# Urban Waste & its disposal

| What you need to know |
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| How waste is generated in an urban area |
| How lifestyle and attitudes within cities can affect the amount and type of waste being disposed of |
| How the different approaches to waste management affect the environment |

## Introduction

Waste is unwanted material disposed of into the environment. In urban areas, waste is an issue as there is a limited amount of space in which to dispose of waste so it can become an environmental problem. The growing population in urban areas also emphasises the problem as there is a demand for more consumer goods and limited available space within the city to sustainably deal with the resultant waste.
***The World Bank has estimated that by 2100 the growing global urban population will be producing three times as much waste as it does today.***

## How waste is generated

Waste is generated from many sources:

*Residential waste*

In both developed and developing world cities, large volumes of waste are created daily. This mainly consists of food waste, plastics, cardboard and paper. In the developed world this is becoming a bigger issue as the growth of a consumer society leads to the purchase and, therefore, disposal of more goods. In the developing world this is also an issue, but less so as people often live less 'disposable' lifestyles. Often in slum or unofficial settlements without adequate sanitation or waste disposal units this can become a large health issue for the residents, as well as environmental one.

*Industrial waste*

Industrial waste is defined as waste generated by manufacturing or industrial processes. Industrial waste can include dust and gravel, masonry and concrete, scrap metals, oil, solvents, chemicals, wood and scrap lumber, and similar wastes. Industrial solid waste, which may be physically solid, or liquid or gases held in containers, can be hazardous. Hazardous waste such as cleaning fluids, paints, chemicals or pesticides are sometimes released straight into water courses or left illegally on waste ground.

*E-waste:*

This is discarded electrical waste. The rise of the 'throw-away' society and the pace of technological innovation means consumer items such as computers, screens, printers, mobile phones, computer gaming machines etc. are disposed of after a few years as new developments make them outdated and/or unfashionable. Much of the developed

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world's e-waste is exported to the developing world on returning container ships where the lowest-paid workers extract valuable metals to earn a living. Electronic scrap components, such as CPUs, contain potentially harmful components. Recycling and extraction of valuable commodities from e-waste may involve significant health risk to workers and communities in developing countries but is carried out as a form of **unregulated recycling.** Whatever remains after that of value is extracted, ends up in landfill.

## Lifestyles and attitudes and their impact upon waste

Waste is an issue in both developed and developing world urban areas. The type of waste is the main difference. In the developed world where many people are wealthy, people produce large volumes of consumer waste, notably packaging from goods, food waste, domestic and e-waste. The disposal sites of this waste are then usually outside the urban area, but the economics of waste disposal means sites close to urban areas are required to minimise transport costs. Disposal may be to a different country where an economic value can be extracted from the waste.

In developing world cities, for many of the population, waste is not regarded as an environmental problem but as a potential resource. In squatter settlements for example, where waste is left on the street and people live their lives surrounded by this waste, the economic potential of waste is greater than concern for the environmental and health implications that it holds.

## Approaches to waste management

### *Unregulated disposal*

Unregulated waste disposal is an issue in many cities across the world. In developing world cites where environmental laws and policing of the law is less structured, many large organisations will release liquid and sold waste into local water courses. Lack of an enforcement agency (or some would say 'political will') by the government means that this happens regularly and the impact on the environment is a problem. Large areas of land become contaminated and then this can lead to ill-health for local people. Water quality is equally poor due to the waste being released into it. This can be a lethal transfer of poisons and bacteria-rich infections and can cause diseases that impact on life expectancy.

In the developed world, illegal dumping from industrial sources in cities is still an issue but not to the same extent as in the developing world due to the better regulated and enforced environmental laws. Most companies dispose of their waste in the appropriate way, not only to avoid heavy fines but to maintain a high perception of environmental stewardship with their customers.

Fly-tipping is illegal, bad for the environment and could be a health hazard if it involves asbestos waste. It is more often carried out by irresponsible self-employed small-scale businesses involving household and industrial waste.

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Fun?! Fact:

*Around Naples, Italy, it is suspected that much waste-disposal has been organised by notorious Mafia that make high charges to city businesses for waste disposal, which is then illegally dumped.*

***Recycling***

In the developed world cities there has been an increase in the amount and range of materials that are being recycled rather than being sent to landfill.
Materials such as paper, cardboard, plastics, aluminium, and food waste are regularly recycled. This has a positive environmental effect due to the reduced landfill space required and also reduces the need to exploit additional natural resources.

In the developing world, unregulated recycling takes place. Working on city waste tips has become a key element of the informal tertiary sector and some city authorities have gone as far as to establish schemes whereby those who recycle are paid, both in money and food for recycling. The level of recycling however could be higher across all cities and the next step is to incentivise recycling or penalise irresponsible waste disposal to increase the rate of recycling further.

***Recovery***

In developed world cities in particular, recovery takes place. This is where instead of disposing of waste, the original material is reused for another purpose. *An example of this is where a business creates more crushed concrete than it can use in its construction activities, and a nearby farmer needs to adapt his/her farm*.

***Incineration***

Incineration is a waste treatment process that involves the combustion of organic substances contained in waste materials. Incineration is described as **"thermal treatment".** Incineration of waste materials converts the waste into ash, gas, and heat. The ash may be in the form of solid lumps or particulates carried by the flue gas. The flue gases must be cleaned of gaseous and particulate pollutants before they are dispersed into the atmosphere. Some of these particulates are toxic so it's important that the waste disposal process after incineration is equally well organised to avoid secondary environmental and health impacts. In some cases, the heat generated by incineration can be used to generate electric power and this can be a positive impact as it reduces the need for fossil fuel powered stations.

***Burial (Landfill)***

This is the most common waste management strategy. Disposing of waste has huge environmental impacts and can cause serious problems. Most waste is buried in existing landfill sites – holes in the ground, sometimes old quarries, sometimes disused

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mines. Some waste will eventually decompose, but not all, and in the process it may smell or generate methane gas, which is explosive and contributes to the greenhouse effect. Surrounding land may be contaminated by chemicals and toxins emerging from the waste. Badly managed landfill sites may attract vermin, too, which causes problems for local health.

Many landfill sites, particularly in the developed world, now recognize that the decomposition of organic waste leads to the release of methane gas, which is now more likely to be collected and used as an energy source.

***Submergence***

This is where waste is placed into water to dispose of it. Obvious environmental issues may occur relating to an increase in toxins in water which can impact on habitats. Some isolated waste which can be containerised prior to submergence can be more effective, but there are concerns over corrosion of the containers which could have long term effects.

***Trade***

***Shamefully, this strategy happens more than is realised when disposing of developed world waste…***

This waste is a commercial transaction that is sent to the developing world where it will be sorted and disposed of by poor residents. Some of the waste will go into landfill and have the impact on the land and air pollution as mentioned earlier. Large volumes of e-waste form significant parts of this trade and this is damaging to human health and local air quality will decline.

*There is a concern that disposal companies don't enquire too closely into what happens to the waste once it leaves the shores of the waste-generating country and as long as they have been told it will be disposed of 'responsibly', don't check up too closely to see if it actually is.*

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