



A Working Group of the WASTE MANAGEMENT ASSOCIATION OF AUSTRALIA

Submission
No 29

Recd:

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30 March 2006

The Committee Manager
Standing Committee on Public Works
Parliament House
Macquarie Street
SYDNEY NSW 2000

Dear Committee Manager

**Compost NSW Submission
Recovering the Organic Component of the Municipal Waste Stream**

Compost NSW is a working group of the Waste Management Association of Australia (WMAA). Its interest is in converting organic materials in the waste stream (such as garden clippings, tree loppings, and other organic, compostable wastes) into beneficial products for land application.

Composts have a major role in completing the carbon cycle and increasing water retention in the soil.

In 2004 (last accurate figures available), there were 61 licensed composting facilities in NSW, including 11 facilities operated by local government. A license is required in NSW if the facility processes more than 5,000 tonnes of material annually.

Only 71 councils provide regular organics recycling services in NSW.

At 30 June 2004, 633 people were directly employed in non-council operated composting facilities. It is estimated that a similar number of people are directly employed to provide goods and services to the industry.

The following dot points summarise Compost NSW's position in relation to the areas to be examined by the inquiry:

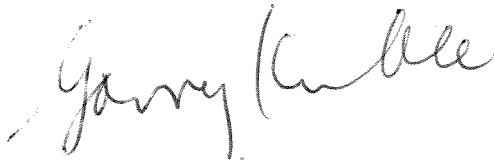
- Current municipal waste management practices have been reasonably successful in collecting organic wastes and separating them so that they can be treated separately from other materials in the waste stream. In 2004/2005, commercial composters in NSW processed 1.26 million tonnes of raw materials. Some material is also processed by local


government owned and operated facilities. Growth in diversion from landfill between 1998 and 2003 averaged 19% increase per annum. In general, this has been achieved by local government instituting source separated green waste collections with dedicated bin systems. This should continue.

- Whilst government policy is to increase diversion of waste to landfill, it provides a conflicting policy framework for the use and disposal of the products generated by the processing of organic wastes into beneficial products. 81% of the material processed into composts is generated in urban areas (mainly in the Sydney basin). The market in the Sydney basin to absorb this material is now approaching saturation, resulting in large stock piles of materials. The potential markets for this material are in the most profitable horticultural/agricultural producing areas of NSW. These areas are more than 300 kilometres from the source of the raw materials. Transport costs then become the major obstacle to selling the product. Proposed changes to regulations affecting the land application of materials have also added to the industry's fears that their products will be considered wastes and thus be subject to the waste application to land regulations under the POEO Act.
- Source separated raw materials and open row composting are considered the most cost effective means of treating organic wastes, if diversion from landfill is a desirable environmental outcome. However, the economic viability of this means of treating organic wastes depends on an adequate gate fee to cover processing and marketing costs of the finished products. In spite of extensive research and development programs into the beneficial use of recycled organics, the perceived value by end users (the price they are willing to pay) is not high enough yet to cover the production, marketing and distribution costs. Government policy is strong on diverting organics from landfill, thus imposing processing costs on processors, but weak in developing markets or providing market based instruments to develop markets (e.g. freight rebates, fuel excise rebates, etc.).
- New technologies are available and are being implemented to process organic wastes into beneficial products. However, the cost of setting up facilities incorporating new technologies can not always be justified on the current cost structure and returns available to the industry. Gate fees and fees paid to collection contractors in Australia are much lower than similar fees in Europe and North America. This is particularly so in Europe, where environmental issues have determined that advanced technologies are used in treating organic wastes. The generators of the waste pay a major proportion of the cost of treating that waste and converting it into beneficial products. Again, whilst government statements at a political level have supported the introduction of alternative waste technologies (AWT), the regulatory regime has put barriers to market entry for these producers.
- The compost industry in NSW has a long history (up to 25 years) of designing and managing their products to ensure they provide minimum risk to human health and environmental damage. The Australian Standard AS 4454 - Compost, soil conditioners and mulches, and the ARMCANZ National Biosolids Guidelines provide minimum standards to which responsible processors manufacture their products. Certification schemes which are based on these standards and guidelines (or other equivalent standards and guidelines) would provide increased assurance that recycled organic products were at low risk of harming the environment or endangering human health. Government could encourage participation in such schemes by mandating government purchases from only certified producers.

Attached is Compost NSW's Industry Position Paper, the NSW Organics Recycling and processing Industry: joint statement of industry priorities (March 2004), which summaries the current situation with the compost industry in NSW. Much of the information is derived from the National Compost Industry Supply Chain Roadmap and the National Compost Industry Survey conducted by Compost Australia.

Yours faithfully



 Tony Emery
Chair
Compost NSW

Rob Niccol
Deputy Chair

Garry Kimble
Secretary/Treasurer

COMPOST

NEW SOUTH WALES



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Industry Position Paper

February 2006

Compost Industry in NSW

In the 2004/2005 financial year 1.26 million tonnes of raw materials were processed into composts (soil conditioners and mulches) in commercially operated facilities. This does not include material processed through local government owned and operated facilities. Data on this sector is not yet available.

In 2004 (Last accurate figures available), there were 61 licensed composting facilities in NSW, including 11 facilities operated by local government (data on these facilities is not included in this paper). A license is required in NSW if the facility processes more than 5,000 tonnes of material annually.

Over 71 councils provide regular organics recycling services in NSW.

The quantity of green organics processed is expected to grow to 1.65 million tonnes by 2010. In addition, a total of about 52,500 dry tonnes of Biosolids were recovered for beneficial use. This is estimated to be about 174,000 wet tonnes, assuming 70% moisture content. (Source: the 2005 Annual Reports by Sydney Water and Hunter Water).

81% of this material is generated in urban areas (mostly the Sydney basin). The most profitable horticultural/viticulture activities in NSW occur in the far South West of the state (Riverina/MIA) or in the wine growing areas (Hunter Valley, Griffith, Mudgee, Orange, etc.). This sector has the best chance of being able to afford to pay for compost products.

At 30 June 2004, 633 people were directly employed in non-council operated composting facilities. It is estimated that a similar number of people are directly employed to provide goods and services to the industry.

No accurate figures are available for the total value of operations in NSW.

Data collected in 2005 for the 2004/2005 year estimated the total value of the industry in NSW at \$ 74.4 million and the capital employed at \$ 23.9 million. These figures are probably underestimates (See Note 1).¹

Markets for Recycled Organic Products (Composts)

There are two main markets serviced by the composting industry. These are:

- 1. A market for environmental services, and**
- 2. A market for the products produced by the composting process.**

1. The market for environmental services

Government policy aimed at reducing the amount of waste going to land fill has resulted in a market for the environmental services of the processing and reuse of the materials diverted. The recipient of these materials must then convert these materials into products for beneficial use.

Local government authorities through their waste collection role, manage this market. The economic signals and rewards for this service are embodied in the waste levy, gate fees and council rates levied on householders.

Since over half of municipal waste and about 16% of commercial and industrial waste (C&I) are organic, the achievement of the NSW Government policy of reducing waste to land fill depends on a viable composting industry.

The environmental benefits of diversion of organics from land fill are:

- Net greenhouse gas reduction
- Reduction in land fill leachate generated, which can contaminate local groundwaters.
- Organic carbon can be returned to the soil to improve its fertility and productivity.
- Closing the "Carbon Loop"

Under the polluter pays principle, the generators of these organic wastes should contribute to the cost of converting these materials into beneficial products. This is the role of the waste levy and gate fees. However, these costs are not always internalised to the compost processor. Governments tend to see this income as general revenue and do not necessarily hypothecate the income to market development or means of distributing beneficial product.

A triple bottom line analysis confirmed the environmental benefits of source separating, collecting and processing garden organics and applying composted organics to agriculture. The environmental benefits in "ecodollars" ranges from \$114 to \$277 per tonne, which translates into an overall benefit of about \$40 per household per year in atypical Sydney suburb.

Further studies are needed to determine the proper price for these services. We need to decide on the right price for the environmental and social services provided by the compost industry and use a triple bottom line cost/benefit analysis in our decision making.

¹ Note 1.: It is believed that these figures are grossly underestimated due to the competitive nature of the industry and the reluctance of privately owned companies to divulge their financial situation.

Regarding the environment as "free" or "commons" must be tempered with an understanding of what benefits it provides future generations and us.

2. The market for the products produced by the composting process:

Whilst the diversion of organics from land fill is estimated to have increased from 40% of total generation in 1998 to over 50% in 2003, the growth in markets has not increased at the same rate.

Growth in markets for recycled organics (average p.a. 1998-2003) - about 14%;
Growth in diversion from land fill (average p.a. 1998-2003) - about 19%

The Compost Australia National Survey for 2004/5 year showed market growth of only 5% p.a.

This is in spite of a concerted effort by industry and government agencies doubling the size of the market between 1998 and 2004 (370,000 m³ to 847,000 m³).

The total stock of material held by processors has increased significantly over the past 18 months to two years. The total stock of materials in process and finished goods was reported to be 422,000 m³ as at 1 July 2005. Whilst there is some doubt as to the accuracy of the figure reported twelve months earlier, anecdotal evidence from processors confirm that there has been a significant rise in inventories in 2004 and 2005. This increase has been partially attributed to the drought, and due to the approaching saturation of traditional markets and the inability to grow new markets quickly enough to compensate for the increase in supply. The figures demonstrate that there are indeed economic and regulatory barriers restricting the expansion of the industry.

Barriers to the growth of the markets for Composts

Transport costs are the biggest impost for composters in urban areas interested in expanding markets for recycled organics into agricultural and horticultural markets.

Life Cycle analysis shows that there is a net Environmental benefit of using composts up to 600 kilometres from the source and processing site; however, the use of composts more than 300 kilometres from the source becomes uneconomic due to transport costs.

There are also some product issues:

- The process of selecting the right type of compost for each application is not widely understood in the market place;
- The benefits of water retention; improvements in soil/crop health; and
- As a soil conditioner by increasing the organic carbon content of soils are not widely accepted in spite of the extensive research showing these benefits.

The value of using composts (cost of input related to return on that investment) has not been widely documented, nor readily available to users.

There are few advisors who are competent in their knowledge of compost across a range of intensive agricultural crops and who can promote the product with authority.

Due to the source of the raw materials used in converting urban organics into beneficial compost products, physical and chemical contamination can be a cause for concern. Processors are continually improving their equipment and processes to minimise contamination and meet the Australian Standard AS 4454 contamination specifications.

Quality: Ongoing research and product development needs to be done so that processors can offer customers products which are fit for purpose for specific applications. Independent assessment that products meet requirements and are fit for purpose (seal of Approval program) needs to be implemented and accepted by the processors and the market.

Industry cost structures and economic viability of the industry: Anecdotal evidence suggests that the industry does not provide reasonable returns to its investors. There is no data for the aggregate or average costs and returns for the industry. Certain significant costs, such as the diesel fuel excise, are imposed on the industry, but would be subject to rebates in similar agriculturally focussed industries.

In cases where the source of the raw materials is distant from the major potential markets, transport costs affect the viability of the industry.

What can Governments do to assist the industry:

1. Continue to communicate to the community that the organics recycling industry strongly contributes to environmental sustainability.
2. Continue to support research and development into the beneficial use of composts in horticultural and agricultural applications. Such research and development programs must be collaborative with the processors to ensure that the outcomes are practical, economically viable and have the potential to open new markets and support the growth of current markets.
3. Use funds generated by the waste levy and gate fees to develop market for products, which have resulted from raw materials subject to the levy and fees. There is a fear that increasing the waste levy may make land fill a more attractive option than recycling organics.
4. Develop and put in place Market Based Instruments (MBI's such as rebates, bounties, purchasing policies, etc.) which will encourage the use of recycled organics in horticulture and agriculture. Users of composts must gain an economic advantage in using such products and are not generally inclined to pay the full cost of the environmental benefits the use of such products provide for future generations.
5. Reduce cost impositions on the industry by reducing regulation and streamlining licensing and approval processes. Ensure that site regulation and planning consent are consistent and supportive of government policy.

Market Statistics

Data collected for NSW in the Compost Australia National Survey in 2004 and 2005 gave the following picture of the markets for composted products.

| | 2003/4 | 2004/5 | Change |
|------------------------------------|--------------------------------|--------------------------------|----------------|
| Materials Processed - Total | 1,199,768 tonnes | 1,263,633 tonnes | 5.3 % |
| Major Markets | | | |
| Urban Amenity | 709,641 m ³ | 766,214 m ³ | 8.0% |
| Intensive Agriculture | 283,130 m ³ | 312,266 m ³ | 10.3 % |
| Extensive Agriculture | 94,775 m ³ | 106,710 m ³ | 12.6 % |
| Rehabilitation | 41,029 m ³ | 26,130 m ³ | -36.3 % |
| Enviro-remediation | 36,968 m ³ | 14,959 m ³ | -59.5 % |
| Biofuels | 36,800 m ³ | 36,800 m ³ | 0.0 % |
| Total | 1,202,343 m³ | 1,263,079 m³ | 5.1 % |
| % of Total Market | | | |
| Urban Amenity | 59.0 % | 60.7 % | |
| Intensive Agriculture | 23.5 % | 24.7 % | |
| Extensive Agriculture | 7.9 % | 8.4 % | |
| Rehabilitation | 3.4 % | 2.1 % | |
| Enviro-remediation | 3.1 % | 1.2 % | |
| Biofuels | 3.1 % | 2.9 % | |

In spite of the drought, which has had a financial impact on many traditional and developing markets, the industry has done well to achieve a 5% market growth from 2004 to 2005.

The largest market segment is the Urban Amenities market which is static and near saturation.

In the last 12 months the market for rehabilitation and enviro-remediation has shrunk. It is not known whether this is for technical or economic reasons.

The Agricultural markets seem the best opportunities for growth and the use of urban generated organics. About 90% of the materials used in the agricultural sectors are Organic fertilisers, composted and raw manures or direct land application of waste material.

Sources and Acknowledgments

Material in this paper has been derived from a number of sources, including:

Compost Supply Chain Road Map Report.

Compost Australia national Survey (NSW section) 2003/2004 and 2004/2005.

Background: Organics - A Significant Waste Stream from Darren Bragg, NSW DEC, Sustainability Division.

Rescuing Environmentalism - "The Economist" 21st April 2005

Getting Down to the Business of Sustaining Ecosystem Services: IUCN approved draft May 2, 2005.

Members of Compost NSW and Compost Australia.

References

Compost NSW Organics Processors Committee: "NSW Organics Recycling and Processing Industry: Joint statement of industry priorities", V16 17/03/2004

Recycled Organics Unit, UNSW: "Life Cycle Inventory and Life Cycle Assessment for Windrow Composting Systems". October, 2003

Department of Environment and Conservation (NSW), Sustainability Programs Division: "Assessment of Garden Organics Collection Systems", May 2005

Department of Environment and Conservation (NSW): "Monitoring in Waste Avoidance and Resource Recovery in NSW", 2004

NSW Organics Recycling and Processing Industry: Joint statement of industry priorities

Current situation

- NSW Government has formally acknowledged that the achievement of resource recovery targets is largely dependent upon the recovery of *compostable organic materials*¹, which represent the dominant component of the waste stream.
- Almost 6 million tonnes of solid waste is disposed of to landfills throughout NSW annually. Of this, 5.5 million tonnes are disposed of in the greater Sydney area (GSA)^{2, 7} which houses over 75% of the total NSW population³.
- The NSW Department of Environment and Conservation (DEC) conservatively calculates⁴ that over 1.35 million tonnes of organic materials are recovered for processing into *recycled organics products* (ie. composts) per year, and that over 90% of this material is reprocessed in the GSA. This total includes over 650,000 tonnes of garden organics, of which 85% is diverted from landfill and recovered within the GSA.
- The signatories to this statement (the COMPOST NSW *Processors Committee*) include all licensed organics processing facilities in the GSA of significant scale. We represent around 90% of all documented organics recovery in NSW, and almost 40%⁵ of all materials recovered from the NSW solid waste stream.
- The rate of organics diversion from landfill has doubled over the past 4 years⁶, largely as a result of successful NSW Government resource recovery strategies and the efforts of the organics processing industry.
- However, concurrent market development programs for recycled organics products have not been as successful. Contraction in urban market demand in the post 2000 Olympics period, and barriers to agricultural market access have culminated in increasingly evident oversupply in urban markets, and worrying growth in stockpiled product.
- This oversupply in urban markets has resulted in unsustainable price competition that has forced prices down to levels that place at serious risk the viability of the organics processing industry, and the achievement of documented NSW Government targets.
- NSW Government targets require a further doubling of organics recovery by 2008.
- Such increased diversion is simply impossible without the rapid development of viable agricultural markets for compost products manufactured from organic materials generated in the GSA.
- Immediate government intervention is required to address regulatory inconsistencies that are contributing to market distortions, and to provide incentives for the establishment of agricultural markets for compost products of suitable quality.
- We propose a direct strategy to provide a circuit breaker to this developing crisis, whilst concurrently supporting the development of sustainable market based solutions.

¹ *Compostable organic material* is the defined category in the Australian Waste Database, the national materials classification system. The definition refers to materials that *can* be composted, to distinguish from those that cannot.

² GSA includes Sydney Metropolitan Area (SMA) and Extended Regulated Area (ERA), as per DEC strategy⁸.

³ ABS 2001 Census data

⁴ DEC 2002/03 *Reprocessors Survey* draft results

⁵ WCS Market Intelligence (2001) *Australian Waste Industry: Industry and Market Intelligence Workbook*; Compost Australia (2003) *National Industry Survey*; and DEC 2002/03 *Reprocessors Survey* draft results

⁶ DEC presentation to COMPOST NSW reporting results from DEC 2003 *Reprocessors Survey*

Industry strategy

- The proposed strategy comprises four actions to address farm gate affordability and grower risk, the key barriers to agricultural market development:
 - i. Provide direct economic incentives for farmers to purchase composts, via a structured and targeted grower rebate scheme to directly overcome barriers of farm affordability and risks associated with adoption of new agricultural practices in the short term.
 - ii. Employ dedicated agricultural scientists to support integration of recycled organics products into farming systems; to monitor and document on farm cost-benefit and environmental performance; and to provide data to inform the establishment of a future market based trading scheme in environmental and/or carbon credits.
 - iii. Implement equitable, scientifically valid, environmental risk based regulation of competing products and practices to address regulatory inconsistencies that are contributing to market distortions.
 - iv. Implement this program via a joint government and industry steering committee to ensure the direct participation of licensed commercial organics processing industry.
- Whilst industry acknowledges the benefits of industry development programs conducted through *Resource NSW*, the current situation and committed government targets now require the implementation of this targeted strategy.
- If this strategy is not implemented, we maintain that the NSW Government cannot possibly achieve its committed resource recovery targets.
- This strategy is affordable, recommending the equivalent of 3% of the existing Section 88 *waste levy* be allocated to address over 30% of the total NSW solid waste stream⁷ (and almost 60% of the municipal waste stream⁸).
- The cost of the *compost for agriculture* rebate program and associated agricultural scientists is estimated at two levels of implementation (minimum and recommended):
 - Minimum: \$7.9 Million total over 10 year program duration (~ 1% of waste levy).
 - Recommended: \$24 Million total over 10 year duration (~ 3% of waste levy).
- This will allow sufficient quantity of compost product to be applied to priority application scenarios (via market potential criteria) to establish reliable and consistent agricultural performance data, to conduct cost-benefit analysis, and to quantify environmental benefits. This approach allows a **sunset clause** on the rebate by providing sufficient data to enable composts to be sold on the basis of reliable agricultural cost-benefit advantage; and by generating credible environmental performance data to enable the establishment of market based instruments (MBI) for tradable environmental credits.
- The waste levy applies only to the GSA, and is programmed to grow to \$25 per tonne of landfilled waste in the next few years as a means of compensating for the externalised environmental costs of landfill.
- The *Waste Avoidance and Resource Recovery Act 2001*⁹ specifies that the waste levy funds (*Waste Fund*) may be applied for the following purposes:
 - *Market development for recovered resources and recycled material; and*

⁷ DEC (2003) *NSW Waste Avoidance and resource Recovery Strategy*.

⁸ DEC (2003) *NSW Waste Avoidance and resource Recovery Strategy: Action Plan for Local Government*.

⁹ NSW Waste Avoidance and Resource Recovery Act 2001.

- Encouraging [the] most efficient use of resources and reducing environmental harm in accordance with the principles of ecologically sustainable development.
- Under the Act⁹, in developing any waste strategy, the adequacy of the waste strategy is, if appropriate, to be assessed by ... life cycle analysis.
- A just released Department of Environment and Conservation (NSW) *Life Cycle Analysis* study of the commercial composting system has identified overwhelming environmental benefits (including greenhouse gas benefit) where compost products manufactured from recovered resources are transported from the GSA to rural areas and applied to high input agricultural production systems.
- Successive market studies conducted by NSW Government agencies have identified intensive agriculture as the most promising market for development. The NSW *State of the Environment* report¹⁰ identified land degradation as *the most serious land use issue affecting the state of the environment in New South Wales*. The report stated that more than 70% of the state is affected by at least one form of land degradation, and that if steps are not taken to reverse the degradation of finite soil reserves, the long-term viability of many primary production industries will be severely threatened.
- NSW Agriculture calculated land degradation to be responsible for at least \$700 million a year in lost production in NSW¹¹. This figure will have increased since reported in 1998.
- Without applying the *waste levy* funds directly to agricultural market development for compost products, there is a serious risk to the ongoing viability of the diversion of organics materials from the waste stream, and the levy merely increases the cost of waste disposal without actively developing environmentally sustainable alternatives.

Community acceptance

- The proposed strategy offers a program that is affordable, poses no political risk, and most importantly, will deliver effective environmental outcomes consistent with successive NSW Government legislation, policy, and strategy targets.
- Rebates are instruments commonly used by the NSW Government to achieve defined objectives and targets, both in environmental and agricultural portfolios¹².
- The program can be supported by urban, rural, and 'green' constituencies:
 - The proposed program delivers clear and measurable environmental outcomes for urban residents who currently pay the *waste levy* to achieve this objective;
 - The program can be legitimately presented as contributing to drought relief, agricultural water use efficiency, water resource management, sustainable agriculture, and rural environment improvement;
 - The program embeds sustainable agricultural practices into mainstream agriculture;
 - The program supports the *clean and green* marketing of NSW farm produce from mainstream agricultural producers in export markets.
- The four actions in this industry strategy are defined in greater detail in a support document, which is available to inform joint planning and implementation discussions.

¹⁰ EPA (1997). *New South Wales State of Environment Report*.

¹¹ NSW Agriculture (1998). *Policy for Sustainable Agriculture in NSW*.

¹² For example, the SEDA solar hot water heater rebate scheme; and the Sydney Water rebate schemes for conservation shower heads, rainwater tanks, and clothes washing machines.

Signatories: Joint statement of industry priorities

The signatories to this statement include all licensed organics processing facilities of significant scale in the greater Sydney area (GSA)¹³.

Date: 17 March 2004

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¹³ The GSA includes the Sydney Metropolitan Area (SMA) and Extended Regulated Area (ERA), as per Department of Environment and Conservation (NSW) strategy⁸.