LEGISLATIVE ASSEMBLY

Standing Committee on Public Works

INQUIRY INTO MUNICIPAL WASTE MANAGEMENT IN NSW

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Membership & Staff

Chairman	Mr Kevin Greene MP, Member for Georges River
Members	Ms Marie Andrews MP, Vice Chair, Member for Peats
	Ms Angela D'Amore MP, Member for Drummoyne
	Mr Peter Draper MP, Member for Tamworth
	Mrs Karyn Paluzzano MP, Member for Penrith
	Mr Steven Pringle MP, Member for Hawkesbury
	Mr Ian Slack-Smith MP, Member for Barwon
Staff	Ms Carolynne James, Committee Manager
	Mr Chris Carmichael, Senior Committee Officer
	Ms Kylie Rudd, Committee Officer
	Vacant, Assistant Committee Officer
Contact Details	Standing Committee On Public Works Legislative Assembly Parliament House Macquarie Street Sydney NSW 2000
Telephone	02 9230 3434
Facsimile	02 9230 3052
E-mail	pubworks@parliament.nsw.gov.au
URL	www.parliament.nsw.gov.au

Chairman's Foreword

Australia's per capita municipal waste production is one of the largest in the world. Although the average Australian householder is putting more in recycling bins than a decade ago, Australians are still creating more waste.

Waste management is a complex, increasingly capital intensive, and environmentally concerning issue in NSW. While municipal waste is only one type of waste in the total waste stream, it is a substantial and growing budget item for councils and local communities.

Waste policy in NSW is predominantly guided and governed by State government. Most NSW local councils contract out their municipal waste collection, recycling and disposal services. The Public Works Committee's report considers whether the current municipal waste management arrangements and regulations at both local and State government levels are value for money, environmentally sound and delivering community objectives.

While considering municipal waste policy in NSW, the Committee developed the view that a broader perspective on waste is required that recognises the links between sustainability concerns, consumption activity and waste, and integrates the roles of government, consumers and the market in developing waste management solutions.

As part of this broader perspective, the Committee has examined key issues through the municipal waste cycle from production and consumption, collection and processing, and finally through to disposal.

I believe that the recommendations in this report will assist to improve our community's capacity to manage municipal waste effectively.

This inquiry was undertaken over nine months and has involved substantial contributions from various peak bodies, State and Federal departments, local councils, community members and individuals. On behalf of the Committee I would like to thank all those who made submissions to the inquiry.

I would also like to thank our hosts at site visits undertaken in April and May 2006, specifically, to Collex for the visit to the Woodlawn Bio-reactor; to Mr Peter Draper MP for the visit to Tamworth and Gunnedah; and to GRD Limited and Waste Services NSW for the visit to the Eastern Creek Waste and Recycling Centre.

I am pleased to present this report and thank my fellow Committee Members and the Committee Secretariat including Chris Carmichael from the Department Environment and Conservation for their work on this report.

Mr Kevin Greene MP
Chair

Functions of the Committee

The NSW Standing Committee on Public Works consists of seven members of the Legislative Assembly and was established with its current terms of reference in 1995.

The Committee's primary role is to inquire and report from time to time on existing and proposed capital works projects, or matters relating to capital works projects, in the public sector, including the environmental impacts of such works, and whether alternative management practices offer lower incremental costs, as are referred to it by the Minister for Commerce, or any Minister, or by the resolution of the Legislative Assembly, or by motion of the committee.

The NSW Parliament prescribed that the Committee may:

> ...inquire into the capital works plans of State-owned corporations and joint ventures with the private sector. The Committee will seek to find savings in capital works programs whilst achieving a net reduction in environmental impacts by public sector developers.
>
> The Committee's work is expected to provide incentives to the public sector to produce more robust cost-benefit analyses within the government budgetary process and to give more emphasis to least-cost planning approaches.
>
> The Committee will be sufficiently resourced to enable it to conduct parallel inquiries into specific projects and capital works programs generally... it will have sufficient resources to inquire into the capital works program of all government agencies whose capital works programs affect the coastal, environmental and transport sectors.

The Committee's current functions also include those absorbed from the Standing Committee on the Environmental Impact of Capital Works, which was established in the 50th Parliament (1991-1994).

Abbreviations

ABS	Australian Bureau of Statistics
ACOR	Australian Council of Recyclers
AWD	Australian Waste Database
AWT	Alternative Waste Technologies
CDL	Container Deposit Legislation
DEC	Department of Environment and Conservation NSW
FCA	Full Cost Accounting
EPR	Extended Producer Responsibility
EPA NSW	Environment Protection Authority
EU	European Union
LATS	Landfill Allowance Trading Scheme
MBI	Market Based Instruments
MGB	Mobile Garbage Bin
MSW	Municipal Solid Waste
MRF	Material Recovery Facility
NCC	Nature Conservation Council of NSW
NPC	National Packaging Covenant
SSROC	Southern Sydney Regional Organisation of Councils
PC	Productivity Commission
PS	Product Stewardship
UR-3R	Urban Resource – Reduction Recovery and Recycling
VENM	Virgin Extracted Natural Material
WSN	Waste Services New South Wales
WSROC	Western Sydney Regional Organisation of Councils

Executive Summary

Australia's per capita municipal waste production is one of the largest in the world. Although the average Australian householder is putting more in recycling bins than a decade ago, Australians are still creating more waste.

Waste management is a complex, increasingly capital intensive, and environmentally concerning issue in NSW. Municipal waste is only one type of waste in the total waste stream. However, the primary responsibility for management of municipal domestic waste, also known as domestic or household waste, lies with local government and is guided by State government waste policies.

Municipal waste management is a substantial and growing budget item for councils and local communities. Most NSW local councils contract out their waste collection, recycling and disposal services. In addition the NSW Government has a State owned corporation operating waste transfer and landfill sites in the Sydney basin known as Waste Services NSW (WSN). The question addressed in this Inquiry is whether the current municipal waste management arrangements and regulations at both local and State government levels are value for money, environmentally sound and delivering community objectives.

In considering the directions for municipal waste policy in NSW, the Committee examined and confirmed several fundamental premises, which it believes should shape municipal waste policy.

Firstly, the Committee examined **sustainability** and waste generation. Most governments, including the NSW Government, recognise the connection between sustainability and waste and the Committee believes that this link should inform waste policy development.

The Committee found that technical solutions proposed for energy recovery, containment and disposal of waste are important in improving waste management in the short term. However, contrary to the views of a parallel inquiry by the Commonwealth Productivity Commission, the Committee sees that technological changes alone are not sufficient to move society towards sustainable consumption and sustainable waste management (Chapter 1, FINDING 1).

The Committee looked at other factors, which drive waste creation and believes that policy makers should look towards influencing **consumption** activities. Consumer behaviour is a main contributor to the waste problem but may also provide a mechanism to create dramatic change.

The Committee suggests that community aspirations towards waste minimisation and sustainability should be harnessed more directly to influence improvements in waste management. Consumers can see the bigger picture –they are not simply price driven and their purchasing decisions can be influenced by their values and aspirations. This is an advantage to policy makers in a waste management context because we cannot at this stage use the price signals in the waste market to accurately reflect all the costs and benefits associated with waste creation.

Waste policies, which tap into community values and influence consumer activity, can be a substitute mechanism to address sustainability concerns which are not reflected in current

pricing of consumer products and waste disposal. The Committee believes that waste policies should try to separate consumption growth from waste growth by looking at smarter "or less wasteful" production and consumption activities. The Committee believes more emphasis should be given to "upstream" production and consumer strategies to affect waste outcomes. (Chapter 1, FINDING 2)

The Committee also considers it necessary to distinguish between some of the recent policy treatments of the **waste market** and industries relating to waste. An effective waste industry is vital to the State's long-term economic performance and environmental health. However, given the community's overriding goal for environmental sustainability and waste minimisation, simple applications of market competition principles may not be consistent with the community's waste management goals.

In contrast to the Productivity Commission's suggestion that some Australian jurisdictions 'have become obsessed with waste minimisation as an end in itself', the Committee believes that governments must also take care to avoid becoming obsessed with creating a flourishing waste industry as an end in itself. The true measure of the government's success in waste management is ultimately less waste (Chapter 1, FINDING 3).

Chapter 2 of the Report outlines current international, national and state trends and data, along with an explanation of general systems for municipal waste management in NSW .

In Chapter 3, the Committee examines NSW and national waste policies and discusses the impact of these current regulatory arrangements.

Greater government coordination was seen a critical requirement for improving efficiency and effectiveness in municipal waste management. Some submissions called for the creation of a new resource recovery agency. However, the Committee believes that there is no need for the creation of a new agency at this time, as the present public sector structure incorporating the NSW Department of Environment and Conservation (DEC) and its divisions monitor the issues associated with waste management in NSW.

The Committee does support calls for increased resource recovery considerations to be incorporated into any new public sector structures, policies and strategic plans. Moreover, there does appear to be an urgent need for greater reliance upon resource recovery and waste infrastructure coordination across NSW.

While the Committee recognises the Sydney Metropolitan Strategy's consideration of the future development of a Waste Infrastructure Strategy (WIS), it is recommended that such a strategy be accelerated and include a range of issues raised in the Inquiry. The Committee believes that waste infrastructure planning should be concurrent with residential and utility planning to maximise synergies (Chapter 3, RECOMMENDATION 1).

The Committee received various comments about the current **NSW Waste Strategy** developed and managed by the Department of Environment and Conservation. While the Waste Strategy is a high-level document that spans the three waste streams of the waste sector, the municipal waste stream is only one part of the NSW-wide waste policy.

The Committee notes the suggestions made concerning the NSW Waste Strategy and the requirements for a clearly articulated approach to encourage a more practical application of its goals. As the Waste Strategy is based on achieving targets, a more transparent process for communicating targets should be developed. Respondents argued that the Waste Strategy should set more realistic (achievable and measurable) targets and encourage resource recovery, as opposed to its focus on waste minimisation.

Essentially, the Committee believes that the Waste Strategy needs to be updated to provide clearer guidance for stakeholders to achieve targets and meet defined milestones for municipal waste. While the Committee has no difficulties with the Waste Strategy in its current form as an overarching State waste policy, because of recent changes in waste management such as Alternative Waste Technologies and increased calls for triple bottom line measures, it needs to be revised and realigned with State Government sustainability outcomes.

Therefore, the Committee recommends that the NSW Waste Strategy either be updated, or a new municipal waste policy be developed to underpin and complement the Waste Strategy with a view to strengthening the Strategy's framework to enable targets to be more realistic, measurable and attainable. Regardless of which policy avenue the State Government adopts, the Committee argues improvements should be made in data consistency, target specification, waste infrastructure planning and resource recovery guidance principles (Chapter 3, RECOMMENDATION 2).

Further State government policy issues were raised in the Inquiry. A question of potential and perceived **Ministerial conflict** was raised in submissions about the operations of WSN, the State owned corporation for waste services in the Sydney region. The Minister for Environment is designated as both the Minister responsible for WSN's corporate performance and also the Minister responsible for the Environment Protection Authority (EPA), which is the regulatory body that scrutinises and licenses all NSW waste operators.

While the Committee cannot see any impropriety or conflict of interest in the execution of the Minister's dual roles, given the rapid changes in the waste industry and its associated markets, the separation between the regulator (DEC/ EPA) and the operator (WSN) under the Minister's portfolio is advisable.

Separation of these functions is consistent with the division of environmental regulatory compliance and management responsibility applied to other State owned corporations such as Sydney Water, which is monitored by the EPA but has the Minister for Water Utilities responsible for its corporate performance. Locating WSN under the Minister for Energy or Minister for Water Utilities within the umbrella of the supporting Department of Energy, Utilities and Sustainability may also generate common synergies for the management of State owned utility corporations and for the management of sustainability concerns in energy and water arising from waste activities.

The Committee recommends the transfer of WSN to the portfolio of the Minister for Energy (or Minister for Water Utilities) overarching the Department of Energy, Utilities and Sustainability. The transfer is consistent with other utility related State owned corporations and allows WSN to be at arms length from its principal regulator (Chapter 3, RECOMMENDATION 3).

The WSN was made a corporation in 2001. The operations of the organisation, including its ability to play on an even field under the principles of competitive neutrality, are pursuant to the provisions of the State Owned Corporations Act 1995.

It is recognised that WSN initiates various innovative waste management programs but does not have **specific legislated community obligations** like those attached to many other State owned corporations. Building upon the transfer of WSN to the umbrella of the Department of Energy, Utilities and Sustainability, as per Recommendation 3, the Committee also recommends that WSN build upon its current operations through the addition of special responsibilities to the community, which reflect its unique status. For example, given the established waste management sites owned by WSN, it may be in a better position to facilitate certain start up reuse and recycling programs than private industry. The Committee believes that these activities should be recognised as public interest programs contributing to whole of government goals.

The Committee recommends that WSN remain in public ownership at this time. The Committee further recommends the Government consider attaching special community responsibilities that focus WSN on improving delivery of community and whole of government sustainable waste management objectives (Chapter 3, RECOMMENDATION 4).

Chapter 4 of this Report considers production practices and consumer behaviour relating to waste. A significant issue raised in the Inquiry was community involvement in waste management initiatives. The uptake of reuseable shopping bags was mentioned frequently as an example of community aspirations to "make a difference" to the waste problem.

The Committee believes that community support and take up of reusable bag use is a valuable tool for government to springboard to direct and more substantial community waste avoidance action. The Committee recommends that the value of community support and the voluntary effort aspect of the current arrangements be recognised in future considerations of plastic bag prohibitions. Moreover the Committee believes that irrespective of the outcome of any further analysis of plastic bag prohibition, community participation in voluntary activity should not be discouraged (Chapter 4, RECOMMENDATION 5).

The Committee recommends that integration of waste education materials with common reference points be considered. Voluntary and council specific approaches should give way to a mandated approach to common signage and coding systems for waste. This would apply incrementally as collection contracts expire and bin and signage items are replaced. It should be a condition of new tenders that standardised community education approaches apply (Chapter 4, RECOMMENDATION 6).

The Committee recognises that efforts in educating the community extend beyond placing the right waste in the right bin and need to be directed toward a greater understanding of the full costs associated with waste disposal and recycling. Voluntary or mandated approaches to Extended Producer Responsibility (EPR) and Product Stewardship initiatives pursued by the Government appear to be making a change. Based on the evidence considered during the course of this Inquiry, the Committee recommends that these policies should be accelerated and expanded (Chapter 4, RECOMMENDATION 7).

Chapter 5 of this Report looks at the collection and processing practices for municipal waste. The issue of bin type standardisation (colour coding for types of waste) is important. Standard bin types can increase the level of resources recovered from the kerbside and reduce the levels of contamination at the source of disposal by the use of consistently applied colour codes.

The Committee acknowledges the work done by the Department of Environment and Conservation in regard to the development of best practice guidelines for councils to standardise waste collection systems and to promote consistency across municipal waste management collection systems. The Committee also recognises that local councils and their communities have specific needs that call for councils to make decisions on waste management collection systems that effectively reflect community requirements.

Further, the Committee believes there is merit in further considering the suggestion for differential collection charges to be applied, based on consumer waste preferences and waste volumes.

The Committee recommends that the NSW Government (Chapter 5, RECOMMENDATION 8):

- Continue the Department of Environment and Conservation's current program under the Local Council Waste Service Performance Payments to promote best practice bin configuration and standardisation bin colour codes;
- Pursue initiatives, including the associated costs and benefits, of differential collection charges with a view to reducing volumes of generated household waste and increasing the amount of recovered materials collected at the kerbside

The Committee took evidence relating to specific components of municipal waste including **recyclable waste, organic and compost materials.**

It is estimated that fifty per cent of residual waste that goes to landfill is putrescible material/food waste. Putrescible waste, as **organic biodegrading material** is a significant creator of greenhouse gas emissions when placed in landfill. Improved recyclables collection will not address this issue. This in part has prompted international jurisdictions to move toward total bans or targets of no greater than 5% on organic materials deposited to landfill. As no strict quotas or mandated bans on the quantities of food waste disposed to landfills have been prescribed in NSW, it appears that this issue requires further investigation and research. The Committee recommends that the Government undertake an analysis of the organic waste to landfill problem (Chapter 5,RECOMMENDATION 9).

The Committee heard evidence that while NSW kerbside **recycling** participation rates are very high at 80%, contamination and costs associated with the collection and processing of recyclable materials are factors often overlooked or unknown to those who pay for such services. The Committee sees that recyclable materials are a joint responsibility between producers and consumers and that a more equitable distribution of costs should be explored to capture financial and physical responsibility across the life cycle of the product (Chapter 5, RECOMMENDATION 10).

Garden organics collection at the kerbside is an important process that diverts biodegradable waste from landfills and creates composting materials. The Committee recognises that the

capture of this waste, via the provision of kerbside collection systems, has done much to reduce the volume of waste to landfill.

However, the Committee is also cognisant of quality issues, and the need to deliver a marketable compost product that can be used in a cost effective manner. While the NSW Department of Environment and Conservation has undertaken research to demonstrate the environmental benefits and cost savings derived from this type of material collection, it is apparent that more effort is needed to develop and encourage markets to utilise this valuable recovered resource.

The Committee recognises the efforts of stakeholders in highlighting the value of recovered garden organic materials and the benefits derived from the processing of this material. The Committee recommends that the Department of Environment and Conservation apply resources to develop and encourage markets to efficiently utilise this valuable resource (Chapter 5, RECOMMENDATION 11).

The Committee is mindful of the differentiation between metropolitan and **rural/regional areas** in providing municipal waste services. Rural and regional areas are faced with constraints that make efficient waste management practices much more difficult to achieve when contrasted against metropolitan waste management issues. Further, recognition of the difference between these areas needs to be understood and programs and initiatives implemented to assist achievable outcomes under the NSW Waste Strategy.

Many of the constraints placed upon rural and regional areas where transportation of collected waste for processing and transportation of processed waste to markets is a costly burden, is due to the rising cost of fuel, not experienced by metropolitan counterparts.

The Committee is aware of the programs employed by the NSW Department of Environment and Conservation and rural regional councils to address these issues and to assist these organisations in meeting their obligations under the NSW Waste Strategy. This approach appears to be working in a constrained environment and needs to be further supported.

The Committee recommends that the range of initiatives currently applied to assist rural regional areas be continued with additional support provided through the establishment of clearer and more realistic requirements for rural and regional councils. This will involve assistance to meet key performance indicators and to secure relevant grants and funding (Chapter 5, RECOMMENDATION 12).

The Committee heard about other issues associated with municipal waste management relating to clean-up services, public place, and illegal dumping activities.

Chapter 6 of the Report deals with disposal options for waste including **landfill and alternative waste technology (AWT)** disposal options. The Committee is aware that AWT technology does not remove the need for landfill as current technologies still produce residual waste. The Committee therefore sees landfills as a necessary element in the municipal waste stream now and for the foreseeable future.

The Committee considers that current landfill and AWT disposal methods should be seen as complementary rather than competing systems. The Committee proposes various

recommendations to improve the evaluation of each disposal method, both independently and concurrently. A sense of reality should also be applied in the planning and policy mechanisms employed to address the presence of waste and the treatments available – this consideration must be applied to landfill.

The Committee identifies an apparent lack of consistency between State and Federal policies on landfill. Policies and strategies, aimed at assisting communities, local government and the waste industry must be consistent and coordinated between governments so that goals of municipal waste minimisation and resource recovery can be achieved. The Committee therefore recommends that a forum on waste policy, which examines the role of landfills, be established within the framework of the relevant national ministerial council- the Environmental Protection and Heritage Council - to determine a co-ordinated policy (Chapter 6, RECOMMENDATION 13).

Some further recommendations proposed by the Committee include increased standards for new landfills, which reflect current technologies and the application of Full Cost Accounting (FCA) to assessments of new landfills. Full Cost Accounting takes into account the consumption and use of environmental resources in the full costs of production and market price. For example, FCA in landfill facilities would consider all costs including post closure remediation, leachate control and gas extraction (Chapter 6, RECOMMENDATIONS 14 AND 15).

The Committee recommends consideration of market-based mechanisms to apply to landfill management in NSW, in particular, examination of the feasibility of a Landfill Allowance Trading Scheme (LATS) between NSW councils or between NSW Regional Group of Councils (Chapter 6, RECOMMENDATION 16).

The issue of the NSW Waste and Environment Levy, which applies a per tonnage disposal charge to waste sent to landfill, was raised in considerable detail in the Inquiry. The Committee heard about various advantages and disadvantages to the Levy and received suggestions for improvements. While the Committee understands the Levy was recently reviewed and a new incremental Levy regime has been set out for the next 5 years, the Committee also suggests that the NSW Department of Environment and Conservation articulate in greater detail the rationale behind the current price scale for the Levy increments and utilise the Full Cost Accounting method to assess appropriateness of current levy charges. (Chapter 6, RECOMMENDATION 17).

The Committee recommends the examination of the levy's application to Virgin Extracted Natural Material (VENM). VENM is received at landfill sites and is often used operationally as daily cover to landfills between waste layers. Up to recently VENM has been exempt from the levy. At an initial examination, the expansion of the levy to this material seems inconsistent with waste management goals. The Committee recommends that the Department of Environment and Conservation provide further information about the rationale and impacts of this policy (Chapter 6, RECOMMENDATION 18).

The final area of consideration in the report is **Alternative Waste Technologies (AWT)**. Councils, as autonomous authorities, maintain the right to make decisions that reflect the needs and wants of their communities. Consequently, local councils make the decision to enter into arrangements for the collection and processing of waste, and as technology has improved and

the associated costs increased, options for collaborative joint council contracts to initiate AWTs have evolved.

However it is widely recognised that, in the NSW context, AWTs are a newly emerging and relatively unproven form of waste technology that can carry a large degree of risk and responsibility that will ultimately reside with local councils (and their ratepayers), if such operations were to prove unviable. With commercial realities in mind, Councils need to protect themselves from commercial liability if such arrangements fail.

The Committee recognises that AWTs are complex. In many, if not most cases, the expertise required to understand the most appropriate AWT for a council or regional groups of councils, along with the legal expertise to assist contract development and performance monitoring, cannot be expected to exist within council operations.

At present, the Department of Environment and Conservation provides assistance to councils in the form of workshops and publications such as *Guidelines for Contract Management*. However, it appears that significant assessments of all factors associated with AWTs including the local demands of the client councils(s), and the goals of the Waste Strategy need better centralised coordination. Of key concern is sound assessment of the tradeoffs between AWT proposals and variations to existing landfills and associated systems. As recommended for landfill assessment, the Committee sees that FCA assessment of AWT proposals would help local councils get a better understanding of the opportunity costs between different disposal options

The Committee considers that councils needs additional support in developing contracts and making choices surrounding AWTs, and that increased coordination amongst stakeholders be reinforced to defray the costs, risks and burdens on ratepayers more equitably. The existing State level involvement does not necessarily provide for specialist engineering or scientific analysis of proposals which is a critical issue for AWTs. The expertise for this kind of analysis lies with the Department of Environment and Conservation. The Committee recommends that the Department of Environment and Conservation provide a unit, or access to a group of independent experts, who can assist local councils in the appraisal of AWT proposals. (Chapter 6, RECOMMENDATION 19).

List of Recommendations

WASTE POLICIES IN NSW (CHAPTER 3)

Recommendation 1 – Greater Government Coordination in Municipal Waste Management:

The Committee recommends that the Waste Infrastructure Strategy be accelerated and include a range of issues raised in the Inquiry that integrates waste infrastructure planning with residential and utility planning to maximise synergies.

Recommendation 2 – Effectiveness of the NSW Waste Strategy:

The Committee recommends that the NSW Waste Strategy either be updated, or a new municipal waste policy to underpin and complement the NSW Waste Strategy be developed. Regardless of which reform the government adopts, the policy should be incorporate the following:

- A standardised set of municipal waste management data (preferably consistent and developed at a national level), that can be applied to set realistic, measurable and attainable targets across the waste stream;
- A clearly stated set of yearly municipal waste stream milestones to be reported against by the NSW Department of Environment and Conservation;
- Clearer guidelines for waste and associated infrastructure (including AWTs), that will assist industry better plan, coordinate and integrate services and processes to meet municipal waste flow requirements and assist in efficient resource recovery and waste minimisation; and
- More explicit guidance for all stakeholders on the approach towards resource recovery and how this can be more efficiently fostered.

Recommendation 3 - Perceived Ministerial Conflict

The Committee recommends the transferral of WSN to the portfolio of the Minister for Energy or the Minister for Water Utilities under the policy umbrella of the Department of Energy, Utilities and Sustainability. Such a transfer enables WSN operations to be consistent with other utilities that are State Owned Corporations and provides the WSN to be at arms length from the regulatory body – the Environmental Protection Authority.

Recommendation 4 - WSN Environmental Solutions - Operations

The Committee recommends that WSN remain in public ownership at this time. The Committee recommends the NSW Government consider attaching legislated Special Objectives that focus WSN on improving delivery of community and whole of government sustainable waste management objectives.

PRODUCTION AND CONSUMPTION ISSUES (CHAPTER 4)

Recommendation 5 – Consumer Behaviour

The Committee recommends that the value of community support and the voluntary effort aspect of the current arrangements be recognised in further considerations of plastic bag prohibitions. Moreover the Committee believes that irrespective of the outcome of any further analysis of prohibition, community participation in voluntary activity should not be discouraged.

Recommendation 6 – Waste Education
The Committee recommends that integration of waste education materials with common reference points be considered. Voluntary and council specific approaches should give way to a mandated approach to common signage and coding systems for waste. This would apply incrementally as collection contracts expire and signage items are replaced. It should be a condition of new tenders that standardised community education approaches apply.

Recommendation 7 – Extended Producer Responsibility and Product Stewardship
The Committee recognises the value of voluntary and mandated EPR and product stewardship initiatives pursued by Federal and State Governments and recommends that these initiatives should be accelerated and expanded.

COLLECTING AND PROCESSING (CHAPTER 5)
Recommendation 8 - Domestic Collection at the Kerbside
The Committee recommends that the NSW Government:

1. Continue the Department of Environment and Conservation's current program under the Local Council Waste Service Performance Payments to promote best practice bin configuration and standardisation bin colour codes;
2. Pursue initiatives, including the associated costs and benefits, of differential collection charges with a view to reducing volumes of generated household waste and increasing the amount of recovered materials collected at the kerbside.

Recommendation 9 - Processing of Collected Residual Waste
The Committee recommends that in regard to residual household waste, the NSW Government undertake an analysis of organic waste to landfill and if deemed appropriate, develop a series of options for NSW to address the issues raised.

Recommendation 10 - Processing of Collected Recyclable Waste
The Committee recommends that, in regard to recyclable household waste collected at the kerbside, a more equitable distribution of the costs associated with the generation of waste is required and that the NSW Government should pursue options for industry, in addition to the National Packaging Covenant, to accept a greater financial and physical responsibility across the life cycle of products.

Recommendation 11 - Processing of Collected Garden Organic Waste
The Committee recommends that the NSW Department of Environment and Conservation apply resources to develop and encourage markets for recovered garden organics and promote the benefits derived from the processing of this material.

Recommendation 12 – Rural and Regional NSW
The Committee recommends that the range of initiatives currently applied to assist rural and regional areas be continued with additional support provided through the establishment of clearer and more realistic requirements for rural and regional councils to follow to meet key performance indicators and to secure relevant grants and funding.

WASTE DISPOSAL (CHAPTER 6)

Recommendation 13 - Landfill Policy Forum
The Committee recommends that the NSW Government take a leading role in establishing a forum between all tiers of government and industry, under the umbrella of the Environment Protection and Heritage (Ministerial) Council, to establish a clear and consistent message in regard to waste strategies and reaching achievable targets, preferably at a national level.

Recommendation 14 - Landfill Standards for NSW
The Committee recommends that a set of standards, which include a minimum criteria be prescribed and rolled out to all NSW landfills. The minimum criteria should include appropriate siting, leachate control, appropriate management to reduce hazards and methane gas capture.

Recommendation 15 – Landfill Assessments
The Committee recommends that full cost accounting be mandated in assessments of all new proposed NSW landfills to ensure the full costs associated with the life and post-closure effects of landfills are properly managed and accounted for and to encourage more efficient waste avoidance and separation practices.

Recommendation 16 – New Landfill Instruments
The Committee recommends that the NSW Government work with local government and industry to explore opportunities for additional market based instruments (MBIs) (and complementary regulations), to apply to municipal waste. In particular, the Committee is supportive of the approach developed in the UK under the Landfill Allowance Trading Schemes (LATS), and suggests that the feasibility of such a tradeable scheme be explored for application in the NSW context.

Recommendation 17 – The Waste Levy and Analysis
The Committee recommends that the NSW Department of Environment and Conservation (DEC) provide a more transparent process in determining Waste Levy rates to include FCA considerations. Specifically the Committee recommends that the DEC undertake some FCA analysis on sample landfills and assess these costs in relation to current levy charges.

Recommendation 18 – The Waste Levy and VENM
The Committee recommends that the NSW Department of Environment and Conservation provide further explanation and justification concerning the removal of rebates associated with Virgin Extracted Natural Material (VENM) as a daily cover in landfill operations and why this change appears contrary to the goals of the Waste Strategy. Further, the Committee recommends that the DEC provide recommendations and/or guidance to assist landfill operators address their concerns associated with the use of VENM.

Recommendation 19 – AWT Assessment Unit
The Committee recommends that the NSW Department of Environment and Conservation provide a unit, or access to a group of independent experts, who can assist local councils in the AWT appraisal.

Chapter One - Introduction

Rationale of the Inquiry

1.1 The function of the NSW Standing Committee on Public Works is to examine capital works activities in NSW and their associated environmental impacts. Waste management is an increasingly capital intensive and environmentally concerning issue in NSW. Australia's per capita municipal waste production is one of the largest in the world[1]. Moreover, although the average Australian householder is putting more in their recycling bins than a decade ago, Australia still has an unsustainable level of consumption.[2]

1.2 Municipal waste is only one type of waste in the total waste stream. The other two types of waste being produced are broadly classified into "Commercial and Industrial" and "Construction and Demolition". There are different roles for government depending on these types of waste. Generally, the Federal Government's role is largely one of coordination of State and Territory initiatives and regulation of the export and import of waste. The primary responsibility for management of domestic waste, also known as municipal or household waste, lies with local government and is guided by State government waste policies.

1.3 Most NSW local councils contract out their waste collection, recycling and disposal services. In addition the NSW government has a substantial State interest in waste transfer and landfill sites in the Sydney basin through a Statutory Owned Corporation. Some councils own their own waste processing facilities. However most councils contract the collection and waste processing to private operators.

1.4 Waste management is a substantial budget item for councils and therefore the community. The question asked in this inquiry is whether the current municipal waste management arrangements and regulations at both local and State government levels are value for money, environmentally sound and meet communities objectives.

Terms of Reference and Methodology

1.5 On the 29 November 2005, the NSW Standing Committee on Public Works resolved to inquire into municipal waste management practices in New South Wales with a view to examining and reporting on those processes and whether alternative municipal management practices might offer lower incremental costs and preferred environmental outcomes.

1.6 An inquiry terms of reference was endorsed and directed to particularly examine:

1. The effectiveness and appropriateness of current municipal waste management.
2. Impediments and incentives to best practice municipal waste management.
3. Best practice methods, including cost effectiveness, of planning and providing municipal waste management services.

[1] Australia's per capita consumption is ranked 5th in the world on (2003 data onwards) from OECD Factbook 2006- Economic, Environmental and Social Statistics
http://titania.sourceoecd.org/vl=6324711/cl=15/nw=1/rpsv/factbook/07-01-03.htm

[2] "Recycling on the rise but too much still going to waste" Sydney Morning Herald, 8/11/05.

4. The development of new technology and industries associated with waste management.
5. Minimising harm to the environment in the provision of waste management services.

1.7 The Committee called for inquiry submissions from relevant organisations and the public on 28 January 2006. Although the submission period closed on 31 March 2006, the timeframe was extended to allow additional submissions. The Committee received almost 100 submissions from organisations and agencies in the government, non-government and private sectors, as well as from private individuals (See Appendix 1 – List of Submissions).

1.8 The Committee conducted three visits of inspection to waste infrastructure facilities:

- Goulburn to the Woodlawn Eco-precinct and Bio-Reactor on 21 April 2006;
- Tamworth to the Gunnedah Waste Management Facility and other related inspections on 27 April 2006; and
- Eastern Creek Waste and Recycling Centre on 30 May 2006.

1.9 The Committee Manager also attended the NSW Waste 2006 Conference on 28-31 March to research for the inquiry.

1.10 The Committee held public hearings on 31 May and 1 June 2006. (Appendix 2 – List of Hearings and Witnesses)

The Waste Problem

1.11 In examining municipal waste management, the Committee has spent considerable time considering the basis of government involvement in waste management. Three critical premises inform the Committee's views and approach to this inquiry:

- Waste is a Sustainability Issue
- Waste is a Consumption Issue
- Waste is a Residual Industry

Waste is a Sustainability Issue

1.12 A common concern around the world is the rapid consumption of finite or unrenewable resources. Excessive consumption is reflected in increased waste volumes. The exhaustion of unrenewable resources and associated environmental damage from production and consumption is seen as undesirable. Once unrenewable resources are exhausted, the consequences are irreversible for the planet. Even the consumption of renewable or re-useable resources may still create a legacy of environmental harm.

1.13 On the other hand, resource use for production and consumption of goods in modern nations drives improvements to quality of life and economic growth. Societies recognise that resource consumption is essential for human activity.

1.14 Striking a balance between maximum consumption and economic growth against minimum waste and minimum harm to the environment is the key challenge for policy

makers and is captured within the broader framework of sustainability[3]. Sustainability has multiple definitions but generally refers to the performance of human activities in such a way that optimises the continuity of social, economic and environmental systems from one generation to the next. In August 2006 the NSW Government has released a Statement on Whole of Government Sustainability Principles to be applied in government decision making. The Statement defines sustainability as:

> Sustainability is generally considered to consist of actions that support – now and for the future – social sustainability (individual and community well-being), economic sustainability (economic prosperity) and environmental sustainability (the protection of air, water, soils, energy, marine resources and other factors in the environment needed for biodiversity, including humanity, to live). The concept of sustainability has also been extended at different times to include sustainable development, sustainable consumption, cultural sustainability and sustainable businesses.

1.15 The Statement goes on to say:

> Sustainability is informed by three facts. First, the earth's resources are not limitless. Resources, whether they be natural, human, economic or cultural need to be conserved, nurtured and renewed. Second, much current resource use is inefficient, inequitable, waste-creating, destructive of species and employed for short-term gain at levels beyond those which can be recovered from in the long-term. Third, government agencies, businesses, communities, community organisations, families and individuals all use society's social, economic and environmental resources: sustainability is therefore not a government responsibility alone but a responsibility of us all.

1.16 The NSW Statement also lists key foundation principles which includes: inter-generational equity; sustainable communities; economic prosperity; ecologically sustainable development; full pricing of natural resources, bio diversity conservation; and the precautionary principle.[4]

1.17 Clearly the NSW government sees strong links between resource use, waste generation and environmental damage. In response to this concern NSW prioritises waste avoidance and minimisation at the peak of their waste management goals. Waste avoidance and minimisation are seen to have benefits at two levels:

- At a macro level - the less waste produced reflects, in part, fewer finite resources utilised in manufacturing and consumption;
- At a micro level - the less waste produced, the smaller the waste management problem for the community.

1.18 However a recent draft report by the Productivity Commission into Waste Management appears to suggest that sustainability, while important, should not drive waste

[3] Sustainability concepts and principles have been adopted by governments around the world as demonstrated by the establishment of government and non-government sustainability institutions, regulatory requirements recognising sustainability issues and international agreements addressing sustainability concerns (refer to Sustainability policies of OECD, UN-FAO and WHO).

[4] NSW Sustainability Statement is found at http://www.premiers.nsw.gov.au/NSWCommunity/Community/Sustainability.htm. The 'precautionary principle' is a decision criteria which argues that where there are risks of serious or irreversible damage, lack of scientific certainty shall not be used as a reason to postpone cost-effective measures to prevent environmental degradation or reduce social harm.

management policy. The Productivity Commission's perspective on growing waste and sustainability concerns is discussed as follows:

> The issue of sustainability is complicated by the diversity of things we pass on to future generations. These include:
>
> - human capital — knowledge and understanding;
> - man made capital — economic and social infrastructure; and
> - natural capital — biodiversity, renewable and non-renewable resources and ecological integrity.
>
> Additions to, or conservation of, any of these types of capital are likely to contribute to sustainability (or at least improve the endowment we pass on to future generations). To some extent it might be possible to substitute one type of capital for another. Thus, sustainability might be achieved even where some finite resources become heavily depleted. However, some natural resources, such as clean air and water, are not substitutable.
>
> Apart from these essential resources, we do not know with any precision what the resource needs of future generations will be, so it is difficult to know what needs to be conserved. It is likely that technological change will mean that we will be able to do more with less, and we might be able to switch our dependence on some non-renewable resources to some renewable resources. And as finite resources become scarce, prices will rise, stimulating exploration and development of new reserves, greater recycling, conservation through greater efficiency of use, and the development of substitutes (where this is possible).[5]

1.19 The Productivity Commission's above discussion of sustainability in the waste report appears to suggest that technology solutions may alleviate waste disposal problems and sustainability concerns. The Committee sees the PC interpretation of "sustainability" in the waste context as flawed for the following reasons:

- First, waste is the residue of consumption of natural resources or natural capital. It is not a residual of human or social capital consumption. The options for trade offs or substitution between these types of "capital" to achieve sustainability in waste management is extremely limited;
- Secondly, production processes that lead to waste pollute and degrade the bio-system particularly affecting clean water and air. "Technological" substitutes for this natural capital are not available and will not be available to rescue communities from the consequences of environmental degradation. Conservation of natural resources must take precedence irrespective of the lack of "precision" in current assessments about "what needs to be conserved"; and
- Thirdly, the argument that the increased scarcity of finite resources will stimulate exploration and develop new reserves is hardly consistent with the paradigm of resource conservation and the preservation of natural endowments for future generations.

1.20 The Productivity Commission appears to suggest that the depletion of some finite resources may be consistent with sustainability outcomes provided conditions allow for future technology substitution. This is contrary to most sustainability theory and the perspective of the NSW Government's Sustainability Statement. Most

[5] Productivity Commission Draft Report, *Waste Management,* May 2006, pxxvii.

sustainability principles recognise the importance of minimising use and encouraging the preservation of finite resources for future generations. While the value of a particular finite resource may not be clear or comprehensively measurable today, the assumption of sustainability is to conserve that resource rather than deplete it in hope of technological change or substitution in the future.

FINDING 1

1.21 Most governments, including the NSW Government, recognise the connection between sustainability and waste and the Committee believes that these links should inform waste policy development.

1.22 The Committee sees technical solutions proposed for energy recovery, containment and disposal of waste are important in improving waste management in the short term. However, contrary to the views of the Productivity Commission, such changes alone are not sufficient to move society towards sustainable consumption and sustainable waste management.

1.23 The Committee's view is that overarching waste management and policy approaches must continue to be framed and developed in the context of sustainability.

Waste is a Consumption Issue

1.24 Much of the discussion and recommendations in this report focus on how to manage the waste generated by consumers. Concepts such as recycling and reuse, better recovery of resources trapped in the waste stream, and less costly and environmental friendly waste disposal options are discussed.

1.25 However, the Committee is mindful that focusing on waste management and disposal is not sufficient. This ignores the source of waste, which is the consumption of goods and associated resources from which they are derived. Waste represents the tangible remains of those consumption activities and their costs, including extraction of virgin product and irreversible damage to the environment. Simply put "high levels of waste are a symptom of high levels of consumption" and therefore any genuine attempt to address waste must look at consumption activity.

1.26 The Committee acknowledges that waste generation is closely linked to economic prosperity. The production of goods provides consumer choice, maintains economies and employment, and enables higher standards of living. For these reasons increased consumption stimulating economic growth is desirable, while the associated growth of waste is not.

1.27 Australia, like many countries, has to grapple with separating the growth in consumption from growth in waste. Some argue that such separation is not possible and that we each need to demand fewer products or reject "consumerism". However, even if per capita consumption is held in check, world population growth and increased standards of living inevitably lead to greater consumption and increase in waste volumes. Others argue that we need to demand and create consumables in a way that generates less waste. Hence improving the feasibility of "less wasteful" consumption has become a key strategy for most modern economies.

1.28 Two main consumption behaviour strategies employed by governments to address these policy tensions are:

- **Waste minimisation** that discourages excessive consumption and unnecessary waste products such as packaging; and
- **Product reuse and resource recovery** where maximum usage, re-usage and recycling is made of existing materials to reduce the demand for use of new materials, assist conservation, and reduce the volume of waste produced.

1.29 These initiatives form the top order priorities in the "waste management hierarchy" that is generally guiding waste management policy around the world (See Chapter 3 for a detailed discussion).

1.30 One typical "less wasteful" form of consumption is reuse and recycling. However the Committee has been informed by various submissions that under current market arrangements and available prices, it appears that some recycling is actually "more wasteful".

1.31 In particular the Productivity Commission's inquiry argues that some recycling programs are more resource intensive than beneficial in terms of consuming extra energy and generating more emissions in sorting, processing, transport and reproducing than simply using more raw or virgin materials. It is suggested that consumers are attached to an idea that "recycling is good, more is better'" which is overriding "rigorous analysis of costs, benefits and risks".[6]

1.32 However, as noted by the Productivity Commission, it is generally agreed that the current pricing of most production and goods does not capture "externalities" - that is - the true social, economic, and environmental costs of extraction and production. Subsequently evaluations based on the "identifiable" costs and benefits of some recycling initiatives may not indicate their true value or benefits.[7]

1.33 Also the cost-benefit assessment methodologies applied by the Productivity Commission fail to acknowledge the two fold benefits of recycling strategies, namely that consumption can be repeated without adding to the volume of waste needed to be disposed; and - two, the drain on original resources and the environment is lessened by extending the life of the current product.

1.34 Current cost-benefit analysis may also leave out critical issues which explain the community's behaviour. The public interest and commitment to apparently "flawed" waste minimisation programs can be explained when community values or the aspirations and judgements of consumers are considered.

1.35 Cost benefit analysis is a decision support tool and does not necessarily capture all the facets that influence decisions. In particular, values of intangible items such as the natural environment and the benefits of preserving current resources for future generations are commonly excluded because of difficulties in measuring and weighting those items against input and output prices.

[6] Productivity Commission Draft Report, *Waste Management,* May 2006, p. xxxv.
[7] Productivity Commission Draft Report, *Waste Management,* May 2006, p. xxxi.

1.36 Community values are a valid and appropriate factor to influence waste policy and should be considered alongside economic and scientific information. It may be the case that particular waste programs are not delivering the most benefits according to current analysis. However this does not mean that community values and participation in that program are invalid and should be dismissed, particularly when it is acknowledged that economic and scientific measures are ultimately an incomplete reflection of desirable community outcomes.

FINDING 2

1.37 The Committee believes that community aspirations towards waste minimisation and sustainability should be harnessed more directly to influence improvements in waste management. Consumers can see the bigger picture –they are not always price driven and their purchasing decisions can be influenced by their values and aspirations. This is an advantage to policy makers in a waste management context because we cannot at this stage use the price signals in the waste market to accurately reflect all the costs and benefits associated with waste.

1.38 Waste policies, which tap into community values and influence consumer activity, can be a mechanism to address sustainability concerns and waste externalities which are not reflected in current pricing for products and waste disposal.

1.39 The Committee believes that waste policies should assist to decouple consumption growth from waste growth by looking at smarter or "less wasteful" production and consumption activities. The Committee believes more emphasis should be given to production and consumer strategies to affect waste outcomes.

Waste is a Residual Industry

1.40 Contemporary discussions in waste policy refer to waste as a "resource industry" and apply industry or commercial market principles. This is to reflect both a desire to change negative public perceptions of the industry and to capture and link the concepts of "resource recovery" with the waste management system.

1.41 However the Committee sees that care must be taken to simply apply commercial or market principles to manage the waste industry. Unlike normal markets, waste is a residual by-product of consumption. Waste is a pollutant. A public "bad" that has no intrinsic value but is derived from consumption of valued goods. Although components of waste may have properties of a resource market that can be harvested or recovered, it cannot be considered a market in the same sense of other resource industries. Other resources are harvested in order to generate a consumer good for a market whereas waste is the residual of consumption and not the basis of the market.

1.42 The waste industry is commonly identified to have many market failures because of the externalities associated with generation and disposal. For example the Productivity Commission objective in its recent inquiry was to "identify policies that will enable Australia to address market failures and externalities associated with the generation and disposal of waste". Implicit in the Productivity Commission statement is the assumption that if the externalities from waste can be effectively managed then the waste industry is successful.

1.43 The Committee sees the issue slightly differently. It argues that waste is the sum of externalities of the production and consumption industry. The waste industry does not have elements of market failure - it is a market failure. It is the outcome of the market failures of the production industry. Waste policy is therefore inextricably linked to production policies. Proponents, who argue that waste management policies should not include intervention in "upstream" externalities associated with production and consumption processes, fail to recognise these fundamental connections.

1.44 Because waste is a market failure in its entirety, applying normal market growth policies to waste is unsound. To illustrate - while the provision of adequate hospitals and prisons to meet community needs is desirable, growth in the demand for hospitals and prisons is not desirable when it's a reflection greater illness and increased crime being experienced by the community.

1.45 In this sense the growth and development of the waste industry in terms of waste volume is not synonymous to the community's waste minimisation goals or an end in itself. Waste is negative product that should be constrained as further growth of waste industry volumes is evidence of greater market failures in production. A viable waste industry needs to be disconnected to growth in waste volumes. This is very different operating paradigm to most markets where volume growth leads to business and economic growth.

1.46 This does not mean that market structures in the waste industry should not be dynamic and competitive. In fact, the Committee believes that an effective waste industry is vital to the State's long-term economic performance and environmental health. However, given the community's overriding goal is for environmental sustainability and waste minimisation, simple applications of normal market principles may not be consistent the communities waste management goals.

FINDING 3

1.47 In contrast to the Productivity Commission's suggestion that some Australian jurisdictions "have become obsessed with waste minimisation as an end in itself", the Committee believes that governments must also take care to avoid becoming obsessed with creating a flourishing waste industry as an end in itself. The real measure of the government's success in waste management is ultimately less waste.[8]

The Waste Cycle and the Structure of this Report

1.48 This report is structured to provide information about current waste management and policies and to highlight issues raised in submissions and evidence and is divided into two parts.

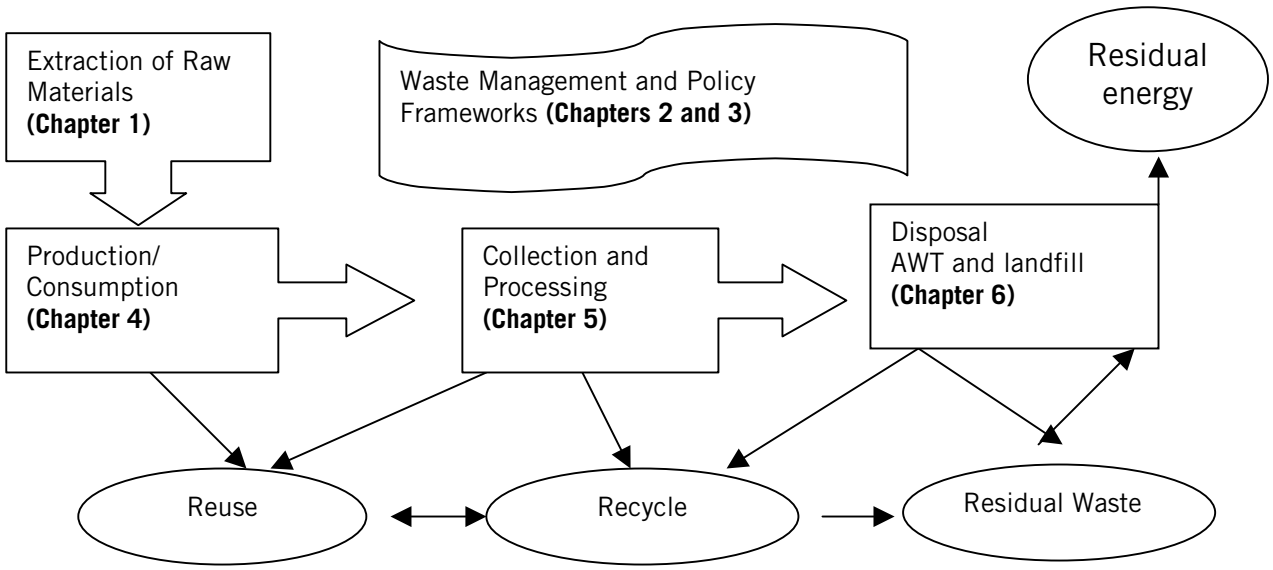
1.49 Part 1 includes Chapters 2 and 3, which provide background to the inquiry. Chapter 2 provides a snapshot of current waste processes and key data. Chapter 3 outlines current concerns about policy and government regulation concerns.

1.50 Part 2, is the remainder of this report from Chapter 4 to Chapter 6. Part 2 examines issues in waste management in order of the waste management cycle. Chapter 4 looks at the production and consumption stages leading to waste creation. It examines

[8] Productivity Commission Draft Report, Waste Management, May 2006, p xxxv

issues of consumer behaviour and production such as consumer education, product reuse and extended producer responsibility legislation. Chapter 5 looks at municipal collection processes and examines contracting, bin and sorting systems, recycling and materials recovery. Chapter 6 looks at waste disposal issues and focuses on Landfill and Alternative Waste Technology options. Figure 1 – Waste Flow outlines the broad structure of the report.

FIGURE 1: Waste Flow



Chapter Two - Waste Management in NSW

Introduction

2.1 This chapter provides an overview of the waste management industry in NSW including:

- definitions of waste;
- comparative Australian and NSW data;
- a description of the municipal waste process; and
- a breakdown of waste infrastructure in NSW.

What is Waste?

2.2 Generally, waste is defined as anything rejected or considered as useless, worthless, or in excess of requirements. It can be anything that is not used to its full advantage or a wasted opportunity. It can be garbage, rubbish or refuse. There are a variety of formal definitions of waste relating to international standards and technical and scientific criteria (See Appendix 3 – Waste Definitions). This Inquiry has adopted the definition prescribed under the NSW *Protection of the Environment Operations Act 1997 (*POEOA).

2.3 Under the POEOA, the definition of waste includes:

a) any substance (whether solid, liquid or gaseous) that is discharged, emitted or deposited in the environment in such volume, constituency or manner as to cause an alteration in the environment, or
b) any discarded, rejected, unwanted, surplus or abandoned substance, or
c) any otherwise discarded, rejected, unwanted, surplus or abandoned substance intended for sale or for recycling, processing, recovery or purification by a separate operation from that which produced the substance, or
d) any processed, recycled, re-used or recovered substance produced wholly or partly from waste that is applied to land, or used as fuel, but only in the circumstances prescribed by the regulations, or
e) any substance prescribed by the regulations to be waste.

The Act also notes that a substance is not precluded from being waste for the purposes of the POEOA Act merely because it is or may be processed, recycled, re-used or recovered.

2.4 The Local Government Act 1993, provides the following additional definition with reference to the POEOA: "...(c) garbage, being all refuse other than trade waste and effluent, and includes any other substance defined as waste for the purposes of the Protection of the Environment Operations Act 1997."

2.5 In Australia, waste is generally categorised into three distinct streams:

- Municipal – includes all household kerbside collections of domestic putrescible, recyclable and organic wastes, and waste collected by councils from municipal parks and gardens, public place, and council public works operations.
- Commercial and Industrial (C&I) – includes waste from the activities of businesses, industries, and public institutions.
- Construction and Demolition (C&D) – includes waste from the activities of the building and construction industry. In reality, waste streams are not clearly aligned to these definitions with cross overs in waste creation and collection processes.

Waste in NSW

National and State Trends

2.6 It is difficult to get a national snapshot of waste activities because of differences in waste categorisation, data collection methods used by each State and the absence of time series information. However the Productivity Commission's 2006 draft report into Waste Management suggested that total waste generated in Australia per annum is around 32.4 million tonnes.[9]

2.7 Waste generation has generally been increasing in every State but it is difficult to determine from data why increases are occurring. Other than a simple correlation with population growth, waste volume changes may be linked to increases in average consumption, greater packaging of goods, greater obsolescence or singe use products (one use then dispose), and the increase in smaller households with higher consumption. However, there are no demonstrable links or studies substantially supporting these arguments.[10]

2.8 NSW is the largest waste producer in Australia, generating approximately 12.2 million tonnes per annum and the highest producer of waste in all waste streams. On Productivity Commission measures, NSW is the third highest per capita waste producer at 1820 kg per person per year (This includes all waste streams, as distinct from per capita Australian municipal waste which is around 600kg).[11]

2.9 The most recent data for NSW waste generation (2002-3) is identified in figure 2:

Figure 2 : Solid Waste Generation in NSW

Waste Stream	Million tonnes	Percentage
Municipal	3.32	27
C & I	4.20	34.5
C& D	4.65	38.5
Total	**12.17**	**100**

(DEC data Submission 56 and Productivity Commission, 2006, Table 2.1, p17)

Waste across NSW

2.10 The NSW Department of Environment and Conservation (DEC) collect waste data based on geographic areas. This reflects waste management strategies, particularly,

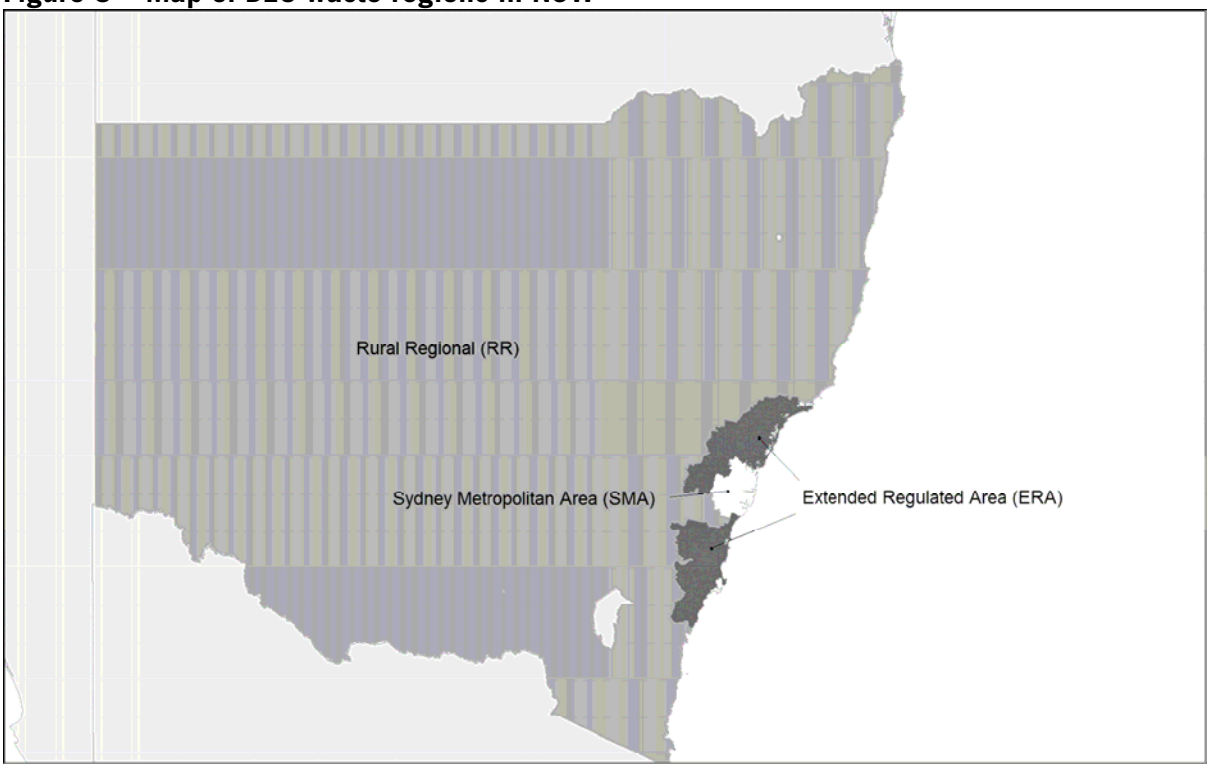
[9] Productivity Commission Draft Report, *Waste Management,* May 2006, p. 16.
[10] Productivity Commission Draft Report, *Waste Management,* May 2006, p. 20.
[11] Productivity Commission Draft Report, *Waste Management,* May 2006, p. 17.

the division of the State into regions for the application of waste levies. Data is collected within three divisions, identified in Figure 3 as:

- SMA - Sydney Metropolitan Region/ Area, which includes the main Sydney metropolitan area;
- ERA - Extended Regulatory Area which, includes Newcastle and Wollongong; and
- RR – Rural Regional areas, which includes the remainder of the State.

2.11 In addition, the DEC also provides data on the combined Greater Sydney Region (GSR), which consists of the SMA and the ERA.

Figure 3 – Map of DEC waste regions in NSW



2.12 While Figure 4 outlines the collection rates across these regions, NSW rural and regional waste information is less rigorous. However, Department of Local Government surveys for 2000-01 to 2002-03 indicate that the total municipal waste disposal in rural regional NSW has remained steady at 500,000 tonnes.[12]

Figure 4 : Municipal Waste Disposal in Sydney Metropolitan Region/Area (SMA); Municipal Waste Disposal in Extended Regulated Region (ERA) and Greater Sydney Region (GSR)

Year	SMA	ERA	GSR
	Tonnes	Tonnes	Tonnes
2000	1,334,756	438,986	1,773,742
2001-2002	1,252,903	442,352	1,695,255
2002-2003	1,191,275	465,836	1,657,111

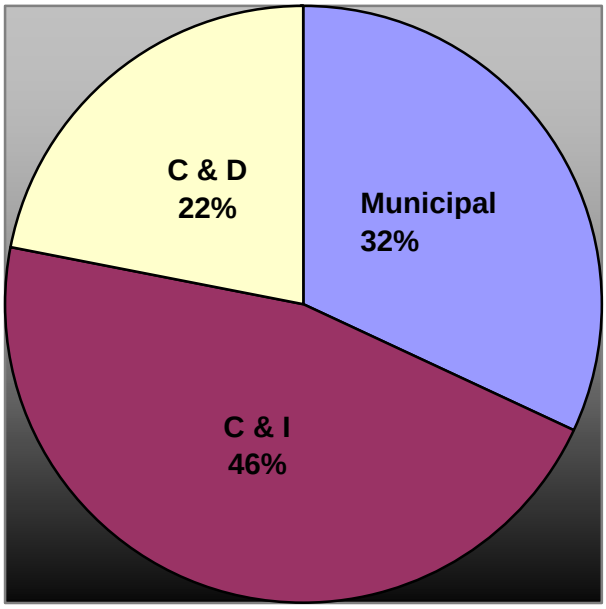
Source: Amended from DEC (2004) Waste Avoidance and Resource Recovery in NSW: A Progress Report 2004, pp 7-8.

[12] Department of Environment and Conservation, *Waste Avoidance and Resource Recovery in NSW: A Progress Report 2004*, p6

Sydney Waste

2.13 The municipal waste stream represents a third of the total waste produced in NSW, and also accounts for 32% of the total waste disposed of in the Sydney Metropolitan Area (SMA) (see figure 5). Commercial and industrial waste includes materials generated by commercial establishments such as offices, stores and hotels, and non-biodegradable waste generated in industrial or manufacturing processes. The C & I sector generates 46% of the total waste disposed of in the SMA. Construction and demolition waste is derived from the construction, demolition and refurbishment of new and/or existing buildings or structures, generating 22% of the total waste disposed of in the SMA (State of the Environment report 2003, DEC).

Figure 5 : Waste Stream Percentages in Sydney Metro Area in 2003



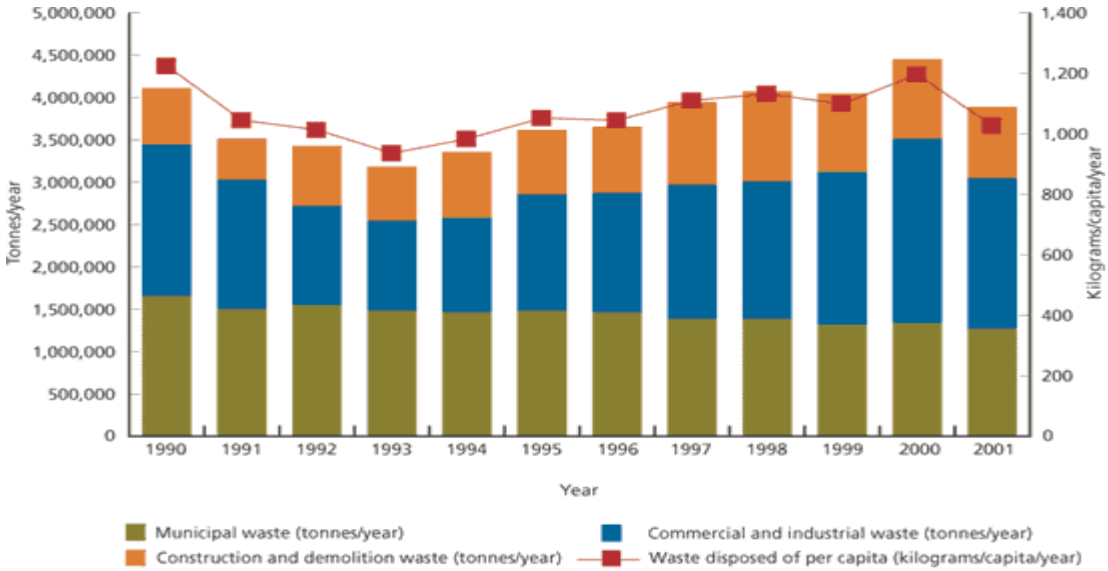
(Source adapted from (DEC, State of the Environment Report 2003)

2.14 Figure 6 shows some key waste trends in the Sydney metropolitan area. During the period 1990 to 2001:

- The total tonnage of waste produced in Sydney area varied between 3.5 and 4 million tonnes;
- The municipal waste component is approximately 1.5 million tonnes; and
- Sydneysiders generated over 1000kg of municipal waste per person in comparison to Australia's general average municipal waste of 600kg per person.[13]

[13] OECD 2003.

Figure 6 : Waste Disposal Rates for all sectors and waste disposal per capita, Sydney Metropolitan Area, 1990-2001.



(Source: State of the Environment Report 2003, DEC)

What is Municipal Waste?

2.15 Generally, municipal waste is defined as the waste arising from domestic households and from litter management in public areas. Definitions vary slightly around the world and are linked to collection methods and government responsibilities (see Appendix 3).

2.16 In NSW, the term "municipal waste" describes two general waste streams - Municipal Solid Waste and Domestic Waste:

- Municipal Solid Waste (MSW) is the solid component of the waste stream stemming from household waste placed at the kerbside for council collection. It also includes waste collected by council from municipal parks and gardens, street sweepings, council owned public bins and council public works activities.
- Domestic waste is the component of the municipal waste stream generated from households and includes general residual (putrescible and non-putrescible), recyclables, and garden organic wastes.

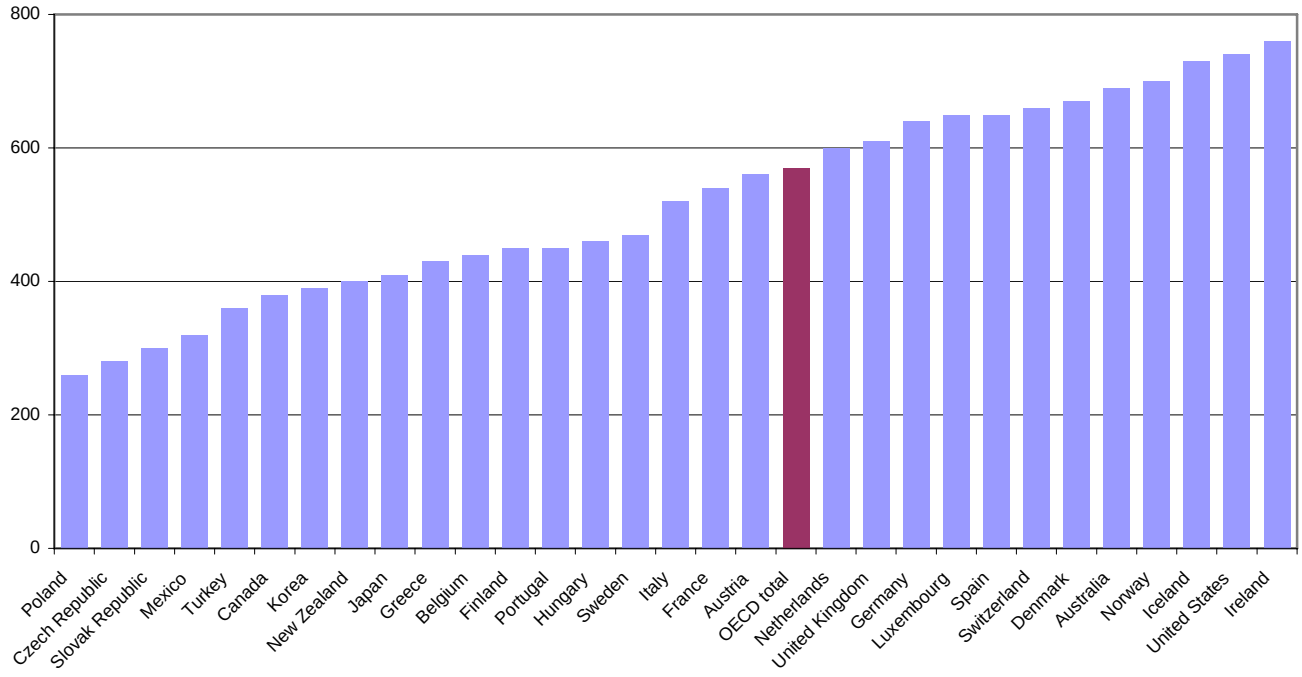
2.17 MSW does not include hazardous, clinical and related wastes, although it is important to note that while hazardous materials are not classified as MSW, these materials do find their way into the municipal waste stream causing contamination of materials, creating costly disposal measures for the receiver and occupational health and safety issues for operators and staff.

2.18 The Committee recognises the importance of delineating both domestic waste and MSW and also acknowledges their interrelationship as part of the operations of Councils, the Waste Industry and State Government Policy. Consequently, to address the Inquiry's Terms of Reference and for the purposes of this Report, the discussion will largely concentrate upon the issues that surround the interconnectedness of both domestic and MSW waste and will therefore adopt the general term Municipal Waste.

2.19 While proportions vary, international figures indicate that municipal waste is generally the smallest waste stream in terms of volume, after Construction and Demolition, and Commercial and Industrial waste generation.

2.20 However, by comparison with other OECD member countries, Australia's rate of municipal waste per capita is very high at over 600 kg per person per year. This makes Australia the 5th highest per capita municipal waste producer behind the Ireland, USA, Iceland and Norway and ahead of more than 25 other OECD member countries (see figure 7).

Figure 7: OECD Member Countries, Municipal waste (kg per capita), (2003 data onwards)



(Source: OECD Factbook 2006 http://titania.sourceoecd.org/vl=6324711/cl=15/nw=1/rpsv/factbook/07-01-03-g01.htm)

2.21 As noted in Chapter 1, this high individual waste generation rate prompted the Committee's interest in examining municipal waste in NSW and ways of reducing this current waste trend.

Local Government Municipal Waste Management

2.22 Generally, most municipal waste is generated at the household (domestic waste) and placed at the kerbside for collection by local council (or their contractors) to be placed into the waste stream for processing via transfer stations, material recovery facilities, alternative waste technologies facilities and ultimately to landfill. This section outlines in detail how these activities are undertaken. In particular the role of local government or councils and the different management structures for municipal waste are examined.

2.23 Councils are the principle authority responsible for the management of municipal waste in NSW. Local government has been the traditional custodian of public health, cleansing, prevention of disease, and the systematic removal of waste and used products from the public realm.

2.24 Under the Local Government Act 1993, local councils have the legal responsibility to collect and dispose of waste material from residential households in their local government areas.[14] Chapter 6 of the Act confers upon Councils their non-regulatory functions, which include the provision, management or operation of - "Waste removal, treatment and disposal services and facilities". Further, under the Local Government Act, Councils are able to recover the full cost of providing municipal waste services through a separate domestic waste charge.[15]

2.25 Councils play a major role in waste management in NSW, being largely responsible for municipal waste collection and recycling and "clean up" collections, as well as garbage and recycling services in public areas and street cleaning.[16]

2.26 Council arrangements for municipal waste management vary greatly. Some councils use day labour whilst the majority outsource the service to contractors. There is no single standard contract configuration. A council municipal waste management contract can include any combination of options encompassing waste and recycling collections, residual waste disposal, sorting of dry recyclables, organics processing, use of alternative waste technologies and periodic clean-ups.

2.27 Councils also have regulatory and enforcement responsibilities. Council enforcement officers undertake a number of duties, including enforcement associated with illegal dumping and littering. The level of focus on this area is dependent on individual council priorities and ranges from minimal through to proactive investigation and enforcement. Some councils elect to remove litter and dumped waste instead of strict enforcement to maintain the amenity of their local area.

2.28 Through their Development Control Plans (DCP), councils can influence the provision of adequate waste facilities within new developments. Through Development Applications conditions, Councils may require waste from the construction and/or demolition stages to be disposed to maximise resource recovery and promote waste avoidance at the design phase.

2.29 Councils have an important role in directly influencing a range of activities and behaviours within their communities through waste avoidance and resource recovery initiatives and community education programs.

2.30 Areas where councils play a significant role are:

- Service delivery and integration of best practice resource recovery systems;
- Land-use planning and development through Local Orders and Policies, Waste Not Development Control Plans, infrastructure development and strategic land use planning;

[14] Submission 42, SSROC, p. 3.
[15] Submission 42, SSROC, p. 6.
[16] The remainder of this section to paragraph 2.58 is derived from extracts from Submission 56, Department of environment and Conservation NSW, pp. 4-6.

- Purchasing recycled content products and using recycled materials in municipal activities, such as landscaping and road construction;
- Educating communities and delivering local programs on waste avoidance and resource recovery; and
- Data collection and reporting.

2.31 Of the total 152 local government councils in NSW, 38 councils are located within the Sydney Metropolitan area (SMA), 13 councils in the Extended Regulated Area (ERA) and 101 councils within Rural Regional NSW.

2.32 NSW councils can each have differing municipal waste management structures and levels of service provision. These are affected by financial capacity, area demographics and local priorities.

2.33 All councils within NSW provide a residual waste (putrescible) collection service to residential premises, with the exception of a small number of rural councils. All councils within the SMA and ERA and large regional centres also provide recycling collection services for dry recyclables.

2.34 The highest concentration of residents is in the Greater Sydney area (SMA and ERA), with 75% of the population living on the coastal strip between Port Stephens and the Shoalhaven area. This area generates the majority of the solid waste disposed to landfill.

2.35 The lower population densities and greater distance between centres of population outside the SMA and ERA present different, but significant, challenges for councils and waste management in those areas. These include higher transport costs for recovery and distance to markets for many potentially recoverable materials.

2.36 The provision of collection services is generally contracted out to a private collection service. Councils maintain and manage these contracts. Many councils combine collection contracts over regions and, in the Sydney metro area, collection contracts may also be held by the WSN, the State owned waste collection corporation. In the Sydney Metro area, eight councils currently employ staff to collect waste.

2.37 Contractors are also involved in the collection, transferral, sorting, processing and disposal of municipal waste. At various stages in the process, waste entering these operations is not always exclusively municipal and can be mixed with other wastes received from waste sectors. Contractors are playing an increasingly important role in the management of waste and, in particular, the municipal waste stream.

2.38 Management of waste infrastructure also varies throughout NSW. Landfills, transfer stations and materials recovery facilities in the Sydney Metropolitan region are largely owned and operated either by WSN Environmental Solutions (a state owned corporation) or private enterprise.

2.39 In contrast, councils in rural regional NSW usually own and operate waste management facilities, including landfills, transfer stations and recycling drop off facilities. Some also have contracts for resource recovery technologies for organics and

technologies to reprocess residual waste. Other services that councils may provide include business waste and recycling collections and household chemical collections.

2.40 The difference in services provided and other variables affecting municipal waste management is summarised in Figure 8 below provided by the NSW Department of Environment and Conservation:[17]

Figure 8 : NSW differences in municipal waste management

SMA & ERA	Rural Regional Areas
Provide a kerbside containerised waste and recycling service.	Larger regional urban areas have a kerbside waste and containerised recycling service. Some smaller councils use drop off facilities or do not provide any recycling.
The landfills, transfer stations and material recovery facilities are owned and operated by a State owned corporation or private enterprise in the SMA and by councils or private enterprise in the ERA.	Landfills, transfer stations and material recovery facilities are generally owned and operated by local councils.
A State Government Waste and Environment Levy is applied to waste disposed in the SMA and ERA	No State Government levy is applied to rural regional landfills.
Greater capacity to access processing facilities and markets. Because of this, there is the opportunity to provide a more comprehensive recycling services.	Costs to transport, process or market recovered materials may limit resource recovery.

Municipal Collection Activities and Service Charges

2.41 The collection of municipal waste is coordinated by local government authorities who organise for the collection of waste by either in-house collection services or contractors. From the point of collection, municipal waste is taken to a transfer station, materials recovery facility or alternative waste technology facility or to landfill.

2.42 Depending upon the council, residential collection systems for municipal waste are conducted at varying frequencies and generally consist of the following streams:

Residual Waste Services

2.43 Councils provide residual waste services to households via the provision of containers. Most containers are known as wheelie bins or mobile garbage bins (MGBs). MGBs sizes range from 55 litre to 240 litre. The collected waste is transported directly to a Class 1 Landfill or to a waste transfer station or AWT, where it is processed before disposal to landfill.

[17] Submission 56, DEC NSW, p. 6.

Recyclables

2.44 Many councils provide "dry" recycling services to households that collect a variety of post-consumer recyclables including plastics, steel, newspaper and cardboard. The containers used to collect this material range from crates to MGBs of varying sizes. Collected recyclables are normally transported to a materials recovery facility (MRF), where the materials are processed and sorted as recyclate for markets to be re-processed and manufactured into new products.

Garden organic collection

2.45 Many councils also collect "green" or garden organic waste from households. Garden organics consist of grass clippings, shrub and tree prunings and other vegetation. The green waste is usually collected in MGBs. The collected material is transported to recovery centres, which process the material for organic purposes such as compost and landscaping.

Council clean-up collections

2.46 Many councils offer ratepayers an additional service by collecting dry hard wastes such as white goods, furniture, appliances and general unwanted household materials. Ratepayers are generally offered this service on an annual, biannual, or upon request basis. As this material is bundled into particular categories, the recovered materials are processed accordingly i.e., metals, organics, landfill.

Waste Service Charges[18]

2.47 Councils must make and levy an annual charge for the provision of domestic waste management services for each parcel of rateable land for which the service is available.[19]

2.48 Section 504(3) of the *Local Government Act 1993* (LGA) requires that the charge for Domestic Waste Management Services must not exceed the reasonable cost to the council of providing those services. The LGA dictionary defines domestic waste services as comprising the periodic collection of domestic waste from individual parcels of rateable land and the activities that are associated with providing those services.

2.49 Domestic Waste Management Services could include:

- Weekly (or other periodical) garbage or waste collection from domestic
- premises;
- Extra collection services (multiple or larger bins);
- Periodical clean-ups from domestic premises;
- "On-request" clean up services; and
- Recycling activities or services for domestic premises.

[18] This section on charges is an excerpt from Submission 56 DEC, p5
[19] Section 496 of the *Local Government Act 1993*.

2.50 Domestic waste services would not include providing a landowner access to a tipping site, removal of waste from commercial, business or industrial premises, street cleaning, emptying public bins, or managing wear and tear on roads by garbage trucks.

2.51 The reasonable cost to council, which is the basis of the charge, could include provision for future events such as waste disposal site rehabilitation and the acquisition of new facilities or equipment directly associated with providing the service. The provisions contained in the Act are considered to provide councils with the necessary flexibility to finance community service demands and obligations for waste management.

2.52 Councils are also able to levy annual waste charges for services other than domestic waste. However, unlike domestic waste charges, the council must provide a service to the property in order to levy the charge. Councils set the amount of such a charge.

2.53 Neither Domestic Waste Management nor Waste charges are subject to rate pegging and councils can determine the level of service they will provide. The cost of implementing best practice recycling services can be recovered through the Domestic Waste Management charging (DWM). There are significant variances in council Municipal Waste Management charges. The highest DWM charge in 2003/04 was $325 and the NSW average was $207.[20]

Municipal Waste Recycling and Recovery

2.54 As noted previously, NSW generates approximately 3.3 million tonnes of municipal waste per year. Municipal waste comprises of many items commonly generated from household activity. Figure 9 provides a breakdown of common waste streams and the quantities generated, disposed of and recycled. Overall, about 35 per cent of municipal waste is recovered.

Figure 9 : Total Municipal Waste Generated by Waste Stream in NSW – 2002-2003.

	Disposed	Recycled	Total	Recovery
Paper & Cardboard	264,500	336,500	601,000	56%
Plastic	114,000	24,500	138,500	18%
Glass	81,000	126,000	207,000	61%
Ferrous	42,000	15,000	57,000	26%
Garden Organics	629,500	650,500	1,280,000	51%
Food	637,000	0	637,000	0%
Other Recyclables#	7,000	4,000	11,000	36%
Other Waste*	395,000	0	395,000	0%
Total	2,170,000	1,156,500	3,326,500	35%

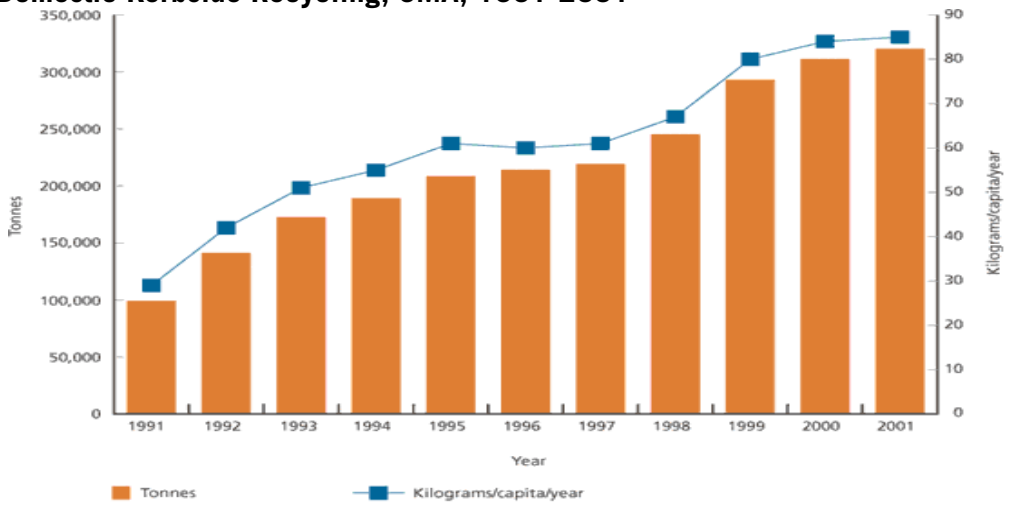
#Other Recyclables – comprises aluminium and other non-ferrous metals, and liquid paperboard.
*Other Waste – comprises mixed and contaminated waste not suitable for recycling.
(Adapted from DEC Waste Avoidance and Resource Recovery in NSW: A Progress Report 2004).

2.55 The NSW Government 2003 State of the Environment Report provides a discussion of the movements surrounding municipal waste disposal and increased levels of

[20] NSW Department of Local Government, *Comparative information on NSW Local Government Councils 2003-2004.*

domestic kerbside recycling from 1991 to 2001. Until the early 1990s, the majority of the Sydney region's municipal waste was disposed to landfills or by incineration. Increased community awareness and a growth in demand for materials recovered at the kerbside have increased the rate of recycling and, in turn, lowered the level of waste disposed to more traditional landfill/incineration facilities as shown in Figure 10.

Figure 10: Domestic Kerbside Recycling, SMA, 1991-2001



(Source: State of the Environment Report 2003, DEC)

2.56 Recycling trends differ slightly in rural areas depending on availability of recycling options and facilities but overall a similar improvement in recycling behaviour is evident in regional areas around NSW.

2.57 The main recycling activities are paper and cardboard, glass and garden organics. This reflects two factors:

- the ease of separation of such materials enabled by differentiation at collection points (bin separation in council pick ups) or the low cost sorting at material recovery facilities (MRF) following initial collection; and
- the relative technical ease of recycling these products and established markets for the recycled materials.

2.58 A key challenge for recycling is building technical capacity and forward markets for recyclable materials. This is discussed in detail in Chapter 5**.** The current overall recycling rates in NSW reported by DEC are around 50 per cent based on available for SMA and ERA regions data.

Figure 11 : Recycling/ Resource Recovery Rates for NSW at 2004/2005

Rate in %	Municipal	C&I	C& D	Overall
Recycling Rate SMA	37	35	66	49
Recycling Rate ERA	33	52	65	50

(Submission 56 – DEC, supplementary information provided to Committee)

Waste Infrastructure in NSW

2.59 Waste infrastructure consists of four main types of facilities:

- Transfer Stations or Depots;
- Material Recovery Facilities (MRF);
- Alternative Waste Technology (AWT) facilities; and,
- Landfills.

2.60 Transfer Stations or Depots are the sites where collection trucks deposit kerbside waste which is then aggregated and sent on to other facilities. Transfer stations and depots are often located adjacent to a residential area or within a council area. These stations may also be used as the fleet depot for collection vehicles.

2.61 Material Recovery Facilities (MRFs) describe facilities which receive and sort waste, separating recyclables from non-recyclables. MRFs generally sort out contaminants and then onsell to recyclers. MRFs may be separate facilities or be co-located with depots, AWTs or combined on landfill sites. MRFs may be small scale, servicing a local community or large scale running as a complete regional or state wide business.

2.62 AWTs are facilities that utilise more extensive technology to sort and process waste materials than MRFs. An AWT may encompass the activities traditionally associated with a MRF for initial sorting of recyclables. The main feature of an AWT is the more extensive processing of putrescible waste through biological and other technological systems. AWTs are relatively new form of waste facility in NSW and are generally built and operate at a regional scale.

2.63 Landfills receive various waste types for disposal and/or treatment that are not intercepted through the various elements of the waste flow. Waste may be sent to landfills directly from Transfer Station Depots, or following processing from MRFs or AWTs. There are three categories of landfill operating in NSW:

1. Inert Waste Landfills – any landfill that accepts only inert wastes (i.e., non-reactive waste such as building waste);
2. Solid Waste Landfills – any landfill that accepts any non-hazardous, solid, degradable, or inert waste; and
3. Hazardous Waste Landfills – any landfill that accepts any wastes formally defined as 'hazardous wastes' under statutory instruments.

2.64 Municipal waste is disposed to Solid Waste Landfills, of which consist two class types depending upon the waste they are licensed to receive:

- Class 1 – all solid waste including putrescible waste and other wastes approved by the DEC; and
- Class 2 – all solid waste with the exception of putrescible waste and other wastes approved by the DEC.

2.65 A recent innovation for landfills is the development of bio-reactors which are landfills which harvest their own methane emissions to generate electricity. One bio-reactor in NSW is currently in operation in Woodlawn near Goulburn.

2.66 As shown in Figure 12, there are 411 landfills across NSW which recover municipal waste.

Figure 12: Main Waste Infrastructure Facilities in NSW

Facility Type	SMA	ERA	Rest of NSW	Total
Transfer Stations	8	5 (some combined with MRFs)	6	19
MRFs	8			8
Municipal Landfills^	16	17	378	411
AWTs	1 – Eastern Creek UR3R	1- pending approvals at Camden	2- Port Macquarie and Port Stephens	3(4)
Bio reactor landfill			1- Goulburn	

^ This includes both licensed and unlicensed landfills that only receive Municipal Waste.
(Source: Adapted from Supplementary information provided to the Committee by DEC)

2.67 Most waste facilities and operators need to obtain a license for their operations from the DEC and are monitored for various noise, odour, and other contamination issues by the NSW Environmental Protection Authority.

Chapter Three - Waste Policies in NSW

Introduction

3.1 This Chapter highlights key waste policies and legislation in NSW and their relationships to national policies and issues. The chapter examines State waste policy frameworks and how they interface with municipal waste management.

3.2 The Chapter has two sections. The first section outlines the responsibilities and roles of governments particularly the NSW Government. The second section discusses the issued related to government involvement raised in submissions which are:

- Greater government coordination in municipal waste management;
- Effectiveness of the NSW Waste Strategy;
- Perceived Ministerial conflict;
- WSN Environmental Solutions – Operations.

Waste Management Responsibilities in Australia

Federal Government involvement

3.3 Different types of waste management are dealt with by different layers of government. Generally the Federal Government's role is minimal although it has coordinated some State and Territory initiatives. The Federal government is involved in waste industry development and research and has particular regulations for types of specialist waste (such as nuclear waste).

3.4 The Federal Government also has put in place initiatives in particular waste areas such as automotive waste (including tyres), oil recycling, the plastics industry, the electrical industry, and all industries within the packaging chain. These industries have been identified as priority areas in which the Australian Government is able to develop a national approach to achieve reduction of environmental impacts.

3.5 The Federal Department of the Environment and Heritage is developing programs and responses to these sectors and issues in partnership with state government and industry and other stakeholders. Examples of recent approaches include product stewardship in the oil industry (Product Stewardship (Oil) Act 2000), shared responsibility supported by co-regulation (National Packaging Covenant), and voluntary agreements for action (plastics).

State responsibilities

3.6 The NSW Government has the legislative power regarding disposal of waste. State Government licenses and monitors environmental conditions of waste infrastructure. It also, via state planning powers, is responsible for the planning and approval of waste infrastructure. Under the Local Government Act 1993 the State makes local government responsible for management of the municipal waste stream.

3.7 The current operations of state government reflect an evolution of responses to changing issues in waste management. Appendix 4 provides a detailed chronology of

NSW waste regulation. Today the key players and main responsibilities described below.

3.8 In NSW, the **Department of Environment and Conservation** (DEC) oversights the regulatory and policy roles in waste management. The Department administers the Protection of the Environment Operations Act 1997 and the Waste Avoidance and Resource Recovery Act 2001. The Environment Protection Authority (EPA), which now resides under DEC, regulates the management of waste facilities, the levying of waste into landfill in the SMA and ERA, and other waste related offences and prosecutes for illegal dumping.

3.9 The DEC is also charged with developing, reviewing and reporting on the State's Waste Avoidance and Resource Recovery Strategy and is involved in the following activities:

- Developing support frameworks for education, market expansion for recovered resource and waste management systems;
- Influencing practices for improved waste management and resource recovery practices adopted by governments, the private sector and the community; and
- Contributing to ecologically sustainability development through avoiding waste, conserving natural resources, increased use of renewable and recovered resources and reducing toxicity in the environment.

3.10 The DEC also develops policy and guidelines and reviews legislation relating to waste and resource recovery, advises the Minister for the Environment on Extended Producer Responsibility (EPR) and Product Stewardship (PS), and coordinates the implementation within NSW of nationally regulated approaches such as the National Packaging Covenant. The DEC is also responsible for developing, reviewing and reporting on the State's Waste Avoidance and Resource Recovery Strategy.

3.11 **WSN Environmental Solutions (WSN)** is a NSW statutory corporation, which owns and operates waste disposal and associated infrastructure in the Sydney basin. WSN's initial holdings were transferred from the State Government Waste Services NSW in 2001, and include various depots, processing and landfill facilities. WSN operates under specific legislation and pays a dividend to the State Government. The corporation is within the Minister for the Environment's portfolio.

3.12 **The NSW Department of Planning** is responsible for land use planning and environmental impact assessment in NSW. The policies, regulation and guidelines provided by the Department are designed to ensure that developments occur within a framework that protects human health and the urban environment. Proposals for development of waste facilities are governed by statewide planning controls and are subject to risk assessment to ensure they will not pose a significant risk to people, property or the environment. There are several state planning instruments that impact on waste infrastructure development:

- **State Environment Planning Policy No. 48 - Major Putrescible Landfill Sites** was created in 1995 and requires State Government approval for development or expansion to any landfill site over a certain volume capacity.
- **State Environment Planning Policy (Major Projects) 2005** requires State Government consent for certain classes of development including resource recovery and waste

facilities that are above a threshold of waste volumes or capital investment value (Group 9).

- The **NSW Metropolitan Strategy** released in December 2005 by the Department of Planning also foreshadows the development of a Sydney Metropolitan Waste Strategy (WIS). Within the sub-plan on Environment and Resources, the Metro Strategy identifies that sending waste to landfill is unsustainable and costly for Sydneysiders. It specifically cites the NSW Government's goal to 'Guide investment in alternative waste infrastructure by strategically identifying appropriate locations for new technologies and coordinating waste facilities across all classes of waste.[21]
- The **NSW State Infrastructure Strategy** 2006 to 2016, released by NSW Treasury in May 2006, highlights Alternative Waste Technologies as one of various potential private public partnership project opportunities.[22]

3.13 **The Department of Local Government** manages the legislative framework under which councils are established, given powers and levy rates and charges. The domestic waste management charges for municipal waste management services are subject to specific requirements.

Local government responsibilities

3.14 The primary responsibility for management of municipal waste rests with local government as noted in Chapter 2. Councils have the responsibility for waste management and the right to charge domestic service fees for collection to rate residents. Many local councils own and run their own waste infrastructure. Local government is not responsible for collection or management of C&I or C&D waste. Private contractors generally provide services in these areas. However Councils often run processing centres and landfills where these waste streams are sent and disposed.

Current Waste Legislation and Policies in NSW

3.15 Waste legislation and policy in NSW currently address the following two major objectives of waste management that impact upon the municipal waste sector:

1. Operation and maintenance of new and existing landfills; and
2. Promotion of waste avoidance and resource recovery.

Operation and Maintenance of New and Existing Landfills

3.16 Operation and maintenance of landfills is administered under the ***Protection of the Environment Operations Act 1997***. The Act allocates a broad range of environmental responsibilities between the Environment Protection Authority (EPA - the regulatory arm of the DEC), local councils and other public authorities including environmental protection policies, licences, protection notices and offences – some of which pertain to the waste sector.

3.17 Under section 88 of the Protection of the Environment Operations Act 1997 it is a requirement that the occupier of a waste facility pays a waste contribution to the DEC for all waste that is received at the premises, other than a facility that is used solely

[21] NSW Department of Planning, *Metro Strategy: Environment and Resources Plan*, 2006, p.221.
[22] NSW Treasury, 2006, p. 48.

for the purposes of re-using, recovering, recycling or processing waste. This contribution is known as the Waste and Environment Levy (the Levy).

3.18 The purpose of the Levy is to encourage resource recovery and the recycling of waste. It is added to the disposal charges set by landfills to provide an incentive to reduce the amount of waste volumes generated and encourage alternatives other than disposal at landfill.

3.19 The details and calculation of the Levy that is payable by licensed waste facilities is set out in the ***Protection of the Environment Operations (Waste) Amendment (Waste Reduction) Regulation 2006***, which prescribes the increases in the Levy paid by scheduled waste facilities.

3.20 The Levy increases are scheduled to increase $6 per tonne (plus CPI) annually in the SMA and the ERA for the next 5 years, from the 2005-2006 levy amounts of $22.70 per tonne in the SMA and $15 per tonne in the ERA.

3.21 The ***Protection of the Environment Operations Amendment (Waste Reduction) Act 2006*** inserts a regulation-making power into Schedule 2 of the Protection of the Environment Operations Act 1997 to enable the establishment and administration of local council waste reduction schemes to facilitate recycling, resource recovery and other waste reduction initiatives.

3.22 The ***Protection of the Environment Operations (Waste) Regulation 2005*** repealed and replaced the Protection of the Environment Operations (Waste) Regulation 1996. The Regulation made some changes to the management of wastes including the introduction of a new system for tracking waste and changes to some requirements relating to waste levy contributions, waste storage and transport.

3.23 Under the ***Protection of the Environment Operations (Waste) Regulation 2006***, a number of important changes were made to the Waste and Environment Levy. These included changes to the rebates and exemptions formerly provided for waste material that is separated or segregated at source, for Virgin Extracted Natural Material (VENM) and for waste material that is used as daily or intermediate cover at scheduled waste disposal facilities.

3.24 The DEC advise that the rebates and exemptions under the POEO (Waste) Regulation 2006, have been replaced with a new, 'streamlined' system of deductions that provide an incentive for waste facilities to move recycled and processed material into the marketplace. A deduction can only be claimed when waste is:

- transported from a waste facility to another place for lawful reuse, or
- to another facility for lawful recycling, processing, recovery or disposal, or
- where waste is used for an approved operational purpose.

Promotion of Waste Avoidance and Resource Recovery

3.25 Legislation aimed at promoting waste avoidance and resource recovery is geared toward developing strategic approaches between government, industry and the community to manage existing resources, reduce the amount of waste generated and align with sustainability goals.

3.26 The ***Waste Avoidance and Resource Recovery Act 2001 (WARR Act)*** is designed to promote waste avoidance and resource recovery, establish a scheme to promote extended producer responsibility in place of industry waste reduction plans, and continue the Waste Fund for the purposes of funding relevant programs.

3.27 The object of the WARR Act is to encourage the most efficient use of resources, to reduce environmental harm, and to provide for the continual reduction in waste generation in line with the principles of environmentally sustainable development (ESD).[23]

3.28 Of particular importance to the municipal waste management sector, the WARR Act promotes the **Waste Hierarchy** to guide overall waste management priorities and introduces the **Waste Strategy** to prescribe outcomes and targets for all waste sectors, including municipal waste.

3.29 The Waste Hierarchy is prescribed under the Waste Avoidance and Resource Recovery Act 2001, Section 3 (b) to ensure that resource management options are considered against a hierarchy, from most desirable to least desirable, in the following order:

(i.) avoidance of unnecessary resource consumption,
(ii.) resource recovery (including reuse, reprocessing, recycling and energy recovery),
(iii.) disposal (as a last resort).

[23] NSW Department of Environment and Conservation, http://www.dec.nsw.gov.au/waste/warra.htm.

Figure 13: Waste Hierarchy in NSW

In NSW the Waste Hierarchy is generally depicted:

Avoidance
including action to reduce the amount of waste
generated by households, industry and all levels of government.

Resource Recovery
including reuse, reprocessing, recycling and energy recovery,
consistent with the most efficient use of the recovered resources.

Disposal
including management of all disposal options
in the most environmentally responsible manner.

As the highest priority, *Avoidance* encourages the community to reduce the amount of waste it generates and to be more efficient in its use of resources.

Resource Recovery maximises the options for reuse, reprocessing, recycling and energy recovery at the highest net value of the recovered material. This encourages the efficient use of recovered resources while supporting the principles of improved environmental outcomes and ecologically sustainable development. Resource recovery can also embrace new and emerging technologies.

An end-of-pipe solution, *Disposal* is the least desirable option and must be carefully handled to minimise negative environmental outcomes.

(*Source:* Waste Avoidance and Resource Recovery Act 2001*, S3 (b))*

3.30 The Waste Hierarchy is a commonly adopted model for waste minimisation and resource recovery policies both interstate (e.g. Victoria) and internationally (e.g. US EPA).

3.31 A requirement under the WARR Act was the development of a strategy to avoid waste and recover resources. The **NSW Waste Avoidance and Resource Recovery Strategy 2003 (Waste Strategy),** was the first attempt in Australia to develop targets for waste avoidance and resource recovery. The Waste Strategy's focus is on products and materials that are generally referred to in the community as "waste". The Waste Strategy aims to inform the community that these wastes can be prevented or re-used, by the application of better design and processes to keep them accessible in the materials cycle as opposed to disposing them to landfill. It is important to note that the Waste Strategy is a document that recognises the need for further work in regard to implementing specific actions, and at the time of release the targets and actions of the policy prescribed a framework from which to achieve these goals.

3.32 The Waste Strategy identifies four key areas where action is needed to achieve results and sets broad targets in each area (see figure 14).

Figure 14: NSW Waste Strategy Outcomes and Targets

Outcome Area	Target
Preventing and avoiding waste	To hold level the total waste generated for the next 5 years.
Increased recovery and use of secondary resources	By 2014, to increase recovery and utilisation of materials from: • The municipal sector from the current 26% to 66%. • The commercial and industrial sector from the current 28% to 63%. • The construction and demolition sector from the current 65% to 76%.
Reducing toxic substances in products and materials	By 2014 or earlier, to phase out priority substances in identified products as a first choice or, if not possible, to achieve maximum recovery for re-use.
Reduce litter and illegal dumping	Reduce total volume and tonnages of litter reported annually. Reduction in total tonnages of illegally dumped material reported by regulatory agencies and Regional Illegal Dumping (RID) squads annually.

(Source: NSW Waste Avoidance and Resource Recovery Strategy 2003, Resource NSW).

3.33 In relation to waste policies in NSW, the Committee received evidence on a range of issues, which are discussed under the following four headings:

- Greater coordination in municipal waste management;
- Effectiveness of the NSW Waste Strategy;
- Perceived Ministerial conflict;
- WSN Environmental Services Operations.

Greater government coordination in municipal waste management

3.34 The Committee heard evidence from stakeholders calling for a more coordinated government agency response to the issues facing the municipal waste industry. Feedback included a need for a **greater emphasis upon resource recovery**, **better planning of waste facilities, transferral of responsibility for municipal waste from local to state government**, and the creation of a **new State Government Agency**.

Resource Recovery Emphasis

3.35 During the course of the Inquiry, the Committee heard representations calling a shift from the government's current 'waste' policy focus to a policy aligned with resource recovery.

3.36 In its submission, GRD Limited said that the current waste management infrastructure arrangement in NSW is largely obsolete because it is focused on waste disposal and emissions reduction at landfills rather than emissions reduction through resource recovery. To remedy this situation, GRD suggested that a reconfiguration of state and local authorities across Australia is required so that integrated planning and delivery of the new infrastructure of resource recovery is enabled. Further, the submission

perceived NSW to be in an ideal position to provide leadership to drive this change in approach.[24]

3.37 Similarly, the Australian Council of Recyclers (ACOR) recommended the creation of a new statutory authority, suggesting that a 'resource recovery authority', would drive and implement the changes to deliver on the ambitious targets of the NSW Waste Strategy by:

> **Mr LAWSON (ACOR):** ...adopt[ing] a new strategy that is about sustainable resource management, transforming Australia, starting with New South Wales, from a throwaway society structure where disposal is the fundamental means of dealing with waste to a recycling society where the first port of call when you address waste materials is how we can recycle, how we can get the value out of the materials.[25]

3.38 In considering options and strategies for NSW to lead in municipal waste management nationally and / or internationally, the Committee asked Mr Lawson (ACOR) how this could be achieved:

> **Mr LAWSON (ACOR):** That is the basic question that needs to be addressed. What do we want to be doing with the way we handle our waste? If we are going to take a lead, which way are we leading? The Australian Council of Recyclers wants to see Australia become a recycling society. You can see an entrenched desire in people that is hundreds, perhaps thousands, of years old to avoid waste.
>
> We have come an enormous distance forward from that as societies where we have got cheap consumer goods but people instinctively react against the wastage of those. The Productivity Commission says on an economic analysis recycling does not pay, but councils already knew they were paying more for recycling. It is hardly a rocket science response. How do you go from this community desire to get better recycling to a future solution? I think you have got to start with dealing with these materials as a resource to be reused and recycled, and then build the institutional structures that are making decisions about the best way to start on recycling, valuing the environmental services delivered on it.[26]

3.39 The Committee asked the ACOR representative what is needed in terms of evidence to introduce consumer-based recycling:

> **Mr LAWSON (ACOR):** Say, for example, the environmental service most valued is greenhouse gas emission reduction? New South Wales has already got some leading programs in place that way. You could start off—as the United Kingdom Institute of Civil Engineers' paper that we quoted in our submission—with organising your waste systems as a resource system for the purpose of minimising global warming. So you could say Resource recovery is important. Where are we going to start? We would like to have no waste ultimately but we have got to start from somewhere, and where we are going to start is recycling those wastes that have the greatest reduction in global warming. Let us do that. Then you need structures in place for measuring the impacts of various options that people will offer you technologically, and then you need ways to deliver that infrastructure. You need to replace the current bitty approach with a resource management authority approach or resource recovery authority approach where some

[24] Submission 49, GRD Limited, pp. 9-10.
[25] Transcript of Evidence, 31 May 2006, p. 15.
[26] Transcript of Evidence, 31 May 2006, p. 18.

decisions can be made that are about infrastructure, not just about regulation of emissions.[27]

Planning and Coordination of Waste Management Facilities

3.40 The Committee heard evidence on issues concerning the planning, and better coordination in developing new and existing waste management facilities.

3.41 The ACOR contest that the present planning system is driving recycling industries out of Sydney, and much of the waste management infrastructure designed to process waste is obsolete and geared toward dumping rather than recycling. To achieve the NSW Waste Strategy's 2014 recovery rate target significant infrastructure development is needed that cannot occur under the current regulatory framework.[28]

3.42 The Southern Sydney Regional Organisation of Councils also raised concerns over the planning of waste facilities, suggesting that the most significant impediment to systemic change at a cross-regional level is applying the Waste Strategy within a Sydney-wide infrastructure implementation plan.[29]

3.43 The Metropolitan Strategy for Sydney does flag the intention to develop a Metropolitan Waste Strategy but is yet to specify what shape this will take. SSROC suggest the NSW Government should consult widely and take the lead in planning the siting of these facilities considering:

- The demand for municipal waste processing;
- The likely requirements from the other waste sectors covering commercial, industrial, and construction wastes;
- Access requirements for road and rail transport;
- Proximity to and impact on residential areas; and
- Equity of siting decisions.[30]

3.44 SITA also addressed the planning issue and siting of landfills, commenting that where once these land-uses were located in open rural areas, industrial estates and some residential estates are now increasingly surrounding these facilities. Therefore, due to the availability of land, and the ease of disposal for any residual wastes that will still need to be disposed to landfills, the most appropriate locations for these facilities are existing landfills. However, it will be critical that local authorities are willing to provide planning approval for the construction of such infrastructure on existing landfill sites – even though these sites are increasingly being surrounded by industrial and residential uses. To address this issue, the submission calls on all levels of government to:

- Define waste separately from resource recovery;
- Create new zones and schemes to permit resource recovery operations;
- Simplify the development approval process; and
- Ensure existing facilities can expand and develop in line with government waste objectives.[31]

[27] Transcript of Evidence, 31 May 2006, p. 18.
[28] Submission 51, ACOR, p. 3 and see Figure 14 for targets.
[29] Submission 42, SSROC, p. 10.
[30] Submission 42, SSROC, p. 10.

Transferral of responsibility from Local to Regional or State Government.

3.45 The Productivity Commission's Draft Report on Waste Management discussed the operational capacity of local government authorities in delivering municipal waste services. The Report considered two broad options to address local government capacity, firstly joint tendering practices (addressed under the Contracting section of this report) and secondly the transfer of responsibility to larger and better resourced bodies. In regard to the latter option, the Commission has presented the following draft Recommendation:

> State and Territory Governments should consider shifting the responsibility for waste management in large urban centres from local government to appropriately constituted regional bodies.[32]

3.46 Due to the relevance of this recommendation to the Inquiry, the Committee thought that it would be prudent to seek comments from local government witnesses – keeping in mind that the draft report was released on the day preceding the Committees hearings:

> **Ms ANGELA D'AMORE MP:** Just touching on the Productivity Commission, it has suggested that State Governments should consider shifting responsibility for waste to regional bodies away from local government. What do you think about that?
>
> **Mr SOMERVILLE (SSROC):** We have just three points to make about that. Traditionally, local government has been the custodian of health issues in the community. I think that it has a long and successful track record in that regard and a great deal of experience in promoting and maintaining good health standards in relation to waste disposal. Melissa mentioned the recent experiment with the waste boards. I think it is fair to say that our member councils work very comfortably with the Southern Sydney Waste Board, and I would not see that as a threat in any way. In fact, it would complement the expertise and experience that they currently give to this service in local council. I think that what we would be concerned about is that in the new authority would actually have a degree of permanency about it. Councils under the Local Government Act now have much wider responsibilities. They need to be seen to be operating in a true business environment, so they need to forward plan and be able to make decisions three to five years ahead of time. So it is destructive if agencies come and go in that regard. Finally…they would like to see it adopted within an integrated policy framework, such as relating to the Metropolitan Strategy for growth. It would be very helpful for councils to understand how that fits into the overall policy development that the State Government wants to address in relation to Sydney's expansion.
>
> **Ms GIBBS (SSROC):** I would make one other point. My reading of the Productivity Commission's recommendation—and I have not read the whole report: I have just read the key finding—I understood that it related to infrastructure provision, they were talking about councils being parochial and falling into the NIMBY syndrome of not being able to approve appropriate infrastructure in the areas because nobody wants to have a waste dump or even an AWT next to them. I understood that that was what was driving the Productivity Commission recommendation. As I said earlier, I think that that can be overcome by an infrastructure plan developed by the State Government for waste management structure in the State.[33]

[31] Submission 36, SITA, p. 33.
[32] Productivity Commission Draft Report, *Waste Management,* May 2006, draft recommendation 12.2, p. 271.
[33] Transcript of Evidence, 31 May 2006, p. 42.

3.47 The Western Sydney Organisation of Regional Councils interpretation of the Productivity Commission's finding drew the conclusion that the Commission was alluding to the formation of regional waste authorities and that this:

> **Mr GOODING (WSROC):** ...raises a lot of broader questions about urban governance and management. Why single out waste for that form of management? Why not look at a range of other things—childcare, planning, whatever? If you are going to go down that route, do you have a separate authority for each function or do you have a broader regional authority? That obviously raises fundamental questions about urban governance and management, small councils versus large councils and so on, which we do not want to get into. But I do not think that was part of the Productivity Commission's brief either. But that is the sort of direction you are heading in if you are going beyond the regional waste boards model or the ROC model for waste management and you are going toward that authority approach. So some broader questions need to be looked at.[34]

3.48 The Productivity Commission's draft recommendation appears to suggest a regional arrangement, similar to the former structure facilitated by the former NSW Waste Boards. Due to the cessation of the NSW Waste Boards in 2001 and their replacement with a State Government Agency (Resource NSW – now a part of DEC), it appears that such a move in transferring responsibility, whole or in part, from local government to regional bodies has not been successful in the NSW context.

Creation of a New State Government Authority / Agency

3.49 In addition to calls for the transferral of responsibility for municipal waste management from local government to Regional / State bodies, several submissions called for the creation of a new resource recovery agency to replace DEC's current Sustainability Programs Division and Waste Policy Branch. The premise of the new agency is to concentrate the focus for waste management in NSW to a more holistic approach whereby waste management infrastructure across the State is coordinated by one central decision making authority – for example, planning decision-making powers to decide upon the location of landfills etc.

3.50 The central argument for the creation of a new authority is the changing structure of the waste industry from one centred upon waste disposal to an agency that can facilitate the development of resource recovery infrastructure. The new agency, it is broadly posited, would have greater control over the NSW Waste Strategy, be able to increase resource recovery rates across all waste sectors, and provide surety for industry operators in regard to planning decisions and consideration of externalities associated with landfill.

3.51 Recognising the need for a greater emphasis on resource recovery and better coordination of waste planning infrastructure, the Committee acknowledged submissions and further questioned witnesses on the need to create a new State Government Authority / Agency to address the issues of waste and resource recovery.

3.52 ACOR's response calls for the creation of a new Statutory "Resource Recovery" Authority with the ability to coordinate local government, industry and local communities to facilitate the required new infrastructure.[35]

[34] Transcript of Evidence, 31 May 2006, p. 9.
[35] Submission 51, ACOR, p. 3.

3.53 Similarly, the Waste Management Association of Australia (NSW) submission also suggested the establishment of a distinct government agency for resource recovery planning and implementation. While recognising that existing State and local government agencies are doing a credible job, the Association believes that they are limited in both scope and capacity to deliver the necessary reform to achieve the Waste Strategy targets and move them toward a resource recovery focussed policy framework.[36]

3.54 According to the WMAA (NSW), the new agency would be characterised by the following features:

- Enshrined powers and functionality in waste/resource policy, waste/resource infrastructure planning and siting, and waste/resource program delivery and facilitation;
- An independent oversight Board with wide stakeholder representation and relevant expertise;
- Capacity to direct and drive change across levels of government and other agencies;
- Capacity to foster regional groupings where needed;
- Capacity to administer performance based funding and levy expenditure in line with the NSW Waste Strategy; &
- The ability to establish targets, measurement systems, and regular reporting of resource recovery activity.[37]

3.55 The WMAA's (NSW) position for a more resource recovery focused agency was also supported by ACOR:

> **Mr LAWSON (ACOR):** There is great support in New South Wales for a policy emphasis on recycling rather than wasting or dumping. The time is right to reorganise waste strategy therefore as a resource recovery policy instead of mere waste management policy. If we are going to achieve those ambitious 2014 State waste strategy targets of 66 per cent landfill diversion for council waste and 63 per cent for commercial and industrial waste then, with normal growth, it will mean recycling an additional 1.8 million tonnes of resources per annum that are currently waste. That is almost tripling current recycling levels. That will not be delivered without a radically different regulatory framework in New South Wales.[38]

3.56 GRD Limited's submission also provided strong support for a resource agency:

> State government utilities and infrastructure need to be aligned with environmental regulators and planners, and local councils if the State Waste Targets for 2014 are to be met. To achieve this aim the creation of single authority with planning, site development and contracting powers to deliver on 2014 targets. Rather than merely setting 'aspirational targets' for reduction in waste disposal, a Resource Recovery Authority would need to justify the level of resource recovery that is affordable, and then plan for the infrastructure necessary to deliver fit for purpose recovered resources to replace virgin resources.[39]

[36] Submission 7, WMAA, p. 7.
[37] Submission 7, WMAA, p. 7.
[38] Transcript of Evidence, 31 May 2006, p15
[39] Submission 49, GRD, p 9-10

3.57 The Committee Chair questioned Mr Lawson on GRD Limited's Submission and particularly, how such an organisation would operate in the municipal waste sector:

> **Mr LAWSON (GHD):** You need a statutory authority that has a strong representation from local government on it, but it should have the level of infrastructure and environmental regulation skills that only exist at the State Government level. So it needs State Government people on it. It needs people who understand State Government policy clearly, and it needs power to own sites. It needs to own sites like eco-industrial park sites that are reserved like we reserve national parks for conserving natural values. What should be implicit in these eco-industrial parks is a sort of natural value bio mimicry in our systems. Where there are no wastes in nature, we should be trending towards that in our consumer culture, transitioning it to a recycling culture. These sites could be owned by a statutory authority which would not operate on them but would provide sites for recycling resource recovery beneficiation, processes of the scale of say paper recycling plants, metal shredders, large-scale facilities that are required for large-scale recycling, millions of tonnes of materials.[40]

3.58 The Southern Sydney Regional Organisation of Councils (SSROC) was also asked to present their position in regard to the creation of a State Government resource recovery agency and how such as agency may differ from the current Department of Environment and Conservation or former Waste Boards:

> **Ms GIBBS (SSROC):** We need to see what its terms of reference are and what it hopes to achieve. As you know, we have had regionalisation of waste with waste boards in Sydney, Newcastle and Wollongong. They were deemed to be unsuccessful or were disbanded for one reason or another, so it would need to be vastly different from that because it was only a few years ago that they were disbanded. If it is to provide infrastructure, I do not know that it is absolutely necessary. We have a Department of Planning which is responsible for infrastructure provision. We have a Ministry for Infrastructure, or we used to have a Ministry for Infrastructure. I am not quite sure of the status of that at the moment. But I would have thought that there would be suitable agencies already in place to develop an infrastructure plan for waste management, which is something that we really strongly support and need.[41]

3.59 The WMAA's response to the idea of a new resource recovery agency, how it would operate and be differentiated from the current waste management framework was:

> **Mr RITCHIE (WMAA):** … The positive side to the boards is that they gave clarity about their goals and they drove infrastructure and implementation; for example, the Western Sydney Waste Board. Some people like those approaches but there were too many boards and not enough clarity. The corollary is the current New South Wales department that runs sustainability programs but does not have any planning controls. Planning control sits in another department—it is to bring together some of the clarity around targets and the strategy with the implementation and planning approval processes. [42]

3.60 The Committee proceeded to ask the same question to the Executive Director of the Department of Environment and Conservation's Sustainability Programs Division, and whether pursuit of such a proposal would be a worthwhile objective:

> **Mr ROGERS (DEC):** I will deal with the factual part of the question rather than necessarily expressing an opinion of how the Government might organise its departments, which is

[40] Transcript of Evidence, 31 May 2006, GRD, p23
[41] Transcript of Evidence, 31 May 2006, SSROC, p42
[42] Transcript of Evidence, 1 June 2006, WMAA, p9

> not part of my role. When the waste boards were converted to Resource New South Wales, part of the analysis of those boards was that they were predominantly municipal, they had difficulty dealing with the industrial part particularly, they had very good relationships with the municipal parts, but they were unable to broker across the commercial sectors, because commercial sectors were more used to dealing at State agency level. They found it confusing to go across the boundaries.
>
> The movement towards having a broader environment and conservation portfolio allows waste to be put in place with other sustainability issues. It is a trend that is happening in other States, not just in New South Wales. Recently Western Australia announced the formation of the Department of Environment and Conservation, with not dissimilar boundaries to the New South Wales department. Not long ago Victoria amalgamated its waste organisations with its other sustainability organisations to form Sustainability Victoria. One of the issues in dealing with waste, particularly commercial waste and industries, is that waste is a small cost by comparison with power and water. You get a more holistic deal with the company and you pick up waste as part of the process rather than just waste alone.
>
> The difficulty with having a pure waste organisation is that that is all you are dealing with and it is hard to gain entree into those areas where it is large. It is fine for dealing with councils but it is not necessarily the best outcome. If you look at councils, they tend to go down the track of bringing what used to be a separate waste part of the organisation back into a broader sustainability unit within councils.[43]

3.61 The Committee notes DEC's advice that waste is a much smaller sustainability issue when compared to energy and water. Also that the municipal waste stream is only a segment of a three tiered waste industry, where the current departmental arrangement has been created to capture many more benefits that trickle down to municipal waste from the broader approach adopted under the current arrangement and the NSW Waste Strategy.

3.62 The Committee also notes the NSW Metropolitan Strategy, which signals the development of a Sydney Metropolitan Waste Infrastructure Strategy – with a view to identifying appropriate locations for AWTs and the coordination of waste facilities. In light of the Strategy, the consideration of initiatives including Eco-industrial parks would be valuable[44].

Conclusions and Recommendations

3.63 The Committee believes that there is no need for the creation of a new resource recovery agency at this point as the present public sector structure incorporating the DEC and its divisions monitor the issues associated with waste management in NSW.

3.64 The Committee does supports the calls for increased resource recovery considerations to be incorporated into any new public sector structures, policies and strategic plans. Moreover, there does appear to be an urgent need for a greater need for resource recovery and waste infrastructure coordination across NSW.

3.65 While the Committee recognises the Sydney Metropolitan Strategy's consideration of the future development of a Waste Infrastructure Strategy (WIS), it is recommended that such a strategy be accelerated and include a range of issues raised in the Inquiry.

[43] Transcript of Evidence, 1 June 2006, DEC p27-28
[44] Submission 51 ACOR

The Committee believes that waste infrastructure planning should be concurrent with residential and utility planning to maximise synergies.

Recommendation 1 – Greater Government Coordination in Municipal Waste Management

3.66 The Committee recommends that the Waste Infrastructure Strategy be accelerated and include a range of issues raised in the Inquiry that integrates waste infrastructure planning with residential and utility planning to maximise synergies.

Effectiveness of the NSW Waste Strategy

3.67 The Committee received a large number of submissions commenting on the effectiveness of the NSW Waste Strategy and whether it will meet its prescribed resource recovery targets for the municipal waste stream.

3.68 As mentioned earlier, the Waste Strategy prescribes resource recovery targets for the three waste streams including Municipal Waste. In 2003, the resource recovery target rate was 26%, with the Waste Strategy setting an aggressive resource recovery target of 66% by 2014. At present, the rate is approximately 28%.

3.69 Overall, respondents believe that the Waste Strategy needs to set more realistic (achievable) targets and encourage a stronger resource recovery approach as opposed to its present focus on waste minimisation. This position is supported by GRD's assessment of the NSW waste management infrastructure arrangement, stressing that in order to meet the 2014 targets of the NSW Waste Strategy, the recovery of an additional 1.8 million tonnes of resources will be required – which is a tripling of the current amount of materials recovered.[45]

3.70 Any discussion on the NSW Waste Strategy should commence with an explanation on its goals and the purposes for which it was developed. The Department of Environment and Conservation (NSW) provided evidence when questioned on the Strategy that summates the intentions of the Strategy and its progress:

> **Mr ROGERS (DEC):** It has four parts. It has a waste reduction-waste avoidance component; it has a resource recovery component; it has a litter and illegal dumping component; and it has a reduction of toxic waste component through product stewardship and household hazardous collections. Within the four strands a number of different activities take place. The recovery strand has specific objectives for recovery percentages across the three streams, but they are targeted at 2014. Part of the reason behind that is that we realise the provision of infrastructure is going to be incremental and it will come in lumps. The quarter of a million tonnes that Lee Smith spoke about is a very large tonnage increase in capacity. When Eastern Creek came online, that was 170,000 tonnes, so we tend to get big lumps taken with long lead times. When we broke a strategy, the UR3R process plan was still in the tendering stages. We need to look at this as fairly long-term, taking out fairly large chunks as we go.
>
> **Ms ANGELA D'AMORE MP:** How do we evaluate whether the strategies, or the key elements of it, are working?
>
> **Mr ROGERS:** You can evaluate it in terms of total tonnages going to landfill. You can evaluate it in the amounts coming out. You can evaluate it in terms of the cleanliness of litter and illegal dumping. We have a whole series of programs directed towards both us enforcing litter and illegal dumping and towards assisting councils and others with

[45] Submission 49, GRD Limited, p. 3.

community education about litter and illegal dumping. The hard one is probably waste avoidance. In a society which is becoming increasingly consumptive and throw away, balancing hygiene versus packaging, or hygiene versus disposable options, there is a constant tension between people's increasing lifestyles and the amount they throw away

Mr KEVIN GREENE MP: Accepting that there is long lead-time with technologies coming on board, why are there not targets along the way to 2014?

Mr ROGERS: When we set about doing it, we did not know the state of the infrastructure development. At that stage there was no advanced technology processing in Sydney; there was one plant in Raymond Terrace. It is partly a question of picking what is going to develop and how fast. The proposed technology for the Macarthur group of councils was not under consideration at the time. The technology that Wollongong was moving towards was Bright Star on the South Coast, but it did not prove to be successful. The decision was taken to monitor process rather than putting in interim targets.

Mr KEVIN GREENE MP: If there are no targets, how is it being monitored?

Mr GORTA (DEC): There are long-term targets in monitoring progress in resource recovery. The Government was sufficiently concerned that we were not achieving at the levels that we would like to see, and that is why we had the levy increases that were announced late last year.

Mr KEVIN GREENE MP: In your mind there are targets on the way, but they are not public targets?

Mr GORTA: No. If you look at the long-term targets, in order to get there, there is a need for levy increases to drive greater resource recovery. There is not a backroom, interim target.

MR KEVIN GREENE MP: You must have some idea in your own mind if you are monitoring? Otherwise, you would not have changed tack.

Mr GORTA: Yes, we are monitoring and publishing how we are going. We are going quite well in construction and demolition waste. We are not going very well in commercial and industrial waste and we are going reasonably well in municipal waste. That is the overall trend.

Mr ROGERS: We are also holding disposal tonnages. As you heard Ken Kanofski say [WSN], the amount they are disposing of is dropping. Part of the target was to hold the level of disposal for the first five years, and we have done a bit better than that. It is not that we are not monitoring or publishing that data, it is simply that we had a five-year disposal milestone. We had published the litter index, which shows that Sydney is still one of the cleanest capitals around. We have also published data on what is being littered, and, surprise, surprise, cigarette butts comes out as the standout. We have monitored littering behaviour. We are also monitoring action on anti-dumping effects. But the one that we were looking at is the recycling percentages, and that has triggered the thinking about how we might up the scales there. If you listen to any of the processing people who have talked, they will talk about the fact that the changes to the levy rate will drive the economics of recovery operations. Recovery operations are probably cheaper on a municipal council stream where you have a source-separated outcome than they are from, say, office blocks. While this building has a quite recently upgraded recycling arrangement, if you walk through lots of office towers and the like you will not find any recycling.[46]

3.71 Generally, the information provided to the inquiry concerning the NSW Waste Strategy was positive. However, comments and suggestions on improving the Strategy's

[46] Transcript of Evidence, 1 June 2006, pp. 29-30.

approach and application, targets and its overall **effectiveness** were provided for Committee consideration.

Approach and Application

3.72 The Committee heard evidence and suggestions for the NSW Waste Strategy to adopt a variety of approaches and applications in order to improve its effectiveness, particularly in regard to the municipal waste stream.

3.73 The Waste Management Association of Australia (NSW Branch) supports the overall objectives and direction of the NSW Waste Strategy, whose membership includes councils and waste contractors. However the Association believes that the Strategy can achieve more through increased practical and facilitative support from the NSW Government. The Association suggests that the development of a complimentary NSW Resource Recovery Implementation Plan, which would include:

- overall sustainability-related targets for resource recovery performance,
- year-by-year milestones of progress against those targets,
- clear accountabilities for different players within the overall system (including local Councils, the commercial and industrial sector, and the NSW Government itself),
- incentives sanctions for respective performance,
- examination of issues surrounding the provision of resource recovery infrastructure in NSW; and
- specific goals for delivery of further infrastructure necessary to achieve the Waste Strategy targets.[47]

3.74 Collex submit that the NSW Waste Strategy should be directed away from a simple focus on waste diversion and more upon a sustainable resource use framework for waste management based on achieving optimal environmental, economic and social outcomes, along the lines of triple bottom line measures.[48]

3.75 The United Services Union stated that responsibility for waste reduction programs are almost wholly placed upon residents and consumers, as this group ultimately pays the costs and alters their behaviour in response to such programs. Instead, the Waste Strategy needs to place the onus for waste reduction on the commercial and industrial sector – particularly in the areas of packaging.[49]

3.76 However, the ACOR do not see the issue as solely State-based, and see the need for a "the National Resource Recovery Strategy" to be developed. The National Strategy would foster improvements in the measurement of resource efficiency at national, state and local levels to move beyond a measurement based on waste disposal from a single product or commodity stream. The ACOR suggest that resource efficiency could then be used to measure progress towards sustainable resource recovery and identify where improvements in recovery amounts, levels of recycled content and phasing out of disposal options for certain products and material streams should be made. If such a National Strategy were to be pursued, ACOR envisage that the NSW Waste Strategy

[47] Submission 14, WMAA, p. 3.
[48] Submission 52, Collex, p. 4.
[49] Submission 50, USU, p. 2.

would articulate the integration of planning, infrastructure provision and service delivery with an economic model that promotes triple bottom line outcomes.[50]

Achievability of the Strategy's Targets

3.77 The municipal waste recovery target for NSW is set at 66% recovered by 2014 rising from a current rated of 26%. These resource recovery targets for the municipal waste stream set in the Waste Strategy are seen by many respondents to be aspirational and difficult (if not impossible) to attain. However aspirational goals for waste reduction by governments are not unusual.

3.78 "Zero waste" is a policy goal which aims to minimise or stop waste flowing to landfill via maximum reuse, recycling and resource recovery processes. Many countries and individual states or cities have identified "zero waste" as their strategic goal or direction on which to they develop their long term waste strategies These goals, while commendable are relatively impossible to achieve under the management mechanisms and treatment technologies currently available. However, increasing advances in waste management technology, education, EPR and product stewardship are proving valuable in reducing the amount of waste being disposed to landfill facilities.

3.79 The SSROC considers that recovery activities need to be measured against waste targets set by the State Government in the Waste Strategy. While the targets in the Waste Strategy have provided a degree of guidance, and assisted some councils to improve their diversion of waste from landfill, SSROC see that such targets can be a disincentive if there is not a supporting framework to make the targets realistic, measurable and attainable. To solve this problem, SSROC believes that there is a need for a review of the methods, sampling sizes and data gathering techniques, along with an accepted method for data interpretation. Once applied, these methods could provide a more accurate reflection of the performance in the delivery of waste services in all sectors of the waste industry.[51]

3.80 GRD Limited posit that aspirational targets for waste disposal contained in the Waste Strategy should be replaced with a focus on understanding how to measure materials and their intensity in relation to their impact upon urban consolidation and wastage. Once these impacts are understood, facilitation and support for appropriate infrastructure to optimise 'fit for purpose' recovered resources to replace virgin resourced can be more effectively pursued.[52]

3.81 WSN Environmental Solutions acknowledged the Waste Strategy has an impact upon the approach of Councils and in-turn the direction of its own operational strategy. WSN state that it has based its forward strategy on a gradual shift away from landfilling waste to treating waste as a valuable resource. In providing its services to councils, WSN is mindful of its own responsibilities as well as those of councils in attempting to meet the Waste Strategy's target by 2014. Further, WSN believes that such a goal is achievable within the current policy framework, which includes targets,

[50] Submission 51, ACOR, p14-15.
[51] Submission 42, SSROC, pp. 8-9.
[52] Submission 49, GRD Limited, p. 13.

an escalating levy on waste sent to landfill, discouragement of long-term landfill deals and emerging EPR.[53]

3.82 Alternatively, the GRD contest that there will be a significant shortfall in meeting the NSW Waste Strategy's 2014 targets in the amount of resources recovered under current processes, without a significant shift to more intensive resource recovery infrastructure and practices.[54] A position also supported by ACOR.[55]

3.83 Further, in their advocacy for a more intensive approach to resource recovery, ACOR stressed:

> The time has come for local government to move past a 'rubbish' focus to a 'resource' focus. This resource focus is reflected throughout the State Waste Strategy, but it is clear that we are lacking an Implementation Plan to move from where we are to where the government, industry and the community believe we should be. The current strategy is hampered by a focus on landfill diversion and types of waste streams, rather than on the environmental goods desired and the types of products and resources that are designed for recovery. The strategy should at least have targets for environmental goods such as greenhouse gas reduction and plan for the infrastructure required to recover the paper, metals, glass, plastics, organics and energy that the landfill diversion ACOR".[56]

Effect of the Strategy

3.84 The Waste Strategy has been seen to have various levels of impact and effect in the application of its goals to increase resource recovery target rates in the municipal waste stream.

3.85 The Committee asked the opinion of a range of witnesses on the effectiveness of the Waste Strategy and if its recovery targets could be made more realistic, measurable and attainable:

> **Mr SOMERVILLE (SSROC):** We see it as one of our remits, to acknowledge and work towards high levels of recovery. Sixty-two, 65 or 70 per cent seem to be somewhat arbitrary figures. I do not know what is actually at the background of thinking in that regard. The community has embraced recycling wholeheartedly. I think that in relation to the waste levy argument that has been raised, as far as the residents go, they support recycling because they see it benefiting the environment. It is not necessarily a cost issue. It is to do with an environmental improvement and a social benefit.[57]
>
> **Mr LAWSON (ACOR):** ...In many ways New South Wales has led the national agenda on waste management and has much to be proud of in advancing the rate of recycling beyond that of many developed countries. Yesterday a visitor from the UK was most impressed with the level of recycling going on in Australia. That has been led in large part by New South Wales. We think this inquiry is a great opportunity to take stock and reorganise public policy so that the ambitious targets that have been sent to date can have more certainty of being achieved.[58]

3.86 Conversely, when asked by the Chair as to the effectiveness of the Waste Strategy, the LGSA responded:

[53] Submission 45, WSN, p. 10.
[54] Submission 49, GRD Limited, pp. 9-10.
[55] Submission 51, ACOR, Executive Summary.
[56] Submission 51, ACOR, Executive Summary.
[57] Transcript of Evidence, 31 May 2006, p. 43.
[58] Transcript of Evidence, 31 May 2006, p15.

Cl McCAFFERY (LGSA): No.

Mr KEVIN GREENE MP: Not at all?

Cl McCAFFERY: We are happy that there is now some recognition that the producers of waste should have responsibility. We are now starting to get a consciousness into the strategy about extended producer responsibility. But all of it is based on voluntary agreements. The problem with voluntary agreements is if you look at how the national packaging covenant has been operating they never achieve the targets and there is always a sort of negotiation and then a new set of targets set. I did not think you will ever get industry to the table unless you set targets and then you are strict about the performance to the targets. If you look at the history of all these different strategies, it is always setting up a strategy, it fails and then you set up another strategy because unfortunately most of the time it is industry dictating the strategy, not government.

Mr VERHEY (LGSA): The goals of the waste strategy are worthwhile goals. They are ones we support. But the bringing to reality of the achievement of those goals has been hampered to a large extent by the too-soft approach on the producers of materials and potential waste. We have seen deadlines stretched and stretched and stretched over the past five years, and it is becoming a bit of a game to see who will crack first.[59]

3.87 The United Services Union also saw weaknesses in the Waste Strategy and how it outlined specific targets but with very little detail on implementation or how to achieve these targets and the allusion to a 'lifecycle' approach to waste. Further, the USU highlighted the lack of specific and binding targets on manufacturers, suppliers and retailers.[60]

Conclusions and Recommendations

3.88 The Committee recognises that the Waste Strategy is a high-level document that spans the three waste streams of the waste sector. The municipal waste stream is only one part of the NSW-wide waste policy.

3.89 As the Waste Strategy is based on achieving targets, a more transparent process for communicating targets should be developed.

3.90 The Committee notes the suggestions made concerning the Waste Strategy and the requirements for a clearly articulated approach to encourage a more practical application of its goals.

3.91 The Committee notes respondents' concerns that the Waste Strategy needs to set more realistic (achievable and measurable) targets and encourage resource recovery as opposed to its focus on waste minimisation. Also there is a need for the clear articulation of the Waste Strategy's specific goals and how all stakeholders and infrastructure can be aligned to meet these aims.

3.92 Essentially, the Committee believes that the Waste Strategy needs to be updated to provide clearer guidance for stakeholders to achieve targets and meet defined milestones for municipal waste. While the Committee has no difficulties with the Waste Strategy in its current form as an overarching State waste policy, because of recent changes in waste management such as Alternative Waste Technologies and

[59] Transcript of Evidence, 31 May 2006, p. 5.
[60] Submission 50, USU, p. 2.

increased calls for triple bottom line measures, it needs to be revised and realigned with State Government sustainability outcomes.

3.93 Consequently, the Committee considers that the Government can either update the Strategy to reflect the advancements noted above, or produce another municipal waste management policy that sits underneath the Waste Policy, and serves to guide stakeholders in meeting targets and milestones for greater sustainability outcomes from the municipal waste stream.

Recommendation 2

3.94 The Committee recommends that the NSW Waste Strategy either be updated, or a new municipal waste policy to underpin and complement the NSW Waste Strategy be developed. Regardless of which reform the government adopts, the policy should be incorporate the following:

3.95 A standardised set of municipal waste management data (preferably consistent and developed at a national level), that can be applied to set realistic, measurable and attainable targets across the waste stream.

3.96 A clearly stated set of yearly municipal waste stream milestones to be reported against by the DEC;

3.97 Clearer guidelines for waste and associated infrastructure (including AWTs), that will assist industry better plan, coordinate and integrate services and processes to meet municipal waste flow requirements and assist in efficient resource recovery and waste minimisation; and

3.98 More explicit guidance for all stakeholders on the approach towards resource recovery and how this can be more efficiently fostered.

Perceived Ministerial conflict

3.99 The Committee heard concerns about perceptions of possible conflict of interest in the Minister for the Environment roles relating to waste management and environmental compliance. The present structure of the Minister for the Environment's portfolio captures the 'Regulatory' side of waste under the DEC (licensing and regulation of landfills and former EPA which polices compliance) as well as the 'Operational' side of waste under WSN Environmental Solutions (operation of transfer stations, MRFs and landfills).

3.100 Issues such as lenient application of legislation in regard to penalties and fines have been charged by respondents to support their claims of Ministerial conflict. Alternatively, the organisations currently under the Minister's portfolio, DEC and WSN, consider that the application of legislation and enforcement provisions are applied even-handedly.

3.101 The Waste Contractors and Recyclers Association of NSW raised its members concerns involving the siting of the DEC and the WSN under the Minister for the Environment's portfolio. The issue is based on concerns that the DEC is the body that controls waste and environmental regulation and the WSN is a State Owned Corporation (SOC) that enjoys dominant market control over the disposal of solid waste (Class 1 – Municipal

Waste) in NSW. The Association believes that this situation has the ability to create a conflict of interest for the Minister for the Environment.[61]

3.102 Collex also raised concern with this issue stating that:

> In recent years, this situation has given rise to industry-wide concerns relating to the potential for inequitable treatment of WSN relative to other marketplace participants. It has also resulted in the Minister defending activities of WSN when a department reporting to the Minister is responsible for enforcement of the rules and prosecutions.[62]

3.103 When questioned on this issue in the Hearings, Mr Berry representing Collex, expanded on his concerns by providing the following examples:

> **Mr BERRY (Collex):** The best way to explain the concern is to relate two situations that were hopeless for all involved. The first occurred about three years ago when a massive odour plume came out of Lucas Heights. The Minister for the Environment, as the Minister responsible for waste services, had to defend Waste Services' operations and say that it was really trying to do the right thing. The EPA, which reports to the Minister, had to make a decision about whether to prosecute Waste Services over what was an extraordinary event. The second event occurred two years ago when Waste Services dumped concentrated waste out of its liquid treatment plant into its landfill in breach of the law. The EPA had to make a decision about what sort of fine should be imposed in that situation. A $5,000 fine was imposed in response to a situation in which we understand Waste Services saved several million dollars by dumping waste in that way. That is an appalling situation for the bureaucrats and the Minister to be involved in; structurally it is wrong.[63]

3.104 Following, Mr Berry was asked by the Committee:

> **Ms MARIE ANDREWS MP:** What do you suggest as a remedy?
>
> **Mr BERRY (Collex)**: There are two levels of remedy. It will be obvious from our submission that we think that Waste Services would be better outside of government and as a commercial player rather than within government. If it is to remain within government then it is unfair to leave it under the Minister for the Environment's umbrella, in that that Minister must also administer the Department for Environment and Conservation.[64]

3.105 Reflecting upon the expressed claims, the Committee questioned Mr Kanofski, representing WSN, about the possible conflicts of interest and how such claims were managed:

> **Mr KANOFSKI (WSN):** [the claims have] been raised a number of times by a range of players. I do not experience what the complainants are complaining about. The Department of Environment and Conservation is our regulator, and it was the EPA before that time. I can tell you that they regulate us with a great degree of stringency—some of my people would suggest perhaps more than others rather than less. I have certainly never experienced a situation where the Minister for the Environment has been unable to distinguish appropriately between his roles as a portfolio Minister for WSN and as the Minister in charge of the Department of Environment and Conservation. It simply has not occurred.

[61] Submission 7(a), WC&RA, p. 3.
[62] Submission 53, Collex, p. 3.
[63] Transcript of Evidence, 31 May 2006, p. 31.
[64] Transcript of Evidence, 31 May 2006, p. 31.

> Because we are a commercial business, we operate in a commercial way and we do not have any funded community service obligations, our day-to-day contact ministerially is actually pretty low—in fact, it is very low, I would say. We have far more contact with our shareholders and their representatives than we do with the Minister for the Environment. I think the real issue is that the State-owned corporations legislation as it is composed in New South Wales requires State-owned corporations to have two shareholder Ministers and a portfolio Minister. I cannot think of a better place to put our business than in the Environment portfolio.[65]

3.106 The Department of Environment and Conservation was also asked to respond to these claims:

> **Mr GORTA (DEC):** We do hear that criticism from time to time. I heard what Ken Kanofski said. I would not go quite as far as him in one regard. We are not overzealous in regulating Waste Service. We are as firm with them as we are with everyone else. We have prosecuted them on several occasions over recent years, and issued them with penalty notices, and there is currently a matter before the courts, a prosecution against both Waste Service and its subcontractor. In addition to that, our prosecution approach is independent of the Minister, and that is not just because we are wilful men and women; it is statutorily so. I have a copy of our prosecution guidelines that I can give to the secretariat.[66]

3.107 The abovementioned matter was heard before the Land and Environment Court and was resolved on 10 July 2006, with the WSN convicted, after a plea of guilty for an offence of water pollution. The WSN was fined $75,000 and ordered to pay $46,740 in investigative and legal costs.[67]

Conclusions and Recommendations

3.108 The Committee has been mindful of the Ministerial conflict of interest claim by industry representatives and the legislative processes and procedures undertaken in regard to decision-making and enforcement under the Minister for the Environment's portfolio.

3.109 While the Committee Inquiry cannot see any impropriety or conflict of interest in the execution of the Minister's portfolio, it believes that with regard to the rapid changes in the waste industry and its associated markets, that a separation between the regulator (DEC) and the operator (WSN) under the Minister's portfolio be pursued. There are two options to transfer WSN under the current structure of Ministry portfolios - the Ministry of Energy or the Ministry of Water Utilities. Transfer to either portfolio would be consistent with the separation of other SOC utilities from the EPA as regulator and may also generate common management synergies for SOCs, which are predominantly in the energy and water utilities areas. There are also sustainability concerns with regard to carbon emissions from waste and waste to energy technology that are managed by the Department of Energy, Utilities and Sustainability.

[65] Transcript of Evidence, 1 June 2006, p. 25.
[66] Transcript of Evidence, 1 June 2006, p. 31.
[67] "Publication Order", Sydney Morning Herald, 14 July 2006, p. 18.

Recommendation 3 - Perceived Ministerial Conflict

3.110 The Committee recommends the transferral of WSN to the portfolio of the Minister for Energy or the Minister for Water Utilities under the policy umbrella of the Department of Energy, Utilities and Sustainability. Such a transfer enables WSN operations to be consistent with other utilities that are State Owned Corporations and provides the WSN to be at arms length from the regulatory body – the Environmental Protection Authority.

WSN Environmental Solutions - Operations

3.111 The Committee received submissions and heard evidence surrounding the impacts of the WSN Environmental Solutions in the municipal waste services industry. The WSN, a State Owned Corporation (SOC) since 2001, owns and operates a network of materials recovery facilities, AWTs and landfills across the Sydney Metropolitan Region.

3.112 The Committee received several submissions and heard witnesses express concern over WSN's current dominant position in the municipal waste management sector and its impact upon the industry's delivery of services and infrastructure across Sydney. To place the WSN in perspective for the purposes of this Inquiry, the following history, submitted by WSN, has been reproduced.

History of the WSN

In 1971, WSN was established by the NSW Parliament as the Metropolitan Waste Disposal Authority (MWDA). This was done in response to a need to improve waste disposal arrangements in the Sydney Metropolitan Area (SMA).

It was intended that the MWDA would regionalise waste disposal in Sydney, giving each Sydney council the ability to have an economically and environmentally sound waste disposal system, and to raise the environmental standard of waste facilities. Prior to this, councils ran putrescible landfilling. However, some councils were reluctant to give neighbouring councils access to their facilities, preferring to preserve the local capacity for their ratepaying community. The establishment of the MWDA therefore sought to create a Sydney network that would provide each council access to facilities for disposal of waste. This encouraged the consolidation of putrescible waste facilities, as opposed to a larger number of smaller putrescible landfills (which emerged in Melbourne around the same time, for example).

In addition to its statutory monopoly over putrescible landfilling in the SMA, the MWDA also held regulatory powers, allowing it to approve the development of new waste facilities.

Throughout the late 1970s and the 1980s, demand for disposal capacity rapidly increased. In particular, commercial and industrial waste increased from approximately 500,000 tonnes in 1977 to 2.2 million tonnes twelve years later. This put waste management squarely on the community's agenda. In its regulatory role, the Disposal Authority adopted the waste management hierarchy – very similar to the current State Government waste hierarchy – that emphasised actions "higher up" the chain of production to eliminate the rising "end-of-pipe" volumes. This was in early 1989.

In 1989, the new State Government changed the organisation's name to the Waste Management Authority (WMA). This change reflected the trend toward the management of waste (including minimisation and product stewardship) as opposed to systems entirely constituted by disposal to landfill. In its 1990 strategy, the WMA focussed on integrated waste management and priority was given to reduction at the level of production. It was clear from stakeholder consultation that targets were needed to drive waste minimisation policy. WMA proposed targets complemented by a "carrot and stick" approach to changing behaviours.

1992, a significant shift in the evolution of the organisation occurred. Most of the Authority's regulatory and policy functions were given to the Environment Protection Authority (EPA, now Department of Environment and Conservation). The Authority took on the sole role of network operator, and acquired a new official name (Waste Recycling and Processing Service), but thereafter traded as Waste Service NSW. In 1994, WSN pioneered the first large-scale generation of green electricity from landfill gas (methane) at its Lucas Heights facility.

Waste policy shifted in 1995 with the election of a new state government. The new policy reflected the change in community thinking about the state of the environment. The community expected higher standards of environmental protection, and better use of technology and waste management practice to reduce waste volumes to landfill. A target was set (originally of 60% reduction of waste to landfill by the year 2000) and regional Waste Boards run predominantly by councillors to manage waste planning were established. Stricter licensing conditions and industry waste plans were introduced.

WSN's current network has been built over the last thirty years (see Figure 15). Various facilities were operated by WSN and have since closed. These facilities must be managed for environmental effects (principally ongoing landfill gas and leachate production) for up to thirty years after closure, and are then rehabilitated and returned to the community for appropriate use. Examples of closed sites currently being managed by WSN are Thornleigh (closed 1985), Merrylands (1984) and Castlereagh (1998).[68]

Figure 15: Current Operating WSN facilities and year of opening

Landfills	Transfer Stations	Material Recycling Facilities
Jacks Gully 1975	Rockdale 1979	Jacks Gully 1996
Belrose 1979	Auburn 1984	Chullora 1997
Easter Creek 1984	Ryde 1985	
Lucas Heights 1987	Artarmon 1989	**Alternative Waste Technology**
	Seven Hills 1993	Eastern Creek 2004
	Belrose 1994	
	Chullora 1997	

(Source: Submission 45, WSN, pp2-3).

3.113 WSN was established by dissolving the Waste Recycling and Processing Service of NSW in 2001, to align with the direction of the NSW *Waste Minimisation and Resource Recovery Act 2001*. The premise for making/retaining the organisation as a State Owned Corporation is based upon the issues raised by the Minister for the Environment:

[68] Submission 45, WSN Environmental Solutions, pp. 2-4.

> Corporatisation allows for five outcomes. First, it allows for clear commercial objectives. This bill is the final step in untying the Waste Service's historic mix of commercial, social, advisory and regulatory functions. Second, it allows the appropriate government overview to ensure that it achieves the desired environmental outcomes. Third, it creates appropriate managerial autonomy, with an independent board that blends industry and management expertise. Fourth, it allows for effective performance monitoring. Finally, it provides for more effective rewards and sanctions, in line with usual business practice. In summary, the corporation will have the necessary commercial freedoms but the bill provides for ministerial directions for any non-commercial activities, public policy and public interest purposes.[69]

3.114 Particular concerns were raised as to perceptions of WSN's competitive advantage in the marketplace due to its historical legacy and operations as a SOC.

3.115 In its written submission, Collex raised the issue of WSN's competitive advantage through its ownership of 4 out of 5 putrescible landfill facilities and 7 of 8 waste transfer stations (the other station being Collex's Clyde/Woodlawn operation which collects municipal waste from the Sydney Region).

3.116 Collex considers that WSN's facilities are old and not suitable to meet current environmental standards associated with waste management infrastructure. The Committee also heard that the WSN was allowed to establish its presence in a period when developing and obtaining waste infrastructure approvals were not as difficult as it is today.[70]

3.117 Further, Collex contests that WSN's positioning in the waste industry provides it with an advantage over other competitors as its infrastructure allows flexibility in controlling waste flows into other putrescible waste facilities across Sydney, while Collex's operations are limited by the conditions of consent, where waste is required to be transported to Woodlawn.[71]

3.118 The Waste Contractors and Recyclers Association of NSW supported Collex's claims, highlighting the present situation of market power enjoyed by WSN as being a consequence of NSW legislation, planning laws and policy that began in the 1980s through to 2004 that provided WSN a monopoly over putrescible wastes and landfill services in the greater Sydney area. While the monopoly was broken in 2004 by the opening of Collex's Clyde/Woodlawn facility, the Association still considers that the presence of WSN and its network of associated infrastructure (i.e., transfer stations) provide an uncompetitive advantage in the form of market control.[72]

3.119 At the Hearing, the Committee heard evidence from the WCRA to support its written submission:

> **Mr KHOURY (WCRA):** Waste Service historically has had a monopoly in the Sydney Metropolitan Area that was promoted by government legislation and regulation all the way through the eighties and through most of the nineties where anyone who wanted to compete against Waste Service—after the mid-nineties—really had to have a supervisory licence from a council or a government department. Throughout that whole time Waste

[69] NSW Legislative Assembly Hansard Extract from Transcript of Hansard 20/06/2001 (Article No.57).
[70] Submission 7a, WC & RA NSW, p. 3.
[71] Submission 52, Collex, p. 2)
[72] Submission 7a, WC & RA NSW, p. 3.

> Service developed a network of transfer stations and landfills for the transfer and disposal of solid waste class 1, which is putrescible waste, and the rest of the marketplace relied on Waste Service as the disposal and transfer point. That was all the way through the eighties and the nineties. Until Clyde and Woodlawn were approved in 2004-05 we really saw no competition with Waste Service in that area. They had a 100 per cent monopoly.[73]

3.120 The Association contested that WSN's control of waste network infrastructure has facilitated its move into the kerbside collection of waste and recyclables[74]. The temporal windfall, coupled with its government and quasi-government ownership has provided benefit to WSN allowing the organisation to aggressively price kerbside collection contracts which, it is claimed by the Association, leads it to believe that WSN's landfill activities are being used to subsidise lower kerbside collection tenders.[75]

> **Mr KHOURY (WRCA):** [Until corporatisation, WSN]...did not compete on the collection side. Many of the other businesses and contractors built up businesses in collecting and transporting waste both for councils and on a commercial basis. In recent times we have seen Waste Service compete aggressively for waste collection contracts on various council contracts and it has been somewhat, in our view, detrimental to the long-term interests of the industry. For example, the one-year contract at Parramatta: it really does not serve any long-term interests for the industry. It is the first contract we have seen in a long, long time that started with second-hand equipment, and I do not think that necessarily promotes the best interests of the industry in the long-term.[76]

3.121 In turn, the Association's position is supported by Collex, who claimed that "the current state of municipal waste management is being deleteriously affected due to the impacts of state-sponsored market distortions on the putrescible waste processing, disposal and collection market segments".[77]

3.122 The Committee heard evidence from Collex concerning the anticompetitive issue:

> **Mr BERRY (Collex):** We regard some of their [WSN] actions relative to us as issues that need to be investigated. We believe there have been breaches of the Trade Practices Act with regard to abuse of market power. That issue should be handled by the Australian Competition and Consumer Commission. It is not really a concern for this Committee, but I will not tell honourable members their responsibilities. In relation to the structural problem, there is an organisation that effectively controls 80 per cent of waste in Sydney. It is probably significant to note that it controls anything that does not go into Woodlawn. Our Clyde depot is tied to Woodlawn, so it controls whatever anybody else wants to do in the waste industry, other than Collex. That is a problem for the rest of the industry, not so much for us. By reason of its structure and history, it has advantageous rules in respect of its landfills. Both in terms of regulation and enforcement it is significantly better off than us as a commercial player.[78]

3.123 The Committee notes Collex's concerns and encourages the pursuit of any potential anticompetitive behaviour or breaches of the Trade Practices Act for referral to the ACCC.

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[73] Transcript of Evidence, 31 May 2006, p. 26.
[74] Submission 7b, WC&RA, p3
[75] Submission 7a, WC & RA NSW, p. 3..
[76] Transcript of Evidence, 31 May 2006, p. 26.
[77] Submission 53, Collex, p. 1.
[78] Transcript of Evidence, 31 May 2006, p. 31.

3.124 Collex also suggest that since corporatisation, WSN has been allowed to:

- Increase the volume of low-cost, low tech landfill space and above that addressed in the Wright Report (2000); [79]
- Maintain effective monopoly control and reduced the size of the contestable market in municipal waste from 100% in 2003 to 20% in 2006; &
- Engage in 'facility based' pricing mechanisms, which have the effect of minimising, market competition and increase incentives for land filling at its facilities.[80]

3.125 Collex argues that as a State Owned Corporation, WSN has distorted the Sydney waste services market through aggressive pricing to secure a monopolistic market share – which is demonstrated by a decrease in gate prices by 20-30% whilst operating costs of these facilities have increased. Collex also raises particular concern that WSN bids at prices below cost and also suggests that it offers guarantees underwritten by the NSW Government when no such guarantees appear to exist.[81]

3.126 The Committee notes Collex's submitted recommendations:

- Waste management in NSW should be subject to a microeconomic reform process that includes consideration of the roles of the public and private sectors and should develop a framework for the allocation of responsibilities that enshrines a level playing field, competitive neutrality and clear separation of policy makers, regulators and operators;
- Municipal waste management currently operates with local monopolies, either publicly or contracted. Municipal waste management markets should be made more contestable and competitive; &
- Portfolio responsibility for WSN to be reassigned (possibly to the then Minister for Energy, Utilities and Sustainability).[82]

3.127 Conversely, positions were expressed regarding the public good of such an operation and the stability operations such as WSN provide the municipal waste management sector.

3.128 The Local Government and Shires Association stated its support for the current management of municipal waste in the Sydney Metropolitan Area:

> **Cl McCAFFERY (LGSA):** ...putrescible waste management must remain in public hands and not be carved up and sold off to the private sector.[83]

3.129 The LGSA position is supported by the argument that in the Sydney Metropolitan Area, municipal waste disposal and treatment facilities are provided by WSN Environmental Solutions [except for Clyde/Woodlawn]. Outside of the metropolitan area, councils, either individually or jointly, own and or operate these facilities, or hold a licence over the activities, which occur at those facilities. This requirement for public ownership is established by Section 87 [3] of the Protection of the Environment Act 1997, which states "A licence in respect of any such waste facility

[79] Report on the Avoidance and Waste Management Technologies Inquiry 2000, NSW Government
[80] Submission 53, Collex, pp. 3-4.
[81] Submission 53, Collex, pp. 3-4.
[82] Submission 53, Collex, pp. 1-4.
[83] Transcript of Evidence, 31 May 2006, p. 3.

may be granted to a person other than a public authority only if a public authority holds a separate licence granted in respect of the facility". If the provision of municipal waste disposal / treatment facilities was deregulated, it is likely that large, multinational, private waste corporations would be more aligned to the "single bottom line" in a highly competitive marketplace.[84]

3.130 The submission by the United Services Union, addressed the privatisation issue and its impacts upon councils. Where the Union's concern is largely levelled at the contracting out of collection services, its comments extend across the waste management industry and the large corporations, which dominate this market. The Union suggests that the high turnover rates of these companies dwarf the revenue base of local councils and consequently, some councils have experienced 'low balling' tactics whereby bids are so low they can secure the market and recover costs and profits later. The irony of this situation, the Union contests, is that the private waste management industry rhetoric is based on competition, yet the larger corporations who actively absorb competitors derive the benefits.[85]

3.131 In response to the structure of WSN and claims of anti-competitiveness, Mr Kanofski of WSN, provided the following:

> **Mr KANOFSKI (WSN) :** Corporatisation has allowed us to reform our business and, as you would expect, costs have been reduced and operational performance improved. For example, our overheads have reduced by 30 per cent in real terms since corporatisation. Our activities have not been confined to Sydney. We have helped Gosford council extend the life of its landfill by diverting 65 per cent of the income in waste from those landfills. We are helping Eurobodalla Shire Council with its recycling, and we also manage nationally the ChemClear project for recovery of unused farm chemicals.[86]

3.132 The Committee is supportive of the efforts made by WSN in reforming its operations since corporatisation and as a State Owned Corporation, extending these initiatives to other areas of the waste industry beyond the Sydney Metropolitan Region.

3.133 The Committee is also cognisant of Part 1 of the State Infrastructure Strategy, which also mentions the WSN as an essential SOC and discusses the organisation's role in the State's infrastructure development.[87]

3.134 Further, the Committee notes the operations of WSN as a SOC and the reasons behind the corporatisation of WSN, found in the Minister for the Environment's first/second reading speech of the *Waste Recycling and Processing Corporation Bill 2001*:

> The question is whether operating as a government trading enterprise [GTE] remains the appropriate corporate structure for Waste Service. Such enterprises are generally regarded as the first stage of progression from operating as a government department to operating as a commercial entity. The Government had two questions to weigh up. Should Waste Service remain in a form that ties it more closely to non-commercial objectives? Alternatively, should the Government restructure it to allow greater commercial responsiveness but maintaining all the necessary checks and balances? Given the changes we see in the industry, it proved critical that the organisation had

[84] Submission 38, LGSA, p. 1.
[85] Submission 50, USU, pp. 5-6.
[86] Transcript of Evidence, 1 June 2006, p. 23.
[87] State Infrastructure Strategic Plan 2002, pp. 83-85.

> more commercial latitude so that it could go in directions that allow it to retain a pivotal role in realising the Government's waste objectives. Moreover, our analysis showed no material market failure in the five business lines of the Waste Service that required it to remain a government trading enterprise.[88]

3.135 The Committee also notes the operating structure of the WSN and its requirements under the State Owned Corporations Amendment Act 1995, to act in accordance with the NSW Government's Guidelines for Competitive Neutrality.

Conclusions and Recommendations

3.136 The WSN was made a corporation in 2001. The operations of the organisation, including its ability to play on an even field under the principles of competitive neutrality, are pursuant to the provisions of the State Owned Corporations Act 1995.

3.137 It is recognised that WSN initiates various waste management programs but it does not have specific legislated obligations like those attached to many other State owned corporations. For example Sydney Water has legislated Special Objectives that require specific environmental and community outcomes. In addition to its principal business operating objectives in Section 21, Sections 22 of the Sydney Water Act 1994 sets out Sydney Water's special objectives of a) to reduce risks to human health and b) to prevent the degradation of the environment. These Special Objectives need to be considered when implementing its principal objectives. Sydney Water produces an annual statement on Special Objectives Performance within its ESD Indicators and Environment Plan Report.[89]

3.138 Building upon the transfer WSN to the portfolio of the Minister for Energy or Water Utilities, as per Recommendation 3, the Committee also recommends that WSN build upon its current operations through the addition of special objectives relating to waste minimisation, which reflect its unique status. For example, given the established waste management sites owned by WSN, it may be in a better position to facilitate certain start up reuse and recycling programs than private industry. The Committee believes that these activities should be recognised as public interest programs contributing to whole of government goals. Such requirements are consistent with the original WSN Corporatisation Bill which allowed for "Ministerial directions for any non-commercial, public policy and public interest purposes" (see para 3.112).

Recommendation 4 - WSN Environmental Solutions - Operations

3.139 The Committee recommends that WSN remain in public ownership at this time. The Committee recommends the NSW Government consider attaching legislated Special Objectives that focus WSN on improving delivery of community and whole of government sustainable waste management objectives.

[88] NSW Legislative Assembly Hansard, Extract from Transcript of Hansard 20/06/2001 (Article No.57).

[89] www.sydneywater.com.au/Publications/Reports/Annual Report2005.htm

Chapter Four - Production and Consumption Issues

Introduction

4.1 Following an outline and discussion of important waste data and policies in Chapter 2 and 3, the remainder of this report examines issues in waste management in order of the municipal waste management flow.

4.2 Chapter 4 focuses on waste issues relating to production and consumption and direct re-use of goods. The goals of waste avoidance/minimisation and product reuse in the waste hierarchy align with production and consumption activities which are also known as 'upstream' waste phases.

4.3 Three main issues were raised in submissions and are canvassed in turn:

- Consumer behaviour and waste education;
- Extended producer responsibilities and product stewardship; and
- Container deposit programs.

Consumer Behaviour and Waste Education

4.4 As discussed in Chapter 1, waste education and awareness is linked to a broader framework of sustainability education and awareness. When considering the extent and impact of waste education it must be looked at in the context of the sustainability issues and broad public awareness of sustainability.

4.5 Various initiatives are aimed to inform the public of the consequences of consumption and waste production.

4.6 The Commonwealth Government has a Waste Management Awareness Program established by the Department of Environment and Heritage which received over $6 million of funding from the Natural Heritage Trust between 1996 to 2003.[90]

4.7 The goal of the Waste Management Awareness Program is to promote the benefits of effective waste management and effective resource use, recovery and reuse. The program builds on existing waste reduction goals and national priorities, promotes market development for recycled materials and removal of barriers to their use, and promotes reuse and recycling throughout Australia. Source reduction strategies aim to reduce the quantity of waste material produced. Funds are given to various organisations to develop markets or programs.

4.8 The State Government makes clear links between waste and environmental issues in its community programs. For example "It's a living thing" is an education and funding initiative to support partnerships with local government, community organisations businesses and individuals. The initiative draws funds from the NSW Governments' Environmental Trust and has a specific section on Waste and Recycling.

4.9 Through the Department of Environment and Conservation funding is provided for consumer awareness programs. Two main programs such as the "Tosser" litter

[90] The Department of Environment and Conservation's Response to PC Interim Report p.15.

education campaign and also clean up and deterrence grants. DEC notes the strong links between environmental issues and litter. It describes the main messages of the "Tosser" campaign to include:[91]

- Disposing of litter is everyone's personal responsibility (97%);
- Littering in the streets and other public places is not appropriate (95%);
- The community disapproves of littering (94%); and
- Every bit of litter damages the environment (91 %).

4.10 The 2000-2003 Litter Prevention Program, which built on the 'Do the right thing' campaign, has had a positive effect on the knowledge, attitudes and behaviours of the public. The DEC notes the outcomes of the program include:

- A trend to connect litter to wider environmental issues of waste management, illegal dumping and recycling;
- A growth in people's concern that litter is damaging to the environment. Explicit mentions of litter getting into waterways and being hazardous to wildlife increased over the period of the whole campaign;
- An increase in the social unacceptability of littering, even amongst those who continue to litter;
- A growing knowledge that personal actions are needed to reduce littering, rather than dependence on actions by authorities; and
- A significant increase in awareness of and strong support for littering fines, with three in four people agreeing that people who litter should be fined.

4.11 DEC also provides template materials for use by council to educate their residents and educational materials for school education.

4.12 Local councils provide waste education programs to residents in two main categories:

- Instructions on waste collection activities such as pick up days and sorting processes in their council areas; and
- General education about waste and clean up initiatives in their council areas.

4.13 Some councils employ Waste Education Officers and special project officers for delivery of various initiatives. In addition waste education may take place under the umbrella of regional waste groups.

4.14 Non-government agencies such as Keep Australia Beautiful are also focused on raising awareness of waste issues and campaigning for initiatives such as plastic bag removal. In addition there are specific community campaigns such as Clean Up Australia.[92]

[91] Submission 56, DEC, p. 11.

[92] For further information on non government programs see Keep Australia Beautiful and Clean Up Australia websites - www.kab.org.au and www.cleanup.com.au.

Community Supported Programs

4.15 The Committee was interested in the impact of waste education campaigns - specifically the outcomes for raising waste awareness and outcomes in terms of waste reduction.

4.16 One of the common themes in waste education is the links between consumer consumption and environmental impacts. The key motivator often used to change consumer behaviour is the recognition of "upsteam" impacts of waste creation. As noted by ACOR, communities tend to be motivated to engage in recycling initiatives on the basis of prevention of negative "upstream" impacts:

> Most domestic recycling currently undertaken is not for the purpose of reducing "downstream" pollutant emission from landfills, but to reduce upstream impacts. Plastic bottles and metals packaging are not known for landfill pollution. ... the community obviously values the conservation of materials and embodied energy.[93]

4.17 It is generally argued that the community is motivated and concerned about waste but a direct correlation between their concern and improved waste outcomes is difficult to identify. Therefore surveys that register high concern about waste may not translate to immediate waste recovery.

4.18 During the inquiry some arguments have arisen in the Productivity Commission Draft Report that policies that intervene upstream in the waste cycle are not appropriate. The Productivity Commission, while recognising the links between consumption growth and waste growth programs, suggests that waste management policies and programs should not be related to upstream impacts.

4.19 The Productivity Commission argues that some consumer waste minimisation initiatives are being misdirected. Of most significance, was criticism of the initiative to eliminate plastic shopping bags. In 2005, in consultation with the retail industry, federal and state governments agreed to an initiative to phase out HDPE (High density polyethylene) shopping bags by 2008. The Productivity Commission has recommended that this proposal not proceed until a more rigorous cost benefit assessment of the program is undertaken. It suggests that the costs to the environment have been overestimated with respect to the volume of litter created by plastic bags and the damage to wildlife. Moreover, the benefits and usefulness of plastic bags including hygiene and convenience have being underestimated. This has led to a pre-emptive prohibition by government, which may not be appropriate.[94]

4.20 The response from the public to the Productivity Commission's proposal has been very informative about the scope of community's commitment to waste avoidance. Clean Up Australia suggests a rapid drop of plastic bag use in Australia since 2000 with a 34 per cent drop in use from 2002 to 2005. A similar decrease again is expected by 2008.[95] The acceptance and uptake by consumers of reusable bags in particular the "green bags" provided by supermarkets has been remarkable.[96]

[93] ACOR PC response p2
[94] Productivity Commission Draft Report, *Waste Management,* May 2006, p. 145.
[95] Clean Up Australia 2006.
[96] Municipal Association of Victoria Response to PC, p5.

4.21 While it is important to ascertain greater information about the consequences of a prohibition of plastic bags, there are various factors disregarded by the PC analysis, which reveal a lack of understanding of community views and its validity in the policy debate. The Committee sees that appropriate consideration of this issue should go beyond a financial cost benefit analysis to recognise some other non- price factors.

4.22 Reduction of plastic bag use is a highly visible activity that reflects a culture change of waste awareness and builds a foundation for other initiatives. As noted by the South Australian Government:

> To many people, plastic bags have become a symbol of waste within society, and are representative if much boarder concerns about plastics, packaging and the environment. Phasing out plastic bags represents an important step towards greater environmental consciousness and stewardship within society.[97]

4.23 The Productivity Commission assessment also appears to minimise the benefits attributed to plastic bag elimination. As noted by the Victorian Government, while the benefits of the program may only be 1 per cent reduction in litter, this is still substantial volume amounting to 10 million bags per year in that state alone.[98] The PC analysis notes that the marine life potentially affected by plastic bags pollution is relative small and disputed. However it fails to recognise or acknowledge that the community may still perceive this as a substantial concern even though it is not priced within a cost benefit framework. The uptake of re-useable bags can be seen as a strong indicator that the community has placed a value on preventing plastic bag pollution that is commensurate to the inconvenience and other negative costs of re-usable bags.

4.24 Implicit in the PC discussion is that the current efforts of consumers to minimise plastic bag use are ineffective. However suggestions of alternatives or replacements for the current arrangements have not been proposed. Until more effective alternatives are proposed, the Committee sees no value in discouraging community action in minimising plastic bag use. Moreover the Committee sees the momentum of community participation in the plastic bag initiative as a valuable tool for further and more direct initiatives.

Education Effectiveness

4.25 Some key stumbling blocks to greater education effectiveness were suggested to the Committee by the NSW Waste Educators Working Group (NSW WEWG). The NSW WEWG identified a lack of management consistency as a problem for waste education:

> An issue that has been a continual frustration for educators (and directly impacts the efficiencies or "contamination" in resource recovery) is the lack of a coordinated approach. That is there is no overarching guidance for recovery systems and public education… At present we all operate in an environment where local councils, businesses and special event organisers all develop public recycling systems in isolation. This results in a diverse array of systems sending conflicting messages across local

[97] SA Gov response to PC p5.
[98] Vic Gov, PC response p 17.

> government areas, workplaces and public venues, that even waste educators can have difficulty deciphering when away from their own jurisdiction.[99]

4.26 Different colour coding on bins for council collection compared with public events was given as an example the inconsistencies in current approaches. The WEWG argues that a national education approach based on consistent treatment of waste would:

- increase public understanding and participation;
- decrease contamination levels;
- provide a single platform for the introduction and expansion of programs; and
- significantly reduce the cost of duplicated efforts in the development of education systems and public education resources.[100]

4.27 The WEWG acknowledged that the implementation of such an approach would mean substantial change to current arrangements and would incur transition costs to reengineer, renegotiate contracts and redesign systems. However as the WEWG points out:

> Services with standard coding and educational messages will save considerable time, money and resources for state and local governments. Communications can be targeted, succinct and standardised from one local government area to another and from one workplace/ public place to another.[101]

4.28 The Committee is aware that standardised approaches to bins and recycling practices are used in many countries.[102]

4.29 While standardised methods can limit the capacity to tailor solutions to a specific community, the Committee believes that individual preferences should not dominate over a education system which has greater effectiveness in improving waste recovery outcomes.

Conclusions and Recommendation

4.30 The Committee believes that community support and take up of reusable bags is a valuable tool for government to springboard to more direct and more substantial waste avoidance initiatives.

Recommendation 5 – Consumer behaviour

4.31 The Committee recommends that the value of community support and the voluntary effort aspect of the current arrangements be recognised in further considerations of plastic bag prohibitions. Moreover the Committee believes that irrespective of the outcome of any further analysis of prohibition, community participation in voluntary activity should not be discouraged.

[99] Submission 35, WEWG, p. 1.
[100] Submission 35, WEWG, p. 2.
[101] Submission 35, WEWG, p. 2.
[102] Massachusetts Dept of Environmental Protection www.mas/gov/recycle and Greater London Authority (2001) Rewarding Recycling: an assembly investigation into barriers to greater recycling in London (June 2001).

Recommendation 6 – Waste Education

4.32 The Committee recommends that integration of waste education materials with common reference points be considered. Voluntary and council specific approaches should give way to a mandated approach to common signage and coding systems for waste. This would apply incrementally as collection contracts expire and signage items are replaced. It should be a condition of new tenders that standardised community education approaches apply.

Extended Producer Responsibility and Product Stewardship

4.33 Extended Producer Responsibility (EPR) describes the policy argument that producers should take some level of responsibility for the waste and environmental impacts of the products they make. Product Stewardship (PS) describes the policy argument that waste from products is a shared responsibility between producers, consumers and the community generally. Product stewardship policies usually suggest that all those who benefit from the product should be made to address its waste and environmental impacts.[103]

4.34 EPR and Product Stewardship policies apply at "upstream" production and consumption levels and are aligned with waste avoidance, minimisation and reuse principles at the top of the waste hierarchy.

4.35 Governments may encourage such producer and/or consumer responsibility in different forms depending on the governments view about the waste impacts of that particular product. Schemes may be implemented in a voluntary, co-operative, mandated or regulated frameworks. The main examples of EPR include:

- encouraging or requiring producers to recover the used goods they produce for recycling or disposal;
- encouraging or requiring producers to incorporate recycled components in products to allow for retrofitting or upgrading as an alternative to new consumption;
- encouraging or requiring producers to use environmentally friendly design components or processes.

4.36 Product Stewardship commonly involves some level of consumer participation or obligation in conjunction with a producer responsibility. A common Product Stewardship scheme is the joint responsibility by consumers of disposal of hazardous waste such as chemicals or asbestos. Some of these requirements can be mandatory with fines or penalties for non compliance.

4.37 Around the world there are many different EPR and PS schemes in operation. Some examples are:[104]

[103] For greater detail on definitions of EPR and PS see : www.environment.nsw.gov.au/education/SPO_EPR_ProdSteward.htm, Productivity Commission Draft Report Waste Management, Chapter 10, 2006 ; OECD (2001) Extended Producer Responsibility : a Guidance for Governments (OECD France); and Environmental Protection (and Heritage Council (2005) Industry Discussion Paper on Co-regulatory Frameworks for Product Stewardship (EPHC, Adelaide)

[104] *Beyond the Horizon: Global Perspectives on Producer Responsibility Legislation*, M Dempsey, Parliamentary Sustainable Waste Group UK, Presented at NSW Waste Conference 2006 Coffs Harbour.

- End of Life of Vehicles Directive of the European Union - This sets targets for reuse and recycling of a minimum portion of vehicles and vehicle components.
- Waste Electrical and Electronic Equipment (WEEE) Directive of the European Union – This sets targets for waste recovery requires collection systems and encourages recycled and recovered materials to be incorporated into production and design of products. Targets for reuse and recycling have been set for categories of goods such as large appliances, lighting equipment, IT and telecommunications, TV and entertainment appliances and medical devices.
- EU Packaging Directive – This is a identification system directing producers to use a component of recyclable material in their packaging. Packaging that complies with these requirements is identified with a "Green Dot".

4.38 All of these EU schemes rely on various levels of collection infrastructure and compliance and monitoring systems. They are not necessarily delivered or applied in each EU country in the same way and have, at various times, been regarded as inefficient and failing to be cost effective. Nevertheless the schemes continue to apply with various revisions and multiple approaches to remedy concerns. Despite controversy very few schemes have been abandoned.

4.39 Australia has various forms of EPR/PS for particular types of products. An example of the different forms of schemes was complied by the Productivity Commission Draft Report:[105]

Figure 16 : Snapshot of current Australian EPR/ PR Schemes

Administrative / product	Scheme
Voluntary industry Initiatives	
Athletic shoes	Reuse a Shoe (linked to USA)
Office Equipment	Cartridge Recycling (Fiji Xerox)
Voluntary Industry / Gov Agreements	
Mobile phones	Mobile Muster (national)
Newsprint	National Environmental Sustainability Plan (national)
PVC Products	Product Stewardship Commitment (national)
Chemical Containers	Drummuster (national)
Rural Chemical	Chem Clear (national)
HDPE plastic bags	Code of Practice for Management of Plastic Bags (Lapsed in 2005)
Industry/Gov Co-regulation	
Consumer packaging	National Packaging Covenant (State Govt)
Ozone depleting refrigerants	Refrigerant Reclaim (Cwth gov)
Government regulation	
Oil	Product Stewardship for Oil (Cwth gov)
Beverage Containers	Container deposit legislation (SA gov)

4.40 As illustrated in Figure 16 above the majority of current EPR and PS schemes applying in Australia are voluntary. The main co-regulatory arrangement in Australia is the National Packaging Covenant.

[105] Productivity Commission Draft Report, *Waste Management,* May 2006, Table 10.1, p. 219.

4.41 The National Packaging Covenant (NPC) was established in 1999. Since then it has under gone various revisions and in 2005 the National Packaging Covenant Mark 2 (NPC mk2) was released. Its goals are to minimise the environmental impacts arising from the disposal of used packaging, conserve resources through better design and production and facilitate reuse and recycling of used packaging materials.

4.42 Industries, specifically the brand owners of products sold in Australia, participate as signatories to the NPC. Each industry must produce an action plan and report progress against targets set in the Covenant. The current target is to increase the amount of post consumer packaging recycled from its current rate of 48% (2003 baseline data) to 65% by 2010. Signatories are also required to contribute $3million per annum to fund the support and uptake of kerbside recycling programs. The signatories contributions range from $500 to $200,000 depending on their financial turnover.[106]

4.43 The Environment Protection and Heritage Council is also developing Product Stewardship schemes to cover tyres, televisions and computers.

4.44 In addition to these national initiatives, State governments have also introduced policies to encourage product stewardship. These include the NSW governments identification of priority products in 2006 whereby the Government is strongly encouraging industry to establish EPR arrangements. Theses include computers, mobile phones, office paper, paint, plastics plastic bags, televisions and tyres.[107]

4.45 South Australia is the only state to apply a mandated EPR/PS scheme which is Container Deposit Legislation (CDL). This scheme has been running since 1976 and involves consumers returning glass and plastic beverage containers from soft drinks, water and beer to a depot. Retailers pay a 5 cent deposit and an agreed handling fee of 3 cents to a beverage manufacturer and this in inturn added to the consumer price. Consumers receive a 5 cent refund on each item returned to the recycling depot.

4.46 The EPR and PS schemes attract much controversy in Australian industry and government. Not surprisingly, both praise and criticisms for these schemes were drawn out in this inquiry.

4.47 Many local government groups are in favour EPR/PR schemes. Councils feel this is consistent with the principle of pushing responsibility to upstream stages of the waste flow as reflected in Burwood Council's comments:

> There is an exaggerated reliance on LGA's to accept all responsibility for delivering waste management to their communities. Extended producer responsibility should apply to the manufacturing and packaging industry to provide a direct product return route from the consumer to the producer of the material.[108]

4.48 However the limitations of voluntary agreements in EPR was noted by the LGSA:

> **Cl McCAFFERY:** We are happy that there is now some recognition that the producers of waste should have responsibility. We are now starting to get a consciousness into the

[106] M Demsey, Department Environment and Heritage 10/02/2006 www.DEH.Gov.au/SETTLEMENTS/WASTE/COVENANT/INDEX.HTML)
[107] DEC 2006, NSW EPR Priority Statement.
[108] Submission 13, Burwood Council, p. 2.

> strategy about extended producer responsibility. But all of it is based on voluntary agreements. The problem with voluntary agreements is if you look at how the national packaging covenant has been operating they never achieve the targets and there is always a sort of negotiation and then a new set of targets set. I did not think you will ever get industry to the table unless you set targets and then you are strict about the performance to the targets. If you look at the history of all these different strategies, it is always setting up a strategy, it fails and then you set up another strategy because unfortunately most of the time it is industry dictating the strategy, not government.
>
> **Mr VERHEY:** The goals of the waste strategy are worthwhile goals. They are ones we support. But the bringing to reality of the achievement of those goals has been hampered to a large extent by the too-soft approach on the producers of materials and potential waste. We have seen deadlines stretched and stretched and stretched over the past five years, and it is becoming a bit of a game to see who will crack first.[109]

4.49 The LGSA does not support the current National Packaging Covenant due to it voluntary structure, and in the LGSA's view, ineffectual status. Others argue that blanket application of EPR/PR is flawed because some recyclables are not easily captured in a cost effective way:

> **MR BERRY (Collex):** Some EPR initiatives are definitely justifiable and others are less justifiable. The Government is grappling with that at the moment. We are involved in e-waste. One of the issues in EPR is general waste reduction, that is, encouraging industry to have less waste by making reusable equipment, by using less packaging and by better engineering the products. In our domain there are to issues: one is toxicity, and that includes greenhouse emissions; and the other is balancing the externalities of virgin material versus recyclables and making sure that recyclables get a fair shake. If EPR is considered against those tests things like e-waste—computers, heavy metals—it will be justifiable. It is justifiable in terms of clean organics. Earthpower is operating in New South Wales. We have a composting operation using clean organics in Victoria. They are the sorts of things.[110]

4.50 The discussion around CDL that arose in the inquiry illustrates of debate and issues in evaluation of EPR/PS schemes.

Container Deposit Legislation (CDL)

4.51 The most frequently mentioned EPR scheme raised in the inquiry was adoption of the South Australia CDL program. The Committee received significant representation from advocates of CDL systems. However, the Committee also learned of the many approaches to CDL systems and their costs and benefits.

4.52 On the pro side the issue seems simple – pay a deposit at the point of source – redeem the deposit at a collection depot. Many benefits are seen from CDL systems such as reductions in litter, low contamination, less burden upon local government, more responsibility to the producer. Alternatively, CDL systems are seen by many to be complex and costly to implement and maintain.

4.53 The current status of CDL in NSW, and most other parts of Australia (with the notable exception of South Australia and recent moves by Western Australia), is that movement toward such systems are stymied by complexities enshrined in Mutual

[109] Transcript of Evidence, 31 May 2006, p. 5.
[110] Transcript of Evidence, 31 May 2006, p. 29.

Recognition Agreement legislation and the recent round of the NPC mk2. Nevertheless, while barriers to the implementation of some type of CDL system are present and that there has been significant debate and countless cost benefit analyses on the subject, the issue can be considered in a different forum as an Market Based Instrument (MBI) as part of an integrated waste management review.

4.54 On the advocacy side of the CDL argument, the Local Government and Shires Association consider that placing a value on materials will produce significant gains in areas such as litter reduction and reduced costs being borne by ratepayers.

> **Cl McCAFFERY (LGSA):** Education is a key factor. I mean, I mentioned as I spoke that we are always looking at the end and we are never looking at the upstream solutions. We have been pushing for a long time for container deposit legislation. We believe that if you put value on materials we know—
>
> **Mr IAN SLACK-SMITH MP:** Has that worked in South Australia?
>
> **Cl McCAFFERY:** They say you can tell the border between South Australia, New South Wales and Victoria by the waste. As soon as you cross the border in South Australia you do not see bottles and tins littered along the road because they have a value, but here we give them no value.
>
> **Mr IAN SLACK-SMITH MP:** Or little value.
>
> **Cl McCAFFERY:** I am not that old but when I was a child you collected bottles on the beach and you took them there because they had a deposit. We had CDL throughout the country and South Australia was the only State that continued it. This is the problem with the power of the beverage industry. It is a very powerful lobby group and they oppose container deposit legislation because if government does not force them to be responsible for their waste, why would they—if they can convince government not to be responsible for their waste, then they are happy about it. Instead, we are shifting the responsibility onto local government and onto communities. We do not think that is a fair system. They keep saying that it will undermine the recycling system that is effective in New South Wales, for instance. Well, it is effective in metropolitan areas, but in regional and rural areas it is simply not effective because the cost of—
>
> **Mr IAN SLACK-SMITH:** It is a cost to local government.
>
> **Cl McCAFFERY:** It is a huge cost to local government, but if you put value on those materials suddenly, instead of those materials littering the roadside, they would be collected because people would have a reason to collect them.
>
> **Mr KEVIN GREENE MP:** So the cost you are talking about in terms of the cost to local government, that is the cost to local government that is ultimately passed on to the ratepayers, is it not?
>
> **Cl McCAFFERY:** Yes, but local government, we represent our communities and if it is a cost to us it is a cost to our communities. We are saying that it is ridiculous that the cost is not—I mean, the philosophy of good waste management is that the polluter pays. So if I am, through producing my product, in fact polluting the environment then I should be responsible for that pollution. If I produce a product I should be responsible for the whole of its life.[111]

4.55 Some submissions such as Netwaste highlighted litter benefits as an additional advantage of CDL:

[111] Transcript of Evidence, 31 May 2006, pp. 4-5.

Mr IAN SLACK-SMITH MP: Yesterday I asked a question with regard to deposits on containers, as happens in South Australia. What is your reaction to that?

Mr SYKES (NETWASTE): The major implication I see from the container deposit legislation is litter. That is the big impact in the regions.

Mr IAN SLACK-SMITH MP: Would it make the value of your product better, or less?

Mr SYKES: There are two options here. One is that it could certainly increase the collection of bottles significantly because there would be an incentive to do that. It is probably more so in the remote communities than in the main centres, where the kerbside collection of the commingled recyclables is just so easy. Most of the communities—probably Bathurst, Orange, Dubbo, Lithgow and the Blue Mountains—would simply continue to put their bottles in their commingled bin. But in the remote communities, it is more likely that that would provide an incentive for collection.[112]

4.56 The LGSA argues that there is a cross-over benefit in litter reduction which can potentially lower council's litter management costs:

Cl McCAFFERY: ...So we would argue that a CDL system produces much less public litter because people would recycle those products because they have a value.[113]

4.57 While CDL has strong local government and suggested public support (footnote Submissions supporting CDL included 24- Sydney Coastal Council's Group, 30- Northern Inland Regional Waste, 39 – Eurobodalla Shire Council, 41 -Manly Council, 42 – Southern Sydney Regional Organisation of Councils, 47 – Riverina Eastern Regional Organisation of Councils), the Committee heard there are various implications for viability of existing recycling industries that rely on kerbside collections:

Mr KEVIN GREENE MP: Surely if the deposit is coming back to the person who has it in his hand—that is, the consumer—he would not be putting it into kerbside recycling for the recyclers to collect.

Mr LAWSON (ACOR): It could drop the amount of materials in residual and recycling waste streams. There is the potential for that. However, if you are rewarding the recovery of those materials from litter or waste streams that they end up in, you will potentially recover additional materials. It costs a lot of money to run CDL schemes; they are administratively costly. Our industry would rather support broad-based supply or value-chain approaches.[114]

Mr SYKES (NETWASTE): The other thing is that for the larger centres it could be argued that having a CDL program would bring down the volume of glass that goes into the commingled bin; that is possible. That would make the volumes less, and then it would make commingled recycling collection less competitive, and that could, in turn, I suppose, impact upon the collection of paper, plastics and other commodities. There is a lot of cross-subsidisation with the private sector, which do the sorting of waste and they wear the costs or the losses.[115]

4.58 However the Committee also heard that CDL schemes may improve the quality of other recyclable streams by reducing cross contamination. As explained by representatives of Collex and Visy:

[112] Transcript of Evidence, 1 June 2006, p. 4.
[113] Transcript of Evidence, 31 May 2006, p. 7.
[114] Transcript of Evidence, 31 May 2006, p. 16.
[115] Transcript of Evidence, 1 June 2006, p. 4.

> **Mr BERRY (Collex):** The big issue before container deposit legislation is brought in is what impact it will have on other recyclables. If you take out some of the recyclables, which are typically the high-value ones, what will happen with other collection? There are various definitions of what containers should be in and how much should be captured out of the waste stream. Again, it is a balance. The plastic and the metal are two of the high-value recyclables. If you get the glass out of the paper everyone will be very happy because glass contamination in paper has a major impacts on the value of the paper [116]
>
> **Mr SMITH (VISY):** We have to have a bob each way on CDL, because we benefit from CDL in South Australia, yet we are a manufacturer of all types of containers. We have a healthy debate within VISY Industries over whether it is a good thing or a bad thing. CDL and general extended producer responsibility is a tool in the toolkit of recovering material. It is an effective tool, but it certainly has an impact on kerbside collection systems. It has an impact on the financial viability of those systems. Although it has often been suggested as a tool that should be employed by States other than South Australia, I think it has been suggested in quite a simplistic way that if you added CDL you would suddenly improve the entire system. It will have an impact on the existing system, so that if we are not prepared to go back and rethink our existing systems we should be careful about simply putting in another tool that will have an impact on them. [117]

4.59 The NSW Government current position on this issue has been to see CDL as one potential tool for EPR but it does not see merit in initiating a scheme as an individual state:

> **Mr ROGERS (DEC):** ... New South Wales, like all of the other States and Territories, is a signatory to the National Packaging Covenant. The circumstances of that mean that New South Wales will continue in that role. A review of the Covenant is due in 2008 and it runs through until 2010. New South Wales would have great difficulty alone in going the CDL route because of mutual recognition legislation. South Australia's system is grandfathered under the mutual recognition legislation. Any other State or Territory wishing to change would have to abide by the mutual recognition legislation. It is a policy issue and I would not like to take it further than that other than to acknowledge that there are lots of arguments around.[118]

4.60 Contrasting to this view is the recent decision by the Western Australian Government to examine CDL opportunities. In 2005 the Government set up a Stakeholder Advisory Group to examine schemes around the world with the intention of developing a viable design to fit Western Australia's waste requirements.[119]

4.61 In its examination of CDL the Productivity Commission argued that the high administration and compliance costs of CDL along with inconclusive arguments about the effectiveness in terms of litter reduction and resource recovery, weakened the case for its introduction in Australia. Moreover its potential to erode the cost effectiveness of existing kerbside collection systems by reducing value waste streams and diminishing economies of scale.

4.62 However the Productivity Commission analysis did not appear to examine the potential benefits from reduced cross contamination which was raised in the NSW inquiry.

[116] Transcript of Evidence, 31 May 2006, p. 29.
[117] Transcript of Evidence, 1 June 2006, p21
[118] Transcript of Evidence, 1 June 2006, p. 31.
[119] WA DEC, Submission to PC Inquiry, p. 5.

Moreover there is little discussion or critique of the cost /benefit evaluations that are relied upon. For example there is no discussion about the assumptions made in these cost benefit analyses about participation rates for schemes, be they mandated or voluntary. Similarly some analysis are specific to a particular schemes design where hand sorting and counting is required where some CDL schemes do not require this process.

4.63 A further concern about the Productivity Commission conclusions is that it argues that CDL is a more expensive option for recovering resources than kerbside collection. However it is also acknowledged that most kerbside collection schemes are subsidised. It is not clear from the Productivity Commission discussion if kerbside subsidies have been recognised when drawing conclusions with CDL cost effectiveness.[120]

Other forms of EPR/PS

4.64 The Committee heard further arguments and suggestions for improving EPR. The ACOR argue that CDL is a poor mechanism compared to other EPR mechanisms that target the broader "supply chain of producers":

> **Mr LAWSON (ACOR):** We do not directly support CDL because it tends to focus on a narrow section of container markets. We understand why local governments concerned about litter impacts and public-place recycling support CDL. We believe that a better tool is extended producer responsibility and product stewardship. In that scenario, you work through the supply chain from the makers of the materials that are supplied to the packagers, through to the users and aggregators of the wastes to the recyclers. That produces a whole-of-supply chain answer that is not merely targeted at one narrow slice. Some businesses will be advantaged by CDL and some recyclers will be advantaged by it. However, we think in the benefits are somewhat outweighed by the costs when compared to rigorous EPR schemes.[121]

4.65 The LGSA argued that EPR could be made more viable with the addition of taxing or levying non recyclable products or packaging:

> **Mr KEVIN GREENE MP:** Besides putting a levy on packaging, is there anything else that you regard as being of assistance that could be provided by the State and/or Federal governments to assist local councils in terms of waste collection?
>
> **Cl McCAFFERY:** I think both. It is really a Federal Government responsibility. I think we need to be looking at using taxation to create a greater market for recycled products. If we are really serious about wanting recycling to be effective, and the cost mechanism is the best way to do it, we really should be making recycled paper cheaper than the primary paper from forest products. If we are really serious about recycling, then we should be providing incentive. Unfortunately, it is the opposite way now: recycled paper is more expensive now than is virgin material which, to me, is crazy. We should be providing a cost incentive. The same thing should happen for glass and plastic. The Federal Government has the capacity to do that. We have been urging for years that that happens. It would be great if those kinds of things could be communicated to the Federal Government and we start to get some pressure for them to do that.[122]

[120] Productivity Commission Draft Report, *Waste Management,* May 2006, pp. 202-205.
[121] Transcript of Evidence, 31 May 2006, p. 16.
[122] Transcript of Evidence, 31 May 2006, p. 7.

4.66 Another suggestion is a shared EPR contributions between producers and local government as applies in Toronto Canada and explained by LGSA:

> **Mr IAN SLACK-SMITH:** You raised a couple of interesting points and referred to the Toronto experience. What are the responsibilities of consumers?...
>
> **Mr VERHEY:** I became aware of this only fairly recently. It is a system whereby the authority said to industry, "You are going to pay for half the cost of managing your products, we are going to develop a formula that determines how much of the waste stream your products are contributing to, and the public sector will pick up the other half."
>
> **Mr IAN SLACK-SMITH:** That is, local government.
>
> **Mr VERHEY:** Local and State government, yes. That 50 per cent share of the responsibility was enough impetus for industry to start having a really good look at the products its produces. So even 50 per cent extended producer responsibility is enough to trigger industry to start making product design changes and reducing the stuff coming in at the front end. The less coming it in at the front end, the less they will be paying.[123]

4.67 Several submissions also suggested a portion of NSW landfill levy funds be dedicated to EPR schemes development:

> **Mr PASCO (WSROC):** ...that a portion of the waste levy should continue to be given back to councils and an additional portion should be considered to be given back in the form of an interest-free loan to be used for waste mitigation purposes; that the waste levy rebate should be assessed on a case-by-case basis and an outcomes basis and not on conventional notions of best practice; that the State and Federal governments should explore opportunities to make companies reduce packaging and take responsibility for the life cycle of their products.[124]
>
> **Mr KANOFSKI (WSN):** What would we like to see? We think some of the levy money could be used to fund targeted market-based instruments and to encourage EPR schemes to target hard to recover material or toxic material, such as batteries, paint and some electrical goods, that impede the recovery of organics from the waste stream. Greater regulatory certainty about the ability to apply recovered organics to the soil would assist develop these most important recycling markets, bearing in mind that around 50 per cent of municipal waste is organic waste.[125]

Conclusions and Recommendations

4.68 The bulk of EPR/PS schemes in Australia are voluntary in terms of industry uptake. The main arguments for voluntary schemes are that they tend to have lower administration and compliance costs than mandatory schemes for both industry and government. One weakness of voluntary schemes that is frequently highlighted is the free rider effect whereby non participating industry operators benefit from the recycling infrastructure and product stream created by the participating industry operators.

4.69 Mandatory schemes have often been resisted by industry in Australia. Some of the key arguments posited are the lack of volumes or turnover of items to make EPR financially viable and the scope and effectiveness of EPR application to items

[123] Transcript of Evidence, 31 May 2006, p. 3.
[124] Transcript of Evidence, 31 May 2006, p. 11.
[125] Transcript of Evidence, 1 June 2006, p. 22.

imported into Australia. It is said that large international firms would be reluctant to modify their products for the small Australian market and that establishment of return and reuse infrastructure could not be cost effectively applied when returning products to overseas production centres.

4.70 While it may be true that the volume and throughput of some products may not be sufficient in Australia to warrant complex EPR schemes such as return and reuse, the Committee feels the debate about mandatory schemes being onerous is not convincing. For example Australia frequently requires international producers to modify products for Australian markets to meet labelling and import standards without jeopardising business activity.

4.71 The Committee sees that the voluntary or mandatory nature of an EPR scheme may be a contributing factor in itself to a scheme's viability and success. Simply put - some schemes when voluntary will never be cost effective not only because of the free rider effect in industry but because of the low participation rate by consumers. This leads to the poor economies of scale which may frustrate the cost effectiveness of a voluntary scheme.

4.72 The Committee is concerned that some voluntary schemes are failing though poorly designed implementation. The Committee would like to see more analysis examining whether economies of scale are improved if a scheme was mandatory and has a high participation rate by consumers. While there will always be some level of consumer non-compliance, national mandatory approaches, that have uniform coverage, may generate economies of scale that reduce administration and compliance costs per unit.

4.73 A key issue that was not raised in many submissions but is critical is the nexus between consumer awareness and participation in schemes. The Committee is concerned about the limited promotion of some voluntary schemes and its effect on poor participation. The Committee is not aware of sensitivity analysis of cost effectiveness of voluntary schemes with varying promotion levels. The Committee believes that there is a genuine willingness of consumers to participate if they are aware of certain schemes. However in some cases promotion has been scarce or underdeveloped. Promotion needs to be strategic - at place of purchase or disposal and adequately funded to generate awareness of and momentum in a scheme.

4.74 Schemes that have some mechanism for cost recovery by consumers appear to be a very popular. For example, the uptake of petrol discount vouchers provided by supermarkets has been very popular to consumers. Although most consumers may be aware that the discounted petrol might be provided via a subsidy built into the supermarkets pricing structure, consumer's participation in this scheme as been substantial. The mechanism is not very different from a container deposit refund that increases the price of the original container to provide for the payment of the refund.

4.75 The Committee is concerned that the estimates of potential consumer participation in assessments of EPR schemes have been minimised when this is one of the most rapidly changing factors of an analysis.

4.76 A final issue is the need for a paradigm shift as argued by WSROC:

> **Mr GOODING (WSROC):** At times governments have to take a leadership role and cannot look at things purely on a narrow, cost-benefit analysis, which the [Productivity] Commission seems to have done. The Commission questioned providing incentives or requirements for manufacturers to take responsibility for their products and their packaging. They are about sending a message to both manufacturing and the community about changing the paradigm, changing the way we look at this. That in turn will accelerate this process of moving from a cost to a resource.[126]

4.77 The Committee agrees with WSROC that governments should lead rather than follow industry in responding to waste concerns. Instead of waiting for the market to respond with solutions, sustainability principles demand a more active community role to change approaches to waste.

4.78 The Committee recognises that efforts in educating the community extend beyond "placing the right waste in the right bin". Education programs need to be directed toward a greater understanding of the full costs associated with waste disposal and recycling. Voluntary or mandated approaches to Extended Producer Responsibility (EPR) and Product Stewardship initiatives pursued by governments appear to be making a change. Based on the evidence considered during the course of this Inquiry, the Committee is of the strong belief that these policies should be accelerated and expanded

Recommendation 7 – Extended Producer Responsibility and Product Stewardship

4.79 The Committee recognises the value of voluntary and mandated EPR and product stewardship initiatives pursued by Federal and State Government and recommends that these initiatives should be accelerated and expanded.

[126] Transcript of Evidence, 31 May 2006, p. 13.

Chapter Five - Collection and Processing

Introduction

5.1 This Chapter discusses the council waste service collections, waste sorting and waste processing as part of the municipal waste flow.

5.2 The Chapter covers waste receptacles or bins used for **collection at the kerbside**, the **processing of collected materials** and the various issues faced by **rural and regional NSW** in regard to collection and processing municipal waste. The chapter will also discuss a range of other issues captured under the municipal waste management process.

5.3 The collection process of the municipal waste stream involves three major stakeholders:

- Local government authorities;
- The waste industry; and
- The community.

5.4 The role of local government authorities in municipal waste management is pivotal in determining how the collection and processing of collected waste and recovered resources are undertaken. Local Government authorities are involved in the municipal waste stream by:

- Acting on behalf of, and in the best interests of their community and ratepayers; and
- Managing the interests of their communities by providing waste services and negotiating waste contracts with waste management service providers.

5.5 Industry is involved in the process of the municipal waste stream via:

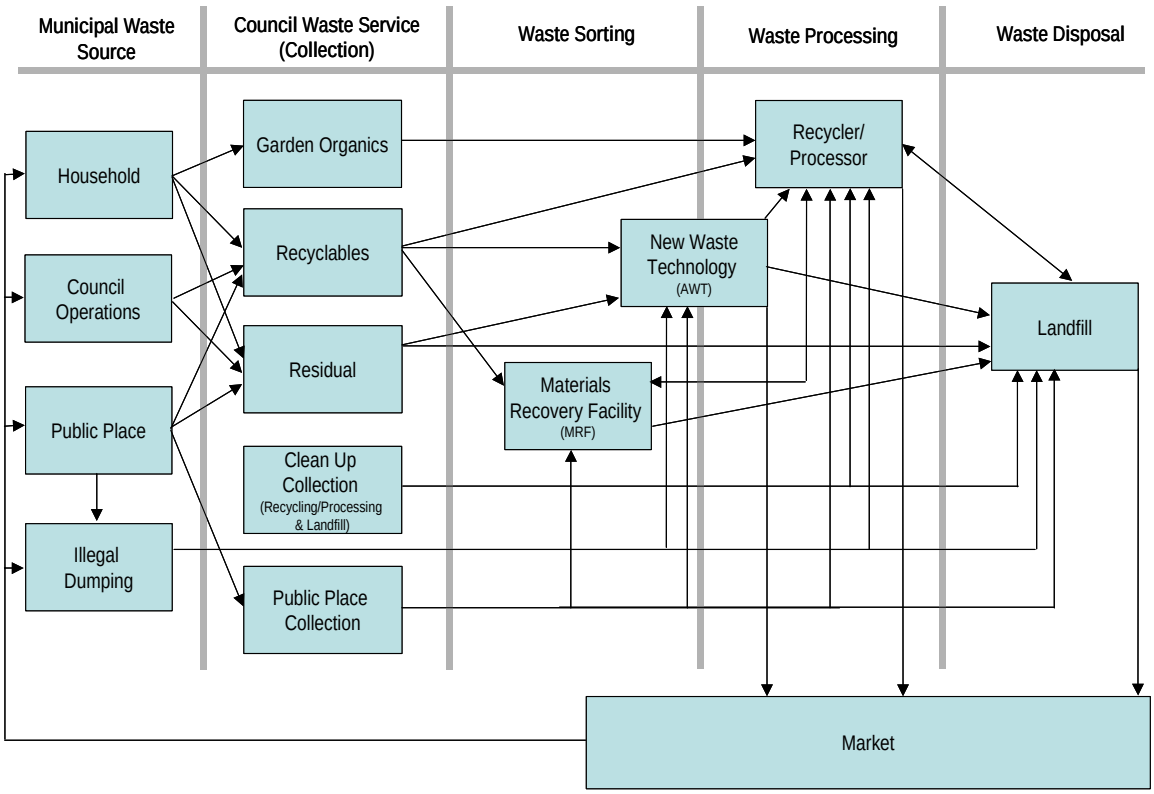
- The physical collection of waste and recyclables;
- The processing of collected waste and recyclables;
- The marketing of recovered materials; and
- Waste transfer and landfill operations.

5.6 The community is also involved in the municipal waste stream as a:

- Consumer of resources;
- Generator of waste; and
- Client customer of waste services provided by councils and waste service providers.

5.7 From the beginning of this Inquiry, the Committee recognised that due to the complex relationships between the above stakeholders and the specific requirements of each council, that there is no single standard collection contract configuration for application across the collection and processing component of the municipal waste stream. Consequently, discussion of the issues associated with the collection and processing of municipal waste are broad and provided as an overview of the general process. Issues raised during the Inquiry have been incorporated into the discussion to provide detail and inform the Committee's findings and recommendations.

Figure 17 : Municipal Waste Flow



5.8 Figure 17 has been adapted from several sources to illustrate the flow of waste within municipal waste management from source to disposal. It is recognised that the flow of elements, as depicted in the diagram may vary due to various processing methods, contracting arrangements and council operations. However for the purposes of this Inquiry, the diagram is designed to illustrate the general elements of municipal waste management, the various activities involved surrounding these elements and how they are broadly integrated across the flow of municipal waste.

5.9 As previously discussed, councils' role in waste management extends to the provisions of the Local Government Act 1993. Under Section 24 of the Act, councils can provide waste management services, including domestic, business and roadside services within their LGA. Councils are largely autonomous as to how they determine (in consultation with their community), how such services are delivered to meet the current and future needs of their community. Under section 496 of the Act, councils must make and levy an annual charge for the provision of domestic waste management services for each parcel of rateable land for which the service is available.

5.10 The Local Government and Shires Association believe that there is no one "best practice" method of service delivery for waste management and that there are many forces that influence the most suitable system, including:

a. Composition of the waste stream (eg amount of potential garden waste);
b. Density of settlement (inner city, outer suburbs, regional centre, rural community);

c. Physical characteristics of the council area (eg width of streets / lanes);
d. Occupational Health and Safety issues; and
e. Nature of demographic and waste stream.[127]

5.11 In light of these factors, the Association has advocated a local approach, whereby councils account for demographic characteristics, distances and the nature and composition of the waste stream in making determinations on the most suitable waste collection systems. When tailoring their waste management systems, the Association encourages each council to employ a "triple bottom line" approach, which weighs up the environmental, economic and social costs and benefits of collecting each type of commodity and then makes individual decisions on the most appropriate method of collecting and processing those commodities.[128]

5.12 The Committee heard that the provision of kerbside collection systems place a significant cost burden upon councils. The Southern Sydney Regional Organisation of Councils contest that source separation collection methods employed in kerbside collection services have come at a cost, which the councils on behalf of their communities have borne (including additional bins to cover all 'streams' and the number of vehicles required to provide these services). Further, these changes have had an impact on transport, traffic movements and infrastructure, which have also had a very significant impact on the base cost of introducing separate collection services for dedicated waste streams, the cost of which has been absorbed, almost exclusively, by ratepayers. The SSROC suggest that the situation could be remedied by more equitably distributing the costs of providing collection services. Equity could be achieved by introducing a product levy system that would assist councils in the recovery cost of those materials which have a recovery value, sharing responsibility with product manufacturers and consumers of such products, and the local councils providing the collection services.[129]

5.13 Alternatively, some respondents have suggested that councils have a short term and disposal orientated focus, which is driven by the need to perform their statutory services at the lowest possible cost. This focus is allowing too much potentially recoverable material to be directed toward landfill – hence not meeting the sustainability requirements of government policies or those of future generations.

5.14 This chapter will investigate the issue of collecting and processing municipal waste by discussing:

- **Domestic collection at the kerbside** and the issue of bin standardisation (configuration and colour codes);
- **Processing of collected materials** (residual, recycling and organic waste streams);
- **Rural and regional** municipal waste issues; and
- **Other issues** associated with municipal waste management (Clean-up services, public place, and illegal dumping).

[127] Submission 38, LGSA, p. 2.
[128] Submission 38, LGSA, p. 2.
[129] Submission 42, SSROC, pp. 5-7.

Domestic collection at the kerbside

5.15 Kerbside collection of municipal waste is conducted by local government – either directly by the use of day labour or through contract waste collection providers. Generally, councils develop, maintain and negotiate collection services to align with the particular requirements of their community and other externalities associated with urban, regional or rural constraints.

5.16 Of the 38 councils in the Sydney Metropolitan area, 7 councils conduct waste collection services with a directly employed workforce,[130] with the remaining councils opting for waste management collection contracts from private companies and WSN Environmental Solutions.

Collection Contracts

5.17 No single milestone appears to signal when the major shift from council day labour to contracted labour began. However, one significant turning point was the rise in OH&S issues as a result of injuries to 'runners' who manually picked up and deposited the contents of 55litre bins at the kerbside into collection vehicles. The rise in injuries as a consequence of this collection method forced councils to seek better approaches for materials handling and ushered in the 'one-armed bandit', a lever placed on the truck to empty bins and reduce the risks of back injuries in the 1980s. Technological advances rapidly followed, often eliminating the need for runners and allowing the vehicle driver to control both vehicle and kerbside waste for pick-up and transfer in the collection vehicle.[131]

5.18 The United Services Union (USU) commented on the rise of private waste collection contractors and their impact upon councils who opt to use these services for municipal waste collection. Essentially, the USU believes that Councils who engage in collection contracts can be disadvantaged in providing services to their communities as contracts often restrict flexibility in making adjustments to meet out of contract requirements, legal disputes, and quality control and accountability.[132]

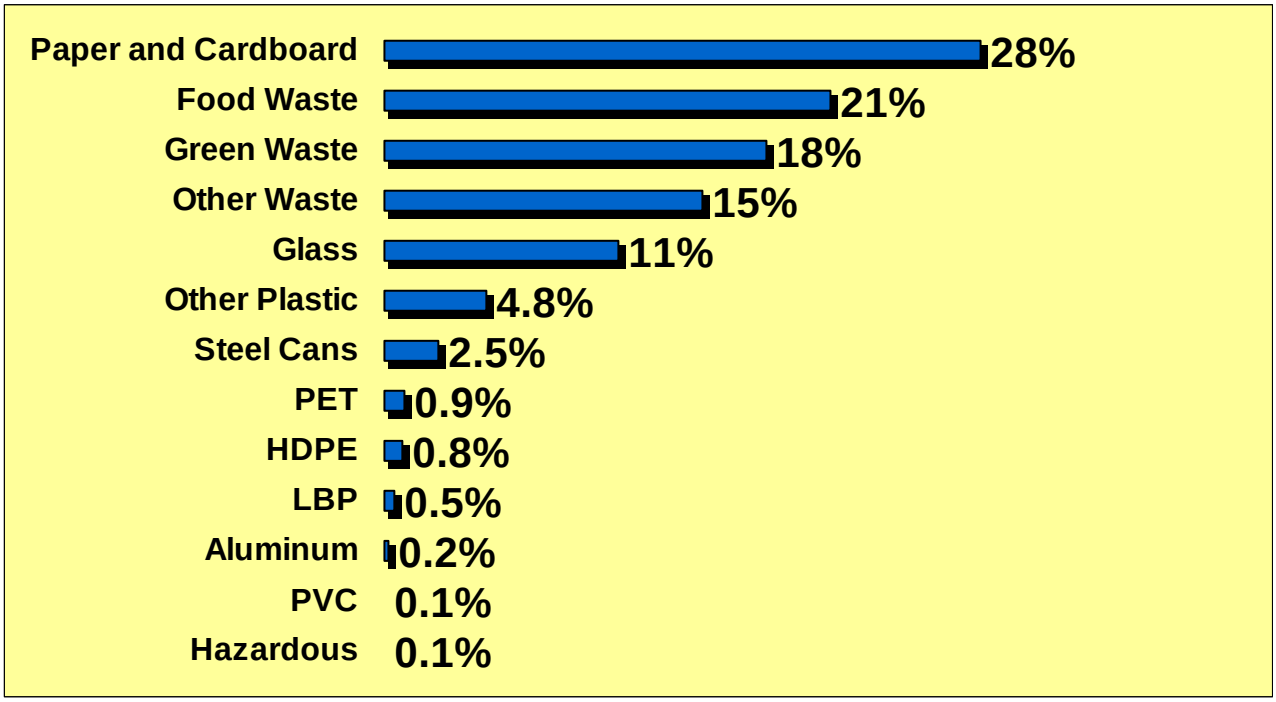
5.19 While the Committee understands that the traditional services provided by councils are now out of the direct day to day control of councils upon entering into collection contracts, it is cognisant of the need for councils to ensure sound management and supervision of contractors, including the prescription of conditions and KPIs that can be met by the contractor to meet councils' needs as they arise. Adoption of this approach would include councils drafting effective commercial contracts with sufficient lead time for negotiations to be conducted between a council and interested parties to ensure a more comprehensive understanding of the needs of both parties.

[130] Submission 25, Transport Workers Union, p. 1.
[131] Supplementary info provided to the committee by WCRA.
[132] Submission 50, united Services Union, p. 45.

What is being collected?

5.20 A breakdown of waste types collected in NSW municipal waste is shown in Figure 18 below. The three largest waste types are paper and cardboard at 28 percent, followed by food waste at 21 per cent, and green waste at 18 percent. Recyclables such as plastics, glass and metals make up around 10 per cent. A further "other waste" category of mixed items is around 15 percent. When food waste and green waste are combined it can be argued that organic putrescible waste amounts to around 40 percent of the total municipal waste stream.

Figure 18: Total Domestic Waste (Garbage and Recyclables) Composition – Metropolitan[133]



5.21 During the Inquiry, the Committee heard various representations concerning council waste service/kerbside collection. In particular, the issues of bin configuration and standardised bin colour codes were raised in regard to weekly/fortnightly collections and council clean-ups as part of quarterly or bi-annual collections of the more bulkier and larger waste items.

Bin Configuration

5.22 The Committee acknowledged industry respondents' calls for mandated bin size and configuration types across NSW. This is largely based upon the premise that greater efficiencies will result in greater volumes of materials collected from residences. However, local government is generally opposed to this approach, as they consider themselves to be the agents most in touch with their residents' needs and the specific requirements of their LGAs (i.e., topography, urban development constraints etc.), hence the need for different bins and therefore non-mandatory bin configuration.

[133] Department of Environment and Conservation, *Getting more from our recycling systems: assessment of domestic waste and recycling systems – final report,* March 2004.

5.23 The SSROC, while in favour of three bin systems, pointed to its member councils' increasing awareness that standardisation is not suitable for application across all areas as there is no single operational system (including collection system or bin configuration), that is appropriate for all household types.[134]

5.24 The WSROC supported and expanded on SSROC's contention at the Hearings:

> **Mr PASCOE (WSROC):** WSROC would like to make the point that three-bin collection systems are not always appropriate in all local government areas, and some councils that implement best practice management do so without using a three-bin system. Another major issue is that often, council initiatives fail to achieve their maximum impact due to minimal uptake by the community, which may result from ignorance, apathy and a lack of motivation. Illegal dumping, which is a financially, aesthetically and environmentally damaging practice common in Western Sydney, is likely to result from these previously mentioned factors. The situation in Western Sydney is complicated by the fact that the area has comparatively high levels of non-English-speaking background transient and low socioeconomic populations.[135]

5.25 The DEC recognises the differentiation of municipal waste management systems across the State (ranging from varying bin configurations to different products for recycling), which lead to confusion within the community about what is accepted for recycling and hence lead to high levels of contamination. In response, the DEC has undertaken a series of complementary grants and programs aimed at improving community education and local government participation to increase consistency in waste management collection systems.[136]

5.26 Further, during the Hearings, the Executive Director of the DEC was asked to elaborate on the Department's drive toward bin standardisation:

> **Mr ROGERS (DEC):** We believe there are a number of good-practice bin systems. There are circumstances in which one performs better than others for different things, but essentially we have come down to what we call a good practice system of a single waste bin, either alternating paper and containers bins or a co-mingled containers bin, combined with an organics recovery bin where there is sufficient organic material to justify a separate recovery. We have placed that in the performance requirements for the City and Country Environment Improvement scheme for next year so that council rebates will be tied to moving towards good practice. In the first year the requirement will that you have a recovery system for dry recyclables, covering beverage containers and newspaper, and we will be looking towards moving to good practice so we will get some standardisation. That makes it much easier for people moving from council area to council area to understand it is the same bin configuration. It also simplifies public place recycling as you can use a similar colour scheme.
>
> We do see some benefits. There are particular problems in council areas that have very small lanes. There are issues about how much organic material there is. If you are in an inner city council there is not necessarily enough to justify another truck, and therefore different recovery systems may be appropriate for different places. For instance, the proposed one for Macarthur will not work without a green waste system. Too much green

[134] Submission 42, SSROC, p. 9.
[135] Transcript of Evidence, 31 May 2006, p. 10.
[136] Submission 56, DEC, p. 15 and pp. 24-25.

> waste will overload it. The UR3R that you visited on Tuesday chews up green waste and is very happy with it. So, it depends on what your configuration is.[137]

5.27 While recognising the complexities associated in a blanket application of mandatory bin configuration across NSW councils, the DEC has produced a set of guidelines to assist councils in making decisions to select appropriate bin configurations to suit the requirements of their community. The guide provides guidance on preferred minimum service levels for kerbside resource recovery and residual waste collection from single dwellings. Understanding the need for flexibility the DEC considers that, where appropriate, the optimum bin configuration system for the kerbside collection of waste and recyclables system is based on the commonly referred to "three bin system" (red, yellow, green lids).[138]

5.28 The Waste Contractors and Recyclers Association also posit a 3 bin system where councils across NSW provide households with three bins: mixed, dry and organic with the bin size and collection frequency should be determined by each council. However, the departure from the DEC endorsed system is the provision of differential collection charges for households and the provision of flexibility in choosing the optimum size of their bins to suit their own requirements – with their choices reflected through financial incentives for a smaller mixed waste bin. The Association also believes that use of this system will maximise diversion of household green waste from landfill.[139]

5.29 The Productivity Commission also raised the possibility of applying differential collection charges across residential collections to which the Waste Contractors and Recyclers Association of NSW commented upon at the Hearings:

> **Mr KHOURY (WCRA):** Our view is that variable charges could be based on bin size; they could be based on weight. If they were based on bin size a resident might get a more favourable price on their rates notice if they elected a smaller size container, say a 120 litre as opposed to a 240 litre. The implementation would be via the ratepayer nominating a preference on their rates notice as to which size container they want prior to it being distributed. We see the issue as being one and the same; whether it is metropolitan or whether it is rural, we do not see any distinction. In terms of the management of that process, it is really up to the council authority or the regional authority to have a proper database to manage and administer that process.[140]

5.30 The Committee is aware of that some councils are already offering residents different bin sizes for different waste service charges. For example Wollongong City Council offers residents to choose from three size bins and has discounted waste services charges for smaller bin provision[141].

5.31 The provision of choice to councils in determining appropriate bin configurations and the complexities associated with matching bin and collection systems to meet community requirements was also noted by SITA:

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[137] Transcript of Evidence, 1 June 2006, p. 32.
[138] Department of Environment and Conservation, Preferred Resource Recovery Practices by Local Councils, March 2006.
[139] Submission 7a, WCRA, p. 4.
[140] Transcript of Evidence, 31 May 2006, pp. 25-26.
[141] www.wollongong.nsw.gov.au/EnvironmentDevelopment/WasteAndRecycling/Index_1123.htm

> **Mr RITCHIE (SITA) :** ...it is not a simple mix. I cannot see the New South Wales Government saying, "We will mandate three bins across every local shire in New South Wales". I cannot see that, and I am also not clear on what the purpose of doing that would be. You would need to demonstrate the cost benefit of that very clearly before you did it. I could name a couple of councils that would say, "Hold on, we are getting all the same environmental outcomes for lesser cost so why would we bear that cost?"[142]

Standardised Bin Colour Codes

5.32 Confusion exists in regard to the colour coding of receptacles and more importantly the lids on top of these bins. The argument is based on the need to implement a mandatory colour code system to promote acceptance and understanding amongst users, in recognising the correct receptacle for waste disposal and resource recovery. The central idea of standardising colour coding is to reduce contamination at the point of disposal by residents and also visitors to other council areas (i.e., transient and tourist populations).

5.33 The NSW Waste Educators Working Group of the Waste Management Association of Australia (WEWG) expressed their concerns on this issue and how the absence of a coordinated colour coding system can confuse users, not only in kerbside systems, but through to the industry recycling systems. The WEWG explained that a nationally consistent education program is required that would involve and deliver:

- Improved public understanding and participation in recycling initiatives through repetition of a standard message;
- Improved recovery efficiencies by decreasing contamination levels; and
- Reduced costs of education systems and resources as duplication would be avoided by a single–coordinated resource.[143]

5.34 In regard to a coordinated bin colour code system, the Committee is aware that the DEC has been involved in the development of an Australian Standard "AS 4123 – mobile waste containers", which was due for release in mid 2006. However, these Standards are not mandatory, and require support from all stakeholders to ensure their adoption and acceptance to illicit effective change.

5.35 During the Public Hearings, the Committee Mr Kevin Greene MP asked the Waste Contractors and Recyclers Association of NSW to elaborate on their position for a standardised colour coding system, to which the Association's Executive Director replied:

> **Mr KHOURY (WCRA):** ...the New South Wales Department of Environment and Conservation recommends that the waste stream bear a certain colour-code and that the co-mingled recycling stream have a certain colour and that green waste have a certain colour. I think that is generally a good thing to aim for because if we can achieve that sort of consistency across Australia then it makes it much easier to educate residential waste generators about the use of the different containers for each of the different waste and recycling streams, and you can mount a national promotion and advertising campaign, which is only going to improve waste minimisation and recycling rates and, hopefully, contamination rates will come down.

[142] Transcript of Evidence, 1 June 2006, p. 15.
[143] Submission 35, WEWG, pp. 1-2.

> **Mr KEVIN GREENE MP:** It will be particularly important, I suppose, in terms of people holidaying across States or across jurisdictions?
>
> **Mr KHOURY:** That is right, yes. We have a lot of tenants, for argument's sake, who are transient and move from one council area to another; it gives them a better understanding of what container is used for what purpose because of the colour coding.[144]

5.36 The Associations' position was also supported by the Southern Sydney Regional Organisation of Councils who believe that standardised bin lid colours can have a considerable impact on diversion rates and participation levels.[145]

Pay as you throw schemes

5.37 The Committee was also made aware of dramatic municipal waste collection controls around the world that may apply to Australia in the future if consumer waste excesses cannot be curbed. Also known as unit-based or variable-rate pricing, "Pay as you throw" (PAYT) schemes are where residents pay for each unit of waste discarded rather than paying a fixed fee per residential household. It is the equivalent to putting a price tag on each container of waste that is placed at the curb or taken to landfill. Proponents of PAYT argue that since residents pay directly for waste disposal services, they have a financial incentive to reduce their waste through waste minimisation and source separation.

5.38 Three main mechanism are used:

- imprinted rubbish bags which are sold by the relevant council to residents that have the name and barcode of the authority and will only be collected by haulers;
- stickers or tags that are purchased by residents and attached to different existing bins; and
- fixed containers or deposit bins in which scanned bags are recorded and a fixed charge is applied.

5.39 There are obvious concerns with the implementation of PAYT systems. The fairness of arrangements for low income households, policing and compliance, impacts on illegal dumping and high administration and infrastructure issues are just a few of the problems commonly raised when these approaches are considered. However many analyses argued that the impact of schemes has seen a dramatic improvements in landfill diversion and recycling rates.

5.40 While its relevance and applicability to NSW arrangements at present seems remote, PAYT programs have been operating in Europe and the US for at least a decade in some jurisdictions and in substantial cities like Dresden (Germany) and San Francisco (California, USA).[146]

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[144] Transcript of Evidence, 31 May 2006, pp. 26-27.
[145] Transcript of Evidence, 31 May 2006, p. 42.
[146] For further information see *The Rise and Rise of Pay as You Throw*, by J Canterbury and S Eisenfeld, in MSW Management - Journal for Municipal Solid Waste Professionals – Issue Elements 2006 http://www.forester.net/mw_0506_rise.html and *Pay as You Throw – Options Economics and Prospects across Europe*, J. Reichenbach, Waste Management World 2005, in http://www.earthscan.co.uk/news/article/mps/uan/378/v/5/sp/)

5.41 The Committee did not examine these options in any depth however given these schemes are a reality outside Australia, the Committee believes they need to be considered in the future. The Productivity Commission similarly suggested PAYT schemes should be examined for feasibility.[147]

Conclusions and Recommendations

5.42 The issue of best practice bin configurations is important as its application serves to increase the level of resources recovered from the kerbside in appropriate receptacles and reduce the levels of contamination at the source of disposal by the use of consistently applied colour codes.

5.43 The Committee acknowledges the work done by the DEC in regard to the development of best practice guidelines for councils with a view to standardising waste collection systems to promote consistency and reduce contamination across municipal waste management collection systems.

5.44 The Committee also recognises that local councils and their communities have specific needs that call for councils to make decisions on waste management collection systems that effectively reflect community requirements.

5.45 Moreover, rural and regional councils are faced with much greater challenges that require innovative solutions that may not be generically applied under a strict best practice application – an issue further discussed below.

5.46 Finally, the Committee believes there is merit in the Waste Contractors and Recyclers Association of NSW's position, which reflects the Productivity Commission's recommendation, for differential collection charges to be applied based on consumer waste preferences.

Recommendation 8 – Domestic Collection at the Kerbside

5.47 The Committee recommends that the NSW Government:

Continue the Department of Environment and Conservation's current program under the Local Council Waste Service Performance Payments to promote best practice bin configuration and standardisation bin colour codes, and

Pursue initiatives, including the associated costs and benefits, of differential collection charges with a view to reducing volumes of generated household waste and increasing the amount of recovered materials collected at the kerbside.

Processing of Collected Materials

5.48 Once separated for collection at the kerbside, each of the three waste types are transported to transfer stations, material recovery facilities, landfills or a hybrid of these processing facilities commonly referred to as AWT(s).

5.49 In maintaining the flow of municipal waste material, the following discussion will follow the movement of waste in its generally collected streams: General household waste (Red lid); Recyclables (Yellow lid); and Organic Wastes (Green lid).

[147] Productivity Commission Draft Report, *Waste Management,* May 2006, pp. 188-191.

Residual household waste

5.50 General or residual household waste (red Bin lid), accounts for approximately 40% of the municipal waste stream and is disposed either directly or via a transfer station to landfill.

5.51 Generally, the residual waste type in NSW is sent to landfill. However, with the emergence of new technologies, residual waste can be processed/treated for more appropriate end users including markets, inert or putrescible landfill.

5.52 A large proportion (50%) of the residual household waste stream is classified as organic (putrescible). The problems associated with this are methane and other by-products that could be better utilised in other waste processes such as organic by-products such as compost.

5.53 The SSROC commented on the amount of organically derived material that is recovered in residual collection streams and how a trial being conducted by its members is collecting food waste as part of organic collection systems. The collected material is diverted to reprocessing facilities where methane is captured and converted to renewable energy and solid organic material is processed for compost and soil conditioner for agricultural and horticultural use.[148]

5.54 The environmental damage resulting from organic material deposited to landfills has a direct negative impact that includes the contamination of ground water and run off (particularly during heavy rain) and direct greenhouse gas emissions.[149]

5.55 In addition, hazardous and non-hazardous wastes also find their way into this waste stream (i.e., asbestos, paint, car batteries etc) that need to be managed by the processor, which entail financial and OH&S costs.

Recyclable household waste

5.56 Recyclable household waste (yellow bin lid) accounts for approximately 40% of the municipal waste stream. The average household participation rate of kerbside recycling is 80% with an estimated 95% of NSW households having access to a kerbside recycling service.[150]

5.57 While various collection receptacles are employed by councils at the kerbside to collect recyclable materials (e.g., commingled, separate container for nominated material), contamination and costs associated with collection and processing of recyclables were the major issues raised during this Inquiry.

5.58 In an attempt to provide guidance to councils, the DEC considers that the best performing recycling collection systems are:

- A separate bin for garbage (80, 120 or 140ltr capacity bin) collected weekly, with both a 120ltr paper bin and a 120ltr container recyclables bin, collected on alternative weeks. This system is considered to deliver more than 300kg of recyclables per household annually with minimal contamination; or

[148] Submission 42, SSROC, p. 14.
[149] Submission 9, Health Soils Australia Ltd., p. 1.
[150] DEC, Waste Avoidance and Resource Recovery in NSW: A Progress Report 2004, p. 9.

- A separate bin for garbage (80, 120 or 140ltr capacity bin) collected weekly with mixed recyclables in a 240ltr bin collected fortnightly.[151]

5.59 Recyclables that are collected in MGBs with a yellow lid can include, depending upon each council's collection contract – paper, cardboard, liquid paperboard, glass, aluminium, steel cans, high-density polyethylene (HDPE), and polyethylene terephthalate (PET).

5.60 To understand the mix and quantities of recyclable materials left for collection at the kerbside, the DEC's publication Benefits of Recycling (2003) provides a good snapshot of the average domestic recyclable waste stream for NSW households.

Figure 19 : Snapshot of NSW household average recycling volume and composition

Material	Capture Quantity (kilogram per household per week)	%
Old Newsprint	1.03	22.6%
Liquidpaperboard (gabled)	0.01	0.2%
Liquidpaperboard (aseptic)	0.01	0.2%
Paper and Cardboard	0.42	9.2%
Glass	1.14	25.1%
Aluminium	0.03	0.7%
Steel	0.16	3.5%
HDPE	0.10	2.2%
PET	0.11	2.4%
Mixed Paper	0.75	16.5%
Contamination	0.79	17.4%
TOTAL	4.56	100.0%

(Source: DEC, Benefits of Recycling, 2005, http://www.environment.nsw.gov.au/resources/2005139_gov_benefitrecyrpt.pdf#search=%22HDPE%2C%20and%20PET%20numbers%22)

5.61 The progress and results of NSW's efforts in increasing recovery rates was supported by the Australian Council of Recyclers:

> **MR LAWSON (ACOR):** In many ways New South Wales has led the national agenda on waste management and has much to be proud of in advancing the rate of recycling beyond that of many developed countries. Yesterday a visitor from the UK was most impressed with the level of recycling going on in Australia. That has been led in large part by New South Wales...There is great support in New South Wales for a policy emphasis on recycling rather than wasting or dumping.[152]

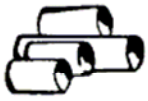
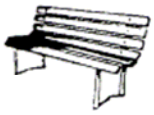
[151] DEC, Preferred Resource Recovery Practices by Local Councils, March 2006.
[152] Transcript of Evidence, 31 May 2006, p. 15.

Plastics Coding Systems

5.62 Plastics are inherently lighter in relation to other materials recovered through recycling collection systems. The plastics coding system was developed by the plastics industry to provide general guidance to recyclers on the type of plastics used to make a container and is also used by the community to identify which type of plastic is suitable for collection under their council's recycling contract (Plastic and Chemicals Industries Association). The codes range from 1 to 7 (see Plastics Coding Table) and are located on the bottom of many plastic containers.

5.63 The codes are essential to successful plastics recycling and assist the recycling process by enabling collectors to sort their waste into different types of plastics and direct the right material to the right recycler.

Figure 20 : Plastics Coding Table

	Plastics Recycling	
1 PET	**PET** Products such as soft-drink bottles and fruit juice bottles. PET is being collected nationally through kerbside collections and drop-off centers – but only soft-drink bottles and container with the "R" logo. These are being recycled into detergent bottles, carpet fiber and soft-drink bottles.	 Recycled
2 HDPE	**HDPE** Products such as milk and cream bottles, detergent bottles and chopping bags. Many councils are collecting natural HDPE juice, cream and milk bottles at the kerbside. They are being recycled into detergent bottles, crates and pipes. Some councils will also collect coloured HDPE bottles.	 Recycled
3 V	**Vinyl** Products such as fruit juice, cordial, mineral water and oil bottles. Clear vinyl bottles are collected by many Victorian council and more councils in other States are adding vinyl to their collections. The bottles are being recycled into long-life storm water and drainage pipes. Markets are still being developed for coloured vinyl bottles	 Recycled
4 LDPE	**LDPE** Products such as food bags, ice cream tub lids, stretch and shrink film (plastic wrap). LDPE film used by industry is being recycled into builder's film and garbage bags. Most LDPE used in the home is film. This is difficult to recycle because of contamination with food and inks.	 Recycled
5 PP	**PP** Products such as ice cream tubs, car battery cases, potato chip bags, drinking straws. Polypropylene car battery cases are being collected from service stations and battery dealers and recycled into compost bins and pipes. Few councils collect polypropylene at the kerbside because the small volume of products and limited markets make it uneconomical at present. Some councils collect ice cream tubs.	 Recycled
6 PS	**Polystyrene** Products such as drinking cups, yoghurt tubs, cutlery boxes. Trial programs have been established to recycle polystyrene cups used in offices and at public venues. Recycling programs have also started for foam boxes used to transport fruit and vegetables. They are being collected through supermarkets and produce markets. Polystyrene is generally not being collected by council at the kerbside because of the small volume and limited markets.	 Recycled
7 OTHER	**Other** Products such as most other types of plastics and those that cannot be identified. Some councils collect all plastics for recycling into substitute timber and concrete products, such as sign posts, park benches and outdoor furniture.	 Recycled

(Source: PACIA, http://www.pacia.org.au/_uploaditems/docs/9.pla_cod.pdf)

5.64 During the course of this Inquiry, the Committee has been made aware that councils are free to enter into their own waste and recycling collection contracts, and do so in order to meet the requirements of their communities. As a consequence, while there is a strong degree of standardised adoption, councils make the final choice in regard to bin configuration and types of materials collected.

5.65 The resultant hybrid of waste collection systems between LGAs does have the potential to cause confusion – leading to increased rates of contamination and can lead to lower levels of recoverable materials.

5.66 The Vaucluse Progress Association highlighted an example of this issue and their observation of different collection systems between council boundaries – where one LGA accepts recyclable plastics from codes 1-5, whilst the adjoining LGA collects recyclable plastic codes 1-7.[153]

5.67 The Committee was also interested to learn of the pivotal role councils play in kerbside collections and how this role reflects the community's desire for increased recycling and better sustainability practices.

5.68 Interestingly, there was strong representation from councils calling for increased equity in dealing with the recovery and processing of recoverable materials and the lack of involvement by industry who produce the materials, which end up in the municipal waste stream.[154]

5.69 Burwood Council submitted that due to councils' role in municipal waste management, responsibility for the collection and return of recycled material is placed upon councils and their communities, whilst producers and industries are absolved of responsibility for the products they produce – regardless of responsibilities under the National Packaging Covenant. As the need to reduce waste and community expectations increase, additional costs associated with collection services, plant and equipment, and collection vehicles are absorbed by councils and passed onto ratepayers.[155]

5.70 The Committee was interested to find out more about what the incentives for councils were in regard to kerbside collection of recyclables, proceeding to question representatives from the Local Government and Shires Association who called for the need to provide greater incentives at the consumption end of the recycling stream to give a proper market to recycled products:

> **Mr VERHEY (LGSA):** It is very heartening that people are so prepared to do what they consider to be the right thing, and I think that is an opportunity we cannot afford to let go begging. But I think perhaps people have become misguided over the past 10 or 15 years about what the right thing actually is, where they think that no matter what the level of consumption, provided it is diverted into the right container at the end of that consumption they have fulfilled their environmental responsibility.
>
> **Cl McCAFFERY (LGSA):** I think the community might be outraged to know at different points in time of this recycling system, it is collected and then dumped into landfill. All the householders are busily recycling thinking they are doing a wonderful thing for the environment, and we know in many cases it ends up in landfill. So in fact it is environmentally the worst thing to do because you are consuming all those resources in the recycling system and it has ended up in landfill anyway. At many points in time the associations have been so fed up with the lack of value on the recycle product that we were going to expose the whole sham of the recycling industry to the community. We have set goals at different points in time and then we have pulled back because it is difficult.[156]
>
> It is a positive thing for the community to be involved in recycling and committed to that system but we really need to ensure that there is a proper value put on the recycled

[153] Submission 12, The Vaucluse Progress Association, p. 1.
[154] Submission 38, LGSA and Submission 42, SSROC.
[155] Submission 13, Burwood Council, pp. 1-2.
[156] Transcript of Evidence, 31 May 2006, pp. 5-6.

> product. The end system is not being organised properly either. At one stage, I know, 10 years ago newsprint was worth nothing. Everyone was busily recycling newsprint and it was all being dumped into landfill. Now there is a reasonable market for it. That is where government can do something as well. We should be looking at things like reduced GST on recycled products, those sorts of things. There needs to be more incentive at the consumption end to give a proper market to recycled products.[157]

5.71 The LGSA position was also supported by VISY:

> **Mr SMITH (VISY):** …it is certain now that the systems in place do not address our community's requirement to live sustainably or the need of our descendants to enjoy the same quality of natural environment that we have enjoyed. As local government communities in New South Wales we need to give more widespread consideration to the full set of costs and benefits which flow from the waste management decisions that are being made. We believe—and I think it is generally agreed—that the full cost of disposal is currently hidden from the community. It is going to be paid in part by the community over the next five or 10 decades and beyond.[158]

5.72 The LGSA's position was also supported by GRD Limited who sees the need for greater market involvement:

> **Mr LAWSON (GRD):** There must be rewards for the recycling of those materials to drive them into new markets as well. At the moment the rewards are driven by council payments. Councils decide to pay more to do recycling. That is what drives recycling, except for a few isolated materials like large commercial streams of paper, glass and, particularly, metals. Generally, the market rewards are coming from councils and they are paying to deal with upstream impacts like packaging waste that is delivered into public areas that councils pick up and ratepayers fund. Someone should be looking at markets for that material for recovery, delivering that material to new markets and then funding that out of the original material value—that is, there should be a broader than CDL approach.[159]

5.73 The Executive Director of Collex, Mr Berry, signalled two main positive outcomes of kerbside recycling:

> **Mr BERRY (COLLEX):** …that you get better quality and value of recyclables if you have kerbside recycling; and the important social issue: if the public is not involved in sorting its waste it will cease to be aware to a large extent of what is actually happening with waste. There is a significant social awareness and community involvement issue in kerbside sorting. Against that, there is a balance because there is an economic and environmental cost in the multiple collections. That is a social and political judgement, which is way beyond my league.[160]

Garden Organics

5.74 Garden organics collection systems (green bin lid) collect approximately 20% of the NSW municipal waste stream and consist of garden clippings such as tree branches and mown grass. These materials are typically taken for processing using technologies such as: direct land application; open windrow composting, vermicomposting and enclosed composting, with the end product being used for agricultural and horticultural applications.

[157] Transcript of Evidence, 31 May 2006, pp. 5-6.
[158] Transcript of Evidence, 1 June 2006, p. 18.
[159] Transcript of Evidence, 31 May 2006, p. 16.
[160] Transcript of Evidence, 31 May 2006, p. 29.

5.75 DEC and industry programs have increased markets for recycled organics, from 370,000 tonnes in 1998 to 847,000 tonnes in 2004, however there is recognition that more needs to be done in developing markets for the increase in recycled organics recovered and produced.[161]

5.76 Compost NSW concurs with the DEC's figures stating that the source separation of green waste at the kerbside has averaged a 19% increase in the amount of organic waste diverted from landfill. However, 81% of this amount is generated in the urban areas of the Sydney Basin 300km from the most profitable agricultural /horticultural applications that can best utilise this product. Compost NSW suggest that while government policy is strong on diverting organics from landfill, it is weak in developing markets for the end product and needs to provide market based instruments in the form of freight and fuel excise rebates to make the products economically attractive to end users.[162]

5.77 In an attempt to provide guidance to councils, the DEC considers that the best performing organic collection systems are:

- A 240 litre mobile bin collected fortnightly, which delivers high garden organics volumes of 175kg or more per household per year. The cost for this service is estimated at $45 per household per year. However, with the savings in materials taken and disposed to landfill the net financial cost reduces to less than $5 per household per year.
- In situations where less than 175kg per household per year is generated, a tied and bundled collection, undertaken quarterly is the preferred minimum standard.[163]

5.78 Several submissions commented on the importance of the impact organics have in the municipal waste stream.

> **Mr KANOFSKI (WSN):** In our view, in the municipal sector this should be all about organics and household hazardous waste. Organics are the biggest proportion of the municipal waste stream, made up mainly of garden waste, food waste and organic contaminated paper products. One of the key problems with the recovery of organics is contamination by hazardous waste, such as batteries. So the organics issue and the household hazardous wastes issue are very closely linked. What would we like to see? We think some of the levy money could be used to fund targeted market-based instruments and to encourage EPR schemes to target hard to recover material or toxic material, such as batteries, paint and some electrical goods, that impede the recovery of organics from the waste stream. Greater regulatory certainty about the ability to apply recovered organics to the soil would assist develop these most important recycling markets, bearing in mind that around 50 per cent of municipal waste is organic waste.
>
> We think there is a need for some authoritative and independent research on this issue. We are encouraged by what the Department of Environment and Conservation is currently doing. We encourage them to go further, and we also think that some independent research on this would be a useful use of funds. Most particularly, market development in the organics area needs to focus on cost-effective ways of getting recovered organic material over the mountains and out to the areas that would benefit

[161] DEC, NSW Waste Avoidance and Resource Recovery: Strategy Performance report 2006, Consultation Draft, p. 32.
[162] Submission 29, Compost NSW, p. 2.
[163] DEC, Preferred Resource Recovery Practices by Local Councils, March 2006.

> most from their use. I think an earlier speaker talked about the great demand for this product in terms of mine site rehabilitation, but it also could be used in terms of dryland salinity and a whole range of other issues. The transport costs are quite prohibitive.[164]

5.79 In regard to the abovementioned point on further research, the DEC has undertaken research that demonstrates the environmental benefits and cost savings derived from source separation, collection and recycling of organic material. The research shows that:

- The environmental value of each tonne of garden organics is estimated to be $114 (including resource savings, and reduced fertilizer use, air and water pollution impacts and greenhouse emissions);
- The benefits of providing collection bins for recycled organics are related to the volume of material collected. The report recommended that councils with a high rate of garden organics (over 175kg per household each year) introduce fortnightly collections;
- The net increase in total waste management costs for providing a separate garden organics collection varies from $5 to $15 per household per year assuming landfill disposal of domestic garbage; and
- Where garbage is thermally treated, the provision of a separate garden organics collection service reduced overall waste management costs.[165]

Conclusions and Recommendations

5.80 The action of sorting and depositing waste into the correct waste receptacle can be based upon arbitrary choices made by people and are also compounded by issues such as language, culture, socio-economic level, accommodation type and importantly differences between council bin configurations and applied colour codes.

5.81 The major issue concerning residual waste appears to be its composition of approximately 50% putrescible material/food waste that is ultimately directed toward landfill. This issue has gained increased importance due to concerns associated with greenhouse gas emissions caused by biodegrading material and evidenced by international jurisdictions' moves toward total bans or targets of no greater than 5% of organic materials deposited to landfill. As no strict quotas or mandated bans on the quantities of organic waste disposed to landfills have been prescribed in NSW, it appears that this issue requires further investigation and research in the NSW context and, if afterward considered appropriate, initiatives developed to address this problem.

5.82 The Committee heard evidence that NSW kerbside recycling participation rates are very high at 80%, however, contamination and costs associated with the collection and processing of recyclable materials are factors often overlooked or unknown to those who pay for such services.

5.83 Councils, as representatives of their community, bear the brunt of decision making associated with recyclables collection – the cost of which is passed onto the ratepayer. However, as pointed out by local government representatives, the depositing of waste

[164] Transcript of Evidence, 1 June 2006, pp. 22-23.
[165] Submission 56, DEC, p. 18.

and recyclables into the correct receptacle is considered by most people to fulfil the extent of their environmental responsibility obligations. While it is without question that substantial advancements have been achieved in increasing resource recovery and recycling participation rates, more work upstream needs to be done to equitably spread responsibility for waste generation across all parts of a products life cycle. Increased responsibility for upstream initiatives lay at the feet of those who produce consumer goods and those who supply the packaging for these goods. While the Committee recognises the work of industry, government authorities and other stakeholders in initiatives such as the National Packaging Covenant, more work is needed that requires a greater onus for the responsibility of waste generation to be placed upon producers to take greater financial and physical responsibility for the environmental impact of their products across their life cycle.

5.84 Garden organics collection at the kerbside is an important process that diverts biodegradable wastes from landfills. The Committee recognises that the capture of this waste, via the provision of kerbside collection systems, has done much to reduce the volume of waste to landfill. However organic waste management needs further investigation. While much organic waste has been redirected away from landfills in the form of garden waste kerbside collections, organic waste in the form of putrescible waste disposed of through residual kerbside collection should be further investigated for possible opportunities to increase NSW recovery rate targets under the Waste Strategy.

5.85 However, the Committee is also cognisant of quality issues, and the need to deliver a marketable product that can be used in a cost effective manner. While the DEC has undertaken research to demonstrate the environmental benefits and cost savings derived from garden organics collection, it is apparent that more effort needs to be applied to develop and encourage markets to utilise this valuable recovered resource.

Recommendations 9 -11

5.86 **Recommendation 9 - Processing of Collected Residual Waste.** The Committee recommends that in regard to residual household waste, the Government undertake an analysis of the organic waste to landfill problem and if deemed appropriate, develop a series of options for NSW to address the issues raised.

5.87 **Recommendation 10 – Processing of Collected Recyclable Waste.** The Committee recommends that, in regard to recyclable household waste collected at the kerbside, a more equitable distribution of the costs associated with the generation of waste is required and that the NSW Government should pursue options for industry, in addition to the National Packaging Covenant, to accept a greater financial and physical responsibility across the life cycle of products.

5.88 **Recommendation 11 – Processing of Collected Garden Organic Waste.** The Committee recommends that the NSW Department of Environment and Conservation apply resources to develop and encourage markets for recovered garden organics and promote the benefits derived from the processing of this material.

Rural and Regional NSW

5.89 Councils in rural and regional areas of NSW are faced with a range of unique constraints in regard to managing the municipal waste stream.

5.90 Rural and regional councils usually own and operate waste management facilities, including transfer stations, drop-off centres for recycling and landfills. Some councils have entered into collection and disposal contracts with private waste companies and others use day labour for these services. Many rural and regional councils also have contracts for resource recovery technologies for organics and the reprocessing of residual waste. Separate from their municipal waste responsibilities, some councils provide waste and recycling services to businesses and conduct household chemical collections.

5.91 While much the same material and many of the methods employed are similar to the activities of metropolitan councils, the management of waste by rural and regional councils differs substantially due to their requirements for owning and operating the disposal site receiving the waste. The difference is compounded, as these councils also have to manage long transport distances – leading to the formation of small disposal sites scattered throughout council areas. The result of this approach has produced potentially long term environmental risks within communities already experiencing hardships (low population and income).[166]

5.92 The Southern Councils Group concur with NetWaste's position, adding other issues such as high consumption levels associated with growing "seachange" communities, geographic considerations that impose costlier environmentally sound solutions and a lack of markets for products[167]. Further, Northern Inland Regional Waste see severe challenges for rural and regional areas in managing waste due to a lack of population density and operational scale to warrant or justify investment in new waste technologies and initiatives.[168]

5.93 While the Committee has heard from the majority of respondents that the 'one size fits all' approach to municipal waste management cannot be applied across all municipalities, the Voluntary Regional Waste Groups reinforce that this is particularly the case in rural and regional communities. In these situations, waste management services need to accommodate a mix of large regional service and community centres through to small rural villages, hence while kerbside collection services can be provided, economically feasible alternatives such as drop-off centres also need to be considered.[169]

5.94 In an attempt to promote a solution to the unique constraints placed upon rural and regional councils in addressing waste management, NetWaste has developed four subregional plans, which cover its large jurisdiction – encompassing central and far western NSW. The plans have proven effective in initiating a range of practical actions for an ongoing collaboration in addressing municipal waste in rural areas by providing

[166] Submission 18, NetWaste, pp. 3-4.
[167] Submission 27 Southern Councils group, p3-4
[168] Submission 30, NIRW, p. 1.
[169] Submission 43, Voluntary Regional Waste Groups, p. 3.

guidance for regional waste managers to identify potential synergies, mitigate risks and draw upon existing resources and opportunities.[170]

5.95 The differences between urban and rural/regional waste management issues was succinctly highlighted by Narrandera Shire Council, as the higher expectations of urban communities in regard to waste management initiatives flows onto non-metropolitan councils where awareness raising campaigns and service provision are hindered by a lack of available funds. Further, the financial burdens placed upon non-metropolitan authorities hinder investigation of waste management technologies and opportunities for the identification of secondary markets for recycled waste.[171]

5.96 Rural and regional areas find that attempts to balance environmental outcomes with financial and other resources is particularly difficult, as these areas are faced with smaller waste volumes, large transport distances and a lack of infrastructure.[172]

5.97 The issues of disparity between the metropolitan and rural and regional areas was highlighted by Shoalhaven City Council who drew attention to the absence of rural examples in the DEC's "Good Practice Performance Measures for Kerbside Recycling Systems" – which uses 21 metro councils and no rural councils to guide best practice. The Council's point is that rural and regional areas possess particular requirements that are unique to those experienced in the metropolitan region and that the application of Key Performance Measures to gauge best practice should not be applied as they cannot be achieved in rural regional areas.[173]

5.98 The best practice systems of "3 bin" collections is also more expensive for regional/rural councils compared to metro councils (where these standards have been analysed), as the lower the tonnes per squared km, the less affordable it becomes to provide 2-3 bin collections per week.[174]

5.99 Depending upon the LGA, kerbside collection is considered costly to provide to rural households for a number of reasons including:

- A two bin collection system over long distances is estimated to require a 20% increase in the domestic waste management charge across the whole LGA;
- Some rural roads are narrow, unsealed and unsafe for large service vehicles;
- Some rural roads are not through roads, which necessitates back-tracking.[175]

5.100 Other impediments to achieving waste targets exist that include:

- How to access markets for recyclable products;
- A lack of regional opportunities for value-adding or processing of recyclable materials;
- A lack in industry interest; and
- The levying of higher charges by private sector providers due to a lack of economies of scale.[176]

[170] Submission 18, NetWaste, pp. 4-7.
[171] Submission 6, Narrandera Shire Council, p. 1.
[172] Submission, Lismore City Council, p. 1.
[173] Submission 23, Shoalhaven City Council, p. 3.
[174] Submission 23, Shoalhaven City Council, pp. 4-5.
[175] Submission 23, Shoalhaven City Council, pp. 1-2.

5.101 The differentiation between rural and regional areas and those municipal waste issues faced in metropolitan areas was expanded upon by evidence provided from Shoalhaven City Council representatives:

> **Ms MARIE ANDREWS MP:** Bin standardisation has been referred to in a number of submissions. I take it from your earlier comments that Shoalhaven has a two-bin collection. You do not have a green-waste collection?
>
> **Mr RUSSELL (SHOALHAVEN):** Basically, we have the red-lidded domestic waste bin. We give an option of 80-litre, 120-litre or 240-litre bins. There is a price differential for them. The majority of people are taking the 120-litre bin. Basically, we balance the scales. So we are imposing a price penalty for those wishing to go to the larger bin. The domestic collection is provided once a week for the red-lidded bin. Then we have a recyclable collection which is a yellow-lidded, 240-litre bin and that is collected once a fortnight. We do not offer a green-lidded bin but we do offer a heavily subsidised bulk waste placement on the footpath service, which people can book, for $10 a service, for about one cubic meter. We offer similar greenwaste collections. You can ring up, pre-book, bundle some green waste on the footpath and our contractor will collect that for a heavily subsidised fee.
>
> **Ms MARIE ANDREWS MP:** Why did you decide not to offer regular green-waste collection? Was it because of the cost?
>
> **Mr RUSSELL:** I think cost was one of the drivers. But you also need to understand the dynamics of the city of Shoalhaven. We cover 4,360 square kilometres and we have about 90,000 people, so our population is very diverse. Our population density is quite low. We also have a number of properties that are visited only occasionally—weekend type or rental accommodation. We also have a reasonably sized rural residential population. We believe that, in relation to the disposal of green waste in a rural residential environment, you do not necessarily have to have a separate waste service for green waste. That will be subsidised heavily by those who do not use the service. So it was council's determination not to offer that as a service. We had to look at the subsidised kerbside collection service.
>
> **Ms MARIE ANDREWS MP:** What standardisation and best practice issues does the three-bin system offer to regional and rural councils or shires?
>
> **Mr HOJEM (SHOALHAVEN):** I think the biggest impact would be cost because of the transport distances to service these bins. It means a whole new set of vehicles and a whole new collection round. The other problem with the three-bin system is that you are generating more waste. Currently, people have backyard composting and they have other ways of getting rid of waste, especially green waste. As soon as you have a green bin it will be filled up. If you put out more bins, more waste will be produced. It is a philosophical question.
>
> **Mr KEVIN GREENE MP:** I can see that applying to the green-waste system. You are saying that people mulch or dispose of their own green waste.
>
> **Mr HOJEM:** Yes. As Barry said, a lot of these properties are large rural properties.
>
> **Mr KEVIN GREENE MP:** They throw it over the back fence?
>
> **Mr HOJEM:** They burn it. They also have chickens and pigs. So they have ways of getting rid of it.
>
> **Mr KEVIN GREENE MP:** You have issues because you have such a variation in collection points. You obviously have Nowra and larger developed centres. You have hamlets like

[176] Submission 43, Voluntary Regional Waste Groups, p. 4.

Vincentia, Huskisson and so on, but you also have rural aspects. Do you cater for all those by removing rubbish?

Mr RUSSELL: No. We do not run our domestic waste service into the more remote rural areas. We have a few standard measures for questioning requests. If somebody wants a request in a rural area we would need to know that a certain number of people in the street wanted the service so it was economic for the contractor to continue to provide that service. We would not ask the contractor to drive two or three kilometres up a rural gravel road, which might be subject to various weather conditions, just to pick up one domestic waste service. Basically we try to keep it to rural residential and to urban areas.

Mr HOJEM: Twelve per cent of the population would be classified as rural. So we have an 88 per cent coverage in our normal domestic collection.

Mr KEVIN GREENE MP: Referring to standardisation in an area such as yours, you would be keen on standardisation because you have a number of people visiting the area. You indicated earlier that you had summer and holiday peaks and that there were a lot of rental properties. Standardisation, therefore, would assist you. If people visiting from Concord, or wherever, were used to putting recycled material into a yellow bin, it would stay the same for them when they visited your area so you would not get contamination, et cetera?

Mr RUSSELL: Shoalhaven City Council participated quite strongly in the Illawarra Regional Waste Board when it was alive. One of the issues we tried to get across the Illawarra—and we were successful—was having those standard bins and standard presentations. Our television for the Illawarra comes out of Wollongong. Wollongong council delivers a service and a lot of our residents ring us up and ask us about a service that they have seen advertised on television and wonder why it is not occurring in the Shoalhaven. Through the waste board we moved to common standard red-lidded bins for domestic waste and yellow-lidded bins for recyclables to overcome the communication issues that we faced.[177]

Gunnedah Waste Management Case Study –

In order to understand at least a few of the rural and regional issues associated with municipal waste, the Committee visited Gunnedah on 27 April 2006. The Committees visit involved a guided tour of the Gunnedah waste management system, by members of the Gunnedah Shire Council. The Committee was taken to inspect a mobile collection service operated by the council in Kelvin - a district located 20 kilometres to the north of Gunnedah with a population of approximately 450.

Kelvin was not provided with any waste disposal facilities prior to 2005 and consequently residents disposed of their waste on their properties. With the opening up of 40 hectare lifestyle lots and the resultant influx of young families to Kelvin, the Council introduced a mobile collection facility. The facility consists of a trailer carrying ten 240 litre MGB's for domestic waste and recycling at the Kelvin Hall three times per week.

Council reported to the Committee that the provision of this facility has overcome environmental issues and supports the principle objectives of the Gunnedah Waste Management Strategy to recycle and reuse waste material.

[177] Transcript of Evidence, 31 May 2006, p. 36-37.

As an integral part of the Gunnedah Waste Management Strategy, the waste collected from Kelvin is transported to the newly upgraded Gunnedah Waste Management Facility.
The Gunnedah Facility was upgraded in 2000 with security fencing, installation of a weighbridge and introduction of waste segregation, recycling and access controls. The most critical aspect of this process was the control of the waste stream not only at Gunnedah but also at rural facilities.

Up until 2000, Council engaged a contractor to "maintain" the Gunnedah landfill, which entailed pushing in and covering deposited waste. It did not require any segregation or recycling and provided little control. After the upgrade, Gunnedah has experienced:

* A reduction of waste to landfill by 60% - increasing the life of landfill cells from 18 months to 4 years;
* A return on recovered materials – scrap metal and greenwaste; and
  Improved environmental outcomes.

The implementation of the Strategy has also provided employment opportunities for the community including:

* Two full time employees at the Gunnedah Waste Management Facility, two part time staff operating on a rotational roster and three part time rural waste attendants; and
* Employment opportunities for between 8-10 workers with a disability at the New Recycling and Sorting Centre

The Council reported that the Recycling and Sorting Centre has achieved the highest recycling participation in NSW. However, income derived from recyclable materials processed and transported to markets has been severely impacted by freight costs.

Conclusions and Recommendations

5.102 The Committee has been mindful of the differentiation between metropolitan and rural /regional areas in providing municipal waste services.

5.103 The Committee is aware that rural and regional areas are faced with constraints that make efficient waste management practices much more difficult to achieve when contrasted against metropolitan waste management issues. Further, recognition of the difference between these areas needs to be understood and programs and initiatives implemented to assist achievable outcomes under the NSW Waste Strategy.

5.104 The Committee saw evidence of successful attempts to apply sound municipal waste management practices first hand in Gunnedah, which demonstrated many of the constraints placed upon rural regional areas where transportation of collected waste for processing and transportation of processed waste to markets is a costly burden, due to the rising cost of fuel, not experienced by metropolitan counterparts. With this in mind, the Committee was encouraged by the approach in value adding to the community that such waste management services can have in rural and regional areas and also those initiatives highlighted to address particular constraints in other submissions received during the course of this Inquiry.

5.105 The Committee is cognisant of the programs employed by the Department of Environment and Conservation and rural and regional councils to address the issues

surrounding municipal waste and of the efforts to assist these areas in meeting their obligations under the NSW Waste Strategy. This approach appears to be working in a constrained environment and needs to be further supported.

Recommendation 12 - Rural and Regional NSW

5.106 The Committee recommends that the range of initiatives currently applied to assist rural and regional areas be continued with additional support provided through the establishment of clearer and more realistic requirements for rural and regional councils to follow to meet key performance indicators and to secure relevant grants and funding.

Other Municipal Waste Collection Issues

5.107 The Committee is aware that municipal waste management extends beyond the realm of domestic kerbside waste and recycling collections. Some important issues were raised about councils role in public place waste management and illegal dumping, that are discussed below.

Clean-up services

5.108 The Committee heard that the majority of councils provide some sort of clean up service which involves the kerbside collection of 'dry-waste' on a periodic basis. Residents provided this type of service are generally allowed to place unwanted household items (e.g., appliances; large vegetation off-cuts; metals), which are picked up by the council during the period of collection.

5.109 Due to Occupational Health and Safety issues, and resultantly high workers compensation exposure, that surround council clean-ups, the Waste Contractors and Recyclers Association of NSW suggest that they should be discouraged. Instead, the Association promotes the idea for councils to facilitate free domestic bulk-item drop off centres which would improve recycling rates and reduce contamination due to the removal of waste mixing and compaction during transportation.[178]

5.110 The LGSA, mentions that clean-ups are conducted at a great cost to councils and support the pursuit of industry funded alternative systems that require industry to take responsibility for the good they produce.[179]

Public Place

5.111 Municipal waste services also extend to the public place in the management of litter and illegal dumping. Public place waste management is an issue raised where visit variations create excess use of waste receptacles that are not effectively managed by the council.[180] Waste from out-of-area visitors is growing, and much of this waste is discarded in the form of windblown litter causing pollution in waterways and stormwater drains.[181]

5.112 In regard to public place recycling systems, the NSW Waste Educators Working Group of the WMAA notes that contamination of the waste stream is compounded by the lack of a coordinated approach. While most councils have residential recycling this is not

[178] Submission 7(b), WCRA, p. 6.
[179] Submission38, LGSA, pp. 2-3.
[180] Submission 12, The Vaucluse Progress Association.
[181] Submission 42, SSROC.

consistently expanded into public place collections. This activity is conducted in an environment where councils, businesses and organisers of special events all develop collection systems in isolation, resulting in conflicting messages being sent across household, workplace and public place waste management systems. The WEWG believe that the colour coding of bins is a simple and effective method of communicating how to separate different materials for recycling.[182]

> **Ms ANGELA D'AMORE MP:** I asked a question before about public places. Do you have any concerns about collection of waste in public places? As a council, what types of burdens does it place on you?
>
> **Mr CROOK (NCC):** The burden is where you are going to place it. You have got to place it in the right spots. The current use of MGBs is very, very difficult because people will place material in it which contaminates the recyclable materials. Our recycling contractor will not collect it if it shows above 10 per cent contamination. So you have the elements in those uncontrolled areas where you cannot control the waste going into the appropriate bins. You can have the lids on top, but that will not stop it actually happening. The areas we found were a greater success for public place recycling were controlled public spaces such as council swimming pools and those areas where you can actually have some form of control over the material. Those MGBs also suffered from burnouts as a lot of other material is destroyed by people who do not want to respect other areas.[183]

Illegal Dumping

5.113 With the recent rise in landfill charges, greater mobility of the population using rented housing and the increased turnover of consumer goods, the prevalence of illegal dumping is growing. The Protection of the Environment Operations Act provides both local and State government with the regulatory powers to police illegal dumping activities. However, many councils have found it difficult to use these powers effectively to prosecute such offenders, because of lack of proof and the costly regulatory process required to proceed with a prosecution.[184]

5.114 Illegal dumping is one of the four outcome areas of the NSW Waste Strategy, which prescribes a target to reduce the total tonnages of illegally dumped material reported by regulatory agencies and Regional Illegal Dumping (RID) squads annually.

5.115 In 2004, NSW councils spent $10million per annum in attempts to combat illegal dumping. The total recorded dumping incidents comprised of household waste (44%), green waste (15%), construction and demolition waste (12%), soil and excavation (8%) and tyres (6%).[185]

5.116 The Minister for Lands detailed the ongoing problem of illegal dumping on Crown Land, that has significant ongoing environmental and financial implications for the Department of Lands. While recognising that there is no easy solution to the problem the Minister suggested that existing penalties directed toward illegal dumping are insufficient. The Minister suggested that penalties for illegal dumping should be

[182] Submission 35, NSW Waste Educators Working Group, pp. 1-2.
[183] Transcript of Evidence, 31 May 2006, p. 46.
[184] Submission 42, SSROC.
[185] Submission 56, DEC, p. 11.

consistent across local and state government and be increase to cover the real costs associated with surveillance, enforcement, cleanup and rehabilitation.[186]

5.117 The WSROC emphasised that illegal dumping can result in diverting resources from sustainable waste management, increases the cost burden on councils in clean up services and imposes negative externalities associated with visual amenity and the natural environment. Many councils have tried to off-set the impacts of illegal dumping by providing clean-up services however, there are substantial costs associated with the provision of this service, that impact upon waste management budgets.[187]

Conclusions

5.118 The Committee has been mindful of the issues raised in regard to the 'other' components of the municipal waste stream and due to the relatively small discussion of the issue has no major recommendations.

5.119 However, the issues are of importance to the flow of waste through the municipal waste stream and the ultimate impact on the targets of the Waste Strategy.

5.120 In regard to council clean-ups, the Committee recognises the comments made concerning this service and the OH&S impacts for collectors along with the costs imparted to councils. Again responsibility for the costs associated with the removal and disposal of this waste should be equally distributed across all who benefit from the life of the product including end users and producers and moves to capture greater equity in accept a greater financial and physical responsibility across the life cycle of these products should be pursued.

5.121 One of the major issues with public place waste management is the poor recovery rate delivered from this service due to contamination. Increased efforts to coordinate colour coding of bins, along with education programs for the general public and event organisers is encouraged to increase the level of resource recovery delivered from this particular area of municipal waste management.

5.122 Illegal dumping is a costly exercise for those landowners and councils left with other peoples' responsibilities. Efforts to address illegal dumping are being undertaken and further initiatives encouraged in an attempt to mitigate this problem.

5.123 The Committee has been mindful of the issues raised in regard to the 'other' components of the municipal waste stream but due to the relatively few submissions raising this issue the Committee has no major recommendations.

[186] Submission 44, Minister for Lands, pp. 1-2.
[187] Submission 40, WSROC, p. 6.

Chapter Six - Waste Disposal

Introduction

6.1 This Chapter looks at the waste disposal stage of the municipal waste flow.

6.2 Traditionally this has been the disposal of waste directly to landfill. However alternative waste technologies now exist which, while not removing the need for landfills completely, substantially lower the volume of waste sent to landfills.

6.3 This chapter is in two parts.

- Part 1 examines landfills, trends towards reduction of landfills, and the debate about current landfill policies and levies in NSW; and
- Part 2 looks at Alternative Waste Technologies (AWTs) as a new form of waste disposal and resource recovery.

Landfills in NSW

6.4 As discussed, the flow of municipal waste constitutes a variety of collection, sorting and processing activities that attempt to recover some of the resources in the waste stream. Those resources that cannot be recovered, be they for reasons of economic viability, paucity of available markets or lack of processing technology, are disposed to landfill. As a result, landfills are the last resort for waste disposal. This remains the case even with emerging AWT technologies that are discussed in Part 2 of this Chapter.

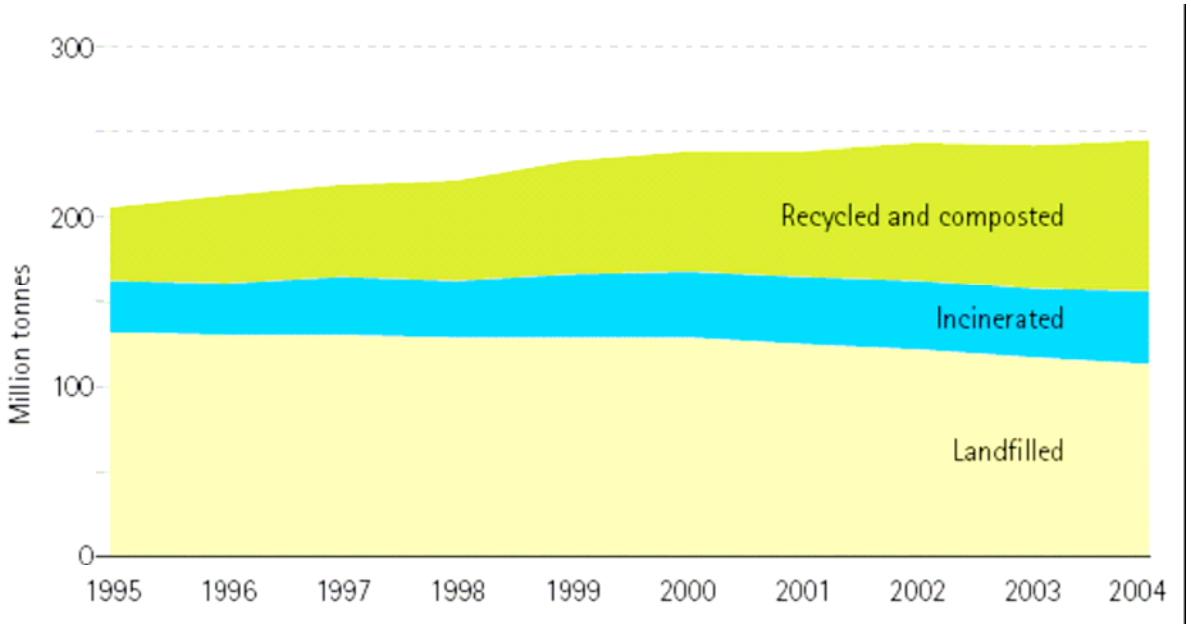
6.5 This section examines municipal waste disposal to landfill by examining the landfill policies and management of other jurisdictions and those of NSW. Two main issues are discussed: Landfill Management and the Waste and Environment Levy.

6.6 Landfill management is and will remain an important element of municipal waste management for many years to come. Moves toward zero waste[188] while commendable, are relatively impossible to achieve under the management mechanisms and treatment technologies currently available. However, increasing advances in waste management technology, education, EPR and Product Stewardship are proving to valuable in reducing the amount of waste being disposed to landfill facilities.

6.7 Internationally, overall indicators show trends towards lower rates of disposal to landfill and in-turn increased rates of recycled materials. For example the European Union's Environmental Indicators 2006 provides time-series data between 1995 and 2004 that shows an increase in municipal waste by 19.5%, and a decrease in landfilled waste by approximately 15%. Also, during this period, recycling of municipal waste doubled to 84.9million tonnes.

[188] "Zero" waste is a policy goal which aims to minimise or stop waste flowing to landfill via maximum reuse, recycling and resource recovery processes. Many countries and individual states or cities have identified "zero waste" as their strategic goal or direction on which they build their long term waste strategies.

Figure 21: Generation and Treatment of Municipal Waste Across European Union Members



(Source: European Commission (2006), EU Environmental Indicators 2006: Measuring Environmental Progress in Europe)

6.8 The GRD Limited's submission included a comparative analysis of the waste treatment and landfill positions of the following countries and jurisdictions:

Figure 22: Selected Countries Landfill Policy Directives

EU	All EU countries must, pursuant to the 1999 /3 EC Landfill Directive reduced the amount of biodegradable waste disposed to landfill by 50% by 2010.
Germany	Ban on landfilling of material with greater than 5% organic content from 2005
UK	Landfill tax of £15/t from 2004, rising by £3/t annually to a maximum of £35/t. 25% of all household waste to be recycled/composted in England and Wales by 2010.
Sweden	Ban on putrescible waste landfilling from 2002
Austria	Ban on landfilling of material with greater than 5% organic content from 2004.
Belgium	Plans to ban direct landfilling of combustible waste
Denmark	Plans to ban direct landfilling of combustible waste
USA	California, Washington and North Carolina have adopted medium term zero waste policies.
Canada	British Columbia and Ontario have adopted medium term zero waste policies.
China	Plans to reduce landfilling and incineration to meet significant 2008 Olympic and 2010 World Expo diversion targets.

(Source: Submission 49, GRD Limited p5).

6.9 The trend towards landfill reduction around the world is based on two main concerns. First is the desire to reduce waste and increase resource recovery and second, is the desire to minimise environmental problems associated with landfill disposal. Landfills have generally created environmental problems in terms of methane and CO_2 emissions and leachate from landfills contaminating surrounding water supplies and water tables. Because of these environmental concerns the major policy focus for these jurisdictions is to prevent putrescible (organic) waste entering landfills

Landfill Management

6.10 Landfills are a form of waste facility that receives various waste types for disposal and/or treatment that are not intercepted through the various elements of the waste flow. There are three categories of landfill operating in NSW:

- Inert Waste Landfills – any landfill that accepts only inert wastes (i.e., non-reactive waste such as building waste);
- Solid Waste Landfills – any landfill that accepts any non-hazardous, solid, degradable, or inert waste; and
- Hazardous Waste Landfills – any landfill that accepts any wastes formally defined as 'hazardous wastes' under statutory instruments.

6.11 Municipal waste is disposed to Solid Waste Landfills, of which consists of two class types depending upon the waste they are licensed to receive:

- Class 1 – all solid waste including putrescible waste and other wastes approved by the DEC; and
- Class 2 – all solid waste with the exception of putrescible waste and other wastes approved by the DEC.

6.12 Landfill operators need to obtain a licence for their operations from the DEC and must be mindful of the risks landfilling poses to air, water and land quality and also community amenity.

6.13 There are a total of 411 landfills across NSW, both licensed and unlicensed, that *only* receive Municipal waste. Of these 16 are located in the SMA, 17 in the ERA and the remaining 378 are scattered across the State.

6.14 Four main issues were raised during the course of the Inquiry about Landfill Management:

- Landfill Policy Direction;
- Landfill Siting and Standards;
- Full cost accounting; and
- Tradeable schemes.

Landfill Policy

6.15 Three key policies have been set by NSW Government with regard to landfill. These are:

- landfill diversion goals. NSW has set a municipal recycling rate of 66% for 2014 however current rates of change have many arguing that this goal is unrealistic;
- capping landfill contracts at 5 years. The argument behind this policy is to prevent councils being bound by or limited from examining alternative waste management operations in the medium term; and
- applying direct and increasing tonnage levies to waste disposed at landfills.

6.16 While these landfill policies seem quite deliberate and specific, the Committee heard of the need to revisit these policies, in particular a need for more coordinated policy about the landfills that reflects their relationships as complements to other waste management systems and their role in the greater context of sustainability.

6.17 While landfill prohibition is not a formal policy in NSW, the Committee understands that current environmental requirements and community attitudes make new landfill development a very unlikely option in the future.

6.18 During the hearings, the importance of delivering clear, coordinated and consistent landfill policy to stakeholders from both state and federal government was raised:

> **Mr RITCHIE (SITA):** … They would say if you have the policy settings right, education is appropriate and necessary to drive reform and behaviour change, whether that is in factories or in schools or wherever. But you have to have your policy settings right in the first instance. If we say 66 per cent of diversion of municipal solid waste is the right policy goal and we implement alternative technologies and improve residual waste landfill as part of that package, now we need to cascade that into the households to say what do we need from you in your behaviour in relation to the segregation of these waste streams? But it only happens once you know what your goal is.[189]

6.19 The Waste Management Association agreed with the need to broaden waste policies to consider wider sustainability goals. They suggested that there should be a net environmental benefit from activity associated with municipal waste management. The Association believes that municipal waste management in NSW has been dominated by "tonnage thinking" – the tonnes going or being diverted to landfill. This is believed to be a limited approach as it does not consider the broader environmental impacts and opportunities of resource recovery such as: greenhouse gas emissions/abatement; air pollution emissions/ abatement; water pollution emissions/abatement; human and ecological toxicity and resource conservation.

6.20 It was also argued that advancements in new waste management processing technologies require an update on policy direction and guidance on alternatives to landfilling that is more aligned with greater recovery of resources and sustainability principles such as the triple bottom line.[190]

6.21 Further, submissions called for greater consideration of the overall sustainability-related performance targets for resource recovery from the municipal waste stream and the need for regular measurement and reporting against those targets. Such

[189] Transcript of Evidence, 1 June 2006, p. 12.
[190] Submission 49, GRD Limited, pp. 10-11.

target setting and monitoring of the highest net resource value would provide stronger drivers for improvements as opposed to the presently applied landfill diversion goals on their own.[191]

6.22 The NSW Government's Local Council Performance Improvement Payments under the City and Country Environment Restoration Program establishes a set of performance criteria for council to receive rebates. One requirement is that Councils restrict any new contracts for disposal of residual waste to landfill to 5 years. The LGSA believes that the five year limit on landfill contract places councils under pressure and may undermine current policies and initiatives.

6.23 Some AWTs systems require less source separation than other systems. The result of this situation is that in some cases, Councils investment in kerbside separation and recycling becomes redundant. As a remedy, the Associations suggest that all types of AWT and landfill should be subjected to a rigorous, objective analysis to facilitate a clear comparison and informed decision-making process.[192] .

6.24 However this concern about potential distortionary impacts of capped landfill contracts was not shared by some sections of the industry:

> **Mr RITCHIE (SITA):** We support the Government's recent limit on landfill contracts to five years. We believe that has allowed some breathing space for alternative technology and resource recovery to enter the market without preventing councils from signing 20-year landfill contracts, which would have postponed the implementation of AWT for 20 years.[193]

6.25 A clear call for change in landfill policy direction was raised in the Productivity Commission inquiry. The inquiry argues for a less dogmatic position on landfill prohibition and a more considered approach to assessments of landfills as one part of the waste solution. Support for the Productivity Commissions position on landfills was voiced by the Waste Contractors and Recyclers Association:

> **Mr KHOURY (WCRA):** The Productivity Commission also questioned the issue of modern landfills and that best practice and landfills with gas and electricity generation are more cost-effective and have greater benefits than AWT. We certainly support the promotion of modern best practice landfills if they are well located, based on sound environmental and geotechnical principles and there are proper gas collection and leachate collection systems in place, and electricity generation is a good outcome of those collection systems. Under those terms, they are a proven solution to the issue of waste disposal. In many cases those landfills are also solving the issue of quarry and mine rehabilitation, so we are addressing an environmental matter there. If they are more cost effective, then that is just another plus.[194]

6.26 Similarly representatives from SITA also argued for a more balanced analysis citing some of the less effective policies which have not been taken into consideration:

> **Mr RITCHIE (SITA):** I will refer back to the Waste Management Association national Executive press release that was put out last week. It said there are a number of elements of the Productivity commission report that it strongly supports. That is the appropriate regulation of landfills, the fact that large well-run landfills are relatively benign in environmental terms, that we need to do appropriate cost benefit analysis on these kinds of policy judgments. On those issues ... it was surprising now, 15 years

[191] Submission 14, WMAA, p. 5.
[192] Submission 38, LGSA, p. 2.
[193] Transcript of Evidence, 1 June 2006, p. 12.
[194] Transcript of Evidence, 31 May 2006, p. 25.

> later, after all of that investment by the Government and by industry in building infrastructure, that the Productivity Commission was saying sorry, that is the wrong approach, we should have been building more large landfills on the urban fringes because they are cheaper.[195]

6.27 A final waste disposal option of incineration or "waste to energy" was also re-introduced to the debate by the Productivity Commission. This option has been prohibited for some time at a political level but again in light of new technologies, Government should revisit its policy position. As noted by SITA the tradeoffs between disposal options - landfills, AWTs and incineration are changing frequently:

> **Mr RITCHIE (SITA):** Essentially, that is the economic argument that he is putting forward. And to the credit of the Productivity Commission, he then looks at all the environmental externalities associated with those and documents the economic cost of those externalities and calls it between $5 and $25 a tonne, notwithstanding some debate around how greenhouse gas is managed. But you then come to a judgement, and that is what the Waste Management Association nationally said. At the end of the day you come to a judgement about whether you believe large landfills that are well run is a better policy approach than resource recovery waste minimisation as an activity. We will wait and see, but certainly they will be responding to say they reject that approach over large landfills and incineration as being the major sufficient infrastructure to drive our waste management needs, which at the end of the day is what the Productivity Commission report finds. The Productivity Commissioner found we need essentially two pieces of infrastructure: large, well-run landfills, and if we need to enhance that the move towards mass incineration, bulk waste incineration similar to some European models.[196]

6.28 In regard to landfill policy direction the Committee notes an apparent lack of consistency between state and federal policies on landfill. Essentially, there needs to be a consistent message across all levels of government that reflects the issues associated with waste to address volumes, impacts and the practicalities of achieving prescribed targets across the municipal waste stream and potentially into other waste sectors. In particular, coordinated policies and strategies aimed at assisting communities, local government and the waste industry achieve these goals needs to be facilitated through consistent policy messages and strengthened coordination of state and federal government authorities in guiding all stakeholders toward the goals of waste minimisation and resource recovery.

Landfill Siting and Standards

6.29 Proper consideration of the factors surrounding landfill operation and the impacts these operations have upon surrounding and encroaching communities and other landuses is paramount. Siting is critical for developing acceptance and mitigation of any negative externalities associated with the inclusion of landfill operations.

6.30 One issue raised during the Inquiry was the consideration of current landfill capacities. The Western Sydney Regional Organisation of Councils addressed this issue:

> **Mr PASCOE (WSROC):** Another major issue is that landfills across the region are fast approaching their capacity. Adding to this problem is rapid growth throughout the area and this is likely to be mirrored by increased domestic waste. So unless strategies or

[195] Transcript of Evidence, 1 June 2006, p. 14.
[196] Transcript of Evidence, 1 June 2006, pp. 14-15.

technologies are employed to reduce waste rates, our landfills will be reaching their capacity quite soon. The submission supports the notion raised in the inquiry overview that waste management is a costly proposition for local government, and we would like to draw further attention to this point as council budgets are stretched across an ever-increasing portfolio of services. Council waste spending is complicated by the fact that there is no one-size-fits-all best practice solution for municipal waste management.[197]

6.31 Strongly linked to the capacity and siting of landfills is the need for a suitable set of standards to apply to new and existing landfill operations.

Mr RITCHIE (WMAA): One of the divisions of the Waste Management Association, the landfill division, has done a lot of work on best-practice guidelines for landfill operations. A relatively small proportion of landfill in New South Wales currently operates to that standard. They tend to be the large metropolitan landfills. There are four minimum criteria that we have set out in our proposal that we would like to see implemented across landfills in New South Wales. They are: appropriate siting, leachate control, appropriate management to reduce hazards, and methane gas capture where appropriate in order to satisfy greenhouse gas obligations. There may be some landfills where it is inappropriate to apply all four criteria but we would certainly like to see the raising of the bar generally and the application of those sustainability best-practice guidelines across all landfills, with appropriate enforcement from the EPA to drive that forward.[198]

6.32 SITA suggested noted that there was a lack of uniformity in the standard of operation of landfills in NSW. This situation is particularly evident between rural and metro areas, which undermines the credibility of this disposal method and creates a competitive disadvantage for the more professional operators.[199] Its National General Manager of Marketing at the Hearings expanded upon SITA's position:

Mr RITCHIE (SITA): Having said that, we also believe that the operations of landfill should meet minimum standards—minimum standards for accounting, minimum standards for operation and minimum standards for dealing with post-closure remediation, because that undermines the quality of landfill operations across the country. It undermines the reputation of landfills across the country and it provides an economic disadvantage for the companies that are doing it well against the companies that are not. We also believe it is part of a move towards improved sustainability to get gas capture resource recovery and leachate under control in the operation of landfills…The minimum standards we would see operating in regional councils would be gas capture leachate control, weighbridge and post-closure remediation, with the one caveat on that being around gas capture, which clearly needs to be driven by the economics of capturing gas against the amount that is available.[200]

6.33 Recent advances in new waste technologies and their present and potential application and influence within the waste flow operations call for updated waste strategies and policies to consider impacts on current and future landfill operations, capacities and requirements. Landfill will, for the foreseeable future, be a necessary element of the municipal waste flow. Therefore, a more considered and balanced analysis of landfill is required to promote modern best practice landfills, as a part of the waste disposal is required.

[197] Transcript of Evidence, 31 May 2006, p. 10.
[198] Transcript of Evidence, 1 June 2006, p. 8.
[199] Submission 36, SITA, p. 1.
[200] Transcript of Evidence, 1 June 2006, p. 12.

Full Cost Accounting

6.34 The issue of Full Cost Accounting (FCA) was raised in a number of submissions received by the Committee. It was argued that FCA should be applied when making decisions on the whole of life costs associated with landfill operations, including the initialisation, operation, closure and remediation of land.

6.35 FCA can be defined as the consumption and use of environmental resources that are accounted for as part of the full cost of production and reflected in market prices[201].

6.36 The major steps usually undertaken through FCA are:

Step 1: Define the cost objective (e.g., a product, production process, waste disposal option);

Step 2: Specify the scope or limits of analysis (all possible identified externalities);

Stage 3: Identify and measure external impact (involves making a link between a cost objective and the externalities arising from the cost objective);

Stage 4: Cost external impact (cost of externalities, or determination of fuller cost associated with, but not already captured by, the current accounting for a cost objective).[202]

6.37 SITA perceives FCA to be an important approach to improving landfill management that should be implemented for all landfill operations. Application of FCA in assessing landfill facilities would ensure that all costs are incorporated into gate fees including post closure remediation, leachate control and gas extraction.[203]

6.38 GRD Limited suggested that FCA could account for the value of avoided upstream impacts of virgin materials extraction and manufacturing to the way landfill is assessed, regulated and valued. These sort of approaches should include accounting for the external (hidden) costs of landfill by Local Government when evaluating landfill and alternative waste strategy competitive tenders.[204]

6.39 Impact Environmental Consulting raised concern with land filling in regional and rural NSW. They suggest that landfill pricing does not reflect the full costs nor is enough to encourage alternatives such as AWTs, and is the most effective way to encourage waste avoidance and separation. The respondent proposes that FCA practices be implemented into pricing structures which factor in land purchase, operational, closure and rehabilitation costs. This approach is endorsed by the US EPA to set landfill disposal pricing.[205]

6.40 The issue of FCA and its importance to considerations surrounding decision making concerning landfill operations was stressed by the Waste Management Association during the Hearings:

> **Mr RITCHIE (WMAA):** The other part of that is to make sure that local councils are applying full cost accounting for operating their landfills. At the moment most are not. In other words, they are not taking into account the 30-year long-tail liability for rehabilitation and post-closure remediation of their landfills in today's pricing. So they

[201] The Fifth Action Program, Volume 2, European Commission 1992, p67

[202] Bebbington, Gray, Hibbert & Kirk (2001), Full Cost Accounting: An Agenda For Action, Certified Accountants Educational Trust, London - http://www.icmap.com.pk/a1_fca.pdf)

[203] Submission 36, SITA, p 1.

[204] Submission 49, GRD Limited, pp. 10-11.

[205] Submission 4, IEC, p. 1.

> might be charging $20 a tonne but that does not reflect the additional $10, $15 or $20 per tonne to cover those liabilities for long-term post-closure remediation. That is set out in the best-practice guidelines and we would like to see that full cost accounting mandated across the State so that all councils must manage the full costs of their landfills. Otherwise they are just passing on the liability to future ratepayers. That is what we have seen historically in New South Wales.
>
> There are a number of operators…that make provisions for post-closure remediation in their landfill operations now. That has the effect of pushing up our competitive price in the marketplace. I will come to that when I talk about SITA. But most of the major metropolitan landfills do this as normal practice. Many landfill operators in the regions do not, and we think there needs to be a level playing field on that and, most importantly, around long-term liabilities on best practice. [206]

6.41 A similar view was put to the Committee by Visy who raised the issue of FCA when questioned on the current practicability of landfill in addressing the states waste avoidance goals:

> **Ms MARIE ANDREWS MP:** …Do you think the current system of landfill practicably addresses this State's goals of waste avoidance?
>
> **Mr SMITH (VISY):** No, I do not think that it does. Landfill, by and large, is seen as the default option because it is so cheap. If the total cost of all types of landfill were taken into account, I believe that it would not be seen as necessarily such cheap option. There are all sorts of impacts of landfill disposal—and other types of disposal, too—that are hidden from the public because they are not immediately apparent at the gate of the landfill. Such things as odour, dust and noise are obviously apparent, but they are often not properly taken into account in the same way that an alternate technology or some other method of treating waste, other than disposal, would have to be taken into account.[207]

6.42 The Committee sees that FCA is an important tool that could improve Council decision making. It would be valuable to have FCA applied to landfill operations to help the public, operators and policy makers gauge the real tradeoffs and impacts of waste. It could also inform the pricing of instruments such as the current landfill levies.

6.43 Independent full cost accounting could be applied as a condition of landfill contracts in NSW landfills with a view to ensuring the full costs associated with the life and post-closure effects of landfills are properly managed and accounted for and to encourage more efficient waste avoidance and separation practices.

Tradeable Schemes

6.44 The Committee heard much discussion surrounding tradeable schemes and how such schemes may be introduced to the management of municipal waste in NSW.

6.45 Tradeable schemes are seen by many as an opportunity for NSW to reach its municipal waste targets under the Waste Strategy. Trading schemes have been introduced in overseas jurisdictions in areas such as greenhouse gas emissions,

[206] Transcript of Evidence, 1 June 2006, pp. 8-9.
[207] Transcript of Evidence, 1 June 2006, p. 21.

renewable energy, removal of lead in petrol, water resource management, and solid waste management.[208]

6.46 One such tradeable scheme that has specific relevance to reducing volumes of municipal waste and its potential impacts that was discussed by various Inquiry participants was the UK's Landfill Allowance Trading Scheme (LATS), which commenced in mid-2005

CASE STUDY – UK Landfill Allowance Trading Scheme (LATS)[209]

The LATS is established under the Waste Emissions Trading Act 2003, which places a duty on waste disposal authorities [councils] to reduce the amount of biodegradable municipal waste (BMW) disposed to landfill. The Act also provides the legal framework for the trading scheme, which allocates tradeable landfill allowances to each authority across England. Landfill allowances were initially allocated to authorities at a level that will allow England to meet its contribution to the UK targets under the EU's Landfill Directive. Within each scheme year, authorities are allowed to landfill BMW up to the level of allowances held. A single landfill allowance permits an authority to landfill one tonne of landfill.

Under the LATS, authorities need to ensure that they hold sufficient allowances to cover the actual amount of BMW they intend to landfill over a given period. Should an authority not need or expect not to need all of its allowances in one or more years, because of actual or planned diversion of waste away from landfill, the authority will be able to sell them, or bank (save) them into the following year. An authority which does not hold enough allowances to cover the amount of BMW it intends to landfill would need either to increase its rate of diversion, purchase additional allowances or borrow forward up to 5% of its following year's allocation.

Authorities will not have to trade allowances provided they do not exceed their limit on the amount of BMW they may send to landfill. Authorities can choose to meet their targets through diversion alone. Similarly, authorities may wish to cooperate to meet their targets (e.g., two authorities could pool their allowances in order to invest in a shared waste management facility, but each individual authority is responsible for ensuring that its own targets are met).

6.47 A further explanation of the LATS scheme was provided to the Committee:

> **Mr KEVIN GREENE MP:** You talked earlier about tradeable systems in the United Kingdom. Could you give us a brief rundown of that?
>
> **Mr LAWSON (GRD):** Yes There is a European landfill directive which means that all the countries in Europe have to develop their own ways of avoiding landfill impacts of untreated waste. The United Kingdom has decided to take a market-based approach to delivering on its landfill directive responsibilities. That implies that, by 2020, it will have only 35 per cent of total biological municipal waste generated in 1995 going to landfill. In the face of that 1995 amount, that is increasing at about 2 per cent to 3 per cent per annum. So the diversion in 2020 in the United Kingdom is huge to meet its

[208] (OECD (2002), the OECD Environment Programme, Implementing Domestic Tradeable Permits: Recent Developments and Future Challenges, pp1-3) (http://www.oecd.org/dataoecd/18/44/1948734.pdf#search=%22tradeable%20scheme%22)

[209] Adapted from: Department for Environment Food and Rural Affairs DEFRA (2005), Landfill Allowance Trading Scheme (LATS): A practical guide.

European obligation. If it does not meet it as a country European penalties will be imposed on it.

The national government then said, "We want to spread that risk to the organisations that have responsibility for it." In this case, it is the local waste disposal authorities and the councils behind them. So it said, "Here is the total 1995 amount of waste generated." It adds up all the amounts separately from the councils and it then draws a line down to 35 per cent in 2020. Every year the amount each of those councils has reduces. They have a landfill allowance. They can meet their targets and not have any surplus landfill allowance or they might need to make up for a landfill allowance by having more than their landfill and by developing recycling or treatment systems.

They can meet those targets and not have to worry about anything, or they could do nothing, exceed the target and for every tonne of waste by which they exceed the target they would have to pay £150 per tonne—about double the cost of reducing that waste. It is a purposeful message: the penalty is large and councils are saying, "Here is our risk. We have this big exposure. We are going to do something about it." It is powerful driver. On top of that, because it is a trading scheme, they can seek to advance their recycling. They might have a 200,000 tonne allowance and they might do 100,000 tonnes more recycling than they need to. They can sell that to another council. At the moment those allowances can be traded.

According to Terry Bradley, the procurement director from Merseyside in the United Kingdom who was out here this week, they have bought a landfill allowance of £20 a tonne generated by another council, exceeding their target for landfill diversion. The system is set up so that councils can trade. They can also borrow up to 5 per cent of next year's allowance, or they can save 5 per cent for next year's allowance or, as I said, do nothing and face huge penalties, which is not very attractive to any of them. In that sort of trading mechanism you are clear about what you want to do and you allow the councils that can more readily reduce their landfill to do it and then trade to those who cannot. It is a good system.

Mr KEVIN GREENE MP: Basically, they are using carbon credits. Is that realistic in New South Wales?

Mr LAWSON: Yes, it would be. We know what is the total amount of waste that is generated by each council. They have very good records of how much waste is going to landfill. They can set targets wherever they want to in the future and that can be reduced on a year-by-year basis either by trading their excess, buying themselves, or facing penalties.

But it is not a system that will work on its own. It is just one measure towards goals. In the United Kingdom they have private finance initiative credits for councils getting into new facilities funded out of these landfill taxes. It is important that the landfill taxes are directed back into local government. They also have assistance with projects, the sort of people who understand how to put these projects together once every 20 years. You will not find those skills in any council right now, and I say that having had local government background. You need specific training and those people will do one project every 20 years and go off somewhere else. So you need the skills, the capital credits and the annual targets and the drivers to make it work.[210]

6.48 Additional Discussion on the LATS was pursued by the Committee the following day with the NSW president of the Waste Management Association:

Mr KEVIN GREENE MP: Yesterday the Committee heard about tradeables in the United Kingdom because of their involvement with the European Union, and meeting those

[210] Transcript of Evidence, 31 of May 2006, pp. 22-23.

targets as you have indicated. Would your association see that opportunity to trade within those limits as a workable scheme?

Mr RITCHIE (WMAA): Yes. We have said that if we are going to have a target we need some economic instruments that help drive it. All the goodwill in the world will not drive us towards resource recovery if the cost of recycling is higher than the cost of landfill, which it is for most waste streams. That is a fact, and always will be a fact. You either change the economic equation or you regulate. There are only two drivers open to government to change that balance. You either increase the landfill levy or mandate some regulatory approach. In United Kingdom they have done both. They have said that they will cap landfill by regulation and you must achieve these diversion targets, of 25, 50, 75 per cent diversion. At the same time they have a landfill levy of $86 a tonne, compared to the $22 that we have, moving up to $58. They also have a penalty, which means those who do not achieve the targets will pay a penalty of £150 on every ton. There is quite a significant regulatory and pricing driver to resource recovery.

Whether they are the right numbers is open to further inquiry but certainly that framework of a market-based instrument and targeted regulation seems to be the best way forward and is quite consistent with the drivers that are already in place in New South Wales. You already have a significant part of that framework in place.

Mr IAN SLACK-SMITH MP: Is it through the council or individual councillors or professionals in the council?

Mr RITCHIE: Generally a mix of all. Most of our working groups, and the one I am associated with is the Alternative Waste Working Group, we have three local government representatives…We very much see local government as a key stakeholder in this. If we do not bring local government with us towards diversion from landfill they are a potential loser. There is no question about that, if the price of landfill goes up; ratepayers pay 30 per cent of the waste levy at the moment across New South Wales.[211]

Conclusions and Recommendations

6.49 The Committee sees landfills are a necessary element of the municipal waste stream now and for the foreseeable future. The ultimate drive toward achieving zero waste is admirable and one that should be pursued. Along the way the amount of recoverable resources being 'wasted' as waste to landfill should decrease as new technologies and markets emerge. However, a sense of reality should also be applied in the planning and policy mechanisms employed to address the presence of waste and the treatments available – this consideration must be applied to landfill.

6.50 In regard to landfill policy direction the Committee notes an apparent lack of consistency between state and federal policies on landfill. Essentially, there needs to be a consistent message across all levels of government and strengthened coordination of state and federal government authorities in guiding all stakeholders toward the goals of waste minimisation and resource recovery.

6.51 The Committee envisages utilisation of the Ministerial Council Framework, the Environment Protection and Heritage Council, to establish a forum on waste policy to develop a clear consistent message about landfills policy.

[211] Transcript of Evidence, 1 June 2006, p. 10.

Recommendation 13 - Landfill Policy Forum

6.52 The Committee recommends that the NSW Government take a leading role in establishing a forum between all tiers of government and industry, under the umbrella of the Environment Protection and Heritage (Ministerial) Council, to establish consistent message in regard to landfill waste strategies and reaching achievable targets, preferably at a national level.

6.53 Recent advances in new waste technologies and their potential application call for updated waste strategies and policies to consider impacts on current and future landfill operations, capacities and requirements. Landfill will, for the immediately foreseeable future, be a necessary element of the municipal waste flow. Therefore, a more considered and balanced analysis of landfill is required to promote modern best practice landfills, as a part of the waste disposal is required.

Recommendation 14- Landfill Standards for NSW

6.54 The Committee recommends that a set of standards, which include a minimum criteria be prescribed and rolled out to all NSW landfills. The minimum criteria should include appropriate siting, leachate control, appropriate management to reduce hazards and methane gas capture.

Recommendation 15 – Landfill Assessments

6.55 The Committee recommends that full cost accounting be mandated in assessments of all new proposed NSW landfills to ensure the full costs associated with the life and post-closure effects of landfills are properly managed and accounted for and to encourage more efficient waste avoidance and separation practices.

6.56 The Committee also recognises that in order to properly achieve waste targets, economic or market based instruments (MBIs) and targeted regulatory approaches are required. The Committee acknowledges that the DEC, in conjunction with stakeholders has used the Waste Levy as an economic driver to achieve NSW's Waste Strategy goals, however, other avenues in addition to this approach may warrant further exploration.

Recommendation 16 – New Landfill Instruments

6.57 The Committee recommends that the NSW Government work with local government and industry to explore opportunities for additional market based instruments (MBIs) (and complementary regulations), to apply to municipal waste. In particular, the Committee is supportive of the approach developed in the UK under the Landfill Allowance Trading Schemes (LATS), and suggests that the feasibility of such a tradeable scheme be explored for application in the NSW context.

The Landfill Levy

6.58 The waste or landfill levy (the Levy) is applied in NSW to scheduled waste facilities, in particular facilities with landfills, operating in the SMA and ERA, as a statutory financial disincentive to waste disposal. Under Section 88 of the POEOA, all occupiers of a waste facility are required to pay a levy on every tonne of waste received at their premises.

6.59 The Levy does not apply to rural and regional areas of NSW, and those facilities used solely for reuse, recovery, recycling or processing of waste as determined by the DEC.

6.60 Waste levies were introduced into NSW in 1971 (at an initial rate of $0.51) per tonne of waste as a contribution to fund the establishment and operations of the Waste Disposal Authority. Since its inception the levy's functions have changed and its rates increased to align with its function as an economic instrument. In 1997 the levy rose from $7.20 to $17 per tonne in the SMA and $10 in the ERA[212]. In 2005/2006, the levy was $22.70 per tonne in the SMA and $15 per tonne in the ERA.[213]

6.61 In 2002-2003, the net Levy collections (after rebates) totalled $89.5 million, in 2003-2004 it collected $94.8 million and in 2004-2005 the amount collected was $104 million. The contribution of municipal waste disposal to total levy collections is estimated between 30% and 35%, with the remaining 65%-70% derived from the C&I and the C&D sectors.[214]

6.62 In Australia landfill levies are significantly lower than those applied in other countries as highlighted in Figure 23.

FIGURE 23 : Selected international waste levies

Member State	Levy rate per tonne (in $A)
Austria	$17 -116
Denmark	$79
Finland	$24
France	$14.50
Ireland	$30
Netherlands	$103
Sweden	$64
United Kingdom	$ 35

(Source adapted from: DEC 2005, Regulatory Impact Statement, Protection of the Environment Operations (Waste) Regulation 2005, p30).

6.63 Compared to other countries, NSW's landfill levy and those of other Australian mainland states are demonstrably low, as outlined in Figure 24:

FIGURE 24 : Australia waste levies by jurisdiction

Location	Waste Type	NSW	VIC	WA	SA
		$/ tonne	$/ tonne	$/ tonne	$/ tonne
Metro	Municipal	22.70	7	3	10.80
	C &D, C&I	22.70	11	1	10.80
Rural	Municipal	15	5	0	5.40
	C&D, C&I	15	9	0	5.40

(Source adapted from Productivity Commission Draft Report 2006, Waste Management, p180).

6.64 All mainland states apply waste levies except Queensland. NSW applies the highest levy rates. Western Australia applies a higher rate for general waste than for inert waste and no levy for rural areas. Victoria applies different rates for municipal, industrial and prescribed industrial waste.

[212] DEC 2006, Submission to Productivity Commission Waste Management Inquiry, July 2006, p11

[213] DEC 2005, Regulatory Impact Statement, Protection of the Environment Operations (Waste) Regulation 2005, p25.

[214] (DEC 2005, Regulatory Impact Statement, Protection of the Environment Operations (Waste) Regulation 2005, p25).

6.65 The object of the levy is to encourage those who use waste facilities to consider initiatives to reduce the waste they generate and in-turn increase their efforts on waste avoidance and recycling.

6.66 In its 2001 review of the Waste Minimisation and Management Act 1995, the NSW Government recognised that there had been confusion surrounding the levy and sought to clarify its purpose as being:

- An ongoing price incentive to discourage waste disposal and to promote waste avoidance and resource recovery; and
- A mechanism for providing funds for a range of programs to overcome the financial, technical and social barriers to reducing waste disposal.[215]

6.67 The Government also outlined a range of factors which are applied in determining the rate of the levy, including:

- Providing sufficient incentive for the diversion of waste;
- Providing sufficient funds for the waste avoidance, reduction and reuse programs;
- Avoiding setting too high a levy to avoid market distortion and the inefficient supply of materials for reprocessing and market gluts such as those which existed in the past; and
- Establishing a rate of increase that is acceptable to stakeholders, thus avoiding significant adjustment costs and providing sufficient stability to support efficient investment in new waste reprocessing industries.[216]

6.68 The details and calculation of the Waste Levy that is payable by licensed waste facilities is prescribed in the POEO (Waste) Regulation 2005.

6.69 In 2006, a number of changes were made to the administration of the Waste Levy. Firstly, the name of the Waste Levy was changed to the Waste and Environment Levy as introduced under the Government's City and Country Environment Restoration Program. The Program is designed to provide funding ($439 million over 5 years) on environmental initiatives to protect and restore the NSW environment.[217]

6.70 Secondly, the Regulation increased the amount of s88 contribution paid by scheduled waste facilities by an extra $6 per tonne every year, on top of existing scheduled charges) for the next five years. The charges, which broadly apply to municipal waste disposal to landfill are summarised in Figure 25:

FIGURE 25 : Scheduled Changes to the NSW Waste and Environment (Landfill) Levy

Date	Increase	Total Amount per Tonne
Prior to 1 July 2006	-	$22.70
1 July 2006	$6 + $1	$30
1 July 2007	$7	$37
1 July 2008	$7	$44
1 July 2009	$7	$51
1 July 2010	$6	$57

[215] EPA 2001, Review of the Waste Minimisation and Management Act 1995, p. 10.
[216] EPA 2001, Review of the Waste Minimisation and Management Act 1995, p. 10.
[217] DEC 2006, City and Country Environment Restoration Program.

6.71 Several other changes were made under the 2006 Regulation that pertain to waste facility operations including, rebates and exemptions formerly provided for waste material which is separated and segregated at its source, for receipt of VENM and for waste material that is used as a daily or intermediate cover at waste disposal facilities. These changes are expanded upon in the following discussion.

6.72 Moneys collected via the Levy can be redirected back to local government waste management under the City and Country Environment Restoration Program. To facilitate the redirection of these funds, the NSW Government and the Local Governments and Shires Association signed a Memorandum of Understanding to support collaboration in providing performance payments to local councils. As a result, local councils can access a pool of funds calculated annually, known as Local Council Waste Service Performance Payments, based on the total amount of domestic waste disposed to landfill. To receive payments, councils must meet the following performance criteria:

- Deliver an established kerbside collection system for dry recyclables from all residential dwellings other than multi-unit buildings;
- Provide the Department of Environment and Conservation (DEC) with the information required under the National Environment Protection (Used Packaging Materials) Measure;
- Collect and provide DEC with baseline data on tonnages of dry recyclables and garden organics for recycling and residual domestic waste (garbage); and
- Only enter new contracts for disposal of residual waste to landfill that do not commit the council to that form of disposal for more than 5 years.

6.73 The Payments also apply to councils with substantial rural areas where these councils may meet the requirement by providing alternative collection facilities for dry recyclables in rural areas, including rural villages (e.g. drop off), and still provide kerbside collection for all urban areas.

6.74 This remainder of this section will discuss the impact of the waste levy in regard to the **benefits**, **disadvantage**s and **levy improvements** as well as the issue of **VENM** as a leviable material under the new Levy arrangements.

Benefits

6.75 The Committee heard that the increases in the Levy would provide an incentive for Councils to improve their resource recovery rates from their waste services. Application of this approach could provide a significant incentive for councils to implement waste recovery initiatives by choosing to participate and receive a rebate under the requirements of the City and Country Environmental Restoration Program.[218] WSROC outlined its understanding of the levy's incentive effect:

> The main incentives to best practice municipal waste management include land filling costs, concern for the environment and diminishing landfill capacity. Landfill levies are an effective means of reducing material to landfill. In general, more councils could

[218] Submission #42, SSROC, pp.9-10.

> approach best practice municipal waste management across the region by ensuring that the green waste is directed away from landfills to composting.[219]

6.76 A number of submissions took the position that the levy strongly compliments and assists the objectives of the NSW Waste Strategy. The WSN believes that the levy supports the Strategy by facilitating the move toward AWTs, as the levy system does not apply to the portion of waste diverted from landfill, thereby providing a significant incentive for councils to look at new technology – from a future cost perspective. The levy also provides the certainty industry needs for investment in new processes and technologies such as AWT,[220] a view also supported by GHD:

> **Mr LAWSON (GHD):** The waste levy has been good for GRD. As I said with my Australian Council of Recycling [ACOR] hat on, it delivered a clear message to councils about what the Government wants. It wants a recycling system. Not only that councils generally want to recycle. However, from my perspective as an old local government engineer, they do not want to be seen to be doing something that is not required. Why should they invest all that money in a recycling plant if it is okay to dump the stuff? At least the levy indicates what the cost is to councils and councils get on with it.
>
> If you talk to people in the United Kingdom about the size of their landfill tax you find that it is going up to £32 per tonne. I think it is £21 per tonne at the moment, so you are talking about $AU60 or $AU80 just in landfill tax. They realise the reasons behind that and it is driving alternatives. They do not want to rely on landfill of untreated waste long term, so they are adjusting themselves to it. It is good for businesses like ours. It is not good everywhere for businesses like ours that are in inert materials. The residues from the process are quite stable compared to putrescible waste, which has had the hazardous material removed from it, such as batteries, chemicals, gas bottles, and so on. We are facing the same landfill tax on the inert residues as untreated waste. So we, like other ACOR companies, believe that landfill tax should be graduated.[221]

6.77 The SITA also supports the application of the waste levy in its current form as the most appropriate and effective 'catch all' market based instrument to achieve the goals of the Waste Strategy. While the application of the waste levy is the most effective instrument that can be applied at a State level, it is part of a suite of complementary instruments to drive reform that should be applied in conjunction with instruments such as EPR at a national level.[222]

6.78 Similarly, the Waste Management Association of Australia (NSW) believes that the application of the levy has contributed to the achievement of the goals of the Waste Strategy. However, the WMAA believes that additional and more targeted economic signals are required to promote the conservation of resources that would further stimulate resource recovery. Based on accurate economic modelling and scientific assessment of environmental impacts and opportunities, the WMAA suggest that economic instruments can be applied to address the current market distortion in favour of virgin resources over recovered resources and can more fully reflect the true environmental and social cost of waste.[223]

6.79 According to the Australian Council of Recyclers, the levy has been effective at driving up the amount of recycling delivered in the C & D sector, but has limitations in its

[219] Transcript of Evidence, 31 May 2006, p. 10.
[220] Submission 45, WSN, p. 11.
[221] Transcript of Evidence, 31 May 2006, p. 22.
[222] Submission 36, SITA, pp. 18-21.
[223] Submission 14, WMAA, p. 4.

application to the more complex municipal waste stream as demonstrated by the much lower level of recycling achieved. The recent rise on the levy, while welcomed by many recyclers, will create adverse consequences in some materials streams, driving poor recycling outcomes merely to avoid landfill tax. At present the levy does not reflect the environmental impacts of different waste streams, consequently penalising the residues of recycling, or inert wastes at the same level as toxic, hazardous and putrescible wastes. As a solution, the ACOR suggest that the levy system needs to be structured to not only punish waste disposal but also reward recycling activities.[224]

6.80 The ACOR's position is supported by the Waste Contractors and Recyclers Association who provided the following information at the hearing:

> **Mr KHOURY (WCRA):** In relation to landfill levies, again the Productivity Commission argues that landfill levies should be discontinued and asks what would be the impacts for councils, industry and operators. In our view, in New South Wales the waste levy acts as a disincentive to the landfill disposal of the heaviest parts of the waste stream which is a very, very effective mechanism in targeting the heaviest parts of the waste stream, such as concrete, bricks and metals, away to other productive uses. For the Productivity Commission to argue for landfill levies to be abolished is the complete opposite action to that taken by the New South Wales Government to increase the levy by $7 per tonne plus CPI for the next five years. So there is a contrast in thinking there immediately, and that needs to be investigated as to why the Productivity Commission can come up with that conclusion whereas the New South Wales Department of Environment and Conservation has taken this State down a completely different path.[225]

6.81 Newcastle City Council also stated concern over the 'broad-brush' application of the levy on all materials that enter licensed landfills. While the Council is not opposed to the levy, it believes that it is more a revenue generation exercise than a strategy to avoid waste generation because no levy concessions are available which reward capital investments in environmentally responsible landfilling of materials suited to no alternative purpose.[226]

6.82 The broad-brush application of the levy was also criticised by Collex who commented:

> …the levy is based on only one broad measure: waste diversion from landfill. The levy does not recognise the substantial environmental and social benefit that should be pursued as part of an 'eco-precinct' waste management development model. The levy also does not distinguish between outdated and environmentally unsound landfills and state-of-the-art engineered bioreactors. Indeed, modern bioreactors are recognised worldwide as legitimate forms of resource recovery. In NSW, this is not recognised by the levy regime.[227]

6.83 The Committee is concerned by the apparent lack of evidence on how the Waste Levy increases were derived. If the Levy is artificially low, then landfill becomes the disposal practice of choice and material recovery is not a high enough priority as for many there is no incentive to improve technology and operational practices to reduce hidden long-term costs. Therefore, FCA considerations should be applied in a more transparent process to determine a more rigorous and realistic Levy that reflects the full impact of landfill operations including their costs and benefits.

[224] Submission 51, ACOR, p. 18.
[225] Transcript of Evidence, 31 May 2006, p. 25.
[226] Submission 54, Newcastle City Council, p. 1.
[227] Submission 52, Collex, p. 2.

Disadvantages

6.84 While many stakeholders supported the overall objectives and direction of the Levy, others considered the Levy's application to have the opposite effect. Interestingly many of the concerns raised in regard to the disadvantages of the Levy came from Councils in the ERA and their concern regarding changes ushered in under the new Waste Regulation.

6.85 Shoalhaven City Council's submission claims that in 5 years, regional/rural councils will pay the same levy as the Sydney Metropolitan Area, but will incur disproportionately higher costs in recycling or diverting material away from landfill. Council also expressed concerns over the application of the levy, which designed as a financial instrument to minimise waste to landfill and encourage reuse and recycling of materials, also applies to materials that have no alternative use but landfill (e.g., asbestos).[228]

6.86 Another of Shoalhaven City Council's concerns stems from the performance improvement payments available under the City and Country Environmental Restoration Program. Council believes that from the available council rebates of $80million over next 5 years, proportionately, Shoalhaven will only receive $92,000 next financial year out of a total of $1.8 million levy contributed. This is only 5% of what the Council is estimated to pay in the levy each year.[229]

6.87 However, the major issue of concern for councils in the ERA was over the removal of the exemption for Virgin Excavated Natural Material (VENM) as a daily landfill cover. VENM consists of inert materials such as clay, gravel, sand, soil and rock that is not mixed with any other waste and has been excavated from areas that are not contaminated. It is also sometimes referred to as "clean fill".

6.88 Prior to the introduction of the new Waste Regulation, VENM was not a leviable material and often used as an approved daily cover on landfills.

6.89 Certain scheduled waste facilities are exempt from requirements to pay the Levy, including those facilities that use VENM. In 2003-2004, the DEC reported that VENM exemptions accounted for 14% of exemptions.[230]

6.90 The Lake Macquarie City Council perceives that the Levy acts as a disincentive to effective resource recovery and improved environmental outcomes, particularly for waste facilities that require daily landfill cover. Council argues that the current regulations require processed materials to be removed from the landfill site to claim an exemption or rebate and will be further compounded after the 1 July 2006, as no rebates or exemptions will be available.[231]

6.91 Lake Macquarie City Council also notes that all waste from an AWT is subject to the Levy. Council proposes that waste generated from an AWT be exempt, or at a minimum should attract a smaller fee in recognition of the costs incurred to treat the waste.[232]

[228] Submission 23, Shoalhaven City Council, pp. 6-7.
[229] Submission 23, Shoalhaven City Council, pp. 6-7.
[230] DEC 2005, Regulatory Impact Statement, Protection of the Environment Operations (Waste) Regulation 2005, pp. 26-27.
[231] Submission 33, City of Lake Macquarie Council, p. 2.
[232] Submission 33, City of Lake Macquarie Council, p. 2.

6.92 Shoalhaven City Council commented that the Levy is not achieving its environmental goals and this will be more evident after the increased changes under the regulation are applied after July 2006. The levy will apply to all material going to landfill and exemptions will only apply to material sold out of the landfill area. This means that rebates will not be allowed when clean fill is used as a daily cover material or other mitigation processes are applied. The costs will be $50-$60 per tonne in 5 years time and it will become cheaper to use virgin materials for this purpose.[233]

6.93 Gosford City Council concurred with the positions of the above councils suggesting that under current Levy arrangements, operational materials purchased from a quarry do not attract the Levy. However, if suitable material is sourced from a construction site it is classified as waste and the Levy is payable. The rise in the Levy will make the use of quarried material cheaper than suitable construction waste – which defeats the principle of reuse the Levy is intended to promote. Further, the waste levy, combined with landfill gate charges to cover the cost of landfill operations will provide a significant incentive for illegal dumping activity.[234]

6.94 The Committee sought further discussion and clarification of the issues surrounding these councils' concerns from representatives from Newcastle Council:

> **Mr KEVIN GREENE MP:** How will the waste levy impact upon the use of clean fill as daily cover material? How will that impact on your small facility?
>
> **Mr HOJEM (NCC):** In fact, I should have mentioned the waste levy. The most recent changes in the Protection of the Environment Administration Act—in fact we cannot get direction on exactly how it is going to be administered after 1 July so the administration is a bit complex. But if we were to use any clean fill [VENM] as cover material it attracts the levy payment. So in 5 years time we will be paying $56 a tonne for cover materials. Fortunately our major landfill sites do not need that much cover because we are doing cut and cover operations. But other issues such as crushing concrete and reusing it on site as road building materials, mulching green waste and reusing it to rehabilitate the batters, all of that will be attracting the levy and there is no rebate if it used on the landfill site. So it is really counter productive when you are looking at trying to recycle things.
>
> **Mr KEVIN GREENE MP:** Yes. In regard to council owned and operated landfills, how will the waste levy impact upon the use of clean fill as a daily cover material?
>
> **Mr COOKSLEY (NCC):** It will not impact on the use of it, it is just that you have got to pay someone $20-odd a tonne to be able to do it.
>
> **Mr KEVIN GREENE MP:** But that will not apply if you stockpile from your own facility, will it?
>
> **Mr COOKSLEY:** If you extracted from your own facility. If you have got cover reserves on site.
>
> **Mr KEVIN GREENE MP:** In other words, if you dig a hole, stick the dirt to one side, stick your rubbish in and slowly cover that with stuff that you have excavated, you will not have to pay for that, will you?
>
> **Mr COOKSLEY:** No, that is right.
>
> **Mr KEVIN GREENE MP:** It is only stuff that comes literally through the gate?
>
> **Mr COOKSLEY:** Yes.

[233] Submission 23, Shoalhaven City Council, p. 7.
[234] Submission 32, Gosford City Council, pp. 1-4.

Mr JOHNSON (NCC): But in the case of when a developer is developing a new subdivision and they have quite a lot of good topsoil material that is being excavated, taken off—it may have some vegetation in it but it has certainly got an application on site—under the way it is being proposed, the levy will apply to that material. So it will not come onto our site where we could put it to a beneficial use, it will go somewhere else. I do not think those beneficial uses will be as high as what we could achieve at the landfill, by using it for a vegetation layer, for instance, over a capped area that has been completed and filled in accordance with the regulations and guidelines. What we need to do is get a vegetation layer over the top; topsoil is available from a developer if the levy applies. So if they are not very willing to bring it, then we can go and buy stuff cheaper than what the levy is and what the levy is proposed to increase to over the next five years.[235]

6.95 Due to the concerns raised over the issue of VENM, the Mr Kevin Greene MP proceeded to ask the DEC for clarification on the issue:

Mr KEVIN GREENE MP: Another issue raised is the fact that the levy is also on daily cover—daily cover which in some regards was commercial or concreting materials as such which were used and the impact that that will have certainly on the disposal of those but also the overall cost that will add to the industry because of that levy on the daily cover. I think that also applied to dirt that was being brought in. I think Newcastle highlighted to us bringing in dirt from the flood plain area near Hexham, that coming in to be put out as daily cover or even at the end of the process when an area was filled and was being rehabilitated and putting that material on there you were also being charged the levy on that. There seems to be some consternation around that. Is there a rationale behind that?

Mr GORTA (DEC): There may be some misunderstandings—

Mr KEVIN GREENE MP: On my behalf or their behalf?

Mr GORTA : On their behalf, I suspect, if they are talking about final closure because the operational purpose rebates will still apply to final closure capping and the landfill rehabilitation associated with that. But they are right in stating that we are removing the rebates for daily and intermediate cover on landfills. This is the stuff to sort of keep vermin out and things like that. That material is almost invariably virgin excavated natural material. A number of landfills are testing plastic sheeting as an alternative to that, which extends the life of their landfills and is not relevant in terms of whether a rebate applies, because it has virtually no volume. So I am not sure what else I can say.

The reason we have removed that rebate is that it provided an opportunity for rorting on the part of some of the shadier customers and it also meant that in a lot of cases stuff was still going in the hole but was not treated as waste. So stuff that otherwise could have been used for other purposes was going into a landfill, effectively being a waste in a landfill and was not attracting the levy, whereas that same material is in many cases a resource in short supply. You may be aware that there is concern about the shortage of sand for Sydney that is fairly imminent.[236]

Conclusions and Recommendations

6.96 The Committee acknowledges the recent review of the Waste Levy, which led to the consequent changes that commenced in July 2006. However, the Committee is concerned by comments received during the course of this Inquiry concerning the 'broad-brush' application of the levy and its apparent inflexibility in regard to

[235] Transcript of Evidence, 31 May 2006, p. 35.
[236] Transcript of Evidence, 1 June 2006, p. 34.

materials that cannot be recycled (e.g., hazardous materials such as asbestos), AWTs which depend upon landfill (bioreactors) and recycling activity residues.

6.97 A key issue is whether the levy is a simple incremental charge on waste volumes or has some correlation to the price of externalities of landfill disposal. Building on the suggestion earlier about new landfill proposals having an FCA analysis, the Committee also recommends that the DEC undertake some FCA exercises on existing landfills to estimate FCA costs and link this to landfill levy analysis.

6.98 It appears that while there are generally accepted benefits that are associated with the application of the Waste Levy, there remain a few concerns that relate to the issues outlined above. Some of these issues appear prima facie to be justified, particularly those which are outside the control of landfill and recycling facility operators.

6.99 The other major concern of the Committee is the issue related to VENM and the recent changes, which make application of this material leviable. While the Committee understands the issues surrounding removal of rebates associated with the use of VENM as a daily cover, it appears from the submissions received that this has had negative impacts on landfill operators attempting to apply this material under the terms of their operating licence. Further, the removal of VENM as an exempt material appears to promote the use of virgin material at the expense of this material, which again appears contrary to the goals of the Waste Strategy.

Recommendation 17 – The Waste Levy and Analysis

6.100 The Committee recommends that the NSW Department of Environment and Conservation provide a more transparent process in determining Waste Levy rates to include FCA considerations. Specifically the Committee recommends that the DEC undertake some FCA analysis on sample landfills and assess these costs in relation to current levy charges.

Recommendation 18 – The Waste Levy and VENM

6.101 The Committee recommends that the NSW Department of Environment and Conservation provide further explanation and justification concerning the removal of rebates associated with VENM as a daily cover in landfill operations and why this change appear contrary to the goals of the Waste Strategy. Further, the Committee recommends that the DEC provide recommendations and/or guidance to assist landfill operators address their concerns associated with the use of VENM.

Alternative Waste Technologies

6.102 One consequence of landfill reduction policies is the search for new ways to reduce the volume of waste to landfill. Some policies can reduce waste to landfill by applying to upstream production and consumption phases and have been discussed in Chapter 4. Other policies and practices reduce waste to landfill at the collection and processing stages through re-use and recycling as discussed in Chapter 5. Downstream management of waste can be approached using alternative waste technologies to "mine" waste for resource recovery prior to landfill disposal. This section of Chapter 6 looks at these alternative waste technologies and the key policy issues.

What are Alternative Waste Technologies?

6.103 As noted previously the traditional method of waste disposal has been to send collected waste to landfills. However, in recent years emerging technologies have enabled alternative methods of treating waste to be considered for adoption by councils. Commonly referred to as Alternative Waste Technologies (AWTs), Alternative Waste Treatment Technologies (AWTTs), or new waste technologies, these methods are characterised by:

- Intercepting collected waste before it is sent to landfill;
- Processing various waste types received;
- Reducing waste volumes from landfill; and
- Sorting, extracting and recovering material for specific markets.

6.104 The processed waste is categorised into specific types, such as residual and recovered materials for recycling (plastics, steel, organics, paper and cardboard) and energy.

6.105 AWTs take various forms, including, but not exclusive to the following:

- Mechanical Separation (material sorting & waste separation);
- Biological Treatment (land application, open windrow composting, vermin composting, enclosed composting, anaerobic digestion, & fermentation);
- Thermal (incineration, pyrolysis/gasification, & waste melting); and
- Some types of Landfill (conventional wet, conventional dry, & bioreactor).

6.106 Generally the AWTs that have been developed in NSW have been initiated by a collective of councils. Councils have amalgamated their operations because the capital costs and volume of waste required for AWT operations are not usually viable for an individual council. In addition, the more technologically advanced forms of AWTs, such as biological and thermal treatments, are generally more costly and, in some cases, cutting edge or experimental methods.

6.107 While AWTs produce different types of processed or re-useable materials, at this stage AWT processes do not completely eliminate waste to landfill. Remaining waste, commonly referred to as "residual waste" is usually generated from the AWT, requiring final landfilling. Most AWT systems are introduced to reduce waste to landfill thereby increasing landfill life as outlined by WSN:

> AWT is more cost effective than landfill as it is not so land intensive, reduces the amount of residual waste to landfill which is generally around 30% of the original weight and remediation and aftercare are not necessary for the recovered portion, and the cost of managing the residual landfill portion is less because it is largely inert.[237]

AWTs in NSW

6.108 Presently in NSW there are three Alternative Waste Technology (AWT) treatment plants that process mixed municipal waste via mechanical and biological treatment. They are:

[237] Submission 45, WSN Environmental Solutions, p. 8.

- The Bedminister Plant at Raymond Terrace in the Port Stephens Council
- Global Renewable's UR3R plant at Eastern Creek and
- The Organics Resource Recovery Facility at Port Macquarie.

6.109 The Bedminster Plant at Raymond Terrace was the first AWT introduced by a local government authority in 1999, and receives all municipal waste from the Port Stephens Council area. The Council states that the driving force behind the adoption of this technology was a genuine desire to reduce putrescible waste going to landfill and was influenced by:

- Geographic constraints that prevented the safe and cost effective construction of new solid waste landfills;
- A growing population that is affected by seasonal population peaks; and
- Strong public desire to recycle.

6.110 The Bedminster composting system is combined with a two-bin collection system. The Council report that from July 2005 it reached a municipal waste resource recovery rate of 70%.[238]

6.111 The Urban Resource – Reduction, Recovery and Recycling plant (UR-3R) at Eastern Creek commenced operation in 2004 as a public-private partnership between WSN Environmental Solutions and Global Renewables. Global Renewables owns and operates the plant, which receives waste materials on behalf of WSN. The UR-3R is a Mechanical Biological Treatment process that mechanically sorts waste to remove recyclables and inert materials. It then biologically treats the organic materials such as food and garden clippings. Waste is processed and resources recovered including, metals, glass, plastics, paper, green electricity, waster and compost. The plant is designed to divert up to 80% of the putrescible waste it received from landfill.[239] The UR3R/ Eastern Creek facility services 5 major councils in the Western Sydney area.

6.112 The Port Macquarie-Hastings Council Organics Resource Recovery Facility (ORRF) commenced operation in 2001 to process 21,500 tonnes of municipal solid waste and 15,000 tonnes of organics per annum. The processing of municipal solid waste received involves the coarse shredding of paper, plastic, metal and inert material, which is separated and sent directly to landfill. The organic materials are biologically stabilised to an inert form and then sent to landfill. The initial concept was to separate and bale the plastics and paper with a view of supplying these materials to industry as an alternative fuel for electricity generation or for use as fuel for cement kilns. These markets have not materialised, and there does not appear to be any markets for these materials in the immediate future. The received organics are processed to provide approximately 7,500 tonnes of compost, in a market where demand for this product currently outweighs supply.

6.113 Council report that the organics stream is performing well, however, the municipal solid waste side of the operation is not delivering up to expectations, as:

- The paper /plastic fraction has not been recoverable nor marketable as an alternative fuel source;

[238] Submission 26, Port Stephens Council, pp. 2-3.
[239] Submission 45, WSN Environmental Solutions, p. 7.

- 70% of all incoming material is delivered to the landfill in an unprocessed form;
- the biologically stabilised product attracts flies and vermin during the processing phase; and
- there is low resource recovery in regard to recyclables. Some larger sections of scrap metal are collected manually, however, the in-process magnets do not operate.[240]

6.114 Other AWTs are mooted, such as the ArrowBio plant proposed for Jacks Gully in the Macarthur region. This facility is in final planning states with WSN as the proponent in a joint project with the Macarthur Regional Organisation of Councils which consists of 4 councils.

6.115 Lismore Council operate a large-scale worm farm to process source separated household food waste. There is also an AWT plant at Camelia that treats food waste to produce energy and some organic outputs however its food waste is primarily sourced from the Commercial and Industrial sector rather than from municipal waste.

6.116 Brightstar Solid Waste & Energy Recycling Facility (SWERFG) was commissioned in 2001 at Whytes Gully, Wollongong. The Facility was designed to maximise the amount of recycling and resource recovery from either unsorted or source separated waste and to minimise the amount of material being landfilled. The reprocess integrates waste processing, resource recovery, recycling, advanced thermal conversion and power generation. Some of the purported advantages of the SWERF process are a reduction in greenhouse gas emissions, production of green electricity, 90% household waste diversion from landfill, water and waste heat recovery and reuse, and low visual, odour and noise impact.[241]

6.117 It was reported that approximately $140million was spent on the facility which was dismantled in 2004 due to technical complexities associated with the combustion of non-homogenous feedstock that challenged process control and environmental performance engineering.[242]

Support for AWTs

6.118 Generally the information provided to the inquiry about AWTs was positive but with a few areas of concern. Substantial support for AWTs was expressed in submissions to the Inquiry, particularly by proponents and current AWT users such as WSN, GRD Limited and participating Councils. Local government was also supportive. The main advantages seen by local government are the reduction of waste to landfill and increased resource recovery as explained by Southern Sydney Regional Organisation of Councils (SSROC) and Western Sydney Regional Organisations of Councils (WSROC):

> AWTT has the potential to recover more resources out of the residual waste stream and to stabilise the remainder. The residual waste stream contains up to 50% organic matter. This material can be reprocessed into compost, fertiliser and energy. Also present in the residual stream are recoverable recyclables (glass and other containers, packaging, paper and cardboard) that have not been captured in the recycling collection system. These recyclables can now be recovered through the AWTT process. If appropriate types of AWTT were introduced to process the discarded product from the

[240] Submission 11, Port Macquarie – Hastings Council, pp. 1-2.
[241] Waste 2002 Conference and Technical Tour, Conference Program, Impactenviro Pty Ltd.
[242] Waste Management Association Australia (2006), Alternative Waste Treatment Working Group, Policy Paper – WAWT Implementation in NSW: Final Report, p. 8.

domestic waste streams, the only material that need end up in landfill is an inert mix of non recoverable and non recyclable material.[243]

6.119 WSN, one of the main proponents and developers of AWTs in NSW, also outlines the merits of AWTs compared to landfill in terms of employment, land use and environmental benefits:

> AWT creates about four times as many jobs per tonne than landfilling. This makes intuitive sense, as more is done with the waste than simply burying it. However, at least five factors combine to defray costs in areas other than capital and labour, and increase revenue:
>
> 1. the cost of land in Sydney makes landfilling in Sydney more expensive than anywhere else in Australia. AWT is not so land-intensive, so its exposure to land prices is not as great;
> 2. revenue is created in the process of sale of output products. With landfilling, generally the only revenue is from electricity sales to the grid. With AWT this includes the recovered recyclables and composts, as well as greater generation of green electricity;
> 3. costs are lower in the area of electricity and water usage, as both are sourced from the waste itself, rather than from external providers,
> 4. the waste levy only applies to the landfilled residual, which is generally around 30% of the original weight, and
> 5. remediation and aftercare are not necessary for the recovered portion, and the cost of managing the residual landfilled portion is less because it is largely inert. These factors combine to make AWT price competitive with landfill today.[244]

6.120 SSROC submission to the inquiry also told of the positive upstream effects of AWT in more effective kerbside collection:

> …new and emerging forms of AWTT will not only impact on the way we process waste but will also impact on the way we collect discarded materials. Most residents now consider that source separated garden organics and source separated recyclables are not regarded as waste but as resources, because they can be recovered and recycled.[245]

6.121 AWTs, which sort waste after collection, are also regarded as a way of dealing with problems of poor uptake of recycling and source separation by residents in some communities. As explained by WSROC:

> **Mr CAMPELL (WSROC):** Because of the nature of Auburn in particular but also other areas of Western Sydney, we have a lot of people in a transient situation who live in blocks of flats. That is where we find recycling is not very effective. Auburn Council, for example, does not automatically put out recycling bins for blocks of flats because of the contamination problem and the costs to council of the contamination. It has been the practice to go around to blocks of flats, knock on doors and explain everything to people before putting the recycling bins outside blocks of flats. The problem is after a few months those people are gone and there is a new lot in. We take in large numbers of refugees and migrants in the area. So that issue of contamination of recycling has to be

[243] Submission 42, SSROC, p. 15.
[244] Submission 45, WSN Environmental Solutions, p. 19.
[245] Submission 42, SSROC, p. 19.

> faced and it is important to look at other means of recycling other than just the household bin.[246]

6.122 It was also argued by AWT proponents that AWT developments are substantial infrastructure projects and investment opportunities for the private and public sector and provide research opportunities:

> **Mr B ROGERS (GHD):** ...As much as our company is about resource recovery it is also about infrastructure development. With respect to AWT and specifically our process UR3R, which is a type of alternative waste technology, we view it like any other type of infrastructure: it is analogous with State level significant infrastructure investments when you talk about the scale $100 million plus and the time of the investment recovery which will be over 25 years. So we as private infrastructure financier and developer of these facilities in Australia and elsewhere around the world look for a certain enabling framework in order to give us confidence to invest in infrastructure that will be for the public benefit.[247]

6.123 Notwithstanding these positive viewpoints three main concerns about adoption of AWT technology were raised in the inquiry and are discussed in the following section:

- Councils capacity to assess and finance AWTs
- AWTs cost effectiveness
- Policy Bias towards AWTs

Councils capacity to assess and finance AWT proposals

6.124 One of the key issues concerning municipal waste management and AWTs is how local councils make decisions and derive the most appropriate means of treating waste in their municipalities. Councils face decisions between continuing operations through traditional methods of waste disposal or exploring the various forms of AWTs available now and in the future.

6.125 One concern is that councils can be locked into long-term contracts to secure capital investment for the provision of AWTs. Another concern is that Council decision makers are faced with complicated decisions for AWTs and other waste treatment options, without appropriate resources to make informed/accurate choices.

6.126 A general problem raised was that councils were proceeding with AWT projects without fully assessing the merits. The Local Government and Shires association outlined its concerns about councils engaging in AWT:

> The Local Governments and Shires Associations strongly support the waste hierarchy, but this does not mean that an assumption can be made that alternative waste technology (AWT), is by definition preferable to landfilling in every case. With regard to AWT, the Associations make the following observations:
>
> 1. AWT is expensive: to establish, and to operate.
> 2. The value resources recovered by AWT (whether soil conditioners or scrap metals or plastics) is not necessarily competitive, in a market place where extraction of virgin resources can be undertaken at a comparatively low cost.

[246] Transcript of Evidence, 31 May 2006, p. 9.
[247] Transcript of Evidence, 31 May 2006, p. 20.

3. Not all forms of AWT are created equal, and we should not assume that AWT = good. Each type of AWT, whether a vertical composter, or energy recovery facility, or Bedminister, or UR-3R, even a "bioreactor", even a landfill, needs to be objectively assessed for its triple bottom line (social, environmental and economic) costs and benefits.

4. We need to be particularly cautious of AWT that actively discourages source separation. Some AWTs,.. profess to be able to accept waste with a wide variety of compositions, and levels of contamination that will make council's life easier in terms of how much separation they need to achieve prior to material being fed into the "black box".

6.127 Councils are facing two conflicting cost pressures: on the one hand councils are being strongly encouraged to pay a premium for best practice kerbside recycling service delivery which maximises source separation, and they also being encouraged to pay a premium to use AWT instead of landfill.[248]

6.128 Concerns are raised about the skills capacity of councils to assess AWTs proposals. When coupled with existing waste management systems and the statutory requirements to deliver waste management services, councils are faced with an enormous task when preparing to embark upon a programme to implement AWT in their area. Councils are faced with a significant amount of information in the build up to developing, assessing and deciding upon an appropriate AWT to service the particular requirements of their community. The inherent characteristics of an AWT present a minefield of information, technology and legal documentation for council representatives to work their way through that in many circumstances they may not be appropriately skilled up for.

> **Mr RITCHIE (WMAA)** : ...We find that local councils are ill equipped to make large, long-term contractual decisions around infrastructure. For example, a 20-year alternative technology plant might cost $70 million and it might be a several million dollar per year operating contract for 20 years, that is a large contract for local councils to make decisions on[249].

6.129 Some particular concerns are councils' capacity to assess **new technology risks**, the constraints of AWT contracts with **long contract periods and guarantee contract volumes, planning coordination** and the councils capacity to enforce **contract performance**. These are outlined below:

New Technology Risks

6.130 The risks associated with new technology and the nature of some untested AWT processes was raised in the Inquiry by councils and industry:

> Many of the AWT facilities use new unproven technologies and Council's assume the risk when adopting them in their attempts to comply with State government diversion targets.[250]
>
> In eagerness to introduce AWTs, local government has been subjected to several technology failures (e.g., Brightstar SWERF project). In Council's defence, it is apparent

[248] Submission 38, LGSA, p. 3.
[249] Transcript of Evidence, 1 June 2006, p. 9
[250] Submission 54, Newcastle City Council p. 3.

that some technology proponents have used local government areas as "guinea pigs" to trial and then commercialise technologies.[251]

Mr RITCHIE (WMAA): ....we believe there needs to be a significant improvement in the way local government tenders for technology and services, with some clear guidance and assistance from the State Government. The recent figure quoted by Thiess Environmental Services was that 90 per cent to 95 per cent of all alternative technology tenders in the past five years have failed. So, local councils have gone out to tender but not been able to secure an outcome from that tender process. That is a cost being borne not only by the councils but by industry. That figure was quoted at a conference recently. If that is the real cost, that is a burden on everybody. They are not insignificant sums of money that councils are putting into investing in AWT and resource recovery tender processes. Similarly, they are not insignificant numbers from the private sector's point of view. So, we need to improve the success rate around those tenders.[252]

6.131 Another element of concern is that if projects fail then councils as the statutory providers of waste services are forced to become the provider of last resort. Hence care must be taken in balancing the risks and responsibilities in contracts:

> Where high-risk technologies are used, government should be careful to ensure the commercial proponents bear the real risk, and that government does not by, legal clauses or simply by force of circumstance, become forced to accept what should be an unacceptable outcome.[253]

Long contract periods and guarantee contract volumes

6.132 The issue of AWT contract preparation, development, negotiation etc, has been raised during this Inquiry. The risks attached to new technologies is reflected in the contracting process for AWTs and is acknowledged by government:

> **Mr HARLEY (DEC):** There are three components to processing contracts involving more expensive technology. To get the processing capacity and the economies of scale, one factors is the guarantee of supply of a reasonable amount of material. Obviously the capital expense of establishing the facility needs to be amortised over a reasonable time to be able to make it affordable for the councils and the community. The other thing is to have technology that will achieve the outcomes. Longer-term contracts or processing has proven to provide a better outcome than short-term contracts. That seems to be working reasonably well. We have been working with the Macarthur group of councils, which recently has been through a similar process. The outcome it achieved has been certainly worthwhile.[254]

6.133 Essentially the argument exists that AWTs require significantly large sums to commence operations. One way of securing this capital is for contracts to be negotiated with long lead times with a view to securing capital to pay for the infrastructure. This also disperses the costs to the council and community over time.

6.134 However, it has been counter- argued that such long term contracts also lock councils into particular behaviours and financial commitments that limit councils flexibility to take up initiatives or industry advancements as described in the submission from the Waste Contractors and Recyclers Association of NSW:

[251] Submission 52, Collex, p. 5.
[252] Transcript of Evidence, 1 June 2006, p. 12.
[253] Submission 52, Collex, p. 6.
[254] Transcript of Evidence, 1 June 2006, p. 28.

> The situation of length of contracts for new AWT plants needs to be pursued with caution. The argument has been that long-term contracts (15,20,25 years) are required by the private sector to finance major upfront expenditure for AWT plants. The risk for the community is that these plants may not live up to their promise, or may during the longer term contract become obsolete (and otherwise an unacceptable) technology. At this point in time these technologies remain unproven in the Australian waste management marketplace. Despite this fact the promoters of these technologies are being given a somewhat commercial risk free ride by governments across NSW by granting them long-term contracts. Therefore, the length of contracts should reflect commercial realities.[255]

6.135 One of the requirements with large scale AWT processes is that, to recover the capital investment, volumes of waste or resources need to be secured or committed to a particular facility as explained by GHD:

> **Mr ROGERS (GHD):** .. We look at one of these opportunities and we look for a secure certain waste volume obviously over the period of the contract. If we are not sure that we are going to have say 175, 000 per annum, as is the case at Eastern Creek, then that gives us great cause for concern. On that point we need an economic scale of waste. So if it is a single council tender it is unlikely to be of a sufficient scale that will justify a fixed investment of that type on our behalf. We will also look for secure, certain pricing, at least for the period of the debt, but more likely for the period of the contract.[256]

6.136 Obviously the economies of scale of AWTs leads to collaborations by councils in raising finance, sharing risk and guaranteeing waste supply. AWT providers will not build multimillion dollar capital projects based upon speculation. All AWT providers will require long term contracted tonnages in order to secure capital financing[257]. The disadvantage of long term contracts is that councils may then be restricted from pursuing other waste management options within the contract period. The extent of Council community waste minimisation initiatives may also be limited as a predetermined waste throughput is required for the AWT economic sustainability. In some cases penalties or termination payments are included in contracts if Councils fail to supply a minimum waste tonnage to the AWT facility.

Planning coordination

6.137 Many submissions called for a greater NSW Government role in general planning of waste management infrastructure for the future needs of the State which is examined in Chapter 3. However AWTs have particular planning issues. Approvals are complex and difficult. In some cases it has been argued that companies or State government agencies that already own land have a significant competitive advantage. When it comes to Council tendering processes, it is argued that projects are skewed to those operators who already have appropriate landholdings such as WSN. SITA in its submission argued that Councils should nominate a suitable site for the location of an AWT prior to the tendering process. This means that tenderers will be competing on their technology and operating experience rather than their landholdings.[258]

6.138 Several reasons were presented for the pre-determining AWT sites before tendering. These include: facilitation of greater certainty in establishing economic investment;

[255] Submission 7a, WCRA, p. 5.
[256] Transcript of Evidence, 31 May 2006, p. 20.
[257] Submission 36, SITA p. 26
[258] Submission 36, SITA, p. 26.

reducing private sector risks associated with developing AWTs contracts; mitigation of externalities caused by conflicting land-uses such as odour, noise and transportation; and overall coordination of existing and future transfer stations, MRFs, landfills and AWTs.

6.139 Councils also recognise that benefits of AWTs are greater if placed closer to waste source - thereby generating savings in transport and redistribution costs. However despite new technologies, which included closed facilities and odour minimisation, they struggle to get community acceptance of facilities and the "not in my backyard" stigma remains as prevalent to AWT proposals as to landfill proposals.

Contract performance monitoring

6.140 At hearings Committee Members raised the concern about the capacity of councils to monitor compliance and performance of AWT projects:

> **Mr IAN SLACK-SMITH MP**: I am asking about the tendering process, putting in a tender and finding out later that there is no follow-up. I will not give specific details but the offer could be to turn lead into gold, for example. There is no accountability or checking mechanism to ensure that what the tenderer promised it could do is actually delivered.
>
> **Mr ROGERS (DEC):** I will take that question and see what I can tease from it. A number of different issues come up in post-tenders; there is failure by tenderers and there are contracts constructed by councils that are not adequate for what they find down the track. John [Harley of DEC] has headed a team that advised a set of framework contracts for councils that are aimed at eliminating some of the traps for players. One problem is the councils tend to let a contract once every seven or eight years and do not necessarily obtain the expertise of letting a contract for the next term.[259]

6.141 Overall submissions urged for more rigorous assessments by Councils of AWT proposals, and suggested that Councils should seek independent expert advice on feasibility, risks, post-implementation review, probity, and conflicts of interest.

6.142 Furthermore calls were made for greater State Government assistance for councils to build their capacity and expertise to make good decisions on waste management options:

> Independent advice should be made available to local government to ensure that choice of technologies should be based on what is most economically efficient (to include correcting market failures) with respect to individual elements and opportunities of the waste streams.[260]
>
> As the issue of AWTs is complex, it is vital that those reviewing AWT contracts and submission have the necessary expertise and experience in the industry to ensure that all options are properly identifies and addressed. State Government should provide the services of an experienced person to local government to assist in AWT issues when required.[261]

6.143 The Committee was made aware of various initiatives to assist councils. In recognition of the need for capacity building within councils, DEC have recently developed "Guidelines for Contract Management". These guidelines outline best practice waste contracts but not specific to AWT contracts.

[259] Transcript of Evidence, 1 June 2006, p. 28.
[260] Submission 52, Collex, p. 6.
[261] Submission 7a, WCRA, p. 5.

> **Mr ROGERS (DEC):** Councils do not necessarily have in-house expertise that is up to date with the current status. One thing we have done is put forward a package of draft contracts that councils can change around to their particular configurations in an attempt to make sure that the traps are eliminated in the initial contract and you can compare like with like. If you have two completely different tenderers arrive on your desk you cannot realistically compare them. Appropriate triggers need to be built into them for follow-up of the people in terms of delivery. The milestones and the evaluation criteria are built into the contract at the front end rather than trying to impose them on a contract after you have discovered that lead does not make gold, and then you have been promised silver.[262]

6.144 In addition information is also provided in a publication by WSN about the relative merits of AWTs. However this is not an independent publication and some argue that this publication inflates the merits of AWT against traditional technologies.

6.145 Specific calls have been made for the development of specialist procurement teams for AWT development and standardisation of contracts:

> **Mr ROGERS (GHD):** The procurement teams must be staffed with appropriate numbers and appropriate types of qualified people in different skill sets that are necessarily different to a history of procuring landfill type solutions. We are not there yet. In fact, the United Kingdom is not quite there yet either but it is further along. We are looking for a development of standard contracts. So all these things will reduce the investment we need in tendering these facilities. That can be substantial. It is on the public record that we spent about $10 million tendering an admittedly large contract in the United Kingdom. That is all risk money. We are happy to spend the money if we think there is a reasonable certainty that the project will eventuate. Over time you start to lose confidence if there is a history of tender processes falling over.[263]

Cost effectiveness of AWTs

6.146 Various submissions and industry groups raised concerns about the financial and environmental benefits of AWTs. A preliminary concern is that there is little independent monitoring of AWT successes. Although compliance with environmental standards is monitored, the financial benefits of AWT are less transparently recorded. Hence the suggestion from the Waste Contractors and Recyclers Association for independent data collection and scrutiny of AWTs is needed to ensure that the main promise of AWTs, i.e. to reduce landfill volumes, is actually being achieved:

> It is the very strong recommendation of this Association that Government have an effective method of monitoring and measuring AWT technologies and the upfront representations that are made to secure putrescible waste contracts. It has long been the practice of waste generators that they fail to follow up or take any interest… in their waste once it leaves their premises. Therefore, it is essential that all AWT input and output material be clearly measured, including destinations, usage and tonnages for outgoing product.[264]

6.147 As noted AWTs reduce waste to landfill by harvesting resources from the waste stream. The process of harvesting is not costless - it requires technology, labour and power inputs. In some instances it is argued that the unit cost of harvesting items such as recyclables is greater than the current market price of such items.

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[262] Transcript of Evidence, 1 June 2006, p. 29.
[263] Transcript of Evidence, 31 May 2006, p. 20.
[264] Submission7a, WCRA, p. 5.

6.148 Furthermore the success of AWTs is linked to the collection practices:

> In evaluating AWTs common sense needs to be applied and that those attempting to promote AWTs should be assessed on real life applications where their claims can be justified. AWTs can be efficient, however their efficiency is largely dependent upon the degree of contamination at the input into the AWT process – the less contamination the lower the level of residual.[265]

6.149 Another example of concern was the extraction of compost via AWT processes. Firstly it is argued that many AWT processes produce a poor compost product that is not very marketable:

> A major product of most AWTs being promoted in the marketplace is compost. However, the presence of contaminants in compost produced from municipal solid waste decreases the potential end use applications and value.[266]
>
> AWTs are still a relatively unproven technology and at best will only produce an expensive compost type of material, which is often produced at a distant location to its end market.[267]

6.150 However the Committee was also told that while the compost from AWT may not be of top purity, it has been argued that there is a good price market for such outputs:

> **Mr RITCHIE (SITA):** You can produce a compost at the end of the alternative technology plants, which meets Australian Standard 4454 for compost, albeit a lesser scope of using that compost. You can only sell it to specific markets but there are very high levels of demand for some of these composts, for example, mine site rehabilitation, et cetera.[268]

6.151 Secondly it is argued that the greenhouse gas emissions from AWT compost production are being ignored in assessment of environmental impacts of AWT processes. It is argued that if these factors were considered AWT evaluation would have different outcomes:

> **Mr BERRY (Collex)** : The second question is toxicity. I am using that in the widest sense to include greenhouse gas emissions. If we look at it in those terms rather than say that we should simply have an objective of reducing tonnages of waste or, even worse, reducing tonnages of waste going into landfill, and start taking into account the economic costs of the different options we will end up with a completely different set of answers and a number of AWT operations. John Lawson would probably be surprised to hear me say that UR-3R would be one of those. However, I think the Committee will find that the balance of where we spend our money in waste management will change. That is "we" as a community rather than "we" as Collex.[269]

6.152 A recent environmental health concern was also raised about sorting options in AWT proposals and the fact that AWTs need to be matched to the waste being received from the community:

> **Mr BERRY (Collex):** There is definitely room for AWT but it has to be targeted. It has to be targeted as a waste stream and it has to be targeted as a market for the resulting product. We are very proud of our building waste recycling but over the last few months two issues have hit that. On one level there have been concerns about occupational health and safety because of asbestos being hidden in the waste loads coming in. In the

[265] Submission 53-Confidential section, Visy, p. 8.
[266] Submission 52, Collex, p. 5.
[267] Submission7a, WCRA, p. 6.
[268] Transcript of Evidence, 1 June 2006, p. 15.
[269] Transcript of Evidence, 31 May 2006, p. 30.

> last week we have heard that the main destination for wood recovered from building waste recycling will no longer accept it. That information has been conveyed to the entire market in the last week. It will very seriously affect the economics of recycling of construction and demolition waste. You have to target it but you have to look at the waste stream which is coming in and at the market for your product as it comes out. They are major issues in any form of sorting or AWT.[270]

6.153 A lack of transparency about costs and benefits is not restricted to AWTs assessments. Landfill operations are also substantially varied and different in outcomes. Hence the proposal from the Local government and Shires Association that all types of AWT and landfill should be subjected to a rigorous, objective analysis to facilitate a clear comparison and informed decision making process.[271]

6.154 More detailed proposal of transparency is proposed by SITA:

> AWT has the capacity to divert greater than 70% of a Council's waste from landfill for beneficial uses. In order to facilitate AWT development in NSW there are a greater range of additional policy measures which need to be actioned by the government. These include:
>
> - Standards for the operation and output of AWT plants such as the AWT Organic Output Standards – such as those being developed between the WMAA and the DEC;
> - Common minimum environmental standards for the operation of landfills;
> - Common minimum environmental standards for the operation of compost facilities;
> - Tendering policies to guide local council AWT tender processes particularly in relation to land issues and regional joint arrangements between councils.
> - Infrastructure planning policies for waste infrastructure driven at the state government level;
> - Full cost accounting for the operation of landfill sites; and
> - Adoption of MBIs to drive reform from a waste diversion philosophy to a resource management philosophy.[272]

Policy Bias towards AWTs

6.155 Although relatively few AWTs exist in NSW, there is a focus and deliberate policy emphasis on these types of facilities in current NSW Government waste policies. Some have argued that this preference is misleading and premature given some of the uncertainties surrounding AWTs noted in earlier sections of this report.

6.156 It is argued that landfill levies skew investment into AWTs and away to some extent away from other technologies:

> **Mr PERRY (WCRA)**: We touched on the disposal technology and the support of this association for modern landfill technology. As of 1 July there will be a levy on waste going to that technology, because the levy does not differentiate between an older style landfill and a newer one with the technology to extract gas and the like from it—I am sure you have heard about that this morning. The level that the levy is at begins to make those technologies, which we believe are reasonable and viable, uncompetitive simply on

[270] Transcript of Evidence, 31 May 2006, p. 30.
[271] Submission 38, LGSA, p. 3.
[272] Submission 36, SITA, p. 27.

> the basis of taxation. There is a taxation applied to those technologies that does not allow them to compete on a level playing field with other AWT. And certainly the technology that is in some of the newer bioreactor landfills is contemporary, state-of-the-art, if you like, in terms of extraction from those facilities, and yet those facilities are differentiated by having to bear a considerable tax burden.[273]

6.157 It is further argued that investment in AWTs should allow operators to compete on a level playing field.

> **Mr KHOURY (WCRA):** ...If a private consortium decides to invest in an AWT, they make that decision on the basis that we are working in a free of economy and they should bear the risks of that decision and enjoy the rewards. But we do not see that AWT should be given any additional advantages over any other form of disposal or treatment technology and that investors and proponents of those technologies need to take into account that, if there is a risk there, they go into it knowing what that risk is, and they need to provide for whatever the downside is, and enjoy whatever upside would go with it.[274]

6.158 To some extent the Government acknowledges that landfill levies and other support mechanisms encourage AWT consideration by Councils. However as can be seen AWTs are not a complete panacea to the waste problems and selection and implementation of AWTs needs to be approached with a degree of caution.

6.159 Shoalhaven Council point out that utilising all technologies and recognising the complementarity between systems is a more holistic approach.

> **Mr RUSSELL (Shoalhaven):** My earlier comment was that this must be negotiated with council. There should be a contract or a negotiated agreement that says, "The strategy in the Shoalhaven for the next 10 years will be such and such. Therefore we will move together to achieve that as an agreeable party." That might mean reinvesting it back into our system. Currently we are looking at alternative waste technology. Because of the domestic waste volume we are at a very low level. AWT in isolation in the Shoalhaven will not work. We are in negotiation with other southern regional council members who are saying, "Is there a pathway for us to look at a more regional disposal process?"[275]

6.160 A similar view of a balanced mix of AWTs landfills and other waste infrastructure was suggested by SITA as the future direction:

> **Mr IAN SLACK-SMITH MP:** You mentioned new technologies. If you had a wish list, what are the new technologies that you are aware of or you would like to see?
>
> **Mr RITCHIE (SITA):** SITA and most of the industry would see an integrated network of technologies and infrastructure services. The kinds of things we are talking about, residual waste landfills, will always have a place. Alternative technologies for municipal solid waste, AWTs, that is the mechanical biological treatment plants, churning out organic compost, anaerobic digesters converting household waste to energy. They also have a residual waste stream that can be composted or applied to land. The digestate that comes out of those facilities, and you are seeing a couple of those being built at the moment—the UR3R in Western Sydney and the Arrow bio plant that is being built is in the planning process at the moment, for the MacROC area. We would see that technology rolling out more broadly. You have a composting plant being built at Coffs Harbour. There is a movement in that direction. The waste levy will accelerate some of that decision-making, so that is the alternative technology plants.[276]

[273] Transcript of Evidence, 31 May 2006, p. 27.
[274] Transcript of Evidence, 31 May 2006, p. 25.
[275] Transcript of Evidence, 31 May 2006, p. 37.
[276] Transcript of Evidence, 1 June 2006, p. 13.

Conclusions and Recommendations

6.161 It is widely recognised that, in the NSW context, AWTs are a newly emerging and relatively unproven form of waste technology that can carry a large degree of risk and responsibility that will ultimately lay with councils (and their ratepayers), if such operations were to prove unviable.

6.162 In this context, commercial enterprises need to back the claims associated with their technologies and have measures in place that will absorb commercial risks as opposed to deflecting these liabilities onto local government. With commercial realities in mind, Councils need to, with support from the DEC, protect themselves from commercial liability if such arrangements fail. This precaution needs to be achieved in an arrangement where councils are not paying disproportionate amounts to cover risks in order to receive the privileges and benefits they are sold by purveyors of AWTs.

6.163 Councils, as autonomous authorities, maintain the right to make decisions that reflect the needs and wants of their communities. Consequently, Councils make the decision to enter into arrangements for the collection and processing of waste, and as technology has improved and the associated costs increased, options for collaborative joint council contracts to initiate AWTs have evolved.

6.164 The Committee recognises that AWTs are complex. In many, if not most cases, the expertise required to understand the most appropriate AWT for a council or regional group of councils, along with the legal expertise to assist contract development and performance monitoring, cannot be expected to exist in-house of council operations.

6.165 During this Inquiry, Councils have repeatedly expressed their desire and the need for their autonomy to continue in regard to choosing the most appropriate municipal waste collection and processing systems for their communities. However, as industry and the State Government are also stakeholders involved in this issue there exists the need to consider how such decisions impact upon the State's operations and broader community's objectives. For example, the Waste Strategy is a whole of NSW policy aimed at minimising waste and increasing resource recovery. As a result its waste stream targets, which include municipal waste, are based upon the collation of the actions of councils across the State. Therefore, by its very nature the role of councils and the State government need to be coordinated if prescribed targets for NSW municipal waste is to be achieved.

6.166 At present, the DEC provides assistance to councils in the form of workshops and publications such as *Guidelines for Contract Management*. However it appears that councils need better centralised coordination for significant assessment of all factors associated with AWTs.

6.167 The Committee believes that the autonomy of Council decision making in regard to municipal waste should continue, with support from State Government to assist in coordinating and providing assistance in the form of specialised resources that align with the goals of both local government and the NSW Waste Strategy. This cooperation is particularly important in regard to efficient and effective decision-making surrounding AWTs, and will also assist in developing better, clearer and more efficient municipal waste management systems that will also benefit industry stakeholders. Of key concern is sound assessment of the tradeoffs between AWT proposals and variations to existing landfill and associated systems. As recommended for landfill assessment, the Committee sees that Full Cost Accounting (FCA)

assessment of AWT proposals would help Councils get a better understanding of the opportunity costs between different disposal options

6.168 Most AWT projects undertaken by Councils will have some level of State Government scrutiny through approval processes such as SEPPs or through the Local Government Project Review Committee. The Local Government Project Review Committee, established in the Local Government Act (Section 400b–400n), consists of a panel of high level State government officials who assist and provide scrutiny of complex and high capital value private /public partnerships that Councils may enter into.

6.169 However the Committee considers that councils needs additional support in developing contracts and making choices surrounding AWTs, and that increased coordination amongst community and government stakeholders be reinforced to defray the costs, and risks that currently reside with ratepayers. The existing state level involvement does not necessarily provide for engineering or scientific analysis of proposals which is a critical issue for AWTs. The expertise for this kind of analysis lies with the Department of Environment and Conservation.

6.170 The Committee believes that a unit, or access to a group of independent experts should be provided to local councils who can assist in technical and financial appraisal (including FCA), contract development, negotiation and performance monitoring for AWT, that will provide the necessary assistance to councils while maintaining their autonomy. The Committee recommends that such a unit be based within the Department of Environment and Conservation to utilise their independent technical expertise on these issues.

Recommendation 19 – AWT Assessment Unit

6.171 The Committee recommends that the NSW Department of Environment and Conservation provide a unit, or access to a group of independent experts, who can assist local councils in the AWT proposal appraisal.

Appendix 1- List of Submissions

Submission No	Author	Organisation
1	Mr Tom Port	Nambucca Shire Council
2	Ms Lyndall McCormack	Individual
3	Mr Neil Thomson	Ausasia Link Pty Ltd
4	Mr Greg Freeman	Impact Environment Consulting Pty Ltd
5	Prof Brian Stanmore	Individual
6	Mr Ken Murphy	Narrandera Shire Council
7	Mr Tony Khoury	Waste Contractors and Recyclers Association of NSW
8	Mr Ross Woodward	Solo Resource Recovery
9	Dr John Schooneveldt	Healthy Soils Australia Ltd
10	Mr/Ms Lesley Trott	Lismore City Council
11	Mr/Ms R. B. Bailey	Port Macquarie-Hastings Council
12	Mr Michael Rolfe	The Vaucluse Progress Association
13	Mr Harry Gavrilis	Burwood Council
14	Mr Mike Ritchie	Waste Management Association of Australia - NSW Branch
15	Mr Laurie Halpin	Residents Against The Supertip (R.A.T.S.)
16	Mr Thomas Luck	Ecohouse Pty. Ltd.
17	Mr/s G J Edwards	Tweed Shire Council
18	Mr/s Dara Clayton	NetWaste
19	The Hon. Kerry Hickey MP	Minister for Local Government
20	Mr Ian Williams	Individual
21	Mr Paul Bonsak	Insinkerator
22	Mr/s W Bennett	Cowra Shire Council
23	Mr Russ Pigg	Shoalhaven City Council
24	Ms Patricia Harvey OAM	Sydney Coastal Councils Group Inc
25	Mr Daniel Kicuroski	Transport Workers' Union
26	Mr Steven Bernasconi	Port Stephens Council
27	Mrs Lesley Scarlett	Southern Councils Group
28	Mr Miles Lochhead	Wingecarribee Shire Council
29	Mr Tony Emery	Compost NSW
30	Mr John Davis	Northern Inland Regional Waste (NIRW)
31	Mr Jack Pratten	Stormwater Systems
32	Mr Peter Wilson	Gosford City Council
33	Mr David Blake	City of Lake Macquarie
34	Mr Paul Anderson	City of Lithgow Council
35	Ms Lara Barclay	NSW Waste Educators Working Group
36	Mr Mike Ritchie	SITA Environmental Solutions

Submission No	Author	Organisation
36	Mr Mike Ritchie	SITA Environmental Solutions
37	Mr/s D Rayner	Goulburn Mulwaree Council
38	Cr Genia and Col McCafferty and Sullivan	Local Government and Shires Association NSW
39	Ms Carmel Krogh	Eurobodalla Shire Council
40	Mr/s Alex Gooding	Western Sydney Regional Organisation of Councils Ltd (WSROC)
41	Mr Jon Panic	Manly Council
42	Ms Melissa Gibbs	Southern Sydney Regional Organisation of Councils
43	Mr Stephen Sykes	Voluntary Regional Waste Groups
44	Mr Tony Kelly MLC	Minister for Lands
45	Mr Damian O'Connor	WSN Environmental Solutions
46	Ms Melany Palmer	New Waste Solutions
47	Ms Julie Briggs	Riverina Eastern Regional Organisation of Councils REROC
48	Mr Markus Fraval	Revive Recycling
49	Mr Peter Eggleston	GRD Limited
50	Mr Ben Kruse	United Services Union
51	Ms Anne Prince	Australian Council of Recyclers
52	Mr Doug Dean	Collex Pty Limited
53	Mr Lee Smith	Visy Recycling
54	Mr Gavin Cooksley	Newcastle City Council
55	Mr Reno Del-Ben	Zendell Pty Ltd
56	Ms Ann Trofa	Department of Environment and Conservation

Appendix 2 – List of Hearings and Witnesses

Wednesday 31 May 2006

Ms Genia McCafferty, President, Local government and Shires Association

Mr Robert Verhey, Strategy Manager, Environment, Local Government and Shires Associations

Mr Ryan Pascoe, Program Co-ordinator—Environment, Education and Development, Western Sydney Regional Organisation of Councils

Mr Alexander Gooding, Executive Director, Western Sydney Regional Organisation of Councils

Mr George Campbell, Spokesperson on Environment and Natural Resources, Western Sydney Regional Organisation of Councils

Mr Anthony Hay, President, Western Sydney Regional Organisation of Councils

Mr John Lawson, President, Australian Council of Recyclers

Mr Bradley Rogers, Manager, Business Development, Global Renewables

Mr John Lawson, Manager, GRD Limited

Mr Jim Perry, President, Waste Contractors and Recyclers Association

Mr Tony Khoury, Executive Director, Waste Contractors and Recyclers Association, NSW

Mr Harry Wilson, Senior Vice-President, Waste Contractors and Recyclers Association, NSW

Mr Jim Perry, General Manager, Collex Pty Ltd

Mr Richard Berry, Executive Director, Collex Pty Ltd

Mr David Hojem, Waste Services Manager, Shoalhaven City Council

Mr Barry Russell, Director, City Services, Shoalhaven City Council

Mr David Somerville, Programs Manager, Southern Sydney Regional Organisation of Councils

Ms Melissa Gibbs, Executive Director, Southern Sydney Regional Organisation of Councils

Mr Mark Johnson, Manager, Summerhill Waste Management Centre

Mr Gavin Cooksley, Environment and Policy Co-ordinator, Newcastle City Council

Mr Robert Crook, Waste Services Manager, Newcastle City Council

Thursday 1 June 2006

Mr Stephen Sykes, New South Wales Voluntary Waste Group

Mr Michael Ritchie, National General Manager, Marketing and Business Development, SITA Environmental Solutions, and President, Waste Management Association New South Wales

Mr Stanley Smith, General Manager, Marketing and Publications, Visy Recycling

Mr Kenneth Kanofski, Chief Executive Officer, WSN Environmental Solutions

Mr Mark Gorta, Manager, Waste Management Section, Department of Environment and Conservation

Mr Timothy Rogers, Executive Director, Sustainability Programs Division, Department of Environment and Conservation

Mr Robert Harley, Manager, Local Government Programs, Sustainability Programs Division, Department of Environment and Conservation

Appendix 3 – Waste Definitions

What is Waste?

Generally, waste is defined as anything rejected or considered as useless, worthless, or in excess of requirements. It can be anything that is not used to its full advantage or a wasted opportunity. It can be garbage, rubbish or trash.

The European Parliament considers waste to be "any substance or object which the holder discards or intends or is required to discard".[277]

Another definition on waste is provided in the Joint Questionnaire OECD/Eurostat biennially send to all European countries:

Waste refer here to materials that are not prime products (i.e. products produced for the market) for which the generator has no further use for own purpose of production, transformation or consumption, and which he discards, or intends or is required to discard. Wastes may be generated during the extraction of raw materials during the processing of raw materials to intermediate and final products, during the consumption of final products, and during any other human activity.

Are excluded:
- Residuals directly recycled or reused at the place of generation (i.e. establishment);
- Waste materials that are directly discharged into ambient water or air.[278]

Under the *Protection of the Environment Operations Act 1997*, the definition of waste includes:

- Any substance that is discharged, emitted or deposited in the environment in such volume, constituency or manner as to cause alteration to the environment, or
- Any discarded, rejected, unwanted, surplus or abandoned substance, or
- Any otherwise discarded, rejected, unwanted, surplus or abandoned substance intended for sale or for recycling, processing, recovery or purification by a separate operation from that which produced the substance, or
- Any processed, recycled, re-used or recovered substance produced wholly or partly from waste that is applied to land, or used as fuel.

The *Local Government Act 1993*, provides the following definition with reference to the POEOA: "... (c) garbage, being all refuse other than trade waste and effluent, and includes any other substance defined as waste for the purposes of the *Protection of the Environment Operations Act 1997* , and a substance is not precluded from being waste merely because it is capable of being refined or recycled.

For the purposes of continuity this Inquiry has adopted the definition prescribed under the POEOA.

[277] European Parliament http://ec.europa.eu/environment/waste/pdf/directive_waste_en.pdf, p17.
[278] OECD/Eurostat Joint Questionnaire on waste, http://waste.eionet.europa.eu/definitions/waste.

Municipal Waste Management - International

In the US, municipal waste is more commonly referred to as Municipal Solid Waste and is defined by the US EPA as follows:
MSW - more commonly known as trash or garbage—consists of everyday items such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint, and batteries. (US EPA, http://www.epa.gov/msw/facts.htm)

The OECD defines municipal waste as waste collected and treated by or for municipalities. It covers waste from households, including bulky waste, similar waste from commerce and trade, office buildings, institutions and small businesses, yard and garden waste, street sweepings, the contents of litter containers, and market cleansing waste. The definition excludes waste from municipal sewage networks and treatment, as well as municipal construction and demolition waste.

However, the organisation acknowledges that the definition of municipal waste and the surveying methods used vary from country to country and the main problems relate to the coverage of household-like waste from commerce and trade, and of separate waste collections, carried out by private companies.[279]

[279] OECD Factbook 2005, http://lysander.sourceoecd.org/vl=4253441/cl=12/nw=1/rpsv/fact2005/07-01-03.htm.

Appendix 4 – Chronology of NSW Waste Management

Government waste policy in regard to municipal waste management has had a protracted history. Consequently, the following events are not exhaustive and have been included in this report to highlight some of the major changes that occurred in the sector to shape the current situation in regard to municipal waste management in NSW.

- Prior to 1971, each of the 40 metropolitan councils was responsible for solid waste management and the operation of landfill sites (Waste Management Authority of NSW (1991), Annual report 1990-91, WMA, Sydney).
- In response to the Barton Report, the NSW Government established the Metropolitan Waste Disposal Authority (MWDA). The Authority became responsible for waste disposal and operated landfill sites around Sydney.
- In 1989, the MWDA was replaced b the Waste Management Authority (WMA).
- In late 1990, the WMA released the Sydney Solid Waste Management Strategy for discussion. The Strategy emphasised that landfill capacity was being rapidly used and that there was a need for more landfill sites.
- Following the Strategy, State Cabinet recommended the establishment of a new landfill site at Londonderry.
- In 1991, following community opposition, the Government abandoned the Londonderry site and announced a review of waste disposal strategies. The Minister for Environment also announced that eth Government would not own or build new landfill facilities. This set the scene for greater industry participation in waste management.
- In late 1991, the WMA announced plans for the extension of the Luca Heights landfill depot.
- In 1992, the WMA was disbanded and the waste minimisation, recycling and environmental regulations function transferred to the new Environment Protection Authority. The former WMA's other functions were incorporated into a new body, the Waste Recycling and Processing Service (WRAPS), which was charged with the sole operation of the waste network.
- In September 1992, the development application for the expansion of Lucas Heights landfill depot was withdrawn due to community opposition.
- Also in September 1992, the Government's Waste Management Green Paper was released. The Government adopted the Australian and New Zealand Environment Council (ANZECC) target of reducing waste by 50% per capita by the year 2000. The paper recognised the key regulatory role of the EPA and the right to community based decision-making about the location of the new landfill sites.
- The NSW Parliament established the Joint Select Committee upon Waste Management in 1992 to examine and report upon the Waste Management Green Paper. In September 1993, the Committee reported back to Parliament.
- In 1994, the Government released its blueprint for reform of the waste management industry – No Time to Waste. Under the Plan, local councils were to group together to

form Regional Waste Authorities and produce Regional Waste Management Plans for all normal domestic, commercial and industrial solid waste generated in their regions.

- In November 1995, the Waste Minimisation and Management Act was passed. The Act established the framework for the strategic planning and funding of waste reduction at a State and regional level and within industry sectors. The Act provided for council waste management functions to be taken over by waste management boards. The Act also incorporated the Government's then per capita waste reduction target of 60% by the year 2000.
- In 1997, the Protection of the Environment Operations Act was passed. The POEOA contained waste provisions that establish a licensing system for waste activities and facilities, including the waste disposal levy on materials received at licensed facilities.
- Regulatory provisions included in the WM&MA were integrated with other environmental protection licensing systems upon commencement of the POEOA in 1999.
- The WM&MA and the waste provisions of the POEOA was the subject of a review conducted under the COAG Competition Principles Agreement in 2000.
- The WM&MA was also the subject of statutory review five years after its ascent. To inform this review the Minister relied upon the above competition policy review and in addition, established the Alternative Waste Management and Practices Inquiry.
- The Inquiry reported back to the Minister in 2000, highlighting an array of technologies that could be employed to assist management of a greater amount of waste in NSW as a potential resource. Importantly, the Inquiry noted that no one technology is suitable for all waste streams.
- The legislative review proposed changes to the WM&MA which included the cessation of the waste boards and their replacement with a single government body – Resource NSW; the introduction and implementation of Extended Producer Responsibility; the change of the name of the Act to the Waste Avoidance and Resource Recovery Act.
- In July 2001, the Waste Avoidance and Resource Recovery Act (WARRA) received assent. The WARRA changed the previous Act's statutory waste reduction target of 60% to a focus on two goals – use of materials and resources more efficiently; and the continuous reduction in waste generation rates. The WARRA also simplified the established waste hierarchy by establishing a three level resource management hierarchy.
- In September 2001, Waste Service NSW was corporatised and its name changed to the current WSN Environmental Services.
- In 2002, approval was given for a private sector waste facility to transfer putrescible waste collected at Clyde in Sydney to a bioreactor treatment facility in Woodlawn south of Goulburn.
- In 2003, the statutory body named Resource NSW was integrated into the Department of Environment and Conservation.
- Also in 2003, the NSW Government released the first Waste Avoidance and Resource Recovery Strategy.

(Adapted from Smith, A. (2001), Waste Management in New South Wales: A Review, NSW Parliamentary Library Research Service, Briefing Paper No 1/2001).

Appendix 5 – GLOSSARY

Alternative waste technology (AWTs)	Any technology that is applied to mixed waste other than traditional methods such as disposal to landfill. AWT facilities typically recover some dry recyclables and treat organic waste by fermentation or other process.
Avoidance/reduction	Reducing the quantity and toxicity of wastes produced and the quantity of resources consumed during the manufacture and life-time of a product.
Best practice	A best is a process, technique, or innovative use technology, equipment or resources that has a proven record of success in providing significant improvement in cost, schedule, quality, performance, safety, environment, or other measurable factors which impact an organisation.
Comingled recyclables	A mix of different types of recyclables that are separated from mixed waste and placed in a single container for collection.
C and I	Solid and inert wastes generated by businesses and industries (including shopping centres, restaurants and offices) and institutions (such as schools, hospitals and government offices), excluding buildings and demolition waste and municipal waste.
Composting	Biological decomposition of solid organic materials by micro organisms.
C and D	A broad range of materials used to build new structures; repair or refurbish existing building; or waste products from demolition activities.
Cover material	Material approved by the EPA for use to cover dumped waste at landfills.
Disposal	Any method of dealing with waste that permanently removes it from human contact. This includes landfilling and thermal.
Dry recyclables	Recyclables other than food waste, organic waste from gardens and other wet material. Includes plastics, metal, glass and paper.
Extended producer responsibility (EPR)	An environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle. There are two related features of EPR policy: (1) the shifting of responsibility (physically and/or economically; fully or partially) upstream toward the producer and away from

	municipalities; and (2) to provide incentives to producers to incorporate environmental considerations in the design of their products.
Garden organic waste	Vegetation materials such as leaves, grass branches and logs, or those that have been processed, e.g. chipped, mulched or composted. Mote: this category does not include putrescible waste such as food scraps.
Glass	Sheet glass used for doors and window partitioning.
Illegal dumping	Deliberate dumping of waste in an illegal manner. Usually involves relatively large quantities of waste (compared to litter).
Incineration	Combustion (by chemical oxidation) of waste material to treat or dispose of that waste material.
Inert waste	Wastes that do not undergo environmentally significant physical, chemical or biological transformations and have no potentially hazardous content once landfilled. This waste from building and demolition includes bricks, concrete, glass, plastics, metal and timber. They must not be contaminated or mixed with any other material.
Inert waste landfill	Any landfill that accepts only inert wastes. Inert waste landfills are subdivided into two classes: • Class 1 – all inert wastes including stabilised asbestos cement and physically, chemically or biologically fixed, treated or processed waste, in accordance with any special requirement that may be set by the EPA. • Class 2 – all inert wastes except stabilised asbestos cement or physically, chemically or biologically fixed, treated or processed.
Kerbside collection	Collection of household recyclable materials (separated or co-mingled) that are left at the kerbside collection by local council collection services.
Landfill	A designated area (usually a pit) into which solid waste is placed for permanent burial.
Landfill liner	Impermeable layers of heavy plastic, clay and/or gravel that protect against groundwater contamination through downward or lateral escape of leachate.
Materials recovery facility	Facility that separates mixed dry recyclables into individual materials to be made available for further processing.

Mixed waste	A mixture of waste materials of which no one material comprises 50% or more of a load.
Mobile garbage bin (MGB)	A wheeled kerbside container for the collection of garbage or other materials.
National packaging covenant (NCP)	A self regulatory agreement between industries involved in the packaging chain and all spheres of government.
Organic waste	One or more of the following types of waste: garden, untreated wood, fibrous, vegetables, fruits, cereals, biosolids, manures, fatty foods, meat, fish and fatty sludges.
Packaging	Includes cardboard boxes, cartons and containers of all sizes.
Post consumer content	Material generated by households or by commercial, industrial and institutional facilities in their tole as end users of the product, which can no longer be used for its intended purpose. This material can then be recycled to form part of a new product.
Pre-consumer content	Material divided from the waste stream during manufacturing process. This excludes re-utilisation of materials such as rework, regrind or scrap generated in a process that generated it. This can then be recycled to form a part of a new product.
Product life cycle	All stages of a product's development, from raw materials, manufacturing through to consumption and ultimate disposal.
Product stewardship	An approach which recognises shared responsibility for the environmental impacts of a product throughout its full life cycle, including end of life management, and seeks to reduce adverse impacts and internalise unavoidable costs within the product price, through action at the point(s) in the supply chain where this can be most effectively and efficiently achieved.
Putrescible waste	Waste that readily decomposes. Includes food waste and organic waste from gardens.
Raw materials	Materials that are extracted from the ground and processed into material inputs. For example bauxite is processed into aluminium.
Recovered material	Material that would have otherwise been disposed of as waste or used for energy recovery, but has instead been collected and recovered (reclaimed) as material input, in lieu of a new primary material, for a recycling or manufacturing process.

Recover rate	The recovery rate is the percentage of materials consumed that is recovered for recycling.
Recyclables	Materials that are able to be processed and used as a raw material for the manufacture through commercial process of either the same product or another product.
Recycled content	The amount or proportion of a product that is made of recycled material. Recycled content is generally measured by weight or volume.
Recycling	The recovery of used products and their use as raw materials in the manufacture of new products, which may or may not be similar to the original.
Recycling rate	the percentage of materials otherwise destined for landfill disposal that are collected, reprocessed or remanufactured and reused.
Reprocessing	Physical, chemical or biological processing used to transform waste, otherwise destined for disposal, into a raw material used to make a product.
Reprocessing facility	A facility used for the processing or treatment of a material in preparation for reuse.
Residual household waste	Waste that remains after any source separation of recyclable materials including green waste.
Resource recovery	The extraction and utilisation of materials from mixed waste. Materials recovered can be used in the manufacture of new products. Recovery of value includes energy by utilising components of waste as a fuel, production of compost using solid waste as a medium, and reclamation of land.
Re-use	A process by which waste otherwise destined for disposal is cleaned or repaired for use, for the purposes of prolonging the original product lifetime prior to treatment or reprocessing.
Solid inert waste	Hard waste and dry vegetative material and which as a negligible activity or effect on the environment, such as demolition material, concrete, bricks, plastic, glass, metals and shredded tyres.
Solid waste	Any non-hazardous, solid, degradable waste. This includes putrescible wastes; garden wastes; uncontaminated biosolids; and clinical and related waste (including contaminated waste) only where sterilised to a standard acceptable to the Department of Health. Solid waste shall contain less than 200ml/tonne or 200g/tonne of hazardous wastes. All solid waste shall

	have an angle of repose of greater than 5 degrees and have no free liquids.
Solid waste landfill	Any landfill that accepts solid wastes (irrespective of whether it also accepts some inert waste wastes). Solid waste landfills are subdivided into two classes: • Class 1 – All solid waste including putrescible wastes and other wastes approved by the EPA. • Class 2 – All solid waste with the exception of putrescible wastes and other wastes approved by the EPA. It should be noted that the Government envisages banning garden wastes from landfill in the near future.
Source separation	Separation of recyclable material from other waste at the point and time that waste is generated, i.e. at its source. This includes separation of recyclable material into its component categories, e.g. paper into computer paper, office whites and newsprint. The practice of segregating materials into discrete materials streams prior to collection by or delivery to processing facilities.
Sustainable development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
Transfer station	A waste facility used to transfer wastes from collection vehicles to a bulk haul vehicle in order to achieve long-distance transportation efficiency.
Triple bottom line (TBL)	referring to the notion that organisations are responsible for social and environmental as well as financial outcomes.
Virgin Excavated Natural Materials (VENM)	Material such as clay, gravel, sand, soil and rock that is: • Not mixed with any other waste; and • Has been excavated from areas that are not contaminated with manufactured chemicals, as the result of industrial, commercial, mining or agricultural activities.
Virgin materials	Any basic materials for industrial processing that have not been previously used.
Waste	Waste includes: (a) any substance (whether solid, liquid or gaseous) that is discharged, emitted or deposited in the environment in such a volume, constituency or

	manner as to cause an alteration in the environment, or (b) any discarded, rejected, unwanted surplus, or abandoned substance, or (c) any otherwise discarded, rejected, unwanted surplus, or abandoned substance intended for sale or for recycling, reprocessing, recovery or purification by a separate operation from that which produced the substance, or (d) any substance prescribed by the regulation to be waste for the purposes of this Act. A substance is not precluded from being waste merely because it can be reprocessed, re-used or recycled.
Waste avoidance	Eliminating the generation of waste at its source. Avoidance encourages the community to reduce the amount of waste it generates and to be more efficient in its use of raw material.
WARR Strategy	An acronym for the Waste Avoidance and Resource Recovery Strategy which is set out under the *Waste Avoidance and Resource recovery Act 2001*.
Waste facility	Any premises used for the storage, treatment, reprocessing, sorting or disposal of waste.
Waste generation	Generation of unwanted materials including recyclables as well as garbage. Waste generation = materials recycled + waste landfill.
Waste management	Management of the collection, recovery and disposal of wastes, including options for waste reduction.
Waste minimisation	Application of activities such as waste avoidance, reduction, re-use and recycling and behaviour modification to minimise the amount of waste that requires disposal.
Waste recovery	To divert a material from the waste stream and finding a beneficial use of it. “Recovery” includes activities such as reuse, recycling, composting, waste-to-energy, reprocessing.
Waste reduction	Limiting of waste through product design, material selection, policy and management. To lessen the amount of waste that already has been generated.
Waste stream	A classification used to describe waste materials that are either of a particular type (e.g. “timber waste stream”) or produced a particular source (e.g. “C and I waste stream”)