

Waste Management

The nature of Waste Management

Should we dump human waste in rivers and the ocean? This is certainly the cheapest option. However, as with other geographical issues, people have different opinions about the best way to deal with waste management.

Waste management involves both land and water pollution. Waste management on land is not only concerned with the disposal of household garbage. It is also concerned with the illegal dumping of rubbish and chemical waste as well as littering. The greatest littering problem is cigarette butts. Cigarette butts make up 50% of litter waste in NSW. Other forms of litter include fast food wrappers, drink containers, advertising material, and automated teller machine (ATM) receipts.

Waste management of water pollution is mainly concerned with sewage treatment and **stormwater** pollution. Sydney Water is responsible for the treatment of sewage in the Sydney metropolitan area. Almost 90% of Sydney's sewage is treated to the tertiary level (solids removed, removal of dissolved solids and water disinfected) before it is discharged into the ocean. More worrying is the discharge of about 0.5% of untreated sewage into the ocean. This is because the treatment plants are unable to handle heavy storms. Recycled water is now used in many new **subdivisions**. Treatment plants take the water beyond the tertiary level so that it can be hygienically reused in **agricultural** and residential uses such as the gardens of homes.

Stormwater: rain water and any other water that runs down through the drain system into rivers, lakes or the ocean.

Subdivision: a new area of land that is divided up into house blocks for new houses to be built.

Agricultural: farming that includes livestock like cattle or crops like wheat.

The impact of Waste Management

The impact of waste management is considerable. Australia is very much a consumer society and as the population grows, so, too, does the impact of waste. While individuals, groups and all levels of government have made great strides in reusing and recycling waste, it is not enough because it is not keeping up with the increase in waste generation. From 2002 to 2006, waste generation increased by 31%. It is currently almost 45 million tonnes. Resource recovery from waste (things like compost and recycled garden material) increased over the same period to 23 million tonnes. The difference goes to landfill.

The most significant impact is on landfill. The nature of waste in landfill has changed. In the past a large proportion of landfill waste was material that was not being recycled as resources such as compost. Now the landfill waste is more complex, with such things as computer screens and electronic components. We are fast running out of suitable sites for landfill, especially in cities and large regional centres.

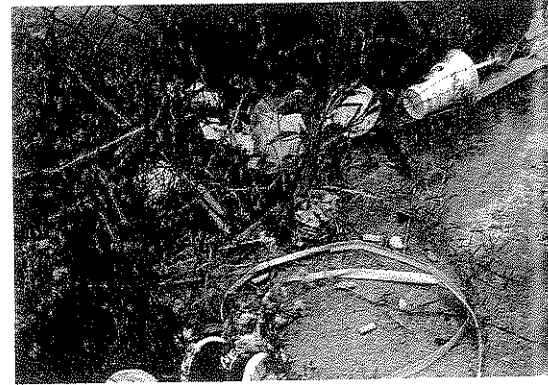


Fig 1.16 Cigarette butts are the most common type of litter.

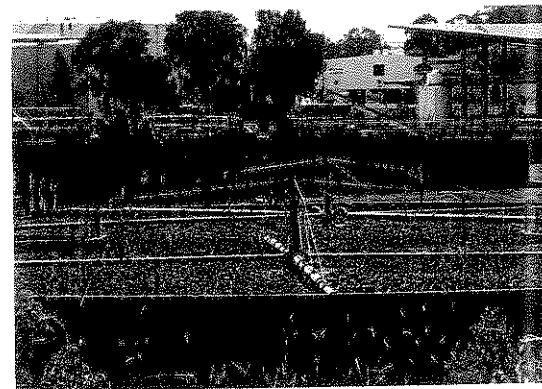


Fig 1.17 Sewage Treatment Plant.



Fig 1.18 Different garbage bins encourage people to recycle to reduce waste.

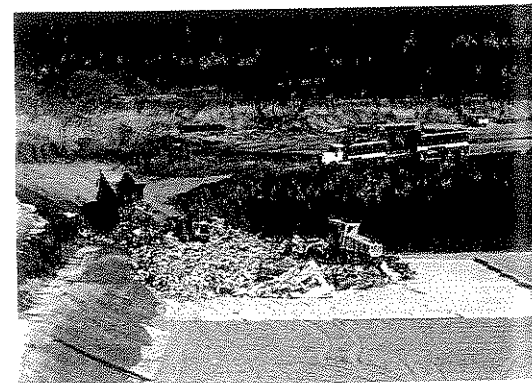


Fig 1.19 Elizabeth Drive Landfill.
Photo courtesy of SITA Environmental Solutions.



WEB

Visit the following website to construct a step-by-step guide for the process of sewage treatment.
http://encyclopedia.kids.net.au/page/se/Sewage_treatment.



ACTIVITY

Develop a campaign to encourage recycling in school. Interview students using a video camera on what they think they can do as individuals to make a difference. Present your information in the school's newsletter or as a presentation at your school assembly.

Littering is a huge problem in both urban and rural areas for several reasons. Litter can cause harm to aquatic wildlife. It blocks drains and contributes to flooding. It is a huge expense to the community in clean-up costs and can even contribute to bush fires when cigarette butts are thrown from cars, or through the reflection of broken glass.

Eutrophication has a significant impact on many rural and, sometimes, coastal waterways. **Eutrophication** is a process where an excess of nutrients, particularly nitrogen and phosphorus, flows into waterways. It often leads to outbreaks of **algal bloom**.

The impact of stormwater runoff is also significant. After heavy rainfall the litter is washed down the drains and carried directly into our rivers and ocean.

Algal bloom: the rapid, excessive growth of algae (tiny plant-like organisms) in a water system, like a river or lake, that cover the surface like a carpet and prevent sunlight and oxygen from getting into the water.

The responses by individuals, groups and governments to the issue of Waste Management

As with most issues **individuals** respond differently. Many individuals accept a high degree of responsibility for their actions and take measures on a daily basis to reduce their own impact on waste. Many individuals believe that it is important to reduce, reuse and recycle in order to minimise the amount of waste generated.

Others believe that the cost of effective waste management is too high. It is possible to reduce litter significantly by legislating for compulsory refundable deposits on all drink containers. For example, South Australia has reduced container litter, such as milk cartons and drink cans, by making it compulsory to pay a ten-cent deposit on the container. Children and charities collect the cartons to get the deposit. Would you pay ten cents more for a drink to reduce waste?

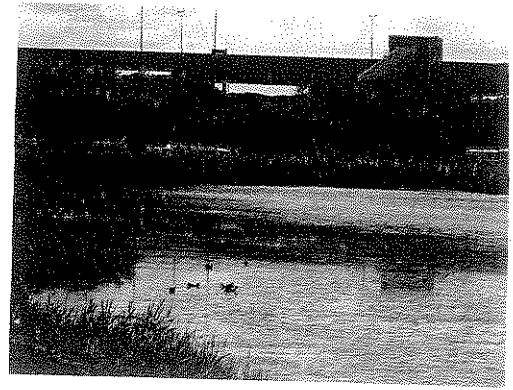


Fig 1.20 Weed growth from excess nutrients.



Fig 1.21 Stormwater drain with a litter trap.

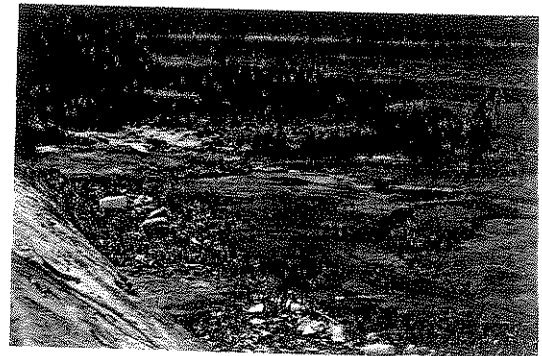


Fig 1.22 Litter found in a waterway at low tide.



Fig 1.23 10c refund for plastic bottles in South Australia.

Some people have formed **groups** because group action is often more effective than individual action. Groups such as Total Catchment Management Projects and the Clean Up Australia Day program are actively involved in educating the community on how to manage waste more effectively.

All the levels of government have responded to the waste management issue. **Local councils** provide a direct response to waste management. Local councils are responsible for the collection of waste from households and businesses. Increasingly, councils are moving away from the management practice of dumping the lot at a landfill site. Recycling is increasingly the preferred response. Indeed, many councils now earn significant income from recycling activities such as composting waste and selling the compost.

The state level of government, the **NSW Government**, aims to improve waste management by reducing the total amount of waste and more effectively recycling the waste. The highest priority for government action in waste avoidance is to reduce the overall amount of materials used, and to recover more resources, such as compost, more effectively. It is also important to find more sustainable ways of disposing waste that cannot be reused. The NSW Government is concerned that the current Sydney landfill sites – Eastern Creek, Lucas Heights, Belrose and Jacks Gully – are expected to reach their capacity by 2016.

The NSW Government uses a variety of methods to educate the public on the impact of waste both on land and in the waterways. The NSW Government has developed school programs, television advertising, pamphlets and posters. It has also legislated that all new sub-developments be supplied with recycled water to minimise the amount of treated effluent (sewage) entering our rivers.

The federal level of government, the **Australian Government**, has responded to waste management by developing a National Waste Management Policy. The National Waste Management Policy is concerned with things such as creating less waste and improving the use of waste. The national policy is also concerned with developing accurate data about national waste and resource recovery so that the community can be properly informed.



Fig 1.24 Clean Up Australia Day bags of rubbish.

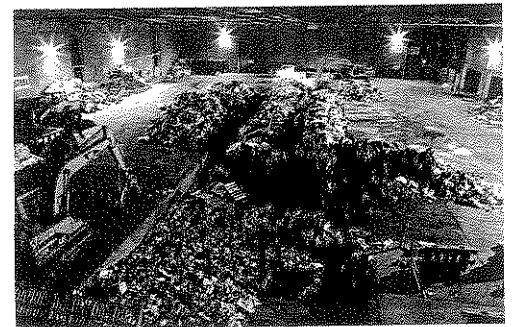


Fig 1.25 Wetherill Park Resource Recovery Facility. Photo courtesy of SITA Environmental Solutions.

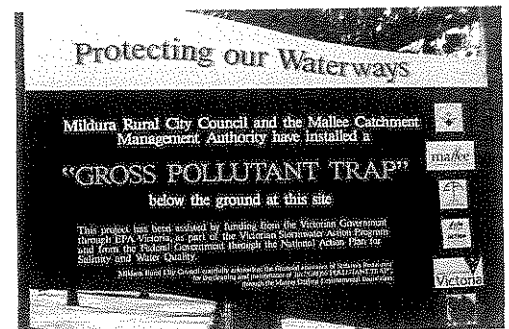


Fig 1.26 Gross Pollutant Trap used to collect litter before it enters the waterways.

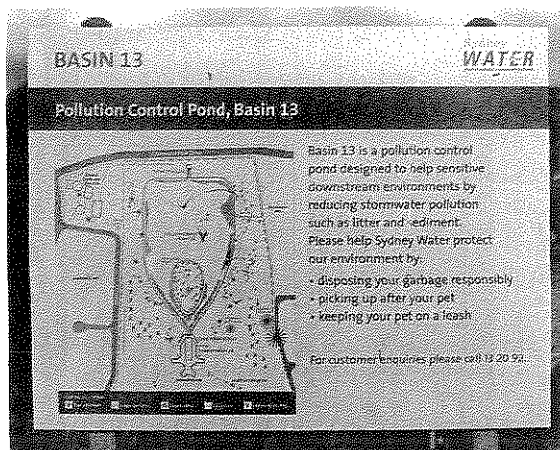


Fig 1.27 Pollution control pond in a new housing estate.

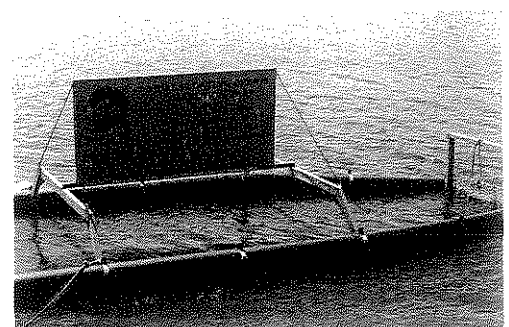


Fig 1.28 Pollution trap used at the end of a stormwater drain.

