviewed for reduction.
- H Status of all products being manufactured is available on a daily basis if necessary.

- H Obsolete materials are reviewed for disposal on a periodic basis.
- H Scrap and waste are disposed off by the most economic means including sales.
- H Alternate sources of supply for critical items are available.
- H All claims are processed within legal limits.

- H All discounts are taken as based on economic use of money.
- H All purchase orders are properly and accurately prepared within 24 hours of placement of the order.
- H A quality control representative visits a specified number of major suppliers per year.
- H Records are up to date and accurate.
- H User departments provide feedback on production and materials problems as they occur.

These criteria plus others established by each company concerned will provide the materials manager, his superior, and top management, with the measurement of the success of materials management.

CRITERIA IN THE FORM OF RATIOS TO EVALUATE MATERIALS MANAGEMENT :

In the area of inventory control and cost reduction the benefits are measurable and immense. However, there is a need for an objective evaluation of the performance of the materials management.

The evaluation of materials management can either be done by external agency or internally. The process of evaluation can be visualized on various measures either on temporal comparison basis i.e. performance over financial or calendar years – or between similar companies inter-firm comparisons-over the same year. The criteria of evaluation depends on corporate objective, company culture, functions of materials management, evaluation process of other departments etc. and hence could vary, and do vary, from company to company.

An illustrative list of criteria in the form of ratios given below can be used to evaluate the performance of different functions of Materials Management.

H **Material Cost Indexes :**

$$\begin{aligned}
 1. \quad \text{Material Cost Index} &= \frac{\text{Material cost for a product}}{\text{Production cost of the product}} \\
 &= \frac{\text{Material cost for each product}}{\text{Production cost of the product}}
 \end{aligned}$$

2. Material cost / sales index = $\frac{\text{-----}}{\text{Sales Value}}$
3. Indigenous content index = $\frac{\text{Cost of 1 indigenous material}}{\text{-----}} = \frac{\text{Total material cost}}{\text{Value of material actually used}}$
4. Material Variances Index = $\frac{\text{-----}}{\text{Value of standard material quantity}}$
- H **Vendor Rating Indexes :**
5. Vendor Rating Index (Quality) = $\frac{\text{No. of lots rejected}}{\text{-----}} = \frac{\text{No. of lots received}}{\text{-----}}$
6. Vendor Rating Index (Delivery) = $\frac{\text{Delivery on Schedule}}{\text{-----}} = \frac{\text{Total No. of deliveries}}{\text{-----}}$
7. Vendor Rating Index (Price) = $\frac{\text{Lowest price bids}}{\text{-----}} = \frac{\text{Total No. of deliveries}}{\text{-----}}$
8. Vendor Rating Index = $\text{VRI (Quality) X A + VRI (Delivery) X B + VRI (Price) X C}$, Where A, B and C are the weights given to the three vendor rating indexes by the materials manager.
- H **Material Planning and Forecasting Indexes :**
9. Forecast accuracy index = $\frac{\text{Forecast price of material}}{\text{-----}} = \frac{\text{Actual price of material}}{\text{-----}}$
10. Planning Efficiency Index = $\frac{\text{Number of rush orders placed}}{\text{-----}} = \frac{\text{Total No. of orders}}{\text{-----}}$
11. Price variance index = $\frac{\text{Standard Price} - \text{Actual Price}}{\text{-----}} = \frac{\text{Standard price}}{\text{-----}}$
12. Insurance cost index = $\frac{\text{Total cost of insurance}}{\text{-----}}$

			Total value of insurance
13.	Lead time index	=	$\frac{\text{Average lead time this year}}{\text{Average lead time last year}}$
H Efficiency Indices :			
14.	Order cost index	=	$\frac{\text{Total purchase of dept. cost}}{\text{Total No. of order placed}}$
15.	Rush order cost index	=	$\frac{\text{Price paid for rush order material}}{\text{Price normally paid for this material}}$
16.	Ordering efficiency index	=	$\frac{\text{No. of order of small Rs. value (e.g. less than Rs.100)}}{\text{Total No. of Orders}}$
17.	Clerical time per order	=	$\frac{\text{Total clerical hours available per month}}{\text{Total No. of orders per month}}$
18.	Purchase efficiency	=	$\frac{\text{Total purchase value}}{\text{Total expenses of purchasing Dept.}}$
19.	Communication cost index	=	$\frac{\text{Cost of telephones, telex, postage}}{\text{Value of purchases}}$
20.	Vendor development index	=	$\frac{\text{Total No. of vendors}}{\text{Total No. of items}}$
21.	Negotiation efficiency index	=	$\frac{\text{Actual price paid by the organization}}{\text{Market price}}$
22.	Indigenous source development	=	$\frac{\text{Value of imported items}}{\text{The value of materials consumed}}$

$$23. \quad \text{Sales / Purchase index} = \frac{\text{Total Sales}}{\text{Total purchases}}$$

H Inventory and Stores :

Raw material, spare parts, finished goods inventory and work-in-progress indexes.

$$24. \quad \text{Priority or Importance (Number) index} = \frac{\text{No. of class items}}{\text{Total inventory}}$$

$$25. \quad \text{Out of stock index} = \frac{\text{No. of times out of stock}}{\text{No. of times requisitioned}}$$

$$26. \quad \text{Production lose due to stock out} = \frac{\text{Hours of production schedule not met due to material non-availability}}{\text{Total scheduled production time}}$$

$$27. \quad \text{Work-in-progress index} = \frac{\text{Average work-in-progress}}{\text{Total production value annually}}$$

$$28. \quad \text{Spare parts index} = \frac{\text{Value of spare parts inventory}}{\text{Value of capital goods}}$$

$$29. \quad \text{Spare parts turnover index} = \frac{\text{Spare parts consumed}}{\text{Spare parts inventory}}$$

H Store Indexes :

$$30. \quad \text{Handling cost index} = \frac{\text{Total handling cost}}{\text{Total value of material received \& Issued}}$$

$$31. \quad \text{Timely Delivery / Index} = \frac{\text{No. of requisitions}}{\text{-----}}$$

Total No. of Items in Inventory

32. Inventory Storage loss Index = $\frac{\text{Value of inventories lost due to Deterioration, obsolescence pilferage, etc.}}{\text{Average value of inventory}}$
33. Non-moving Items Index = $\frac{\text{Number of non-moving items}}{\text{Total No. of items in inventory}}$
34. Non-moving items value Index = $\frac{\text{Value of non-moving items in inventory}}{\text{Total inventory value}}$
35. Scrap disposed Index = $\frac{\text{Value of scrap disposed}}{\text{Total value of Scrap}}$
36. Material utilization Index = $\frac{\text{Value of Scrap sold}}{\text{Value at which bought}}$
37. Value of incoming items Rejection Index = $\frac{\text{Total value of items rejected on Inspection}}{\text{Total value of defective material}}$

H Classification, Codification and Value Analysis :

38. Standardization effective = $\frac{\text{No. of items after standardization}}{\text{Total No. of items before}}$

Standardization

$$39. \quad \text{Codification Index} = \frac{\text{No. of items codified}}{\text{Total No. of items}}$$

$$40. \quad \text{Functional Similarity Index} = \frac{\text{No. of items similar functionally but with different specifications}}{\text{Total No. of items}}$$

H **Transportation and Distribution Indexes :**

$$41. \quad \text{Delivery schedule index} = \frac{\text{No. of orders delivered on time}}{\text{Total No. of Shipmen}}$$

$$42. \quad \text{Goods in transit inventories index} = \frac{\text{Average value of F.G. in transit}}{\text{Average value of F.G. inventories}}$$

$$43. \quad \text{Goods in transit index} = \frac{\text{Average value of F.G. in transit}}{\text{Total sales value of shipments Over a period}}$$