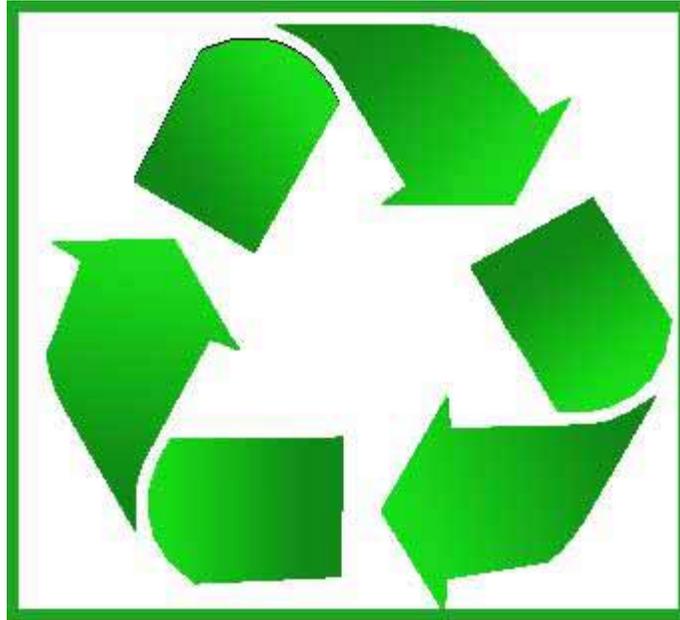


WASTE REDUCTION AND RAW MATERIAL CONSERVATION



A. Introduction - Waste management has various functions; they are: collection, transport, processing (waste treatment), recycling or disposal of waste materials; usually produced by human activity, in an effort to reduce their effect on human health or local aesthetics or amenity. A sub-focus of waste management, in recent decades, has been to reduce waste materials' effect on the natural world and environment by conserving raw materials used and to recover resources from wastes, i.e., recycle of wastes. Waste management can involve solid, liquid or gaseous substances with different methods and fields of expertise for each.

In fact, generation of waste in any industry is a result of using materials inefficiently. It costs your business money. The costs of wastes are twofold: first you fail to gain the desired benefits by using more raw materials and second, you also have to pay disposal costs for wastes. Apart, environment gets dirtier causing lot of air, water pollution and other related nuisances.

Waste is also the inefficient use of utilities such as electricity, water, and fuel, which are often considered unavoidable overheads. The costs of these wastes are generally underestimated by managers. It is important to realize that the cost of waste is not only the cost of waste disposal, but also other costs such as:

* Disposal cost

* Inefficient energy use cost

* Purchase cost of wasted raw material

* Production cost for the waste material

* Management time spent on waste material

* Lost revenue for what could have been a product instead of waste

* Potential liabilities due to waste.

a. By reducing waste, you can automatically make your processes more efficient and more competitive. The benefits of operating your business more efficiently are clear – including reduced overhead costs, savings in time and money and increased competitiveness. Better economy is achieved as you save additional costs for maintaining pollution free environment.

Although you can sometimes use waste as a resource and save money, it is more efficient to reduce waste at the point of origination. Waste activities such as recycling and recovery use energy so the priority should be to reduce waste in the first place. Businesses that take a strategic approach to minimizing waste are likely to save the most money. Experience in many countries suggests that businesses across a range of industries can save about 10 per cent of turnover by employing waste minimization techniques.

b. Immediate cost-savings can be achieved by:

(i) Reviewing your activities and processes and making simple changes such as printing or photocopying on both sides of the paper;

(ii) Designing packaging so that it can be reused;

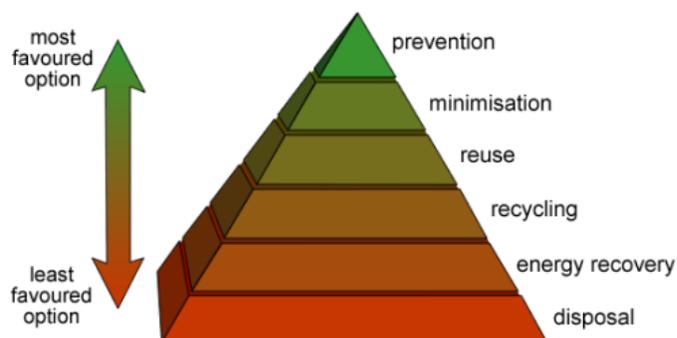
(iii) Reusing any waste you produce until it no longer has any value and then recycling the materials.

Customers, employees and potential investors are all becoming more aware of environmental responsibility and failure to take action could affect your business.

c. You face rising energy and waste disposal costs, increased legal obligations and higher stakeholder expectations. In some industries, producers now have ultimate responsibility for the disposal of their products, not just their creation. Adopting a waste strategy means that you will be better prepared for any new legislation for reduction as well as for better disposal of your products (finished goods and wastes).

The penalties for failing to manage environmental risks properly can also be substantial. You could experience damage to your reputation, disruption to your business or financial penalties.

“Resource productivity” means extracting the most value from resources, making the best use of renewable resources and minimizing waste produced. It has the potential to drive down costs by reducing waste and pollution and will create opportunities for growth through process and product innovation.



B. Source Reduction of waste – Stopping waste before it starts – way to enhance environmental cleanliness:

Thus, waste minimisation can be defined as “systematically reducing waste at source”. It means:

- * Prevention and/or reduction of waste generated

- * Efficient use of raw materials and packaging

- * Efficient use of fuel, electricity and water

- * Improving the quality of waste generated to facilitate recycling and/or reduce hazard

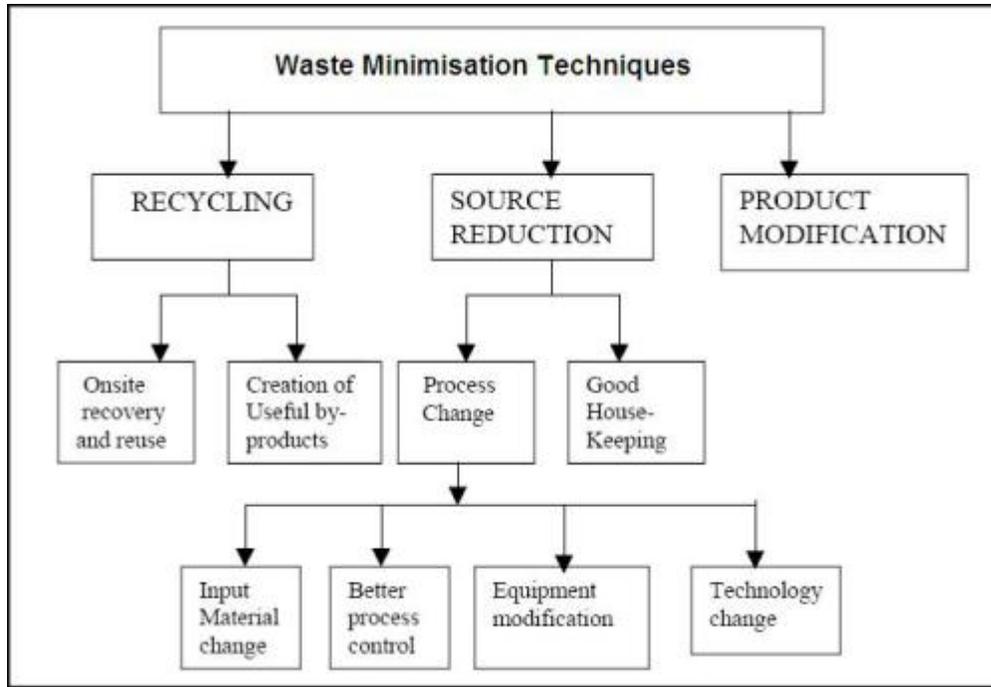
- * Encouraging re-use, recycling and recovery.

Source reduction, also known as waste prevention or pollution prevention, is the elimination of waste before it is created. Source reduction is decreasing the amount of materials or energy used during the manufacturing or distribution of products and packages. It basically involves the design, manufacture, purchase or use of materials and products to reduce the amount or toxicity of what is thrown away. Source reduction means stopping waste before it happens.

Because it stops waste before it starts, source reduction is the top solid waste priority of environmental protection agencies of many of the developed countries. These innovations conserve resources and reduce packaging waste, while continuing to provide performance, value and convenience to the consumer.

Source reduction is not the same as recycling. Recycling is collecting already used materials and making them into another product. Recycling begins at the end of a product’s life, while source reduction first takes place when the product and its packaging are being designed. In fact, the best way to think about

source reduction and recycling is as complementary activities – combined, source reduction and recycling have a significant impact on preventing solid waste and saving resources.



a. Source Reduction Techniques:

Four techniques of waste minimisation are briefly discussed below:

1) Good Housekeeping- Systems to prevent leakages & spillages through preventive maintenance schedules and routine equipment inspections. Also, well-written working instructions, supervision, awareness and regular training of workforce would facilitate good housekeeping.

2) Process Change - Under this head, four techniques are covered:

(i) Input Material Change - Substitution of input materials by eco-friendly (non-toxic or less toxic than existing and renewable) material preferably having longer service time.

(ii) Better Process Control - Modifications of the working procedures, machine-operating instructions and process record keeping in order to run the processes at higher efficiency and with lower waste generation and emissions.

(iii) Equipment Modification - Modification of existing production equipment and utilities, for instance, by the addition of measuring and controlling devices, in order to run the processes at higher efficiency and lower waste and emission generation rates.

(iv) Technology Change - Replacement of the technology, processing sequence and/or synthesis route, in order to minimise waste and emission generation during production.

Source : <http://saferenvironment.wordpress.com/2009/01/01/waste-reduction-and-raw-material-conservation-are-the-most-important-functions-in-waste-management-saves-environment-and-money/>