Waste Data Management in Japan: “Local/Municipality Level Data Utilization”

….. The case of 23 Cities of Tokyo

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International Cooperation Dept. for Waste Management
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1 Overview of the 23 Cities of Tokyo

2 Importance of understanding the volume of waste treated in waste management

3 Data management of the volume of waste treated

4 Forecasting waste treatment volume and creating a facility reconstruction plan

5 Appropriate operation and maintenance at incineration facilities

6 Thorough maintenance management and active data/information disclosure
1 Overview of the **23 Cities of Tokyo**

- the 23 municipalities in the eastern region of Tokyo Metropolitan Area. It is the central area of Tokyo, in which the core functions of Japan’s politics, national administration, and economy are located.
- population of approximately 9.56 million, across the area of 627㎢.
- where Clean Authority of TOKYO (hereinafter, CAT23), a special purpose municipal body that handles intermediate treatment (incineration, pulverization, etc.) of waste for the 23 Cities of Tokyo.
1 Overview of the 23 Cities of Tokyo

Population Trend

Unit: 1K

Approx. 9.56M
1 Overview of the **23 Cities of Tokyo**

Waste and resource flow diagrams for the 23 Cities of Tokyo: From SDGs※ standpoint

**Appropriate disposal (residents, vendors)**
Firstly, implement the 3Rs:
- Zero marine waste
- Quick and reliable collection
- Promoting the 3Rs

**Collection (23 Cities of Tokyo)**
- Combustible waste
- Incombustible waste
- Large-sized waste

**Intermediate Processing (CAT2S)**
- Incineration Plant
- Incombustible Waste Pyrolysis Processing Facility

**Final disposal (Tokyo Metropolitan Government)**
- Disposal Site

- Safe and hygienic disposals
- Effective usage of thermal energy
- Enforced resource collection
- Minimizing environmental impact
- Full prevention of marine pollution

- Accountability and transparency of local government on waste management

※ International targets between 2016 and 2030 under “Agenda 2030 for Sustainable Development” adopted at the UN Summit in September 2015
2 Importance of understanding the volume of waste treated in waste management

Waste Volume Trend

Waste volume: 10K tons

- Household Waste
- Business-originated Waste

Clean Authority of TOKYO
Data management of the volume of waste treated

Waste carried into incineration plants by waste collection vehicles are weighed using truck scale, by which data is compiled.

By over 4,000 waste collection vehicles.

At more than 20 incineration plants and other treatment facilities.
# Forecasting waste treatment volume and creating a facility reconstruction plan ①

## Waste Treatment Volume Forecast
- Actual survey of waste generation sources and population forecast
- Forecast based on waste volume forecast and control of waste generation

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### Total volume treated (① + ②)

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Note: Due to rounding up, the numbers may not precisely add up
### Forecasting waste treatment volume and creating a facility reconstruction plan

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#### 5 Cleaning sludge treatment volume

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#### 6 Clean Authority of TOKYO

**図-6-1 清掃工場の整備スケジュール**

- **2015年度**
  - 新江東: 300t×1炉
  - 墨田: 600t×1炉
- **2016年度**
  - 新江東: 300t×2炉
  - 墨田: 600t×1炉
- **2017年度**
  - 新江東: 300t×2炉
  - 墨田: 600t×1炉
- **2018年度**
  - 新江東: 300t×2炉
  - 墨田: 600t×1炉
- **2019年度**
  - 新江東: 300t×2炉
  - 墨田: 600t×1炉

**備考**

- **図-6-1 清掃工場の整備スケジュール**
  - 別に、焼却システムの規模に関する詳細情報は、後記に掲載する予定です。
5 Appropriate operation and maintenance at incineration facilities

Appropriate operation and maintenance work is implemented, so that each facility/equipment can perform its functions.

- Perform a comprehensive overhaul once a year
- Continuous feeding of fixed quantity of uniformly mixed waste
- Analyze waste property 4 times a year
- Combustion gas temperature must be measured continuously
- Maintain at above 800°C
- Furnace temperature should be raised quickly using a combustion support device at start of operation such as after shut down
- Waste should be completely incinerated using a combustion support device when terminating operation for shut down
- Measure flue gas emission (soot and dust, SOx, hydrogen chloride)
- Prevent scattering of cooling and cleaning water for gas
- Separate and remove soot and dust from the exhaust gas
- Measure flue gas emission (NOx)
- Measure dioxins once a year
- Ignition loss of ash to 10% or less
- Continuously measure CO concentration and maintain this at no higher than 100 ppm (12% oxygen calculation)
### Long-term stable operation

- At bidding stage, evaluate for cost reduction technology throughout the plant lifecycle
- All furnaces are overhauled, once a year
- Key equipment focused works are applied after 15 years into operation

**Have realized operation period of 25-30 years.**
**We are also implementing works to prolong operations up to 40 years.**

### Thorough maintenance and pollution control

- Stable operation is realized in light of maintenance management plan based on self-regulated values in alignment with the law
- Setup self-regulating values stricter than the regulatory values of Japan and Tokyo, and enforce prevention of pollution
- In order to maintain the environment of residents around the incineration plant, the number of waste collection vehicles bringing in waste and its route is being well controlled.

### Active information disclosure

#### Environment Measurement Results

- Measurements of waste gas, waste water, main properties of ash and soot, atmospheric environment around the incineration plant, and dioxin concentrations (exhaust gas, bottom ash, fly ash, wastewater, etc.) are all publicized on the website

#### Continuous Measurements Results

- Publicize incineration room gas temperature, dust collector entry gas temperature, and CO concentration in exhaust gas through the website

#### Environment Report

- All incineration plants issue this report once a year. It covers the management policy, treatment process, various data, and plant tour participants data are publicized on the website

#### Operations Council

- Held regularly at the incineration plant. Operation status including breakdowns and incidents are reported.

#### Incineration Plant Newsletter

- All incineration plants issue a newsletter and it is publicized on the website

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[Image: Incineration plants display gas status on a display in real time (Setagaya Incineration Plant)]

[Image: Environment Report 2016 (Ota Incineration Plant)]
Thank you very much for your attention!