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AFRICAN UTILITY WEEK
DELIVERING BEYOND TOMORROW

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Successful Planning equals Successful Implementation

- Context: City of Cape Town
- Background: early days
- Transition
- Planning for change
- Various programmes’ successes
- Conclusion
Need success? It does not happen by chance...

- Funding
- Integrated Planning (long range), Annual budget (medium term)
- Full scale infrastructure projects
- Pilot projects
- Monitor, Evaluate, Assess
- Key lessons (successes & failures)
City of Cape Town

CONTEXT

• A-grade metro, port;
• Approx. 300 km coastline.
• Area approx. 2470 km²;
• Population est. 3.8 mill, growing approx. 2-3% p.a. (about 1.1 million h/holds, ~ 200 000 informal)
• Approx. 67% of Western Cape’s population;
• About 80% of W/Cape’s economic activity.
Background: Planning in the early days...

  - new Unicity Illegal Dumping By-law.
- 2003/04: Jeffares & Green, DEADP – status quo and integrated waste planning study: draft plan.
Early Implementation: Athlone Refuse Transfer Station – driven by cost-efficiency mainly

- **10 years in operation** since Wright-Pierce study.
- **Only operating waste-by-rail facility** in SA.
- Also a “dirty” Material Recovery Facility (MRF).
  - Has provided key lessons for other MRF design.
- Currently **50% over design limit** of 800 tpd.
- **Low recovery rates** (< 2% of total): will force redesign during planned upgrade.
Athlone Refuse Transfer Station
ARTS, including MRF and rail transfer
SERVICE CONTEXT

- **Landfilled** 2.8-mill t (2006/07), 1.7-mill t (09/10), 2-mill t (10/11);
- **3 operating landfills** (Bellville S, Coastal Park, Vissershok),
- **New landfill** to be established (30-year life estimate);
- **20 Community Drop-off Facilities** (greens, builders’ rubble, recyclables);
- **2 Composting plants**;
- **Separation pilot project** (approx. 240 000 h/holds, ~25% of formal service points).
SERVICE CONTEXT

• Integrated Area Cleaning & Collection is community-based EPWP;
  • Running for 10 years,
  • National best practice: National Waste Collection Standards
• 3 Transfer Stations, 2 with Material Recovery Facilities;
• 1 new Integrated Waste Management Facility planned, transfer station (Bellville S);
• Municipal Systems Act S.78(3) assessment – completed March 2011 – next changes…
Transition – towards integrated planning and services…

- 2006: **IWM Policy & IWM Plan** adopted by Council
  - (aligning with principles in NWMS (1999)).
  - 1st in SA pre-legislation),
  - Think Twice project rolled out.
- 2008: **Municipal Systems Act S.78(1)** completed, waste classification study completed.
- 2009: **IWM By-law** promulgated 30 days after NEMWA, fully aligned (1st in SA).
  - Waste Cost Systems Model developed for costing of IWM By-law.
Separation at Source (“Think Twice” pilot: 2006/07) (1/2)

- “Yellow bag” trials: Marina Da Gama (2002)
  - Still operational, but lessons learnt and used for planning and implementing Think Twice.

- IWM Policy introduced separation at source (“Clear bag” project): 5 pilot areas, 130 000 households:
  - To test participation in high, medium and low/no income areas for Think Twice (clear bag scheme).
  - “Failure” in 3 areas – lessons: economic drivers in low/no income areas, unrealistic (low) bids on tender.
    - Subsistence living = good recycling (so not a failure).
Results from Think Twice Pilot Project (2010)

- **Atlantic area** - diverts 200 tpm recyclables.
- **Helderberg area** - diverts approx 350 tpm.
- **Hout Bay area** - diverts approx 150 tpm.
- **Deep South area** - diverts approx 125 tpm.
- **Sea Point, Green Point, Mouille Point and Three Anchor Bay** (complexes, flats, hotels & businesses) - diverts approx 230 tpm.
Composting & Rubble Crushing

- 2 composting plants (Radnor, Bellville South);
  - 1 not operational: cost of major repairs;
  - “Municipal” compost for sale – low interest due to quality (contamination);
- Chipping, recovery of greens at 20 community drop-off sites across City (contractors);
- Off-site: commercial grade composting.
- 3 contracts for builders’ rubble crushing.
  - Alternative uses: uptake is constrained.
Other City Initiatives

- **City Improvement Districts**: “top-up” services – higher service level paid for by business in CID.

- **Integrated Area Cleaning & Collection in informal settlements**: community-based -
  - Already meets Expanded Public Works Programme requirements.

- **2010 World Cup Waste Management**:
  - 4-year planning process.
  - Result: Clean City, great event, return tourism.
Think Twice & other Programmes’ Diversion Successes

- **Think Twice** saves approx. 1 050 t recyclables per month = 12 600 t per year.
- If 2-mill t generated per year = approx 0.5% diversion rate from landfill (excluding private sector recycling).
- **City projects’ total diversion rate** = approx 10% by mass - mostly green waste & builders rubble.
- **Private sector** is almost double that – makes for a good partnership?
Separation at Source ("Think Twice" pilot: 2011 onwards)

- Kraaifontein Integrated Waste Management Facility commissioned 2011 (1500 tpd capacity).
  - Transfer station
  - Incorporates a drop-off: greens, builders’ rubble, glass, cans, plastics, paper, cardboard.
  - Clean MRF, mechanical and manual separation of recyclate: 100 tpd.
  - Further 42 000 households in catchment area (separation at source, 2-bins: 240 & 130 litre),

**Electronic chip test: “pay-as-you-throw” in future?**

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New MRF & Transfer Station at Kraaifontein (2011): opportunities for more partnerships?
Towards large scale affordable, integrated waste management implementation...

- **2011:** Mechanical Biological Treatment (MBT) Study (in conclusion stage now).
- **2011:** Bio-solids (sewerage sludge) alternative treatment technology study (in progress).
- **2011:** S.78(3) Assessment completed – key recommendations concerning partnerships.
- **2011:** CDM Registration project (in progress).
Pareto (80/20) Approach: Mass Analysis = Optimisation...

Characterisation of Waste Landfilled w.r.t. Mass

- Household greens: 6%
- Greens directly to landfill as free waste: 2%
- Builders rubble: 22%
- Household Hazardous: 3%
- Other hazardous: 6%
- Household Packaging: 15%
- Household Paper: 6%
- Household Food: 5%
- Household Other: 10%
- Organic trade wastes: 7%
- Other trade wastes (incl. recyclables): 18%

Recovery for recycling about 27% (18% non-municipal), 2008/09
Key Considerations for Planning Waste Management in Cape Town

1. Waste increases, also decreases:

2. Waste minimisation: legislated obligations are expensive and need different funding approach.

3. Costs increase dramatically: for new, replace, renew

4. Cost of energy: diesel, electricity (transfer stations and other mechanisms vital).
Key Considerations for Planning Waste Management in Cape Town


7. Competing needs: reducing airspace, public opposition (NIMBY), public buy-in (want to go “green”), off-set by economic realities.

8. Reduce impacts: legal, moral, health obligation, indirect economic benefits (tourism, health, etc).

9. Economy – investment in formal economy (opportunities), leads to job creation in formal & informal sectors.
Thank you

Q & A