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INTRODUCTION

WEST JAVA PROVINCE

Indonesia has 34 Provinces

West Java Province consist of 27 Local Governments: 9 Municipalities and 18 Regencies

Population ±45 million inhabitants

The adjacent province to Jakarta

The strategic position of West Java Province.
Solid Waste Management in Brief

- Based on National law No. 18/2008 concerning Solid Waste Management, the responsibility of SWM in Indonesia is undertaken by local government (municipality or regency).

- Fast growing population caused by urbanisation, industries, in line with city growing $\rightarrow$ complexity of SWM.

- Some problem of SWM in the Municipalities and Regencies are:
  - Limited budget for SWM
  - Technology still open dumping or landfilling
  - Lack of proper technology
  - Lack of private participation
  - Limited land availability especially for metropolitan area

- Possible cooperation among local governments, provincial government and private sector in solid waste management.
Regionalization of Landfill as Part of Solution

THE BENEFITS

• Improving availability of budgeting by cooperation among local(s), provincial and central government.
• Improving of SWM technology (thermal and/or non thermal)
• Improving of public and private partnership
• Implementing of “3R” concept.
LOCAL AND REGIONAL SCOPE OF SWM

LOCAL GOVERNMENT (Municipality / Regency) :
Solid waste management from the source to the final treatment and disposal site

PROVINCIAL GOVERNMENT (Cross boundary Cooperation) :
Regional solid waste management at the final treatment and disposal site
West Java Regional Solid Waste Treatment and Final Disposal Sites

E: The Existing Regional Landfill Site at Sarimukti

P#1: Regional SWTFD Project for BOGOR Metropolitan (EPC & OM)

P#2: Regional SWTFD Project for BANDUNG Metropolitan (EPC & OM)

P#3: Regional SWTFD Project for CIREBON Metropolitan (EPC & OM)

P#4: Regional SWTFD Project for BEKASI KARPUR Metropolitan (EPC & OM)
West Java Regional Solid Waste Treatment and Final Disposal (SWTFD)

Existing:
- The Existing Regional Landfill Site at Sarimukti
  - Capacity: 1,800 ton/day
  - Service Area:
    1. Bandung Municipality
    2. Cimahi City
    3. Bandung Regency
    4. West Bandung Regency
- Remaining Lifetime of landfill: 1 Year
- Lifetime extension plan for 3 years
P#1 SWTFD NAMBO

- LOCATION : NAMBO, Klapanunggal, Bogor Regency
- CAPACITY : 1,500 TPD (2018 – 2023)
- SERVICE AREAS : 1. Bogor Municipality
                   2. Bogor Regency
                   3. Depok Municipality
- STATUS OF PROJECT : CONTRACT SIGNED
                      DED AND FINANCIAL CLOSING
## Municipal Waste Composition

### Bogor Area

<table>
<thead>
<tr>
<th>Classification</th>
<th>Composition</th>
<th>Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organic + Leaves/Garden</td>
<td>51.4</td>
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<tr>
<td></td>
<td>Residues (supposed to be organic)</td>
<td>5.6</td>
</tr>
<tr>
<td><strong>Paper/Plastic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recyclable plastic over 50mm</td>
<td>12.4</td>
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<tr>
<td></td>
<td>Recyclable paper over 50mm</td>
<td>0</td>
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<tr>
<td></td>
<td>Non-recyclable plastic over 50mm</td>
<td>3.7</td>
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<tr>
<td></td>
<td>Non-recyclable paper over 50mm</td>
<td>8.6</td>
</tr>
<tr>
<td></td>
<td>Plastic under 50mm</td>
<td>2.0</td>
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<tr>
<td></td>
<td>Paper under 50mm</td>
<td>1.4</td>
</tr>
<tr>
<td><strong>Hazardous Wastes</strong></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Hazardous Waste</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Metal</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Mineral</td>
<td>1.3</td>
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<td></td>
<td>Textile</td>
<td>3.5</td>
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<tr>
<td></td>
<td>Rubber</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>Disposal/Nappies</td>
<td>8.3</td>
</tr>
<tr>
<td></td>
<td>Composites</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: JICA PPP Preparatory Study at Bogor, 2011
P#1 PROJECT DESIGN

Waste Treatment Concept (Priority Option)

**SORTING**
- Organic
- Recyclable
- Non Recyclable
  - Organic
  - Plastic
  - Paper
  - Hazardous
  - Others

**INTERMEDIATE TREATMENT**
- Mechanical Composting

**PRODUCT/FINAL PROCESS**
- Compost
  - Recyclable Product
  - RDF
  - MBT
  - Residue

**National Forest Company Obligatory**

**Market**

**Cement Industries Surrounding Location**

**SANITARY LANDFILL**

- Non Combustable

**Landfill will not the Primary Treatment**

**1.500 ton/day**

**100 %**

**MIXED WASTE**

**3 %**

**10 %**

**87 %**
1. RDF (main)
2. Compost

PPP Scope:
1) Construction of Sorting and MRF Facility; RDF and Compost Facility;
2) Service Management

Incoming Waste (1.500 ton/day)
- Valuable Material (100 t/d)
- Market

TF for RDF production (870 t/d)
TF for compost production (30 t/d)

Sanitary landfill for residual waste

RDF Product

Compost Product

Alternative-Energy Market (Cement Industry)

National Forest Company

Output:
1. RDF (main)
2. Compost

Total Land Available: 55 Ha

Note:
- Completed
- PPP
P#1: Regional SWTFD Project for BOGOR Area at NAMBO 1.500 ton/day

PPP Scope
1. Investment:
   - Sorting and Material Recovery Facility (MRF)
   - RDF and Compost Production Facility
2. Service management of SWTFD

Government Support
1. Land acquisition
2. Access road
3. Sanitary landfill and Leachate treatment plant
4. Supporting facility and Common building

P#2: Regional SWTFD Project for BANDUNG Area 1.500 ton/day

PPP Scope (2014 PPP List)
1. Investment on:
   Final product equipments/machines
2. Service management
   Treatment and Final Disposal Facilities

Government Support
1. Land acquisition
2. Operational road
3. Sanitary landfill and Leachate treatment plant
4. Supporting facility and Common building
5. Intermediate treatment facility (ITF)
P#2  SWTFD of Bandung Metropolitan

- **LOCATION** : NAGREG, BANDUNG REGENCY
- **CAPACITY** : 1,800 TPD (2019–2024)
  
  2,200 TPD (2025–2030)

- **SERVICE AREAS** : 1. Bandung Municipality
  2. Bandung Regency
  3. West Bandung Regency
  4. Cimahi Municipality
  5. Sumedang Regency
  6. Garut Regency

- **TECHNOLOGY** : WTE AND LANDFILL
- **PROJECT STATUS** : READY TO OFFER

  TECHNICAL ASSISTANT BY LKPP
<table>
<thead>
<tr>
<th>Classification</th>
<th>Composition</th>
<th>Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic</td>
<td>Organic + Leaves / Garden</td>
<td>47.2</td>
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<td>Residus (supposed to be organic)</td>
<td>9.7</td>
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<tr>
<td>Plastic</td>
<td>Recyclable plastic</td>
<td>12.1</td>
</tr>
<tr>
<td></td>
<td>Non recyclable plastic</td>
<td>5.9</td>
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<tr>
<td>Paper</td>
<td>Paper</td>
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<td>Hazardous Waste</td>
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<td>0.5</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>100</td>
</tr>
</tbody>
</table>
Electricity

Solid Waste Treatment and Final Disposal for Bandung Area at LEGOK NANGKA, Cap: 1.800 Tons/day
PPP Scope: 1) Waste to Energy Facilities; 2) Service Management

Output: Electricity

Incoming Waste (1.800 ton/day) → Market → Valuable waste

Waste to Energy Treatment facility

Electricity

National Electricity Enterprise

Residual waste to Sanitary Landfill

Waste to Energy Facilities

Interim Intermediate Treatment Facilities area

SANITARY LANDFILL AREA
ACCESS-ROAD AND BASIC INFRASTRUCTURES (COMPLETED)
OFFICE AND SUPPORTING AREA
LEACHEATE TREATMENT PLANT

Completed
Scheduled
PPP
<table>
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<tr>
<th>COMPONENT</th>
<th>ITEM</th>
<th>INVESTMENT COST</th>
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</thead>
<tbody>
<tr>
<td>Land Acquisition and Basic Infrastructure</td>
<td>1. Land 74.6 Ha (2011)</td>
<td>US $ 20 Million</td>
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<tr>
<td></td>
<td>2. Access Road (2013)</td>
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<td>3. Operation Road (2015)</td>
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<td>5. Leachate Treatment (2015)</td>
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<tr>
<td>Waste to Energy Thermal Facilities</td>
<td>Sorting Facilities/ Material Recovery Facilities (MRF)</td>
<td>US $ 200 Million</td>
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<td>Waste to Energy Plant Pre and Post Treatment</td>
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</table>

Government Support (Central and Provincial Budget)

Total US $220 Million
PROJECT SCHEDULE (tentative)

2016
Finalization of Final Business Case and Bidding Document

S2 2017
Pre Qualification Process

S1 2018
Bidding Process

S2 2018
Financial Close and Contract

S2 2018- S1 2019
Construction
Project Description:
1. Investment cost: ± US$ 200 Million
2. Concession period: 25 years
3. PPP modality: Build Operate Transfer (BOT)
4. Expected revenue: Tipping fee (under calculation), recyclable and PPA with PLN
5. IRR: ±15%
6. Project guaranteed by Provincial Regulation
LEGOK NANGKA DEVELOPMENT PROGRESS

P#2

Access and Operation Road completed

Weight Bridge

74.6 Ha

Gate

#2 Project Location: -7.019461, 107.911907
P#3  SWTFD CIREBON METROPOLITAN

- LOCATION : CIWARINGIN, CIREBON REGENCY
- CAPACITY : 1,000 TPD
- SERVICE AREA S : 1. CIREBON MUNICIPALITY  
  2. CIREBON REGENCY  
  3. INDRAMAYU REGENCY
- STATUS OF PROJECT : POTENSIAL
- TECHNOLOGY : WTE & LANDFILL
- PROJECT SCHEDULE : Land acquisition (2017), EIA Study(2018)
P#4 SWTFD of BEKASI KARPUR METROPOLITAN

- LOCATION : STILL IDENTIFIED, KARAWANG REGENCY
- CAPACITY : 1,800 TPD (2017–2022)
  2,000 TPD (2022–2032)
- SERVICE AREAS : 1. BEKASI MUNICIPALITY
  2. BEKASI REGENCY
  3. KARAWANG REGENCY
  4. PURWAKARTA REGENCY
- STATUS OF PROJECT : POTENTIAL
- TECHNOLOGY : WTE & LANDFILL
- PROJECT SCHEDULE: Land acquisition, EIA Study(2018)
**BENEFIT OF INVESTMENT**

① The higher population grow, the higher waste produced, in turn the higher potential income

② Potential income sources: tipping fee and selling electricity

③ Concession period for 20 - 30 years

④ Potential project replication for more than 400 municipalities/regencies in Indonesia

⑤ Government support and government guarantee
THANK YOU FOR YOUR KIND ATTENTION

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Environmental Protection Agency
West Java Provincial Government
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