



Compost Queensland

Submission

Queensland

Waste Strategy

2010-2020

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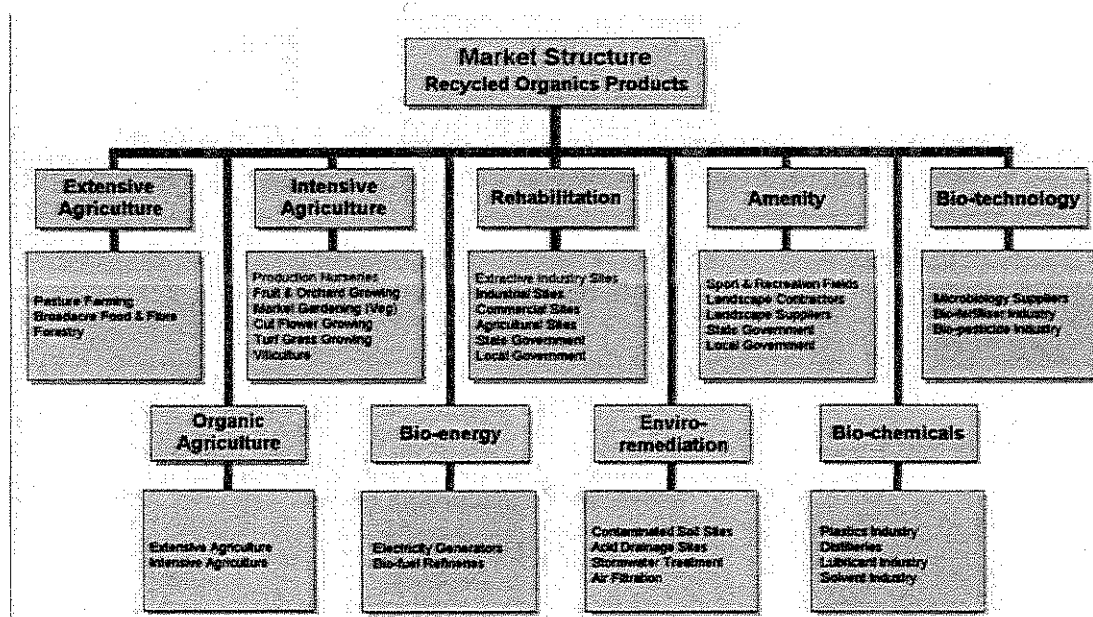
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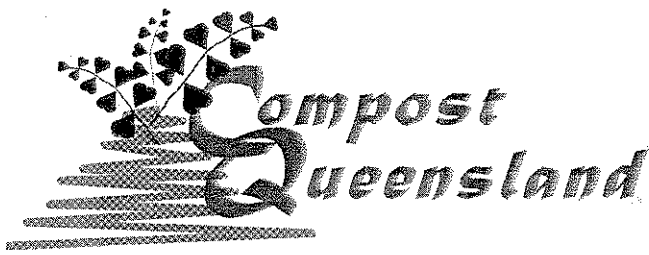
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Industry Overview

Compost Queensland is the peak association for businesses, local government and farmers in the organics processing and recycling supply chain across Queensland. This supply chain stretches obviously from the generation of organic residues, through the collection and processing of these materials all the way to the beneficial use of generated recycled organic products. Composting is not new to Queensland. This age old form of processing and converting organic residues into value added products has been practiced for decades, be it to process urban garden organics (Green Waste), or to transform forestry residues into "fit for purpose" growing media. This industry has grown steadily over time, and in 2009 included more than 43 commercial composting operations across the State, which processed in excess of 1.7 million tonnes of raw materials. Of the wide range of organics the largest quantities of organic materials that were processed included biosolids (ca. 490,000 t), garden organics (337,000 t) and manure (304,000 t). All indicators, especially when compared to the southern states of Australia suggest that the industry, and the quantities of organic residues processed and recycled, will grow strongly in the future.

Compost Queensland is an integral part of Compost Australia, and represents the Queensland Organic Recycling Industry within the peak National body for the organics processing and recycling industry.





The members of Compost Queensland come from across the state & include individuals and organisations involved in all levels of organics recycling including "on farm Composting" in Regional Areas, i.e. generation, collection, processing for beneficial use of the wide range of products produced. The Market Structure Diagram demonstrates the scope of our industry regarding the potential use of recycled organic products, which reaches across the agricultural, forestry, property development, resource, roads, energy, bio-technology and domestic sectors.

Considering the track record of the Organics Recycling Industry in diverting organic materials from going to landfill, and the tasks at hand, i.e. delivering the recycling targets proposed by the Queensland Government, it is important to realise that the Organics Recycling Industry is very well placed to help the Queensland Government achieve these goals.

Compost Queensland provides this feedback to the Queensland Draft Waste Strategy 2010 – 2020 primarily on behalf of its members, but also in the interest of all Queensland enterprises, publicly and privately run, that already engage in organics recycling and reuse activities, or that intend to engage in these endeavours in the future.

Key Issues Facing the Organics Recycling Industry

The recycled organics industry represented by Compost Queensland recognises the need for further Standards and Guidelines that ensure the industry operates at optimal levels to effect maximum diversion, quality processes, high environmental performance and beneficial reuse using 'fit for purpose' end products from stabilised mulches to the various types of composted materials for all types of applications such as landscaping, soil conditioning, erosion & sediment control and sustainable farming practices especially in sensitive areas such as the Barrier Reef & Environmentally Significant water catchment areas.

The industry, with funding support from Brisbane City Council, is currently developing a Code of Practice for processors that will apply to the industry throughout Queensland.

At this point in time, a number of important issues face the Organics Recycling Industry impacting on its capacity to successfully divert organic materials from landfill as well as process these materials into quality products that suit market requirements. These issues include:

1. High physical contamination levels in product delivered for reuse

Major physical contaminants include metals, glass, concrete, concrete products, plastic, asbestos, which create a range of safety hazards during processing or at end product point. These contaminants are costly to remove, and degrade end product quality and reuse potential of high grade materials for use in high value projects.

2. Insufficient incentives to encourage source segregation of organics

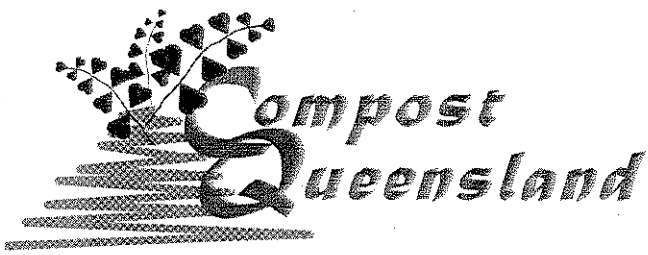
There is too little monetary incentive for segregation of organics at source. Segregation at source of organic materials (and all other recyclables) must be encouraged by a sufficient differential in disposal fees to encourage domestic and commercial generators of garden and food organics to supply clean raw materials for processing and reuse, thus ensuring the long-term viability of organics recycling schemes and the confidence of the end users to use the products.

3. Low processing charges and profitability

The relatively low landfill fees in Queensland dictate low gate fees for organics processing, which in turn result in low profitability of organics recycling businesses, and hence in limited ability to increase capacity, deploy new technologies and make advances in process management and products development. Low profitability reduces the likelihood of businesses being compliant with regulations and even going beyond compliance, and it increases the risk of them breaching their environmental duties.

4. Lack of adequate safeguards concerning the processing of feedstocks

It is important that appropriate safeguards are in place to ensure environmental, public and staff health, as well as odour risks being minimised during processing, and also through the use of generated products. This is especially relevant when garden organics (or other bulking materials) are blended



(composted) with liquid waste residues which are the general practice now for the industry to survive. The liquid waste recycling sector really does not understand that a variety of unknown components may be present in the wastes incorporated into composting the recycled organics.

5. Lack of uniform and streamlined license conditions for organics recycling operations across Queensland

Best practice guidelines need to be investigated & applied throughout the industry as is the minimum product quality requirements for Recycled organic products resulting from the organics (or other bulking materials) blended (composted) with liquid waste residues.

6. Lack of level playing field regarding the handling and use of organic residues

There is no level playing field when it comes to the handling and use of organic residues from urban and agricultural sectors (e.g. manures).

7. Lack of regulatory differentiation concerning the use of compost products manufactured from MSW and source segregated organics

Take debate and regulations in NSW as an example.

8. Lack of quality standards that go beyond minimum requirements, and that are widely accepted and used

Compost Qld¹ has developed set of minimum standards. An example of a minimum standard is used by TMR in Specification MRS11.16 for organic conditioners.

¹ Compost Qld, Compost Awareness, 2009, Baker D.E. and Pittaway P.

9. Uncertainty of product performance in different applications

Compost Qld has the technical expertise to provide and has publicised the success of this approach to other states

General Comments Regarding the Draft Queensland Waste Strategy

While some may perceive the Organics Recycling Industry as a cottage and backyard sector of the economy, the fact that it currently handles in excess of 1.7 Mt of organic residues presents a different picture. As the Government's own figures demonstrate, the potential future scope of the industry is significantly higher. The National Waste Policy 2009 cites almost 2/3 of waste going to landfill as being organic, with probably even a higher proportion than that currently in Queensland. Hence, the Organics Recycling Industry in Queensland has significant potential for growth, and thereby able to boost employment, economic growth, and also produce socially and environmentally significant outcomes. In short, the Organics Recycling Industry, in co-operation with the Queensland Government can deliver substantial sustainability benefits to Queensland. A current example is the Reef Rescue Program requirements that can achieve significantly enhanced outcomes with use of Composted "fit for purpose" recycled organic products (Dargusch, 2010²).

Waste related greenhouse gas emissions are predominantly methane-generated from anaerobic decomposition of organic matter in landfill. The best and safest way of reducing greenhouse gas emissions from landfill is to prevent organic materials from entering landfill in the first place. Such action counters climate change not only by reducing methane emissions from landfill, but it also aids soil carbon sequestration and reduced emissions from the manufacturing of mineral fertilisers. The Organics

² Dargusch, P. In Press, University of Queensland 2010, p.dargusch@uq.edu.au (UQ SMART initiative)



Recycling Industry has extensive experience and specialised knowledge in this area and is therefore able to offer significant support to the Queensland Government, and actively support its bid to reduce carbon emissions via diverting organic materials from landfill, and instead using them beneficially in agriculture and horticulture. As an example, recent studies by users of Recycled Organics via a University of Qld project have estimated using a "fit for purpose" recycled organic product process an increase in Carbon sequestration of 50% higher than conventional reforestation methods.

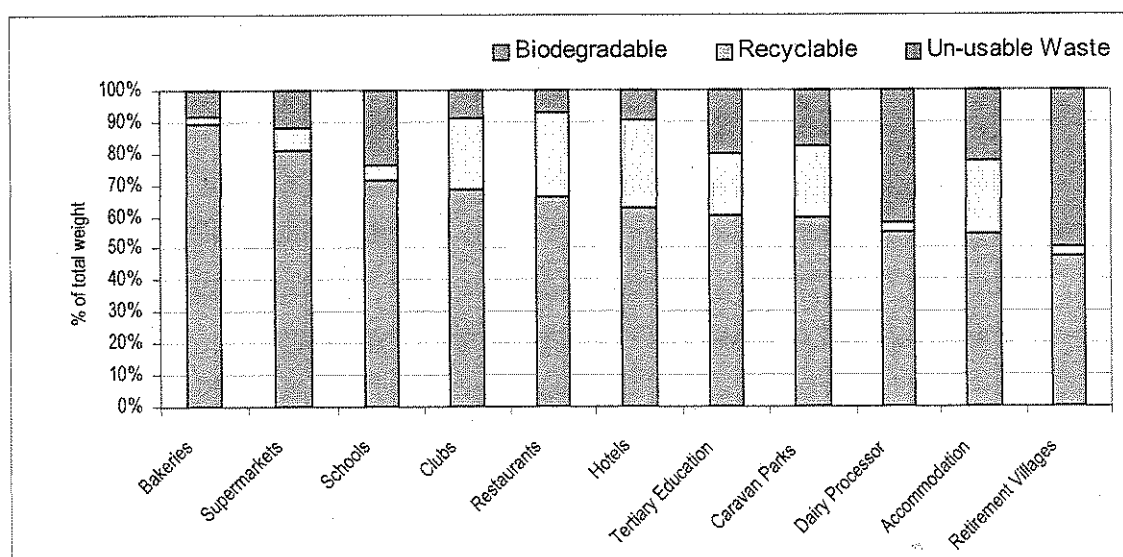
Consequently, it is imperative that the Queensland Waste Strategy and subsequent available government funding and actions supports this type of initiatives in all types of organics recycling activities, ranging from home composting to advanced processing technologies. The use of fit-for-purpose recycled organic products for accelerating its use in Erosion & Sediment Control, improvement in Water Quality, accelerated Carbon Sequestration outcomes is imperative. The Organics Recycling Industry strongly believe that organics management and recycling and reuse standards need to be given much more weight in the Queensland Government's strategic approach to waste avoidance and recycling, and even more so in implementing the strategy. This is for the following reasons:

Organic materials (garden and food organics) in municipal solid waste (MSW) consist of greater than 50% (Brisbane City Council's component is 56% organic), and hence represent the single largest fraction of waste.

This is even the case in commercial and industrial (C&I) waste, albeit at a lower level.

A recent survey in Sydney found that mixed C&I waste contained 20.7% food and vegetation residues, as well as 16.7% wood³. The recent National Greenhouse Gas Inventory Report⁴ estimated even that, in 2008, C&I waste contained 29.6% of food and garden organics. Overall, mixed C&I waste contained 60% biodegradable components in Sydney, and more than 55% nation-wide. However, waste of certain industry sectors, such as supermarkets, bakeries, clubs, hotels and restaurants, schools, contain high levels of organic and biodegradable components. These industry sectors should be prioritised in providing support for improving recycling / landfill diversion.

Composition of Waste from C&I Service Industry (Northern NSW, 2005)



³ NSW Dept of Environment, Climate Change and Water (2010): Disposal based survey of the commercial and industrial waste stream in Sydney

⁴ Dept of Climate Change and Energy Efficiency (2010): Australian National Greenhouse Accounts – National Inventory Report 2008, Vol 3

It is obvious that organics recycling / landfill diversion is key to achieving the set recycling targets for both MSW and C&I waste. Organics recycling / landfill diversion can be easily achieved in rural and regional areas as composting for example does not require transporting materials to distant processing facilities. Instead, local organics processing will support the local economy. In addition, Compost Queensland has a functioning "on Farm Composting Group" and has presented accredited Training in this area. Generated recycled organic products can find a ready use and market with educational support of the additional funds. On-farm composting of municipal and commercial organics offers a means of engaging the farming community not only in the use of generated products, but also provides a source of additional income, and at the same time valuable soil conditioner.

Organics recycling / landfill diversion delivers the most assured reduction of GHG emissions from landfill as does the beneficial reuse as quoted above.

All of the above are reasons the Organics Recycling Industry supports the inclusion of levies on all organics including MSW.

Processing of organic residues via anaerobic digestion or pyrolysis delivers both, energy and products for land management.

Use of recycled organic products as soil amendments delivers climate change benefits via carbon sequestration and reduced use of mineral fertiliser.

Use of recycled organic products aids proper land management and supports long-term productivity of agricultural soils.

Use of recycled organic products delivers many agronomic and environmental benefits that go far beyond the realm of waste management.

Terminology

It would be more reflective of the Government's stated intent, if the 'Queensland Waste Strategy 2010 – 2020' was re-named and called 'Queensland Waste and Recycling Strategy 2010 - 2020', or 'Queensland Waste and Resource Recovery Strategy 2010 - 2020', or something similar.

In accordance with the move to focus on resource recovery rather than waste, terms such as 'green waste', 'food waste', 'organic waste', should be replaced with terms such as 'garden organics', 'food organics', or 'organics', 'organic residues' when reference is made to raw materials, and 'recycled organic products' (covering compost, mulch, speciality products, etc.) when referring to products that are made from the above raw materials (completely or partially).

For more information, please contact Compost Queensland and / or refer to the Recycled Organics Dictionary and Thesaurus

www.recycledorganics.com/dictionary/downloads/dictionary_edn3.pdf

Education

Compost Queensland would like to stress that the Government strategy will be only successful over the short to medium -term, if it wins the approval and active support of all key stakeholders, which include, apart from industry and local government, the broader community, Government employees and agencies, and the farming sector.

Consequently, Compost Queensland strongly supports the development and delivery of robust education programs aimed at:

- Community
- Farming
- Government (All levels)
- Industry
- Organics processors

As an example of its commitment to robust education Compost Queensland has taken a pro-active approach in this area and has closely co-operated with the Australian Agricultural College Corporation in developing an on-farm composting education program that is outlined below.

Farming:

A three step strategy:

- One-day information session in various districts and regions around Queensland
- Two- & Three day workshops on "How to" Compost - on a farm currently producing organics waste
- Level III AQTF compliant qualification in 'Commercial Composting'

One-day information session on 'On Farm Composting'

- What is 'On-farm' Composting
- What sorts of materials can be composted
- What legislative obligations are required to be satisfied
- Where can materials be sourced
- What are the environmental benefits
- What are the production and management benefits

Two-day "on-farm" composting workshop

Presented by qualified, knowledgeable and experienced educators with expertise in the following;

- Soil Science including soil organic matter
- Soil & Compost Microbiology
- Agronomy (nutrient release and balance, rate and timing of application, effects different products have on different crops)
- Management and Operation of On-farm Composting Facility

- Equipment and machinery required to produce and apply recycled organic products

AQTF compliant Level III Commercial Composting qualification

Both paper-based and On-Line training as well as RPL (Recognition of Prior learning) processes that will result in both the Commercial and "On Farm" producer being qualified and compliant with.

These three training and education activities are underpinned by Australian Agricultural Colleges Corporation, its marketing and promotion efforts, as well as by industry sponsorship.

In addition, the "On-farm" workshops has been approved by and registered with the Federal Government's FARMREADY scheme, providing full reimbursement to course participants who are farmers.

Both the one-day information sessions and the two-day "on-farm" workshop have already been trialled and offered to industry - with a strong level of interest and support. Further courses have been scheduled.

Other sectors: Community, Government & Organics Processors

Compost Queensland is in process of developing partnerships and education strategies for the community, industry, government and organics processing sectors, and is very keen to progress these. Compost Queensland offers support to the Government efforts in developing and rolling out education campaigns, in which the importance of organics recycling and reuse is an integral part.

Government education will be in the form of presentations on Strategy that will assist:

- DERM develop and establish policy on the management and control of separated organic residues from the general waste stream - thereby significantly reducing the consumption of Landfill space and volume and assisting in the completion of the Nutrient cycle

- Regional Councils will have strategies presented to them on introduction of Waste Separation and collection of the organic fraction within their local and regional communities and the processing of organic matter so that it can be delivered to an approved 'On Farm' or other composting facility
- All education on composting & collection be presented in the form of accredited training courses

Community:

Community - will be informed on waste separation strategies that will support Regional council and State government initiatives. This will include Hospitals, Food industry, schools, sporting facilities, general householders.

Compost Queensland's Responses to Proposed Queensland Waste Strategy Actions

Strategic Action:

Advisory Committee (SAC)

The Queensland Government will establish a Stakeholder Advisory Committee (SAC). In the first 12 months the SAC will provide advice regarding implementation of the strategy and legislative reforms. Following the implementation phase, the SAC will evolve to provide advice regarding program funding priorities and program design.

The SAC has no statutory function and is an advisory group not a decision-making body.

Compost Queensland's Response

It is imperative that the Compost Queensland and the Organics Recycling Industry is represented on the Stakeholder Advisory Committee and be given the opportunity to advise the Queensland Government in revising and completing the strategy, and more importantly, to assist it in implementing the strategy, which will deliver the desired outcomes. Compost Queensland do not believe the rumours circulating that suggest

SAC members have already been selected and that Compost Queensland had no chance of having a seat at the table.

Action 1—Toward a resource efficient government

The Queensland Government is a significant generator of commercial and industrial (C&I) and construction and demolition (C&D) waste across its many operations, including hospitals, offices, schools, national parks, emergency services, correctional facilities, and road and major infrastructure construction and maintenance. The Queensland Government will lead by example and ensure that government actions are based on the goals and targets of the strategy.

All government departments will be required to prepare and implement strategic waste management plans. These plans will be required to include targets for the purchase of recycled-content products, recycling and actions to avoid waste generation and disposal. Departments will also be required to report on the use of recycled-content product, such as recycled aggregate in government works programs.

Compost Queensland's Response

A whole of Government approach is necessary to truly turn the current 'waste' culture into one of 'resource reuse', recycling and waste avoidance, and hence to ensure the success of this strategy. The success of diverting organic materials, processing them appropriately and turning them into reusable (& therefore) valuable products will depend in no small part on the co-operation with and support from local government, but also DEEDI and especially DPI.

Action 7—Alternative waste treatment technology

The Queensland Government will provide assistance to local governments considering alternative waste technologies by establishing assessment guidelines to aid decision making.

Compost Queensland's Response

This action needs to ensure that this not only refer to what is generally referred to as AWT (Alternative Waste Treatment Technology), but covers all advanced technologies equally, including those that process source segregated materials.

As far as AWT is concerned, it is paramount that DERM establish guidelines and regulations that govern the use of MSW compost before the next AWT facility is given permission to be established and operated in QLD.

Strategic action—Competitive grant program: industry investment and infrastructure program

The Queensland Government will establish a competitive grants program to encourage and facilitate industry investment in infrastructure and market development. Priority funding areas may include:

- regional infrastructure and market development for recovered concrete, used glass, end-of-life tyres, organic materials
- establishing opportunities for the recovery and use of particle board and low-value timber recovered from mixed wastes
- developing processing capability and markets for end-of-life agricultural plastic mulches and irrigation tape.

Compost Queensland's Response

We support all aspects of appropriate funding that will facilitate a quality outcome that not only diverts organic materials from landfill but also delivers 'fit for purpose' products to the end users.

This is especially relevant to create local markets for local recycled organic materials.

However, the experience so far is that the industry is far from capable of understanding the scope & application of these products and categorising the product range into "Fit for Purpose" for maximum beneficial reuse and positive environmental outcomes.

Action 11: Market development for recycled organic products

In 2011, the Queensland Government will work with the organics processing industry to help develop markets and uptake for recycled organic products.

Compost Queensland's Response

See comments both above and in Action 1. We support also the establishment of a high level 'Steering Committee' to ensure cross-departmental support of recycled organic materials. The Government needs to be aware that market (and product) development is a longer-term objective, and requires longer-term support. Product range and uptake of these products can only occur using a scientific approach to the problem in conjunction with the education & marketing.

Action 12: Regional resource recovery support programs

In 2012, the Queensland Government will undertake 25 strategic projects in regional Queensland aimed at reducing waste disposal, improving resource recovery and creating 'green' jobs in regional areas. Priority areas will include organics processing, material recovery facilities, establishing strategic regional resource recovery infrastructure, local market development and waste processing for construction waste.

Compost Queensland's Response

Compost Qld through its "On Farm Composting Initiative" in conjunction with AACC and the Organics Recycling Industry believes in regional areas organic waste is a major component of the potential waste stream and that funding and project support for production & beneficial reuse of these materials is essential.

As the quality and type of the feedstock and type is paramount to achieving quality of recycled organic products, Compost Queensland believe they are vital and need to be actively involved in the design and implementation of such programs.

On-farm composting and involvement of local farmers in the processing of municipal and commercial organics has been totally under-utilised as so far only Compost Qld has recognised warrants support from both DERM and DEEDI.

Strategic action—National projects

The Queensland Government will continue to work with the Australian Government and states and territories on national priorities, including implementing the National Waste Policy and developing a national product stewardship framework.

Compost Queensland's Response

Compost Qld believes it is imperative that a national approach be framed and linked to Codes of Practice and Industry Guidelines. Since Compost Queensland is an integral part of Compost Australia, the Australian Organics Recycling Industry is ideally placed to participate in National programs and deliver outcomes Australia-wide.

Strategic action—Research and development

The Queensland Government will work with various sectors, industry bodies and associations to identify research and development opportunities for innovative technologies, processes and products and to support the work of Cooperative Research Centres and similar entities.

Compost Queensland's Response

Compost Qld suggest that a percentage of levy funds, e.g. 1% (= \$1.5 million) is spent annually on R&D to support recommended activities by the industry.

It is imperative that further work be conducted in conjunction with all relevant bodies as is evidenced by the outstanding results achieved by one member with the University of Qld (Darguish, 2010) previously cited.

Action 15—Household green and organic waste collection

The Queensland Government will work with local governments and the organics processing industry to design a series of different green and organic waste collection options (for example, a third kerbside collection bin for green waste only; provision of a kitchen food waste bin and collection of green and food waste using an existing two-bin system with collection in the alternate week to the recycling bin). These options will be trialled in selected areas across the state.

Compost Queensland's Response

Clear objectives of the trials need to be established. Implications for processing and product quality need to be taken into consideration. With regard to organics kerbside collection schemes, it is counter-productive if people who do 'the right thing' are punished by having to pay more than those that do 'the wrong thing'.

This sends entirely the wrong message, and a levy for MSW that goes to landfill could help counter this situation. Hence, aspects of costs and cost sharing need to be included in the trials and the marketing & education of this is imperative. The water crisis is a prime positive example of how once community is engaged that many more do 'the right thing'.

The input from Compost Queensland in this area will be invaluable to Qld Government & Local Councils regarding these issues. Through the Compost Australia affiliation problems / issues that have occurred in other states can be accessed and are not repeated here while the opportunities they have realised are maximised.

Action 17—Target 150

The Queensland Government will work with local government, the waste and resource recovery industry and community groups to increase household recycling and decrease household waste disposal to 150 kg per person within 10 years. The current household recycling level is 64 kg per person and the current disposal level is 267 kg per person. This program may include initiatives such as:

- RecycleSmart education and awareness to inform householders of the problems with contamination in the recycling bin, the materials that can be recycled and useful tips for recycling smarter
- Assessing options to provide people with enhanced capacity to recycle more and better (e.g. smaller waste bin, larger recycling bin)
- Investigating incentive programs to motivate increased household recycling of priority products such as end-of-life televisions and computers, batteries and fluorescent lights.

Compost Queensland's Response

Compost Qld recognise that organic materials constitute a major portion of the commercial and municipal waste streams. It is therefore crucial that these materials are factored into the priority area both to ensure funding back to the industry to support appropriate programs as well as maximised recovery and diversion of quality

materials. Without significantly increasing organics recycling activities, the mentioned recycling rates cannot be achieved.

Action 19—Community gardens project

The Queensland Government will work in partnership with local governments, compost manufacturers and environment and community groups, such as Greening Australia and organic farming associations, to establish community garden and permaculture projects. The program could include competitive grants funding for communities to plan and design gardens and purchase equipment and plants, etc. The project will help begin behavioural change in households about the way we view food and reduce the amount of food waste generated.

Compost Queensland's Response

Compost Qld wholly endorses this concept. It is crucial that close links are established between the community and organics recovery, in the understanding of, as well as the use of, recycled organic products.

The 'correct' production and/or use of compost at community gardens will demonstrate to the community the importance of source segregation and minimisation of contaminants in the positive results achieved in generating high quality 'fit for purpose' compost products. This will ultimately aid the industry's objective of creating beneficial reuse of 'fit for purpose' products and expand markets.

Action 21—Business waste avoidance and resource recovery program

The Queensland Government will assist 5,000 Queensland businesses to put in place practices and install infrastructure and equipment to help increase recycling and reuse, reducing the amount of waste generated and disposed to landfill.

Compost Queensland's Response

Compost Qld believes that Government with support of industry via proper recognition & funding will be critically important in establishing a viable collection service for commercial and industrial organic residues. This is vital as a certain threshold (critical mass) has to be surpassed, before the separate collection service becomes viable for both transport companies, and businesses that generate organic residues.

Compost Qld supports a (market-based) scheme / system that rewarded users for utilising recycled organic products, as part of incentives for provision of ecosystem services. If councils charge for organics recycling services, they could include a transport subsidy component. It could be an objective of the strategy to develop such a system.

For more information on this subject, please see the attached **Compost Australia Compost Queensland plan** for the conversion of organics from urban environments into compost for agricultural soils.

Summary of Recommended Solutions

Ensure the Organics Recycling Industry; through Compost Queensland have a place on the SAC;

Ensure the Organics Recycling Industry, through Compost Queensland are represented on the SAC sub committees of policy and infrastructure;

Provide funding for Compost Queensland's Marketing & Industry Development Officer to coordinate local activities, promote the industry, liaise with stakeholders (Government & Industry) and develop and deliver education programs / training;

Provide funding to develop a Queensland standard for Compost to ensure quality and safe product is sold to Queensland Industry, Commercial enterprises and general public;

Provide funding and support for a robust education and training package aimed at the landscaping, farming sector, government and community;

Compost Qld encourages discussion with the industry for the implementation of a suitable target for the recovery of organics materials such as but not only 'garden organics', 'food organics',

Compost Qld recommends the use and support of Compost Australia's existing data and its collection processes;



Compost Qld supports the development of Best Practice Guidelines;

Compost Qld supports the Code of Conduct currently being developed by the Industry;

Compost Qld recommend a percentage of levy funds, eg 1% (= \$1.5 million) is spent annually on R&D for the Organics Recycling Industry on projects recommended by them and not on activities that are already happening eg data gathering.

A handwritten signature in black ink, appearing to read "D E Baker", is written over a horizontal line.

D E Baker BSc, Chair QLD, WMAA, ASSSI

Over the 5 year term of this plan compost will abate or sequester at least 22.6 million tonnes carbon dioxide equivalent. If all of the estimated 20 million tonnes of biomass currently sent to landfill was composted and applied to land at least 27 million tonnes per year of carbon could be abated or sequestered to soil.

Background

Carbon and nutrients currently flow from the country to the city mainly as food and fibre. A large proportion of that material takes just a few days to be consumed (and digested) or is simply wasted, almost immediately becoming food waste and sewage. Urban landscapes also produce hundreds of thousands of tonnes of plant matter from homes, businesses and public spaces. This is an enormous wasted resource that Australia has barely tapped.

In the past most of this material has been disposed to landfills, rivers and oceans. More recently some of it has been recovered and used in gardens, roadsides and other public spaces. Over 4 million tonnes of organics generated in cities, mainly garden organics, is already being used to make composts and mulches. It is estimated that there is at least another 16 million tonnes of organics, including plant matter, untreated timber, bio-solids and food that are still being wasted.

Even now very little of the carbon or nutrients taken from the soil gets back to the agricultural land from which it came. In effect Australians have been mining the top-soil for carbon and nutrients, and in most cases the land didn't have much of either to begin with. In excess of 75% of Australian agricultural soils now contain less than 1% organic material.

Commercial composting represents a huge opportunity to convert a perceived waste problem into an organic resource for Australian agriculture. Land degradation, greenhouse gas emissions, reliance on irrigation water, and reliance on expensive imported inorganic fertilizers can all be ameliorated by application of recycled organic products to agricultural land.

Due to market and policy failures, economic incentives and changes to government policy settings are required to transition to a more sustainable system where it becomes common practice to return carbon and nutrients from cities to agricultural land.

The case for government intervention

Many of the environmental benefits associated with the use of compost products flow to the broader community not solely to the prospective compost buyer; they are in effect public goods. For example the environmental services provided by compost as it stores carbon in the soil or reduces nutrient run-off into a local stream is of little direct financial benefit to a farmer but is good for the community as a whole. This market failure is a crucial barrier to the use of compost in finely tuned production based agricultural systems like vegetable growing or viticulture.

The two main barriers to greater uptake of compost product have been identified as *price* and lack of product *knowledge*. Compost products are relatively expensive to transport over long distances due to their relatively low density and high moisture content. Agricultural markets are often distant from the urban areas where large quantities of organic waste are generated and compost products are made.

The majority of state governments in Australia are encouraging the diversion of organic matter from landfill by levying fees on each tonne of waste disposed. The resulting pressure on the supply of recovered organics without a matched emphasis on creating demand for compost and mulches is limiting the growth of organic recycling in Australia.

The application to land of most agricultural wastes, such as animal manures, is not currently regulated. This means they can be applied to land without incurring treatments costs such as pasteurisation or composting. Despite the environmental and agronomic risks associated with these untreated wastes they are often sold in direct competition with properly treated quality composts and mulches. Untreated wastes can be provided to the farmer at a lower cost because the cost of environmental damage have been externalized. This is another major barrier to composts and mulches being used in agricultural applications.

Without appropriate assistance from Australian governments these barriers may never be overcome, meaning the benefits detailed in this plan will not be realised.

Benefits to the environment and agriculture

CLIMATE CHANGE

Composting diverts organic material from landfill where it is responsible for generating methane, a greenhouse gas 25 times the potency of carbon dioxide. Saving one tonne of organic material from landfill saves in the order of 0.9 to 2.7 tonnes of carbon dioxide equivalents. Increasing and maintaining soil carbon in agricultural soils can sequester atmospheric carbon. One tonne of composted mulch applied to land can sequester approximately 0.25 tonnes of carbon dioxide equivalent.

Fertiliser production is very energy intensive and applying fertiliser results in nitrous oxide losses to the environment; substituting composts for fertiliser thus results in greenhouse gas abatements. Compost offers Australian agriculture a way to reduce its reliance on chemical fertiliser, adapt to climate change and respond to any increase in costs resulting from a CPRS.

Compost also increases resilience in agricultural systems thus providing Australian agriculture with the necessary tools to adapt to climate change impacts via measures such as; buffering of soil temperature fluxes (to deal with temperature extremes) and improving the water holding capacity of soils (to increase drought tolerance).

LANDFILL POLLUTION

Composting diverts organic material from landfill where its high water content generates liquids (leachate) which mobilize other pollutants in landfills and then disperses them into the environment. In addition appropriate space for landfill is becoming limited. Given that organic materials represent approximately half of the waste disposed to landfill, composting significantly extends the life of existing landfills.

AGRICULTURAL PRODUCTION

Compost use in agricultural production can take several years to realise its full agronomic benefits. However, an average 1-2% increase in yield can be expected per tonne of compost applied. While much larger increases in yield have been observed in specific circumstances (for example where soils are highly degraded) this range offers a conservative basis for calculating agricultural production benefits.

Australian organic waste generation from all sources is in the order of 20 million tonnes per year. Using conservative nutrient levels of 1.0% nitrogen, 0.4% phosphorus and 0.75% potassium, reusing organic wastes has the potential to replace 240,000 tonnes of urea, 525,000 tonnes of super phosphate and 225,000 tonnes of potassium sulphate (calculated on a dry weight basis assuming average 40% moisture content in compost). Given the high cost of local and imported fertilisers and the increasing scarcity of key nutrients internationally this offers Australian agriculture an amazing resource for the future.

Depending on application rates and the agronomic context, composts can save more than 30% of irrigation water. This translates to a saving of between 0.13 and 0.95 ML of water per hectare per year, depending on crop and soil types.

LAND CONSERVATION

Declining soil productivity is associated with reduced organic carbon levels. Since the industrialised era began it is estimated that around 15% of the increased atmospheric carbon dioxide level is due to agricultural activity. Organic carbon, because of its influences on fertility, biological health and physical properties is centrally important to soil productivity.

Soil in poor physical condition is subject to erosion leading to the loss of valuable topsoil. Savings of between 2.3 and 17 tonnes per hectare of soil loss due to erosion can be achieved with recommended mulch applications.

Economic and policy instruments suitable for diverting compost to agriculture

Compost Australia recommends five steps to realising the benefits to the environment and Australian agriculture described above:

1. Provide a level playing field for competition by negotiating with the state governments to extend existing regulations to cover land application of all organic wastes (not just composts and mulches derived from urban wastes). At a minimum this should require pasteurisation of all putrescible organic material before it is applied to land. This will have the effect of making composted materials, including composted agricultural residuals, more economically attractive to growers.
2. Having removed a relatively low cost source of nutrients for growers, provide a per tonne rebate to growers who apply approved composts in appropriate manner to agricultural land. This may be funded by state governments through their waste levies or directly by the federal government as a complimentary measure to the Carbon Pollution Reduction Scheme. The rebate offers an ideal way to assist Australian agriculture in transition to a low carbon economy.
3. Using the existing Australian Standard for Composts, Soil Conditioners and Mulches as a starting point, work with the industry to define the compost that qualifies for a rebate. The rebate must provide sufficient incentive for growers to trial compost in their situation and integrate it into their production system.
4. Support R&D programs focused on compost use in agriculture by providing matched funding for money raised by the Recycled Organics Industry. Knowledge, and the conversion of knowledge into practice, is necessary to reap the full benefits of composts in agriculture.
5. As the uptake and availability of quality, fit for purpose, composted products reach target levels reduce or phase out the rebate whilst monitoring the impact on compost use. In the medium to long term there is sufficient agronomic value in fit for purpose products to justify the cost of production and transport.

It is crucial that this plan does not result in more unsuitable, poorly treated organic wastes being disposed of to agricultural land. Delivering the rebate to growers ensures that they are in control of what they purchase and that compost manufacturers must still compete to supply the market with fit for purpose products.

This is a *transitional plan* not an ongoing program. A small number of compost manufacturers around Australia have successfully differentiated their products in the marketplace and command prices of more than \$100 per cubic meter (\$140 per tonne) in agricultural markets. This is a real world demonstration of the value that compost can deliver to agricultural production. This plan gives both growers and manufacturers the opportunity to realise that value on a large scale.

Logistics of production and transport

Nationally organic recyclers are in a position to deliver and spread at least 2 million tonnes of quality, fit for purpose, composts and mulches on agricultural land each year from 1 July 2010. Application rates vary depending on compost use, however 20 tonnes per hectare represents an average suitable application rate across a range of uses. Under this plan a limited amount of compost would qualify for the rebate each year.

Recommended quantities available for application to agriculture

State	Compost and Mulch (tonnes)	Coverage (hectares)
Queensland	300,000	15,000
New South Wales	600,000	30,000
Australian Capital Territory	100,000	5,000
Victoria	400,000	20,000
South Australia	300,000	15,000
Western Australia	300,000	15,000
National	2,000,000	100,000

Note: The Northern Territory and Tasmania have been excluded from the plan because production capacities and capabilities are unknown at this time.

The program should provide sufficient time to allow growers to experience the benefits of compost use and integrate it into their growing systems. It is then recommended that, as agronomic value is demonstrated, the rebate be phased out over time. Trials have shown that the full benefits of compost use are realised over a three to five year period.

Financial year ending 30 June	Rebate (\$/tonne)
2010	0
2011	30
2012	30
2013	30
2014	20
2015	10
2016	0

Industry experience suggests that a rebate of \$30 per tonne (applied) would provide sufficient incentive for most growers to use compost. Composted soil conditioners suitable for agriculture currently sell for anywhere between \$30 and \$150 per tonne (applied), with the majority of sales at the lower end of this scale. Costs to produce, transport and apply such products start at approximately \$50 per tonne and are greatly influenced by the cost of transport.

Assuming the rebate is fully taken up by growers, the cost of this plan to governments would be \$60 million per year or \$240 million over five years. This is offset by average tangible benefits to agriculture and the environment of \$180 million per year, a 300% annual ROI (see table over page). This calculation ignores the value of reduced erosion and sediment flow, reduced nutrient flow into rivers and oceans and the long term improvements to soil health and productivity, which are difficult to quantify in dollar terms.

The annual carbon sequestered and abated by this plan would be at least 4.52 million tonnes carbon dioxide equivalent per annum. This is a conservative estimate that does not consider the longer term soil carbon sequestration resulting from improved soil health. Additional carbon sequestration benefits rely, at least in part, on growers adopting appropriate land management practices in conjunction with application of compost.

While bio-char is also effective at storing carbon in the soil it currently costs thousands of dollars per tonne to produce and is only available in very small quantities (hundreds of tonnes per annum). In contrast compost costs \$50 - \$100 per tonne to produce and is immediately available in large quantities (millions of tonnes per annum). This makes compost a considerably more cost effective and immediate way to abate and sequester carbon.

Based on existing economic activity created by the Recycled Organic Industry, the manufacturing of an additional 2 million tonnes of compost products would create at least 660 new jobs (1 job per 5000 input tonnes) and stimulate direct economic activity of over \$300 million (\$90 per input tonne). This plan will guarantee ongoing growth of organic recycling as compost becomes a mainstream product in agriculture.

Value of tangible benefits by state each year

	Cost	Water saving	Value of irrigation water saved	Carbon abated or sequestered	Value of carbon	Value of yield increase
	\$	ML	\$	t CO ₂ -eq	\$	\$
QLD	9,000,000	15,750	15,750,000	678,760	6,787,600	4,500,000
NSW	18,000,000	26,250	31,500,000	1,357,520	13,575,200	9,000,000
ACT	3,000,000	5,250	5,250,000	226,253	2,262,533	1,500,000
VIC	12,000,000	21,000	21,000,000	905,013	9,050,133	6,000,000
SA	9,000,000	15,750	15,750,000	678,760	6,787,600	4,500,000
WA	9,000,000	15,750	15,750,000	678,760	6,787,600	4,500,000
National	60,000,000	105,000	105,000,000	4,525,067	45,250,667	30,000,000

Assumptions

Parameter	Value	Units	Notes
Average gross yield value	20,000	\$/ha/yr	Intensive irrigated agriculture
Average yield increase	1.5	%	
Carbon price	10	\$/t	
Average carbon abated	1.25	t CO ₂ -eq/tonne compost	Excludes carbon abated through reduced fertiliser use and improved workability of soil
Average carbon sequestered	0.25	t CO ₂ -eq/tonne compost	Assumes application to land of semi-stable or stable compost products
Average water content	30	%	
Average irrigation water demand	3.5	ML/ha	Intensive irrigated agriculture
Average water saving	30%		Not realised where natural rainfall meets or exceeds plant requirements
Average cost of irrigation water	1000	\$/ML	High security water costs up to \$3000/ML in MDB and is not always available
Rebate	30	\$/t	
Average application rate	20	t/ha	

Defining Compost

It will be important to define 'compost' so that government can:

- Effectively administer the rebate;
- Realise the full public and private benefits; and,
- Ensure that unsuitable products do not undermine the value of compost into the future.

Compost is defined by the Australian Standard for Composts, Soil Conditioners and Mulches (AS4454) which was updated in 2003 and will be updated again during 2009. Compost can be manufactured from a number of organic materials including many organic wastes. Compost is defined by its physical, chemical and biological properties.

Compost is categorised by particle size (a physical property)

Category	Particle size	Common use and action
Soil conditioner	<16 mm	Incorporated in soil to add carbon and nutrients, increase biological activity and increase water holding capacity.
Mulch	16 - 30 mm	Provides a long term (3+ year) physical barrier to reduce evaporation, improve soil water holding capacity, buffer soil temperature and gradually add carbon to the soil.

Particles >30mm are generally considered oversize and must either be ground into finer materials, used to produce energy or, through pyrolysis, energy and bio-char. In this way composting and pyrolysis can be complimentary activities, with fine and wet organics being composted and coarse dry materials being pyrolysed.

Guidelines and standards exist for both physical and chemical contamination of composts and can be applied to set maximum contamination levels for use in agriculture when implementing this plan. Guidelines have also been developed by Compost Australia to assist manufacturers design and produce fit for purpose products.

Compost occasionally fails to deliver benefits in agricultural applications due to lack of attention to its biological properties of stability and maturity. A more stable and mature compost takes more time and effort to produce (and more process control) and therefore has a higher production cost. As most growers don't understand the risks of unprocessed or poorly processed organic materials they are often unwilling to pay more for stable, mature products.

The 2009 revisions to the Australian Standard will provide the tools to measure and set minimum standards for stability and maturity in a variety of agricultural applications. The stability of an organic material falls into the follow four broad categories:

1. Raw or untreated products
2. Pasteurized products
3. Semi-stable composted products
4. Stable and mature composted products

In most cases agricultural applications require more stable and mature products (category 3 and 4). It is these products that provide the more stable forms of carbon suitable for long term sequestration of carbon to soil.

Conclusion

Commercial composting represents a huge opportunity to convert a perceived waste problem into an organic resource for Australian agriculture. Land degradation, greenhouse gas emissions, reliance on irrigation water, and reliance on expensive imported inorganic fertilizers can all be ameliorated by application of recycled organic products to agricultural land.

Due to market and policy failures, economic incentives and changes to government policy settings are required to transition to a more sustainable system where it becomes common practice to return carbon and nutrients from cities to agricultural land.

The two main barriers to greater uptake of compost product have been identified as *price* and lack of product *knowledge*. Without appropriate assistance from Australian governments these and other barriers may never be overcome, meaning the benefits to Australian agriculture and the environment that we have identified may never be realised.

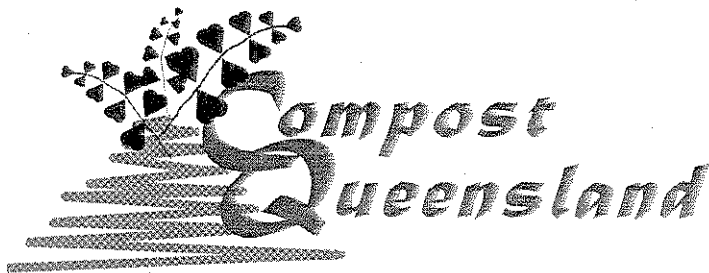
Compost Australia recommends five steps to realising the benefits of compost applied to agricultural land:

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D E Baker Chair - Contact E e.s.s.a@bigpond.net.au, PO Box 442 Sunnybank Q 4109, M 0403245560

LETTER Re Qld Waste Strategy Consultation

29 July 2010

To Project Manager –

**Queensland's Waste Strategy consultation
Natural Resources and Environment
Department of Environment and Resource Management
GPO Box 2454
BRISBANE QLD 4001**

Compost Qld attaches a submission re the Queensland's Waste Strategy and the submission is attached to this letter.

Compost Qld (CQLD) as the peak body for the industry and as part of Compost Australia strongly encourages DERM & the Government to carefully consider CQLD submission.

Compost Qld without any assistance to date has the ability to set standards that will be envy of all others states & territories. The submission sets up framework that will take Qld organics recycling (throughout the state) to its rightful leadership role.

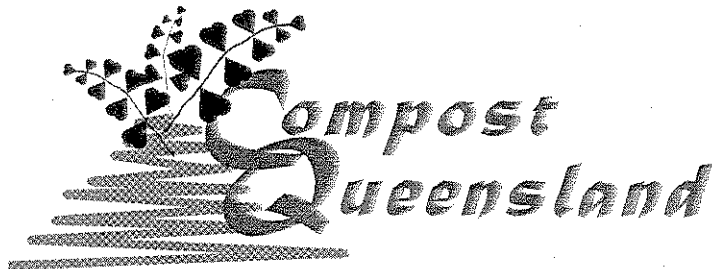
Compost Qld looks forward to your careful consideration of our response and look forward to guiding the process as a vital member of SAC into the future.

Regards

July 29, 2010

D E Baker BSc, Chair CQLD, WMAA, ASSSI

ATTACHMENTS Waste Strategy Response, Compost for Ag & CA Carbon Article



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Killing two birds ... the compost and carbon story

Global warming is the problem

Global warming, due to anthropogenic (your and my) emissions of greenhouse gases (GHG), is a reality that all but a few fringe dwellers, now accept.

In a natural system plants photosynthesis CO_2 from the atmosphere, expire oxygen and take up soil nutrients. Plants are eaten by animals which expire CO_2 and both decompose to generate CO_2 and soil organic matter. And thus the loop is closed in a continuous cycle through the biosphere. Sometimes this is described as the "new" carbon cycle.

Anthropogenic climate change is driven by the continuous addition of "old" carbon into this loop by mining and burning oil, coal and methane gas, amongst others, releasing carbon that has been buried in the ground (and thus taken out of the active carbon cycle) for millions of years. The system consequently becomes overloaded with carbon, and CO_2 in particular. The additional CO_2 traps the sun's heat via another complex process and the result is a warming of the atmosphere.

So much for the science of global warming. Simple really.

In the modern world we further interrupt this 'new carbon' natural cycle in lots of ways, but in the context of this article, the interruption occurs by us taking degradable plant and animal matter and putting it in landfill. Why is that a problem? Because in landfill organic matter breaks down (in the absence of air) to produce methane rather than carbon dioxide. Methane is at least 21 times more potent as a greenhouse gas than carbon dioxide.

We further complicate the issue by moving large tonnages of organic matter (food, fibre, etc) from the countryside (where it would normally decay on the ground in air) to the cities to be disposed into landfill. These flows are summarised below.

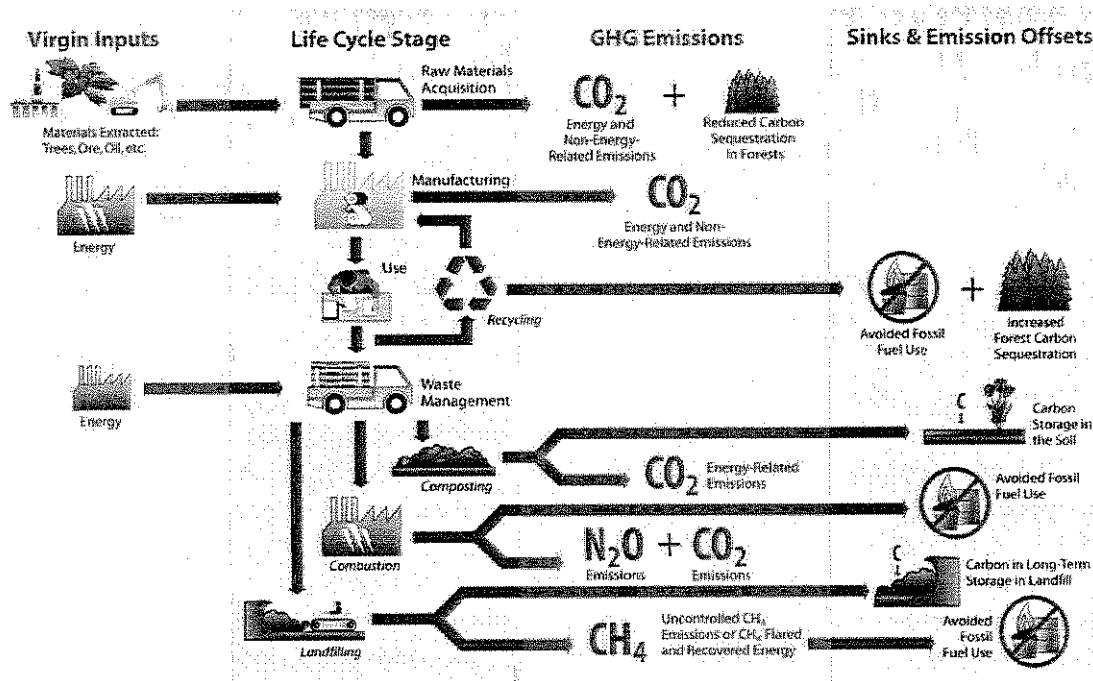


Figure 1: Life cycle system showing flow chart of resources (including carbon). Note that landfilling stops the recycling of resources. Source: US EPA, 2010. Solid waste and materials management. www.epa.gov/climatechange/wycd/waste/lifecycle.html

So where does compost fit into that cycle? It fits right in the middle. Producing compost from the plant and animal matter instead of landfilling it has enormous potential to significantly reduce the emission of methane from landfill, and the application of the compost to land actually places the carbon back into the soil that the original plant and animal matter removed – this is referred to as re-sequestering the carbon from the atmosphere. Both of these direct consequences of compost production and application take carbon out of the active carbon cycle and thus reduce global warming.

The biggest benefit of composting with respect to global warming comes from avoiding methane emissions from landfill.

To see the potential GHG savings one only has to consider that composting in Australia already reduces emissions – at almost 4.5 million tonnes of CO₂-e per year – by as much as the more costly method of attempting to capture of landfill gas from organics already placed in the landfill. And the compost industry is currently small by any estimate.

Although composting sits at the top of the waste management hierarchy at the moment only 3.7 million tonnes of putrescible waste is composted in Australia while the majority of organics (estimated at 11 million tonnes by Compost Australia) is landfilled.

Rather than treating organics as a waste it is time we recognised organic materials as a valuable resource that needs to be recycled back through the productive economy.

Australia has the oldest and most degraded soils in the world. Compost is one of the most effective ways to replenish and build soil carbon and to improve the physical, chemical and biological health of soils.

Which brings me to the second major benefit of compost in relation to climate change – the capacity of compost to sequester carbon in soil and thereby abate global warming.

The following figure (2) shows how much soil carbon can be built up through the ongoing application of composts to soils. This carbon enriches the soil, improving its physical properties, which improves its fertility, whilst taking the carbon out of the active carbon cycle.

We know by how much compost production removes carbon from the active carbon cycle because the original plant and animal material is not landfilled.

The real question that science is grappling with at the moment is how much of the carbon that is contained in the compost is “permanently” removed from the atmosphere. There is no simple answer to that at present but there is a lot of research underway.

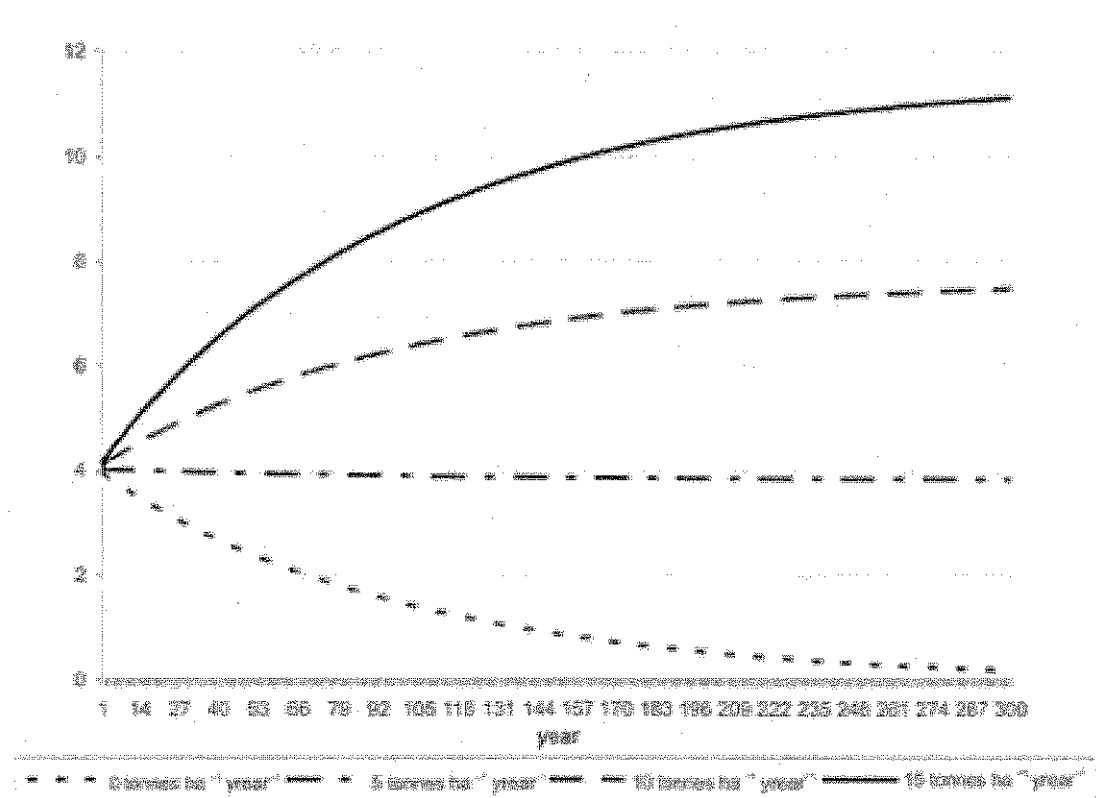


Figure 2: Effect of different rates of compost application on soil organic matter levels (as a percentage of soil weight) in time. Source: Favoino, E. and Hogg, D., 2010. The potential role of compost in reducing greenhouse gases. Waste Management & Research, 26:61-69.

Market potential for compost

We are entering an economic period characterised by carbon constraints. What does that mean? It means all decisions of companies, governments and regulators will be scrutinised for their effects on atmospheric carbon – the higher the carbon pollution, the higher the costs of polluting.

Anyone who thinks that the (short term) delay in the CPRS means the death of market signals (pricing or regulation) for a price on carbon does not understand the gravity of the situation. Carbon pricing and control is coming – the longer we delay it, the greater will be the overall cost.

So how does that affect the compost sector? The relatively low uptake of composting is both an oversight and an opportunity.

But why has the composting industry been so slow in taking advantage of the opportunities afforded by a carbon constrained economy? Of selling its story to regulators and the market?

In the recent NRI Summit (June 3-4, 2010 Sydney) it was pointed out that greater uptake of compost products is hindered by two main barriers: a lack of product knowledge and price signals.

While product knowledge (soil fertility, plant productivity and climate change benefits) can be improved through seminars, demonstrations and hands on field trials with farmer participation etc, correcting the price barriers is a tougher nut to crack.

What price barriers?

Firstly, in the agricultural sector composts have to compete against chemical fertilisers. Composts do not contain the same high levels of essential nutrients as fertilisers, and many potential purchasers of compost want a compost product that provides the same absolute nutrient level. Based on absolute levels, composts are more expensive than chemical fertilisers to apply to the land. But this is not the entire picture.

Composts have significant benefits over chemical fertilisers in the efficiency of nutrient uptake by plants, meaning that significantly less nutrient levels in compost provide the same plant growth as the higher levels found in chemical fertilisers. And composts can repair the degraded and acid nature of soils caused by continual chemical fertiliser applications.

Secondly, for those users of organic nutrient products in their farming systems, composts have to compete against untreated wastes such as non-composted manures and biosolids that are provided to the farmer for a low or even zero cost delivered. Compost Australia points out that this is only achieved because the potential cost of environmental damage of non-composted wastes (like biosolids) has been externalised. Composts and mulches on the other hand are regulated, process controlled and therefore relatively risk free. But process control comes at a price.

To level the playing field Compost Australia would like to see the government extending regulations to cover all organics applied to land. For example the 3F regulation in NSW is yet to apply to manures, animal bio-waste and biological liquids. All need to be captured under the same regulatory net to level the playing field.

In the meantime Compost Australia estimate that they are bearing a \$30/t cost premium over unregulated products by producing AS4454 certified products and (in NSW) 3F compliant products. This is not translated into a sales price premium because farmers remain price sensitive and are not fully informed of the differences between these competing products.

Thirdly, composting processes compete with landfill for the supply of the organic wastes. While landfill gate fees continue to avoid the inclusion of their externality costs (the cost of global warming caused in part by landfill methane emissions) they will be artificially cheaper than the alternatives. Of the 1400 landfills in Australia (700 regulated landfills and 700 tips), fewer than **ten** (10) capture enough gas to claim carbon neutrality, and even that is subject to dispute.

While ever the global warming benefits of sequestering carbon in soil are not recognised and priced, the economic gains of composting will also not be fully recognised and reflected in the market price.

These issues are rightly the province of government and can only be fixed by government intervention. The CPRS was the first best option. With its deferral it is up to government to look for new solutions.

Compost Australia recommends that either the regulatory playing field be urgently levelled or better still, part of the monies raised by landfill levies be directed to improving compost infrastructure and competitiveness.

Abatement, green jobs and a better environment

By addressing these market distortions government should recognise the benefits in abating climate change. Making compost financially competitive will open up the market and stimulate demand which will result in reduced landfilling of organics, reduced methane emissions and lower production costs for compost through economies of scale.

For every additional million tonnes of compost produced the industry will create 330 new jobs. The economic benefits to agriculture and the environment are estimated to be at least \$90 million per year per million tonnes of compost [what is Mike's information source here?].

Putting it another way, if governments collectively invested \$30/t applied to land to boost the sector for say 1 million tonnes, 330 new jobs would be created and an additional \$90 million of economic benefit would be generated (300% direct return). The value of carbon abatement from reduced fertiliser use and tillage is additional and currently unpriced. Environmental services associated with compost use (such as soil enrichment, erosion reduction and reduced nutrient run-off) are also not priced into this equation.

In summary, improving the effectiveness of the compost sector in diverting organics from landfill and back into Australia's degraded agricultural soils is a "no brainer". We

need to align State and local governments, regulators, farmers and the composting industry to drive growth in scale and the rapid delivery of the (abovementioned) environmental gains.

Bring on the Organics Revolution.

Mike Ritchie.

Director Mike Ritchie and Associates
mikeritchieassoc@bigpond.com

Useful readings

- Compost Australia, 2010. Organics fact sheet. Compost Use Mitigates Climate Change.
www.compostingcouncil.org/download.php?r=58&f=9c456af049262639c09ccd0b40c015f8.pdf
- US Composting Council, 2008. USCC Fact Sheet. Greenhouse Gases and the Role of Composting: A primer for compost producers.
www.compostingcouncil.org/download.php?r=15&f=34b7cbc44f552a8d44606effb3792e07.pdf
- Sharma, G & Campbell, A., 2007. Life Cycle Inventory and Life Cycle Assessment for Windrow Composting Systems, 2nd edition. Recycled Organics Unit, University of New South Wales, Sydney, Australia.
www.recycledorganics.com/publications/reports/lca/lca.htm
- Inside Waste Weekly 2010, NRI Summit to set Australia's waste agenda.
www.insidewaste.com.au/storyview.asp?storyid=1035697