INTRODUCTION
CHAPTER I
INTRODUCTION

MEANING

Man has managed materials from time immemorial, but Materials Management as a separate branch of knowledge has grown out of industrial necessity. Materials form the lifeblood of any manufacturing industry. Materials are the lifeblood of any industry. No Industrial organisation can operate without them. The basic goal of any industrial activity is achieved by the appropriate blending of five M's: machines, men, materials, money and management and thus become the grave concern of management of all the levels.

Materials are the key to the productivity of machines and other capital assets and labour. It includes raw material, half finished goods, spare parts and components, packing materials and capital goods like land, building, machines, tools etc. It is the best area of cost reduction and concentrating on achieving effectiveness and efficiency. Any saving made in the cost of materials will go a long way in reducing the cost of production and improving the profitability of the concern.

DEFINITIONS

During the post world war II period, it was felt increasingly desirable that "all the major materials Management functions should
come under a unified direction and authority for the purpose of planning and programming, co-ordinating and controlling".  

"Materials Management" is a term used to connote controlling the kind, amount location, movement and timing of the various commodities used in are produced by, the industrial enterprises".  

According to one of the early definitions, "Materials Management is the Planning, directing, controlling and co-ordinating of all those activities concerned with materials and inventory requirements from the point of their inception to their introduction into the manufacturing processes. It begins with the determination of materials, quantity and quality, and end with its issuances to production in time to meet customer demand at the lowest cost".  

This definition covers all the aspects of materials and material supply involved in converting raw materials and ancillary supplied into the desired finished products. "It is concerned with planning and programming of materials and equipments with predesign value analysis, 

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3 Ibid., p. 56.
with market research for purchase, with procurement of all materials including capital goods, packing materials, with stores control and inventory control, with transportation of costs of materials, with materials handling and operations research of materials.

Its responsibilities end when the correct finished product in proper condition and quantity passes to the consumer.\textsuperscript{4}

"Materials Management establishes the requirements, provides the availability, determines the value and price levels, and controls the flow of materials from the initial development of the production requirement until the final delivery of the product to the customer."\textsuperscript{5}

In general, this definition, embraces all activities affecting the costs of materials prior to introduction into the product and after delivery of the finished product to the warehouses for marketing.

"Materials Management covers a much wider field and deals with all aspects of materials supply and utilisation as well as cost."\textsuperscript{6}

\textsuperscript{4}Ibid., p. 56.


This definition underlines the need for industrial purchasing which deals with the planning of acquisition of and utilisation materials in the process of producing goods.

It is "an organisational concept that localise or bring together under one organisational component, the responsibility for determining the manufacturing requirements, scheduling the manufacturing process and procuring, storing and dispensing materials without allowable cost".\(^7\)

This definition includes the planning and policy activities covering a wide range of related and complimentary activities including, storekeeping, inventory control, salvage and reclamation, value analysis, such activities as the research development required for the proper selection of materials and the sources of supply from which these materials may be brought.

"Materials Management is essential in activity of our enterprise for the procurement and use of materials distinctly separated from the process of procurement and the use of all human skills and labours for ultimate deployment to attain some pre-determined objectivies".\(^8\)

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"Materials Management is the function responsible for the co-ordination of planning, sourcing, purchasing, moving, storing and controlling materials in an optimum manner so as to provide a predecided service to the customer at a minimum cost".  

"Materials Management covers the efficient management of materials in all its aspects, affecting the flow, conservation and utilisation, and the quality and cost of materials."  

"Materials Management embraces all activities concerned with materials except those directly concerned with designing or manufacturing the product or maintaining the facilities, equipment and tooling. With the exception of receiving inspection, materials management embraces all other functions concerned with ordering, storage and movement of materials. It would embrace the activities performed by the following departments, purchasing, production control, shipping, traffic, receiving and stores".  

MM is a service function affecting the flow of materials in a manner in which it helps in conserving the materials cost, best  


utilisation of materials and maintaining the quality of both incoming and outgoing materials. Thus the term MM has been defined in a variety of ways and most definitions, stress the importance of the control element in achieving the cost-effectiveness, irrespective of the range of particular disciplinars which may have to be applied within the functional field in meeting the needs of individual situations.

The function of Managing Materials is known as Materials Management. Materials Management is the integrated functioning of Purchasing and allied activities so as to achieve the maximum co-ordination and optimum expenditure in the area of materials. Materials Management can be defined as the function responsible for the co-ordination of planning, sourcing, purchasing, moving, storing, and controlling materials in an optimum manner so as to provide a prodecided service to the customer at a minimum cost.

Materials Management comprise the following functions:

1. Materials Planning and Programming.

2. Purchasing.

3. Inventory Control.

4. Receiving and Warehousing.

5. Store Keeping.

7. Transportation.

8. Materials Handling, and

9. Disposal of Scrap and Surplus.

MATERIALS PLANNING AND PROGRAMMING

Materials Planning is the scientific way of determining the requirements of raw materials, components, spares and other items that go into meeting the production needs within the economic investment policies. Generally the quantity requirements of the materials are worked out on the basis of sales target at optimum production of industry. This is a relative factor and is dependent considerably on the demand of the Company's products in the market. The availability of quantity requirement does not serve the entire purpose of Materials department as they have to establish suitable inventory levels and work out the quantitative rate on purchasing. The Materials department also has to establish and work out the break-up of these requirements on weekly and monthly basis and arrange suitable inflow accordingly after considering various factors like prices, delivery source, etc. However, the Planning of materials will depend on the type of industry and the items required for use by various departments to achieve the production targets. A careful drafting of Material Planning is essential for any manufacturing concern.
1. to avoid excessive investment in materials.

2. to ensure continuous and uninterrupted supply of materials.

3. to reduce wastage of all kinds.

4. to reduce the risk of obsolescence and

5. to estimate the material requirements.

PURCHASING

Purchasing involves selection of sources of supply, setting the terms, placement of purchase orders, follow up, maintenance of smooth relations with suppliers, approval of payments, evaluating and rating suppliers.

Purchasing is a primary function since the very first act of a manufacturing concern is to purchase materials. Proper sales cannot be made unless materials being used for manufacture or for resale are brought at a minimum cost. The basic objective of the purchasing function is to ensure continuity of supply of raw materials and at the same time reduce the ultimate cost of the finished goods.

STORES AND INVENTORY CONTROL

This involves physical control of materials, proper preservation and minimisation of obsolescence and damage through timely disposal.
and efficient handling, maintenance of stores records, proper location and stocking.

RECEIVING AND WAREHOUSING

Wares means goods in the form of manufactured articles. Warehouses are the godowns which take the responsibility of keeping and storing goods and providing other services in order to help the traders and manufacturers. Several goods are not produced regularly at the point where they are needed for consumption and they need to be stored from the time of production until they reach the safe hands of ultimate customers. Godowns are necessary to ensure regular supply of seasonal products. A warehouse should be located at a convenient place where the goods can be received and shipped at a minimum cost. Generally, a warehouse is constructed near the railway siding or on the harbour. It should have facilities for loading and unloading through heavy vehicles. Transport facilities should also be easily made available there.

To avoid the possibility of double payment to suppliers, invoices should be cleared only from original goods received notes which should be serially numbered to enable them to be traced, if there are any subsequent queries concerning the consignment.

STORE KEEPING

Store keeping refers to the safe custody of all the items of material stocked in the store room for which the storekeeper acts.
as a trustee. Store keeping is the "Physical storage of materials carried into the store room in a scientific and systematic manner with a view to 1. Saving them from all kinds of damages and losses and 2. Exercising all works of control over their movement". Materials Pilferage, deterioration of materials and careless handling of stores lead to reduced profits or even losses. So it is essential that to obtain the maximum advantage an efficient, well equiped stores department is maintained. Spiegel and Lansburgh have rightly remarked, "Poor control of materials is frequently accompanied by poor storeroom administration in a way that may easily throw out of balance any operational programmes which have been adopted". Storage and preservation of materials, Record keeping and issue of materials are the important functions of store keeping.

VALUE ANALYSIS AND STANDARDISATION

Value analysis is defined as "an organised creative approach which has, as its objective, the efficient identification of unnecessary cost—cost which provides neither quality nor use life nor appearance nor customer features". Value analysis focuses engineering, manufacturing and purchasing attention to one objective that is equivalent performance at a lower cost. In other words, functional performance remains unaffected. A standard is defined as a model or general agreement of a rule established by authority, consensus or custom, created and used by various levels of interest. The aim of standardisation is to have uniform standars
for similar items. The standards evolved should take notice of the indigenous availability of materials to the maximum extent possible.

The process of standardisation logically leads to simplification or variety reduction. This reducing unnecessary varieties and standardising to the most economical sizes, grades, shapes, colours, types of parts and so on.

**TRANSPORTATION**

Transportation of materials from sources located in different parts of the country to the user's plant is of critical importance in the field of materials management. The cost of transportation of materials account for 10 to 20 percent of the cost of the materials purchased. Often the mode of transportation of materials left to the suppliers. The materials manager should seek improvements in transportation with a view to cutting down transportation costs, achieving greater speed and better quality of service. As the organisations grow in size, transportation becomes very crucial and effectiveness depends upon the knowledge of alternatives, their rates, schedules, merits and demerits.

The important aspects in traffic and transportation management are choice of mode of transports, route selection, rate verification and auditing, management of claims and lost shipments as well as application of linear programming to minimise transportation costs careful
planning and analysis with appropriate controls yield major economies in the operation resulting in better service and higher profitability.

MATERIALS HANDLING

Materials Handling is defined as the function dealing with the preparation, placing and positioning of materials to facilitate movement or storage. Now value is added to the end-product through materials handling. However, poor materials handling result in delays leading to idling of equipment. In many industries nearly 50 percent of the production cycle time is spent on handling materials. It accounts for nearly 40 percent of the cost of production. Through scientific materials handling considerable reduction in the cost as well as in the production cycle time can be achieved.

DISPOSAL OF OBSOLETE, SCRAP AND SURPLUS

Obsolete items are those materials and equipments which are not damaged and which have economic worth but which are no longer useful for the company’s operation to many reasons such as changes in product line, process, materials and soon. Surplus items are those materials and equipments which have no immediate use but have accumulated due to faulty planning, forecasting and purchasing. They have a usage value in future. Scrap is defined as process wastage, such as turnings borings, sprues and flashes. In any case they have a market value.
A close co-ordination with the Materials Department is necessary whenever there is changes in production programme, design and product lines. It will avoid accumulation of obsolete and surplus items. Selective control based on ABC analysis, accurate forecasting techniques and proper preservation minimises such accumulation.

If disposal of scrap is handled in an effective manner it will result in handsome returns to the organisation. Generally two methods are used for disposal. They are auction and tender, very often the company insists on a basic price depending upon the category of scrap.

Many companies have found that the scrapped components appearing in the market and competing with their parts as "Original equipment". This is the price which organisations pay for not dismantling and distinguishing the scrap before disposal. Disposal action follows only when the scrap cannot be utilised within the organisation. It is profitable to dispose the scrap directly to end-users rather than to middlemen.

SIGNIFICANCE OF MATERIALS MANAGEMENT

The concept of Materials Management of yesterday was linked to profit

The concept of Materials Management of today is very much related to Survival.
In many organisation, materials form the largest single expenditure item. An analysis of the financial statements of a large number of Private and Public Sector organisations indicates that materials account for nearly 60 percent of the total expenditure. The following table explains this.

**TABLE 1.1**

**AVERAGE MATERIALS EXPENDITURE**

<table>
<thead>
<tr>
<th>Average expenditure of Materials percent</th>
<th>Industry groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 65</td>
<td>Cotton yarn, earthmoving equipment Sugar, Wool, Jute. Commercial Vehicles fabrication</td>
</tr>
<tr>
<td>60 - 65</td>
<td>Cotton textiles, bread</td>
</tr>
<tr>
<td>55 - 60</td>
<td>Engineering, non-ferrous</td>
</tr>
<tr>
<td>50 - 55</td>
<td>Ship building, chemicals, tyre machine tools, cement, electricity.</td>
</tr>
<tr>
<td>45 - 50</td>
<td>Pharmaceuticals</td>
</tr>
<tr>
<td>40 - 45</td>
<td>Steel, newspaper, fertilizer, aircraft.</td>
</tr>
</tbody>
</table>

Source: Gopalakrishnan, P. and Sundaresan, M "Materials Management" - an Integrated Approach; Prentice Hall of India Limited, New Delhi.

The importance of materials management lies in the fact that any significant contribution made by the materials manager in reducing materials cost will go a long way in improving the profitability
and the rate of return on investment. Such increase in profitability can be effected by increasing sales. But with the increased competition and government restrictions on expansions this alternative is not easily achieved. The result of the efforts in reducing the materials cost by 5 percent is the same as the marketing efforts of increasing the sales by 30 percent. Increasing the sales calls for a lot of additional marketing and advertising expertise, efforts, time and expenses, whereas, if ways and means are diverted in saving a rupee in materials cost, with the existing infrastructure facilities, it will go a long way in improving the profits of the company. Prof. Dean Ammer claims rightly that efforts for saving a rupee in materials cost is almost equal to the efforts made for additional sale of Rs.10/-. 

In a shortage economy like that of India it is all the more important to devote pointed attention on materials function for reaping the full benefits of the existing resources. The return on investment (ROI) depends a great on the manner of utilisation of materials:

This relationship is expressed as

\[
ROI = \frac{Profit}{Sales} \times \frac{Sales}{Fixed \ Assets + Current \ Assets}
\]

Fixed assets constitute capital already sunk and the only scope for improving the return on investment lies in the current assets where materials form an important part. It depends on the efficient management of Materials.
Reduction of material cost by at least 5 percent is always possible through efficient materials management. Japan has set an example in this direction by achieving high cost reduction through efficiency materials management. Materials management is, therefore, the most important functions for any business organisation. It is still more important for a manufacturing concern. The firm tries to invest its capital in a way that would ensure maximum returns. This goal can be achieved in two ways. 1. By maximising the production with the same capital invested and 2. By maximising the profit of each unit produced. By effective inventory control and production schedule a firm can increase its production. The quality and quantity very much depend upon the efficient materials management which reduce the cost of materials by the handling of purchases, storage, issuance etc. properly. The return of Investment (ROI) depends a great deal on the manner of utilisation of materials. Therefore, the control of materials assumes great importance. There is a need for integrated concept. Various functions underlying materials management must be well integrated. If some of the functions were to be separately handled, a conflict of interests might arise. Purchase department, if allowed to operate independently may take decisions which result in sub-optimisation. Under a separate set up, for examples the purchase department to avail of the discount may buy large quantities without taking into account, its impact on the warehousing and carrying costs. In an integrated set up, the materials manager is in a better position
to exercise control, so as to ensure optimum results for the organisation as a whole.

OBJECTIVES OF MATERIALS MANAGEMENT

Materials form an important part of the current assets in any organisation. Materials Management aims at reducing the cost of production as so to help the organisation in maximising its profits. The chief objectives are: 1. Maintaining the continuity of production by purchasing goods of right quality and quantity and at right time. 2. Ensuring a uniform flow of materials. 3. Establishing good buyer and seller relations. 4. Helping the organisation to grow and advance. These objectives may be grouped as primary objects. Locating new sources of supply, simplification, quality control, value analysis, co-ordination and development of skill and knowledge are considered as secondary objectives.

There is a need for an objective evaluation of the performance of the materials management. The top management should spot out the competence and ruthlessly weed out the incompetence. The rewards and punishment should be commensurate with the results achieved, so as to infuse motivation and fix responsibilities. Such responsibilities will be both a challenge and opportunity for the materials manager as the scope for savings and cost reduction is indeed high.
SELECTION OF THE PROBLEM

Even though paper industry is rated as a high priority industry it is facing many problems of shortage. Shortage of raw material is very acute and it threatens even the very existence of the industry. During 1960 to 1980 there is a tremendous growth in the field of paper industry. Number of paper manufacturing companies has increased. After 1980 there is a noticable decline, but the paper consumption has increased to a considerable size. The financial performance of many paper industries were not good. For example the SPB Ltd., is the biggest paper industry in South India, but it is running at a loss. There are many reasons for the loss like high material cost, excessive labour, unnecessary administrative cost, idle stock, productive wastage etc. But the material cost accounts for 60 percent of production cost. Therefore effective control over the materials will directly reduce the loss. One can understand the importance of materials management in a paper mill from the following points.

1. It helps to maintain continuity of production without any kind of interruption whatsoever.

2. It helps to purchase materials of right quality, right quantity, at right price and from right sources, thereby reduce the cost to a great extent.
3. It helps to establish good buyer and seller relationship.

4. It maximises the utilisation of available space.

5. It results in efficient handling of materials and eliminates wastages of all kinds.

6. By ensuring right quantity and materials at the right price, it increases the competitiveness of the products.

SCOPE OF THE STUDY

The scope of the study includes the following:

1. To study the existing materials management techniques as practised in SPB Ltd.

2. To study the material control system adopted in SPB Ltd in great detail.

3. To study the operational methods of materials planning and control for the ten critical materials demarcated as such in SPB Ltd.

4. To suggest ways and means of eliminating deficiencies found in the present system and to suggest better methods wherever possible, for increased production and profitability.
OBJECTIVES OF THE STUDY

The main objectives of the present study are as follows:

1. to analyse the method adopted for the purchase of materials and the sources thereof.

2. to evaluate the effectiveness in the application of MM Techniques in SPB Ltd.

3. to assess all the Inventory Control techniques in general and the Material Control in particular as applicable to 10 critical items of materials in SPB Ltd.

METHODOLOGY

The study is mainly based on primary data collected by the researcher from the original records maintained by the Materials Management Section, Purchasing Department and Stores Department. Wherever possible discussions have been made with the Materials Manager, Stores Officer and Purchase Officers. Few Consultations were also made with the concerned clerks.

Secondary data and informations were collected from published annual reports, various books, and periodicals pertaining to the topic under study.
In short the following techniques were adopted for collection of required data.

1. Interview technique.

2. Observational study.

3. Reference to records and journals.

Even though a warm welcome is received from the Materials Department, the researcher faced certain problems. The officials found it difficult to search the records for a period of five years, since they were in possession of past three years only. Moreover the materials manager is the busiest man in the office and finding time for interview with him is very difficult. Interview is made only during his work time which is often interrupted by the suppliers and other officials.

PERIOD OF STUDY

The present study is confined to a period of six years, i.e., from 1983-84 to 1988-89.

Limitations of the study

1. The study has been restricted to a single paper mill existing in South India any inference drawn in this case cannot be applied to any other paper mill.
2. Since the study is confined to ten critical materials in SPB Ltd the conclusions drawn cannot be applied to all other materials used in SPB Ltd.

CHAPTER SCHEME

The dissertation consists of six Chapters as detailed below.

Chapter I deals with Introduction. It gives a brief idea of the nature of the topic, the objectives of the study, the methods used for collection of data, limitations of the study and chapter scheme.

Chapter II outlines the profile of the SPB Ltd explains the growth and development of the Paper Industry and the history of SPB Ltd.

Chapter III stresses the 'Rationale of Materials Management'. It outlines the purchase procedure and Inventory Control techniques in detail.

Chapter IV gives the critical appraisal of techniques of Materials Management in SPB Ltd. It explains purchase procedure, storekeeping and inventory control techniques followed in SPB Ltd.

Chapter V focusses on the 'Role of Computers in Materials Management.'

Chapter VI highlights the 'Findings and Suggestions as regards selective control techniques in the realm of MM as practiced in SPB Ltd.'