
Editorial

Human societies have always produced waste. However, until relatively recently the quantities were usually small and the products easily removed by the ecosystems in which we lived.

In modern times, however, the volume of waste has grown exponentially, causing major problems in where and how to dispose of it. The sheer amounts of waste produced by the average household has placed strains on the ability of local councils to find places to dump it all, besides the environmental costs of the raw materials required to use every product only once.

However, the problems associated with this sort of ordinary waste pale in comparison with more hazardous products. No one wants a toxic dump in their neighbourhood, so residents will usually protest at plans to transport toxic products through their suburbs on a regular basis. But if we produce it, it has to go somewhere.

How to deal with this waste is becoming a major headache for governments and many manufacturers. Questions of waste disposal are one of the primary reasons why nuclear power has not been adopted as widely as was once expected.

But there are often wildly contradictory claims about how dangerous particular wastes are. It's not uncommon for governments and business to state that the waste that

is being produced is relatively harmless, while environment groups often present the same waste as a major threat. For the communities nearby the situation can be particularly frightening as they don't know who to trust.

If it's hard to know whom to believe in regard to the dangers of a particular product, it can be even harder to know which methods of waste disposal are safe. The example of hexachlorobenzene (HCB) at the Botany Industrial Plant presents a case in point.

There is general agreement that over 10,000 tonnes of HCB resulting from the manufacturing of chemical solvents up to 1991 represents a serious hazard should it be released into the local environment, particularly the groundwater. As the successor of HCB's manufacturer it is Orica's responsibility to clean it up. Here, however, the agreement ends.

Orica says its "frustrating 20-year bid to enable disposal of HCB waste stored at its site at Botany in Sydney exemplifies the complexity of hazardous waste disposal issues" (p.26). Orica believes it has come up with a safe process to dispose of the waste, but that perceptions of danger are preventing it from being implemented.

Greenpeace, on the other hand, argues that this is just another form of incineration and "the technology proposed for Botany has failed in a number of tests – in one case it even blew up" (p.23).

Issues doesn't claim to have the answers to the question of the best disposal methods, but we hope that by presenting the opposing views side-by-side we'll help you to form your own opinion.

Another controversy on the disposal of waste comes from Victoria. A proposed toxic dump at Werribee was abandoned in the late 1990s after an extraordinary showing of opposition from the local community.

The Bracks government had been elected after committing to resolve the problem, and set up a process that gained widespread support as a model of how to deal with many toxic wastes. Yet according to Harry Van Moorst of the Western Region Environment Centre, this process is being undermined by Major Projects Victoria, which he says has "engaged in a roller-coaster ride of ill-conceived, poorly timed and inappropriately resourced attempts to find sites for the proposed facilities" (p.28).

Major Projects Victoria naturally disagrees (p.33), claiming: "The aim is for zero emissions from the facility, and monitoring will indicate whether this aim is being met at all times... The combination of design, management systems and buffers will probably allow for the safe, productive use of the land beyond the edge of the Crown Land buffer surrounding the facility."





If the dispute about safe disposal methods for chemical waste is hot, it's nothing compared with the question of nuclear waste. Australia has the world's largest resources of cheap uranium, and is the second largest uranium exporter. Yet we don't produce any electricity from nuclear power. Part of the reason is because we have access to many other cheap sources of energy.

However, another major obstacle is concern about how to dispose of the radioactive waste produced by power plants. But is this problem exaggerated? Ian Hore-Lacy of the Uranium Information Centre thinks so: "Nuclear power is arguably the only energy industry that takes full responsibility for all its wastes, and costs this into the product" (p.19).

On the other hand, Dave Sweeney of the Australian Conservation Foundation claims: "The nuclear industry began before there were clear plans on how to best handle these long-lived wastes. Six decades later not much has changed." He points to the problems experienced by the United States, where the proposal to store radioactive waste from the country's 103 nuclear plants at Yucca Mountain, Nevada, has met stiff local opposition and is more than 20 years behind schedule (p.14).

Even though we have no nuclear power stations, Australia does have a nuclear reactor at Lucas Heights. The current reactor is nearing the end of its life, and a replacement is being built. The Australian Nuclear Science and Technology Organisation, which runs the Lucas Heights reactor, describes the sorts of waste produced and how it handles them (p.12).

Hazardous waste issues extend well beyond these dramatic examples. According to Dr Stuart Khan of the University of Wollongong: "In the past 10 years, residues of more than 100 drugs have been identified in rivers, groundwater and oceans around the world" (p.6). Some of these endocrine-disrupting compounds (EDCs) can turn fish into

hermaphrodites with both male and female characteristics. Australia's low population density means that concentrations in our waterways are lower than in many other countries, but Khan reports that many drugs have been found in significant doses in Sydney sewage, even after treatment.

Alicia Hogan is part of a team examining whether EDCs are present in Kakadu National Park. If these chemicals had invaded an area generally regarded as a pristine national treasure we would really know that nowhere on Earth was safe. So far Hogan has good news, with the levels detected being below even the most cautious safety levels (p.9).

Another aspect of hazardous waste is medical waste. While there are disputes about whether we really need to be producing certain toxic chemicals, no one suggests that hospital bandages and syringes need to be abolished. What we don't know is just how dangerous these products are. Trevor Thornton and Pam Keating of the Australian and New Zealand Clinical Waste Management Industry Group discuss the handling processes for medical waste in Australia (p.41). Community pressure has ensured that while we don't know how dangerous most of these materials are, we treat them with considerable care. Thornton and Keating note: "The problem is that there have not really been any conclusive studies undertaken to state with accuracy the presence (or absence) of any risks associated with management of clinical wastes".

Certainly there are things that can be done to clean up even heavily polluted sites. Tim Cook and others describe the process using microorganisms to clean up a heavily polluted site contained within the Sydney Olympic Park Precinct (p.46).

Plants are showing potential to restore an increasing number of polluted sites, provided the right species are chosen. A team from HortResearch in New Zealand describes the ways that plants can transform contaminated sites, and provides an example of one such site (p.37).

In recognition of how important issues of hazardous waste are, the Federal government has established the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment to increase research into the dangers posed by various sorts of hazardous waste, and find ways to reduce production or improve disposal (p.4).

Correction to *Issues 69*

In the article "Genetically Engineered Crops Can't 'Feed the World'" (pp.18-20), the statement that all farms comprise "5 million hectares" should have read "5 billion hectares". We apologise for the error.