Overview of DOWA Holdings Co., Ltd.

Founded: 1884
Common Stock: JPY 36.4 billion
Net Sales (FY2010): JPY 379.8 billion
Employees: about 5,000 (April 2011)

Business companies:

- Environmental Management & Recycling
- Smelting Nonferrous Metals
- Electronic Materials
- Metal Processing
- Heat Treatment

Dowa Eco-System

Dowa Metals & Mining
Dowa Electronics Materials
Dowa Metaltech
Dowa Thermotech
Business activities of DOWA ECO-SYSTEM

1. Waste Treatment
   Collection of mainly industrial waste and some municipal waste, and treatment of this waste.

2. Soil & Groundwater Remediation
   Investigation and remediation of soil & groundwater contaminated by heavy metals (lead, arsenic, etc.), oils and Volatile Organic Compounds (VOCs).

3. Metal Recycling
   Recycle of precious metals from waste and scraps, such as computer substances, used mobile phones and home appliances.

4. Logistics
   Transportation of waste and recyclable materials mentioned above.
Environmental Business in Asia

- Waste Management
- Metal Recycling
- Soil Remediation

Metal Recycling

Soil Remediation

Waste Management

Metal Recycling

Soil Remediation

CDM

Waste Management

Metal Recycling

Soil Remediation
Experimental Trial of Collecting Small Domestic Appliances
Waste management & Recycling Business in China (1)

DOWA Environmental Management Co., Ltd.

Business fields:
- Precious Metal Recycling by wet process and dry process,
- Recycling of home appliances

Metal scrap
Home appliances
Circuit Boards etc

Dismantling
Hydrometallurgical
Incineration

Resource
Gold
Silver
Copper
Aluminum
Iron
Plastic
Etc
## Waste management & Recycling Business in China (2)

### Home appliances recycling business base

<table>
<thead>
<tr>
<th>establish</th>
<th>location</th>
<th>capacity</th>
<th>partner</th>
<th>ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>Suzhou</td>
<td>1,000,000 unit/yr</td>
<td>Dowa Eco-System Co., Ltd. SND (Suzhou Nation New &amp; Hi-Tech Zone Economic Development Group Corporation)</td>
<td>90% 10%</td>
</tr>
<tr>
<td>2010</td>
<td>Tianjin</td>
<td>400,000 unit/yr</td>
<td>Dowa Eco-System Co., Ltd. Green Angel Collection and Reuse of Recyclable Resources Sumitomo Corporation</td>
<td>50% 30% 20%</td>
</tr>
<tr>
<td>2010</td>
<td>Jiangxi</td>
<td>200,000 unit/yr</td>
<td>Dowa Eco-System Co., Ltd. Yujiang County Resource Management Co., Ltd.</td>
<td>90% 10%</td>
</tr>
<tr>
<td>2011</td>
<td>Hangzhou</td>
<td>1,000,000 unit/yr</td>
<td>Hangzhou DADI Environmental Protection Engineering Co., Ltd. Panasonic Corporation of China Dowa Eco-System Co., Ltd. Sumitomo Corporation</td>
<td>35% 35% 18% 12%</td>
</tr>
</tbody>
</table>
Waste Management & Recycling Business in Southeast Asia

Modern Asia Environmental Holdings, Inc.

Business fields:
Waste management; Collection, Transportation, Incineration, Landfill, Recycling etc.

Business area
Thailand, Indonesia and Singapore.

Thailand:
- ESBEC (Landfill)
- BPEC (Incineration)

Indonesia:
PPLi (Landfill)

Singapore:
TEC (Incineration)
The area of a soccer stadium (105m × 68m)

Controlled Landfill

Waste treatment Recycling
Panoramic view of BPEC (Thailand)
Panoramic view of ESBEC (Thailand)
Overview of TEC (Singapore)
inter Asian recycling system(1)

WEEE is complex waste.
Many parts contain many elements, which must be treated.

(precious metal) gold, silver
(base metal) iron, copper, aluminum, nickel, tin, zinc
(rare earth etc.) gallium, indium, tantalum, neodymium
(hazardous element) lead, cadmium, arsenic, chromium
(halogen) bromine, chlorine
(others) plastic, silicon
Inter Asian recycling system(2)

Recycling needs sophisticated technology

Way to concentrate metal for recycling
- hydrometallogilcal process
- Incineration

Efficiency (Effective use of resource)
- Recover rate
- Recover elements

Environmental care
- Waste water
- Waste gases
- Waste materials after extracted metals

Recovery rate
Recovered elements

EnvironmentalContamination

If not
cyanide acids arsenic
Recycling system and suitable treatment system in each country.

Establishment of inter Asian recycling system
We will contribute to formation of an environmentally sustainable society thorough recycling natural resources.

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