

Landfills – do we really know what they are?

JO-ANNE NINA SEWLAL

Dept of Life Sciences, University of the West Indies



WHATEVER name you call it; landfill, dump or midden (historical term), the burial of waste is the oldest and most commonly used technique when it comes to waste treatment.

Not all the garbage at landfills will be buried. Some landfill sites are used as temporary storage for waste which has to be sorted and recycled. Recently I spoke about recycling one of the advantages was to lessen the amount of waste that ends up in our landfills. But what is a landfill and if its function is to contain waste why lessen the amount placed there? I would like to take the opportunity to dispel some myths about landfills and explain what is involved in setting one up and how it functions.

The primary myth about landfills is the confusion with dumps. Basically a dump or midden is a hole in the ground where waste is deposited and buried. However, a landfill a structure built either

above or into the ground so that the waste is isolated from the air, rain and groundwater.

Although they all involve the same technique when it comes to waste disposal, there is a difference between a dump and a landfill. So while a dump acts like a huge compost heap, the waste in a landfill will break down but it will take a very long time because of this isolation from the environment.

To emphasise this point, when very old landfills have been excavated, the print on 40 year old newspaper can still be easily read.

This definition does not mean that a landfill is a concrete container that can be made anywhere to be filled with garbage.

Certain considerations must be taken into account before a landfill can be set up. The first being sufficient space, and a landfill needs a lot of space, for example, the North Wake County Landfill in Raleigh, North Carolina where out of about 93 hectares set aside for the site only about 28 hectares make up the actual landfill. Most of the area goes towards support areas, such as, ponds to collect surface run-off from the rain and

water containing dissolved chemicals from the waste that can leach through the soil (leachate).

The composition of the underlying rock must also be examined with those of a watertight nature deemed as optimal as they would prevent leakage of the chemicals that leach through the soil from entering the groundwater.

The topography of the land is also considered as one does not want water draining from the landfill into nearby neighbourhoods. Of course factors such as the impact it would have on the biodiversity of the area, presence of historical artefacts in the area and most importantly is there enough money usually from taxes to construct, maintain and operate the landfill.

The physical structure of a landfill can be thought of as digging a depression shaped as a bathtub into the ground and filling it with waste. The space between the landfill base should be lined against contact with the groundwater by using a layer of clay, plastic or both. When waste is dumped into it, these liners are used again to cover it to prevent water from entering which pro-

notes the build up of leachate.

Everyday the garbage placed in the landfill is compacted to save space and covered with approximately 15 cm of compacted soil, forming what is referred to as a cell.

However, there has been experimentation with using tarps or spraying a thin layer of cement or paper emulsions to conserve the space between cells.

When the bathtub structure is completely filled, it is permanently capped off with polyethylene and covered with a layer of compacted soil and grass planted to prevent erosion of the soil.

Trees and shrubs are not planted as their roots may break the cap and cause leakage of the leachate. These former landfills have been reused or recycled so to say in the form of parks, golf courses and even as sites for office buildings.

Also, certain harmful materials from the landfill have been harnessed for good, such as methane gas, which is one of the contributing factors of global warming which is extracted and used for fuel.

By now we will have realised

that what we call landfills in Trinidad and Tobago are just dumps, although the garbage is compacted and buried, there is no barrier between the garbage and the soil and therefore nothing preventing chemicals from leaching through and reaching the groundwater.

This is the case for the "landfill" at Studley Park on the south side of Tobago, whose problems include no sorting of waste, lack of collection and venting of harmful methane gas.

However, the greatest problem is that it is reaching its capacity of waste it can contain.

Bearing in mind that we do live on small islands making the space allotted to areas designated for waste disposal limited, lining the base of the landfills and having a venting system will prevent harmful chemicals from entering our water and air.

An effort should be made towards properly disposing of our waste by the public and government for the safety of our citizens and neighbours. So please the next time you throw something away, think where it will end up because it will affect you.