



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

Transforming the City of Cape Town's Waste Management System

Presentation to GreenCape Waste Economy Workshop

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Making progress possible. **Together.**

Agenda

Aim of this presentation:

To provide an update on the process the City of Cape Town has developed over the last years since the Municipal Systems Act Section 78 (3) assessment, and to look ahead at opportunities while reflecting on broader strategic issues.

Key points:

- Overview of waste management systems in Cape Town
- Transition challenges to achieving Integrated Waste Management, and future plans.
- Transaction Advice (TA) for PPP feasibility assessments.
- Opportunities.

Overview of waste management systems in Cape Town

Waste Management Systems in Cape Town (current)

- Sub-systems that operate side-by-side to provide services:
 - Municipal sector (residential and some commercial waste, public areas)
 - Private sector (industrial/ hazardous & most commercial waste management, and small scale recycling)
 - Informal sector (mostly collection of recyclables for subsistence earning)
- Key elements in Cape Town's waste management system:
 - Cleaning/ cleansing/ clearing of illegal dumping
 - Collection (includes formal & informal collection of separated waste)
 - Public drop off centres
 - Recovery facilities
 - Transfer facilities
 - Landfills
 - Municipal composting
 - Small scale AD
 - Waste water treatment works
 - Landfarming of secondary sludges



Transition challenges towards Integrated Waste Management, and future plans.

Waste Management Transformation update (1)

- City contracts and projects in the making:
 - Think Twice has entered its eighth year: covers about 1/3 of formal households in Cape Town, but constrained by budget to roll-out more.
 - Drop-offs: Pressure to close some, develop new ones (more).
 - Chipping & green waste contracts.
 - Household hazardous waste at certain drop-offs & MRFs.
 - Rubble crushing contracts.
 - Recycling in informal areas: community involvement – what mechanism?
 - Landfill monitoring, closure and rehabilitation of old landfills.
 - Feasibility studies for possible future Helderberg, Coastal Park RTSs.



Waste Management Transformation update (2)

- Council resolved to evaluate feasibility of Public-Private Partnerships (PPPs) (S.78(3) recommendations):
 - to implement alternative service delivery mechanisms to give effect to obligations that will reduce effects of waste to landfill through treatment and beneficiation.
 - Focus is on alternatives to landfill and does not include landfill, waste collection, community-based cleansing services.
 - City provides, but some of these services are contracted by tender or use Expanded Public Works Programme EPWP.
- Retendered for the appointment of a Transaction Advisor (TA) (tender 75C/2013/14):
 - Tender submission closed 17 January 2014.
 - 4 responses received.
 - Evaluation of tenders being done at present.
- **Slow process to appoint TA and other obligations has caused fast-tracking**
 - Design and construct landfill gas extraction and flaring infrastructure (Tender 149C/2013/14) (also to meet CDM obligations).



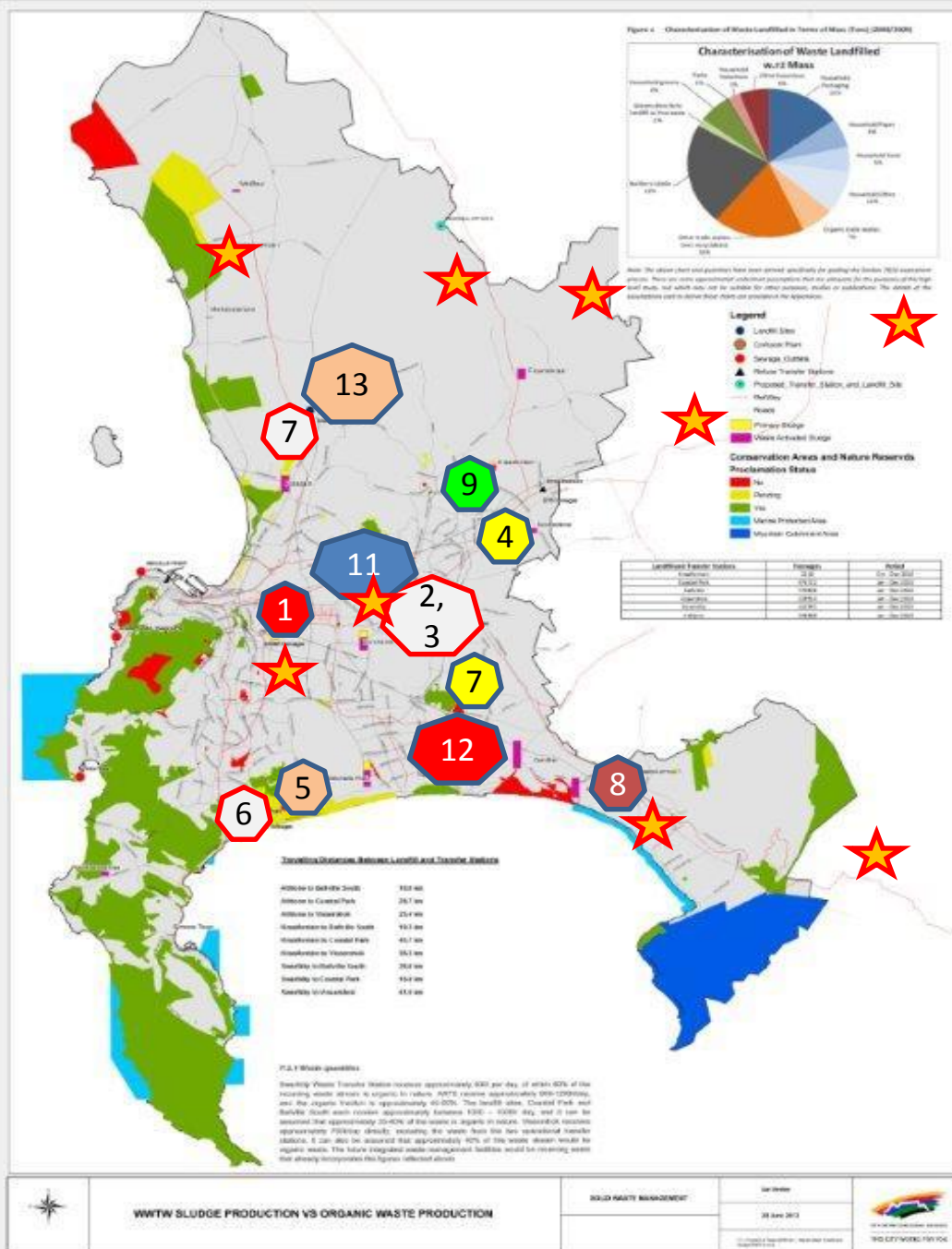
Transforming Waste Management Systems in Cape Town

Subject to determining best appropriate options

- Available, planned infrastructure.
- Scale (type, volume/ mass of waste):
- Potential private sector needs (projects – methane, refuse derived fuel, other).
- Synergies with industry?
- Best appropriate long-term solutions?

Projects or contracts in both SWM Dept. and W&S Dept:

- Composting
- Building & demolition rubble
- Landfills (LFG)
- WWT Bio-mass, organic solid (AD)
- IWM sites (transfer, plus other options: separate for recycling).
- Pilot projects: pyrolysis...



Transaction Adviser (TA) for PPP feasibility assessments.

TA's Scope of Works (1)

- 1st phase: Assess feasibility & risk of a number of defined projects – involves level 3 designs, costing, producing business case, Public Sector Comparator & evaluation of capital funding to recommend procurement option(s) of “alternatives”.
 - Systems approach, change management – for checking dependencies and “domino effects” to manage the transformation.
 - Economic (possibilities) and legal compliance scan.
 - Modelling
 - Assess format and standard of various contracts (aimed to achieve Value for Money, reduce risk to Council and residents).
 - Involves National Treasury views & recommendations (TVRs), consultation with sector departments.

TA's Scope of Works (2)

- Second phase: only if Council agrees with risk and approves recommended procurement approach.
 - Design and manage procurement process for implementation of projects per PPP procurement.
 - Variation is if procurement is with Council funds – will include finalising design, procuring construction and equipment supply, overseeing construction and commissioning.
 - Generate draft contracts – long-term concessions (MFMA S.33).
- Third phase: negotiate, finalise Terms & Conditions, price of concession contracts (> 3-years) to achieve Value-for-Money for City & ratepayers:
 - Final stage public participation
 - Final NT review, recommendations
 - Obtain Council approval for Ts & Cs to sign contracts (contract closure).
 - Start implementation (construction...commissioning).

Upcoming opportunities and timeframes.

Key Considerations (1)

- Key industry initiatives – new opportunities?
 - REDISA (industry plan for waste tyres, other...?)
 - Organic waste treatment (food or mono wastes, sludges)
 - Other ?
- Transport policy and the influence of the Transport Authority (Transport for Cape Town, TCT).
 - A drive to create efficiencies in the transport sector to drive savings and reduction of impacts – implication is utilisation of other modes of transport
 - Road to rail (aligns with SWM Dept.'s design thinking to position MRF/Transfer Stations next to/near rail lines) – to reduce costs of longer haul and other impacts (road maintenance, air pollution, traffic congestion...).

Key Considerations (2)

- Changes being dictated by waste management, environmental & other legislation:
 - Waste minimisation: waste recovery and recycling targets (NWMS informed by DST and CSIR work).
 - Definition of “Waste” (change pending)
 - Waste-to-Energy/ Energy-from-waste (biogas standards).
 - Closure of existing landfills.
 - Commissioning the new landfill (distance increases – alternatives?).
 - Price of energy (different forms) will drive viability.
 - Environmental fiscal reform (levies, deposit systems to fund recovery and recycling systems)
- Expansion and development plans in the City: future major development areas.
 - Densification across the City (targeted areas)
 - Within the “urban edge”/ outside?
- Regionalisation (Greater Cape Town region)
 - For greater efficiencies to reduce waste management costs while increasing economic opportunities



Examples of large developments with implications (1)

1. City's urban settlement development programme
 1. City rental stock upgrades
 2. Informal settlement in-situ upgrades
 3. Low cost housing
 4. Associated social and community facility infrastructure
 5. Backyarders...
2. Western Cape Government urban settlement development programme (in Cape Town) – in sync with (1).
3. Voortrekker Corridor: revitalisation and transformation of Bellville/ Goodwood/ Parow economic infrastructure to connect nodes north and south of corridor and to create housing opportunities and integrate academic precincts.
4. South-east Corridor: Mitchells Plain/ Khayelitsha revitalisation and economic development at nodes and along corridor.
5. Belhar CBD (Phase 1 and 2) – private development, 3 600 mixed housing units, some commercial & industrial sites.
6. District 6.



Examples of large developments with implications (2)

7. Fisantekraal (“New City”) – private developments, mixed housing.
8. WesCape – mixed housing and socio-economic development the size of Bloemfontein (200 000 households for 1-mill people).
9. Philippi Horticultural Area – mixed housing.
10. Princess Vlei – retail/commercial development (on hold...).
11. Vlakteplaas (Helderberg).
12. Annandale (N7 corridor).
13. Two Rivers Urban Park (TRUP), etc.

Opportunities

- Opportunities to maximise reuse, recycling and recovery depend on:
 - Processing & Manufacturing capacity & proximity
 - Market development: materials & goods
 - Export of beneficiated materials & finished goods
- Major shifts need in thinking to address problem wastes and large volume wastes
- Contextual, cannot generalise – depends on local micro economy and location relative to where treatment & processing capacity is situated.
- High energy value materials: recycling and reuse (including composting) is competition to W-E, but is necessary in terms of natural resource use.
 - Essential to choose the most sustainable path.
- Focus for municipalities and the private sector should be on organic materials (GHG mitigation).



Current trends in Cape Town (W-E)

- Private sector – mostly planned AD facilities: Soil & More Reliance (Klipheuwel, combined with composting), Enviroserve (pilot plant, Stikland), Waste Mart/Farm Secure (Athlone: mono waste – food residue), some chicken farms (facilities established for on-site processing & energy re-use), pilot pyrolysis plant (Somerset West).
- City planning 3 LFG projects – part of CDM: Coastal Park (electricity generation), Bellville South (gas for heating), Vissershok (option undecided).
- City designing sewage sludge AD plant for construction (near Vissershok).
- City sewage sludge drying facility (Cape Flats WWTW), needs major capital refurbishment... Industry opportunity: RDF?
- City pilot pyrolysis plant (Kraaifontein) – short term test.
- Regional: Drakenstein Municipality – incineration + AD plant, Stellenbosch Municipality (considering AD), but...
- Waste tyres: key opportunity (alternative to delayed REDISA and to deal with historic stockpile).



SCHEME OF DIFFERENT POSSIBILITIES TO USE BIOGAS

Sell gas to 3rd party for heating (revenue), Own-use (cost off-set)

with additional benefits ...

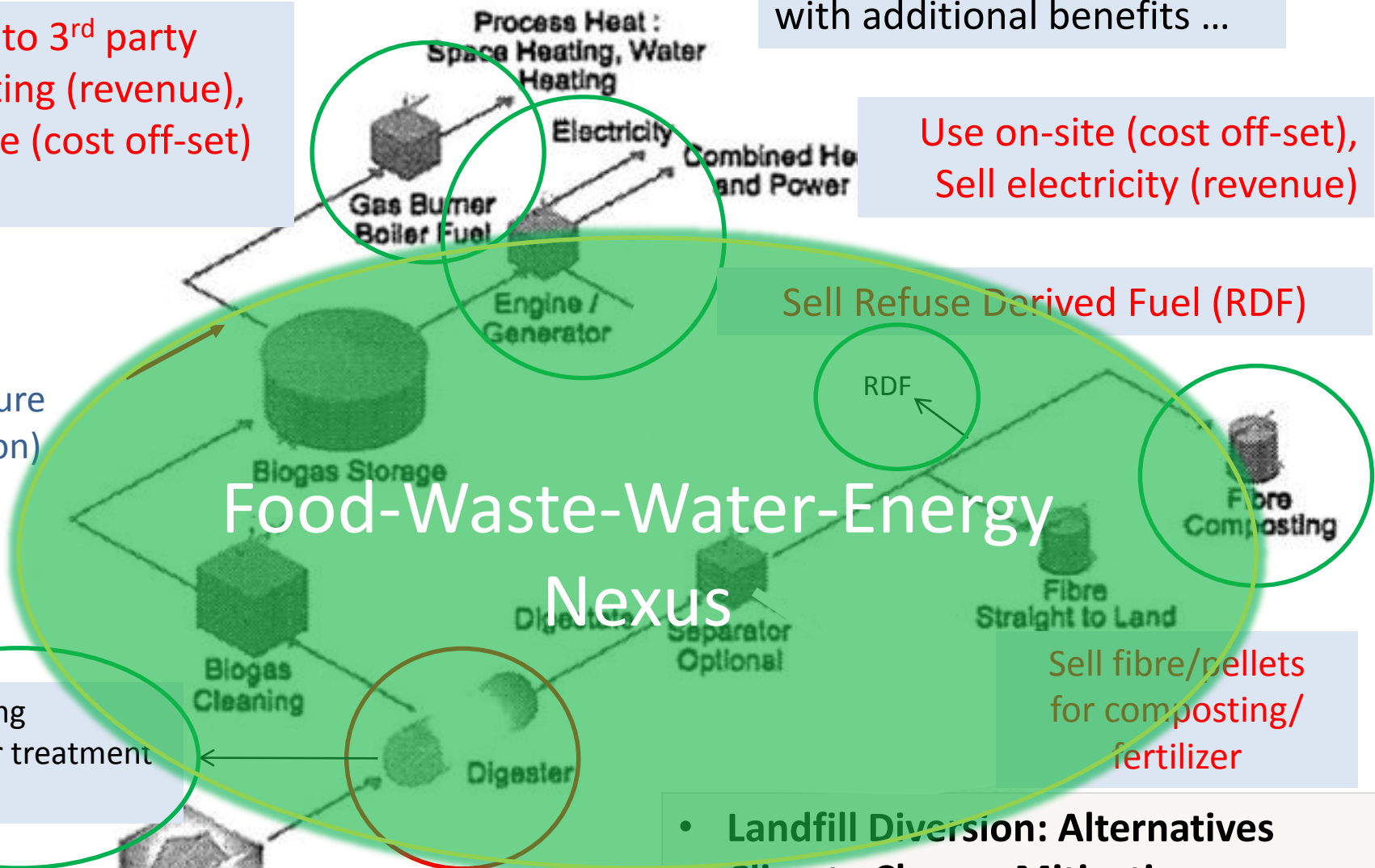
Use on-site (cost off-set), Sell electricity (revenue)

Sell Refuse Derived Fuel (RDF)

LFG capture (mitigation)

Reclaiming water for treatment & reuse

Bio-mass feedstock: Organic Waste, Sewerage Sludge



Sell fibre/pellets for composting/fertilizer

- **Landfill Diversion: Alternatives**
- **Climate Change Mitigation**
- **Alternative Energy Supply**
- **Economic Development**
- **Job Creation**



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Thank You

Making progress possible. Together.