

Solid waste disposal

Household waste

Although household refuse does not usually contain such large amounts of germs as excreta, it can cause a risk to public health by attracting flies, mosquitoes and rats, and allowing them to breed. This may encourage the spread of diarrhoeal diseases, as well as diseases like dengue fever, yellow fever, bancroftian filariasis and bubonic plague.

In some countries, used anal cleaning material and children's faeces are thrown away with other household rubbish. This represents a significant risk to public health.

It is better to throw the used paper and other cleaning material into the latrine or flush toilet, than to store it in the house where it is a serious health risk.

When refuse is stored in the home, even for only a few hours, it can attract flies and rats. Refuse must always be stored in a container with a tight fitting lid. The container should be emptied regularly and not allowed to overflow. When the refuse container is emptied, it should be washed with soap and water or cleaned with dry earth or sand.

In cities or large towns, the municipal authorities may provide a refuse collection service which takes household refuse away. In this situation, it is important that all households served have suitable containers for refuse to be stored in whilst awaiting collection. Public cooperation with organized refuse collection will require a considerable effort by community workers. It is important that households served understand fully the conditions of service, particularly when they are asked to use different bins for different wastes.

Where a refuse collection service is not provided, refuse should be divided into four groups which are disposed of separately :

- Vegetable wastes, such as fruit and vegetable peelings and leftovers. These can be composted with straw and grass to give a fertilizer for crops, fed to pigs or put in a biogas digester.
- Tins, glass bottles, and plastic bags and containers. Unless these can be washed and reused, they can cause problems because they do not break down very quickly, and also can hold water where mosquitoes and other insects can breed. These materials should be buried in a pit with a cover.

- Newspapers, magazines and other clean paper (for example letters and used drawing paper). These can usually be recycled or reused for lighting fires, where appropriate. If they must be thrown away, they can be put in the pit with tins, bottles and plastic.
- Batteries, old medicines, used motor oil and other dangerous waste, such as dirty kerosene and fuel. These wastes are dangerous to human health and must not get into groundwater or be dumped in rivers or streams. They must be disposed of in a pit which is covered and well away from any water sources. It is important that children and animals are not allowed near this waste.

Refuse pits

Waste which cannot be recycled for other uses should be buried in a pit. Make sure that the pit is well above the groundwater level even in the rainy season, otherwise chemicals or other hazardous waste may contaminate the water supply.

A refuse pit should be located :

- The minimum safe distance from sources of drinking water. This is site specific and should be determined for each water source based on local hydrological and hydrogeological conditions.
- At least 20 metres from the kitchen or food preparation area.
- Not above any drainage pipe which discharges into surface water or a drainfield.
- Well above the highest groundwater level likely in the wet season. Where hazardous waste is being disposed of, the refuse pit should be situated on impervious rock or clay, or the pit should have a sealed base to prevent contamination of groundwater.

Care must be taken to cover all waste put into a refuse pit with a lid or soil. It is important that children are not allowed access to refuse pits, as they will be exposed to a major health risk. Animals should also be kept away from refuse disposal pits, as they may ingest hazardous waste which may be passed on to humans if the animals are eaten.

The life of the pit can be increased by compacting the refuse down using a heavy metal or wooden pole.

Sanitary landfill

For large amounts of refuse, the sanitary landfill method is simple, and prevents flies and rats getting to the refuse. The refuse is spread out and compacted to a layer of not more than 0.6 metres thick. At the end of each day, the compacted layer of refuse is covered with 0.3 metres of earth and compacted to stop flies and rats getting at the refuse. Layers of refuse can be added up to a total depth of 2.4 metres and then finally covered with 0.6 metres of earth. A bulldozer or tractor is often used to manage sanitary landfill sites, but the work can be done by hand on small landfill sites.

Landfill sites must never be close to rivers, streams or any other source of water, as materials from the site can contaminate water supplies. Landfill sites should be situated on impervious rock or clay to stop any contamination reaching groundwater. Surface runoff from adjacent areas should be diverted to reduce the amount of water draining through the landfill.

Incineration

Where there is a need to dispose of contaminated dry wastes and to kill harmful germs on syringes and needles, used drips, soiled bedding or clothing from health centres or hospitals, an incinerator may be the best option. During outbreaks of contagious diseases it is important that all health centres and hospitals dispose of contaminated dry wastes immediately by incineration. In these situations, contaminated wastes must not be stored or disposed of in pits as they are highly dangerous.

The best type is a commercial incinerator which reaches a high temperature and ensures that all waste is destroyed without producing contaminated smoke. In emergencies and inaccessible regions, a makeshift incinerator can be made using local materials. This should only be used as a temporary measure, however ; a more permanent solution should be sought.