



Policy Statement on STANDARDS FOR RECYCLED ORGANICS APPLIED TO LAND

PREPARED BY THE



MUNICIPAL WASTE ADVISORY COUNCIL
"Getting the Environment Right"

December 2007

Status of this Policy Statement

This Policy Statement has been prepared by the Municipal Waste Advisory Council and adopted by the Western Australian Local Government Association. The Municipal Waste Advisory Council is a standing committee of the WA Local Government Association with delegated authority to represent the Association in all matters relating to solid waste management.

The Municipal Waste Advisory Council has been formed through collaboration with Regional Councils who are not ordinary members of the WA Local Government Association. The resulting body effectively represents the views of all Local Government bodies responsible for waste management in Western Australia.

Policy Statements adopted by the WA Local Government Association represent a consolidated viewpoint from local government and may differ from the positions adopted by individual member organisations. The Municipal Waste Advisory Council and the WA Local Government Association will strive to promote this Policy Statement and to act consistently with its contents. Individual Local Governments and Regional Councils are encouraged to support them in this but are not bound by the document.

Policy Statements adopted by the WA Local Government Association are reviewed and new Policy Statements are developed regularly. The latest WA Local Government Association Policy Statements can be obtained from the website: www.wastenet.net.au

In-line with standard MWAC policy, this policy statement will be reviewed 6-months after its endorsement by the State Council. It will be reviewed again at least every 2-years subsequent to this; with any significant developments acting to instigate an earlier review.

The Municipal Waste Advisory Council's member organisations are:



Policy Statement on STANDARDS FOR RECYCLED ORGANICS APPLIED TO LAND

Title:	WA Local Government Association Policy Statement on Standards for Recycled Organics Applied to Land (December 2007)
Scope of the Policy	<p>This policy statement is intended to enunciate Local Government position on the key principles essential to guide the development of standards for recycled organics applied to land.</p> <p>It is not intended that this policy statement should –</p> <ul style="list-style-type: none"> ○ Compare application of recycled organics to land with other potential end-uses for the organic content of waste or promote land application in preference to other uses; ○ Compare application of recycled organics to land with the application of inorganic fertilizers; or ○ Apply to un-pasteurised mulch that is applied to land in-situ.
Purpose of Policy	<p>It is intended that this statement, and standards developed according to the principles contained here-in, should help to ensure that where recycled organics are applied to land:</p> <ul style="list-style-type: none"> ○ The application poses minimal risk to human health and the environment; ○ All recycled organics compete for markets on an equitable basis; ○ The standards imposed are based on sound scientific principles and enhanced by ongoing research specific to Western Australian soils and agricultural and horticultural systems; ○ The scientific, economic and environmental benefits inherent in applying quality recycled organics to soil are effectively communicated to target markets; ○ Sustainable, cost effective markets for quality recycled organic products are developed and enhanced; and ○ An education awareness program is developed and implemented to increase public understanding of the issues and uses of recycled organics.
Background of Policy	<p>A detailed background paper has been developed as a companion document to be read in conjunction with this policy statement. This paper is available online at http://www.wastenet.net.au/.</p>
Statement of Policy	<p>1. Support for diversion of organics from landfill for application to land</p> <p>Local Government recognises that land applications have the potential to represent a significant end-market for organic materials diverted from landfill. Further, it is recognised that significant potential benefits can be associated with the application of quality recycled organics to land and that, as such, this end-use is clearly in accordance with the sustainability principle. Therefore, in recognition of general community and government support for waste to be managed according to the sustainability principle, Local Government endorses the application of quality recycled organics¹ to land as an optimal end-use for waste organic materials.</p> <p>Notwithstanding this endorsement, it is recognised that Local Governments or other waste managers may in some instances identify alternative end-uses and markets for recycled organics as having preferred economic, social and/or environmental outcomes. In such cases, it is recognised that these alternative end-uses may be endorsed as the preferred option.</p>

¹ As defined in the Definitions section of this paper.



2. Equitable mandatory minimum standards based on robust science

Mandatory minimum standards are required to minimise the potential risks to human health and the environment associated with the application of recycled organics to land. To ensure all risks are controlled, mandatory standards are required for –

- Biological parameters;
- Chemical parameters; and
- Physical parameters.

2.1. Standards must apply equitably to all recycled organics, regardless of source

It is recognised that a key principle for minimising the risks associated with the application of recycled organics to land must be the introduction of mandatory, equitable standards for all recycled organics. Logically, if a recycled organic product meets the standards, the source of that product is immaterial and it must be considered acceptable for land application. It is also acknowledged that if a product does not meet the standard, regardless of its source, it should not be applied to land due to the risks associated with that application.

2.2. Standards must be differentiated to enable risk-based assessments for restricted use

2.2.1. Mandatory minimum standards for unrestricted use²

Where a product is identified as being appropriate for unrestricted use, it should be suitable to be applied in an unrestricted manner to all lands³, including residential. This incorporates product that is identified as being appropriate for unrestricted use as a result of conditioning or blending.

Reflecting this unrestricted use, the prescribed concentration limits should be derived to provide protection for human health and the environment in a worst case scenario⁴. That is, the limitations should be set so that application of the product is highly unlikely to be the cause of the receiving land exceeding prescribed concentration limits in a significant manner.

2.2.2. Mandatory minimum standards for restricted use⁵

Where a product is (or as a result of blending or conditioning is) identified as being appropriate for restricted use, it should be suitable to be applied in a restricted manner⁶. Maximum contaminant concentration levels for restricted use are required for situations where product exceeds the standards for unrestricted use, but may still be used safely in restricted conditions. That is, where risk-based application of the product can be managed to ensure the risks to human health and the environment are appropriately controlled.

² Derived from *Biosolids Management – Guidelines for Sewerage Systems, National Water Quality Management Strategy* (November, 2007).

³ It is not intended that this include any land deemed sensitive to the artificial addition of organic product e.g. native ecosystems, surface water catchments or ground water systems.

⁴ "Worst case scenario" derived from the Contaminated Sites Act 2003; which sets guideline values for analyte concentrations in soil based on the 'worst case scenario' of the potential impact to a child under three consuming contaminated soil.

⁵ Derived from *Biosolids Management – Guidelines for Sewerage Systems, National Water Quality Management Strategy* (November, 2007).

⁶ It is not intended that this include any land deemed sensitive to the artificial addition of organic product e.g. native ecosystems, surface water catchments or ground water systems.



Control steps may include blending or conditioning the product, the selection of an appropriate post-application land-use; appropriate soil testing to demonstrate relevant contaminant concentrations in soil after application are highly unlikely to be exceeded; establishing run-off controls and buffers; and instituting measures to safe guard public health or livestock access to the site.

2.3. Continuing research to be undertaken to improve the scientific basis of standards

Local Government recognises the pressing need for mandatory minimum standards to be introduced without delay; and therefore accepts the need for such standards to be necessarily based on the best available current scientific evidence. It is acknowledged and accepted that these standards are likely to be based on restrictions regarding the total allowable concentration of contaminants in soil as a result of the application of an organic product.

However, Local Government identifies that such standards fail to account for a large range of factors that should be used to establish risk-based, site specific soil limits. These factors include the bioavailability (the availability of a substance by uptake for biological systems) of a contaminant, background concentrations, toxicity, and exposure routes.

It is acknowledged that this is an extremely complex area of science. Notwithstanding this, it is considered the development of such knowledge is imperative to ensure the optimum benefits are obtained from the application of recycled organics to land in addition to minimising the risks associated with the process. Therefore, it is identified that a significant joint funding and research commitment between all stakeholders is required to pursue with some urgency the development of a rigorous, risk-based assessment system for specific application to Western Australian soils and systems. It is envisaged that such a system would eventually be used in place of, or in conjunction with, the standards for restricted use.

3. Product testing regime should be based on scientific evidence of contaminant risk

The range of analytes to be tested for should be based on robust scientific evidence of both the risk of a contaminant being present and the risk of that contaminant exceeding given standards. It is identified that a significant body of information has already been accumulated through testing of recycled organic products by various State departments (Department of Environment and Conservation, Department of Agriculture, the Water Corporation, and the Chemistry Centre) and by recycled organics producers; and that this existing information, supported by consultation with key stakeholders, should be sufficient to set an equitable testing regime appropriate to all recycled organics products with minimal delay. It is noted that research is currently being undertaken to establish a level of certainty in regard to the likelihood of a contaminant being present at a level exceeding given standards in MSW-organics; and that this research is likely to form the basis of a testing regime for this product type⁷.

It is also identified that the risk of different contaminants may vary according to the feedstock used and the processes undertaken to create the final product. As such, although all recycled organics products should meet the same outcome-based standards, the frequency of the testing and the range of contaminants tested for can be decreased if scientific evidence is accumulated to show the risk of exceeding the standard for a given contaminant is consistently negligible. In this way, feed stocks that

⁷ Pers. Comm (2007) Ron Wainberg, AWT DORF Project Chair, Hyder Consulting Group NSW.



are basically consistent, such as source separated green-waste, could achieve an appropriate confidence interval with a comparatively low sampling frequency. By contrast, other less consistent feed stocks, such as biosolids or organic material separated from MSW, may require a more intensive testing regime to be maintained.

Random auditing of the testing procedures used by an organics processor must be undertaken by an independent regulatory body to ensure the regime employed is sufficient to consistently achieve an appropriate confidence interval.

4. The standards set should be outcome-based rather than process-based

It is considered that the focus of regulatory standards should be on ensuring that the final product applied to land does not exceed prescribed concentration limits, rather than on the processes undertaken to produce that product. Setting specific processes is limiting given that a wide range of procedures are used worldwide to produce quality recycled organics products. Further, process-based standards could act to inhibit new and improved technologies being employed in the future.

Notwithstanding this, it is identified that organics processors must undertake appropriate quality assurance processes to ensure the consistent production of quality organics to the given standard. To ensure this, the processor must have the capacity to provide evidence demonstrating appropriate, auditable quality assurance processes are in place. This evidence should be auditable by an independent regulatory body as necessary.

5. Full, regulatory product disclosure should be mandatory, with 'fit-for-purpose' standards developed as a voluntary marketing tool

A distinct difference is identified between the need for full product disclosure and the need for 'fit for purpose' standards.

5.1. Mandatory disclosure

Mandatory disclosure of the source(s) and the chemical, physical and biological composition of a product is considered necessary to ensure that the purchaser of a product is aware of the attributes of a product so that they may make an informed purchasing decision. Therefore, it is considered that mandatory disclosure of the product source(s) and attributes must be made at each stage throughout the organics processing/sales chain.

Full disclosure records, including the product source(s), attributes, and quality assurance processes undertaken, must be maintained so as to be auditable by an independent regulatory body as necessary.

5.2. 'Fit for purpose' standards

Comparatively, 'fit-for-purpose' standards are identified as primarily a marketing tool to promote the use of a particular product suggested as best suited to a customer's needs. It is considered that the development of 'fit-for-purpose' criteria has value in regard to increasing public confidence and understanding of the benefits in using recycled organic products; and that their voluntary adoption should be encouraged. However, Local Government identifies that such standards would be prohibitively complex to allow for effective enforcement by a regulatory body. It is considered that they



	<p>should remain voluntary; with their development and promotion best placed to remain within the remit of the organics industry.</p> <p>6. Records of all stages of the organics processing chain must be kept to enable full auditing by an independent, regulatory body as required</p> <p>The ability for all stages of the recycled organics processing chain to be audited by an independent, regulatory body as necessary is identified as a key principle in developing and maintaining useful standards.</p> <p>To enable this, all stages of the organics processing chain must be responsible for maintaining complete records to allow a clear and transparent auditing chain to be followed; and to allow the processor or end-user to make informed decisions in regard to the use of the product.</p> <p>The following processes must be recorded for the purposes of maintaining and auditing trail:</p> <ul style="list-style-type: none"> • The origin of the feed stocks; • The quality assurance processes undertaken to bring the product to standard; • Testing procedures undertaken and results found; • Product source(s) and attribute disclosure provided at each point of sale; • Product sales chain (including the location of the product's final destination if it is subject to restricted use); and • Advice provided to the end-user by the final-stage processor for restricted use products (incorporating the results of pre and post testing undertaken for/by the end-user). <p>7. Support mechanisms for the successful implementation of mandatory standards</p> <p>The successful implementation of mandatory standards will inevitably require concurrent support mechanisms to be provided. Whilst it is beyond the remit of a policy statement to detail specifically what programmes may be required; the following broad support mechanisms are identified as being of paramount importance:-</p> <p>7.1. An open and transparent education programme coordinated at the State level must be concurrently implemented to help the public understand the benefits and issues associated with the production and application of recycled organics to land. The programme should improve understanding of the purpose of the standards in acting to ensure the quality of organic products; thereby increasing public confidence in their use.</p> <p>7.2. The standards should be introduced with a considerable lead-in time to allow existing processors to adopt appropriate practices to meet the standards.</p> <p>7.3. Consultation and workshops, most likely coordinated at the State level, should be undertaken between industry processors, Local Government and appropriate State Government departments to assist in identifying and evaluating potential markets; possible partnerships or synergies to achieve economies of scale; and additional support programmes required.</p>
	<p>End of Policy Statement</p>



<p>Associated Policies and Documents:</p>	<p>WALGA Background Paper: Policy Statement on Standards for Recycled Organics Applied to Land. Available online at www.wastenet.net.au.</p> <p>WA Department of Premier and Cabinet (2004) <i>Hope for the Future: The Western Australian State Sustainability Strategy</i>.</p>
<p>Definitions⁸</p>	<p>Biosolids: Organic solids or semi-solids produced by municipal sewage treatment processes. Solids become biosolids when they come out of an anaerobic digester or other treatment process and can be beneficially used. Until such solids are suitable for beneficial use they are defined as waste-water solids. The solids content in biosolids should be equal to or greater than 0.5% weight by volume (w/v). Biosolids are commonly co-composted with garden organics and/or residual wood and timber to produce a range of recycled organics products.</p> <p>Compost: An organic product that has undergone controlled aerobic and thermophilic biological transformation to achieve pasteurisation and a specified level of maturity. Compost is suitable for the use as soil conditioner or mulch and can improve soil structure, water retention, aeration, erosion control, and other soil properties.</p> <p>Composting: The process whereby organic materials are pasteurised and microbially transformed under aerobic and thermophilic conditions for a period not less than 6 weeks. By definition, it is a process that must be carried out under controlled conditions yielding mature products that do not contain any weed seeds or pathogens.</p> <p>Contaminant: Contaminants within this context include physical inorganic materials (metals, glass etc.), non-biodegradable organic materials (plastics), chemical compounds and/or biological agents that can have a detrimental impact on the quality of any recycled organic products manufactured from compostable organic materials.</p> <p>Manure: Refers to all faecal and urinary excretion of livestock and poultry that are appropriate for collection and use as feedstock materials for composting or in related biological treatment systems. This material may also contain bedding, spilled feed, water or soil.</p> <p>Municipal Solid Waste (MSW): The solid component of the waste stream arising from all sources within a defined geographic area.</p> <p>Mulch: Any pasteurised organic product (excluding polymers which do not degrade such as plastics, rubber and coatings) that is suitable for placing on soil surfaces. Mulch has at least 70% by mass of its particles with a maximum size of greater than 15 mm.</p> <p>Pasteurised Product: A process whereby organic materials are treated to kill plant and animal pathogens and plant propagules. Pasteurisation can be achieved by the controlled biological transformation of organic materials under aerobic and thermophilic conditions such that the whole mass of constantly moist material is subjected to at least 3 consecutive days to a minimum temperature of 55°C (or by equivalent process).</p> <p>Quality Recycled Organics: Recycled organics is a generic term for a range of products manufactured from compostable organic materials (garden organics, food organics, residual wood and timber, biosolids and agricultural organics). Quality recycled organics are any recycled organics that have been put through quality assured processes to reach a given standard: currently identified as the AS4454-Composts, soil conditioners and mulches.</p> <p>Raw product (including raw manure and un-pasteurised mulch): Any compostable organic material that is distributed as a recycled organic product without having been subjected to a pasteurisation or composting process, and may contain weed propagules and pathogenic microorganisms.</p>
	<p>End of Policy Statement</p>

⁸ Recycled Organics Unit (2003 Draft) *Recycled Organics Dictionary & Thesaurus: Standard Terminology for the Recycled Organics Sector*. Available online at <http://www.recycledorganics.com/hot/forms/dictionary/dictionthankyou.htm>





WALGA Background Paper: Policy Statement on Standards for Recycled Organics Applied to Land

1. Status of this paper

This paper has been prepared through the Municipal Waste Advisory Council (MWAC) for the Western Australian Local Government Association (the Association). The Municipal Waste Advisory Council is a standing committee of the WA Local Government Association with delegated authority to represent the Association in all matters relating to solid waste management.

This document has been endorsed by the Municipal Waste Advisory Council and the WALGA State Council.

2. Purpose of this paper

The purpose of this paper is to provide a detailed background to the issues that have acted to drive Local Government to develop a Policy Statement on Standards for Recycled Organics Applied to Land. It is intended as a companion document to be read in conjunction with the WALGA Policy Statement on Standards for Recycled Organics Applied to Land. This Policy Statement is available online at <http://www.wastenet.net.au/>.

It should however be noted that it is not the intent of this paper, or the companion policy statement, to compare application to land with other potential end-uses for the organic content of waste; or to promote land application in preference to other uses.

3. The Current Situation

The organic component accounts for approximately 70 percent of municipal solid waste (MSW) collected through kerbside services in Western Australia¹. This equates to approximately 490,000 tonnes of waste annually; an amount which is increasing exponentially with the State's population growth². The vast majority of this waste has traditionally been disposed of in landfill; with only a small number of Local and Regional Government's currently undertaking diversion programs to recover the organic fraction of MSW.

¹ Figures taken from Resource Recovery Rebate Scheme figures (Period 15, 2005) for the City of Stirling and the Southern Metropolitan Regional Council.

² Figures taken from the *Compost Market Development Project* (Southern Metropolitan Regional Council, 2006).

Another significant source of organic waste collected by Local Governments is the source separated green-waste derived from verge-side collections and drop-off points at council facilities. In the 6-months from 1 July to 31 December 2005, approximately 40,000 tonnes of green-waste was recovered and diverted from landfill by councils.³ This figure is estimated to be increasing at an annual rate of close to 20 percent⁴. However, it should be noted that the real figure for green-waste managed by Local Government is actually much higher, as the above figure only accounts for materials claimed by Local Governments under the Resource Recovery Rebate Scheme (RRRS).

In 2004, the WA State Government released a sustainability strategy which set a strategic direction for the staged reduction of waste being disposed of at landfill called the *Towards Zero Waste 2020* vision⁵. Given the significant proportion of waste to landfill made-up by organics, organic waste is clearly one of the principle issues that must be resolved if the State's *Towards Zero Waste* vision is to be realised. The State Government has identified the diversion of organics from landfill as a key issue, as shown by the Waste Management Board listing organics as a priority waste⁶.

Further to this, in May of 2007, the Western Australian Premier released the Premier's Climate Change Action Statement as an adjunct to the Western Australian Greenhouse Strategy⁷. In this strategy, the mitigation of landfill gas emissions through direct capture and through diversion of waste from landfill is identified as a key action. Although it is not explicitly stated, it can be implied that, given the high propensity of organic materials to emit greenhouse gases as they degrade, the diversion of organic waste from landfill will be a major part of this action.

In response to the strategic direction given by the State, many Local Governments from both metropolitan and non-metropolitan regions are currently pursuing programmes to increase their diversion of organics from landfill. Significantly, four of the five metropolitan regional councils are conducting in-depth feasibility studies into the development of alternative waste treatment (AWT) systems for the purpose of recovering the organic fraction of the MSW stream⁸. The remaining metropolitan regional council already runs an AWT system. If these facilities were to be successfully developed, the proportion of organics diverted from landfill would increase significantly, potentially at a percentage closely in-line with the State Government's strategic vision.

However, despite the existence of a clear policy drive towards the diversion of organics from landfill, there is a comparative lack of State government policy, programmes and regulation to guide those organics that are diverted towards an appropriate end-use. This is in-turn causing a range of difficulties in regard to the identification and development of sustainable end-markets for recycled organics. These issues are dealt with in more detail below. However, it should be noted that as more Local Government's initiate organics diversion programmes and the quantities of diverted organic products increase, the problems associated with this lack of post-diversion strategic direction are likely to be exacerbated.

³ Resource Recovery Rebate Scheme (2006) *Statewide Report on the Resource Recovery Rebate Scheme*. Available Online www.wastenet.net.au/data/period15

⁴ Ibid

⁵ WA Department of Premier and Cabinet (2004) *Hope for the Future: The Western Australian State Sustainability Strategy*.

⁶ Waste Management Board (2006) *Strategic Direction for Waste Management in Western Australia: 2004-05 Priorities*. Available online at www.zerowastewa.com.au.

⁷ Government of Western Australia (2007) *Making Decisions for the Future: Climate Change*. Available online at www.premier.wa.gov.au

⁸ Pers. Comm. (2007) Municipal Waste Advisory Council representatives.

4. Local Government support for the 'application to land' option

It is recognised that there are a number of potential end-uses for the organic component of the waste stream; and that the best end-use will vary dependant on the differences between geographical location (e.g. remote, regional or metropolitan), structural capacity, focus and community expectations of various regions. It is fully acknowledged that in some instances other end-uses (incorporating incineration and/or landfill in some circumstances) may be identified as having preferred environmental, economic or social outcomes over and above the diversion of organics from landfill for application to land; and that these uses should be endorsed as the preferred option in such cases.

Notwithstanding this, in most instances where a Local Government has an existing organics diversion programme, the derived product is applied to land or utilised by commercial organics processors as a feedstock for their soil improvement products. Certainly, the vast bulk of research and investment into diversion programmes is currently focussed on this end-market; and it would appear to be the general expectation (whether justified or not) of most Local Governments that land application will continue to be the principle market for diverted organics for the foreseeable future. A major driver behind the need for equitable, mandatory standards for recycled organics to land is to enable waste managers to evaluate the genuine potential of these markets with far greater certainty and to develop diversion programmes accordingly.

It is recognised that significant potential environmental benefits can be associated with the application of quality recycled organics to land. These have been identified in a range of local, national and international studies. Most notable, given their local application, are the results of the Southern Metropolitan Regional Council's Compost Market Development Project (September, 2006). The benefits identified include:

- A significant reduction in greenhouse gas emissions, in particular methane gas resulting from the breakdown of greenwaste and other organics in landfill;
- Improvements in soil quality, including improved pH, reduced soil temperature, improved soil microbial balance, and increased organic carbon content;
- Improved water holding capacity, leading to a decrease in additional water requirements;
- Reduction in nutrient run-off, leading to lower artificial fertilising requirements and improved water quality; and
- Improved plant growth.

Due to their general organic paucity and poor water and nutrient holding ability, Western Australian agricultural soils are particularly responsive to the identified benefits of quality recycled organic applications. Therefore, the use of quality organics diverted from landfill for land applications is recognised as being clearly in accordance with the sustainability principle; defined as 'meeting the needs of current and future generations through simultaneous environmental, social and economic improvement'⁹. As such, in recognition of previously established community and government support for waste to be managed according to the sustainability principle, Local Government generally endorses the application of recycled organics to land as an optimal end-use.

⁹ WA Department of Premier and Cabinet (2004) *Hope for the Future: The Western Australian State Sustainability Strategy*.

5. Identifying the issues

Despite the acknowledged benefits of applying quality organics to land; the endorsement of this option as an optimal end-use is predicated on end-markets having the knowledge and capacity to absorb the products outputted. This ability is currently uncertain; with a number of issues inhibiting the identification, evaluation and development of markets for recycled organics applied to land. In such an atmosphere, it is difficult for Local Governments to adequately assess and compare the potential economic, environmental and social impacts of different programmes for diverting organics from landfill; including programmes to divert organics for application to land.

The uncertainty of the markets for recycled organics applied to land is identified as being largely the result of issues created by the lack of strategic policy direction and programmes directed beyond the diversion of organics from landfill towards the creation of sustainable markets. These issues are identified as -

5.1. The absence of basic, consistent quality requirements

Untreated or poorly treated organic products, such as raw manures and un-pasteurised mulch, are currently available for application to land with minimal controls placed on their use. It is acknowledged that many Local Governments currently supply a range of partly-pasteurised to un-pasteurised mulch to residents (often for no cost) as a key part of their green-waste diversion. There is a fairly high level of uptake of this product and few complaints have arisen from residents regarding its use. However, this practice is not considered ideal as the use of partly or completely un-pasteurised mulch can have risks associated with it including the spread of weeds, pests and plant diseases.

In addition, these products have a low market entry and ongoing processing costs, and can therefore out-compete more carefully refined products. This inequitable competition acts as a disincentive for many operators to adopt any type of higher voluntary standard. Further, in addition to the direct risks presented by these products, the availability of low quality product on the market is highly likely to negatively affect public confidence in the use of recycled organic products across the board.

It is suggested that, as a minimum, all organic products to be applied to land should comply with the standards for pasteurisation set out in the AS4454 – Composts, soil conditioners and mulches¹⁰ to mitigate the identified risks. However, it is recognised that many Local Governments and other small-scale recycled organics processors do not currently have the necessary skill or resources to produce a cost-effective, quality recycled organic product to this standard. Therefore, there is likely to be a need for a concurrent support strategy to assist such operators in reaching the standard. This may include financial and/or intellectual support; or may be focussed on assisting operators to identify partnerships and synergies within a region to create economies of scale. It may also involve operators making a more holistic assessment of the economic, social and environmental implications of diverting organics from landfill for application to land or other end-uses.

A noted exception to the need to comply with the AS-4454 standard for pasteurisation is identified as the practice of using un-pasteurised mulch for application to land in-situ (that is, un-pasteurised mulch that is applied to land in the same location from which it was derived). It is identified that the potential impacts generally associated with the application of recycled organics to land are not associated with in-situ applications of un-pasteurised mulch; and that therefore such in-situ applications need not be governed by the same standards as other recycled organics applied to land. Therefore, the companion Policy Statement to this background paper does not include green-waste applied in-situ in its scope.

¹⁰ Standards Australia International (2003) *Australian Standard 4454-2003 Composts, soil conditioners and mulches*

5.2. The uncertainty regarding future standards for MSW

Programmes to extract the organic fraction from MSW require significant investment in infrastructure on the part of the service provider and can be subject to minimal or negative profit margins¹¹. Therefore, uncertainty regarding the potential stringency and equitability of possible future MSW-focused standards; and the impact they may have on the economics and available markets for MSW-derived compost is causing many local governments (particularly metropolitan regional local governments) to hesitate in undertaking this type of diversion programme. It is worth noting that some rural local governments have expressed an interest in forming partnerships to research the viability of small-scale MSW recycling facilities; but have also faltered due to lack of support and certainty.

5.3. The lack of community understanding and trust for the MSW-diversion process

It is imperative that an honest and transparent education programme be instituted to help the public to understand both the benefits and the issues associated with the production of MSW-derived compost. There appears to be a lack of public understanding and trust surrounding these processes. It is considered that this uncertainty may be resulting in some community opposition to the use of AWT facilities and contributing to resistance to the use of MSW-derived compost. This opposition is despite the community's acknowledged general support for waste to be managed in a sustainable manner.

5.4. The lack of commitment to research on the application of recycled organics to Western Australian soils and systems

There is currently a general lack of research and understanding as to how various chemicals react when applied to Western Australian soils¹². It is noted that there are a range of situation-specific factors that influence the potential risks and benefits associated with the presence of a given chemical in soil. These factors include the bioavailability of the chemical, which can vary depending on the chemical's given physical state; the chemical binding potential of the soil medium; and the take-up potential of a given biological receptor. Other, potentially more readily assessable factors include background chemical concentrations, toxicity, and the presence of possible exposure routes¹³.

Few of the existing (voluntary) standards limiting the concentration of chemicals in soil account for these factors; particularly in regard to Western Australian soils. It is identified that the lack of research into this area is acting to limit the potential benefits that may be offered through the use of a recycled organic product for a specific, risk-assessed application; and therefore acting to limit the broad development of markets.

5.5. The lack of all-of-government support

There is an imperative for a consistent policy position to be adopted across all-of-government recognising the potential environmental benefits associated with the application of quality recycled organics to land, including reducing waste to landfill; reducing greenhouse gas emissions; improving soil health; and improving water resource management.

Such recognition and promotion from all levels of and departments within Government is an essential tool for increasing consumer confidence in the use of recycled organic products and enhancing market development. This will require government departments to take a holistic approach and acknowledge benefits which will occur outside of their specific sphere of operation.

¹¹ Pers. Comm. (2007) Tim Youé, Manager Business Development, Southern Metropolitan Regional Council.

¹² Pers. Comm. (17th May, 2007) Email communication from David Allen, Principal Chemist, Land Resources to Peter Hoar, Coordinator - Waste Management & Environmental Services, City of Joondalup.

¹³ National Environmental Protection Council (1999) *National Environmental Protection (Assessment of Site Contaminated) Measure 1999*.

It is identified that many of the issues related to the application of organics to land cross departmental boundaries, and therefore all-of-government policy and programme support is required to achieve:

- A consistent minimum standard to be applied to all recycled organics applied to land, regardless of source;
- A consistent public education programme providing a simple and transparent overview of the potential benefits and risks of applying recycled organics to land;
- A commitment to a long-term, extensive research programme to develop risk-based standards for specific application to Western Australian soils and systems;
- A commitment to ongoing consultation and workshops between industry processors, Local Government and appropriate State Government departments to assist in identifying and evaluating potential markets; possible partnerships or synergies to achieve economies of scale; and additional economic, infrastructure and/or intellectual support programmes;
- The establishment of an equitable set of support mechanisms in recognition of the associated sustainability benefits to encourage the uptake of recycled organics. For example, sustainability-based subsidies could be introduced (along the lines of the New South Wales Greenhouse Gas Abatement Scheme)¹⁴ for programmes that improve water usage or soil quality. These subsidies could be applied to assist in offsetting the costs involved in transporting, testing and applying product; and
- A reduction of the risks potentially associated with the application of recycled organics to land. For instance, Compost Western Australia (previously Recycled Organics Western Australia (ROWA)) has suggested that the National Pesticide registration process could adopt a policy to limit the use of chemicals that persist in the environment to assist in reducing chemical residue contamination in recycled organics¹⁵. Other suggestions from Local Government consultation were primarily directed at Extended Producer Responsibility schemes to reduce residual, problematic wastes in the organic stream such as glass, plastics (particularly plastic bags), household hazardous waste, and electronic waste from the waste stream.

6. The Way Forward

Local Government is of the considered opinion that the establishment of a sustainable, long-term market for the application of recycled organics to land is absolutely reliant on the immediate introduction of clear and appropriate State Government policy, programmes and regulation. This must include an extensive public education programme to openly and transparently develop a better community understanding of the benefits and potential risks associated with applying recycled organics to land. It must also include the introduction of mandatory minimum standards that apply to all recycled organics, regardless of source. Only through such measures can market equity be established and public confidence in the benefits and safety of using recycled organics be established and enhanced.

¹⁴ Information available online at www.greenhousegas.nsw.gov.au

¹⁵ Compost Western Australia (previously ROWA) *Position Statement on the Recycled Organics sector in WA* (October, 2006). Available online at <http://www.wmaa.asn.au/director/workinggroups/wa/compost/papers.cfm>.

It is identified that the Standards developed must be risk-based to have the flexibility to reflect improvements in knowledge and understanding. That is, in the first instance, mandatory standards should be set based on the best existing understanding of the soil contamination restrictions required to mitigate any risks to human health or the environment. However, it is believed that a concurrent State Government commitment to researching and developing standards that are specifically applicable to risk management for Western Australian soils must be made. As this research is undertaken and a greater understanding is achieved, the given standards should be amended accordingly.

Eventually, the research should allow for site-specific, risk-based applications to be made; calculated to achieve the optimal rate of application for soil improvement whilst acting to mitigate any potential risks through the development of a rigorous decision support matrix. Such a system would account for aspects such as bioavailability, background concentrations, toxicity, and exposure routes. It is acknowledged that such a system would have to be developed over an extended period and would require a strong commitment to ongoing research. However, it is strongly believed that such a system is essential to ensure benefits are optimised, risks minimised, and stable and sustainable markets are created in the long-term.