Solid Waste Management in Yangon City

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Yangon City Development Committee
Myanmar
## Comparison Figures of Yangon Region

<table>
<thead>
<tr>
<th>Unit</th>
<th>Myanmar</th>
<th>Yangon Region</th>
<th>YCDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population 000</td>
<td>51,486</td>
<td>7,361</td>
<td>5,191</td>
</tr>
<tr>
<td>Population %</td>
<td>100</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Area Km²</td>
<td>669,794</td>
<td>9,804</td>
<td>971</td>
</tr>
<tr>
<td>Area %</td>
<td>100</td>
<td>1.5</td>
<td>0.14</td>
</tr>
<tr>
<td>Population Density (000/Km²)</td>
<td>77</td>
<td>751</td>
<td>5,346</td>
</tr>
<tr>
<td>GRDP Billion Kyat</td>
<td>65,262</td>
<td>12,359</td>
<td>n.a</td>
</tr>
<tr>
<td>GRDP %</td>
<td>100</td>
<td>19</td>
<td>n.a</td>
</tr>
<tr>
<td>Per Capita GRDP (000 Kyat)</td>
<td>1,268</td>
<td>1,679</td>
<td>n.a</td>
</tr>
</tbody>
</table>
Profile of Yangon City

Area - The administrative boundary of YCDC, in 1985 (133.643 Sq-Miles) (292.426) Square Miles.

Population - 5.6 million (2017)

Township - 33 Townships

Generation Rate - 0.5 Kg / Capita / Day
(Analyzed by ADB, 2017)

Household Waste Generated - 2500 tons per day

Industrial Waste Generated - 250 tons per day

Health Care Waste Generated - 2.15 tons per day

Generation
- East District
- South District
- North District
- West District

Collection and Transportation
- Direct Haul
- Bell collection
- Hand Carts
- 3-Weels Cycle
- Hopper Truck
- Door to Door

Transfer Point
- 25 m³ Containers

Collection Point
- Dust Bins, Brick Tanks

Disposal
- FDS Htawei Chaung
- FDS Htain Pin
- Cemetery

Healthcare Waste
- Separate Collection Truck
- Direct Haul and Special Treatment, on call

Hazardous Waste
Waste Define in Yangon

- Waste
  - Industry
  - Construction
  - Hazardous
  - Healthcare
  - Commercial
  - Garden
  - Offensive
  - Normal
  - Household waste
    - Organic Waste
    - Inorganic Waste
Yangon Waste to Energy Plant Project

✓ Implemented by the Leap Frog Program JCM Scheme supported by Japan Government.

Specifications

<table>
<thead>
<tr>
<th>Cooperated Organizations</th>
<th>YCDC-PCCD, JFE Engineering Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Taw KyaungKalay cemetery, ShwePyiThar township</td>
</tr>
<tr>
<td>Construction Period</td>
<td>2015-2017</td>
</tr>
<tr>
<td>Investments</td>
<td>16 Millions as of the JCM Scheme (8 Millions from YCDC and 8 Millions from Japan Government)</td>
</tr>
<tr>
<td>Incineration Capacity</td>
<td>60 ton/day</td>
</tr>
<tr>
<td>Power Generation Capacity</td>
<td>700 KW self-sustain about 400KW and 300KW for sale)</td>
</tr>
<tr>
<td>Accomplishment</td>
<td>100%</td>
</tr>
</tbody>
</table>
Yangon Waste to Energy Plant Project
Joint Improvement of Waste Management Project Between YCDC-PCCD and Bureau of Environment-Tokyo Metropolitan Government (BoE-TMG)

**Project Duration**

**Project Purpose**
- The Policy and planning skill on the 3Rs and waste management in Yangon City will be improved.

**Project Activities**
- **Capacity Building Training Programs on Improvement Waste Management**
- Technical exchange on both of school and community awareness programs related to SWM
- Back to Back Mission

**Project Outcomes**
- Annual Report
- Staff Manual
- SWM Flyers
- Safety Manual for waste collection and transportation

➢ As of this project, PCCD-YCDC sustainably conducting awareness programs, distribution flyers and also ToT trainings.
Proposed Sanitary Landfill Project collaborating between YCDC-PCCD and Fukuoka City, Japan

<table>
<thead>
<tr>
<th>Cooperated Organizations</th>
<th>YCDC-PCCD, Fukuoka City, Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Htein Bin FDS, Hlaing Tharyar township</td>
</tr>
<tr>
<td>Project Period</td>
<td>2018-2020</td>
</tr>
<tr>
<td>Project Cost Expenditure</td>
<td>Procured by YCDC (Fukuoka City will only provide technical cooperation)</td>
</tr>
<tr>
<td>Technology</td>
<td>Sanitary Landfill using Fukuoka Method</td>
</tr>
<tr>
<td>Total Land Used Area</td>
<td>2.4 Acres (1 ha)</td>
</tr>
</tbody>
</table>
Implemention Fukuoka Landfill Pre Pilot Project (January 2018)
Overall Weighted Average Composition of MSW as Delivered to the FDS
Analyzed by YCDC-PCCD and ADB (2017)

- Organics: 44.33%
- Plastic: 19.70%
- Paper: 8.90%
- Fabric: 7.05%
- Metal: 2.15%
- Glass: 5.93%
- Hazardous waste: 0.91%
- Ceramic/stones and sand: 1.01%
- Other: 10.02%
Estimation of Waste Generation Amount from 2020 to 2050

- **Population Rate (%):**
  - 2020: 6.08%
  - 2025: 7.4%
  - 2030: 9%
  - 2035: 10.95%
  - 2040: 12.45%
  - 2050: 16.09%

- **Waste Generated Amount/Person (kg/capita/day):**
  - 2020: 0.62
  - 2025: 0.72
  - 2030: 0.82
  - 2035: 0.92
  - 2040: 1.02
  - 2050: 1.22

- **Waste Generation Amount (Ton):**
  - 2020: 3769
  - 2025: 5325
  - 2030: 7379
  - 2035: 10072
  - 2040: 12696
  - 2050: 19630
Fire Incident in Htein Bin Final Disposal Site, one of the biggest FDSs in Yangon City located in Northern Part of the City (April, 2018)

<table>
<thead>
<tr>
<th>Started Used Date</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Land Area</td>
<td>150 Acres (60 Ha)</td>
</tr>
<tr>
<td>Daily Waste Disposed Amount</td>
<td>1200 – 1500 tons/day</td>
</tr>
<tr>
<td>Fire occurred Date</td>
<td>21 April 2018</td>
</tr>
<tr>
<td>Burnt Area</td>
<td>120 Acres (48 Ha)</td>
</tr>
<tr>
<td>Completed Fire Extinguishing</td>
<td>3 May 2018</td>
</tr>
</tbody>
</table>

Causes to Fire Incident:
- Chemical reaction from biological decomposition
- Heat resulting in high temperatures
- It may cause a fire to occur and spread from beneath
Current Situation of Implementing Process in Yangon City

• The current disposing method of MSW is unsystematically so that further activities of awareness campaign is conducting within the City Boundary.

• Planning to integrated existing Final Disposal Sites Management.

• Implementing advanced collection and transportation system for Healthcare Waste by using Box Type Container Vehicle.

• Setting up to construct 20 tons per day Healthcare Waste Incineration Plant.
Strategic Evaluation Factors

• Currently, there are (2) main FDSs and (2) temporary FDSs in Yangon City. The existence of the FDSs are 17 years ago. All waste are mixed and could not apply sorting system and also included recyclable materials.

• As could not apply sorting system and disposing for long time and heat resulting in high temperature, Fire Incidents occurred at Htein Bin FDS in end of May 2018 and complete fire extinguishing period took (12) days.

• PCCD tried transform Integrated Solid Waste Management System with allocated plan since past years although depending on the land scare problem and present situation, need to promote transforming procedures rapidly.

• Plan to implement International Waste Sorting System, Waste to Energy such as Incineration, Sanitary Landfill, Composting, Material Recovery Facility (MRF).

• Government Bodies are also trying to promote Incineration Plant and Sanitary Landfill related with Integrated Solid Waste Management enthusiastically and rapidly and planning to implement in near future.
Thank you for your attention