

# Proper waste disposal

[Environment](#), [Pollution](#)



First of all, I would like to thank my wonderful parents whose support has inspired me greatly in making a willful choice in doing my best.

I appreciate the skills that they have imparted to me to upon doing this research and their editing of my work has been of great help. Also, I would like to thank the library of Trinity College for being a good source of books which had aided me in writing the main body of this research. Very special thanks to my fellow classmates who have been readers to my research paper and who have pointed out my mistakes.

I would like to thank them for exchanging ideas with me and for helping me deal with the arduous publishing process of paper. I doubt that I won't be able to express my appreciation to them fully, but I owe them all my gratitude. I would also like to acknowledge my friends for being the ones who have motivated me to develop focus, as well as self-confidence. Without their support and understanding, I would not have accomplished this research paper.

Lastly, I must acknowledge my beloved teacher, Ms. Nancy Ramos, for being the greatest help I would ever need in this research. Without her skills and assistance in writing this, I won't be able to finish this research. And without her, this research wouldn't have been made possible.

## **Abstract**

Improper ways of disposing are common nowadays. Therefore, researches about proper waste disposal and waste management are of great interest. This study shows how the collection, transport, processing, recycling, and monitoring of waste materials can be as important as can be.

<https://assignbuster.com/proper-waste-disposal/>

Its immediate objective is to inform the readers, the community, and the society about how properly disposing of our waste materials can change lives. To come up with a research output, some books were used as a good source of materials and some people who worked for the government's waste management had been interviewed. Also, observation of wastes all around Metro Manila had been done for a good source of evidence of whether or not people dispose of their wastes properly.

As a result, the knowledge of waste disposal will be imparted not just to any special figure or anyone who works for the government management, but also to any citizen, may it be a student or a teacher, or a parent or a child, just like you. I, therefore, conclude that it is important and beneficial for everyone to know how to dispose their wastes properly to contribute to the improvement of our Mother Nature. Hopefully, this research may be of good use to better understand how our wastes affect our atmosphere greatly.

**Introduction** In the early pre-industrial times, wastes compose of ashes from fires, woods, bones, bodies, and vegetable wastes.

They are disposed of underground to serve as compost and contribute to the soil's improvement. But only small amounts of ash, broken tools, and pottery were excavated by the archeological digs. Everything was repaired and reused and populations were smaller before. The change from nomadic hunter-gatherer to farmer meant that wastes could no longer be left behind. Because waste could no longer be left behind, it had become a big issue. Reusing and recycling became an everyday routine since the industrial revolution, wherein materials became more available than labor. There was a

reuse system of bronze scrap operation 4000 years ago in Europe where they discovered that composting started in China.

Reusing and recycling is widely recognized in the form of salvage, the usual tradition until the Rag-and-Bone men. Conventionally, salvaged materials included leather, feathers, and textiles. Feeding vegetable wastes to farm animals is also considered as a form of recycling, and as well as using green wastes as fertilizers. Soon after, some activities for improvements were done such as the melting down and re-casting of gold, the salvaging of timber, etc. But as the populations in cities had increased, the space for disposal had decreased. And because of that, societies had developed waste disposal systems. Proper waste disposal reduces the impact of waste into the atmosphere by observing the proper methods of disposing of.

Because improper disposal of our wastes imposes cost on others, waste disposal has been a big political issue. Dirty disposal methods such as dumping are big problems nowadays. Though the easiest among any method, it creates health risks for the public. Waste disposal was not always observed and monitored properly; therefore, everyone must comply with the methods used in order to achieve environmental advantages. Achieving this awareness in proper waste disposal is important to lessen the waste we dispose of improperly.

## **Discussion**

Waste disposal is either disposing our wastes in the water, on land or anywhere. Waste is usually managed where it can prevent the releasing of pollutants in our environment.

Before disposing of our wastes, it is a must that they may be classified according to its physical, chemical, and biological characteristics. By classifying them according to consistency is the major way of classification; whether it is liquid waste, solid waste, or sludge. Liquid wastes must be less than 1% solid. On the other hand, solid wastes must contain less than 70% water. Sludge is another classification of waste materials; being somewhere in between a liquid and a solid. It must contain 3 and 25% solid and the rest is made up of water. Hazardous and Non-hazardous Wastes One must also know how to differentiate the waste between hazardous and non-hazardous.

Hazardous wastes are possible threats to public health and the environment. To certify that the waste is really hazardous, one must observe the following factors attributed by the waste material: ignitability, reactivity, corrosivity, and toxicity. It is said to be ignitable when a waste contains liquid with a flashpoint of less than 60o C or 140o F.

The waste is also ignitable if it is a solid that burns spontaneously, flammable compressed, an oxidizer, and a material with National Fire Protection Association (NFPA) or Hazardous Materials Identification System (HMIS) flammability hazard rating of 3 or 4. But if the material tends to be unstable at normal temperatures and pressures, it is a hazardous waste that is classified as a reactive.

Examples of this are explosives and cyanide or sulfuric bearing wastes. (“Waste Types” p. 1) A corrosive substance, on the other hand, is a substance that will permanently damage another substance or surface whenever it comes in contact with it. To people, it can cause damage to the eyes, the

skin, and tissues under the skin. Inhaling corrosive substances can also damage the respiratory gastrointestinal tracts. Lastly, hazardous wastes can be considered as toxic wastes. Toxic wastes are poisonous. They spread easily and can contaminate bodies of water. These wastes can pose a long-term risk to the public health and environment.

In disposing of hazardous wastes, bear in mind those we should recover and dispose of waste without endangering human health and harming our environment. If factors of hazardous materials were not determined, it must then be a non-hazardous waste. Non-hazardous wastes do not pose any threats to the public health and environment. They can be in the form of sewage wastes, cesspool wastes, food industry wastes, vehicle wash, drain cleanings, etc.

**Solid and Liquid Wastes** When disposing of liquid wastes, there are certain ways in order to prevent pollutants to the storm drain systems. These include the Erosion Control, Sediment Control, Tracking Control, Wind Erosion Control, Non-stormwater Management Control, and lastly, the Waste Management and Materials Pollution Control. Practicing effective erosion control can help in the prevention of water pollution and soil pollution.

Sediment control is designed to keep eroded soil in a construction site, so as to not let any nearby bodies of water to wash it off. This is done to reduce water pollution. Lastly, wind erosion is the control wherein water or any dust palliatives is applied to lessen dust created by construction sites. (“ Liquid Waste Management” pp. 1-4) Landfills However, when solid wastes are being disposed, they are usually thrown in landfills. Pavoni, Heer Jr. & Hagerty

(1975) defines landfills as: Landfilling of solid wastes is a method of waste disposal which has been practiced since very early times.

As a general rule, it is still one of the most economical waste disposal techniques in current use. It is often referred to as the only final solid waste disposal method since, unlike incineration or composting, it is not a processing operation which yields a residue or end product which requires disposal. The wastes deposited in a sanitary landfill are considered to be ultimately ‘ eliminated’; the landfill is their ultimate destination.

Because of this, landfilling of solid waste material is in some ways a very undesirable procedure; many potentially useful materials which could be recycled are buried in the earth and lost. Disposing of waste materials in landfills is commonly done by waste management. This involves the burying of wastes in abandoned places such as quarries, mining voids, and borrow pits. It is a must for landfills to be properly arranged in order to prevent the scattering of garbage everywhere, the growing of undesired vermin, and as well as the multiplication of the growth of liquid leachate.

And even though we get certain benefits from the usage of landfills and though it had been a helpful place for waste burial, it was proven that landfills may contaminate drinking water. Also, the byproduct of landfills is gas. And these organic wastes break down anaerobically. The produced gas may develop foul odors, may kill a high percentage of vegetations and crops, and lastly, the most trivial of all, it may be a greenhouse gas. (“ Landfill” p. 2)

## **Greenhouse Effect**

Greenhouse gases are gases that happen to be the reason of the so-called greenhouse effect. Greenhouse gases generally clouds the earth and keep it about 33 degrees Celsius warmer than it would be without these gases present in the earth.

They are generally known as warmers of our world. There are many compounds in the earth that act as greenhouse gases. These gases allow sunlight (relative shortwave energy) to reach the earth's surface without hindrance. As this energy produced heats the surface, longer wave energy is reradiated to the atmosphere. (" Greenhouse Effect" p. 1) The greenhouse effect usually occurs brought by greenhouse gases such as carbon dioxide, methane, water vapor, and nitrous oxide. But some gases are man-made which includes the chlorofluorocarbon (CFC), hydrofluorocarbon (HFC), perfluorocarbon (PFC), and the sulfur hexafluoride (SF6).

Concentrations of these gases had risen due to different activities done by man. As the population of human and the reliance upon fossil fuels had increased, the release of these gases had also increased. Though carbon dioxide reacts naturally with the atmosphere, but because of the obstruction of man in the carbon cycle by burning, mining, etc, we move carbon from solid to its gaseous state, leaving the earth with atmospheric concentrations. (" Greenhouse Effect" p. 1) The production of carbon dioxide is achieved from the terrestrial biosphere. But as mentioned, human activities had intervened in the natural cycle of carbon production through the burning of coal, oil,



natural gas, and wood. Carbon dioxide is the first greenhouse gas which had increased in atmospheric concentration.

Earlier industrial revolution concentrations were steady and stable at 280ppm. But nowadays, there are at around 380ppm, increased by 30%. Atmospheric concentration has fluctuated due to the extent of landmass and vegetation from the northern hemisphere. A great drawdown of carbon dioxide happens in the spring and summer season in the northern hemisphere as plants convert carbon dioxide. Then, it would again be released during the fall and winter when plants undergo decomposition. (“Greenhouse Effect” p. 2) Incineration But aside from disposing our waste materials through landfills, incineration is also commonly used.

Pavoni, et al. , (1975) states that: Incineration is a controlled combustion process for reducing solid, liquid, or gaseous combustible wastes primarily to carbon dioxide, other gases, and a relatively noncombustible residue. The residue is usually deposited in an accompanying landfill (generally located in a distant spot) after recovery of any valuable materials. The carbon dioxide and other gases generated through the combustion process are released to the atmosphere. Incineration is known to be the second oldest form of waste disposal. And until the present time, it is still practiced. Certainly, the discovery of fire had brought to men different kinds of advantages.

From the advantages, the fire obtained led to primal incineration as a disposal practice. Until the present time, men relied greatly upon waste fire. Most of them ignored the consequences of burning wastes. But, established communities can no longer ignore this open burning because rather

significant production of air pollutants is related to uncontrolled burning. (“Incineration” p. 2) For several years, incineration of wastes consisted of open burning in pits. The use of fire wagon was once an innovation during the early industrial times.

The wagon was pulled by a horse through medieval towns so people in the cities can just toss their wastes in it through upper story windows onto this moving bonfire. People’s interest on this brilliant innovation grew. And so, in the late 1950s, a proposal of enclosed mobile incinerator was approved. The incinerator was to be used for the reduction of domestic and demolition wastes in a number of districts. Two American engineers, Hering and Greely, have explained the historical developments of incinerators. (Pavoni, et al. p. 59)

Certain arguments about the usage of incinerators had been done, although it does contribute to the reducing of wastes. It had been a controversial method of waste disposal due to certain issues such as gaseous pollutants, etc. Incineration is very common in some countries like Japan, wherein their lands are very scarce. Because of that, they need not too much area of landfills. Waste-to-energy (WtE) or Energy-from-waste (EfW) are widely used terms for facilities that burn wastes in furnace to make, produce, or generate heat, steam, and/or electricity. Combustions in incinerators are not always perfect and highly recommended because there had been concerns about micro-pollutants in gaseous emissions from incinerator stacks. But aside from the facts argued about, this method produces heat that can be used as energy.(Pavoni, et al. . 162)

## **Innovations in Disposal**

Although traditional methods of disposal are used (composting, sanitary landfills, and incineration), they are not fully practiced without following the three R's, also known as the Reduce, Reuse, and Recycle method.

Inadequate markets for compost have practically stopped composting as a feasible disposal technique. Also, the volume reduction provided by incineration necessitates the need of a larger landfill for residue disposal.

The sanitary landfill method is also weighed down by an increasing scarcity of adequate land areas. (“ Innovations in Disposal” p. 224)

Accordingly, there is a need for an upgrade in such methods or other innovations to develop proper waste disposal. Innovative disposal methods are as follows: aside from the widely known three Rs method, proposals have included both new methods of disposal; medium-temperature and high-temperature incineration. According to Pavoni, et al. (1975), “ A new development in incineration, the so-called ‘ high-temperature incineration’ process, consists of combustion and fusion of wastes at temperatures between 3000 and 3300o F, which is 1200 to 1500 o F higher than combustion temperatures in conventional incinerators.

However, medium temperature incineration will most likely to be available. Older community solid waste incinerators are medium temperature incinerators and the use of these facilities is encouraged as a short-term measure, rather than less safe options, such as inadequate discharge to a landfill. Waste Management Hierarchy Waste hierarchy refers to the widely

known Reduce, Reuse, and Recycle method, which classify waste management according to their appeal in terms of minimizing our wastes.

The aim of waste hierarchy is to encourage citizens to generate a minimum amount of waste. Extended producer responsibility (EPR) is the strategy made to support the addition of all costs associated with products throughout the life cycle into market prices. This simply means that manufacturers are required to be responsible and hold account for their products. (“ Waste Managing Concepts” p. 6) Lastly, the Polluter pays principle states that any pollutant party shall pay for the impact damage caused to the environment. With regard to waste management, they are required to pay for the appropriate disposal of waste. (“ Waste Managing Concepts” p. 6)

### **Conclusion**

The best way of disposing our wastes properly may vary in different techniques, may even cause pollution, and may even recover materials and energy. Preferably, the so-called Incineration method is the best way for hazardous wastes, organic wastes, and combustible miscellaneous wastes. By doing so, ashes can be used as nutrients, too. Not only can we dispose through the use of incineration, but we can also classify our wastes by their kinds: biodegradable and non-biodegradable. Recyclables should be reused intact if possible, processed on board if that is cost-effective, or compacted and shipped to recycling plants on land otherwise. Also, recycling has many advantages in our environment. It uses less energy while causing less pollution and it reduces the waste disposed in landfills.

In the 18th century, the disposal of waste wasn't always monitored. However, since then, our trash has become more complicated. We have many different types of wastes and it is a must that they may be disposed properly to prevent contaminating our environment. Nowadays, our natural sources have become scarcer and scarcer. That is why, putting the three R's into action is the most efficient and forward-thinking approach to waste. And so, one must learn the proper ways of disposing of and pass it on from generations to generations.