



# ORIENTATION

ANMC21 STUDY COURSE  
ON 3Rs AND WASTE MANAGEMENT

3 ~ 7 FEBRUARY, 2014 IN TOKYO

# **CONTENTS - ORIENTATION**

- **INTRODUCTION OF PARTICIPANTS**
- **SCHEDULE OF THE 5-DAY PROGRAM**
- **QUICK VIEW OF THE PROGRAM**



# INTRODUCTION OF PARTICIPANTS

# We are Asian Family!

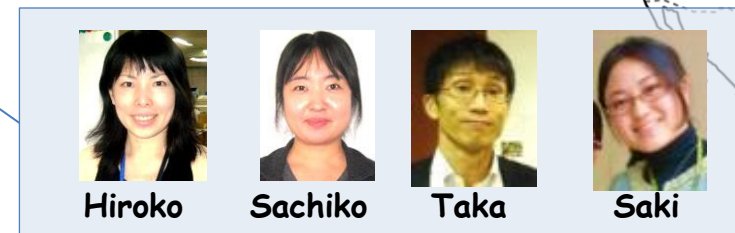
## Bangkok



## Ulaanbaatar



## Delhi



## Tokyo

## Singapore



## Manila



# **SCHEDULE OF THE 5-DAY PROGRAM**



# Interests from participants

- 3R policy in Japan
- Legislations and laws related to disposal and recycling in Japan
- Policies and measures in Tokyo and participating cities
- Necessity of source separation
- Public awareness raising activity
- How to communicate with residents
- Source separation
- Separate collection
- Collection know-how and technology
- Importance of design of waste flow from household to final disposal
- Public recycling activity
- PET
- Glass bottle
- Aluminum can
- Paper
- Private recycling activity
- Food
- E-waste
- Construction & Demolition
- Incineration plant
- Incineration technology
- Pollution control of syngas
- Final disposal site

# Curriculum

## Policy and Planning

- 3R policy in Japan
- Legislations and laws related to disposal and recycling in Japan
- Policies and measures in Tokyo and participating cities

## Public participation

- Necessity of source separation
- Public awareness raising activity
- How to communicate with residents
- Source separation
- Separate collection
- Collection know-how and technology
- Importance of design of waste flow from household to final disposal

## Technology

- Public recycling activity
  - PET
  - Glass bottle
  - Aluminum can
  - Paper
- Private recycling activity
  - Food
  - E-waste
  - Construction & Demolition
- Incineration plant
  - Incineration technology
  - Pollution control of syngas
- Final disposal site

# Schedule (Feb 3 ~ 7, 2014)

Date	Feb. 3	Feb. 4	Feb. 5	Feb. 6	Feb. 7
AM	<ul style="list-style-type: none"> <li>Opening ceremony</li> <li>Orientation</li> </ul>	<ul style="list-style-type: none"> <li>- Source separation</li> <li>- Separated collection</li> </ul>	<ul style="list-style-type: none"> <li>Law and legislation related to hazardous waste (E-waste)</li> </ul>	<ul style="list-style-type: none"> <li>Final disposal site</li> </ul>	<ul style="list-style-type: none"> <li>Panel discussion on policy and planning</li> </ul>
PM	<ul style="list-style-type: none"> <li>- Source separation</li> <li>- Public awareness</li> </ul>	<ul style="list-style-type: none"> <li>- Incineration</li> <li>- Recycling facility for PET, glass bottle, can and paper</li> </ul>	<ul style="list-style-type: none"> <li>E-waste recycling facilities</li> </ul>	<ul style="list-style-type: none"> <li>- Food waste recycling</li> <li>- Construction and demolition recycling</li> </ul>	<ul style="list-style-type: none"> <li>Closing</li> </ul>
	MSW		E-waste	Technology	





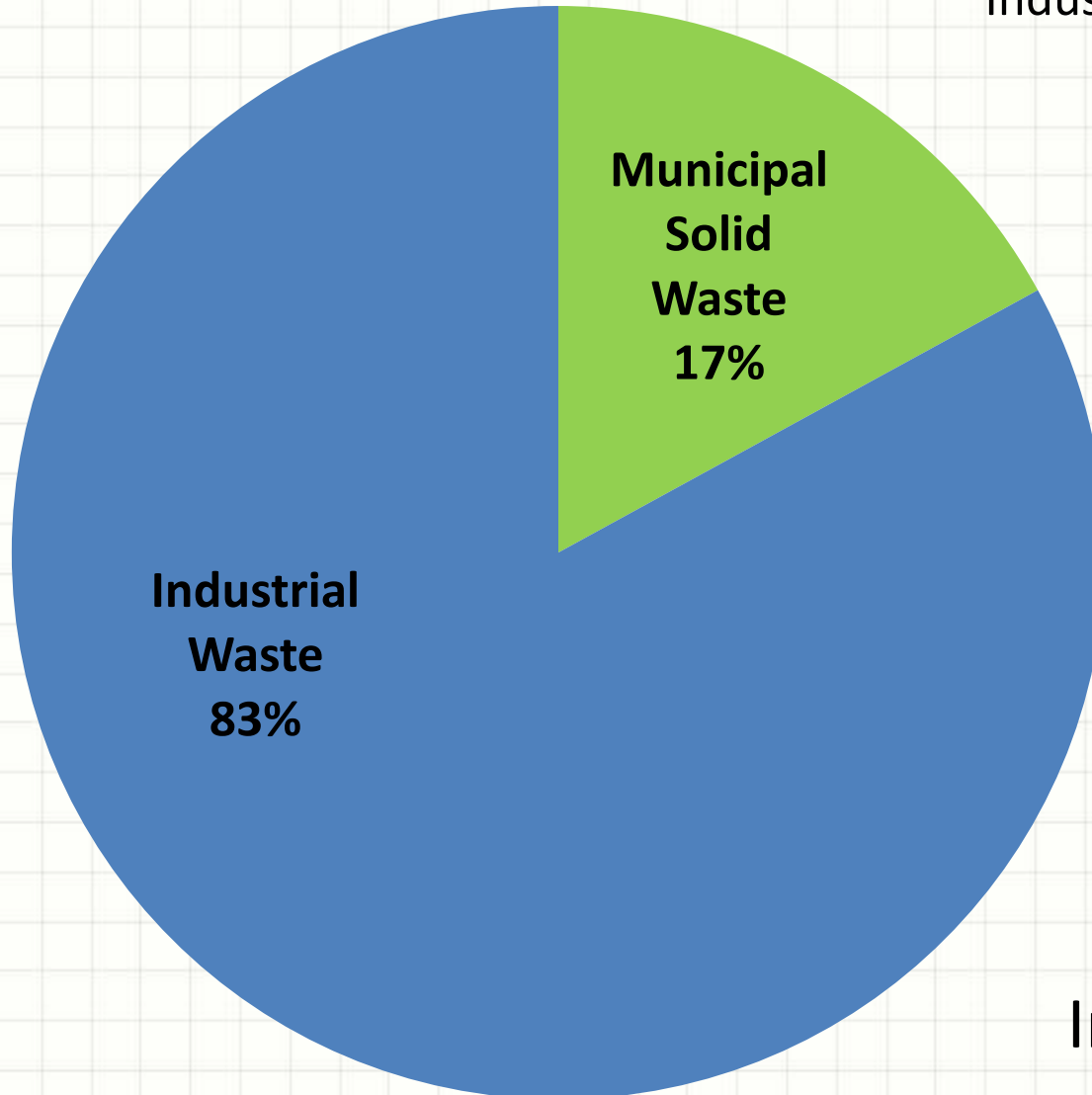
# QUICK VIEW OF THE PROGRAM

# Waste Generation in Tokyo

76,500t/day

M S W : 13,000t/d

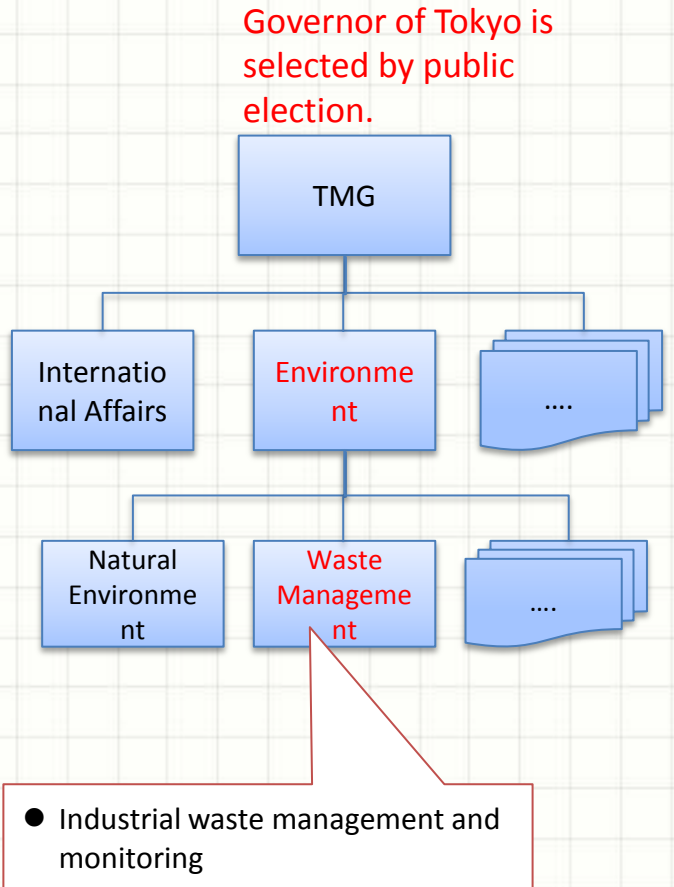
Industrial : 63,500t/d



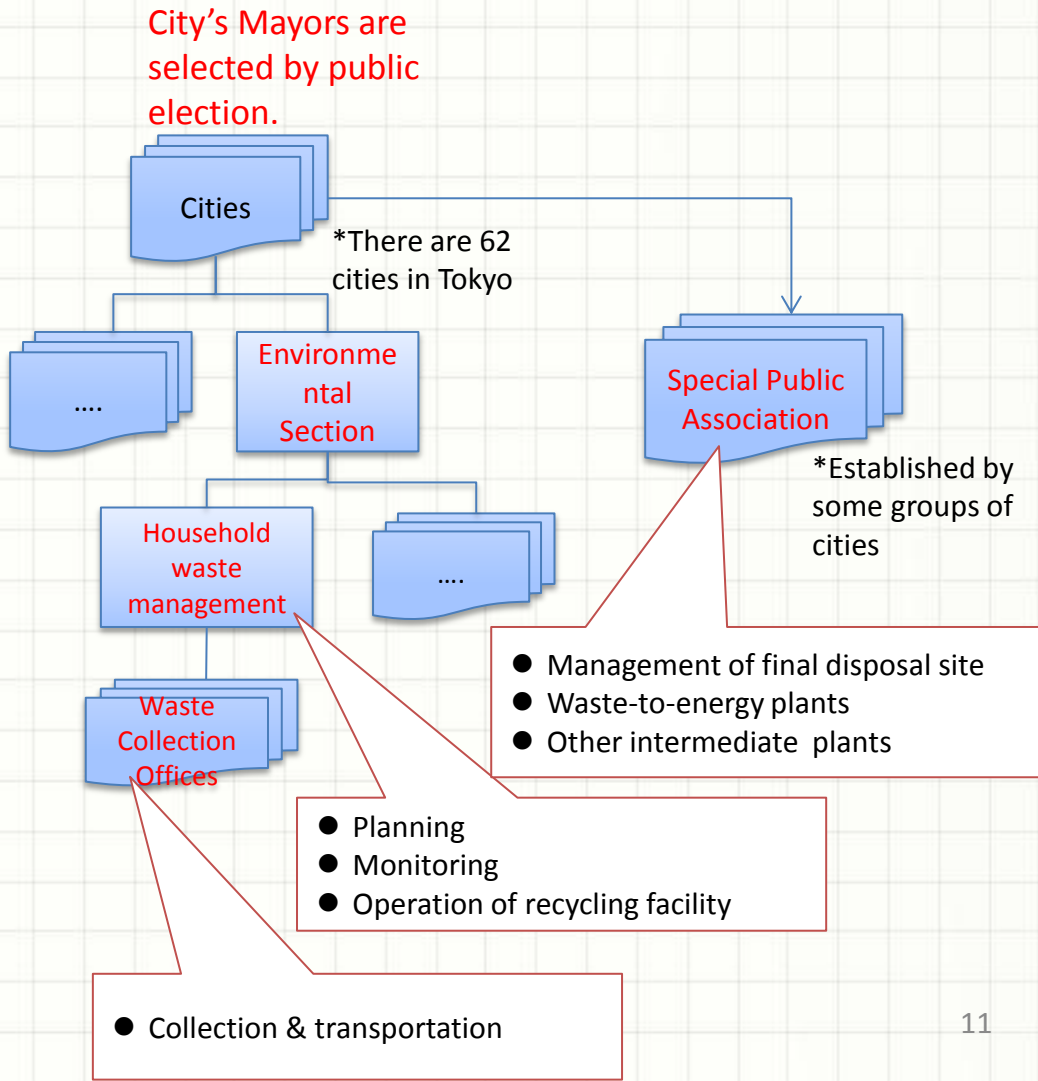
In 2009

# Organization & Role in Tokyo

TMG(regional gov.) is responsible for industrial waste management.

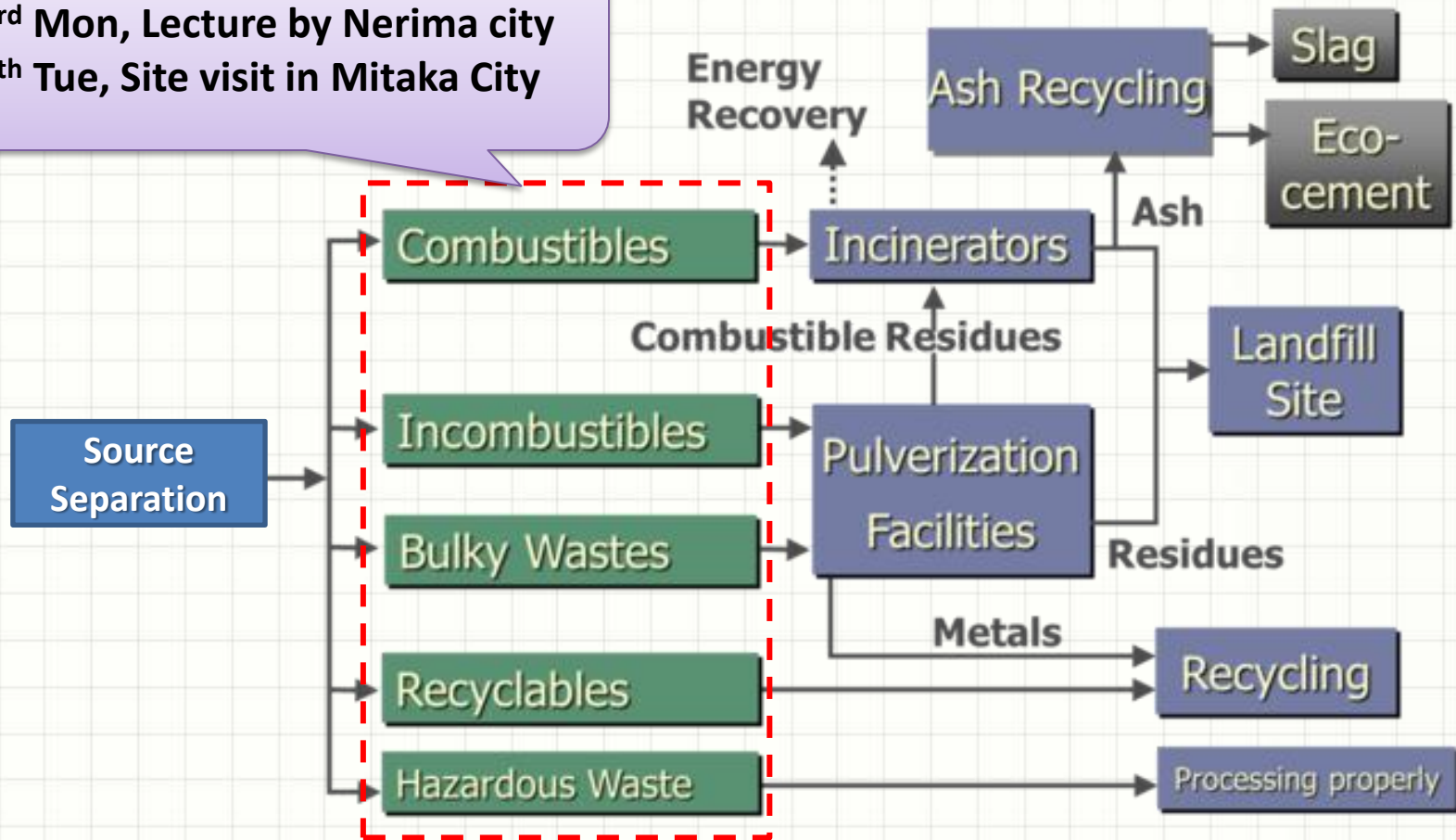


62 cities in Tokyo (local gov.) are responsible for household waste management.



# Flow of household waste in each city in Tokyo

On 3<sup>rd</sup> Mon, Lecture by Nerima city  
On 4<sup>th</sup> Tue, Site visit in Mitaka City



Each household is encouraged to separate garbage according to each city's rule including recyclable items. Each City is responsible for collection and transportation of all kinds of waste.

# Collection & transportation in Tokyo

The waste collection offices which are belonged to each city in Tokyo collect garbage separately in each type by trucks from collection station on designated date and time and transport each type of waste to intermediate treatment plants such as incineration plants or pulverizing facilities.

In part of collection, city makes contracts with private company to hire collection trucks and drivers.

On 4<sup>th</sup> Tue, Site visit in Mitaka City

< Examples >

Compactor truck  
for combustible waste



Incineration  
plant(public)

Truck for glass bottles and cans  
with designated collection box



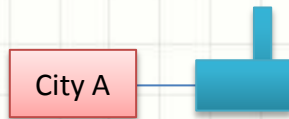
Recycling  
plant  
(private)

# Waste treatment(e.g. WtE plants) in Tokyo

City alone or group of cities are operating and managing WtE plants in Tokyo. The groups are established and funded by several cities jointly.

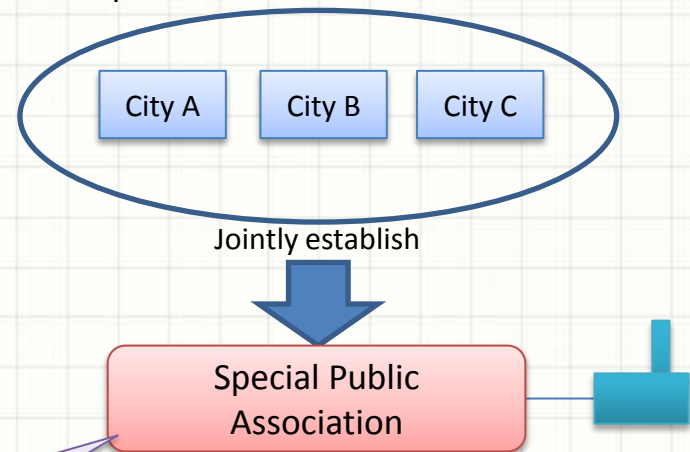
## Type 1

City alone owns and operates WtE plant.



## Type 2

Several cities jointly establish a special public association to own and operate WtE plants.



**On 4<sup>th</sup> Tue, Site visit at the Fujimi Public Association**



# Final disposal site(FDS) in Tokyo

For central area of Tokyo, a FDS is located in bay-side. For suburban area of Tokyo, another FDS is located in mountain area.

Location of two FDS in Tokyo



1. Central Breakwater FDS  
Area: 518ha  
Amount of waste dumped: 941 ton/day
2. Futatsuzuka FDS  
Area: 18.4ha  
Amount of waste dumped: 16 ton/day

## 1 Central Breakwater FDS

The special public association, which consists of 23 cities and is an operator of waste treatment plants in central area, entrusts the disposal of residue from waste treatment plants to TMG because TMG historically has built and operated FDS in Port of Tokyo where TMG has exclusive jurisdiction.



Special Public Association

entrust

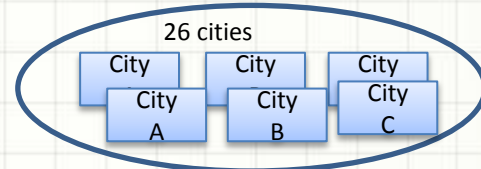


## 2 Futatsuzuka FDS

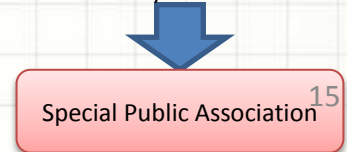
The 26 cities in suburban area established an association to jointly own and operate the Futatsuzuka FDS.



In this FDS, ash recycling facility (cement plant) is owned by the association and operated by SPC.



Jointly establish

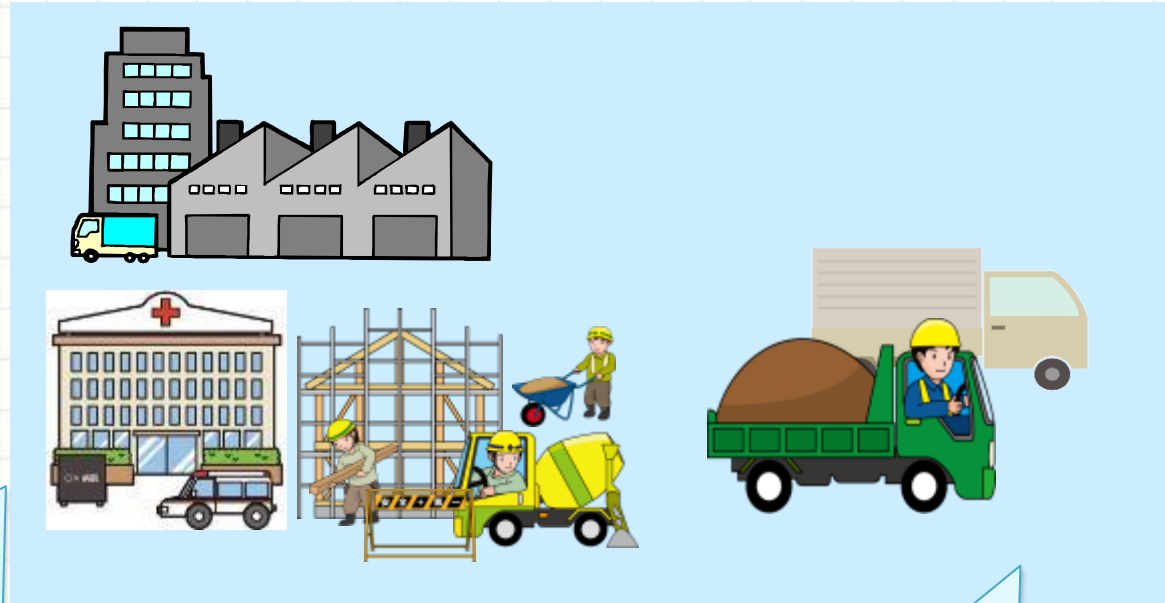
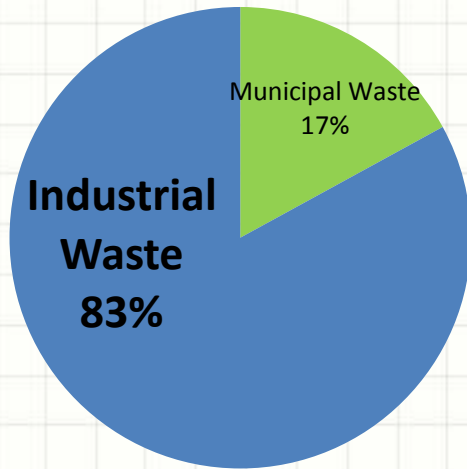


**On 6<sup>th</sup> Thu, Site visit**

# Industrial Waste in Tokyo

63,500T/D

Waste Generation in Tokyo



Generator has responsibility  
for proper disposal

Disposed by private company which licensed  
by Municipal Government

# Tokyo Super Eco Town

Construction and Demolition Waste

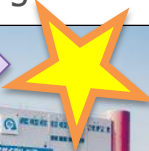
Construction and Demolition Waste Recycling Plant



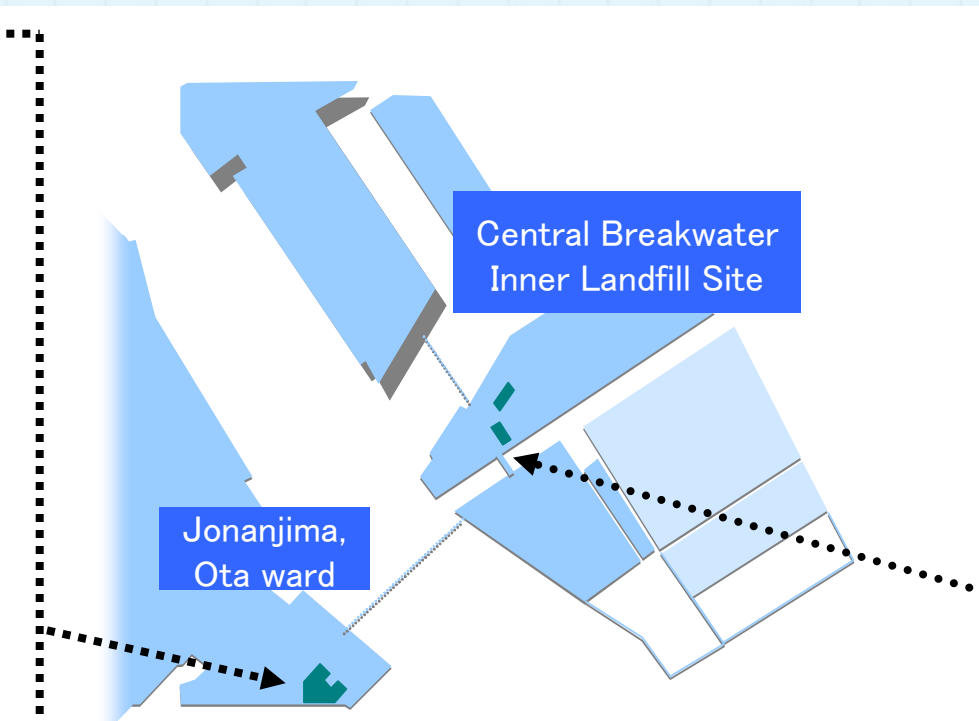
Construction and Demolition Waste Recycling Plant



6<sup>th</sup> Feb.



Construction and Demolition Waste Recycling Plant



PCB Waste Treatment



Waste Fuel Electric Power Generation Plant



Waste to Energy

E-Waste

Food Waste

E-Waste Recycling Plant



E-Waste Recycling Plant



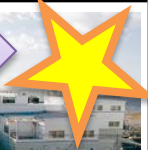
Animal Feed from Food Waste



Biogas Power Generation from Food Waste

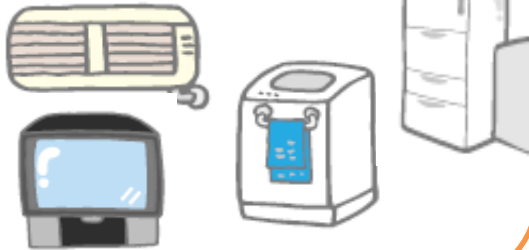


6<sup>th</sup> Feb.



# E-waste Recycling

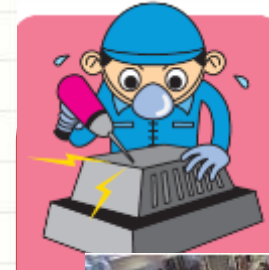
Consumer



Retailer



Producer



On 5<sup>th</sup> Wed, Site visit at Tokyo Eco Recycling Co., Ltd.



# Open Discussion on 7<sup>th</sup> Friday



## MAIN TOPIC : INSTALLATION OF DISPOSAL AND RECYCLING FACILITIES IN ASIAN CITIES

- KEYNOTE BY PROF. WATANABE, TEIKYO UNIVERCITY
- TOPIC1 PPP (SINGAPORE, DELHI, TOKYO)
- TOPIC2 PUBLIC CONSENSUS AND COOPERATION (BANGKOK, MANILA)
- TOPIC3 NEW PLAN (ULAANBAATAR)

# Program on map

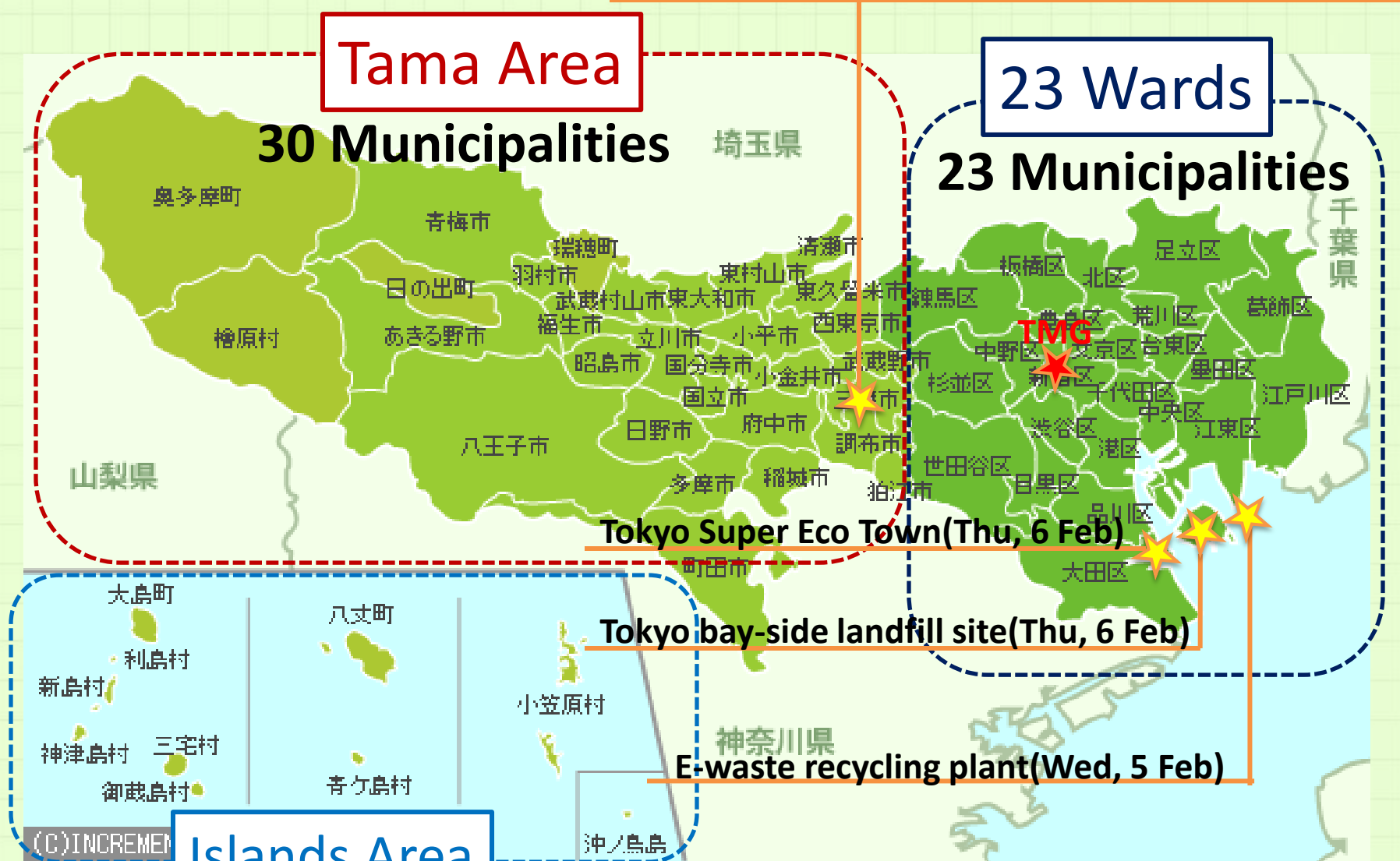
Mitaka city & Fujimi Incineration Plant(Tue, 4 Feb)

Tama Area

30 Municipalities

23 Wards

23 Municipalities



Tokyo Super Eco Town(Thu, 6 Feb)

Tokyo bay-side landfill site(Thu, 6 Feb)

E-waste recycling plant(Wed, 5 Feb)

Islands Area

9 Municipalities with 11 islands