BRIEFING NOTE

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MOVING UP THE WASTE HIERARCHY IN SOUTH AFRICA: OVERCOMING THE BARRIERS

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KEY FINDINGS

There are currently a wide range of legislative, economic/financial, behavioural and institutional issues that are hampering efforts to divert waste from landfill and transition toward a circular economy in SA. A coherent and mutually reinforcing suite of interventions will be required to address the various issues, with action required by all relevant role-players. In particular, with a number of waste streams currently being addressed through EPR; there is a need for actions to address organic and C&D waste; which make up the bulk of the waste going to landfill, and for which significant untapped opportunities exist. There is also a need to focus on waste avoidance and reduction, in line with the waste hierarchy; and in particular to focus on improved product design in line with the circular economy.

INTRODUCTION

The National Environmental Management: Waste Act, 2008 (No. 59 of 2008) and National Waste Management Strategy (NWMS) call for increased diversion of waste away from landfill towards reuse, recycling and recovery. This is in line with the waste management hierarchy (Figure 1), according to which waste should first be avoided, reduced, reused, recycled or recovered (in order of preference); with disposal as a last resort. It is also in line with the concept of a circular economy, which is central to the updated NWMS (DEFF, 2021).

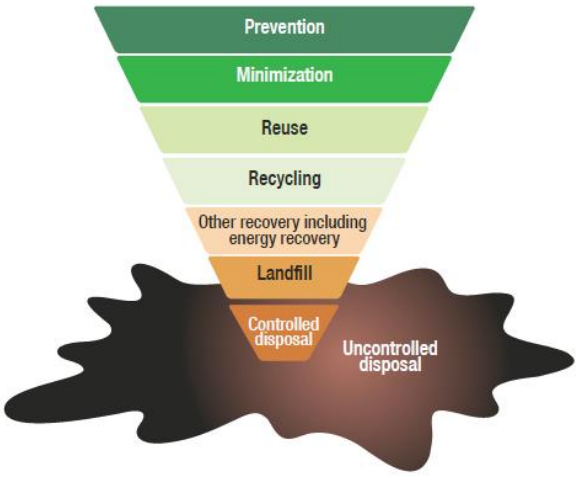

Figure 1: The Waste Management Hierarchy (Source: Global Waste Management Outlook, UNEP, 2015). This depiction of the hierarchy emphasises that disposal to well managed landfills is still preferable to 'uncontrolled disposal' (i.e. open dumping).

However, the majority of waste generated in SA is still disposed of (either to landfill or a communal/own dumpsite, or illegally dumped). According to the final draft State of Waste report, 34.5% of general waste generated in 2017 was recycled or recovered, and 65.2% disposed. This represents a significant loss of valuable resources that could potentially be recovered and recycled for further processing. Disposal of waste also gives rise to significant social and environmental costs; while many municipalities are rapidly running out of landfill airspace.

The aim of this study was to understand the root causes for the dominance of landfilling as a waste management option in South Africa, and to identify relevant solutions for addressing the issues and for increasing the diversion of waste from landfill toward alternative waste management options.

The focus was on identifying economic instruments that can be implemented by national government to create incentives for the diversion of waste from landfill. In this respect, a guideline was developed for national government, providing guidance for the selection, design and implementation of such instruments.

In addition, the project also looked more broadly at the range of actions required by all relevant role-players in order to move up the waste hierarchy and transition toward a circular economy in South Africa.

METHODOLOGY

The project consisted of four phases, as follows:

1. **Scoping**: Literature reviews and workshops with stakeholders and experts to unpack the root causes for the predominance of landfilling as a waste management option in South Africa.
2. **Review**: Literature review and discussions with stakeholders and experts to identify relevant economic, regulatory and other instruments that can potentially address the root causes and increase the diversion of waste away from landfill toward alternative waste management options. Lessons learned from their implementation in other countries were documented, as were considerations for their potential implementation in South Africa.
3. **Assessment**: Evaluation of the identified instruments in terms of their suitability for addressing the root causes and incentivising the diversion of waste from landfill to alternatives.
4. **Reporting**: Development of a guideline for national government to inform the implementation of economic instruments to incentivise the diversion of waste away from landfill; as well as related project deliverables.

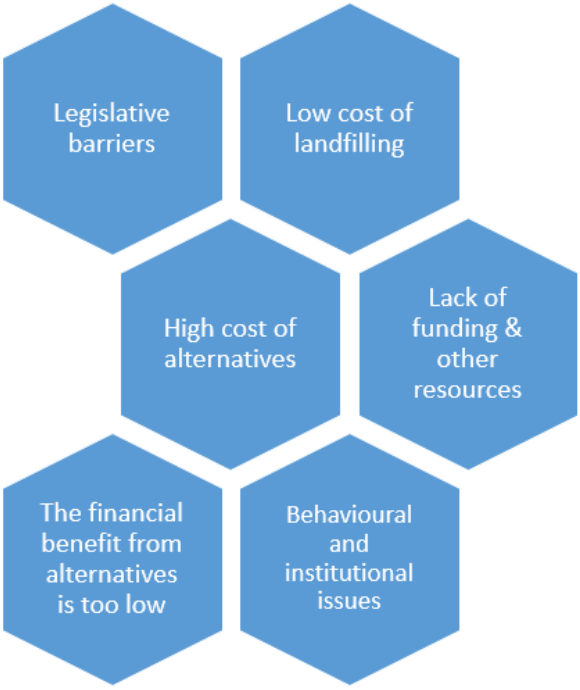

Figure 2. Root causes for the dominance of landfilling as a waste management option in South Africa

ROOT CAUSES: WHY ARE WE NOT MOVING UP THE WASTE MANAGEMENT HIERARCHY?

A wide range of root causes for the dominance of landfilling as a waste management option in South Africa were identified. These can be classified as legislative, economic/financial, behavioural and institutional barriers; which hamper efforts to divert waste from landfill and to move up the waste management hierarchy (see Figure 2).

ADDRESSING THE ROOT CAUSES: LEVERS FOR CHANGE

During the project, we identified a broad range of potential solutions for addressing the various issues and increasing the diversion of waste from landfill in South Africa toward alternative waste management options. These include interventions to be implemented by role players at all levels; including the various tiers of government (from national to local), industry, waste generators, etc.

Given the complex nature of the problem, and the broad range of issues to be addressed, no single type of intervention on its own is likely to be effective; nor will actions by any one role-player be effective in isolation. Instead, implementing the waste hierarchy and transitioning to a circular economy will require a coherent set of mutually reinforcing regulatory, economic and other interventions; with actions required by all relevant role-players.

THE ROLE OF ECONOMIC INSTRUMENTS

In addition, the project develops a guideline for national government that focuses specifically on the economic and financial issues identified in Figure 2; and on economic instruments and incentives that could potentially be implemented to address them.

In particular, the focus is on economic instruments that can be implemented by national government to create incentives for waste to be diverted from landfill toward alternative waste management options, such as recycling and recovery. The guideline aims to provide practical guidance for the selection, design and implementation of such instruments.

It should also be noted that the guideline focuses specifically on 'downstream' economic instruments for diverting waste away from landfill (as per Figure 3); and not on the upstream measures required to reduce waste generation in the first place. However, in line with the waste management hierarchy (Figure 1), it is clear that there is also a need to focus on achieving waste avoidance and reduction, e.g. through improved product design; rather than solely relying on 'end-of-pipe' solutions to deal with the waste problem.

Potential economic instruments that can be used specifically to address the economic and financial issues are identified in Table 1.

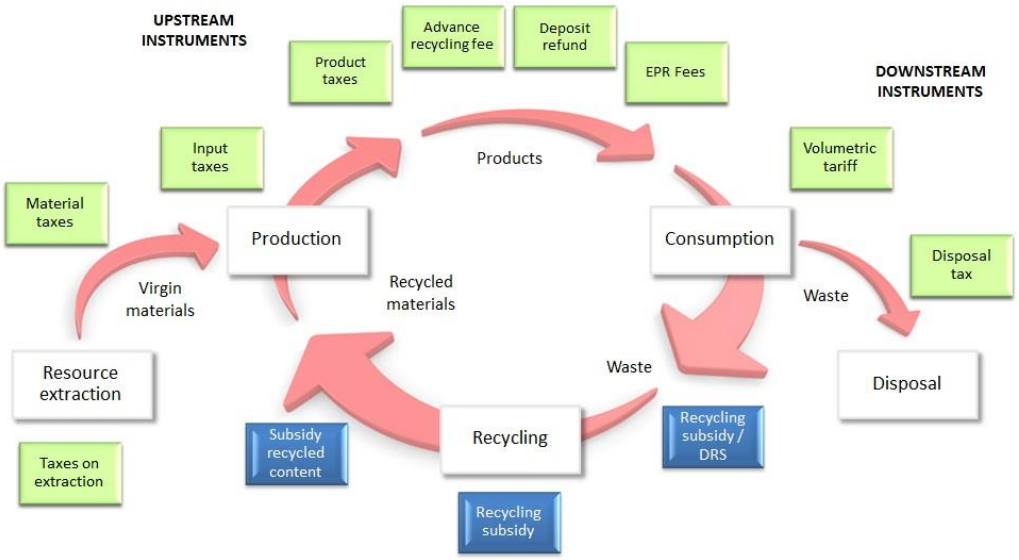

Figure 3: Examples of economic instruments along the waste value chain (Source: National Pricing Strategy, DEA, 2016).

Table 1: Potential economic instruments for incentivising the diversion of waste from landfill

Economic and financial issues / challenges		**Potential economic instruments to address the issues**
Low cost of landfilling	Many landfill sites in South Africa are unregulated, unlicensed and/or non-compliant, and therefore the cost of landfilling is artificially low	• Funding to upgrade waste management infrastructure (e.g. through a **dedicated fund for waste infrastructure**) • Funding for landfill infrastructure should be conditional on landfills being licensed / degree of compliance with license conditions / Norms & Standards (**conditional grants**)
	Lack of full cost accounting for waste services	• Provision of funding for landfill infrastructure should be conditional on full cost accounting practices being followed (**conditional grants**)
	Lack of cost recovery for waste services	• Provision of funding for landfill infrastructure should be conditional on the degree to which tariffs are cost reflective (**conditional grants**)
	Externalities are not internalised	• In the long term, once all the prerequisites have been addressed; if the cost of landfilling remains too low relative to alternatives; a **landfill tax** could be considered; following the guidelines, recommendations and timelines of the Landfill Tax Feasibility Study and National Pricing Strategy
High cost of alternative waste management options	High capital costs	• Funding for the infrastructure required for alternatives (e.g. through a **dedicated fund for waste infrastructure**) • **Tax credits for investing in infrastructure for alternative waste treatment**
	High operating costs	• **Subsidies paid per unit or per kg of material processed through alternative waste treatment**
Lack of funding	Lack of funding for capital infrastructure	• **Dedicated fund for waste infrastructure**
	Difficult to raise tariffs	• Not specifically addressed through economic instruments
The financial benefit from alternatives is too low	Market prices are too low	• **'Top-up' incentives** (e.g. paid to collectors per kg of material collected), to increase the value of recyclables and thereby incentivise collection/recovery
	Fluctuating market price of virgin materials (linked to global commodity prices)	• **Income guarantees/price support** for recyclers, to provide a buffer against market volatility
	Lack of markets	• **Tax credits/rebates for using recycled materials**
	Some recycled materials (or the end-products from such materials) are unable to compete in the market (virgin alternatives are cheaper)	• **Virgin material taxes** • **Elimination of perverse subsidies** on virgin materials

GUIDELINES FOR NATIONAL GOVERNMENT

During the project, a guideline was developed regarding the selection, design and implementation of the economic instruments listed in Table 1. The instruments were grouped into 4 categories, as follows:

1. Conditional grant funding for waste infrastructure (through a dedicated fund for waste infrastructure, with conditions attached to funding)
2. Landfill tax
3. Subsidies/tax concessions (e.g. tax credits for investing in infrastructure for alternative waste treatment, subsidies per unit or per kg of material processed, tax credits/rebates for using recycled materials, income guarantees/price support to recyclers, and 'top up' incentives for collectors)
4. Virgin material taxes (and elimination of perverse subsidies).

In general, some of the key steps are as follows:

- Identify problem to be addressed, and objective of the instrument (e.g. to create incentives to change behaviour, by addressing a market failure (e.g. internalising an externality); or to raise revenue?
- Should the government intervene?
  - Environmental taxes and other economic instruments are only justified where there is a specific market failure (e.g. an environmental externality) to be addressed.
  - A number of pre-conditions need to be in place before economic instruments can be implemented; including well-functioning markets, institutional capacity and political will.
  - Economic instruments are not appropriate when there are underlying structural issues; e.g. pervasive under-pricing of waste services due to landfill sites being unlicensed or non-compliant, lack of full-cost accounting, tariffs being set below the levels required for cost-recovery, etc. These issues need to be corrected before considering a landfill tax, for example, which could create further distortions. Landfill taxes are only designed to address environmental externalities, and not the various other root causes behind the low cost of landfilling and under-pricing of waste services.
- Analysis of options (selecting an appropriate economic instrument to address the identified market failure and create the required incentives)
- Choice of instrument
- Evaluate the social, economic and environmental impacts, including potential impacts on municipalities, producers and/or consumers
- Design instrument to maximise social, economic and environmental benefits, and minimise social, economic and environmental costs (including competitiveness and distributional impacts).

For a landfill tax, specific prerequisites include:

- Licensing of landfill sites, and compliance with permit conditions and with Norms and Standards.
- Viable alternatives to landfill disposal (e.g. options for recycling) to enable a change in behaviour without stimulating an increase in illegal dumping
- Effective access control, functioning weighbridges and adequate reporting systems, to enable accurate monitoring and reporting of waste quantities
- Capacity to monitor and control illegal dumping
- Full cost accounting, and cost reflective gate fees and waste tariffs, to enable cost recovery
- Municipalities must be in a sufficiently sound financial position for payment of the tax.

Addressing these issues will in and of itself increase the cost of landfilling (and thereby result in a diversion of waste from landfill). As such, once these fundamentals have been addressed, it could potentially be found that there is no longer a need for a landfill tax. In this way, the potential negative impacts of a landfill tax (e.g. stimulating an increase in illegal dumping, negative impacts on municipal finances, etc.) can be avoided.

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Disclaimer: The content and views included in this Briefing Note are based on independent analysis and do not necessarily reflect the position of the Department of Science and Innovation or the CSIR.

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