

# Critical Issues Strategy for Compost / Recycled Organics Market Development

## Overview

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Supply of recycled organics now significantly exceeds demand. This supply imbalance is predicted to worsen with supply projected to almost double from 2004 to 2010. Both government and industry are accountable and must work together to build on the efforts and initiatives to date and to avoid system failure due to this over supply. A number of government and Industry initiatives are underway, but additional government support is required as identified in this briefing.

From economic and environmental perspectives, it is essential to have viable end use demand to help ensure diversion of organic matter from landfill and a viable industry to process materials from public and private sources into quality RO products.

Significant waste avoidance and greenhouse benefits result from diverting organics from landfill. Virtually all councils now offer organic collection services and by 2010 most people in the Sydney Basin will have access to organics collections. In addition, the existing systems are providing greater yields due to improved system efficiencies.

Markets for recycled or organics must be now be developed well outside of the Sydney Basin in order to keep up with the supply of raw material. End users need to better understand the improved performance and yields that can result from the appropriate use of RO products. In addition it is important that local governments specify beneficial use outcomes in contracts to help drive demand commensurate with increased supply.

## 1 Background

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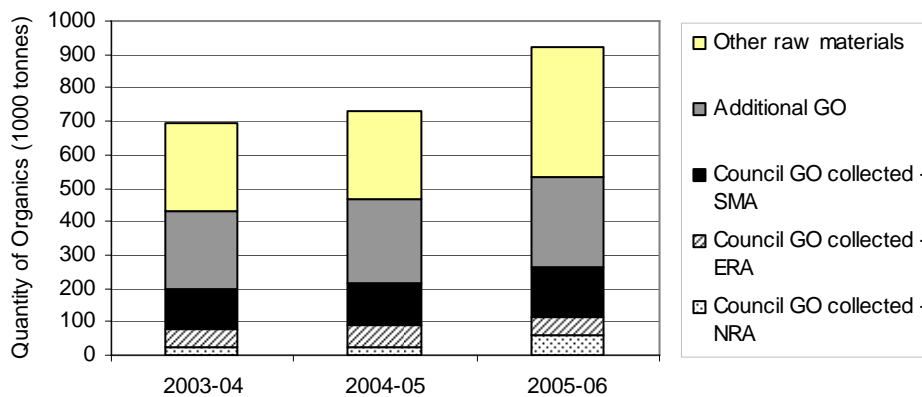
Diversion of organic materials from landfill provides well documented benefits from reduced greenhouse gas emissions (in particular, methane) and is an integral component of NSW environmental programs including the *NSW Waste Avoidance and Resource Recovery Strategy 2003*, under the *Waste Avoidance and Resource Recovery Act 2001*. Processing into compost or other recycled organics (RO) products and application in end use markets provide additional benefits from restoring soil carbon, water conservation, reduced eutrophication and reduced NO<sub>x</sub> emissions from fertiliser.

Hyder Consulting recently undertook a market analysis for Recycled Organics. This strategy paper draws from the key findings of the study to identify the critical issues in market development.

## 2 Accountability

Growth in RO can be attributed to both government and industry. Industry records for 2003 to 2006 are presented in Figure 1. While kerbside council GO collections clearly have an impact on the supply imbalance, such collections represent only around 30% of total material supply. A further 30% comes from source separated drop-off, driven primarily by the waste levy and standard costs of disposal to landfill. The remaining 40% of supply is largely at the discretion of processors and their commercial considerations. Responsibility for addressing the imbalance therefore rests with both the public and private sectors.

Figure 1 Organic material processed, 2003-2006 (Industry data)



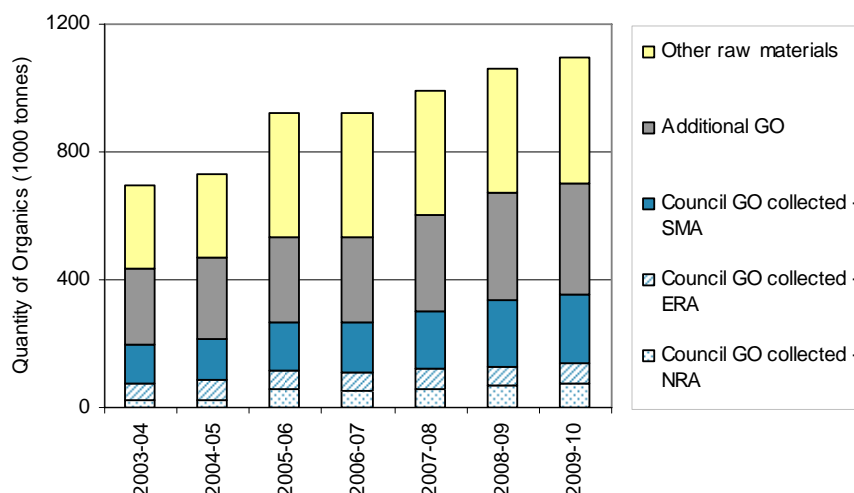
## 3 Supply and Demand Imbalance

A recent market analysis by Hyder Consulting has estimated RO product demand of between 658,000 and 705,000 tonnes in 2010, well short of the nearly 1.1 million tonnes of processor supplies projected for 2010.

### 3.1 Supply

Future supplies of raw organic material to be processed were estimated in the market analysis under different projection scenarios. Figure 2 shows the historical data from 2003-04 – 2005-06 and the mid range projection scenario from 2006-07 to 2009-10 when nearly 1.1 million tonnes could be expected.

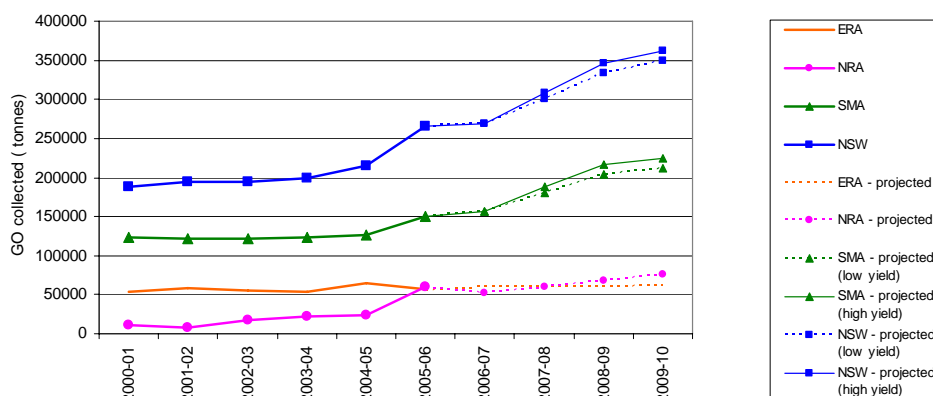
Figure 2 Historical and projected quantities of raw organic material



Of particular concern is the increase of organic material from council collections as a result of several large councils coming online within the next three years. Figure 3 shows historical and projected quantities of green organic (GO) material from council collections for the Sydney metropolitan area (SMA), Extended Regulated Area (ERA) and the Non-regulated Area (NRA) and for all of NSW.

The data from 2000-2001 to 2005-06 is the historical supply of GO. The variable rate of increase is attributed to a combination of more councils providing GO services, and improved efficiencies of GO collection programmes including increased awareness and participation.

Figure 3 Historical and projected quantity of material from GO collections



Council collections are expected to increase steadily from a baseline of 226,000 tonnes in 2004-05 to a range of between 349,000 and 362,000

tonnes in 2009-10. Substantially increased yields in the SMA will result from:

- new collection contracts in three large councils utilising good practice approaches across large numbers of households
- expanded and new alternative waste technology (AWT) facilities
- co-collection of food and garden organics
- increased municipal solid waste-derived compost
- improved efficiencies from existing programs
- return to normal patterns of rainfall (non-drought conditions)

## 3.2 Demand

Hyder Consulting's market analysis examined the demand for RO in a number of key market sectors including rehabilitation of land or mine sites, urban amenity, and intensive and extensive agriculture.

The analysis shows stronger than expected RO product demand in urban amenity, by far the largest market segment; this demand is due in large part to low material prices that are trending even lower. The uptake of RO products in the intensive agriculture segment has not reached expectation given the potential size of the market. Extensive agriculture shows reasonable growth in demand, while enviro-remediation has fluctuated over the past several years. By 2010 within 300 km of Sydney, urban amenity could account for the bulk of RO product demand (416,670 to 444,440 T), followed by intensive agriculture (at least 166,670 T), extensive agriculture (42,180 to 50,615 T) and stormwater treatment (10,550 T to 21,110 T).

## 4 Causes of the imbalance

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The market analysis found a number of key causes to the RO market imbalance.

### **1) Oversupply of material**

The demand for RO underwent a considerable boom during the run up to the Olympics when a large number of rejuvenation and landscaping projects were commissioned. During this time a variety of long-term contracts for collections of organic materials were entered into when higher value, established markets for RO products existed in close proximity to urban areas.

### **2) Competition of competing products**

Material oversupply has resulted in the need to expand into more distant markets. However processors have found that many potential end users have long experience with competing products commonly available at far lower cost (such as manures and bio-solids) and far

closer to end users. As a result, processors that had charged gate fees in the order of \$30/T to accept raw materials now face costs of \$42/T to \$62/T to process and deliver RO products to end users. Processors with long-term contracts secured during bidding wars and pre-existing market conditions are not likely to be able to raise gate fees to recoup these losses.

### **3) Lack of awareness of the wider benefits**

The market analysis found that many potential users of compost, or users of compost alternatives, were simply not aware of the benefits of compost, particularly in a life cycle approach. For example many potential users only considered the immediate benefits that could be achieved with one or two applications of alternative products as opposed to longer term benefits such as lower water consumption. The analysis also found that compost may have been trialled but in the wrong application, so again no direct benefit would have been perceived.

By 2010, RO product demand is projected to fall to between 350,000 and 400,000 tonnes short of supply, further worsening the current supply imbalance that is depressing sales prices for compost and other RO products. Government and industry bear shared responsibility for the current supply imbalance, and a shared interest in addressing the imbalance in order to prevent potential market collapse. A coordinated response is essential to assist NSW in meeting the state's waste strategy, reducing greenhouse gas emissions, restoring soil carbon, reducing other inputs such as water and fertiliser, and in ensuring viable collection of garden organics (and to a lesser extent food waste) from council kerbside collections.

## **5 Responses to date**

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Both industry and government organisations have taken to measures to address the market imbalance.

### **5.1 Industry responses**

Industry initiatives to address the market imbalance include State and national level coordination, developing certification and best practice guidelines, and ensuring appropriate regulatory frameworks.

#### **State and national level coordination**

The RO industry has significantly increased coordination at state and national levels in the past few years. Compost NSW plays an especially active role with four other state working groups in cooperation with the peak national body, Compost Australia. Compost NSW represents around 30%

of the national compost industry, with 43 licensed composting facilities employing more than 650 employees in NSW.

## Development of certification and guidelines

Industry has been especially focussed on product quality and fitness for purpose through a product certification process and development of best practice guidelines.

## Ensuring appropriate regulatory frameworks

Compost NSW has also been working with DECC to ensure appropriate regulatory frameworks between RO products and competing products through the preparation of a detailed submission addressing the interaction of RO products with proposed changes to the *Protection of the Environment Operations (Waste) Regulation 2005*.

## 5.2 Government responses

In addition to working with Compost NSW to ensure appropriate regulatory frameworks, DECC have undertaken a number of Research and Development projects to seek and establish markets for RO.

## 6 Moving forward

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Industry will continue to address the imbalance in the RO market. In addition action is sought by government at ministerial and State and local government level.

### 6.1 Planned Industry action

#### Expansion of certification efforts

The NSW compost industry will continue and expand its product certification efforts in order to foster awareness of the Compost Australia 'leaf' brand as a means of demonstrating quality assurance and product quality.

#### Differentiation of final products

The industry is further seeking better end user differentiation of compost from competing products such as manures, biosolids and fertilisers in particular end use market segments. For example, RO products can provide organic restoration of degraded agricultural soils and extensive agriculture appears to be an under-developed end use segment for RO products. However, RO products face competition in particular from manures that are available for free or at low cost in close proximity to end

users. Similarly, RO products are proving especially critical to mine site rehabilitation in the Hunter, but face competition from biosolids in this segment.

## Communication of R&D trials

The NSW compost industry is also committed to building on results of trials and current sales through better use of case studies and translating results into useful information for end users. This specifically includes:

- promoting improved understanding of fitness for uses
- appropriate application rates
- appropriate role of compost and other RO products in end users' management systems

In addition Compost Australia facilitates a forum each year to exchange information nationally on the latest R&D and reduce interstate duplication of research activities.

## 6.2 Ministerial Action Sought

### Fund Industry Development Officers

Support is being sought for the Minister to fund Industry Development Officer to assist end users in understanding the improved performance and yields that can result from the appropriate use of RO products. This approach would also leverage previous investment in trials and other market development efforts by promoting awareness and translating results of these previous efforts into practical, reliable information for end users.

To further build on previous NSW efforts and on the recent market analysis by Hyder Consulting, it is recommended that such Industry Development Officers focus primarily on agriculture, mine site rehabilitation, catchment rehabilitation and use in public parks and gardens. Funding of segment-specific market/barrier/competition/response investigations in these segments with significant potential is also required, similar to investigations previously undertaken into stormwater markets in the urban amenity segment.

The three staff employed by the DECC Sustainability Programs Division to focus on recycled organics have made significant contribution to R&D and market development for the industry. Support is sought to continue these roles and build upon them with the employment of an additional Industry Development Officer to focus on R&D Coordination.

### NSW leadership on renewable energy

Significant potential exists for addressing oversized and other organic material through renewable energy efforts. However these efforts are currently limited. A potential role exists for NSW to push nationally for an

increase in the mandatory renewable energy target. (MRET). Such an approach would also benefit other industries.

## 6.3 State and Local Government Action Sought

### Beneficial Use Contracts

Gate fees in council collection contracts generally do not reflect the full externalities of GO collections such as environmental benefits of diversion from landfill or economic impacts of the supply imbalance. Councils need to demonstrate producer responsibility and internalise these externalities. An appropriate measure for councils would be to specify beneficial use outcomes in contracts instead of focussing primarily on supply of organics processing services at lowest cost.

### Development of research trial protocols and templates

Where the government is involved with trials, the industry supports development of a research trial protocol for scoping, engaging and conducting such trials. It is also suggested that the NSW government develop pro-forma scoping for trials to require translating results for end users, recognising the commercial aspects of outcomes and fostering promotion to broader end users. Development of a template for reporting outcomes for users would complement such efforts.

### Communication of R&D trials

Government further needs to communicate results of trials and other efforts more effectively, and to broader stakeholders. The NSW compost industry is seeking state government support for development of simple, practical flyers for market segments highlighting economic and environmental benefits of RO products, effective application rates and practices for incorporation. Such flyers would build on previous trials and complement the awareness efforts of proposed Industry Development Officers, as would a revamp of the DECC website to make reliable information more accessible for all parties involved.

### Enforcement of proposed changes to the POEO (Waste) regulation

In a role uniquely suited to government that is essential to industry, it is important to ensure effective implementation and enforcement of proposed changes to the Protection of the Environment Operations (Waste) Regulation 2005. The NSW compost industry is currently preparing a detailed submission addressing the interaction of RO products with the proposed changes and is keen to continue working with government to help ensure appropriate regulatory frameworks for RO products and competing products.