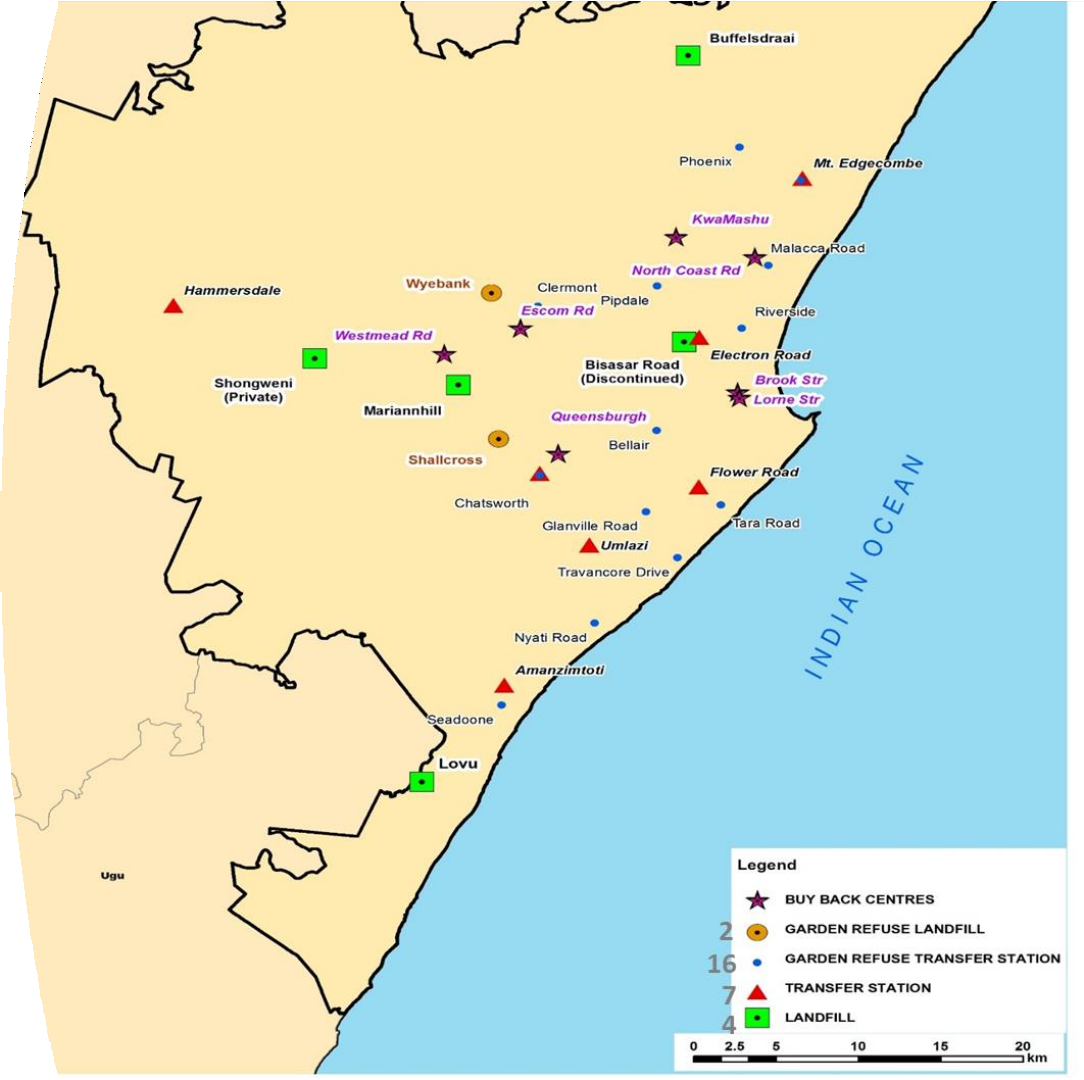
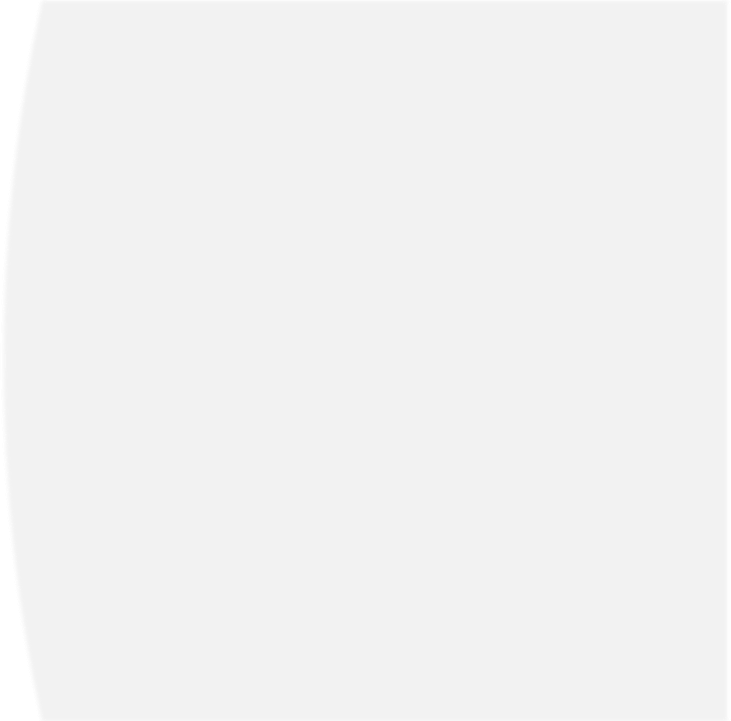


***PORTFOLIO COMMITTEE ON ENVIRONMENT, FORESTRY AND***

**CLEANSING & SOLID WASTE**

***FISHERIES – eThekwini Waste Management 2022-02-18***

###### 



**~1 400 000 tons per year**

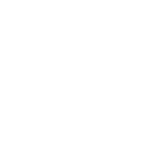
* **4 Landfill Sites**
* **16 Garden Refuse Transfer Stations**
* 7 Transfer Stations
* **2 Garden Refuse Landfills**

# WASTE COLLECTION STATUS

|  |  |
| --- | --- |
| **DESCRIPTION** | **HOUSEHOLDS** |
| 2019/2020 |
| **Solid Waste Removal: (Minimum level)** | Once a week |
| **Removed at least once a week** | 1 039 757 |
| **Solid Waste Removal: (Below minimum level)** |  |
| **Backlog** | 218 000 |
| **Total number of households** | 1 125 767 |
| **Breakdown:** |  |
| **Formal Settlements – households** | 411 468 |
| **Informal Settlements –households** | 628 289 |

## Waste Management Context

EST. SOURCE SEGREGATION



I

NTEGRATED WASTE MANAGEMENT PLAN: BEEN ENDORSED

**Durban**

***~1 400 000 t/a***

95%

ESTIMATED

COLLECTION RATE

**3400 t/d**

ESTIMATED SOLID WASTE GENERATION

##### 15%

TYPE OF SEG. 3 WAY: PAPER&PLASTIC / BOTTLES&CANS/

**0.60 kg/d**

EST. PER CAPITA

MSW GENERATION

RESIDUAL

**SCARCE**

**DIVERSION FROM**

**LANDFILL**

# Landfill Sites

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *eThekwini Catchment Area* | *Central* | *West* | *North* | *South* | *New West* |
| **Landfill Site** | **Bisasar Road** | **Mariannhill** | **Buffelsdraai** | **Lovu** | **Shongweni** |
| **Focus Area** |  |  |  |  |  |
| Design Airspace Capacity (m3) | 25,000,000 | 4,400,000 | 45,000,000 | 8,694,000 | 54,800,000 |
| Remaining Airspace (m3) - Approx | 32,900 | 290,000 | 42,000,000 | 8,144,000 | 54,800,000 |
| Tonnage Received (t/day) - Average | 1100 | ~1700 | 850 | 420 | 3000 |
| 5Year Airspace Development | 150,000 | 0 | 3,300,000 | 2,100,000 | 4,000,000 |
| 10Year Airspace Development | 0 | 0 | 4,100,000 | 6,200,000 | 7,000,000 |
| Remaining Useful Life (Years) | 0.3 | 2.0 | 64 | 26 | 90 |

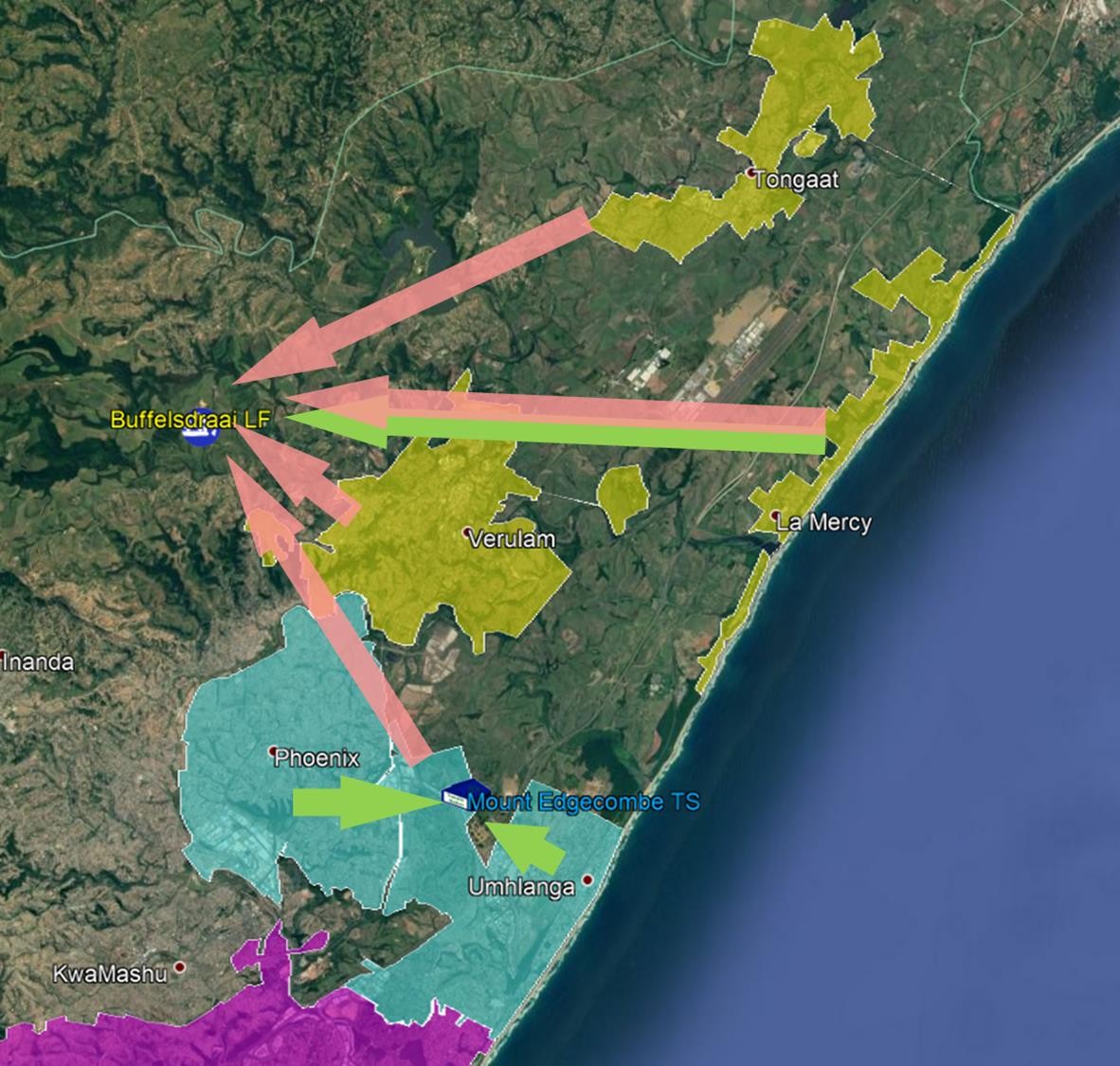
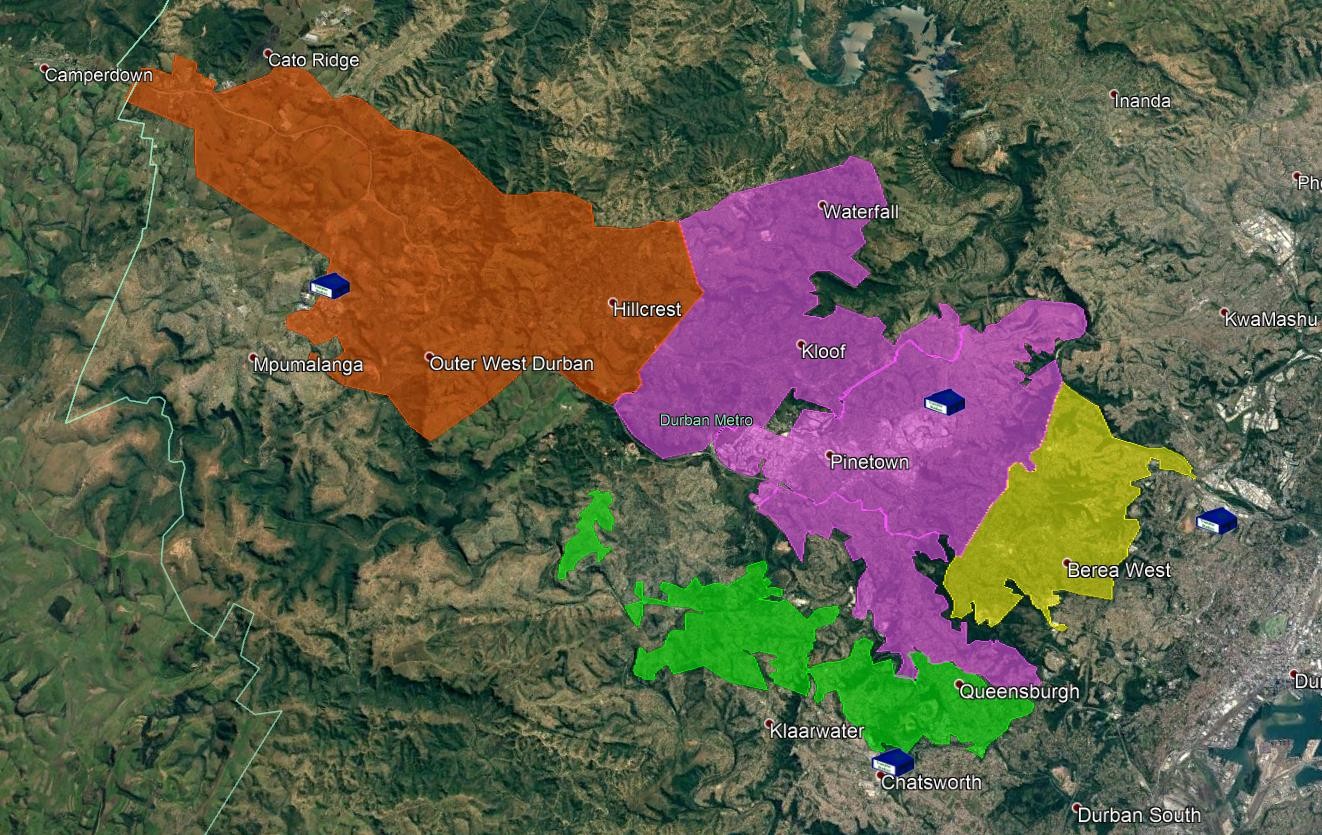
Closure Expansion *New*

**Waste Routing**

Clermont TS

Electron TS

Hammarsdale TS Chatsworth TS



* Overall Cost of WM has increased
  + Overtime
  + Maintenance
  + Hire
* Shongweni Waste Management Facility CRITICAL! To reduce OPEX

**CHALLENGES & INTROSPECTION**



#### LANDFILL AIRSPACE

* Imminent Landfill Site Closures
* New Landfill Delays with Authorities, Appeals
* Public Uprising – NIMBY, BANANA Syndrome



* Poor Market Uptake for Alternative

Waste Treatment

#### INFRASTRUCTURE STRAIN



* Asset Management Required
* Depot Degradation / Capacity
* Refurbishment / Upgrade Attention
* Equitable Provision for Female Staff
* Occupational Health & Safety Non- Compliances

**Head: CSW**

#### FLEET & HEAVY PLANT

* Aging Fleet with “Fleet Creep”
* Moratorium, Budget Cuts?
* Replacement Programme Backlog

#### TOUGH ECONOMIC TIMES



* City Competing Interest – Water, Electricity, Housing…Waste ?
* **True Cost of Waste Management Vs Waste**

**Revenue?**



* Resource Utilisation – Need to Optimise Big Cost Drivers
* *COVID After Math Impact*

#### ALTERNATIVE WASTE MANAGMENT

* Separation at Source (S@S) Roll Out
* Recycling, Waste Minimsation Model
* General Poor Market Uptake for Alternative Waste Model
* Lost Opportunities – Institutional Limitations

The Financial Model

Total Cost = Collection + Landfilling + Transfer Station

**0 – 12.8 % of total cost** 3

**Landfilling**

**Transfer Station**

Waste is processed in the transfer station and transported using 8x4 Hook-lifts to landfill.

Processing and final 2

disposal of waste.

**42.4 – 60.7 % of total cost**

**34.6 – 45.3 % of total cost**

### Collection

Waste is collected from

1

source and transportated to

either a transfer station or landfill. Collection is conducted with 4x2 & 6x4 REL’s.

34

**OPTIMISATION AND RESOURCE UTILISATION**

 Job creation potential

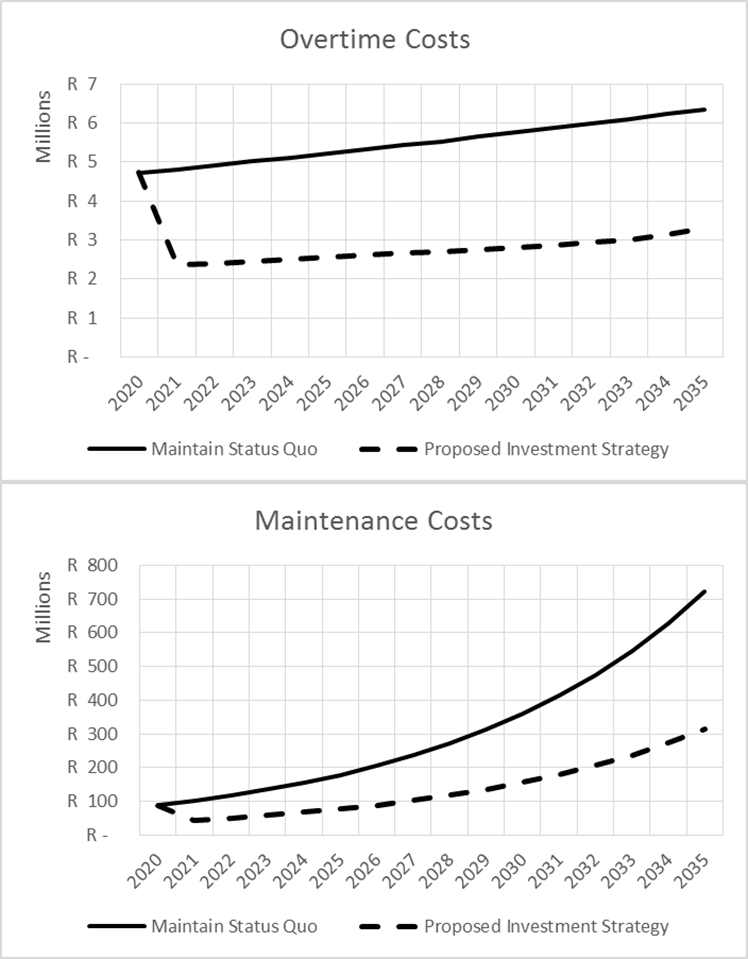
 GHG reduction potential Other operational

Budget increase

considerations (e.g. level

Pyrolysis Incineration

1. **Objectives of Solid Waste Management in eThekwini**

* Reduction of cost
* Increase of revenues

and type of segregation, waste composition, access roads, etc.)

Informal sector

Anaerobic Digestion Windrow composting

* + Creation of jobs
  + Diversion from landfill
  + Reduction of greenhouse gas emissions
  + Collection service for all residents

Technological sophistication

* 1. **Proposed Scenarios**
     + Scenario 1: Improvement of cost efficienc
     + Scenario 2: Comprehensive recycling
     + Scenario 3: Energy-from-waste strategy

PRESENTATION HEADING

## TURN-AROUND?

#### LANDFILL AIRSPACE

* Existing Landfill **Airspace Acceleration**



* Closure Preparations – Legislative Compliance
* **New Shongweni Landfill Development**

#### FLEET & HEAVY PLANT

* Capital Investment Support
* **Long Term (3Year) Contracts** – City Fleet
* Replacement Programme Modelling
* Refurbishments & Maintenance Improvements
  + Waste Beneficiation **TOUGH ECONOMIC TIMES**



* + - **Cost Drivers – Reduction**/Optimisation
      * Overtime
      * Maintenance

#### INFRASTRUCTURE STRAIN



* + CIDMS – Infrastructure Asset Mang
  + **Depot Improvements** – Architecture
  + Life Cycle & Maintenance Planning
  + Equitable Provision for Female Staff
  + Conditional Assessments
  + Change Management & Project Management – Focus on Development

**Head: CSW**

* + - Hiring
  + Business Recovery Modeling – Revised Tariff



* + Efficiencies & Better Resource Utilization
    - ***Round Balancing****, Shifts?*
  + Waste as a Resource – Decrease City Expenditure

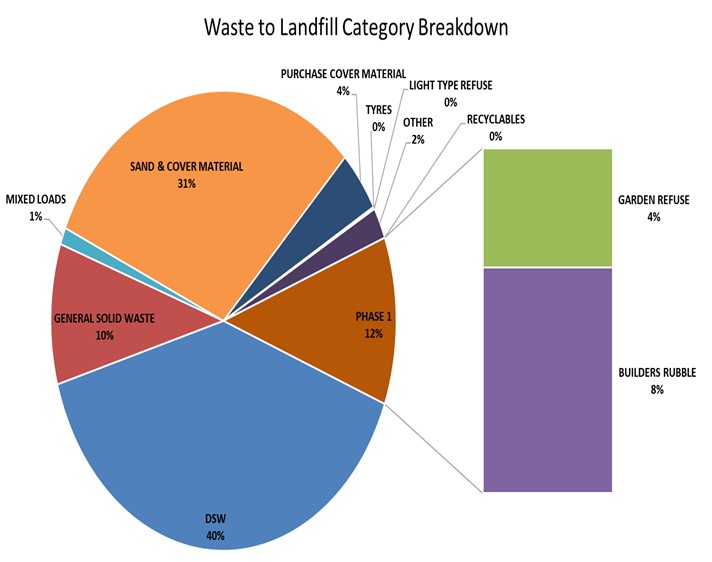
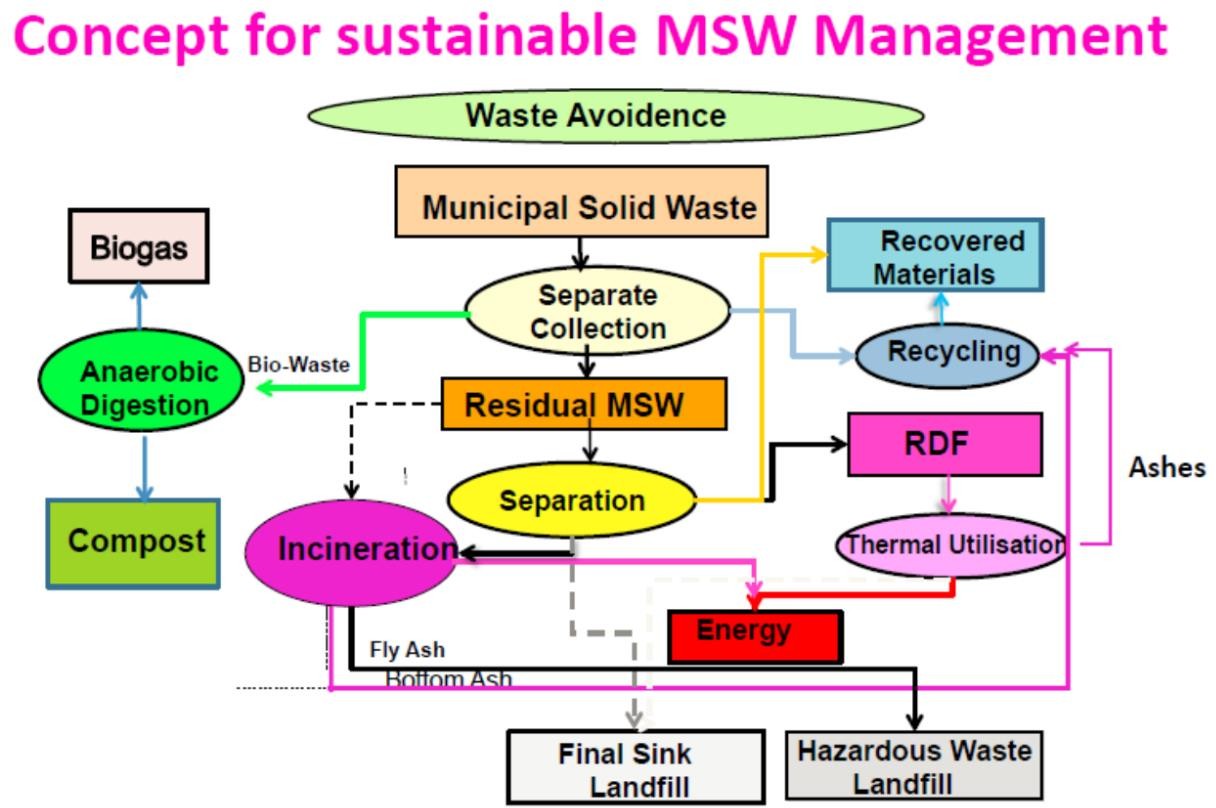
#### ALTERNATIVE WASTE

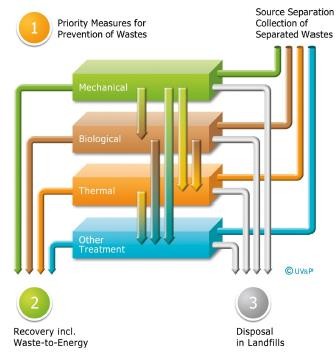
**MANAGMENT**

* + Separation at Source (S@S) Intensification
  + **Recycling, Waste Minimisation Re-Model**
  + Education & Awareness Drives
  + **Integrated Waste Management Planning**
  + Beneficiation of Waste – Changing Mindset
  + Institutional Review

**DURBAN’S PROPOSED IWMP**

**OUTLOOK**





INVESTMENT, JOBS AND INCLUSIVE GROWTH

**NOT BUSINESS AS USUAL & TRANSITION TOWARDS WASTE AS A RESOURCE**

*“We must give priority to the urgent and necessary work required to ensure the stability of electricity supply. This means that we must both accelerate the introduction of new electricity generation”*

*“We need to take* ***decisive measures to reduce our carbon footprint****, in line with our international commitments, in a manner that is*

*sustainable and ensures a just transition for workers and communities that may be affected by a shift to a lower carbon economy.”*

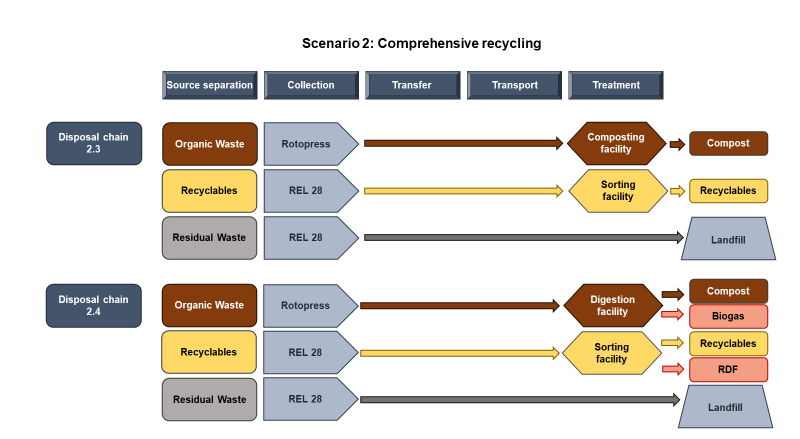
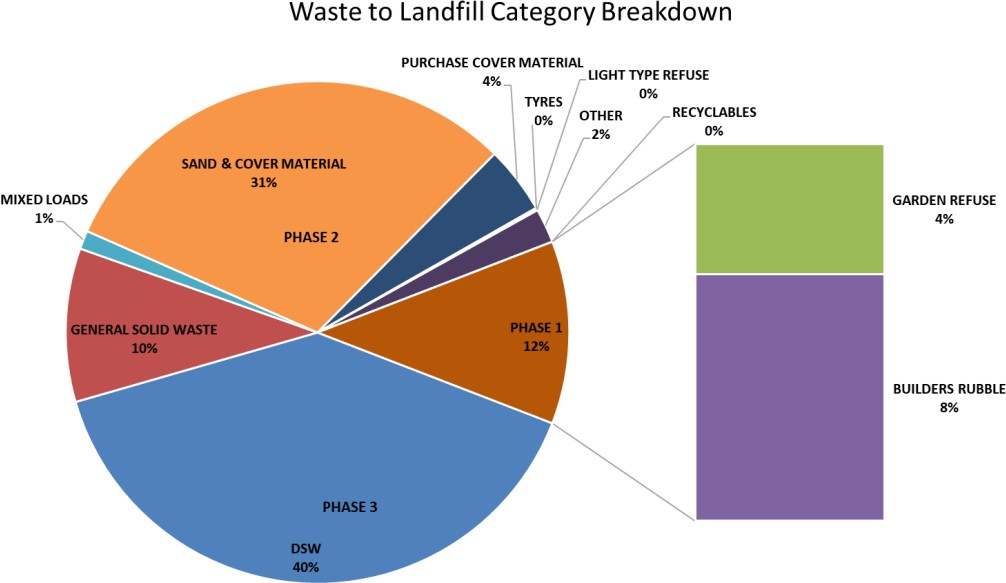
**LVE IT!**

**…WE CAN SO**



***CHECK LIST***

* LAND



***550Ha***

* FEEDSTOCK
* **MARKET OFF TAKE**
* Project Status: Landfill Design Underway 75Years Airspace Capacity
* **Due Diligence & Gaps Done**

***Local Confidence Data***

**Composting**

* 36 000-75 000ton/annum

Future Integrated Opportunities

#### Potentials

* Compost / Soil Amelioration - Agriculture
* Emissions Trading ~ SA Carbon Tax

#### Construction & Demolition Waste

* 170 000 ton/annum



* Recycled Aggregate for Green Applications
* PPP Potential

#### Anaerobic Digestion 150 000 tons/annum Organics

* 40 000 Nm3/day Biogas
* Contract Participation Goals: Compliance to PPPFA – 30%. Vehicle through normal structures (Ward Councillor – ward etc)
* Job Creation
* Climate resilience and environmental protection
* An alternative circular economy from waste

as a resource and Carbon Offset Model Market value increase with an opportunity for land value capture

* Health Improvements to Citizens
* Bufferzone model as per other landfills for ECA and CBA

#### Materials Recovery

* + 8-12% of Total Waste
  + Paper, Plastic, Cardboard, Cans & Bottles

**SCHEDULE**

* Master Plan and Conceptual design completed
* Detailed Design – 2021
* Construction – 2023-2025 Phase 1 Landfill