Solid Waste Management
Dar es Salaam
Tanzania

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DAR ES SALAAM CITY COUNCIL

BELGIUM ANTWERP - 07TH -09TH SEPTEMBER, 2015
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1. Introduction

Dar Es Salaam

- The largest city in Tanzania
- Political, economic, social, cultural, and administrative center of Tanzania
- Total area: 1800 km²
- Land area = 1350 km²

Basic information

- Population: 4.3 million (2012 Census)
- Annual growth: 4.3%
- 3rd fastest growing city in Africa; and among the 10th fastest growing cities in the world.
- Projected population in 2025: ca. 7 million
- 70% of the population lives in unplanned settlements

Governance

- Dar es Salaam City Council (DCC)
- 3 Municipal Council (Ilala, Kinondoni, Temeke)
2. Roles & Resp. of Key Stakeholders

Central Government:
- Guidance to municipal council and other resources including finance and equipment.

City Council:
- Coordination and collaboration of solid waste management
- Management of solid waste final disposal
- Creation and awareness of solid waste management

Municipal Councils:
- Primary responsibility for waste management
- Refuse collection and night soil removal from households and law enforcement.

Private Sector / Contractors:
- Collect waste from their respective service areas as directed by the Municipal Council (as per contract)

Residents:
- Cooperate in the waste management programs and pay their refuse collection charges. Also are required to segregate their waste and keep their surroundings clean.
3. Waste Generation and Composition

- Waste generation rate: ca. 1.0 kg/person/day (2012)
- The City currently generates 4,252 tons of waste per day
- Waste Composition:

  - Approximately 50–60% of the waste is readily biodegradable

<table>
<thead>
<tr>
<th>Total Generation</th>
<th>4252 t/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household</td>
<td>3104 t/d</td>
</tr>
<tr>
<td>Commercial</td>
<td>223 t/d</td>
</tr>
<tr>
<td>Institution</td>
<td>20 t/d</td>
</tr>
<tr>
<td>Market</td>
<td>281 t/d</td>
</tr>
<tr>
<td>Street</td>
<td>5 t/d</td>
</tr>
<tr>
<td>Others</td>
<td>621 t/d</td>
</tr>
</tbody>
</table>

- Kitchen waste
- Textile
- Grass and wood
- Metal
- Ceramic and stone
- Paper
- Plastic
- Leather and Rubber
- Glass
- Other

- Solid waste collection in Dar es Salaam is carried out by MCPs, private companies, CBOs, and the informal sector
- Collection is carried out daily/weekly…
- The current collection coverage is approximately 50 %
- The waste collected is un-segregated (but at city markets, biodegradable waste is collected separately)
- Little recycling and processing of biodegradable waste (composting) is carried out (though it has the potential to reduce waste amount by 50%!)
- Some small scale composting projects proved successful (e.g. KEG – Kisiwani Environmental Group)
- Final disposal happens at Pugu Kinyamwezi dump site

<table>
<thead>
<tr>
<th>Waste management practices at household level</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bury</td>
<td>26.4</td>
</tr>
<tr>
<td>Open burning</td>
<td>3.2</td>
</tr>
<tr>
<td>Throw in open fields</td>
<td>4.0</td>
</tr>
<tr>
<td>Collection by municipal council</td>
<td>50.4</td>
</tr>
<tr>
<td>Throw anywhere in the compound</td>
<td>11.2</td>
</tr>
<tr>
<td>Other</td>
<td>4.8</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>
5. Current Waste Management Practices II.

- Final disposal activities are carried out at Pugu Kinyamwezi dump site; 30km from the city centre.
- Solid wastes are disposed in an open dump without any engineered safety feature: no base liner, leachate and gas collection, soil cover, embankments and fence.
- The current disposal practices are unhygienic and posing serious threat to risk occupational safety, environment and public health.
6 Waste Disposal (cont.)

- On-going Activities at Kinyamwezi Dump Site

  - Construction of perimeter wall (restrict access)
  - Construction of landfill cell
  - Improvement of inner roads
7. Challenges in Waste Management

- Rapid urbanization / population growth / informal settlements
- Low public awareness and education level – lack of pilot projects
- Extension of the waste collection coverage and the improvement of the current waste collection service
- Poor law enforcement to stop bad waste management practices such as open burning or illegal dumping
- Coordination of different government stakeholders and encouraging partnership with private sector
- Improving revenue from resource collection charges (RCCs)
- Insufficient of financing
- Improvement of current landfilling practices and availability of suitable land for final disposal (e.g. high groundwater table)
8. CCAC/ISWA Projects in Dar es Salaam

- Scoping mission: February 2014

- Dar es Salaam joined the CCAC MSWI in April 2014

- ISWA/CCAC City Assessment and Action Plan projects: November 2014 – February 2015

- **Work Plan project:** starting in September 2015
9. CCAC / ISWA Work Plan

Work Plan Project Team:

- Dar City Council (DCC)
- Municipality representatives
- Local NGOs (e.g. BORDA)
- ISWA

Work Plan Period:


Work Plan Activities:

Overall Coordination, Implementation of Work Plan Activities & Kick-off stakeholder workshop, including dissemination of results

Kick-off meeting: 29th September 2015

Goals:

- establishment of the project team / working group and finalizing roles
- detailed outline and discussion of Work Plan activities
- Engage into and facilitate discussion between project stakeholders
Activity 1:

Community capacity building and pilot project: increase households participation in waste source separation for composting / recycling and the payment of RCCs

- Conduction of baseline study to establish a reference with real needs and attitudes at the household level. Collection of generic waste data. Goals:
  - To research the willingness of households to use official waste collection schemes, pay RCCs and source separate organic waste and recyclables
  - To obtain primary data from waste generation

- Awareness raising campaign to promote source separation of waste, warn about health effects of open burning and to encourage the payment of RCCs.
  - Through cleanest subward competition, school awareness raising campaign and an improvement of the waste management services (e.g. more regular waste collection) – households will be sensitized to source separate waste and pay the RCCs
  - Campaign conducted in 2 subwards over 2 months

- Workshop with DCC and MCPs on baseline survey and awareness raising campaign results
11. CCAC ISWA Work Plan (cont.)

Activity 2
Support the establishment and possible replication of a large scale composting facility (project lead by the City Hamburg, location: Kinondoni MCP)

• Training on medium size composting, quality and marketing of compost and how to apply low cost and low finance composting technologies.
• Develop strategy to encourage household/business separate collection of organics, including the usage of ideal collection equipment and future scaling up.
• Training for local market advisors who will help improving the organic waste collection in the markets supplying the composting facility project.

Activity 3
Capacity building workshop and strategy on climate financing

• Training on how to attract international investment and external carbon offsetting projects
Activity 4

Support to improve waste disposal practices at Pugu dumpsite and assistance for planning of the construction of new landfills

- Expert assessment & proposals for straightforward and affordable intermediate solutions at Pugu (e.g. preliminary stabilization of waste before landfilling)
- Assist municipalities in the planning and construction of new (sanitary) landfill(s)
13. Expected Outcomes and Impacts

- **Outcomes**
  - Obtaining basic waste generation data from the household level and successful pilot project in two sub-wards
  - Capacity building to the local authorities on carbon financing and building sanitary landfills

- **Impacts**
  - Direct SLCP reductions through the immediate improvement of the Pugu landfill and the support of the on-going composting plant project of the City of Hamburg
  - Dar es Salaam will become a leader in the region and thus the leader of scaling up activities and reducing SLCPs through improving waste management practices
14. DCC’s SWM Strategy: Our way forward…

- Increase **SWM budget** through improved cost recovery and full-cost accounting
- Creation of a **SWM information system (data base)**
- **Raising public awareness and participation** through Information, Education and Communication campaigns in order to increase waste segregation and material recovery

- **Improve inter-LGA cooperation and stakeholder management** (e.g. through the establishment of a SWM working groups, consultative meetings)

- Improving collection efficiency and reducing transport costs through the **establishment of transfer stations** and improved **monitoring and contract management**
15 SWM Strategy / The way forward… (cont.)

- Improve law enforcement
- Establishment of a **pilot composting plant** in Kinondoni Municipality (capacity: 20-50t/d)
- Exploring feasibility of **waste to energy options** like anaerobic digestion of bio wastes, refuse-derived fuel production, co-processing of plastic waste in cement kilns)
- Upgrading Pugu Kinyamwezi Dump (fence, all-weather-road, drainage system, composting area)
- Site selection and **construction** of a **sanitary landfill**
- Improve **hazardous waste management**
THANK YOU:
YOU ARE INVITED TO VISIT
TANZANIA

Land of Kilimanjaro and Serengeti