

TECHNOLOGY BARRIERS

Commission 3



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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CHALLENGES

- **Delegates deliberated on what will be the appropriate waste treatment methods which will be beneficial to the South African Environment which will:**
 - Contribute to climate change mitigation
 - Provide the economic opportunities and jobs which the country need.
- **What is the Best Available Technology applicable in the South African context.**

TECHNOLOGIES PRESENTED

1. **GIZ CLIMATE CHANGE PROJECT AND ADVANCED INTEGRATED SOLID WASTE MANAGEMENT PROGRAMME, MR BERNHARD SCHENK, KFW / MR KOBIE PRETORIUS, GIZ**
2. **BIO 2 WATT PROJECT, MR SEAN THOMAS**
3. **METALLURGICAL PROCESS SOLUTIONS FOR WASTE TOPIC, MR. DENIS VERITY, SMG AFRICA**
4. **ALTERNATIVE WASTE TREATMENT TECHNOLOGY PROJECT (WASTE TO ENERGY), MR SIMPHIWE MBULI, CITY OF JOBURG**
5. **WASTE APP AND PYROLYSIS, MR JUSTIN DAMSTER, RESA**
6. **WASTE COMPOSTING PROJECT: MS CANDICE ODEL, SASOL**

TECHNOLOGIES PRESENTED

- 1. Three on Waste to Energy Projects – Diversion of organic waste to landfills**
 - a) Bio gas
 - b) Renewable energy Flagship on advanced solid waste management
 - c) Alternative Waste Treatment Technology
- 2. Mine Acid Rain – Metallurgical process solution**
- 3. Web Tool**
- 4. Waste Applications (App)**
- 5. Waste Composting Project**

CLUSTER - WASTE TO ENERGY PROJECTS IMPLEMENTED AT MUNICIPALITIES'

- 1) Diversion of organic waste away from landfills
- 2) Anaerobic digestion of agricultural waste and Advanced Solid waste
- 3) Implemented at Tshwane Municipality & 5 municipalities (Rustenburg, Mangaung, Mbombela, Emfuleni, Umgungundlovu)
- 4) Proposed in Ekurhuleni Municipality

WASTE TO ENERGY PROJECTS IMPLEMENTED AT MUNICIPALITIES'

BIOGAS PROJECT – TSHWANE MANUCIPALITY

- 1) Agricultural waste - Limited contaminants
- 2) Potential to access additional power within municipalities
- 3) Job creation 10 jobs per MW compared to 0.9 for solar & wind
- 4) Expandable to Waste Heat project for greenhouse farming & aquaculture

WASTE TO ENERGY PROJECTS IMPLEMENTED AT MUNICIPALITIES'

RENEWABLE ENERGY FLAGSHIP

- 1) Five municipalities identified and funded (NAMA Strategy)
- 2) Advanced solid waste – Mitigate waste sector greenhouse gas emissions
- 3) Guideline on how to develop waste treatment in municipalities developed

ACID RAIN MINE

SMT TECHNOLOGIES IN AFRICA

- Converts waste streams into high energy aluminothermic products
- Made from recycled metals, metal oxide & additives
- Utilise low volume products & waste materials disposed from landfills
- Toxic gas from explosion and ammonia reduced
- Improves combustion efficiency and reduced greenhouse gas emission
- Partnered with University of Pretoria – Chemistry Department
- 1st for South Africa (Local Technology)

WASTE COMPOSTING PROJECT - SASOL

- Composting sludge streams from the refinery
- Heat streams
- Greatly reduces quantity of waste to be disposed of
- Also produces a usable product
- The composting trials - employment of 25 people

WEB TOOL AWT TECHNOLOGIES

- Deals with composting
- Is a software or database
- Implemented in Western Cape (GreenCape)
- Challenge: Credibility of information placed in portal

WASTE APPLICATIONS AND PLASTIC MODEL

- An app based on social behaviour of the public to the benefit of the environment
- Public can report trash and/or request pickups
- Formal and Informal waste collectors notified of opportunities (GPS Coordinates)
- Public and informal waste collectors earn coupons or rewards for spending on food, clothes, books building materials, etc.
- Use Smartphone/SMS

Aim - To combat illegal dumping

RECOMMENDATIONS AND ACTIONS

- Senior Management and Political Support
- Skills and expertise
- Level of readiness by Municipalities (e.g. skills)
- Assistance with **RED-TAPE** for Procurement & Environmental requirements
- Cost of Compliance – avg 7 permits/licenses/
- Timelines (Proj Inception to Implementation) avg 8years
- Feasibility studies and inventories before the implementation of the projects (Off-Take)
- Project Financing (e.g. Patient Investors)