

Classification of solid wastes

There are several different ways of classifying solid waste. As you have seen, one way is to classify it by where it is generated. Another way is based on whether the waste is biodegradable or not.

Biodegradable solid wastes are those that can be broken down (decomposed) into their constituent elements by bacteria and other micro-organisms. Food waste, manures and waste from producing crops are the main biodegradable wastes. If the decomposition process takes place in the absence of air (anaerobically), methane gas can form. **Methane** is a powerful greenhouse gas and can explode if enough of it accumulates and an ignition source (such as an electrical spark) is present. The decomposition may also produce offensive and irritating smells.

However, controlled anaerobic decomposition can produce biogas – a useful fuel for heating, cooking and even power generation that you learned about in Study Session 5– as well as fertilisers and soil conditioners. Waste that decomposes in the presence of an adequate air supply (aerobically) under controlled conditions can produce compost, which can be used to improve the quality of soils.

Non-biodegradable (also sometimes called inorganic) solid wastes are those that do not decompose by microbial action. These wastes include plastic containers, scrap metal, food and drink cans and plastic bags.

Materials in solid wastes can also be classified as **combustible** or **non-combustible**, depending on whether they will burn or not.

Depending on the inherent dangers associated with its physical and chemical properties, solid waste can be classified as either hazardous or non-hazardous. **Hazardous wastes** pose substantial or potential threats to public health or the environment. For example, toxic, infectious and corrosive (acidic or alkaline) substances are all likely to be classed as hazardous. **Non-hazardous wastes** are those that do not possess hazardous characteristics, although they can still be harmful to people or the environment.

Various Sources of Solid Waste

Everyday, tonnes of solid waste is disposed off at various landfill sites. This waste comes from homes, offices, industries and various other agricultural related activities. These **landfill sites produce foul smell** if waste is not stored and treated properly. It can **pollute the surrounding air** and can seriously affect the health of humans, wildlife and our environment. The following are major sources of solid waste:

Residential

Residences and homes where people live are some of the major sources of solid waste. Garbage from these places include food wastes, plastics, paper, glass, leather, cardboard, metals, yard wastes, ashes and special wastes like bulky household items like electronics, tires, batteries, old mattresses and used oil. Most homes have garbage bins where they can throw away their solid wastes in and later the bin is emptied by a garbage collecting firm or person for treatment.

Industrial

Industries are known to be one of the biggest contributors of solid waste. They include light and heavy manufacturing industries, construction sites, fabrication plants, canning plants, power and chemical plants. These industries produce solid waste in form of housekeeping wastes, food wastes, packaging wastes, ashes, construction and demolition materials, special wastes, [medical wastes](#) as well as other hazardous wastes.

Commercial

Commercial facilities and buildings are yet another source of solid waste today. Commercial buildings and facilities in this case refer to hotels, markets, restaurants, go downs, stores and office buildings. Some of the solid wastes generated from these places include plastics, food wastes, metals, paper, glass, wood, cardboard materials, special wastes and other hazardous wastes.

Institutional

The institutional centers like schools, colleges, prisons, military barracks and other government centers also produce solid waste. Some of the common solid wastes obtained from these places include glass, rubber waste, plastics, food wastes, wood, paper, metals, cardboard materials, electronics as well as [various hazardous wastes](#).

Construction and Demolition Areas

Construction sites and demolition sites also contribute to the solid waste problem. Construction sites include new construction sites for buildings and roads, road repair sites, building renovation sites and

building demolition sites. Some of the solid wastes produced in these places include steel materials, concrete, wood, plastics, rubber, copper wires, dirt and glass.

Municipal services

The urban centers also contribute immensely to the solid waste crisis in most countries today. Some of the solid waste brought about by the municipal services include, street cleaning, wastes from parks and beaches, wastewater treatment plants, landscaping wastes and wastes from recreational areas including sludge.

Treatment Plants and Sites

Heavy and light manufacturing plants also produce solid waste. They include refineries, power plants, processing plants, mineral extraction plants and chemicals plants. Among the wastes produced by these plants include, industrial process wastes, unwanted specification products, plastics, metal parts just to mention but a few.

Agriculture

Crop farms, orchards, dairies, vineyards and feedlots are also sources of solid wastes. Among the wastes they produce include agricultural wastes, spoiled food, pesticide containers and other hazardous materials.

Biomedical

This refers to hospitals and biomedical equipment and chemical manufacturing firms. In hospitals there are different types of solid wastes produced. Some of these solid wastes include syringes, bandages, used gloves, drugs, paper, plastics, [food wastes](#) and chemicals. All these require proper disposal or else they will cause a huge [problem to the environment](#) and the people in these facilities.