JFE’s Technologies for MSW Treatment

JFE Engineering Corporation

February, 2014
JFE Group

Data in FY2012

JFE Engineering
Net Sales (million $)
2,900
Employees
7,400

JFE Steel
Net Sales (million $)
26,600
Employees
43,700

JFE Shoji Trade
Net Sales (million $)
8,400
Employees
6,000

Since 1912
Since 1951
Established in 2003

JFE Holdings

Japan Marine United
Net Sales (million $)
3,600
Employees
6,000

45.93 %

100 %

NKK
JFE Engineering Corporation

Net Sales (million USD) 2,900

- Industrial Machinery: 10%
- Steel Structure: 16%
- Energy: 26%
- Environment: 48%
Waste Management History in Japan

**START WASTE MANAGEMENT**
- +1900 WASTE CLEANSING LAW
  - Local Government Responsibility
  - Controlled Incineration as Priority
- +1903 Mechanical Incinerator Start

- +1880s~ PANDEMIC (CHOLERA, PEST, etc.)
- + OPEN BURNING
- + UNSANITARY ENVIRONMENT

Rapid Economy Growth brought
More Waste Generation
Higher Waste Calorific Value
Improper Treatment

**MODERN WASTE MANAGEMENT**
- +1970 WASTE MANAGEMENT and Public Cleansing Law
- + Waste-to-Energy Plant Start
- +1990 Dioxin Guideline
- +1999 Dioxin Law

Recycle
- +1991 Promotion Law
- +1995 Container/Packaging
- +1998 Home Appliance
- +2000 Recycle Basic Law
- +2000 Construction/Food/Car

Thermal Recycling
Emission Control

To Sustainable Society

Protect Human Health from UNSANITARY ENVIRONMENT

Year

Proportion of Thermal Treatment

- Recycle: 40%
- Landfill: 38%
- Thermal Treatment: 22%

257 million ton/y - MSW

- Recycle: 19%
- Landfill: 2%
- Thermal Treatment: 79%

Source: MOEJ (2010)
34 million ton/year of MSW
1,221 Thermal Treatment plants

- Recycle: 34%
- Landfill: 54%
- Thermal Treatment: 12%

Source: USEPA (2010)
250 million ton/y - MSW

Copyright 2012 © JFE Engineering Corporation All Rights Reserved
History of WtE Technology

1970
- Modern Mechanical Incinerator
- Waste-to-Energy started

1980

1990
- Dioxins issue emerged
- Guideline to facilitate Melting Furnace

2000
- Dioxin Laws & Regulations (98% Reduction achieved from '97 to '03)

2010
- Gasifying and Direct Melting Furnace
Compatible with Community

Meguro plant (Tokyo)

Completion: 1991
Capacity: 600ton/day (300t/d x 2lines)
Power Output: 11MW

Copyright 2012 © JFE Engineering Corporation All Rights Reserved
Benefit from WTE

- Power Generation
- Heat Utilization
- Material Recovery
- Go to Landfill
- Greenhouse Effect
- Odor

1/30
1/21 (in volume)

CH₄

WTE Plant

Slag
Metal

Co₂
JFE’s surveys for waste treatment in Da Nang City

Waste-to-Energy Plant as the best solution for Da Nang City

**TARGET**
- Landfill site Life Extension
- Environmental Manipulation
- Power Generation

**PPP-Feasibility Study**
Supported by JICA and Kawasaki City

**SITE**
Da Nang City

**TARGET Programs for JCM**
(Joint Crediting Mechanism)
Support to realize Low Carbon Development in Asian Cities

Da Nang City
Ministry of Environment, Japan
Combination of MRF and Incinerator

JFE’s Best Solution for ASEAN Cities based on “4R Policy”

Reduce, Reuse +

MSW

1,000ton/day
1,600 kcal

Bag Breaker

Separator:Trommel

Magnetic separator

Oversize (50%)

Undersize (50%)

Thermal Recycle

WtE

Power Generation
10 MW

Thermal Recycle

Compost

500ton/day
2,200 kcal

500ton/day
Degradable

Reduce, Reuse

Recycle

Recycle

Recycle