

CHAPTER 1

INTRODUCTION

1.1 An improved scientific understanding of the health risks and environmental dangers of many synthetically produced substances has increased public awareness of the potential hazards of herbicides, insecticides and other toxic materials. Waste disposal has become an emotive subject and media looking for headlines have tended to play on public nervousness.

1.2 The impacts on society of waste generation are becoming increasingly evident in respect to the depletion of resources, increased litter, increased disposal costs and contamination of the environment.¹ There is now an increasing focus on waste management which has developed from a general increase in community awareness of a range of environmental issues, the depletion of available landfill space and the increasing political difficulties in siting new waste management facilities.²

1.3 There is now a general appreciation that the current high levels of consumption without the efficient use of resources and waste minimisation are not ecologically sustainable. Currently the Australian average waste disposal path was estimated to be 96 per cent to landfill, 3 per cent recycled and one per cent is either incinerated or is treated by alternative means.³

1.4 This inquiry was undertaken to gather information on the current status of scheduled waste management and the development of new technologies to deal with these wastes in Australia. The Committee was also required to look at the opportunities for the use of incineration for waste disposal. It became apparent that these issues could not be

¹ Department of Environment, Sport and Territories, Submission No.69, p.9.

² Local Government Association of New South Wales and Shires Association of New South Wales, *A response to the Minister of the Environment's Green Paper on waste management Executive Summary*, March 1993, p.ii.

³ Environmental Management Industry Association of Australia Limited, Submission No.63, p.7.

separated from management of waste generally and therefore the inquiry encompassed a wider waste management approach including waste minimisation policies.

Definition of Waste

1.5 One of the hurdles requiring the attention of industry and governments is the establishment of appropriate definitions of waste and the determination of appropriate licensing criteria for waste disposal facilities.⁴ Without a basic definition of various waste streams it is impossible to make meaningful comparisons of quantitative and qualitative data and this can undermine the effectiveness of implementing waste management policies.

1.6 There are a number of definitions currently in use in Australia. The New South Wales *Waste Disposal Act 1980* defines waste as 'effluent, garbage or trade waste' while the South Australian *Waste Management Act 1987* defines waste as 'any matter, irrespective of value, that is discarded or left over in the course of industrial, commercial, domestic or other activities'.⁵

1.7 Professor Mainwaring defined waste as, 'things are waste in the absence of an economic method of recovery and recycling'.⁶ A related definition was provided by Dr Cole of the Environment Management Industry Association of Australia who defined waste as 'something that has no economic utility and has to be disposed, or stored, or whatever, but has no utility to society'.⁷

⁴ Ibid, p.5.

⁵ Department of Industry, Technology and Commerce (1991) *Management & Technologies of Wastes A perspective - Australia 1990*, AGPS, p.13.

⁶ Mainwaring, Evidence, p.769.

⁷ Cole, Evidence, p.524.

1.8 The European community has a broader definition which includes 'any substance or object which the holder disposes of or is required to dispose of pursuant to the provisions of the national law'.⁸

1.9 In respect to municipal solid waste, the United States Environment Protection Authority uses the following definition:

Solid waste generated at residences, commercial establishments (e.g. offices, retail shops, restaurants), and institutions (hospitals and schools).⁹

1.10 The Department of Industry, Technology and Commerce (1991) cited the definition given by Moore (1990) as a working definition.¹⁰ Moore defined municipal solid waste as:

- domestic soft waste: household refuse collected by councils;
- domestic hard waste: larger household refuse such as garden waste, old furniture etc;
- commercial and industrial: packaging, offcuts, etc resulting from commercial and industrial activities; non-hazardous and collected by contractors;
- demolition waste: demolition rubble and offcuts from building activity; and
- council waste: street sweepings, tree prunings, garden waste etc.¹¹

⁸ Department of Industry, Technology and Commerce (1991) *Management & Technologies of Wastes A perspective - Australia 1990*, AGPS, p.12.

⁹ Ibid, p.11

¹⁰ Moore S (1990) Emerging trends in solid waste management. *Waste Disposal and Water Management in Australia* 17(2): p.16 cited in Department of Industry, Technology and Commerce (1991) *Management & Technologies of Wastes A perspective - Australia 1990*, AGPS, p.13.

¹¹ Ibid, p.13.

1.11 Another specialised area is that of scheduled or intractable wastes. Intractable waste is waste for which there is no environmentally sound method of disposal, or which does not degrade naturally. This waste may be toxic (which means poisonous) or hazardous (which means poisonous and having a good likelihood of affecting human beings). Greenpeace Australia do not differentiate between toxic and hazardous and consider that if it is toxic, then it is hazardous.¹²

1.12 The Independent Panel on Intractable Waste found that the definition and differentiation of the many component parts of the waste stream are unsatisfactory and not generally understood by the community.¹³ The Panel recommended that:

intractable waste be defined in terms of a scheduled list of wastes classified by agreed criteria such as their persistent nature, toxicity, health and environment risk and certain other characteristics including the difficulty of rendering them safe.¹⁴

1.13 The Panel also pointed out that there is a need to define intractable wastes by threshold quantity as well as threshold concentration when considering remediation.¹⁵

1.14 Professor Worner gave the alternative view that there is no such thing as waste. It is just a resource that wants some innovative idea on how it can be actually used. Waste in the right quantity and used in the right way, becomes a recyclable or reusable material. The question is how might it be turned into a resource?

1.15 The Environment Management Industry Association of Australia consider that the definition of waste is fairly dynamic, because by innovative approaches much that was considered waste can now be reused, recycled or reprocessed.¹⁶ The view was given that the role of

¹² Cartmel, Evidence, p.411.

¹³ Independent Panel on Intractable Waste 1992 *A Cleaner Australia, Volume 1 Findings and Recommendations*, 6 November 1992, p.10.

¹⁴ Ibid, p.10.

¹⁵ Ibid, p.11.

¹⁶ Cole, Evidence, p.524.

industry in dealing with waste was to reduce the hazard, reduce the volume and then to emplace it in a safe location until such time as a suitable reuse was found.¹⁷ Using this principle, there is no such thing as waste; there is just intermediate processing.

1.16 One example presented to the Committee was the CSIRO and Pacific Power process which can regenerate used transformer oils and remove the polychlorinated biphenyls (PCBs).¹⁸ During this inquiry the Committee was told of a number of processes which can destroy PCBs. However, this technology is now being developed which can recycle PCB contaminated oil.

1.17 The Committee supports Professor Worner's view that waste is a resource which in the right quantity and used in the right way is recyclable or reusable. The Committee appreciates that there are practical difficulties in storing this material until innovation provides a use, but believes that this is not insurmountable.

Quantities of Waste

1.18 It was estimated that 14 million tonnes of waste is being generated annually in Australia of which only 10 per cent is being recycled in one form or another and 90 per cent is going to landfill.¹⁹ The Australian population generated 776 kilograms of solid waste per capita in 1993.²⁰ In addition more than 200 000 tonnes of liquid and solid industrial wastes are taken to special landfills and treatment facilities as well as the discharge to sewers.²¹

¹⁷ Howlett, Evidence, p.524-525.

¹⁸ Ekstrom, Evidence, p.426.

¹⁹ Gutteridge, Evidence, p.301.

²⁰ Environmental Management Industry Association of Australia Limited, Submission No.63, p.4.

²¹ Department of Environment, Sport and Territories, Submission No.69, p.8.

1.19 The amount of waste being generated is increasing at an alarming rate. In Sydney alone, 4000 tonnes of waste is produced each day.²² The amount of waste generated in Sydney increased two fold between 1977 and 1987 to three million tonnes²³ and in 1992 was estimated to be almost five million tonnes.²⁴

1.20 The Toxic Chemicals Committee of the Total Environment Centre have produced the following table from the NSW Waste Recycling and Processing Service (WRAPS) sources of Sydney's waste:

Source	Waste tonnes/year
Domestic waste	1 000 000
Council waste	268 000
Small vehicle	273 000
Industrial Waste	1 280 000
Building Waste	610 000
Hospital waste	10 000
Sewage Sludge	72 000 ²⁵

1.21 Most of this waste is disposed of at landfill although in Sydney some of this material is incinerated at the Waverley Woollahra Process Plant.

1.22 Some substantial gains have already been made in waste reduction. For example, over the last five years the City of Heidelberg

²² Lohning Brothers Pty Ltd (1993) *Energy from Municipal A Description of the Basic Parameters*, p.1.

²³ Environmental Management Industry Association of Australia Limited, Submission No.63, p.7.

²⁴ Hartcher C (1992) *Waste Management Green Paper*, A discussion Paper by the Hon Chris Hartcher, MP Minister for the Environment, September 1992, The New South Wales Government, p.11.

²⁵ Toxic Chemicals Committee of the Total Environment Centre Inc, Submission No.36, p.1.

has reduced its total waste from all sources from 40 000 tonnes to 34 000 tonnes.²⁶

1.23 The experience in Europe has shown that 10 per cent reduction can be obtained through waste minimisation programs, roughly 25 per cent being recycled, 25 per cent could be composted leaving only 40 per cent going to landfill.²⁷ It was suggested that the amount going to landfill could be reduced to 3 per cent if a waste to energy process was included.²⁸

1.24 The Waste Contractors and Recyclers Association of New South Wales consider that by virtue of the population growth, by the year 2000, even with a 50 per cent reduction in waste, there will still be about two million tonnes per year of disposable waste in New South Wales which was the figure quoted in 1990.²⁹ Even more was a recent study by the Waverley Council which found that the amount of waste taken out of the system had been compensated by an increase in production of waste.³⁰

1.25 The amount of intractable waste in Australia is not large on world standards, because this nation is an importer rather than a producer of materials from which intractable wastes derive.³¹ The Independent Panel on Intractable Waste found that the estimates of intractable waste in Australia are unreliable and are underestimates.³²

1.26 The Panel recommended the collection of accurate and up to date figures on the dispersion and quantity of Australia's stockpiles of

²⁶ van Gemert, Evidence, p.613.

²⁷ Gutteridge, Evidence, p.301.

²⁸ Ibid, p.302.

²⁹ Horswell, Evidence, p.373.

³⁰ McMahon, Evidence, p.386-387.

³¹ Independent Panel on Intractable Waste 1992 *A Cleaner Australia, Volume 1 Findings and Recommendations*, 6 November 1992, p.5.

³² Ibid, p.11.

intractable waste on a national basis as a matter of urgency.³³ Some work has already begun in this area. The Snowy Mountains Engineering Corporation has surveyed some areas³⁴ and the Electrical Supply Association of Australia Inc is preparing an inventory on PCBs.³⁵ These surveys will add to the existing level of knowledge. However, the Committee believes there is an urgent need for a nationally coordinated, comprehensive survey of the range of scheduled wastes that are dispersed throughout Australia.

1.27 Waste treatment is a profitable business. The waste management market in Australia in 1990 had an estimated annual value of \$1.3-1.5 billion per year and the potential export market is estimated at \$6 billion per annum by the year 2000.³⁶ It was pointed out, however, that North America and Western Europe currently supply approximately 70 per cent of the market.³⁷

The Report

1.28 Although the terms of reference focused on the issues associated with incineration, the Committee considered this in the context of the waste minimisation hierarchy, and as such considered that incineration and landfill should be used as a last resort. The prime focus of policy and operational sectors of government should be waste minimisation, reuse and recycling.

1.29 Accordingly, Chapter 2 provides a brief comment on waste management policy and waste minimisation. Chapter 3 outlines the issues of incineration and Chapter 4 covers landfill. Chapter 5 looks at the progress in relation to scheduled waste disposal.

³³ Ibid, p.11.

³⁴ Ibid, p.11.

³⁵ Satchwell, Evidence, p.641.

³⁶ Victorian Government, Submission No.83, p.6.

³⁷ Ibid, p.6.

1.30 Cement kilns are treated separately in Chapter 6 because they provide several options for the treatment of waste. Chapter 7 makes a brief comment on the issues relating to the community which can play a central role in the success or failure of all aspects of waste disposal. Chapter 8 comments on the need for a national cooperative approach, and Chapter 9 looks at the role of the Commonwealth Government within that approach.

1.31 The third clause of the terms of reference relating to the export potential of technologies is dealt with in Chapter 10 and some concluding comments are made in Chapter 11.

