

# The Waste Management Flagship programme

*NAMA: Diversion of Solid waste from landfills  
in selected municipalities*



Waste Summit March 10<sup>th</sup> 2015



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1. Policy basis
2. Near-Term priority flagship programmes
3. The Waste Management flagship programme
4. The Scaled-up waste management NAMA programme
5. Programme structure
6. Next Steps



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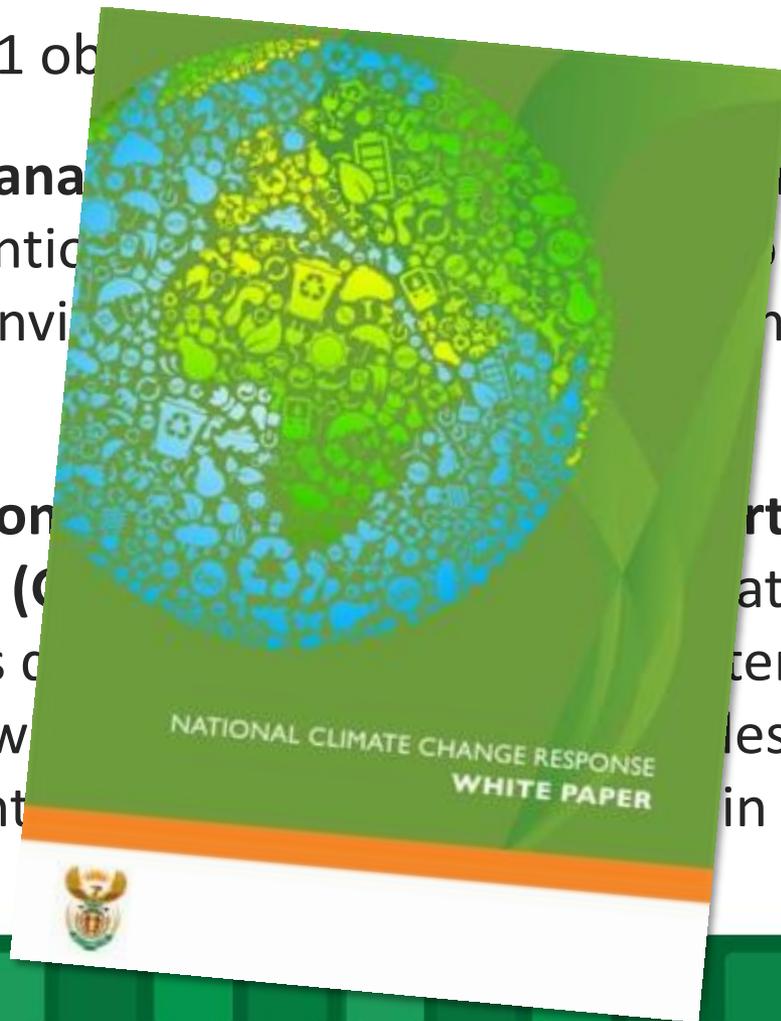
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## Presentation Outline



The NCCR Policy 2011 objectives are:

- To effectively manage climate change impacts through interventions that enhance South Africa's social, economic and environmental emergency response capacity; and
- To make a fair contribution to stabilise greenhouse gas (CO<sub>2</sub>) levels in the atmosphere at a level that avoids dangerous climate system with minimal interference with the economy and environment in a sustainable manner.



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**Policy basis:  
Climate change Policy**



# Immediate implementation of Near-term Priority Flagship Programmes comprising of:

- Continued implementation of **existing successful policies and measures** with only policy **alignment and integration** intervention as required;
- **Scaled-up roll-out** of those existing successful policies and measures, which have successfully completed a demonstration phase, where feasible;
- Implementation of **proven “no-regret policies and measures”** in the immediate and near-term (e.g. best available technologies and best practices), particularly those that are well researched or understood, **have socio-economic developmental and job-creation benefits**, and have negative-cost, zero-cost or low-cost implications for the economy and society;

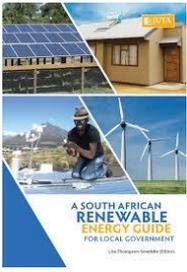


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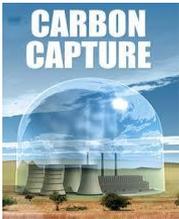
## Near-Term Priority Flagship Programmes





1. The Renewable Energy Flagship Programme

2. The Energy Efficiency and Energy Demand-side Management Flagship Programme



3. The Carbon Capture and Sequestration Flagship Programme

4. The Transport Flagship Programme



5. The Waste Management Flagship programme

- Led by DEA

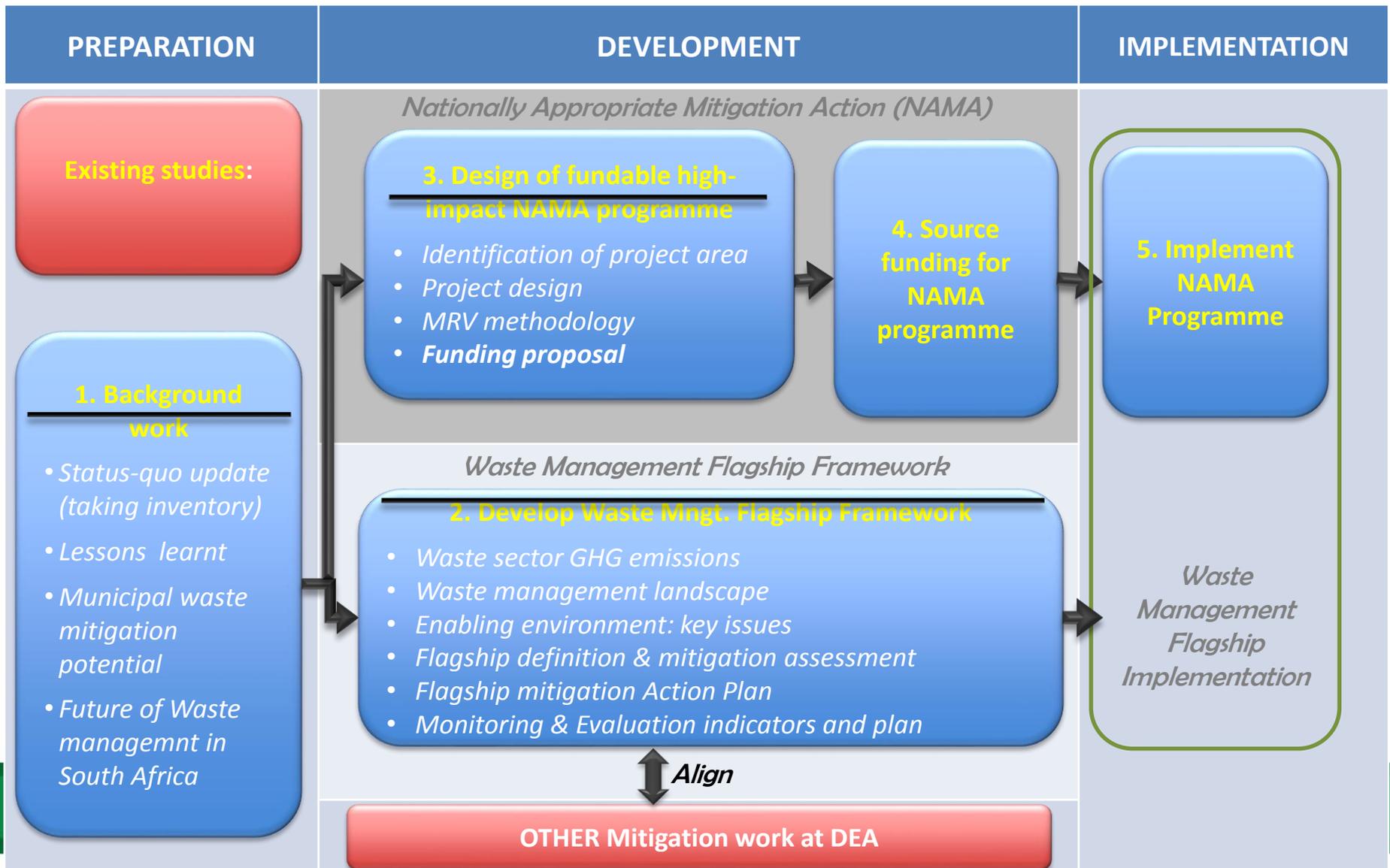


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Near-Term Priority Flagships





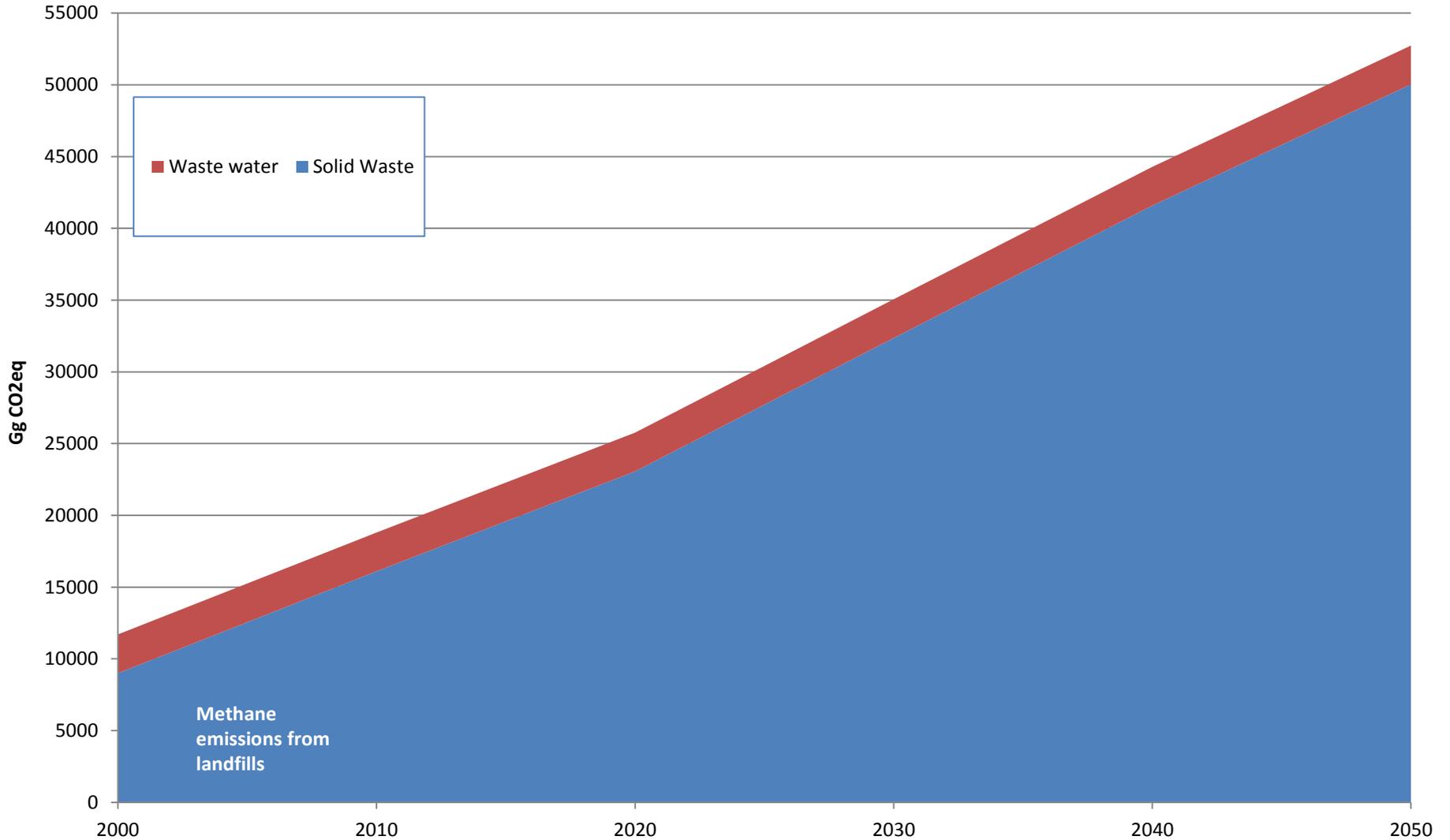
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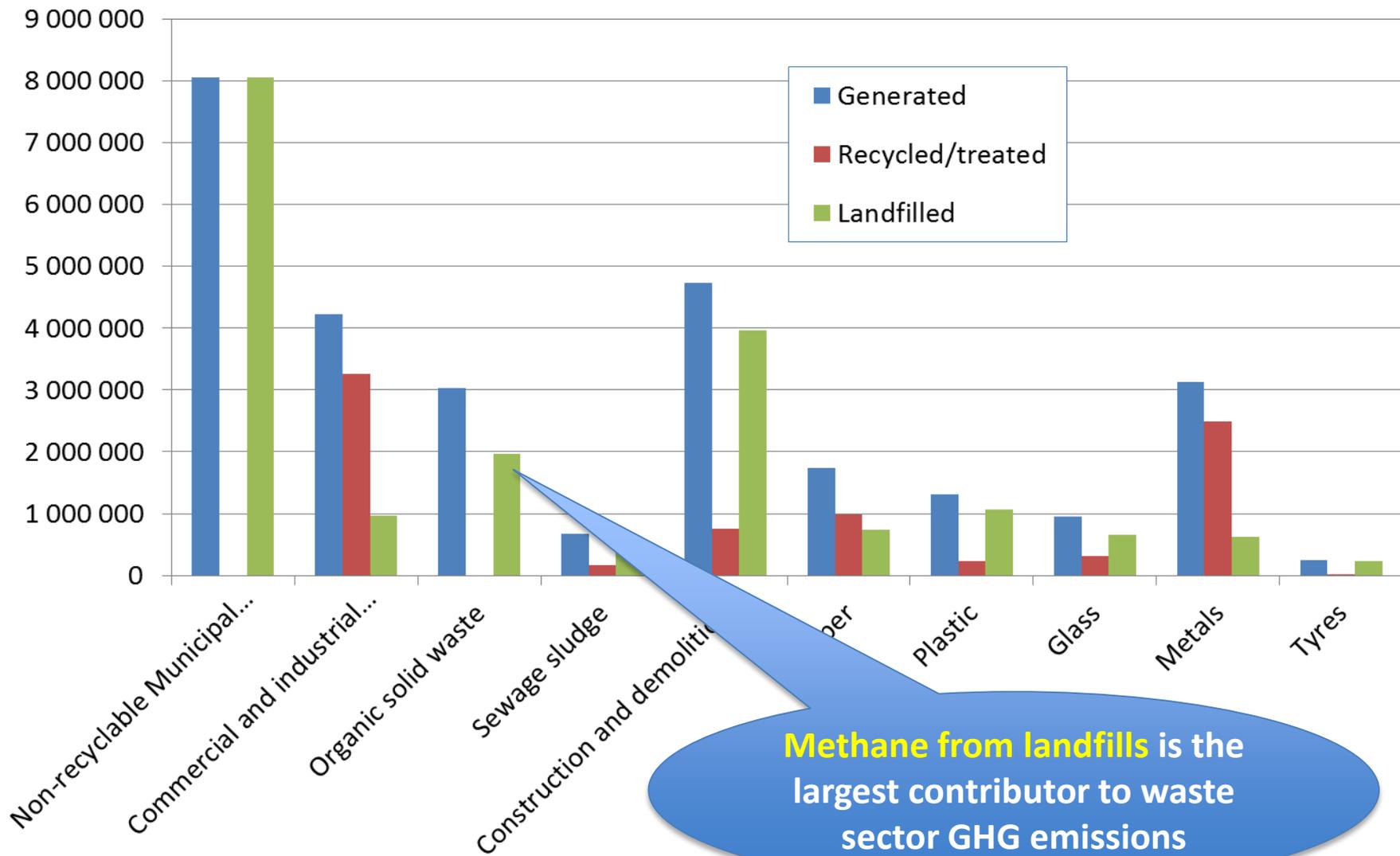
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# Approach to Waste Flagship



# The GHG inventory: Baseline Waste sector GHG emissions





**Methane from landfills** is the largest contributor to waste sector GHG emissions



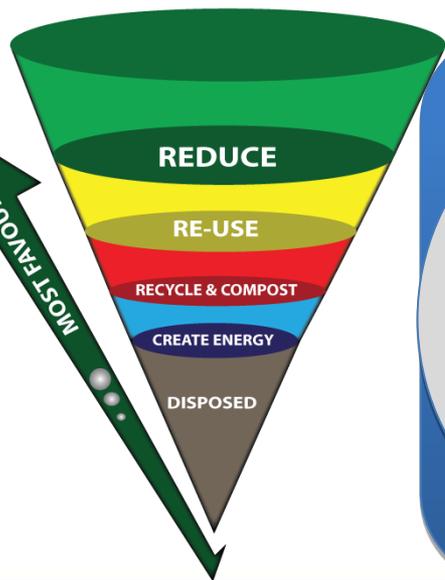
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# Waste Management practices



**PREMISE:** GHG emissions in the waste sector mostly arise from **landfilled organic waste**, hence **diverting or minimizing landfilled waste by implementing waste hierarchy** is the long-term key to **mitigating waste sector GHG emissions**



**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**



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# Waste Management Flagship Framework



- Waste-to-energy, especially landfill gas utilization, is the lowest hanging mitigation programmes in existing landfills
- **Diversion of organic waste away** from landfills is the long-term approach to mitigating climate change in the waste sector
- Proper implementation of the waste hierarchy supports climate change response, waste management and sustainable development simultaneously
- There is need to scale up existing response programmes but also to systematically combine various mixtures (combination Mechanical, biological, thermal technologies)



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**Key messages going forward**



- **OBJECTIVE:** Main objective is the promotion of diversion of waste (especially organic waste) from landfills to mitigate environmental impacts such as the greenhouse gas effect
- Specific objective is the development of a scaled-up programme to
  - implement the waste hierarchy through appropriate waste treatment technologies in selected municipalities
  - create fundable projects for national and international financing



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## Scaled-up NAMA Programme



# Selection criteria for Municipalities

1. Currently 4 local municipalities have been identified
2. Selection of small and medium sized municipalities which shall learn from existing experiences in selected Metros
3. Municipalities shall have significant emission mitigation potential
4. Express strong commitment to implement waste diversion from landfills
5. A certain state of readiness shall be applied in the respective municipalities
6. Municipalities identified as a priority by DEA

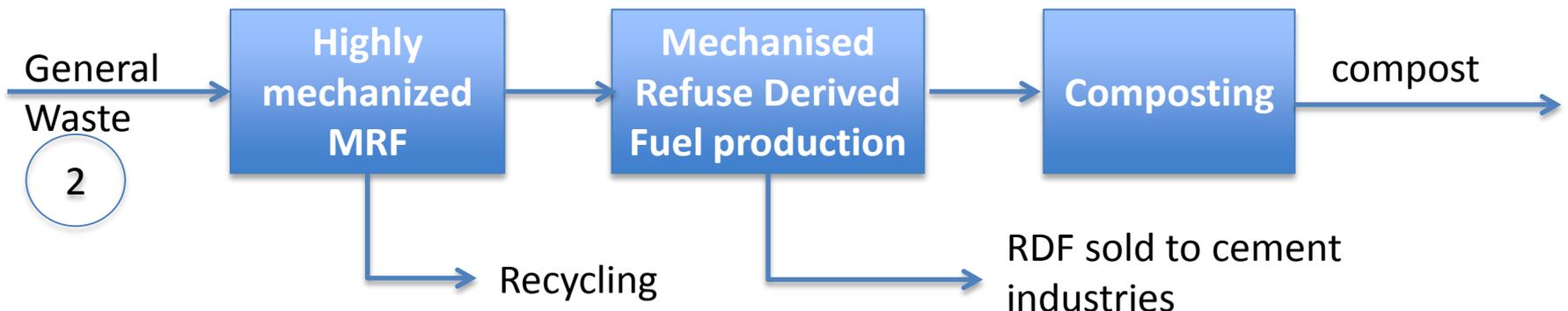
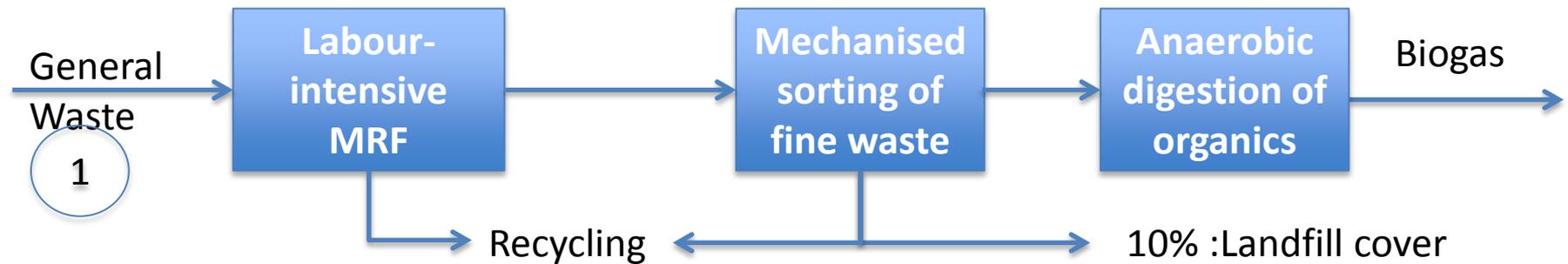
**GOAL 1:**  
*catalyse  
transition to a  
lower-carbon  
economy &  
society*

**GOAL 2:**  
*promote  
proper waste  
management*

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

# NAMA: Fit-for-purpose solution for each Municipality

combines various **waste & case – specific** treatment technologies (mechanical, biological, etc.) to achieve diversion of waste from landfills. Examples:



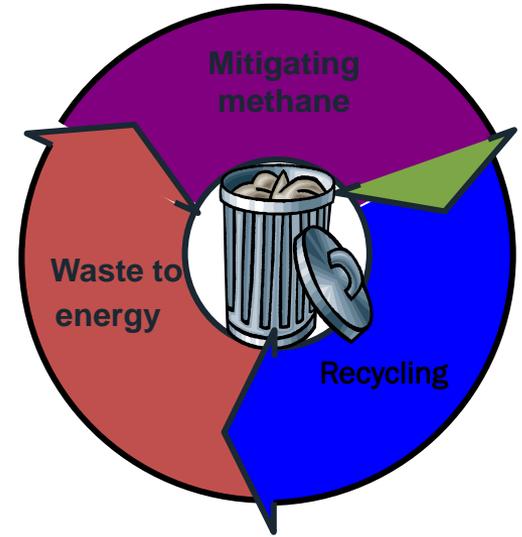
# Programme details – Key steps

1. Confirmation of selected municipalities
2. Setting up of Project Structure (project and municipal steering committees, project management team)
3. Coordination of programme activities with other SWM programmes in the selected municipalities
4. Scope of work:
  - *Situational analysis (SWM services, institutions)*
  - *Assessment of fit-for-purpose waste management solution to divert waste from landfills*
  - *Identification of the ideal technology combination (waste type & size, off-takers, cost, etc)*
  - *GHG mitigation potential*
  - *Monitoring and evaluation method*
  - *Financial analysis*
  - *implementation plan*
5. Selection of Consultant to perform the work
6. Develop fundable projects to be presented to financing institutions (NAMA strategy)
7. TA support by German International Cooperation (GIZ) to establish programme

# Advanced SWM in South African Municipalities

- **Partnership KfW Development Bank - Department of Environmental Affairs (DEA)**
- **Programme objectives:** Implementation of modern waste treatment technologies to divert waste from landfills and enhance reutilisation and recovery of waste as a resource. Parallely strengthening of municipal SWM to improve the organizational and financial management capacities with the aim to provide better services to the population
- **Financial support:** Grant funds from German Government
- **Timeframe:**
  - Project preparation by Feasibility Studies: 2008 – 2012
  - Preparation of Financing Agreements: 2011 – 2013
  - Implementation Period: 2014 – 2016

# Why Solid Waste Management?



# What is / what could / what should be 'State of the Art'

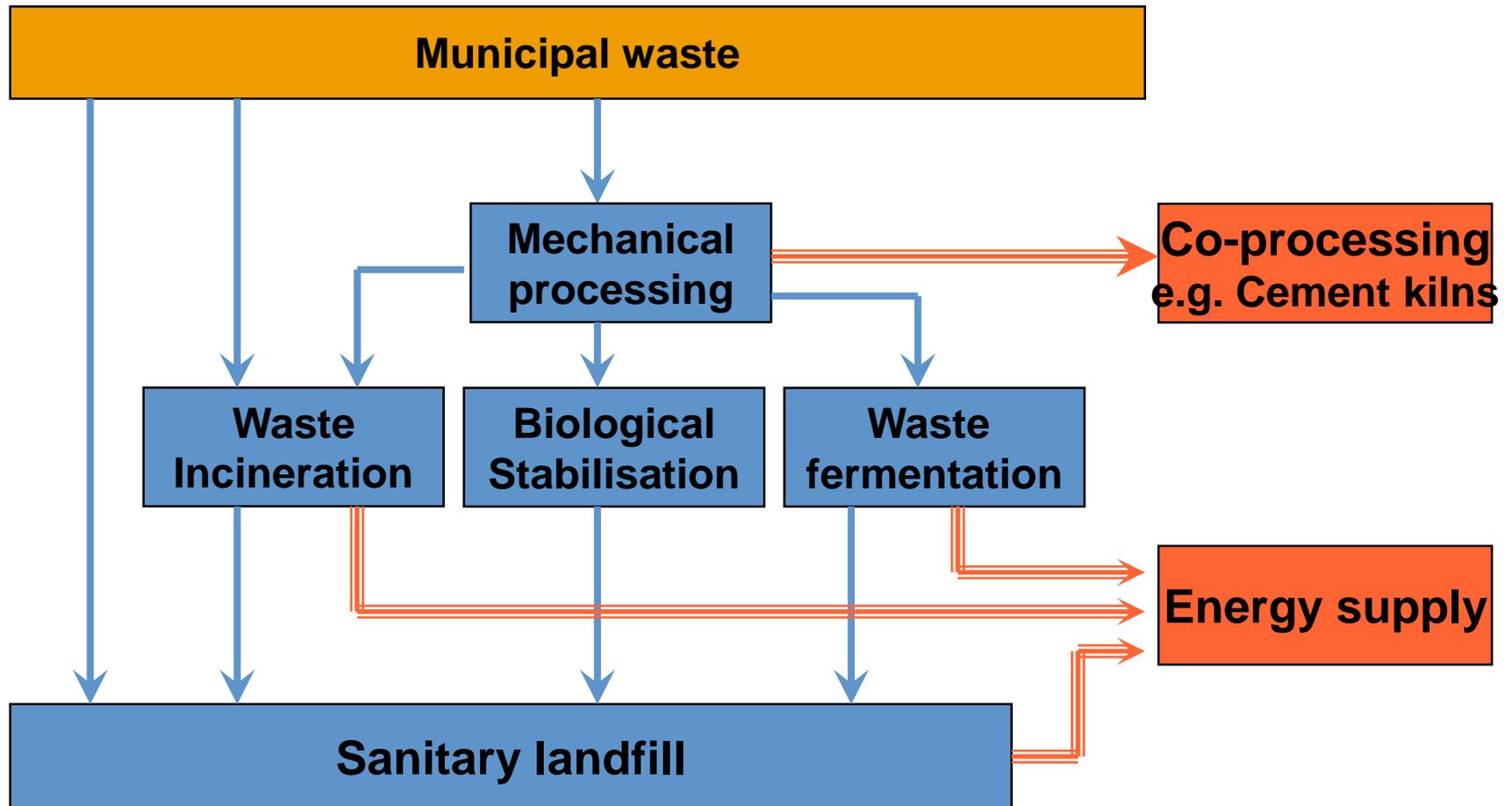
## Objectives

- Implementation of integrated SWM systems
- Environmentally sound, sustainable SWM systems
- Avoidance – recycling – environmentally sound disposal

## Components

- Horizontal Integration: All municipal waste types included (e.g. commercial, hospital, market, sewage sludge...)
- Vertical Integration: Cover the whole disposal chain
- Waste treatment => Sanitary landfill
- Cost reduction:
  - \* In particular: Optimisation of collection and transport system
  - \* Set up / develop independent project implementing agencies
- Cost recovery: Set up / develop tariff system and tariff administration
- Optimise / systematise separate collection – co-operation with waste-pickers
- Public relations, information, promote environmental awareness
- Rehabilitation of dump sites

# Principal residual waste treatment strategies



# Advanced SWM in South African Municipalities

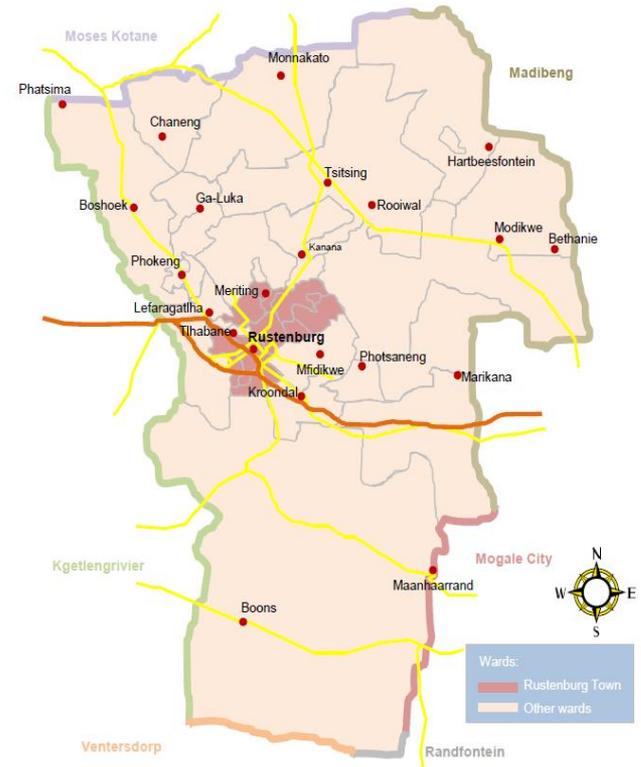
Support to DEA

- The Department for Environmental Affairs receives support within the programme to achieve the following:
  - Coordination of activities in the project municipalities
  - Development of a guidance document to assist South African municipalities interested in developing waste treatment projects to divert waste from landfills
  - Streamline of similar activities on national level
- Experiences from the ongoing projects in the projects municipalities shall be used for the development of the guidance document
- Replicable models shall be developed
- Consultancy support is provided until 12/2016

# Advanced SWM in South African Municipalities

## Rustenburg Local Municipality RLM

- › Project approach foresees:
  - › Improvement of municipal capacities in terms of organisational support, financial management, informal sector, recycling
  - › Implementation of a modern RDF facility to provide secondary fuel from waste for cement kilns in surroundings
  - › Integration of RDF facility in IWMP which foresees a new sanitary landfill (operational in 2015) with a MRF to separate valuables and provide employment
- › Project is highly supported by the RLM administration
- › Financing and operation shall be via a MPPP, supported by National Treasury
- › Implementation and Transaction consultant is working from 01/2014 until 12/2016 to support realization of project



# Advanced SWM in South African Municipalities

## Challenges Rustenburg Local Municipality



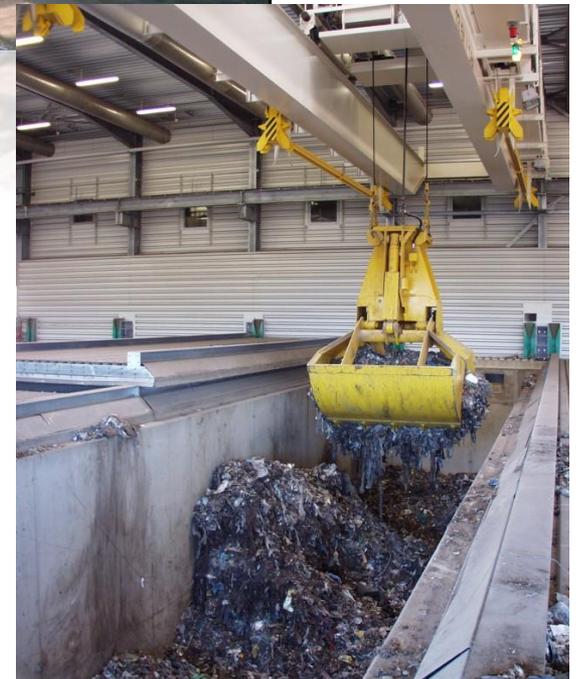
# Advanced SWM in South African Municipalities

## Suggested Project RLM

Recycling Facility



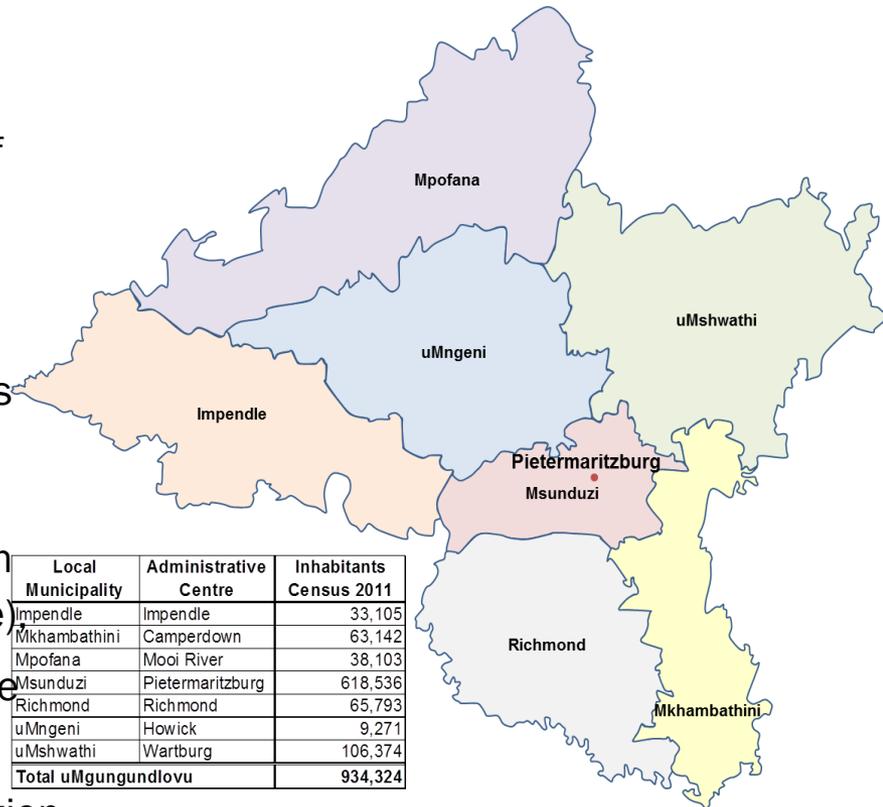
Mechanical Biological Treatment



# Advanced SWM in South African Municipalities

## uMgungundlovu District Municipality (UMDM)

- › Project approach foresees:
  - › Improvement of municipal capacities in terms of organisational support, financial management, informal sector, recycling within a regional approach (7 local municipalities)
  - › Implementation of a selected set of technologies for different waste kinds (composting for green waste, MRF to separate valuables and provide employment, biodigestion for organic waste from households, restaurants, market and agriculture)
  - › Investigation of waste-to-energy for special waste types (Msunduzi LM)



- › Project is highly supported by the UMDM administration
- › Financing and operation to be developed
- › Implementation and Transaction consultant is working from 07/2014 until 12/2016 to support realization of project

# Programme Governance Structure

## Project Steering Committee (PSC)

2x DDG (CD)  
4x Municipal Managers (or delegate)  
GIZ  
Other key stakeholders

Executive Level,  
project oversight,  
decision making  
body

## Project Management Team

4x Municipalities  
Consultant  
COGTA  
SALGA  
4x Provinces  
DEA officers  
GIZ

Day to day  
business,  
implementation  
focus

### Munic 1 PSC

Province, DEA rep,  
GIZ, consultant,  
other stakeholders

### Munic 2 PSC

Province, DEA rep,  
GIZ, consultant,  
other stakeholders

### Munic 3 PSC

Province, DEA rep,  
GIZ, consultant,  
other stakeholders

### Munic 4 PSC

Province, DEA rep,  
GIZ, consultant,  
other stakeholders



1. Formal confirmation of selected municipalities
2. Setting up of Project Structure (project and municipal steering committees, project management team)
3. Finalization of the Terms of Reference for the consultant
4. Appointment of consultant



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**Next steps**



# PROJECT TEAM

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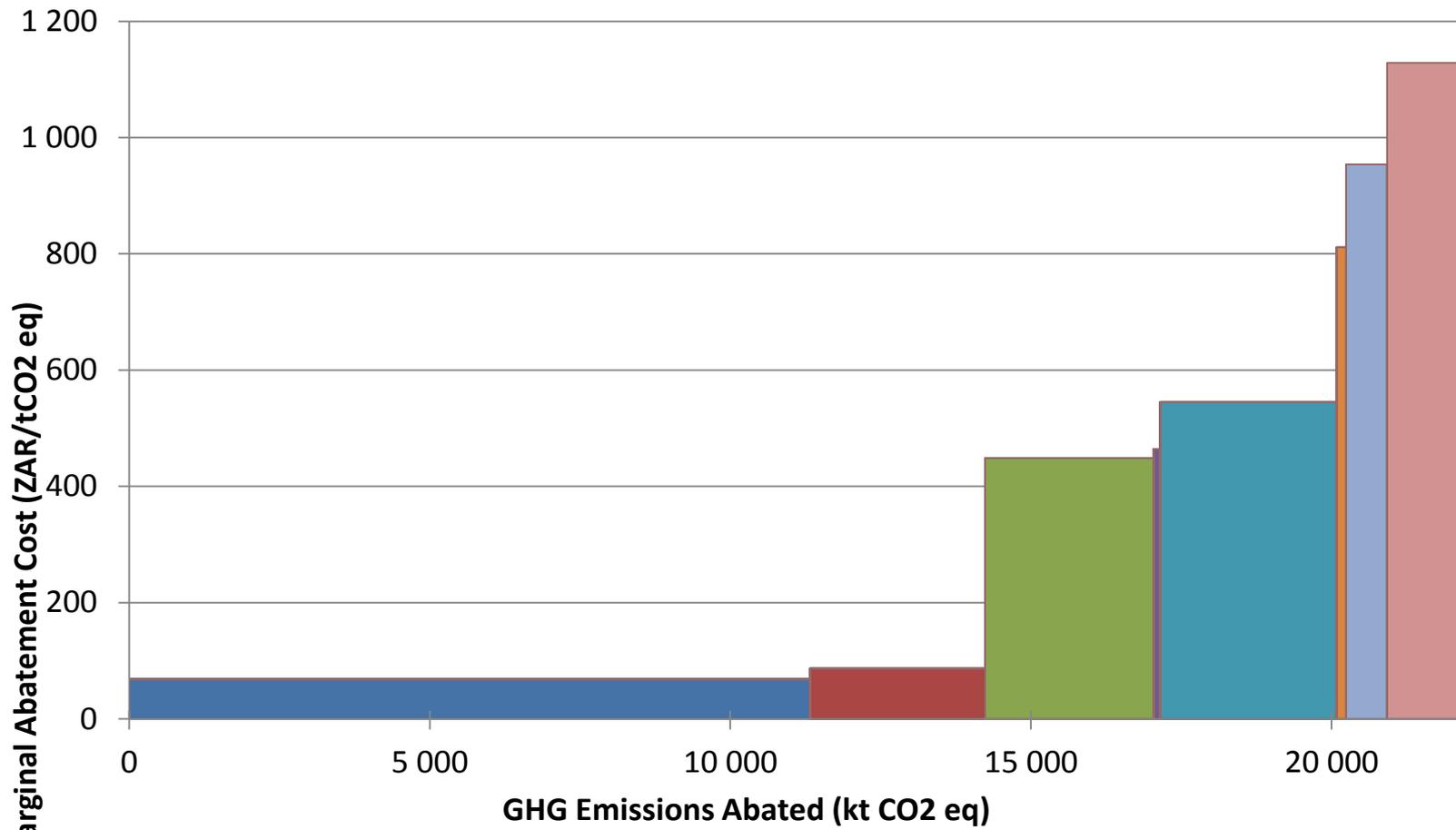
Prema Govender, Annelie Janz &  
Gwendolin Aschmann– GIZ



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- LFG recovery and generation
- LFG recovery and flaring
- Paper recycling
- Home composting
- Energy recovery by incineration
- Windrow composting
- In-vessel composting
- food waste biogas to electricity



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# Near-term mitigation options



## **1. Introduction**

## **2. Waste management practices and landscape in South Africa**

## **3. Waste sector emissions**

## **4. Enabling Environment for sustainable mitigation in the Waste sector**

- Waste policies , laws, norms & standards, licensing process
- Technology selection tools: e.g Waste Type-to-Technology
- Institutional arrangements and governance
- Financing of waste mitigation programmes
- Practical guidelines for undertaking Waste-to-Energy Projects

## **5. Programme of Implementation**

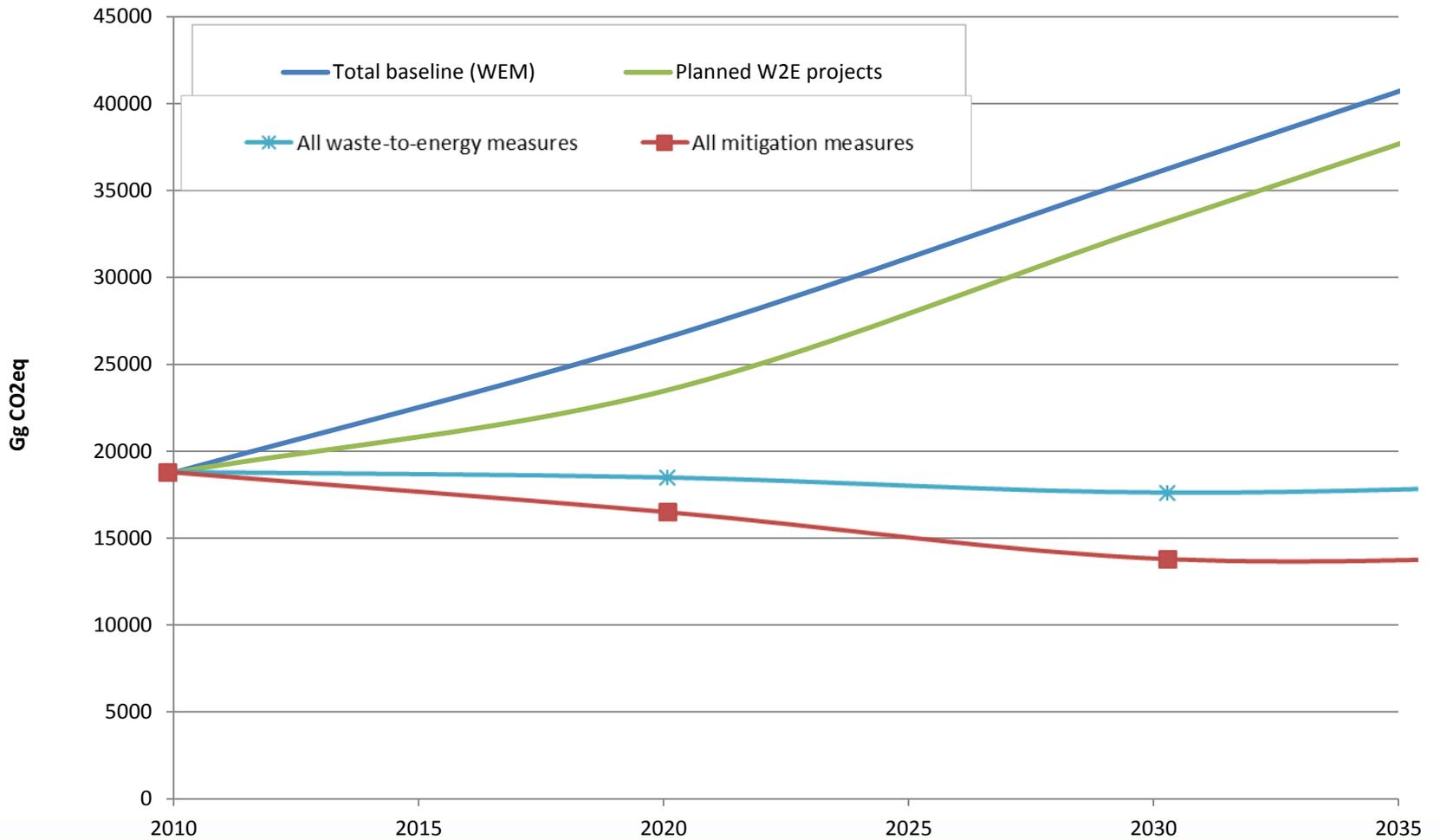
- Ready-to-go programmes with high & direct mitigation potential
- Scaling up and mixing measures – enabling programmes

## **5. Monitoring and reporting plan**



# **Flagship Framework: Annotated Outline**





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# Mitigation impact of implementing the waste hierarchy

