

# Waste Management: Value and Waste

Waste management is the process of collection, transportation, processing or disposal, managing and monitoring of waste to avoid its adverse effects in human health and environment also. Waste management is a very important issue in the today's modern business world. According to the Wikipedia "waste management is the generation, prevention, characterization, monitoring, treatment, handling, reuse and residual disposition of solid waste".

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## Concept of Waste

In general, waste are the things or items which we (people and industries) don't need and we discard these things. Sometimes law does not permit to us to use the things /items; they are prohibited by the law because they can be harmful to the society as well as environment. Generally, waste can be liquid (storm water, water from home, liquids used for industry cleaning and waste detergents etc.) and solid (garbage, plastics materials, old newspapers, broken furniture even food waste etc.). Both liquid and non-liquid waste type also has grouped into reusable and recyclable waste not all the wastes are hazardous or harmful to health and environment). Growing proliferation of waste led to the many serious diseases such as bubonic plague, cholera and typhoid led to suffering and death.

## Waste management

There are various type of solid waste including municipal(residential, institutional, commercial)agricultural and special health care household hazardous waste" The waste management concept is mainly referring to the '3Rs'-Reduce, Reuse and Recycle. This concept gives focus on the waste reduction plans, re-cycle the waste by different processed and re-use the waste for different purpose i.e. producing the other products like compost etc. The waste is the problem and waste management is the solution.

There are various sources of waste they are briefly discussed below:

- **Municipal sources of waste:** This includes the waste produce by households, School College, market place and restaurant and public places. They include daily items like food debris, plastic bags, water bottle etc.
- **Medical/hospital sources of waste:** It includes surgical items, pharmaceuticals, blood, body parts dressing material and needles, syringes etc.

- **Agricultural sources of waste:** This includes like horticulture, fruit growing, seed growing, livestock, market gardens and nurseries etc. produced by agricultural activities.
- **Industrial sources of waste:** includes leather, textile, electronics, food, plastics and metal products etc. produced by the different manufacturing houses.
- **Construction sources of waste:** includes waste resulting from the construction of the building, road, bridge etc.
- **Electronic waste sources:** waste from electronic and electronic devices like TV, music players, telephone, computers, vacuum cleaners and other electrical stuff. For e.g. contains lead, cadmium, and mercury etc. which may be harmful to people and environments.

## Waste Management from the Environmental perspective

Waste management is the major challenge to not only the rural and urban but also to the developed and under developed Nations. There are some techniques can be used for waste management. They are:

1. **Landfill:** The most common and traditional methods of waste disposal is landfill. According to this method water is burying or dumping in the land. It is an inexpensive way to get rid of waste. Before it is placed into the certain process used that eliminates the danger and odors of waste. This method is becoming less useful these days. Due to the lack of sufficient space availability and strong presence of the methane and landfill gasses, both of which may cause various contamination problems. That's why enough care should be taken to ensure that waste that does not harm the environment is dumped in landfill.
2. **Combustion:** The combustion is another type of waste management techniques in which municipal or local government solid waste are burned at high temperature in order to convert waste in to the residue and gaseous products. Major advantage of this techniques is that it can reduces the column of the solid waste 20% to 30 % of the original volume it also reduces the burden of landfills. Japan has applied this technique to manage the waste.
3. **Recycling:** The recycle is the process of converting the waste products in to the new products to prevent the consumption and usages of the raw material. It is the modern techniques of waste management. The main idea behind recycling is to reduce usage of energy and reduces the volume of the landfills, water pollution, reduce the green house and preserve the natural resources for the future generation.
4. **Composting:** Composting is a waste management method in which all organic waste like food, plant, paper etc. are decomposed (breakdown) and recycle then as compost for use in agricultural and landscaping applications.
5. **Waste to Energy (WET):** It is a process in which converting the non-recyclable waste items into the usable heats, electricity, and fuel by using the different process. This types of energy are renewable energy sources (can be use again and again to create the energy). The advantages of this method is recuing the carbon emission by offsetting the need for energy from fossil sources, it is most popular and widely used methods in managing the wastage.

Thus the waste management has become the parts of our human life. If we have to live, we will produce the waste. If we don't treat waste, it will choke us.

## Waste Management from the business perspective

The waste management is very important for the business organization also. The business organization has been producing some kinds of commercial waste by knowingly or unknowingly. The waste volume and types can be differing business to business. The business waste management is somewhat different from the residential or household. Generally manufacturing industries produces more waste than service industry, for example Construction Company produces more waste than banks. The waste creates the unnecessary cost burden and increases the environmental footprint and can make business vulnerable to the risk, regulation and fines. Waste management for the company is reducing the environmental impact of organizational activities and simultaneously reducing the costs.

To manage the waste in the business in better ways the organization should follow the different ideas. Some of the business waste management ideas are discuss below:

1. **Conduct the waste audit:** waste audit is the formal and systematic process in order to know the know or quantify the amount and types of waste being generated by the company in particular time period. Info form audit will help to identify the current waste practice and how they can be improved. Being waste-wise mean-a more efficient and effective company, reduces the costs, better use of the resources.
2. **Grab company waste bill and call the company that services your locations to ask them:** It is another way of reducing the waste in the business. The company should ask the service provider for unjustified bills unnecessary, amount(cost) to be removed from your bill such as vague and unclear “environmental fee or fuel charge etc. ”and company should identifies the other ways like reducing the no of service time and other recycling process etc.
3. **Better inventory management:** The Company should keep minimum stock to serve the customer. They should avoid keeping too many stocks that may expire or become useless and will increase the cost.
4. **Scrutinize the products you purchase for unnecessary packaging:** unnecessary packaging will only increase the waste and cost of the business so the business organization should avoid purchasing the disposable products and tools and purchase the product with less packaging and work with vendor to take back and reuse the packaging.
5. **Donate extra food and gently used the items instead of throwing them away:** another way of managing the waste is donating the extra food to the society’s needy people.
6. **Work with neighboring business to implement recycling:** to reduce the business waste the organization should work with other similar company to reduce the costs through scale by sharing equipment and selling quantizes of valuable recyclable products.
7. **Standardize the recycling equipment:** The business organization should purchase the standardize recycling equipment in order to process waste. The equipment should have certain standard for operations.
8. **Engage with your employee, customer and community:** The Company should provide the training to the employee and asking for their suggestions and creating the waste reduction incentives. Similarly, the business organization should engage with the society customer to provide the proper information about the products through social media.

Thus, waste management is most important to the business in order to protect the environment and reducing the costs and adding value to the business.

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# Types of Waste

## 1. Liquid Waste

Liquid waste is commonly found both in households as well as in industries. This waste includes dirty water, organic liquids, wash water, waste detergents and even rainwater.

You should also know that liquid waste can be classified into point and non-point source waste. All manufactured liquid waste is classified as point source waste. On the other hand, natural liquid waste is classified as non-point source waste.

## 2. Solid Rubbish

Solid rubbish can include a variety of items found in your household along with commercial and industrial locations.

Solid rubbish is commonly broken down into the following types:

- **Plastic waste**– This consists of bags, containers, jars, bottles and many other products that can be found in your household. Plastic is not biodegradable, but many types of plastic can be recycled. Plastic should not be mix in with your regular waste, it should be sorted and placed in your recycling bin.
- **Paper/card waste**– This includes packaging materials, newspapers, cardboards and other products. Paper can easily be recycled and reused so make sure to place them in your recycling bin or take them to your closest Brisbane recycling depot.
- **Tins and metals**– This can be found in various forms throughout your home. Most metals can be recycled. Consider taking these items to a scrap yard or your closest Brisbane recycling depot to dispose of this waste type properly.
- **Ceramics and glass**– These items can easily be recycled. Look for special glass recycling bins and bottle banks to dispose them correctly.

## 3. Organic Waste

Organic waste is another common household. All food waste, garden waste, manure and rotten meat are classified as organic waste. Over time, organic waste is turned into manure by microorganisms. However, this does not mean that you can dispose them anywhere.

Organic waste in landfills causes the production of methane, so it must never be simply discarded with general waste.

## 4. Recyclable Rubbish

Recyclable rubbish includes all waste items that can be converted into products that can be used again. Solid items such as paper, metals, furniture and organic waste can all be recycled.

## 5. Hazardous Waste

Hazardous waste includes all types of rubbish that are flammable, toxic, corrosive and reactive.

These items can harm you as well as the environment and must be disposed of correctly. Therefore, I recommend you make use of a waste removal company for proper disposal of all hazardous waste.

Waste can be classified into five types of waste which is all commonly found around the house. These include liquid waste, solid rubbish, organic waste, recyclable rubbish and hazardous waste. Make sure that you segregate your waste into these different types to ensure proper waste removal.

# 5S Techniques of Eliminating Wastes

Ever notice how much better you work when the space you work in is organized? The 5S approach is a Japanese process that's about promoting an efficient, effective workplace that helps companies eliminate waste. There are five steps in the 5S approach, outlined in detail in the lesson The 5S Approach to Waste Elimination for Lean Businesses. The steps are:

1. Sort
2. Set
3. Shine
4. Standardize
5. Sustain

Often, these steps are represented on a process chart where the first four steps are located around the perimeter of the chart and the fifth step (sustain) is placed inside the process. This is because the first four steps lead into each other, while "sustain" is something that must be done at every step.

There are five 5S phases. They can be translated from the Japanese as "sort", "set in order", "shine", "standardize", and "sustain". Other translations are possible.



### **Sort (Seiri)**

Seiri is sorting through all items in a location and removing all unnecessary items from the location.

#### **Goals:**

- Reduce time loss looking for an item by reducing the number of items.
- Reduce the chance of distraction by unnecessary items.
- Simplify inspection.
- Increase the amount of available, useful space.
- Increase safety by eliminating obstacles.

#### **Implementation:**

- Check all items in a location and evaluate whether or not their presence at the location is useful or necessary.
- Remove unnecessary items as soon as possible. Place those that cannot be removed immediately in a 'red tag area' so that they are easy to remove later on.
- Keep the working floor clear of materials except for those that are in use to production.

### **Set in order (Seiton)**

Seiton is putting all necessary items in the optimal place for fulfilling their function in the workplace.

#### **Goal:**

- Make the workflow smooth and easy.

### **Implementation:**

- Arrange work stations in such a way that all tooling / equipment is in close proximity, in an easy to reach spot and in a logical order adapted to the work performed. Place components according to their uses, with the frequently used components being nearest to the workplace.
- Arrange all necessary items so that they can be easily selected for use. Make it easy to find and pick up necessary items.
- Assign fixed locations for items. Use clear labels, marks or hints so that items are easy to return to the correct location and so that it is easy to spot missing items.

### **Shine/Seiso**

Seiso is sweeping or cleaning and inspecting the workplace, tools and machinery on a regular basis.

### **Goals:**

- Prevent deterioration.
- Keep the workplace safe and easy to work in.
- Keep the workplace clean and pleasing to work in.
- When in place, anyone not familiar to the environment must be able to detect any problems within 50 feet in 5 sec.

### **Implementation:**

- Clean the workplace and equipment on a daily basis, or at another appropriate (high frequency) cleaning interval.
- Inspect the workplace and equipment while cleaning.

### **Standardize (Seiketsu)**

Seiketsu is to standardize the processes used to sort, order and clean the workplace.

### **Goal:**

- Establish procedures and schedules to ensure the repetition of the first three 'S' practices.

### **Implementation:**

- Develop a work structure that will support the new practices and make it part of the daily routine.
- Ensure everyone knows their responsibilities of performing the sorting, organizing and cleaning.
- Use photos and visual controls to help keep everything as it should be.
- Review the status of 5S implementation regularly using audit checklists.

## Sustain/Self-discipline (Shitsuke)

Shitsuke or sustain the developed processes by self-discipline of the workers. Also translates as “do without being told”.

### Goal:

- Ensure that the 5S approach is followed.

### Implementation:

- Organize training sessions.
- Perform regular audits to ensure that all defined standards are being implemented and followed.
- Implement improvements whenever possible. Worker inputs can be very valuable for identifying improvements.
- When issues arise, identify their cause and implement the changes necessary to avoid recurrence.

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# Lean process to minimize wastages

**Warehouses** must work harder than ever to achieve overall efficiency and to control costs. An effective strategy is to adopt *lean manufacturing* principles.

Lean is characterized by waste reduction by more effective management, engaging all team members to find ways to increase efficiency and productivity, and finding ways to compress time frames.

Each operation will benefit from lean in unique ways, but here are four common ways lean can help decrease warehouse waste:

1. **Reduce waste caused by excess inventory and over-production.** In the lean manufacturing model, any inventory that isn't directly required to fulfill specific customer orders is a potential waste. Compare existing inventory with sales data before production to decrease the volume of excess inventory. Also reset production processes to manufacture only sufficient inventory to meet short-term sales goals. If possible, adjust production processes to manufacture product based on customer demand, rather than on maintaining excess inventory in the warehouse.
2. **Minimize labor expenditures related to unnecessary motion.** Reducing overproduction can help reduce labor costs by eliminating unnecessary movement of goods. If only sufficient quantities of product are manufactured to satisfy customer demand, then employees aren't needed to move excess in and out of inventory. Unnecessary labor costs can also be eliminated with effective project planning to ensure that equipment usage and usage times are accurately estimated. This decreases the time employees spend waiting for equipment.
3. **Decrease transportation-related waste.** There's no question that transportation is a key competitive differentiator. However, transportation processes can be a major source of waste. Reduce waste by routing deliveries via the most direct, most time-efficient route. Choose the modality that is most cost effective and reliable. This will help eliminate the need to rush orders



to compensate for poor planning. Transportation processes should be aligned closely with customer service and inventory strategies so the entire process runs smoothly and you meet customer expectations.

4. **Reduce over-processing waste.** Over-processing waste typically happens when extra work is required to rectify problems that would not have occurred if the proper processes had been in place. Following lean manufacturing principles, processes are analyzed and tracked individually, with considerable attention paid to determining whether they work properly in sequence. They are then refined to close gaps and eliminate unnecessary steps.

Although analyzing processes may seem like a job for engineers or executives, employees are often the best candidates to suggest ways to improve warehouse processes. They know first-hand what works, which tasks or steps in a process are wasteful, and often, how to make the process operate more smoothly and efficiently. Lean also empowers them to make a difference, which can motivate them to continue to keep their eyes open to ways the warehouse can operate more efficiently.

The solution to the problem of how to operate more efficiently and cut costs — especially in an era of fierce competition, faster fulfillment, and greater demand for customized products and service — may lie within your own processes. Use lean manufacturing principles to evaluate your operations, identify and eliminate waste, and continuously work to improve processes. The return will be a warehouse that contributes to the overall success of your company.