

Department of Environmental Affairs Role in Biogas Discourse

Presentation to the National Biogas Conference 2017



01 November 2017



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PRESENTATION OUTLINE

- Legislative Context
 - Key Projects
- The Waste Flagship Programme
 - Msunduzi Local Municipality Case Study
 - Scaling up the flagship
 - Conclusions



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Legislative Context

- Absence of a dedicated legislative framework for biogas
 - National Gas Act
 - National Water Act
 - National Heritage Act
 - Spatial Planning and Land Use Management Act
 - Municipal planning regulations
- National Environmental Management Act (NEMA)
- National Environmental Waste Act (NEM:WA)
- National Environmental Air Quality Act (NEM:AQA)
- National Environmental Biodiversity Act (NEM:BA)
- National Environmental Protected Areas Act (NEM:PAA)

Waste Act promotes the diversion of organic waste from landfill !!



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Key Projects

- Mitigation Potential Analysis
- Unlocking Barriers and Opportunities For Land Based Climate Change Activities in SA
- Facilitation Of Large-scale Uptake Of Alternative Transport Fuels In South Africa
- Biogas for Productive uses, Industrial & Mobility Application
- **Waste Flagship Programme**



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The Waste Management Flagship Programme:

Diversion of Municipal Solid Waste Away from Landfills in South African Municipalities



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Policy Basis

National Climate Change
Response Policy
(NCCRP, 2011)

National Waste Management
Strategy (2011)

National Environmental
Management: Waste Act
(NEMA, 59 of 2008)

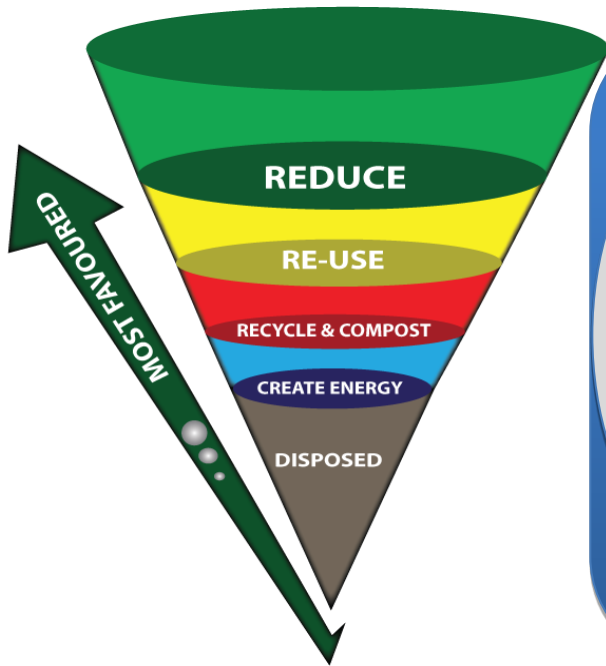
NCCRP objectives:

- “To effectively **manage the inevitable climate change impacts** through interventions that build and sustain South Africa’s social, economic and environmental resilience and emergency response capacity; and
- To **make a fair contribution to the global effort to stabilise greenhouse gas (GHG) concentrations** in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a timeframe that enables economic, social and environmental development to proceed in a sustainable manner.”

Policy Basis: Waste Hierarchy

Waste hierarchy as emphasised by the NEMA and NWMS:

- Realizes the **resource value of solid waste**,
- Promotes **good waste practices; diversion of waste** away from landfill; Green House Gas (GHG) **emission reduction**, and **sustainable development**.



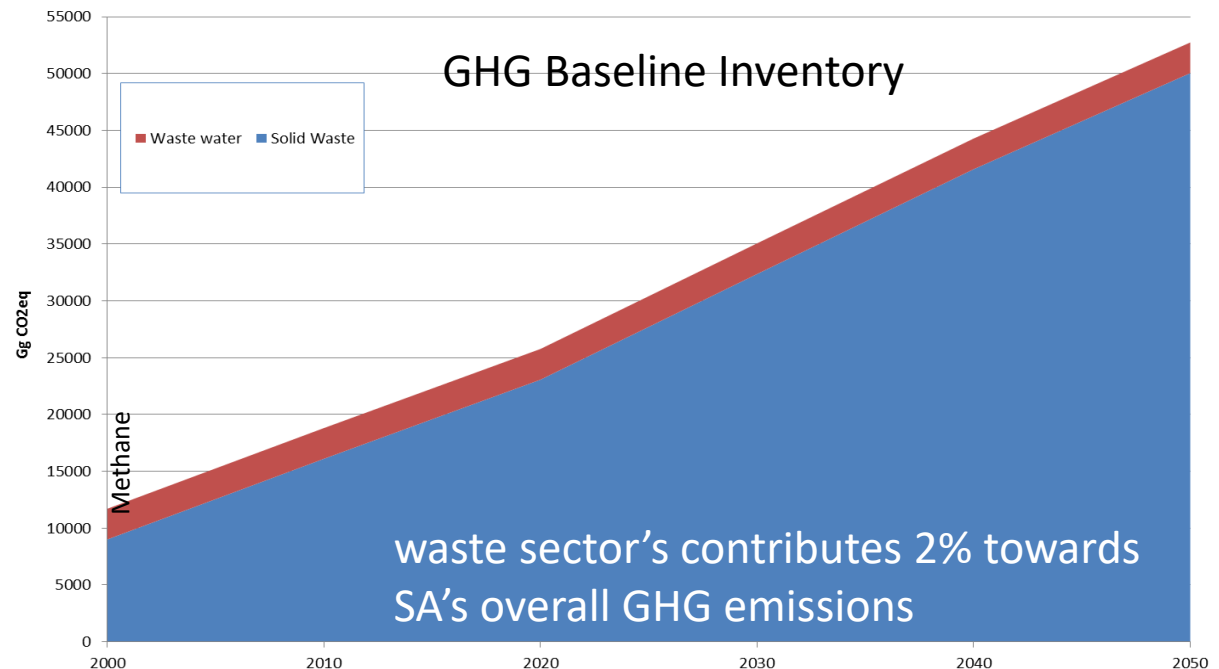
GOAL 1:
catalyse transition to a lower-carbon economy & society

GOAL 2:
promote proper waste management practices

GOAL 3:
promote optimal contribution of the waste sector to green economy: **green jobs, green energy**

Problem Statement

- **90% (75%)** of solid waste is **landfilled**
- The **landfilling** and Anaerobic Digestion of organic waste results in **GHG emissions**.
- **Poor recycling** rates result in the **depletion of raw materials** and **GHG emissions**.
- There is a need to **scale-up landfill diversion measures** (including mix of measures biological, mechanical, thermal etc.).
- **Methane** is the **largest contributor to the waste sectors GHG emissions**.
- The **diversion of waste from landfill** is estimated to **unlock R17 billion p.a.**



Project Aim and Objectives

- To promote the diversion of waste (particularly organic waste) from landfills to mitigate adverse environmental impacts (e.g. GHG emissions) and to benefit from associated sustainability co-benefits.

Specific objectives:

- To develop strategies which outline possible suitable interventions (waste treatment technologies etc.) to integrate into IWMPs, with an emphasis on waste diversion and the waste hierarchy.
- Develop Zero waste Strategy For Metros
- To develop projects for national and international financing by preparing implementation and business plans.
- To develop a scaled-up programme based on the projects selected by the current 6 municipalities.
- Catalyze learning and innovation, compile and disseminate lessons learnt

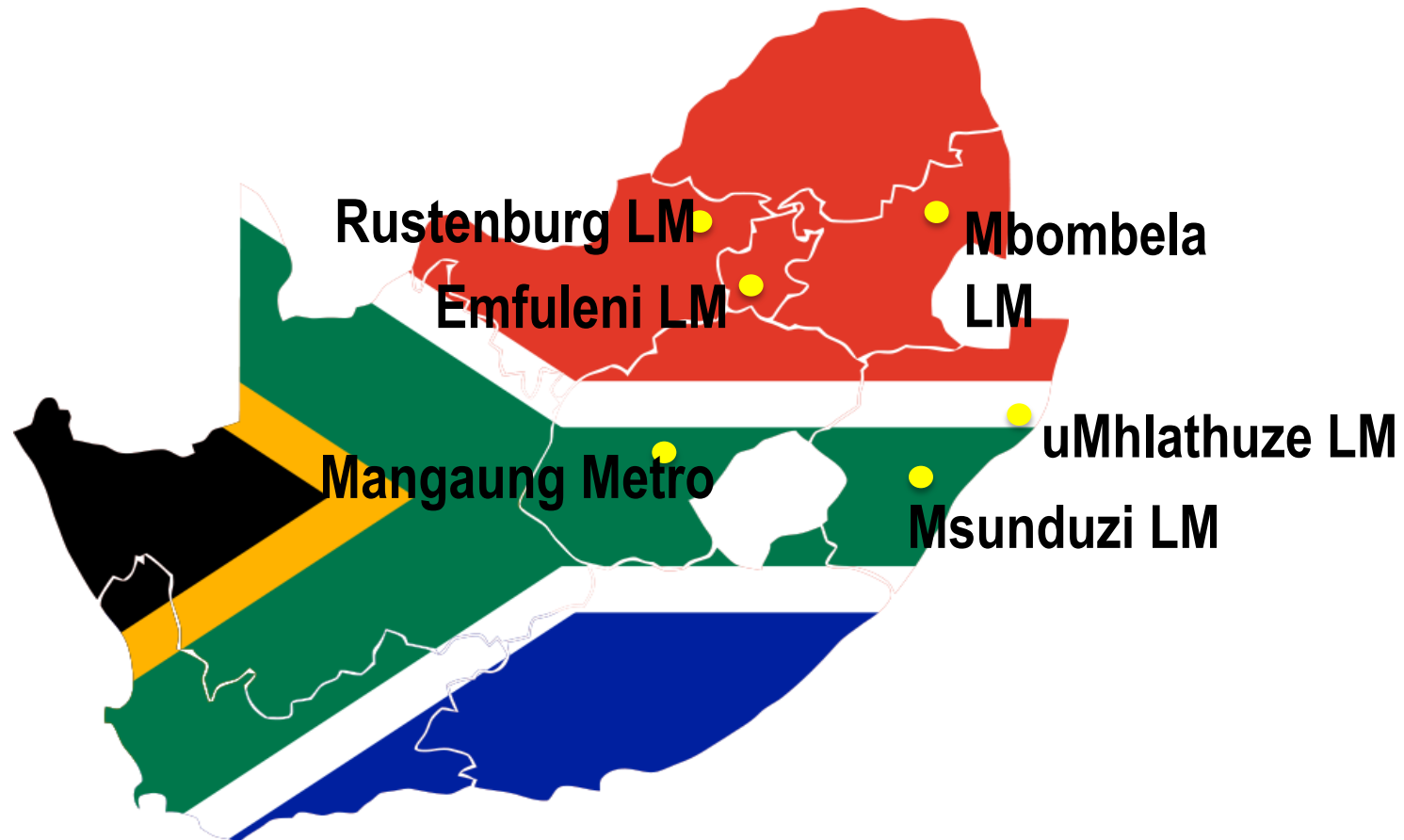


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Waste Management Flagship Phase 1

- Business and Implementation plans developed for 6 municipalities (pre-feasibility stage)



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Project Selection:

Decision making criteria	Explanation
Landfill diversion	Consideration only to Solid Waste being managed by Municipality (not to interfere with sustainable private-sector initiatives). Consideration only to waste currently going to landfill disposal and not being diverted.
Emission reduction	Targeting of solid waste which has the greater mitigation potential of GHG generation.
Funding potential	NAMA and/or GCF and/or other sources are being investigated for capex to aid implementation. These all have a focus on GHG. Typically, this (GHG Mitigation) creates a focus towards organics. Reason for this is from a funding perspective. Indirectly many projects diverting organics would create a packaging recovery project.



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Project Selection:

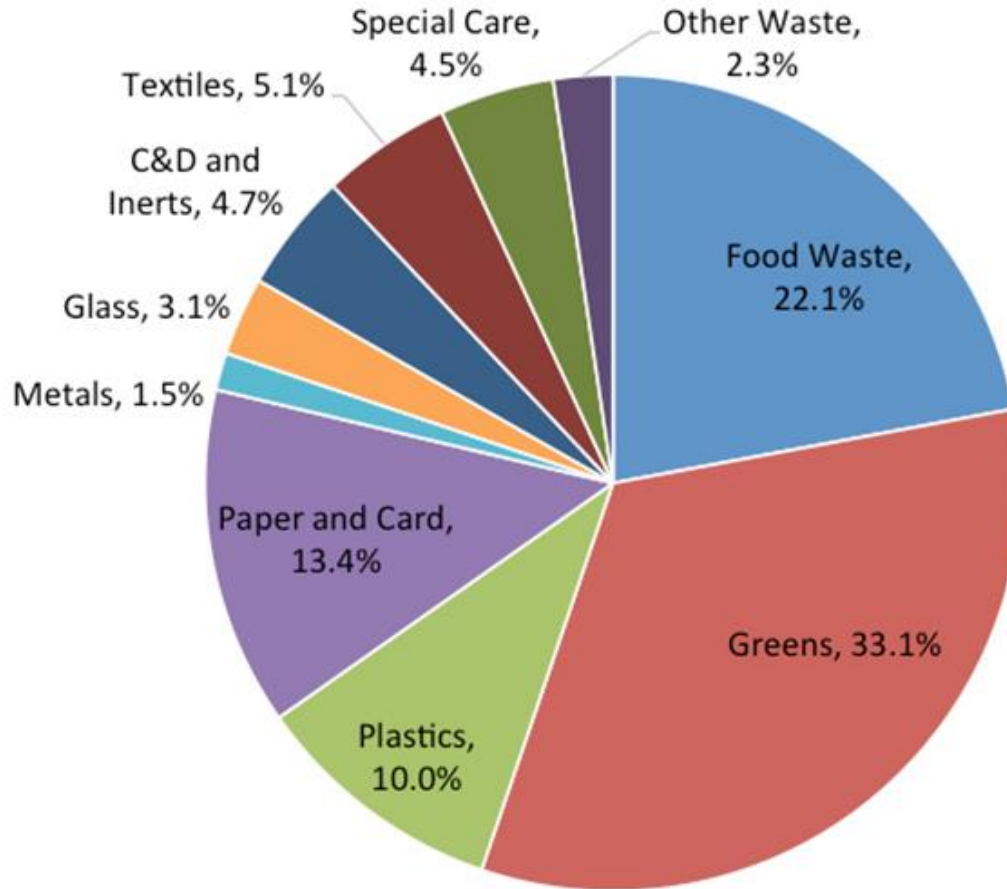
Sustainability	<p>Focus on:</p> <ul style="list-style-type: none"> • Needs to stem from a Climate Change / GHG avoidance; • Financially suitable; • socially suitable (job creation wise); • Institutionally and legally suitable; • low operational costs and be versatile in operation; • modular (partially or wholly- if possible); • potentially mobile (if possible); • focus on immediate term implementation (<i>within 5 years</i>); • needs to be cognisant of FOREX rate; • Preference to local technologies ; • need for long-term operating contract a likelihood .
Job creation	Provide sustainable job opportunities from waste management activities.
Creation of an enabling environment	Creation of enabling environmental for sustainable waste management



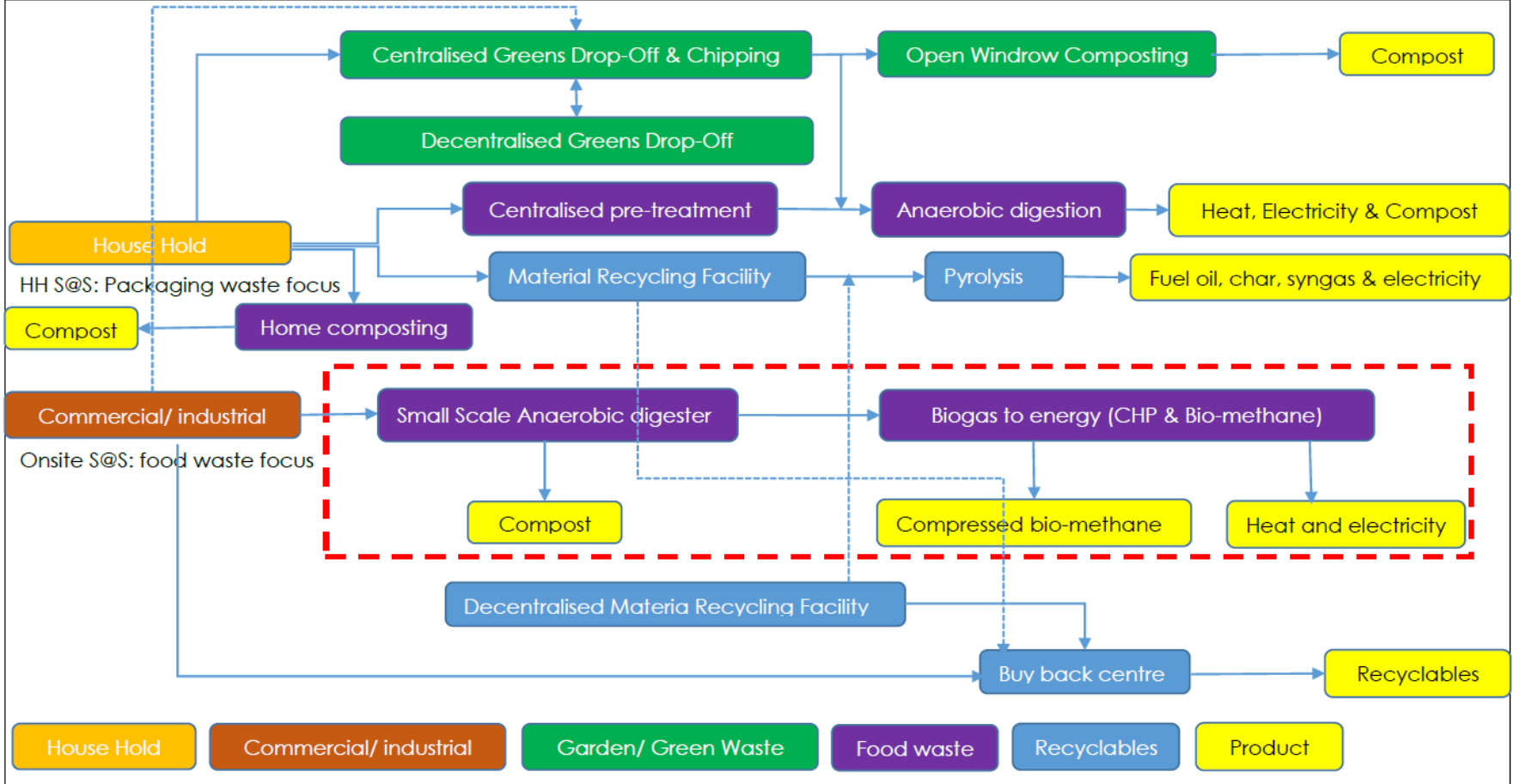
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MLM Waste Composition



significance of the garden greens in the waste stream (33.1%), as well as the organic food waste stream (22.1%) and packaging stream (28%) of the total MSW.



Appropriateness;
 Applicability; and
 Affordability.

Technical aspects;
 Environmental considerations;
 Legal compliance;
 Institutional matters; and
 Financial considerations.

Outcomes

- Food waste stream, from PMB Fresh Produce Market, Residential and commercial sources to divert(away from landfill) approximately 2,592 tonnes of food waste per annum.
- The Preferred Project is to establish an **Anaerobic Digestion (biogas to electricity)** facility processing 9 tonnes per day, at Pietermaritzburg's Fresh Market Produce (PFMP) in order to supply heat, electricity and fuel to the PFMP. The proposed facility is modular and can be increased as consistent clean food waste becomes available



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Technological Options (Envisaged Programme)

Municipal solution	Municipality where business cases were developed	Code	Number of projects in Programme
Open-windrow composting	Mangaung	OW	10
In-vessel composting	Mbombela	HR	4
Nutrient upscaling - higher Tonnage	Emfuleni	NH	4
Nutrient upscaling - lower Tonnage	Rustenburg	NL	4
Containerised composting	Umhlathuze	Cont	4
Anaerobic digester	Msunduzi	AD	4
TOTAL			30



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* GHG mitigated= 572 800 t CO₂eq

Waste Management Flagship Phase 2

- Detailed Pre-feasibility Studies additional 6 municipalities
 - Mogalakwena (Limpopo Province)
 - Tlokwe (North-west)
 - New Castle (Kwazulu Natal)
 - Steve Tshwete Municipality
 - KSD (Eastern Cape)
 - Buffalo City Metropolitan Municipality (Eastern Cape)
- Scaling up the 5 technologies across a further 24 municipalities (with additional funding)



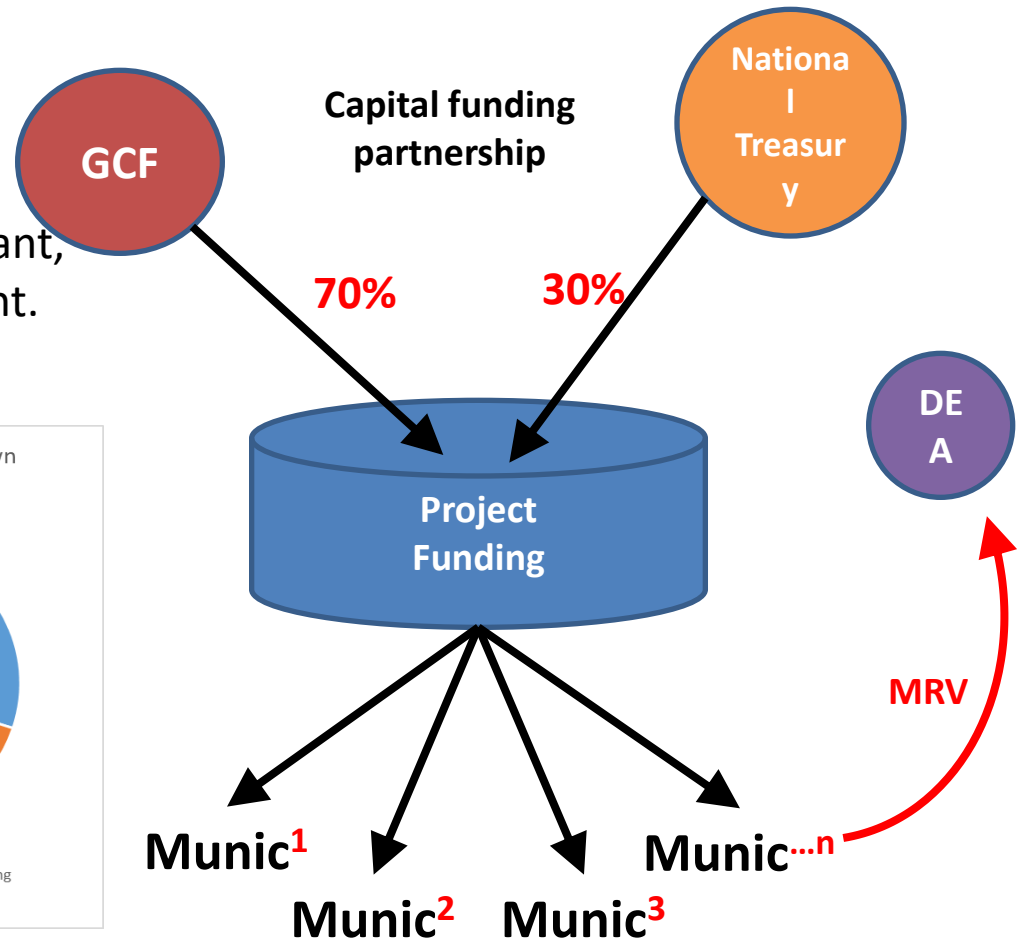
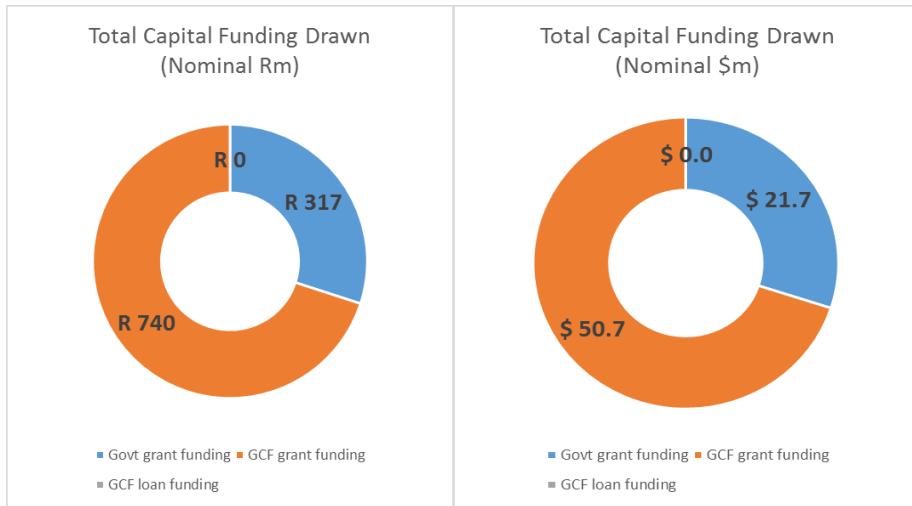
Waste Management Flagship Programme: Green Climate Fund Proposal

- GCF submission includes project preparatory fund (PPF) to conduct 6 feasibility studies and programme development activities to develop implementation blueprints
- Proposal to include capex for implementation of the technologies in 30 municipalities (inclusive of Phase 1 and 2 municipalities)
- DEA waste branch is in the process of identifying municipalities to undergo due diligence during the implementation phase

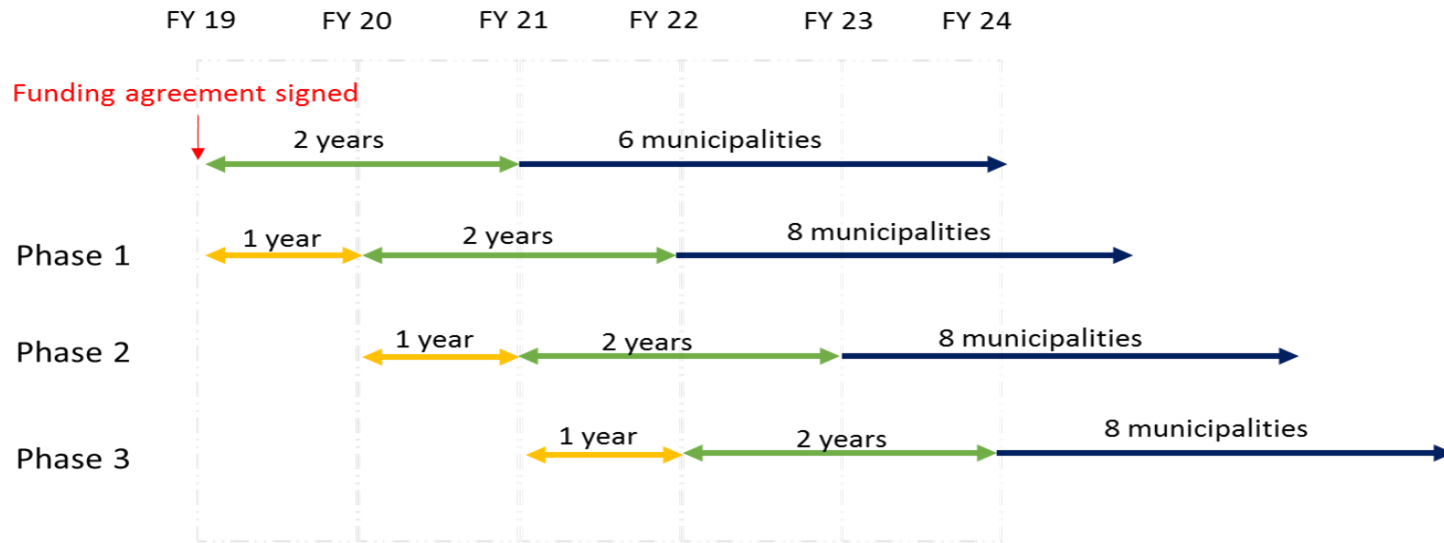


CAPEX Financing Proposal

CAPEX financed by **GCF (70%)** via a full grant, and **National Treasury (30%)** via a full grant.



Implementation Timelines



- ↔ Development
- ↔ Implementation (construction)
- Operation and monitoring

FY19= 1 July 2018

Municipal Waste Support Team

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Hlompho Vivian: GIZ

Website:

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