

# THE NATIONAL ORGANIC WASTE COMPOSTING STRATEGY

## DRAFT Strategy Report



Compost is **BLACK**  
**GOLD** to soil "Dirt,  
the movie"



environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

February 2013

## FOREWORD AND DISCLAIMER

This project is to strategise the potential of composting as a method to beneficiate organic waste, as one of a basket of options, to help divert organics from landfill disposal. This Strategy report and scope of work does not address detail with respect to secondary elements, such as methane generation, volumes, detailed analysis of organic waste generation, usage, etc.

This Strategy report, in no way, implies that composting is the preferred method of treating (or diverting from landfill) organic waste in South Africa. As the Terms of Reference clearly refers to a National Organic Composting Strategy, the focus of this report is on composting only.

With respect to technologies, the Project team is aware that many other technologies and opportunities are available and may be active in the industry, other than composting, to treat organic waste and to obtain beneficial use of treating (diverting) organic waste.

The status quo (refer to the final Status Quo Report, December 2012) is a high-level, literature-based Status Quo Report that serves to identify and assess the baseline information available on organic waste in South Africa, including that from stakeholder engagement and inputs thereof. The Status Quo Report was dependent on the quality of information readily available by those who beneficiate from this waste source and public bodies, together with past or existing waste quantum analysis projects.

The Project timeframes allocated to this project limits the opportunity to continue valued engagements with stakeholders and to hold additional workshops, to allow Interested and Affected Parties to provide further input to the strategy. The project duration to undertake the Status Quo and develop this Strategy, together with Stakeholder engagement is limited to seven months. The time and effort allowable to the various stages of this project have been adjusted to suit this timeframe.

The Project Team does recognise that technology is developing at an increasing rate, such that more opportunities are arising to improve efficiencies and viability of getting beneficial use from organic waste treatment.

Ultimately, each "Implementing Authority" must evaluate suitable, viable, sustainable, implementable and affordable composting opportunities. This Strategy approach must feed into that vision.

The Project Team would like to thank the following individuals who formally contributed towards developing the Draft National Organic Waste Strategy:

M. Tshitangoni	Department of Environmental Affairs (DEA)
D. Makhubele	Department of Environmental Affairs (DEA)
B. Xalipi	Department of Environmental Affairs (DEA)
M. Nengovhela	South African Local Government Association (SALGA)
S. Brown	Department of Agriculture, Forestry and Fisheries (DAFF)
J. du Preez	Department of Agriculture, Forestry and Fisheries (DAFF)
M. Mavhega	Department of Water Affairs (DWA)
L. Morifi	Department of Water Affairs (DWA)
P. Munyai	Department of Water Affairs (DWA)
R du Plessis	University of South Africa (UNISA)

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## ABBREVIATIONS

AEL	Air Emissions Licence
C:N	Carbon (C) and Nitrogen (N) ratio
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism (now DEA)
DWA	Department of Water Affairs (Previously DWAF)
IWM	Integrated Waste Management
IWMP	Integrated Waste Management Plan
IWMSA	Institute of Waste Management of South Africa
MFMA	Municipal Finance Management Act, No. 56 of 2003
NEMA	National Environmental Management Act, No. 107 of 1998 (as amended)
NEM: AQA	National Environmental Management Air Quality Act, No. 39 of 2004
NEM:WA	National Environmental Management: Waste Act, No. 59 of 2008
NOWCS	National Organic Waste Composting Strategy (this project)
NWMS	National Waste Management Strategy, 2011
SALGA	South African Local Government Association
SAWIC	South African Waste Information Centre
SAWIS	South African Waste Information System
UNISA	University of South Africa
WIS	Waste Information System

## DEFINITION OF TERMS

	<b>Definition</b>	<b>Act / Reference</b>
<b>Air Pollution</b>	Any change in the composition of the air caused by smoke, soot, dust (including fly ash), cinders, solid particles of any kind, gases, fumes, aerosols and odorous substances.	<b>National Environmental Management: Air Quality Act (Act No 39. Of 2004)</b>
<b>Animal Manure</b>	A by-product of animal excreta which is bio-degradable in nature and could further be used for fertilisation purposes.	<b>National Environmental Management: Waste Act (Act No. 59 of 2008) : GN 718 19(1)</b>
<b>Biosolids</b>	Nutrient rich organic materials (solid/ semi-solid) obtained from wastewater solids (sewage sludge) that have been stabilised through processing and which is often used as fertilizer.	<b>Adapted from:</b> <a href="http://dictionary.reference.com/browse/biosolids">http://dictionary.reference.com/browse/biosolids</a>
<b>By-Product</b>	A substance that is produced as part of a process that is primarily intended to produce another substance or product and that has the characteristics of an equivalent virgin product or material.	<b>National Environmental Management: Waste Act (Act No. 59 of 2008)</b>
<b>Compost</b>	A stabilised, homogenous, fully decomposed substance of animal or plant origin to which no plant nutrients have been added and that is free of substances or elements that could be harmful to man, animal, plant or the environment.  <u>PLEASE NOTE:</u> In terms of the NEM: Waste Act there is no definition for compost and this needs to be addressed. On an international and national level, there are multiple definitions of “Compost” and “Composting.”	<b>Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act No. 36 of 1947) : GNR 732 Regulations Regarding Fertilizers</b>
<b>Composting</b>	Controlled biological process in which organic materials are broken down by micro-organisms.	<b>Guide to Best Practice for Organics Recovery</b>

	<b>Definition</b>	<b>Act / Reference</b>
	See note above for “Compost”.	<b>(Sustainability Victoria 2009)</b>
<b>Domestic Waste</b>	Waste, excluding hazardous waste that emanates from premises that are used wholly or mainly for residential, educational, health care, sport or recreation purposes.	<b>National Environmental Management: Waste Act (Act No. 59 of 2008)</b>
<b>Fertilizer</b>	Any substance which is intended or offered to be used for improving or maintaining the growth of plants or the productivity of the soil.	<b>Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act No. 36 of 1947): GNR 732 - Regulations Regarding Fertilizers</b>
<b>Garden Waste</b>	NOTE: The NEM: Waste Act does not list a definition for “Garden Waste”. For the purposes of this report, “garden waste” is meant as organic biodegradable waste material generated from the likes of a typical garden.  <b>Reference to “Green Waste” in this report typically refers to “Garden Waste”.</b>	<b>None</b>
<b>General Waste</b>	Waste that does not pose an immediate hazard or threat to health or to the environment, and includes— a) domestic waste; b) building and demolition waste; c) business waste: and d) Inert waste.	<b>National Environmental Management: Waste Act (Act No. 59 of 2008)</b>
<b>Green Waste</b>	<b><u>NOTE:</u> that there is no recognised common definition for “Green Waste”. Reference to “Green Waste” in this report typically refers to “Garden Waste”.</b>	<b>None</b>
<b>Hazardous</b>	Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical,	<b>National Environmental Management: Waste Act</b>



	<b>Definition</b>	<b>Act / Reference</b>
<b>Waste</b>	chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment.	<b>(Act No. 59 of 2008)</b>
<b>Lagoons</b>	The containment of waste in excavations and includes evaporation dams, earth cells sewage treatment facilities and sludge farms.	<b>National Environmental Management: Waste Act (Act No. 59 of 2008) : GN 718 19(1):</b>
<b>Municipal Compost</b>	The disinfected and stabilised organic fertilizer manufactured by the controlled decomposition of sorted and milled urban waste including fermentable industrial and commercial waste.	<b>Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act No. 36 of 1947): GNR 732 - Regulations Regarding Fertilizers</b>
<b>Municipal Waste</b>	Means any <u>municipal compost</u> that does not meet the requirements for compost given in these regulations: on the understanding that such waste must meet the minimum requirements for municipal waste as set out in the regulations for the registration of fertilizers.	<b>Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act No. 36 of 1947): GNR 732 - Regulations Regarding Fertilizers</b>
<b>Offensive Odour</b>	Any smell which is considered to be malodorous or a nuisance to a reasonable person.	<b>National Environmental Management: Air Quality Act (Act No 39. Of 2004)</b>
<b>Organic waste</b>	<p>“Organic Waste” is categorised as, “garden waste, food waste and wood waste.”</p> <p>PLEASE NOTE: For the purposes of this project, waste of biological origin which can be broken down, in a reasonable amount of time, into its base compounds by micro-organisms and other living things and/or by other forms of treatment, regardless of what those</p>	<b>National Environmental Management: Waste Act (Act No. 59 of 2008) : GNR 625 - National Waste Information Regulations</b>

	<b>Definition</b>	<b>Act / Reference</b>
	compounds may be, have also been considered as “organic waste” and are referenced in this study.	
<b>Organic waste</b>	A carbon-based material of animal or plant origin (that is defined as waste in terms of the South African gazetted National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008:) that naturally enhances fertility of soil through a natural degradation process (natural occurring fertilizer) but excludes human made organic chemicals (such as solvents, chemicals and cleansing agents) and naturally occurring organic chemicals which have been refined or concentrated by human activity (such as oil, petroleum, diesel and tar products). “Organic Waste” will generally comprise materials that can be accepted for disposal at a licensed municipal general waste landfill facility (i.e. excludes infectious, poisonous, health-care and hazardous organic wastes)”.	<b><u>Proposed new definition under this Project for comment and ultimately adoption by DEA as a Strategic objective.</u></b>
<b>Recovery</b>	The controlled extraction of a material or the retrieval of energy from waste to produce a product.	<b>National Environmental Management: Waste Act (Act No. 59 of 2008)</b>
<b>Recycle</b>	A process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material.	<b>National Environmental Management: Waste Act (Act No. 59 of 2008)</b>
<b>Re-use</b>	To utilise articles from the waste stream again for a similar or different purpose without changing the form or properties of the articles.	<b>National Environmental Management: Waste Act (Act No. 59 of 2008)</b>
<b>Storage</b>	The accumulation of waste in a manner that does not constitute treatment or disposal of that waste.	<b>National Environmental Management: Waste Act (Act No. 59 of 2008)</b>

	<b>Definition</b>	<b>Act / Reference</b>
<b>Treatment</b>	<p>Any method, technique or process that is designed to:</p> <ol style="list-style-type: none"> <li>a) change the physical, biological or chemical character or composition of a waste; or</li> <li>b) remove, separate, concentrate or recover a hazardous or toxic component of a waste; or</li> <li>c) Destroy or reduce the toxicity of a waste, in order to minimise the impact of the waste on the environment prior to further use or disposal.</li> </ol>	<b>National Environmental Management: Waste Act (Act No. 59 of 2008)</b>
<b>Waste</b>	<p>Any substance, whether or not that substance can be reduced, re-used, recycled and recovered:</p> <ol style="list-style-type: none"> <li>a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of;</li> <li>b) which the generator has no further use of for the purposes of production;</li> <li>c) that must be treated or disposed of; or</li> <li>d) that is identified as a waste by the Minister by notice in the Gazette, and includes waste generated by the mining, medical or other sector, but— <ol style="list-style-type: none"> <li>i. a by-product is not considered waste; and</li> <li>ii. any portion of waste, once re-used, recycled and recovered, ceases to be waste.</li> </ol> </li> </ol>	<b>National Environmental Management: Waste Act (Act No. 59 of 2008)</b>
<b>Wastewater sludge</b>	<p>Material removed from wastewater treatment plants designed to treat predominately domestic wastewater and includes the following products:</p> <ul style="list-style-type: none"> <li>• Raw or primary sludge from a primary clarifier,</li> <li>• Primary sludge from an elutriation process,</li> <li>• Anaerobically digested sludge, both heated and cold digestion,</li> </ul>	<b>Guidelines for the Utilisation and Disposal of Wastewater Sludge: Volume 1</b>

	<b>Definition</b>	<b>Act / Reference</b>
	<ul style="list-style-type: none"><li>• Oxidation pond sludge,</li><li>• Septic tank sludge and other sludge from on-site sanitation units,</li><li>• Surplus or waste activated sludge,</li><li>• Humus sludge,</li><li>• Pasteurised sludge,</li><li>• Heat-treated sludge,</li><li>• Lime-stabilised sludge, and</li><li>• Composted sludge.</li></ul>	

# 1. INTRODUCTION AND OVERVIEW

*This Strategy must be read in conjunction with the Final Status Quo Report (December 2012).*

## 1.1. BACKGROUND

The development of the National Waste Management Strategy (2011) was an important milestone in facilitating the implementation of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008). The National Waste Management Strategy promotes composting as one of the approaches towards achieving the objectives of the waste management hierarchy, amongst other measures. This National Organic Waste Composting Strategy (NOWCS) has been initiated by the Department of Environmental Affairs (DEA) with the aim to develop and promote the diversion of organic waste from landfill sites for soil beneficiation and other uses through composting<sup>1</sup>.

The DEA appointed specialist consultants, Jeffares & Green (Pty) Ltd, in July 2012 to assist in the development of a National Organic Waste Composting Strategy. The Project was divided into the following phases:

### **Phase 1: Literature Review**

A Literature Review Report was compiled and key information from the report was summarised and carried forward as an appendix attached to the Status Quo Report.

### **Phase 2: Status Quo / Situational Analysis**

The final Status Quo Report presents the current organic waste management systems that are in place in South Africa with an overview and examples of international practices being discussed. The Executive Summary and report were made available for Stakeholder comment prior to finalisation and a copy of the final Status Quo report was made available online.

### **Phase 3: Stakeholder Engagement**

Stakeholder engagement is on-going and feedback obtained to date was summarised in the Status Quo Report as well as in a separate Stakeholder Engagement Report.

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<sup>1</sup> Department of Environmental Affairs (DEA) Terms of Reference (February 2012)

#### **Phase 4: Development of the NOWCS**

This Report (Strategy Report) is the final phase of the project which is currently being undertaken. This Report is in response to the final Status Quo Report and internal specialist engagements and workshops.

#### **Supplement to Phase 4: Development of a Guideline Document for undertaking composting**

Arising from stakeholder engagement, coupled with discussions with DEA, the need for general information regarding establishing a composting facility was also identified as a critical tool that would further assist with diverting organic waste from landfill.

Accordingly, a Guideline Document has also been developed as part of this project to assist Municipalities and/ or private/ non-governmental organisations to consider key elements to undertaking composting prior to constructing such a facility.

## **1.2. PRINCIPLES FORMULATING THE STRATEGY**

The Key Guiding Principles used to formulate the National Organic Waste Composting Strategy are summarised as follows:

- The overall objective of the NOWCS is to develop a national waste management strategy to:
  - a) serve as a dynamic framework to effectively manage organic waste by diverting organic waste from landfill disposal;
  - b) create a specific focus on recycling organic waste in a cost-effective and environmentally acceptable way; and
  - c) process organic waste by means of composting in order to beneficiate soils.
- In terms of Section 24 of the Constitution of the Republic of South Africa (No. 108 of 1996), all citizens of South Africa have the right to a clean and healthy environment, protected through reasonable measures which prevent pollution and environmental degradation and which promote sustainable development.

- The development of the NOWCS builds on the provisions for organic waste management embodied in the National Environment Management Waste Act (No. 59 of 2008) (NEM: WA) and the Draft Waste Classification and Management Regulations (GNR 613-615, 2012).
- A Fundamental goal of the NOWCS is to determine practical and appropriate organic waste landfill disposal reduction goals with due recognition to local authorities already implementing and achieving organic waste diversion.
- Composting is recognised as one of a number of different organic waste treatment options and the NOWCS does not preclude the employment of other technologies for recycling or treating organic wastes.
- Understanding the quantitative and qualitative components of the organic waste streams will be essential for implementing Organic Waste Stream Management, a necessary requirement for achieving a proper and balanced allocation of feedstock to competing processors.
- The NOWCS targets municipalities, forestry, agriculture, commercial and institutional generators of organic wastes, in their public and private capacities.
- The NOWCS is committed towards poverty alleviation and promotion of employment through empowerment projects (e.g. promoting the growth of organic waste recovery, reuse, recycling and composting).
- The NOWCS was approached on the basis of a >10 year planning horizon. Ownership of the NOWCS is required by the public as well as private sectors to ensure that an acceptable level of diversion of organic waste from landfill disposal is achieved.

### **1.3. THIS STRATEGY**

A strategy assists in enforcing direction and clear, structured planning towards a common goal.

The overall **aim** for this project (Strategy) is to ensure (where viable) that organic waste generated within South Africa is diverted from landfill sites for composting as one alternative treatment method through integrated and sustainable waste management planning.

Diversion of organic waste from landfill and the alternative treatments thereof, such as composting and possibly energy recovery, has the following benefits;

- It reduces dependence on landfilling waste, as well as the associated risk of greenhouse gas emissions.
- It reduces the risk of methane and other gases impacting on surrounding land, and reduces the risk of organic compounds and other contaminants polluting the surrounding environment.
- It reduces “our” footprint (from a carbon and water use perspective) on the environment.
- Composting is an industry that converts a waste into a beneficial product and promotes job creation.
- Recovery and processing of organics can produce beneficial soil amendments (such as composts and fertilizers) for improving South African soil profiles (returning nutrients to the soil), increasing soil organic carbon levels, preventing soil erosion and reducing water use for growing plants and crops.
- Some recovery technologies provide alternative options that also allow the generation of electricity, production of heat for industrial purposes and the generation of other fuels for secondary energy production<sup>2</sup>.

Composting is a proven method of organic waste minimisation, and various local and international practices demonstrate the effectiveness of composting organic waste which in turn reduces the amount of waste requiring landfill and the generation of landfill gas. Due to the high percentage contribution of green waste generated in South Africa (i.e. up to 24% by mass<sup>3</sup>), the potential for composting in South Africa is significant and thus is being investigated as a diversion alternative. Composting can also be

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<sup>2</sup> Adapted from Guide to Best Practice for Organics Recovery (Sustainability Victoria 2009)

<sup>3</sup> Department of Environmental Affairs, 2012



accomplished through fairly simple and cost efficient technologies, as well as producing positive, sustainable environmental outcomes, i.e. a soil conditioner / fertiliser.

The “**driver**” of this Strategy, is current legislation demanding diversion of certain waste types from landfill together with profit-making opportunities.

It must, however, be stressed that composting, although being the primary focus of the NOWCS, is not the only technical treatment option available for recycling organic wastes. Energy-from-waste technologies (for example bio-digestion, pyrolysis, thermal, gasification, etc.) should be taken into account when developing an organic waste management strategy, especially in dealing with organic wastes not suitable for the production of compost requiring certain quality criteria.

Ultimately, this Strategy aims to provide a support tool and insight for public and private bodies to use when identifying such composting opportunities.

#### **1.4. PURPOSE, NEED AND OBJECTIVES FOR THE STRATEGY**

The key findings documented in the Status Quo Report (December 2012), based on the findings from the situational analysis that was undertaken from September 2012 to December 2012 on organic waste within South Africa, clearly show that strategies and specific actions are needed to ensure that an acceptable level of diversion of organic waste from landfill disposal is achieved, in particular, composting.

The findings highlighted in the Status Quo Report, assisted in identifying the gaps in information, as well as the challenges/ issues with regards to organic waste composting within South Africa. This report provided the necessary basis on which to build the strategy.

This NOWCS Report and the Guideline Document will provide stakeholders, such as municipalities, with information to further enable them to compile their own specific plans to divert organic waste from their landfills, possibly in the form of composting, in terms of their specific needs, demographics, climate, budget, etc.

The development of the NOWCS is expected to facilitate and guide the development of **legislation, norms, standards**, as well as **South African Certification Standards** specifically for organic products, including organic compost and organic fertilizer.

This Strategy should be a public, 'living', actively used and functional report that comprises a strategy which is practical and implementable to both DEA and other government departments.

The following **objectives** underpin the outcome of the National Organic Waste Composting Strategy;

1. Promote an enabling environment for organic waste to landfill diversion.
2. Monitor and record the diversion, disposal and treatment of organic waste.
3. Guide the development of national legislation, norms and standards to prevent organic waste to landfill across all major sectors.
4. Facilitate and streamline regulatory policy.
5. Develop capability amongst all Municipalities in terms of composting and chipping - develop a user-friendly guide/toolkit.
6. Facilitate, enable and guide various levels of Public involvement (from Private, through Public-Private, to Public).
7. Provide national support to assist Municipalities in implementing organic waste management once strategies are developed.
8. Provide guidance on composting technology selection/ alternatives.
9. Provide insights into the prevailing challenges of composting projects and recommended mitigation methods and procedures.
10. Identification of possible opportunities for organic waste beneficiation.
11. Educate and create an awareness regarding composting and its benefits.
12. Enable municipalities to fulfil their obligation of organic waste from landfill diversion.

## 2. STRATEGY

The following chapter highlights the key issues or gaps that were identified from the situational analysis undertaken as part of the Status Quo phase. Tabulated for ease of reference, responses and / or recommendations to each of the issues have been provided below.

Where indicated, recommendations / responses which are seen as being a priority in terms of diverting organic waste from landfill, have been assigned. Based on the gaps / issues identified, broad themes were evident which were categorised and tabulated. These include:

- Legal and regulatory processes,
- Feedstock, opportunities and facilities,
- Support structure and function to implementing composting,
- Education, skills-transfer and awareness, and
- Municipal structure, responsibilities and roles for the private sector.

These sections are discussed in more detail below.

### 2.1. CURRENT LEGAL AND REGULATORY PROCESSES

There is no South African legislation dealing specifically with composting.

The following is a list of Acts and Regulations that apply to composting practice:

- The Regulations promulgated in terms of the National Environmental Management Act (No. 107 of 1998) (NEMA) and the National Environmental Management Waste Act, (No. 59 of 2008) (NEM: WA) require that an Environmental Authorisation (EA) and a Waste Management License (WML) respectively be obtained for constructing a composting facility, as well as for undertaking actual composting activities and processes.
- The National Environmental Management: Air Quality Act (No. 39 of 2004) (NEM: AQA) require that if any composting activities include the processing of more than 1 ton of animal matter per day, then an Atmospheric Emissions License (AEL) must be applied for.

- The Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (No. 49 of 1996) compels any facility or operation selling compost to be registered with the Department of Agricultural Technical Services.
- Wastewater or sewage sludge can be used as an input material into compost, however, the sludge must meet the requirements for total metal and inorganic content as prescribed in the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (No. 49 of 1996).
- The Water Research Commission guidelines, namely, the "*Guidelines for Utilisation and Disposal of Wastewater Sludge*"<sup>4</sup> specify quality requirements of using sewage sludge as feedstock material for manufacturing compost.
- The beneficial use of sludge requires that various licenses and / or approvals / authorisations are obtained in terms of the National Water Act (No. 36 of 1998) (NWA), NEMA, and NEM: WA depending on the 'use'.
- In terms of the Constitution, the Municipality is responsible for providing solid waste services which includes the removal of recyclable waste. Once this 'waste' is removed from the waste stream, the waste then enters the "beneficiation stream" and at that point no longer necessarily forms part of the municipal service.
- The National Waste Management Strategy (2011) places the responsibility to manage, process and dispose of organic waste on the Municipality.
- The Municipal Finance Management Act (No. 56 of 2003) (MFMA) restricts Municipal involvement in waste management activities associated with processing and manufacturing, as these are considered to be a non-municipal function.
- As of 1 January 2013, in terms of the National Waste Information Regulations (GNR 625, 2012) individuals undertaking a listed waste management activity (in terms of the NEM:WA) are required to register, record, and report to the respective Provincial Waste Information System (WIS). Failure to do so may result in imprisonment or an appropriate fine, or both.

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<sup>4</sup> WRC Report No. TT 261/06

- The Draft Waste Classification and Management Regulations (GNR 613-615, 2012), aim to ban or prohibit a significant portion of certain materials or substances from being landfilled (e.g. garden waste). **GNR 615, 2012 states 25% diversion from baseline of separated garden waste (within next 5 years), and 50% within next 10 years, from time of promulgation.** The Regulations, when promulgated, are going to have a significant impact on solid waste management and related funding.

There are currently no South African certification standards for organic products, including organic compost and organic fertilizer. In some cases the International Standard (ISO 65) is used for the certification of compost.

A document entitled, "Specification for composted materials" (BSI, 2011) has been released and should be tabled in sessions involving debate on quality control and standards relating to composting operations and associated materials.

Based on a review of current South African legislation, policies and findings from the stakeholder engagement process undertaken as part of the drafting of the Status Quo report (December 2012), a number of gaps and limitations were identified. These 'issues' have been tabulated below.

### **2.1.1. DEFINITION OF ORGANIC WASTE**

In terms of South African legislation there is no common definition for organic waste.

Organic waste is generally categorised as, "garden, food, or wood" and in some instances "putrescible and notifiable (hazardous) waste" (NWIBR, 2012).

Arising from stakeholder engagement and in developing the Strategy, it became evident that a broad definition of organic waste needed to be developed.

For this Project, the following definition was established for consideration:

**'Organic Waste'** referred to in the National Organic Waste Composting Strategy is defined as a "material that naturally enhances fertility of soil through a natural degradation process (natural occurring fertilizer) but excludes human made organic chemicals (such as solvents, chemicals and cleansing

agents) and naturally occurring organic chemicals which have been refined or concentrated by human activity (such as oil, petroleum, diesel and tar products). “Organic Waste” will generally comprise materials that can be accepted for disposal at a licensed municipal general waste landfill facility ( i.e. excludes infectious, poisonous, health-care and hazardous organic wastes)”.

### **2.1.2. CATEGORIES OF ORGANIC WASTE**

Currently the National Waste Information Regulations (GNR 625, 2012) categorise organic waste as, “garden waste, food waste and wood waste.” The definition is deemed to be too broad and a more detailed categorisation is necessary to better-identify risks and opportunities. See proposed categorisation in **Table 2**.

### **2.1.3. LEGAL AND REGULATORY STRATEGY**

**Table 1** summarises the issues and actions identified for consideration through key stakeholder engagements and the Status Quo phase, for inclusion into the final NOWCS (to be adopted and undertaken by DEA).

**Table 1: Legal and Regulatory Strategy**

LEGAL AND REGULATORY STRATEGY				
Priority <sup>5</sup>	Timeframe <sup>6</sup>	Responsibility <sup>7</sup>	Issue/ Gap/ Limitation	Response/ recommendation
1	S	DEA	<b>1. Regulatory processes</b>	<ul style="list-style-type: none"> <li>In terms of Section 7(1)(c) of the National Environmental Management Waste Act (Act No. 59 of 2008) (NEM: WA), Norms and Standards should be developed for storing, treating and processing organic waste to negate the need for licenses etc.</li> </ul>
1	S	DEA, DWA, DAFF	"Regulatory processes" continued...	<ul style="list-style-type: none"> <li><b>Streamline</b> regulatory processes: Waste Management License (WML) and associated environmental processes in terms of the NEM:WA and National Environmental Management Act (Act No. 107 of 1998), in addition to the renewal of licenses in terms of the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act No. 49 of 1996).</li> <li><b>Registration is important in terms of the proposed Norms and Standards, once established, thereby avoiding Licencing-requirements.</b></li> <li>Norms and standards to cater for majority of waste (90%)</li> <li>Need to review National Waste Management Strategy (2011) and draft Guidelines (GNR 613 – 615 of 2012).</li> </ul>

<sup>5</sup> 1=High Priority, 2=Medium Priority, 3=Low Priority

<sup>6</sup> Short= 0 to 2 years, Medium= 2 to 5 years, Long= >5 years

<sup>7</sup> "Responsibility" means a body to coordinate and drive the action, not necessarily to physically undertake the task and the implementation.

LEGAL AND REGULATORY STRATEGY				
Priority <sup>5</sup>	Timeframe <sup>6</sup>	Responsibility <sup>7</sup>	Issue/ Gap/ Limitation	Response/ recommendation
3	L	Local	"Regulatory processes" continued...	<ul style="list-style-type: none"> <li>• Develop a by-law to prohibit/limit disposing of green waste into the Wheelie bins or waste collection vessels- <i>change to separation at source (greenwaste)</i></li> <li>• Move to implementing authorities</li> <li>• If made into By Law-alternative to be provided</li> </ul>
1	S	DEA	<b>2. Lack of Norms and Standards and Guidelines</b>	<ul style="list-style-type: none"> <li>• Develop Norms and Standards and Guidelines for composting operations.</li> <li>• Develop a registration process and the removal of licensing requirements.</li> <li>• Develop guidelines/ minimum standards that focus on location and construction, design, as well as managing and operating the composting facility responsibly from an environmental, health and safety aspect.</li> <li>• Review the current permit/licencing processes related to composting facilities with a view to simplifying the process and reducing the time-frames. (<i>See point 1 above</i>).</li> <li>• On-going annual performance reporting in accordance with DEA norms and standards.</li> <li>• Norms and standards will contain transitional arrangements.</li> </ul>



LEGAL AND REGULATORY STRATEGY				
Priority <sup>5</sup>	Timeframe <sup>6</sup>	Responsibility <sup>7</sup>	Issue/ Gap/ Limitation	Response/ recommendation
1	S	DEA, DWA, DAFF	"Lack of Norms and Standards and Guidelines" continued...	<ul style="list-style-type: none"> <li>• Categorise organic waste in terms of their potential to have an environmental impact (in terms of their nature/ type). E.g. develop norms and standards for Category 1 (refer to <b>Table 2</b>) organic waste which would preclude the need for a Waste Management License.</li> <li>• Strategy will include typical table categories which correlate with current strategies used in baseline study. Category table needs to be workshopped with input from specialists.</li> <li>• <i>Forms part of Norms and Standards</i></li> </ul>
1	S	DEA	<b>3. There is no recognised common definition for organic waste, compost, composting, and green waste.</b>	<ul style="list-style-type: none"> <li>• Specifically for "organic waste". <b>Refer to Section 2.1.1 for the proposed definition of organic waste.</b> Develop a legal definition which is applied to all related legislation.</li> <li>• Must tie in with the definition of "waste" in the Act (to be amended).</li> </ul>

LEGAL AND REGULATORY STRATEGY				
Priority <sup>5</sup>	Timeframe <sup>6</sup>	Responsibility <sup>7</sup>	Issue/ Gap/ Limitation	Response/ recommendation
2	M	DEA,SALGA	4. <b>Management planning pertaining specifically to organic waste is not evident.</b>	<ul style="list-style-type: none"> <li>• Municipalities must designate an 'organic waste champion / officer' (could be a Waste Management Officer (WMO) in terms of NEM: WA) to measure, record and monitor organic waste quantities / stream.</li> <li>• Powers of WMO with regards to organic waste recording, reporting and planning needs to be clarified.</li> <li>• Organic waste management planning to be evident in Integrated Waste Management Plans (IWMPs).</li> </ul>

LEGAL AND REGULATORY STRATEGY				
Priority <sup>5</sup>	Timeframe <sup>6</sup>	Responsibility <sup>7</sup>	Issue/ Gap/ Limitation	Response/ recommendation
1	S	DEA	<p>5. There is a lack of quantifiable data on organic waste volumes produced within each province and significantly less data that differentiates between the different organic waste types. This lack of baseline waste information (particularly for the organic waste stream) means that waste is not monitored and managed effectively.</p>	<ul style="list-style-type: none"> <li>• Revise the South African Waste Information System (SAWIS) which would allow for average or approximate percentages in terms of the different waste streams to be uploaded.</li> <li>• Revise Waste Information Regulations</li> <li>• Record organic waste as a type and report organic waste as a category. <b>Refer to Table 2 for the proposed categorisation of organic waste types.</b></li> </ul>

LEGAL AND REGULATORY STRATEGY				
Priority <sup>5</sup>	Timeframe <sup>6</sup>	Responsibility <sup>7</sup>	Issue/ Gap/ Limitation	Response/ recommendation
2	From Registration	Composter	<p>6. There is a lack of quantifiable data on organic waste volumes produced within each province and significantly less data that differentiates between the different organic waste types. This lack of baseline waste information (particularly for the organic waste stream) means that waste is not monitored and managed effectively.</p>	<ul style="list-style-type: none"> <li>Registered Composters must develop their own plans specific to their context / receiving environment whereby quantities are first measured, recorded and then monitored to establish a baseline for their jurisdiction. Based on this data, localized strategies must be developed to divert organic waste from landfill.</li> </ul>

LEGAL AND REGULATORY STRATEGY				
Priority <sup>5</sup>	Timeframe <sup>6</sup>	Responsibility <sup>7</sup>	Issue/ Gap/ Limitation	Response/ recommendation
1	S	DWA, DAFF, DEA	<b>7. Certifying compost is costly and limits the variety of type of feedstock as input material.</b>	<ul style="list-style-type: none"> <li>Establish technical quality-characteristic specifications for marketing compost.</li> <li>See Norms and Standards. Certification Table to be included in Norms and Standards document.</li> <li>Department of Water Affairs (DWA), Department of Agriculture, Forestry and Fisheries (DAFF), the Department of Environmental Affairs (DEA) and Science and Technology to adopt certification categories, waste types and usability table.</li> <li>Approach DAFF to propose amendment of the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act No. 49 of 1996).</li> </ul>
3	L	DEA	"Certifying compost is costly and limits the variety of type of feedstock as input material" continued...	<ul style="list-style-type: none"> <li>Develop good practice guidelines per industry sector regarding undertaking composting effectively and competently.</li> <li>Develop when need arises.</li> </ul>

LEGAL AND REGULATORY STRATEGY				
Priority <sup>5</sup>	Timeframe <sup>6</sup>	Responsibility <sup>7</sup>	Issue/ Gap/ Limitation	Response/ recommendation
3	L	DEA, IWM F <sup>8</sup>	<b>8. Limited composting is being undertaken within the residential sector due to a lack of knowledge/ information.</b>	<ul style="list-style-type: none"> <li>Develop guidelines for undertaking composting on an individual (residential) scale, as well as for communal composting.</li> </ul>
2	M	SALGA,DEA	<b>9. Avoidance of organic waste reaching disposal facilities.</b>	<ul style="list-style-type: none"> <li>The adoption of Draft Regulation GNR 615 of 2012 and National Waste Management Strategy.</li> <li>Investigate opportunity for local by-laws to promote diversion of organic waste from landfill.</li> <li>Consider limiting the level of public contribution to the diversion of organic waste as a solution. (e.g. Public required to transport greens to public drop-offs or prohibit garden waste in wheelie bin).</li> </ul>
1	S	DEA	"Avoidance of organic waste reaching disposal facilities" continued...	<ul style="list-style-type: none"> <li><u>Goal:</u> <ul style="list-style-type: none"> <li>Establish baseline.</li> </ul> </li> </ul>

<sup>8</sup> Integrated Waste Management Forum by DEA

LEGAL AND REGULATORY STRATEGY				
Priority <sup>5</sup>	Timeframe <sup>6</sup>	Responsibility <sup>7</sup>	Issue/ Gap/ Limitation	Response/ recommendation
1	M	DEA	“Avoidance of organic waste reaching disposal facilities” continued...	<ul style="list-style-type: none"> <li>• <u>Goal:</u> <ul style="list-style-type: none"> <li>○ Establish particular composting reduction goals.</li> </ul> </li> </ul>
1	L	DEA	“Avoidance of organic waste reaching disposal facilities” continued...	<ul style="list-style-type: none"> <li>• <u>Goal:</u> <ul style="list-style-type: none"> <li>○ Implement reduction measures.</li> </ul> </li> </ul>
2	L	DEA	“Avoidance of organic waste reaching disposal facilities” continued...	<ul style="list-style-type: none"> <li>• Incentivise ratepayers who dispose of less waste as a result of undertaking on-site/ home composting. <ul style="list-style-type: none"> <li>○ Recognition programme,</li> <li>○ Awards at municipal level and on individual level,</li> <li>○ Municipality to motivate and encourage individuals.</li> </ul> </li> </ul>
2	M	DEA ,(Review)	“Avoidance of organic waste reaching disposal facilities” continued...	<ul style="list-style-type: none"> <li>• Require Authorities to consider new collection strategies to enhance diversion of organic waste.</li> <li>• Consideration of separation at source.</li> <li>• Review Waste Collection Standards in light of NOWCS.</li> </ul>

LEGAL AND REGULATORY STRATEGY				
Priority <sup>5</sup>	Timeframe <sup>6</sup>	Responsibility <sup>7</sup>	Issue/ Gap/ Limitation	Response/ recommendation
2	L	DEA	“Avoidance of organic waste reaching disposal facilities” continued...	<ul style="list-style-type: none"> <li>Develop programmes/ initiatives for the creation of communal composting areas.</li> </ul>



## 2.2. FEEDSTOCK, OPPORTUNITIES, AND FACILITIES

The monitoring of organic waste generation, disposal, and treatment, as well as identifying product and market opportunities, is essential for its management. Recording of detailed organic waste categories or types is also urgently required.

Regulations regarding fertilizers (GNR 723, 2012) was released in September 2012. This Gazette covers quality control of fertilizers and does make reference to compost, quality thereof, when using compost as a fertilizer. This Gazette should be considered when undertaking this Strategy.

A document entitled, "Specification for composted materials" (BSI, 2011) has been released and should be tabled in sessions involving debate on quality control and standards relating to composting operations and associated materials.

The key issues to be addressed can be categorized as follows:

- **Organic waste classification, compliance and categorization criteria, and minimum product standards or requirements.**

Based on the need to develop norms and standards for the treatment and/ or management of organic waste which does not pose a potentially significant negative impact to the environment (on the biophysical as well as the social environment), the following organic waste types have been grouped into one of three categories depending on their potential significance in terms of negatively impacting on the environment. Refer to **Table 2** for these proposed categories and types.

**Table 2: Proposed categorisation of organic waste**

Potential significance in terms of negative environmental impact	Category	Types of organic materials permitted for composting	
		Organic Waste Type	Examples
LOW	Category 1	Garden and landscaping	Grass <sup>1</sup> , leaves, plants, branches, tree trunks and stumps
		Untreated wood	Sawdust, wood shavings, timber off-cuts, wooden crates and pallets, wood packaging
		Natural organic fibrous organics	Peat, seed husks, straw, bagasse and other natural organic fibrous organics
		Processed fibrous organics	Paper, cardboard, paper-processing sludge, non-synthetic textiles
MEDIUM	Category 2	Other natural or processed vegetable organics	Vegetables, fruit and seeds and processing sludges and wastes, winery, brewery and distillery wastes, food organics excluding organics in Category 3.
		Biosolids and manures	Sewage biosolids animal manure and mixtures of manure and biodegradable animal bedding organics.
HIGH	Category 3	Meat, fish and fatty foods	Carcasses, blood, bone, fish, fatty processing or food.
		Fatty and oily sludges and organics of animal and vegetable origin	Dewatered grease trap, fatty and oily sludges of animal and vegetable origin.
		Mixed residential waste containing putrescible organics	Wastes containing putrescible organics, including household domestic mixed waste and waste from commerce and industry.
		Prescribed industrial waste organics	Fish-processing, paper pulp wastes and sludges with high-organic/ nitrogen loads.

Adapted from: *Environmental Guidelines: Composting and Related Organics Processing Facilities*, 2004: 17

- **Improved recording and reporting of organic waste quantities, including the geographic (GIS) representation.**

The current waste information recording and reporting systems, at both Provincial and National level should be aligned, if not already. The detail or level of information that should be recorded may differ to that reported. Facilities should record the “Type” level of classification, and should report on the SAWIS (or equivalent Provincial WIS) at the “Category” level of detail. Refer to **Table 2** for the proposed categories.

The “Category”, “Type” and quantity of the organics being produced / treated is essential in order to establish a “Feedstock Supply and Treatment” record; as is the location (geographic), as this will allow mapping of the feedstock source or endpoint/market, whether it is composted, disposed of or other.

Once organic feedstock sources and quantities are known, then planning the location of both collection and/ or treatment facilities (existing and new) can follow, in the same way the assessment and planning for general waste transfer facilities is undertaken.

- **Organic waste diversion, feedstock area identification and composting market communication.**

A third criteria that requires consideration, is the “market” or “demand” for, and the different composted products. Different situations will require different products (e.g. urban vs. agricultural, residential vs. commercial), and the demand may or may not be aligned to the supply of compost. The development of an organic waste specific “advertising” platform / website (similar to the City of Cape Town’s Integrated Waste Exchange<sup>9</sup> site) is required. This will assist in feedstock source identification and market generation (for both organic waste supply and compost products).

Refer to the Section, “Products and Marketability” in the Guideline Document for additional information on identifying markets.

**Table 3** summarises the issues and actions identified for consideration through key stakeholder engagements and the Status Quo phase, for inclusion into the final NOWCS (to be adopted and undertaken by DEA).

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<sup>9</sup> City of Cape Town’s Integrated Waste Exchange - <http://www.capetown.gov.za/en/iwex/Pages/default.aspx>

**Table 3: Feedstock, Opportunities, and Facilities**

FEEDSTOCK, OPPORTUNITIES, AND FACILITIES				
Priority <sup>10</sup>	Timeframe <sup>11</sup>	Responsibility <sup>12</sup>	Issue/ Gap/ Limitation	Response/ recommendation
3	L	DEA	<b>1. Composting of organics as an option.</b>	<ul style="list-style-type: none"> <li>• Consider integrating NOWCS into a future “Organic Waste Management Programme”.</li> <li>• Incorporate NOWCS into National Waste Management Strategy (2011).</li> </ul>
2	M	DEA	<b>2. Facilitate market communication</b>	<ul style="list-style-type: none"> <li>• Adapt SAWIS or develop a “Waste Exchange” system to assist in the identification of feedstocks, markets and assist in planning, collection and distribution.</li> <li>• Establish a web link on SAWIC website to the identified “Waste Exchange” website. <ul style="list-style-type: none"> <li>○ Waste Exchange available to everyone.</li> <li>○ Must be able to see who has exchanged.</li> </ul> </li> </ul>
1	S	DEA	<b>3. Identification of key feedstock areas.</b>	<ul style="list-style-type: none"> <li>• DEA to task Provincial Integrated Waste Management Forums to identify large organic waste generators to divert and possibly compost organic waste.</li> </ul>

<sup>10</sup> 1=High Priority, 2=Medium Priority, 3=Low Priority

<sup>11</sup> Short= 0 to 2 years, Medium= 2 to 5 years, Long= >5 years

<sup>12</sup> “Responsibility” means a body to coordinate and drive the action, not necessarily to physically undertake the task and the implementation

FEEDSTOCK, OPPORTUNITIES, AND FACILITIES				
Priority <sup>10</sup>	Timeframe <sup>11</sup>	Responsibility <sup>12</sup>	Issue/ Gap/ Limitation	Response/ recommendation
1	M	PROV	"Identification of key feedstock areas" continued...	<ul style="list-style-type: none"> <li>Provincial Integrated Waste Management Forums to identify large organic waste generators to divert and possibly compost organic waste</li> </ul>
2	M	DEA(SAWIC)	<b>4. Geographic representation (GIS) of feedstock and market opportunities.</b>	<ul style="list-style-type: none"> <li>Generate and distribute a map on composting facilities, drop-off facilities etc. and their distances to main suburbs.</li> <li>All information on system presented on map.</li> <li>Should form part of SAWIS.</li> </ul>
1	S	DEA,DWA,DAF	<b>5. Develop standard categorisation of organics/waste – Compliance and Classification Criteria</b>	<ul style="list-style-type: none"> <li><i>Similar to "Certifying compost, quality of output" above.</i></li> </ul>

FEEDSTOCK, OPPORTUNITIES, AND FACILITIES				
Priority <sup>10</sup>	Timeframe <sup>11</sup>	Responsibility <sup>12</sup>	Issue/ Gap/ Limitation	Response/ recommendation
1	S	DEA,DAFF	6. <b>Develop minimum standards / requirements for compost – source material, quality assurance, product standards, application standards etc. – similar to those detailed in the Wastewater Sludge Guidelines.</b>	<ul style="list-style-type: none"> <li>• Similar to “Certifying compost, quality of output” above.</li> <li>• Norms and Standards apply.</li> <li>• DEA is the regulatory authority for the waste feedstock, registration, and composting operation.</li> <li>• DAFF become the regulatory authority of the final product (no longer a waste product).</li> </ul>
1	S	DAFF	7. <b>Identify the “certification” or regulatory authority to manage quality of final product.</b>	<ul style="list-style-type: none"> <li>• Consider the DAFF (similar to Fertilizer process).</li> </ul>
1	S-M	COMPOSTER	8. <b>Composting is widely considered to be financially non-viable</b>	<ul style="list-style-type: none"> <li>• Develop a “full-cost accounting model” for composting that considers airspace offset costs and environmental costs.</li> </ul>

## 2.3. SUPPORT STRUCTURE AND FUNCTION TO IMPLEMENTING COMPOSTING

Arising from the four-stage development of the NOWCS and input received from the Stakeholder Engagement process and Workshops, a clear direction has emerged which identifies and addresses the enabling mechanisms necessary for successfully implementing of this Strategy ultimately enabling further organic waste diversion. The issues needing to be addressed can be categorized as follows:

- **Support Structure and Functions**

A clearly understood hierarchy of authority and decision-making (with DEA fulfilling the role of “Regulator”) and proper lines of communication, monitoring, reviewing, enforcement and reporting, with effective “buy-in” and support from all Stakeholders, is necessary for the NOWCS to succeed in diverting organic waste from landfill disposal by means of composting and/ or other appropriate technologies.

- **Creation of Opportunities**

Through legislative, financial, institutional, administrative and advisory support by national, provincial and local government, opportunities need to be created so that treating and recycling organic wastes become more viable and sustainable as well as leading to meaningful job creation.

- **Legal Enabling Frameworks**

There is a need for the regulatory and legislation to be reviewed and streamlined so as to facilitate organic waste treatment and recycling without compromising the environment.

- **Financial Support and Incentivisation**

It is widely recognized that composting and other organic waste treatment and recycling methods are considered financially non-viable without appropriate support and incentivisation. There is a need to develop a “full cost accounting” model that takes into account financial off-sets accruing to local authorities through landfill diversion achieved (airspace savings) as well as the environmental and economic benefits (e.g. job creation).

- **Synergies with the Private Sector and Regionalisation**

Although the responsibility of managing municipal solid wastes vests with municipalities, the treating and recycling (beneficiation) of organic wastes is not regarded as a necessary local government service delivery function (City of Cape Town Section 78:3 Review – legal opinion) and such activities may be undertaken by the private sector through Public-Private-Partnering (PPP) or other such mechanisms. Furthermore, it is apparent that synergies exist for the sharing of costs and facilities between various (neighbouring) municipalities and authorities on a regionalization basis.

**Table 4** summarises the issues and actions identified for consideration through key stakeholder engagements and the Status Quo phase, for inclusion into the final NOWCS (to be adopted and undertaken by DEA).



**Table 4: Support Structure and Functions to Implementing Composting**

SUPPORT STRUCTURE AND FUNCTIONS TO IMPLEMENTING COMPOSTING				
Priority <sup>13</sup>	Timeframe <sup>14</sup>	Responsibility <sup>15</sup>	Issue/ Gap/ Limitation	Response/ recommendation
1	M	DEA	1. <b>Forced diversion of organic waste and implementation.</b>	<ul style="list-style-type: none"> <li>● Develop IWMP to include and identify diversion strategies of organic waste.</li> <li>● Inclusion into: <ul style="list-style-type: none"> <li>○ Integrated Development Plans,</li> <li>○ Integrated Waste Management Plans, and <ul style="list-style-type: none"> <li>▪ Recycling breakdown - e.g. composting.</li> </ul> </li> <li>○ Relevant Industrial Waste Management Plans. <ul style="list-style-type: none"> <li>▪ Elements of organic waste to be included.</li> </ul> </li> </ul> </li> <li>● Hand in hand with training and awareness.</li> <li>● Revise <i>Guideline for the Development of Integrated Waste Management Plans, 2012</i> to include organic waste stream.</li> <li>● Organic waste categorisation to be adopted.</li> </ul>

<sup>13</sup> 1=High Priority, 2=Medium Priority, 3=Low Priority

<sup>14</sup> Short= 0 to 2 years, Medium= 2 to 5 years, Long= >5 years

<sup>15</sup> "Responsibility" means a body to coordinate and drive the action, not necessarily to physically undertake the task and the implementation.

SUPPORT STRUCTURE AND FUNCTIONS TO IMPLEMENTING COMPOSTING				
Priority <sup>13</sup>	Timeframe <sup>14</sup>	Responsibility <sup>15</sup>	Issue/ Gap/ Limitation	Response/ recommendation
1	M	IA <sup>16</sup>	“Forced diversion of organic waste and implementation” continued...	<ul style="list-style-type: none"> <li>Integrated Waste Management Plans to identify all relevant organic waste generators within the municipal boundaries and consult with DAFF and other relevant generators in order to maximise opportunities for composting.</li> </ul>

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<sup>16</sup> IA: Implementing Authority

SUPPORT STRUCTURE AND FUNCTIONS TO IMPLEMENTING COMPOSTING				
Priority <sup>13</sup>	Timeframe <sup>14</sup>	Responsibility <sup>15</sup>	Issue/ Gap/ Limitation	Response/ recommendation
2	S	DEA	<b>2. Departmental consultation and support required.</b>	<ul style="list-style-type: none"> <li>• Assign expertise for high level composting forum to Integrated Waste Management Forum (National and Provincial).</li> <li>• Consider responsibility structure used by the Institute of Waste Management South Africa (IWMSA) for this forum for debate.</li> <li>• A specialist composting forum is needed to serve industry being a part of the above mentioned Integrated Waste Management Forum: <ul style="list-style-type: none"> <li>○ Easy to use, interactive, low level, technology based (consider existing business, social networks e.g. LinkedIn, Twitter, etc.)</li> <li>○ Possibly link on DEA website-link to 'question platform'-requires administration. Possibly administered by member of Integrated Waste Management Forum.</li> <li>○ Public can email/log concern.</li> <li>○ Need for management/facilitator to address queries.</li> <li>○ Problems: co-ordination and budget.</li> <li>○ Need for better means of communication between authorities and stakeholders.</li> <li>○ Consider expert members in forum within branches-breakdown further into "interest groups".</li> </ul> </li> </ul>

SUPPORT STRUCTURE AND FUNCTIONS TO IMPLEMENTING COMPOSTING				
Priority <sup>13</sup>	Timeframe <sup>14</sup>	Responsibility <sup>15</sup>	Issue/ Gap/ Limitation	Response/ recommendation
				<ul style="list-style-type: none"> <li>• <b>Important for strategy:</b> Engagement with established composting bodies.</li> <li>• Key issue: need avenue to debate discuss, address queries.</li> </ul>
1	S	DEA	“Departmental consultation and support required” continued...	<ul style="list-style-type: none"> <li>• Develop Norms and Standards to establish appropriate quality standards, monitoring and the classification/categorisation for compost.</li> <li>• DEA to identify synergies with DAFF in undertaking quality control for composting facilities.</li> <li>• Consider thresholds-relate to categories.</li> <li>• Norms and Standards- Small, Medium and Micro Enterprises (SMME) and job creation is key.</li> </ul>
1	M	DEA	“Departmental consultation and support required” continued...	<ul style="list-style-type: none"> <li>• National and Provincial, District and Local authorities to address composting opportunities (IWMP).</li> </ul>
1	M	SALGA	“Departmental consultation and support required” continued...	<ul style="list-style-type: none"> <li>• Municipalities, through Provincial Integrated Waste Management forums, seek synergies and opportunities to combine resources to assist one another to promote and develop organic waste treatment facilities such as composting facilities.</li> </ul>

SUPPORT STRUCTURE AND FUNCTIONS TO IMPLEMENTING COMPOSTING				
Priority <sup>13</sup>	Timeframe <sup>14</sup>	Responsibility <sup>15</sup>	Issue/ Gap/ Limitation	Response/ recommendation
1	S	DTI, DBSA	“Departmental consultation and support required” continued...	<ul style="list-style-type: none"> <li>● Identify and seek Government funding / subsidisation sources to enable municipalities to promote and implement organic waste treatment facilities (grant / green funding, employment opportunity funding, etc.).               <ul style="list-style-type: none"> <li>○ Department of Trade and Industry (DTI) key department to engage with. Approach DTI with strategy-opportunity for funding.</li> <li>○ Green funding through Development Bank of South Africa (DBSA).</li> <li>○ Carbon Credits.</li> <li>○ Access to funding needs to be easy.</li> <li>○ SMME will not have funding.</li> <li>○ Any options other than waste to landfill incurs greater expense.</li> <li>○ Service level agreement between public=private (example-sharing transport cost).</li> </ul> </li> </ul>
2	M	DEA	<b>3. SAWIS and other information systems.</b>	<ul style="list-style-type: none"> <li>● Waste Information Systems to be modified and implemented to capture full and updated information on organic wastes generated (in all Provinces), landfilled, and recycled to composting or other.</li> </ul>

SUPPORT STRUCTURE AND FUNCTIONS TO IMPLEMENTING COMPOSTING				
Priority <sup>13</sup>	Timeframe <sup>14</sup>	Responsibility <sup>15</sup>	Issue/ Gap/ Limitation	Response/ recommendation
1	S	DEA	“SAWIS and other information systems” continued...	<ul style="list-style-type: none"> <li>• Consider record keeping at “Waste Type” level and reporting at “Waste Category” level. <ul style="list-style-type: none"> <li>○ Detailed reporting allows for effective communication.</li> <li>○ Will be addressed in Norms and Standards.</li> </ul> </li> <li>• Norms and Standards will identify the trigger for registration and contain compliance criteria.</li> <li>• Offer a Waste Information Service helpdesk/ helpline for assistance within each Province.</li> <li>• Standardise the “organic” waste information reporting and application forms.</li> </ul>
1	S	SALGA	<b>Composting is widely regarded to be financially non-viable and unsustainable</b>	<ul style="list-style-type: none"> <li>• Municipalities to consider measures to include the private sector to achieve more cost-effective organic waste recycling solutions (e.g. providing land, infrastructure and guaranteed feedstock)</li> <li>• Funding sources from public and private sources to be considered. Initiatives for providing employment opportunities to attract seed or donor funding. See “<i>Departmental consultation and support required</i>” above.</li> <li>• Existing and potential markets to be interrogated to determine market quality requirements and to determine ways of increasing demand for compost</li> </ul>

## 2.4. EDUCATION, SKILLS-TRANSFER AND AWARENESS

As of 1 January 2013, the National Waste Information Regulations (GNR 625, 2012) compel individuals conducting listed waste management activities to register, record, and report waste data to the respective Provincial Waste Information System (WIS). In addition to this, the Draft Waste Classification and Management Regulations (GNR 613-615, 2012) aim to ban or prohibit a significant portion of certain materials or substances from being taken for disposal at landfill. One of these materials is garden waste.

As a means to address the limitations set out in these new Regulations, public awareness and education campaigns and programmes regarding certain waste types will need to be undertaken. This will assist with not only separation at source, but diversion of organic waste from landfill by means of potential home composting in urban/ residential areas, as well as possible communal composting within the informal, lower-income areas.

South Africa currently does not have comprehensive government run education and awareness programmes specifically on composting of organic waste either at the household or industrial level.

There are programmes, such as the City of Cape Town's current 'WasteWise' programme and the Nelson Mandela Bay municipality 'All Hands on Waste Campaign', deal with educating communities on separation of waste at source and promote reuse and recycling above disposal. Some projects are focused on rural and low income areas and generally target education at primary school level.

As part of these programmes, home composting is encouraged as a means to divert organic and garden waste from the general waste stream and create a usable 'product' which is beneficial for the individual and the community at large.

**Table 5** summarises the issues and actions identified for consideration through key stakeholder engagements and the Status Quo phase, for inclusion into the final NOWCS (to be adopted and undertaken by DEA).

**Table 5: Education, Skills Transfer and Awareness**

EDUCATION, SKILLS TRANSFER AND AWARENESS				
Priority <sup>17</sup>	Timeframe <sup>18</sup>	Responsibility <sup>19</sup>	Issue/ Gap/ Limitation	Response/ recommendation
2	S	DEA	<b>1. Quantities are not measured, recorded, and/ or monitored.</b>	<ul style="list-style-type: none"> <li>● Compile an Information Booklet on how to quantify, record and monitor organic waste easily and pragmatically, plus: <ul style="list-style-type: none"> <li>○ The registration process,</li> <li>○ One page summary-flagging important issues, and</li> <li>○ References to legislation.</li> </ul> </li> </ul>
2	S-M	DEA	<b>2. Awareness for registration</b>	<ul style="list-style-type: none"> <li>● Invitation letters to be issued to known composters encouraging registration (<b>assuming the registration process is adopted</b>)</li> <li>● DEA to liaise with DTI regarding their database of all businesses.</li> </ul>
3	M	DEA	<b>3. There is a lack of information (manuals and guidelines) regarding undertaking home composting in South Africa.</b>	<ul style="list-style-type: none"> <li>● Develop a user-friendly, easy to read and comprehensible guidebook/ pamphlet/ flyer on making compost and the benefits thereof.</li> <li>● Many international versions- need South African DEA version.</li> </ul>

<sup>17</sup> 1=High Priority, 2=Medium Priority, 3=Low Priority

<sup>18</sup> Short= 0 to 2 years, Medium= 2 to 5 years, Long= >5 years

<sup>19</sup> "Responsibility" means a body to coordinate and drive the action, not necessarily to physically undertake the task and the implementation.



EDUCATION, SKILLS TRANSFER AND AWARENESS				
Priority <sup>17</sup>	Timeframe <sup>18</sup>	Responsibility <sup>19</sup>	Issue/ Gap/ Limitation	Response/ recommendation
2	S	DEA	<b>4. Network based information sharing and skills transfer.</b>	<ul style="list-style-type: none"> <li>Refer to " <i>Departmental consultation and support required</i>" issue above.</li> </ul>
2	S-M	DEA	<b>5. Web based information sharing.</b>	<ul style="list-style-type: none"> <li>Develop a website for public use that displays all organic waste information relating to sites in the various Provinces that receive/generate different organic waste types, etc (e.g. the Integrated Waste Exchange website- IWEX<sup>20</sup>).</li> </ul>
2	M-L	DEA	<b>6. There is a general lack of information and awareness regarding how to make compost and the different methods.</b>	<ul style="list-style-type: none"> <li>Educate and generate awareness amongst the general public (National campaigns) on producing compost easily and effectively as well as on the benefits of using compost, contamination prevention and separation at source.</li> <li>Link with existing campaigns.</li> </ul>

<sup>20</sup> A free online system that enables waste generators and users to exchange waste materials (City of Cape Town: <http://www.capetown.gov.za/en/iwex/Pages/default.aspx>)

EDUCATION, SKILLS TRANSFER AND AWARENESS				
Priority <sup>17</sup>	Timeframe <sup>18</sup>	Responsibility <sup>19</sup>	Issue/ Gap/ Limitation	Response/ recommendation
2	M-L	LG	7. <b>A large amount of food waste generated in some areas is being disposed of due to a lack of knowledge on composting and the benefits thereof.</b>	<ul style="list-style-type: none"> <li>• Undertake pilot studies (possibly incorporating tertiary students) to establish the most effective means of composting based on the affected communities and receiving environment with the intention to create communal composting areas.</li> <li>• Forms part of local authority implementation plan</li> <li>• Once piloted, share successes and experiences with other communities via workshops.</li> </ul>

EDUCATION, SKILLS TRANSFER AND AWARENESS				
Priority <sup>17</sup>	Timeframe <sup>18</sup>	Responsibility <sup>19</sup>	Issue/ Gap/ Limitation	Response/ recommendation
2	M	DEA (DoE)	<b>8. Promote the use of compost and organic fertilizers.</b>	<ul style="list-style-type: none"> <li>• Develop 'best practice' guidelines for agriculture/ farming sector regarding methods of composting.</li> <li>• Investigate inclusion of compost knowledge and awareness and waste management in school and tertiary curriculum.</li> <li>• Encourage tertiary curricula to include organic composting. Agricultural students (colleges and universities) to be taught about use and benefits of organic compost and not just on chemical fertilizers (cradle-to-cradle waste management).</li> <li>• Initiate relationship with tertiary institutions educators. (On the benefits of having students undertake chosen research topics).</li> <li>• Compile a list of research opportunities.</li> <li>• Undertake more research on composting methods using different feedstock materials, composition, benefits, uses, ratios etc. which would be used to update the curriculum.</li> </ul>
2	L	DAFF	"Promote the use of compost and organic fertilizers" continued...	<ul style="list-style-type: none"> <li>• Investigate mechanisms for consumer markets and any current or future IndWMPs as "drivers" to promote use of organic farming methods with respect to the use of compost and organic fertilizers rather than artificial fertilizers.</li> </ul>

EDUCATION, SKILLS TRANSFER AND AWARENESS				
Priority <sup>17</sup>	Timeframe <sup>18</sup>	Responsibility <sup>19</sup>	Issue/ Gap/ Limitation	Response/ recommendation
2	M	DEA,DAF	<b>9. Communication to interested and affected parties</b>	<ul style="list-style-type: none"> <li>• Publish articles in Farmer's Weekly/ Agri Magazine etc.</li> <li>• Communicate via the DAFF and/ or Agri SA/ AgriMark, Farmers Market, etc.</li> </ul>
1	M	SALGA	<b>10. Many Municipalities lack detailed technical knowledge on effectively starting, operating and managing a composting facility.</b>	<ul style="list-style-type: none"> <li>• Educate/ train/ upskill Municipalities on how to measure, record and monitor waste quantities per stream via workshops to understand the current waste generation and disposal context within their area of jurisdiction.</li> <li>• Include organic waste management in Councillor induction Programme.</li> </ul>
1	M	DEA, Municipalities	<b>11. Contracts</b>	<ul style="list-style-type: none"> <li>• Educate "Implementing Authorities" (IAs) on suitability, pitfalls and benefits of Service Level Agreements, Public Private Partnerships, Annual Contracts, etc – so they may consider sharing the operations with a private entity. <ul style="list-style-type: none"> <li>○ Approach National Treasury for guidance on Public Private partnerships.</li> <li>○ Consider the scenario: private specialist waste (composting) business undertake the operations on site and would produce and sell the compost, while the Municipality is the enabler (provides licensed land to the private composter).</li> </ul> </li> </ul>

<b>EDUCATION, SKILLS TRANSFER AND AWARENESS</b>				
<b>Priority<sup>17</sup></b>	<b>Timeframe<sup>18</sup></b>	<b>Responsibility<sup>19</sup></b>	<b>Issue/ Gap/ Limitation</b>	<b>Response/ recommendation</b>
2	M	DEA	<p><b>12. There is limited knowledge of the National Waste Information Regulations (GNR 625, 2012) and associated obligation by individuals conducting a listed waste management activity which from 1 January 2013 are required to register, record, and report to the respective Provincial Waste Information System (WIS).</b></p>	<ul style="list-style-type: none"> <li>• Similar to “Regulatory processes”.</li> <li>• Include in general awareness campaigns.</li> </ul>

## 2.5. MUNICIPAL STRUCTURE, RESPONSIBILITIES AND ROLES FOR THE PRIVATE SECTOR

In order to meet their organic waste diversion goals, municipal solid waste managers will need to review their integrated waste management plans to ensure that sufficient human and financial resources are allocated to developing and implementing a proper organic waste management strategy. For most municipalities, this will necessitate changes to current departmental planning and operating structures. The roles of the private sector should be taken into account when municipalities undertake their organic waste management planning.

**Table 6** summarises the issues and actions identified for consideration through key stakeholder engagements and the Status Quo phase, for inclusion into the final NOWCS (to be adopted and undertaken by DEA).

**Table 6: Municipal Structure, Responsibilities and Roles for the Private Sector**

<b>MUNICIPAL STRUCTURE, RESPONSIBILITIES AND ROLES FOR THE PRIVATE SECTOR</b>				
<b>Priority<sup>21</sup></b>	<b>Timeframe<sup>22</sup></b>	<b>Responsibility<sup>23</sup></b>	<b>Issue/ Gap/ Limitation</b>	<b>Response/ recommendation</b>
1	S	SALGA	<b>1. Structure</b>	<ul style="list-style-type: none"> <li>Roles and responsibilities within the municipal structure need to be reviewed and amended (if necessary) to include the identification of responsible person to “champion” the beneficial use of organic waste (and any other waste). Consider support person to Waste Management Officer (WMO).</li> <li>Shift from traditional collect, transport and dispose towards Waste Treatment hierarchy.</li> </ul>
2-3	M	SALGA	<b>2. Partnership and Private sector</b>  <b>Waste minimisation: multiple role players.</b>	<ul style="list-style-type: none"> <li>Local municipalities to assess the need for expertise from private industry.</li> <li>Look at partnership scenarios-private only, private-public, or public only. <ul style="list-style-type: none"> <li>Will depend on treatment technology, capacity of municipality etc.</li> </ul> </li> <li>Refer to guidelines in place for public-private partnerships by National Treasury.</li> </ul>

<sup>21</sup> 1=High Priority, 2=Medium Priority, 3=Low Priority

<sup>22</sup> Short= 0 to 2 years, Medium= 2 to 5 years, Long= >5 years

<sup>23</sup> “Responsibility” means a body to coordinate and drive the action, not necessarily to physically undertake the task and the implementation.

## 2.6. STRATEGY REVIEW AND UPDATE

The Department of Environmental Affairs (DEA) must take ownership of this Strategy document and the responsible departments / organisations must implement the actions detailed in this Strategy (within the assigned timeframes) or as adopted, to ensure that an acceptable level of diversion of organic waste from landfill disposal is achieved, in this instance, using composting as a treatment method.

Legislation changes or updates, coupled with changes to the national context within which organic waste is produced and ultimately managed countrywide will necessitate that this strategic framework be revised and updated to ensure that the information as well as action items remain relevant and appropriate. Furthermore, as action items are implemented, these may either result in additional recommendations being identified, and / or require that implemented items be removed from the tables above. Due to this likelihood, combined with the changing environment within which we live, the nature of the actions listed in this strategy could change. Accordingly, this Strategy document will require revision to ensure that the Strategy is kept relevant, implementable, and is able to respond to advances in environmental and engineering best practice.

This Strategy document should be reviewed and updated on a regular basis. Furthermore, systematic reviews will also evaluate the success of the various actions detailed in the Strategy document, in addition to auditing compliance by various responsible departments (in terms of implementing the action items tabulated in this document).

The first review should occur after one year of this Strategy being adopted by the DEA (*i.e.* the first review would occur in April 2014) and thereafter every three years.

The DEA should be responsible for undertaking the review which must include stakeholder input and consultation.



## 2.7. KEY PRIORITIES AND TIMEFRAMES

Based on the above tables, a summary of the National Organic Waste Composting Strategy has been visually portrayed in **Figure 1** which highlights the key actions and responsibilities for the various government departments to action for the next five years and beyond.

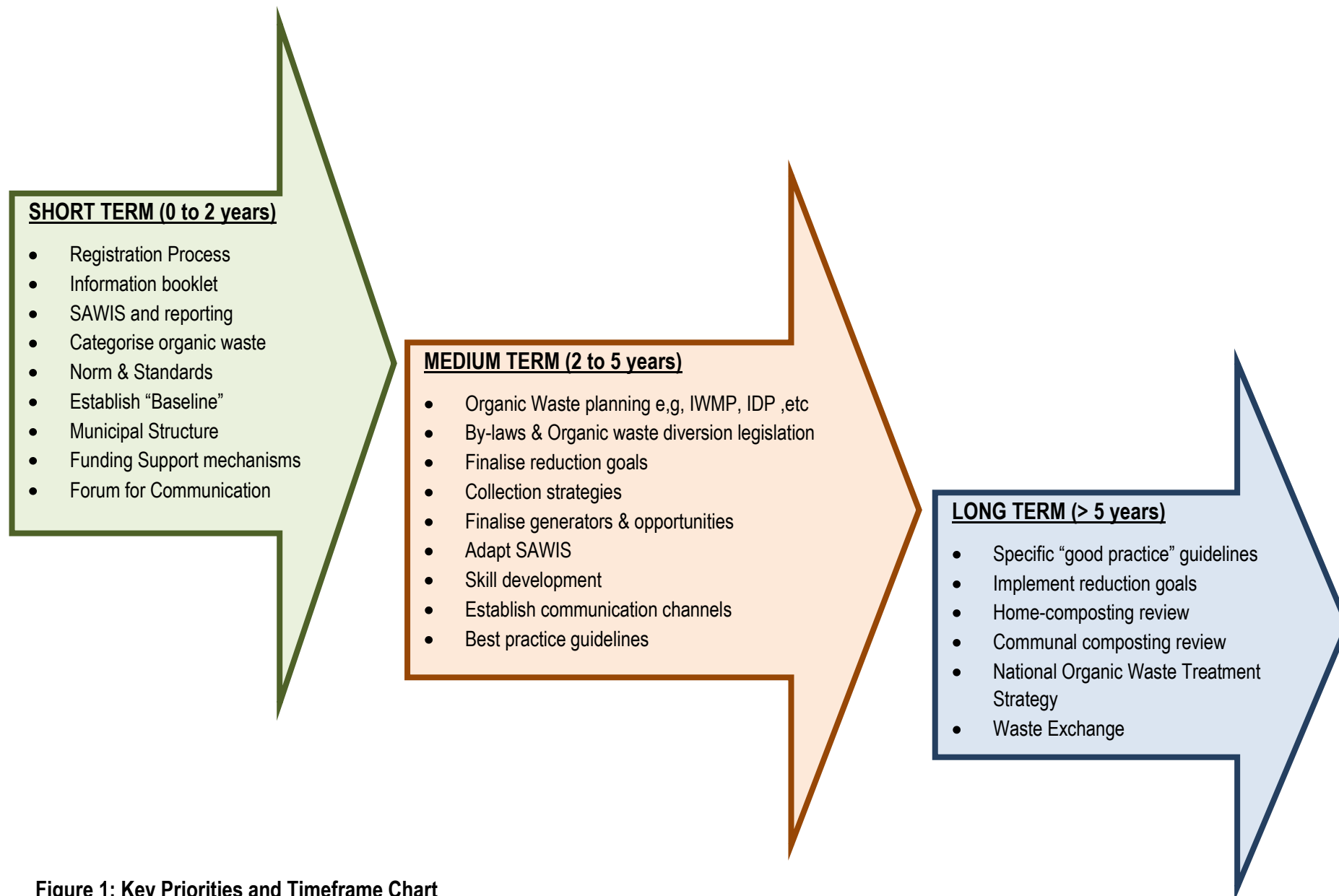


Figure 1: Key Priorities and Timeframe Chart

## 3. CONCLUSION AND WAY FORWARD

### 3.1. CONCLUSION

The development of this draft National Organic Waste Composting Strategy (NOWCS) has followed a four stage approach incorporating a Literature Review, Status Quo Analysis, Stakeholder Engagement Process and the development of this draft Strategy Report which will be carried forward to a further round of Stakeholder engagement, thereafter this Strategy Report will be submitted, as final, to DEA for adoption and implementation.

This strategy focusses on composting as one of the organic treatment options available to try and achieve meaningful and sustainable diversion of organic waste from landfill disposal, establishing diversion goals and clear plans of action that can be implemented, measured and monitored going forward.

This Strategy recognises that composting is not the only means of treating organic waste for beneficial use and for professional and suitable diversion of this waste from landfill.

This Strategy is a living document, listing a number of key tasks and the following categories, which need to be adopted, embraced and achieved to enhance composting as an opportunity and as a means of job creation and (industry) growth:

- Legal and regulatory processes,
- Feedstock, opportunities and facilities,
- Support structure and function to implementing composting,
- Education, skills-transfer and awareness, and
- Municipal structure, responsibilities and roles for the private sector.

### 3.2. WAY FORWARD

This draft Strategy report has been made available to all stakeholders for comment from **Monday 4 February 2013 until Tuesday 5 March 2013**. A link to the report on the J&G website has been sent to all stakeholders on the project database. Based on the comments received, this draft report will be

updated and considered final for submission to the DEA on 29 March 2013. Workshops will be held in KZN, Gauteng and the Western Cape prior to the finalisation of the Strategy report.

All comments received in writing and input received during the workshops will be considered when updating the NOWCS which will be considered to be final. Written comments submitted by stakeholders will be included and responded to in a Comments and Responses Report.

After submission of this final Strategy document, DEA will need to adopt the Strategy, in part or in whole.

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<sup>24</sup> A more-recent version of this report and study is available, but has not yet been adopted. See footnote number 17.

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