



# DEVELOPMENT OF A WEB-BASED GUIDELINE ON ALTERNATIVE TREATMENT OF MUNICIPAL SOLID WASTE FOR MUNICIPALITIES

WASTE MANAGEMENT  
SUMMIT, 2015  
9 - 11 March 2015

**giz** Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

 **environmental affairs**  
Department: Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

  
**SALGA**  
South African Local Government Association

  
**sanedi**  
South African National Energy Development Institute

**greencape**

**aurecon**

# Background

- 90% of South African waste is being landfilled:
  - This is unsustainable from an environmental and resource point of view
  - Landfill space is limited
  - Lack of land for the development of new landfills
  - This drives municipalities to consider alternative waste management solutions.
- DEA committed to reduce amount of waste going to landfill
  - NWMS
  - Waste hierarchy



- Alternative waste management has the potential to reduce Greenhouse Gases emissions from waste:
  - reducing the waste going to landfill (hence less methane emissions at landfills),
  - replacing energy generated from coal with energy generated from waste (waste as source for renewable energy - this also has the added benefit of contributing to energy security).
- Western Cape Government and DEA Climate Change branch are currently developing a combined guideline, while partly basing their work on and cross referencing the DEA Green Economy products throughout.
- A stakeholder group was formed to develop a process related, step-by-step guideline for municipalities looking to implement alternative waste management solutions.



# Purpose of the web based tool

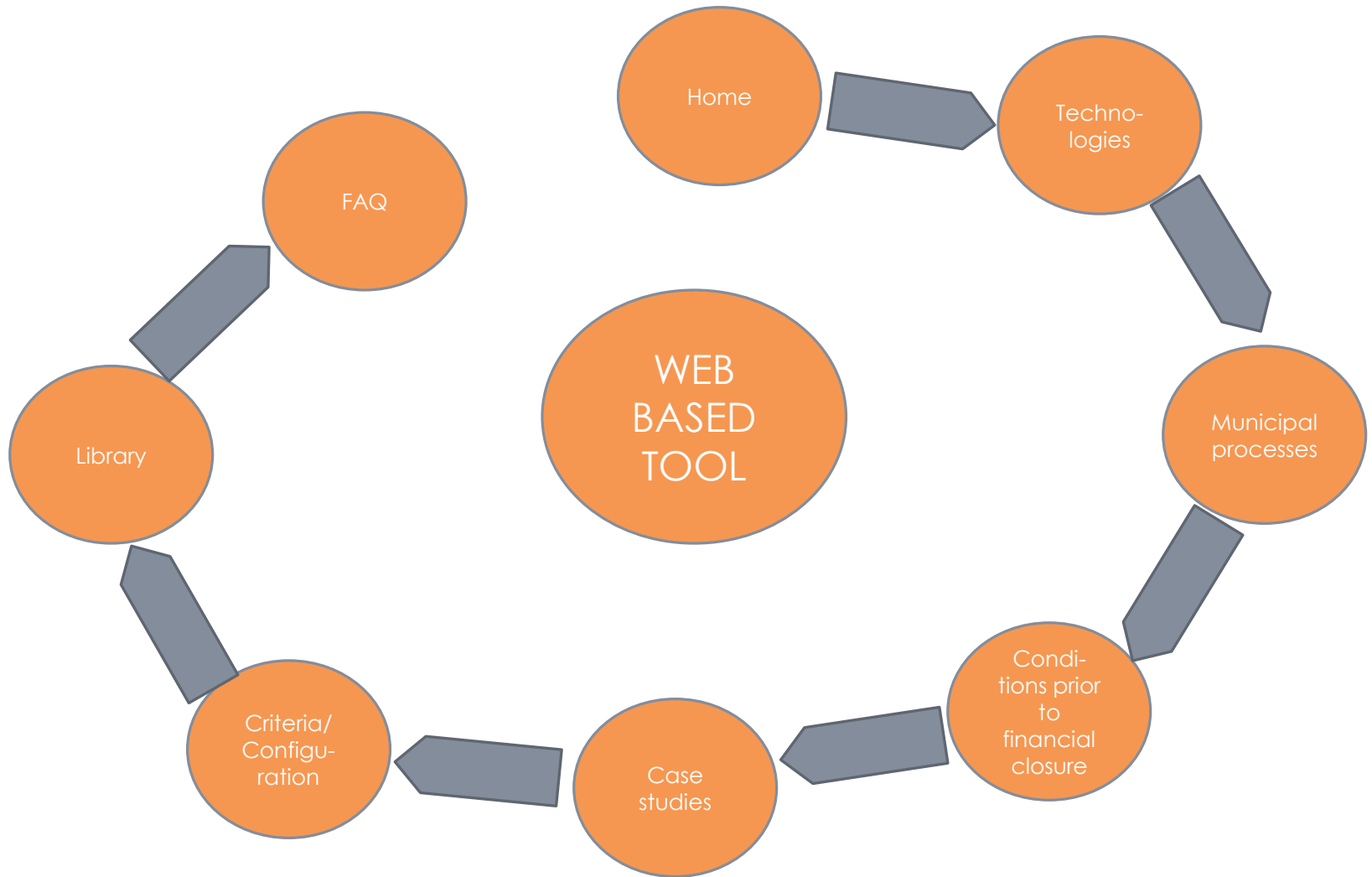
Empower municipal officials to take sound decisions in the preparation and development of an Alternative Waste Treatment project



# Methodology

- Technical assessment and review of technologies,
- Outline the PPP/Section 78 process and provide framework for timelines through:
  - Holistic service delivery planning
  - Identification of need
  - Options assessment
  - Feasibility study
  - Decision making
  - Implementation of decision
  - Implementation of mechanism

# Web base tool



# Home

Phase 1: Home

Step 1: Objective of waste management

Waste hierarchy

Step 2: Objective of tool

Step 3: Determining needs and demands

Weigh bridge?

Yes

No

IWMP?

Yes

No

Waste minimisation?

Yes

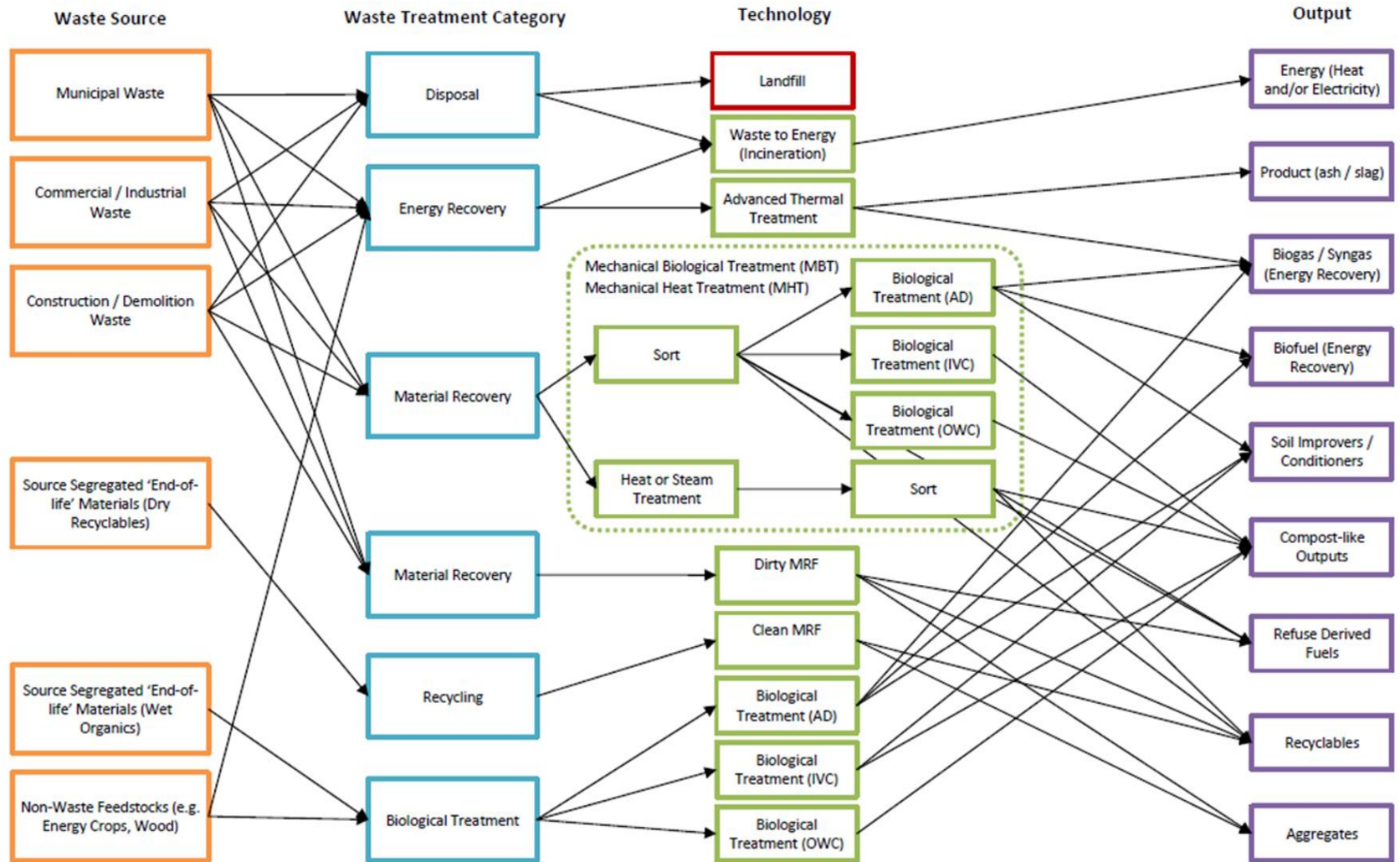
No

Step 4: Choose technology

Criteria/Configuration

- Windrow 300,000 £0.5M
- Clean MRF 100,000 £15M
- Dirty MRF 200,000 £20M
- Incineration 300,000 £200M
- AD plant 60,000 £8M
- IVC 30,000 £3M
- MMBT 200,000 £20M
- Gasification 30,000 £10M
- Plasma Pilot stage demonstrators
- Pyrolysis 30,000 £10M
- Mechanical Heat Treatment 200,000 £80M
- Landfill Gas plant 5 MW £6M

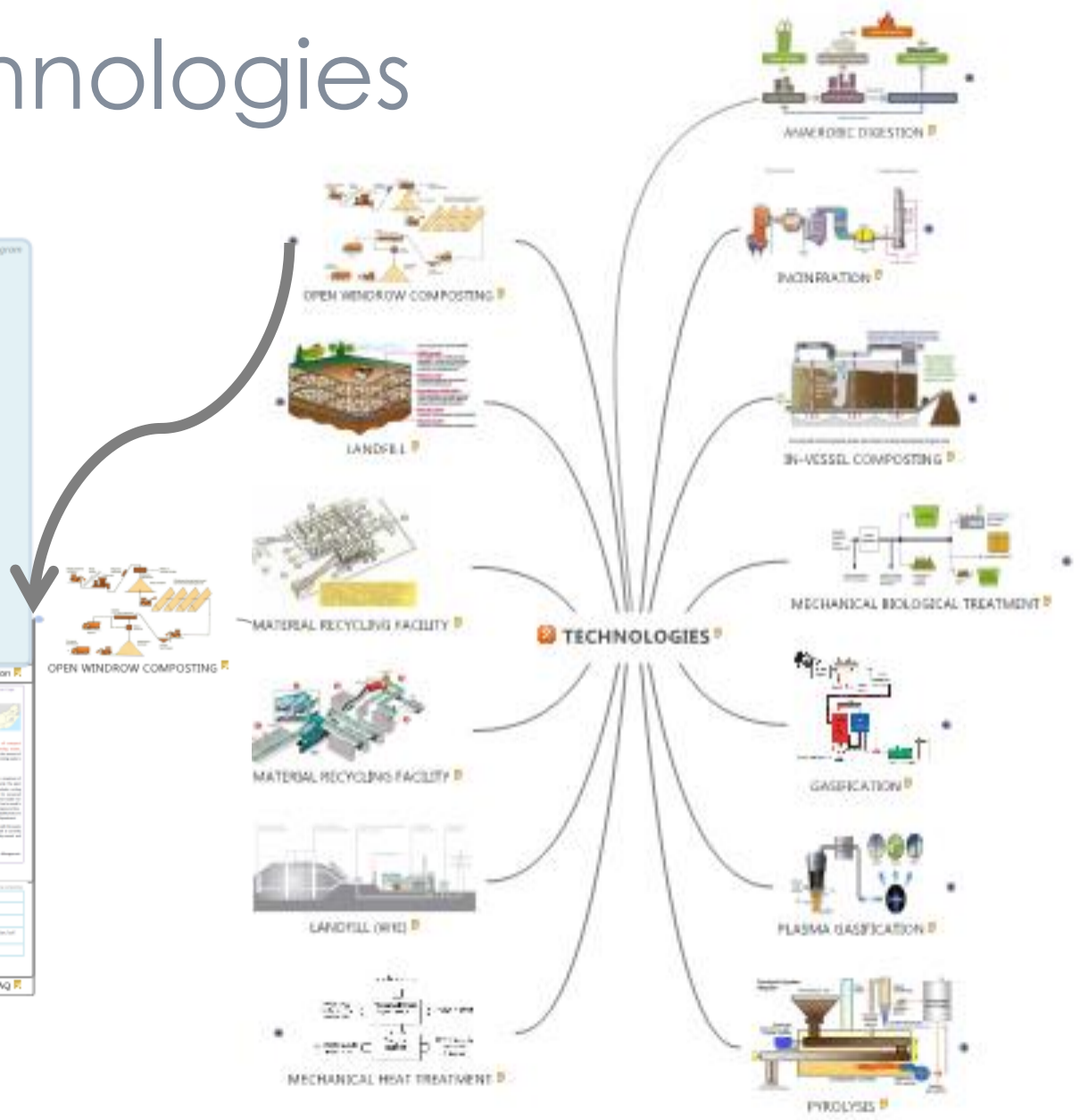
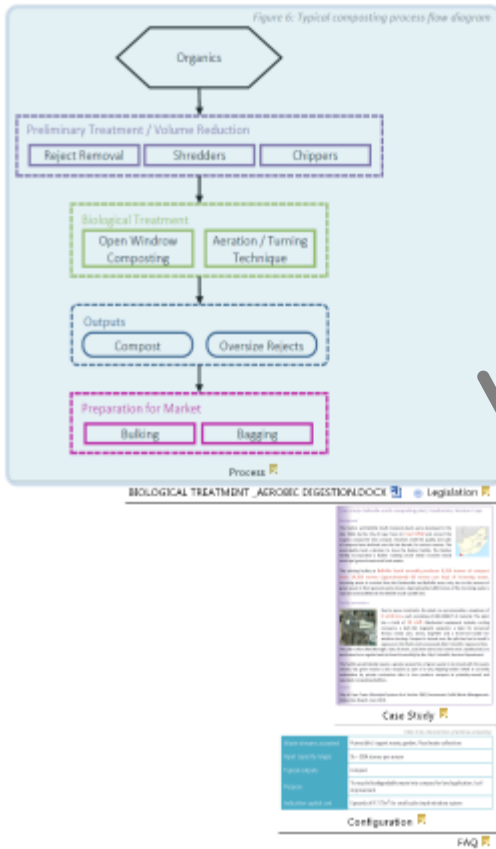
# Technologies



Source: Appropriate Technology for Advanced Waste Treatment; Department of Environmental Affairs; Aug 2014



# AWT Technologies



# Technology determination

Phase 2: Technology determination

Step 1: Overview

Step 2: Pre-feasibility

Step 3: Feasibility

Step 4: Design

- Business plan
- Site selection
- Title deed and zoning review
- Energy Authorisation
- Environmental authorisation
- Economic feasibility

- Municipal considerations
- Environmental Costing
- Energy Costing
- Feasibility of project

# Municipal processes

Phase 3: Municipal processes

Step 1: Planning

Step 2: Needs  
determination

Step 3: Options  
assessment

Step 4: Project  
feasibility

Step 5: Mechanism  
assessment

Step 6: Decision  
making

Step 7:  
Implementation

# Conditions prior to financial closure

Phase 4: Conditions prior to financial closure

Water use licence

Waste management licence

Heritage approval

Land use approval

Geotechnical

Geohydrology

# Thank you!

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