

# 9

## WASTE MANAGEMENT

### CHAPTER OUTLINE

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### 9.1 INTRODUCTION AND MEANING

The industrial waste and scrap consists of spoiled raw-materials, rejected components, defective parts, waste from production departments etc. involves some commercial values. They should be disposed of periodically and proper credit of the amount should be taken in the books of accounts. Hence, waste management places an important role in managing operations. Wastes can be categorised into obsolete, surplus and scrap items.

1. **Obsolete items:** These 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 owing to many reasons such as, changes in product line, process, materials, and so on.

2. **Surplus items:** These are those materials and equipments which have no immediate use but have accumulated due to faulty planning, forecasting and purchasing. However, they have a usage value in future.

3. **Scrap:** It is defined as process wastage, such as, turnings, borings, sprues and flashes. They may have an end-use within the plant having commercial values. Hence, should be disposed of periodically.

### 9.2 REASONS FOR GENERATION AND ACCUMULATION OF OBSOLETE, SURPLUS AND SCRAP ITEMS

Following are the reasons for the generation and accumulation of obsolete, surplus and scrap items:

1. **Changes in product design:** This may lead to some items getting invalid so far as the final product is concerned. Hence, the entire stock of such items as surplus obsolete.

2. **Rationalization:** Sometimes raw materials are renationalized so as to minimise variety and simplify procurement. The rationalization process renders some items as surplus or obsolete.

3. **Cannibalization:** When a machine breakdown occurs, sometimes it is rectified using parts of an identical machine which is not functioning due to various reasons. This process of 'cannibalization' is not uncommon in many project-based industries. When continued unchecked, this results in obsolete and scrap items.

4. **Faulty planning and forecasting:** The marketing department may have projected a sales forecast which might be on the higher side. Any material planning has to be based on sales forecasts and this could result in surplus items. Wrong indenting by the user departments also leads to accumulation.

5. **Faulty purchase practices:** Sub-optimizing decisions like buying in bulk to take care of discounts and transportation economy without taking into account factors such as, shelf life, storage space requirements and technological changes once again lead to the accumulation of surplus and obsolete stocks.

6. **Other causes:** Many items are held as insurable spares for many years without any consumption. Faulty store-keeping methods, without adequate preservation, lead to spoilage. Inferior materials handling, improper codification and poor manufacturing methods also result in obsolete, surplus and scrap items. Poor maintenance of machine tools may result in excessive tools wear and greater process scrap.

### 9.3 IDENTIFICATION AND CONTROL OF WASTE

The combing process of combining the stock records and movement analysis has been found very effective in locating such stocks in the total inventory. Stock issue cards should be combed and items which have not been consumed (non-moving) for a period of one year must be isolated. A list of such items and their value in terms of money and time must be made. Similarly, such lists must be prepared for items which have not moved for 2 years, 3 years, 5 years and above. Such lists can then be put up to top management for disposal action. Care must be taken to prepare a separate list of imported spares and insurance items. Such combing and movement analysis must be done on a continuous basis. A typical movement analysis statement is shown in Exhibit 9.1.

**EXHIBIT 9.1 Movement analysis statement**

<i>Sl. No.</i>	<i>Part number description</i>	<i>A B C</i>	<i>Last date of issue</i>	<i>Stock on hand in number of days consumption</i>	<i>Value of orders on hand</i>

Whenever changes in production programme, design and product lines are contemplated, a senior executive from materials management must definitely be kept in the picture. This helps in several ways. He is in a position to inform top management of the amount of stock of materials on hand that are likely to be rendered obsolete if and when the changes are introduced. This could even guide the management as to when the changes could be made so that the existing

stock can be consumed in full. The materials manager in turn can freeze further orders for such materials and try to negotiate with the suppliers to take back the stock. For some items he can introduce the buy-back clause wherein the suppliers takes back items not consumed within a specific period. For new items which may be required, he can try to develop sources and place orders so that changes can be expeditiously introduced. All this highlights that a close coordination is required in order to avoid stock piling obsolete and surplus items. Selective control based on ABC analysis, accurate forecasting techniques and proper preservation minimise such accumulation. In the case of storage of perishable items the Central Warehousing Corporation has devised a scheme to enlarge its scope to cover certain specialized lines of storage. The schemes drawn up by the corporation include setting up a chain of cold storage plants for potatoes, and fruit, and storage facilities for certified seeds.

Many organizations have introduced formal documentation in introducing changes in design or product. It is called the 'Effective Point Advice.' This is popularly known as EPA. Here, the proposed changes, details of new materials and products required, details of materials and the products which will be invalid/obsolete when the change occurs and the approximate date when the change is expected to be introduced are detailed and circulated to concerned departments. EPA thereby helps in tapering off the stocks of 'invalid' items, cancellation of orders for such items, placing orders for buying and/or manufacturing new items and related activities. EPA systems help in better coordination for profitable introduction of changes with minimum 'side effects' such as the accumulation of obsolete items.

The reclamation of scrap has not attracted the attention of the top management in Indian Industry. Optimal utilization of scrap would allow conservation of the use of scarce natural resources, such as iron ore. This is because scrap is an important element which goes into the manufacture of steel and castings.

It is possible to salvage scrap for usage within the firm in some cases. Press parts are normally made from sheets and plates. The off-cuts generated during such process can be profitably utilized in making smaller press components such as washers. Rationalizing the supply size, changes in process such as reversing the dies may result in minimization of scrap. Big organizations have a full-fledged scrap salvaging department. These departments segregate the scrap into categories, like turnings, borings, plate cuttings, endpieces of billets, punching etc. Colour coding the scrap is also done to avoid the mixing of different categories of scrap. It is also advantageous to the end-users in each category and supply of scrap at the appropriate time for production. Often informing the production department at the right time about the volume of scrap generated enables prevention of excessive scrap through timely changes in production methods, tooling and materials.

#### 9.4 DISPOSAL OF SCRAP

Disposal of scrap when handled in an imaginative manner can result in handsome returns to the organization. An effective disposal requires a compact disposal organization reporting to the materials manager, continuous market survey on the prices of various categories of scrap generated in the plant and constant touch with the industries which generate similar scrap and with the end-users.

Disposal action follows when the scrap cannot be utilised within the organization. In practice, it has been found that it is profitable to dispose the scrap directly to end-users rather than to middlemen who normally form a cartel of their own which leads to lower returns. Before disposal action it is essential that the scrap is segregated according to metal, size, etc. when the scrap

is mixed, the return is even lower than the lowest element in the mixture. This is because the buyer of scrap will have to segregate it at an extra cost. A cursory analysis of scrap prices will reveal that sheet and plate cuttings will fetch fewer amounts per a tonne compared to that of turnings and borings. Also when costly scrap such as copper, aluminium and tungsten are involved, it is imperative that they are segregated as returns are huge and price levels are different. Since scrap is generated process-wise, it comes out in a segregated condition and there should be no difficulty in sorting.

Auction and Tender methods are frequently used for disposal of scrap. Parties in both the cases are normally required to inspect the scrap in the scrap yard and deposit earnest money. Very often the company insists on a basic price depending upon the category of scrap. The disposal section works, in this aspect, in close coordination with the finance department. In many cases the disposal section may try to enter into a long-term contact with end-users such as steel plants.

Many companies have found to their displeasure scrapped components appearing in the market and competing with their parts as 'original equipment'. This is the price which organizations pay for not dismantling and disfiguring the scrap before disposal. Automobile spare parts and bearings especially are prone to such dangers. For this purpose some organizations go to the extent of requesting vehicle users to demolish filters and plugs before scrapping them. This is very important aspect.

In view of the paucity of raw materials and shortage of credit, it is necessary that optimum usage of materials is made and funds tied up in obsolete surplus and scrap items minimised. This is only possible when top management shows commitment and support. The employees of the organizations are naturally the best people to suggest improvements in materials, processes and new end users for scrap. It is they who can minimise the accumulation of scrap through coordination. Therefore, top management should work out formal reward systems to promote employee participation in this matter. A few organizations have suggestion box schemes which pay rich dividends to the organization. Employees, too get rewards and recognition in the process.

## EXERCISES

### Section A

1. What is obsolete items?
2. What is surplus items?
3. What is scrap?

### Section B

1. Explain the reason for generation and accumulation of obsolete, surplus and scrap items.

### Section C

1. Discuss the identification and control of waste.
2. Discuss the disposal of scrap.

### Skill development

**FAST FOOD RESTAURANT VISIT:** Get the information for the following questions:

1. Scraps, wastes and obsolete items in Restaurants.
2. Method of Disposal of wastes, scrap and obsolete items.