



CLEAN AUTHORITY OF TOKYO

Waste Report 2023

Towards a recycling-oriented society

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Flow of waste and resources in the 23 Cities


※ Garbage collection, transportation, and resource recovery are performed each city, and intermediate processing such as incineration and crushing is performed by The Clean Authority of TOKYO. Final disposal is outsourced to the Tokyo Metropolitan Government, where the landfill site is established and managed.

※ The figure below indicates an approximate flow of waste management. Some steps are not indicated. (As of December 2022)


Reduce Reuse Recycle

First... Exercise 3R!


At home



In stores and companies



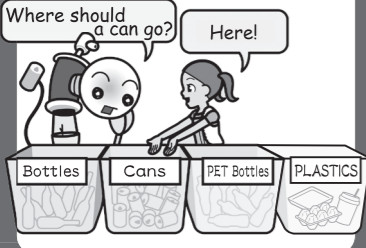
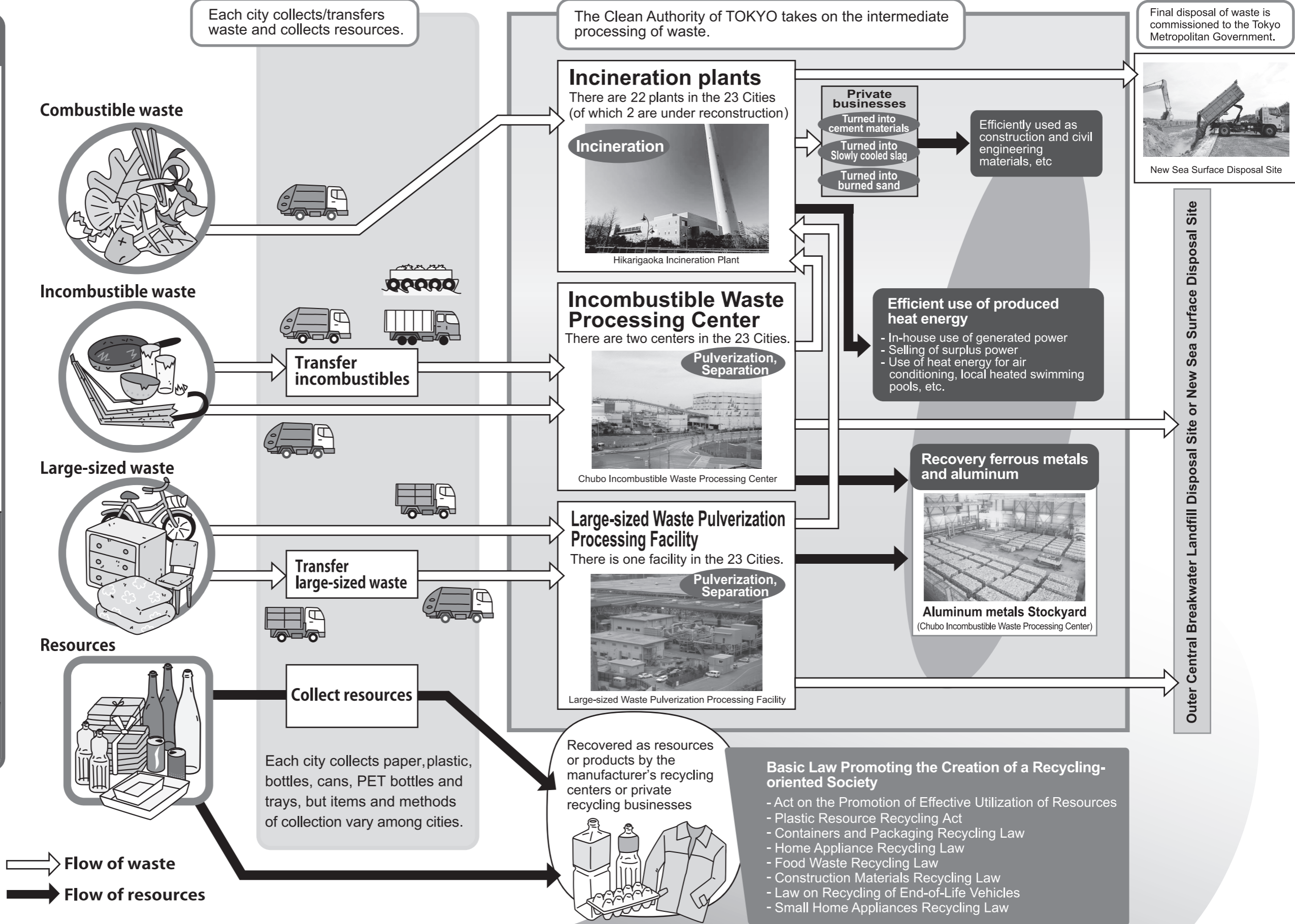
In the city as well



Anything that remains as waste...

Should be adequately classified in accordance with the rules, and taken out for waste/resource collection.

Where should a can go? Here!

Would-be waste can be transformed into resources, energy, and other useful products/items and returns to us...

I Overview of the Clean Authority of TOKYO

1. Background and purpose of establishment

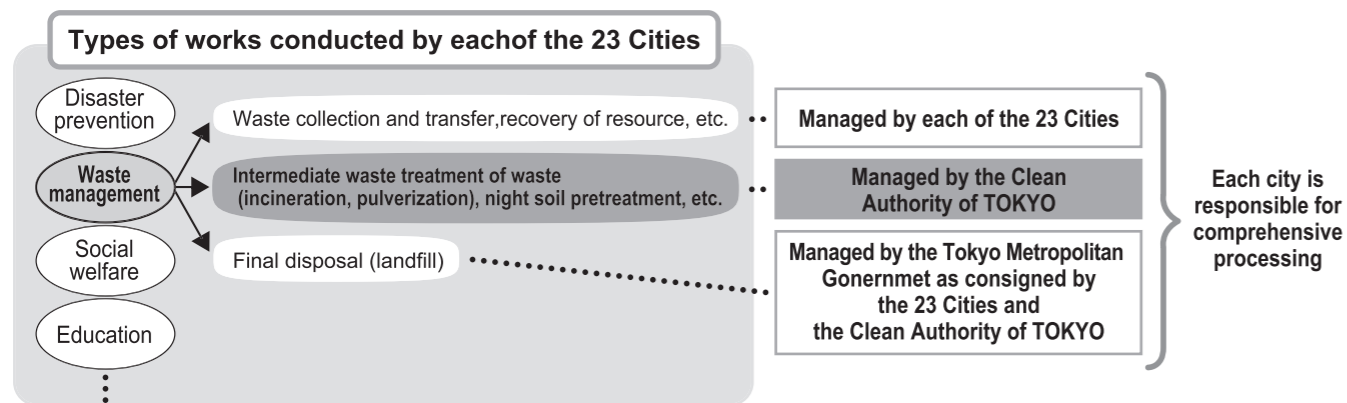
The waste management consists of the process of collecting and transporting waste, intermediate treatment (incineration, crushing, etc.) and final disposal (landfill), and is regarded as the basic administrative work of municipalities, etc. However, in the 23 Cities, the Tokyo Metropolitan Government was in charge of it.

Over the years, the 23 Cities and the Tokyo Metropolitan Government have repeatedly discussed each other's ideals and systems from the perspective of strengthening the autonomy of the 23 Cities and the metropolitan administration of the Tokyo Metropolitan Government from a broader perspective. As a result, the momentum to review the special zone system was fostered, and with the revision of the Local Autonomy Law in 1998, the 23 Cities were positioned as "basic local governments", strengthening their financial autonomy and On April 1, 2000, the waste management, which is a familiar service to local people, was transferred from Tokyo Metropolitan Government to the 23 Cities.

Since April 2000, the 23 Cities have been responsible for waste collection, waste transportation, intermediate waste treatment of waste, and final disposal. Each city collects and transport waste, but they decided to treat intermediate waste treatment of waste jointly because some cities do not have such facilities and because they want to treat waste more efficiently.

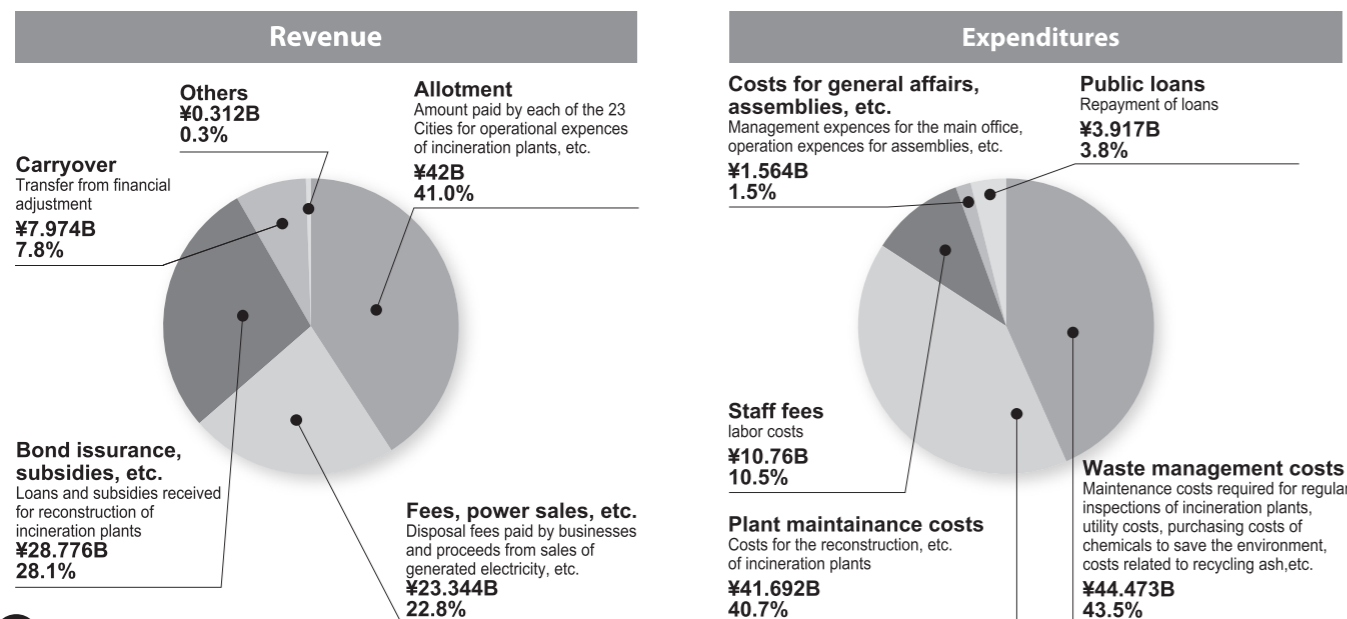
The Clean Authority of TOKYO is a special local municipality established by the consensus of the 23 Cities based on the Local Autonomy Law to perform waste processing jointly.

In addition, the 23 Cities and the Clean Authority of TOKYO commission the final disposal to the Tokyo Metropolitan Government, which establishes and manages the disposal site.



2. FY 2022 Budget

Initial budget for FY 2022: ¥102.46B



II Each city collects/transfers waste and collects resources

Waste management offices in each of the 23 Cities collect and transfer waste.

1. Collection

Each city sets collection days and areas depending on the type of waste, and conducts efficient operations drafting operation plans that correspond to seasonal changes and regional trends in waste amount.

Waste processing in the 23 Cities is free of charge for household waste (excluding the disposal of waste exceeding 10 kg per day), while large-sized waste and business-generated waste are charged.

(For more details, contact the closest city office or waste management office.)



Collecting combustible waste (Nakano City)

2. Transfer

To ensure efficient transfer, transfer methods are determined based on the type of waste (combustible, incombustible, or large-sized).

Combustible waste

Combustible waste is loaded onto collection vehicles (such as compaction type vehicle) on collection sites, from which it is directly transferred to an incineration plant.



Waste unloading (a platform at Adachi Incineration Plant)

Incombustible waste

Incombustible waste is transferred to either the Chubu Incombustible Waste Processing Center or the Keihinjima Island Incombustible Waste Processing Center. Since both are located on the waterfront, some cities have established land or boat transfer stations, where waste is reloaded onto container vehicles or vessels for relayed transfer.



Land Transfer Station (Shinjuku Transfer and Resources Center, Shinjuku City)

Such relayed transfer contributes to improved transfer efficiency, reduced traffic congestion, and alleviation of air pollution due to exhaust.



Boat Transfer Station (Misakicho Transfer Station, Chiyoda City)

Large-sized waste

Large-sized waste is delivered to the Large-sized Waste Pulverization Processing Facility. Cities that have a transfer station conduct relayed transfer by reloading it from smaller collection vehicles onto larger vehicles. Such relayed transfer contributes to improved transfer efficiency, reduced traffic congestion, and alleviation of air pollution due to exhaust.



Reloading large-sized waste (Bunkyo City)



Large-sized waste unloaded at a receiving yard (Large-sized Waste Pulverization Processing Facility)

III Intermediate Treatment of Waste

1. Processing combustible waste

The role and structure of incineration plants

Combustible waste is incinerated at a total of 22 incineration plants (as of FY 2022) in a safe, stable, and efficient manner.

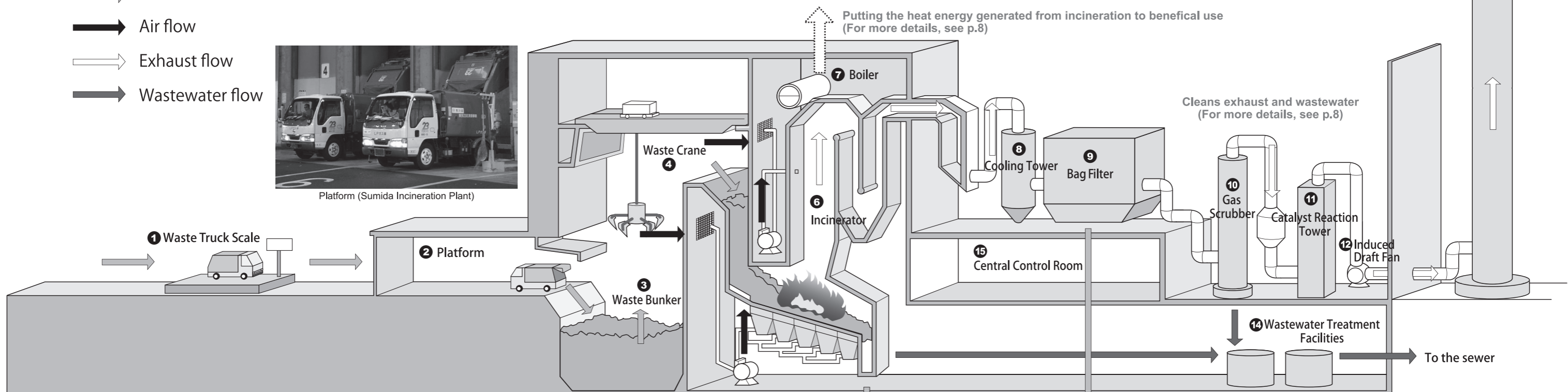
Incineration of waste prevents bacteria, pests, and odors, resulting in a hygienic environment. In addition, incinerating the waste not only reduces the volume by about one-twentieth but also reduces landfill disposal by recycling some of the bottom ash as raw cement materials or as road construction materials after converting it into slowly cooled slag.

In the efforts to reduce the environmental load, the generation of toxic substances in exhaust and wastewater from incineration plants is controlled or reduced.

At the incineration plants, the heat energy generated during incineration is used for power generation and heat supply.

Major facilities in an incineration plant (Stoker furnace)

- Waste and Ash flow
- Air flow
- Exhaust flow
- Wastewater flow



15 Central Control Room
Controls and monitors facilities including the waste bunker and the incinerator. Each facility continuously sends information to the control computer system, and operations across the entire incineration plant can be observed on the monitors.



Central Control Room (Nerima Incineration Plant)

5 Forced Draft Fan

Bottom ash

Cement factories
Bottom ash is recycled as raw material for cement (For more details, see p.7)

Resource recycling facilities
Bottom ash and others are recycled as slowly cool slag or burned sand (For more details, see p.8)

Landfill disposal sites
The remaining bottom ash is sent to landfill disposal.

Fly ash (Soot and dust)

Landfill disposal sites
Fly ash is processed with chemicals and sent to landfill disposal.

* There are any differences among incineration plant.

Bottom ash and Fly ash

Ash generated from incineration at an incineration plant is separated into Bottom ash and Fly ash. Bottom ash is cinder discharged from the bottom of the incinerator. Fly ash is soot and dust within exhaust that is collected by bag filters, etc.

1 Waste Truck Scale
Measures the weight of waste.

2 Platform
Waste collection vehicles dump waste into the bunker.

3 Waste Bunker
Waste is temporarily stored here until incineration.

4 Waste Crane
Waste is mixed, leveled and sent to the incinerator.

5 Forced Draft Fan
Air is sent from the waste bunker to the incinerator.

6 Incinerator
Burns waste at a high temperature of over 800°C (1,472°F). By burning at a high temperature, suppress dioxin generation.

7 Boiler
Produces steam from heat generated when waste is burned, to be used for heat supply and electric power generation.

8 Cooling Tower
Cools high-temperature exhaust emitted from the incinerator to below 200°C (392°F) for preventing the re-composition of dioxins. The number of the latest factories which don't install it is increasing.

9 Bag Filter
Removes soot and dust, dioxins, mercury, hydrogen chlorides and sulfur oxides from exhaust.

10 Gas Scrubber
Exhaust is cleaned with water and chemicals, for removing mercury, hydrogen chlorides and sulfur oxides.

11 Catalyst Reaction Tower
Decomposes dioxins and nitrogen oxides in exhaust using catalysts.

12 Induced Draft Fan
Exhaust is sent to the stack.

13 Stack
Exhaust that is free of hazardous substances or odor is released into the air.

14 Wastewater Treatment Facilities
Solids and heavy metals in wastewater produced from the incineration plant are removed to the limit or below, before wastewater is released into the sewer.



2. Improper waste disposal may cause a halt or failure of incinerators

Once improper waste is brought into an incinerator...

Combustibles carried into incineration plants sometimes contain waste unsuitable for incineration, such as metals, glass, or oversized waste that exceeds the disposal capacity of the plant. Such improper waste may cause the halt or failure of incinerators, costing a great deal of money and time before recovery. Once the facilities become incapable of accepting waste, waste collection and transfer operations will be interrupted, seriously affecting waste management in all 23 Cities.

Every year some incineration plants are forced to stop operation due to improper waste. To prevent carry-in of improper waste, and to ensure safe and stable plant operation, inspection of incoming waste is reinforced, and awareness-raising activities are undertaken.

Special weeks are also set to enhance the above inspection and to perform close observation at platforms in each incineration plant. Overall regular inspection on incoming waste is also conducted at all incineration plants, in collaboration with the 23 Cities.



Inspection on incoming waste
(Nerima Incineration Plant)

3. The bottom ash, etc., is recycled as a raw material for cement, slowly cooled slag, etc.

What is “recycling of bottom ash, etc.”?

When combustible waste is incinerated, bottom ash, etc. (bottom ash, fly ash) is generated. Bottom ash, etc. will be landfilled, but in order to use the limited landfill site for a long time, we have been working on converting it into raw material for cement since FY2013. In FY2018, we started efforts to make slowly cooled slag, and in FY2020, we started efforts to make burned sand.

Recycling into raw materials for cement means transporting bottom ash to a private cement factory and using it as an alternative raw material for clay, one of the raw materials for Portland cement*.

Turning into slowly cooled slag is a process in which bottom ash, etc. is transported to a private recycling facility, melted, and then slowly cooled (annealed) to create stone-like slag, which is used as a material for road construction.

Turning into burned sand is a process in which bottom ash, etc. is transported to a private recycling facility, burns it to render it harmless, and then pulverizes and granulates it to make artificial sand, which is used as roadbed material, block material, etc.

In 2021, the amount of bottom ash, etc. recycled was about 70,980 tons, and we will continue to gradually increase the amount of recycled ash, reduce the amount of landfill disposal, and promote the effective use of resources.

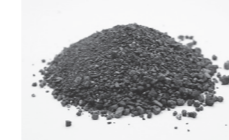
* It is the most common general-purpose cement which accounts for about 70% of cement consumed in Japan. Raw materials for cement are limestone, clay, silicone, iron raw material and gypsum.



cement



slowly cool slag



burned sand



Carrying out bottom ash
(Shin-Koto Incineration Plant)



Loading containers onto a freight train
(Freight train station in Tokyo)

4. Environmental measures to prevent exhaust and wastewater emissions

| Measures | | Overview |
|--|--------------------------------------|--|
| Measures to counter exhaust emissions | Soot and dust | Removed by bag filters |
| | Dioxins | Generation of dioxins is restricted through control of waste incineration process, and their re-composition is prevented by rapid cooling of exhaust in the cooling tower. Dioxins are also removed by bag filters, and decomposed in the catalyst reaction tower using catalysts. |
| | Mercury | Removed by adsorption into activated carbon in bag filters, and by liquid chelate in the gas scrubber. |
| | Hydrogen chlorides and sulfur oxides | Removed by injecting slaked lime into bag filters, and through a chemical reaction with caustic soda solution in the gas scrubber. |
| | Nitrogen oxides | Decomposed in the catalyst reaction tower through a reaction with ammonia. |
| Measures to counter wastewater emissions | | Wastewater is treated in the wastewater treatment facilities to meet the standard value, and released into the sewer. |
| Measures to counter odor | Waste bunkers | Air from inside the waste bunker is sent to the incinerator, where odor is incinerated and decomposed. While the incinerator is off the line, deodorizing devices are used and deodorizing agents are spread. |
| | Platforms | Entrances/exits are sealed with air curtains, and deodorizing agents are spread. |
| | Waste collection vehicles | A washing facility for collection vehicles is installed. |
| Measures to counter noise and vibration | | Care is taken for the layout of machinery. Soundproof walls and vibration-control equipment are installed. |
| Environmental measures for fly ash | | Hazardous substances are stabilized using chemicals. |

5. Putting the heat energy generated from incineration to beneficial use

Incineration plants use the heat energy generated from waste incineration beneficially in power generation and in supplying energy.

Electricity and hot water produced at plants are used within facilities to operate the plant, thereby reducing electricity purchases and fuel costs.

Surplus electricity is sold to power companies. 5 plants sell heat as hot water to other facilities.

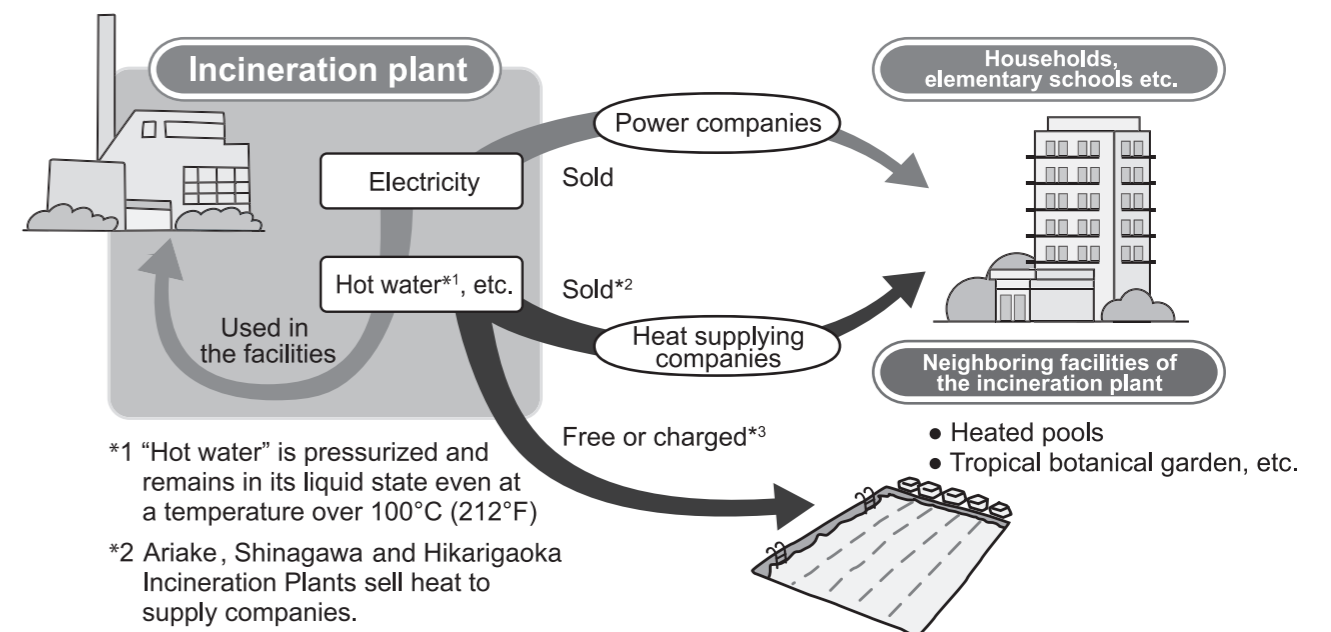
Assuming that one typical household consumes 3,120 kWh per year*, amount of electricity sold in FY 2021 is equivalent to consumption at approximately 227,000 households.

* Based on the website of the electric power company

FY 2021*1 Beneficial use of heat

| | |
|--------------------------------|----------------|
| Total generated power | 1,240.50 M kWh |
| Electricity sold | 708.38 M kWh |
| Income from electricity sold*2 | 8,669.86 M |
| Supplied heat (charged) | 496.000 GJ*3 |
| Income from heat sold | 192.54 M |

*1 From March 2021 to February 2022 for statistical reasons
*2 Includes the price of selling new energy sources, etc. equivalent to electricity that is worth environmental value
*3 GJ (Giga Jules) = 1 billion J (Jules)



*1 “Hot water” is pressurized and remains in its liquid state even at a temperature over 100°C (212°F)

*2 Ariake, Shinagawa and Hikarigaoka Incineration Plants sell heat to supply companies.

*3 Shin-koto and Itabashi Incineration Plants supply heat to metropolitan facilities at a charge.

6. Processing incombustible waste and large-sized waste

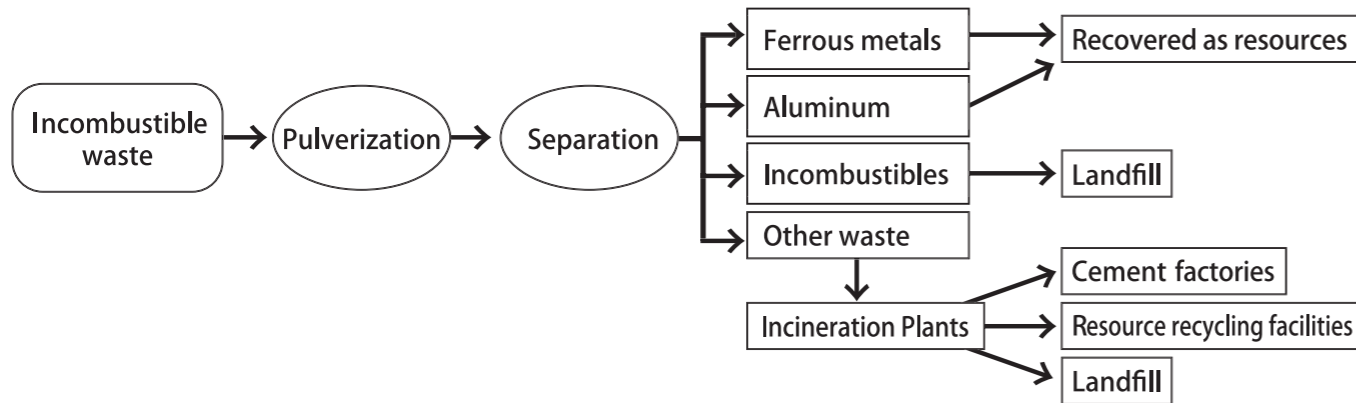
Non-combustible waste is finely crushed and sorted, and recyclables are collected and others are incinerated.

Non-burnable garbage will be processed at the non-burnable garbage processing center (2 facilities). The disposal of incombustible waste is roughly divided into crushing and sorting. First, crush non-burnable garbage finely to reduce the volume. Next, the iron and aluminum contained in non-combustible waste are collected as recyclables, and non-combustible materials are disposed of in landfills. Remaining garbage will be incinerated at an incineration plant.



Incombustible waste is unloaded at a receiving yard

Overview of processing incombustible waste



Large-sized waste treatment process differs by property of waste



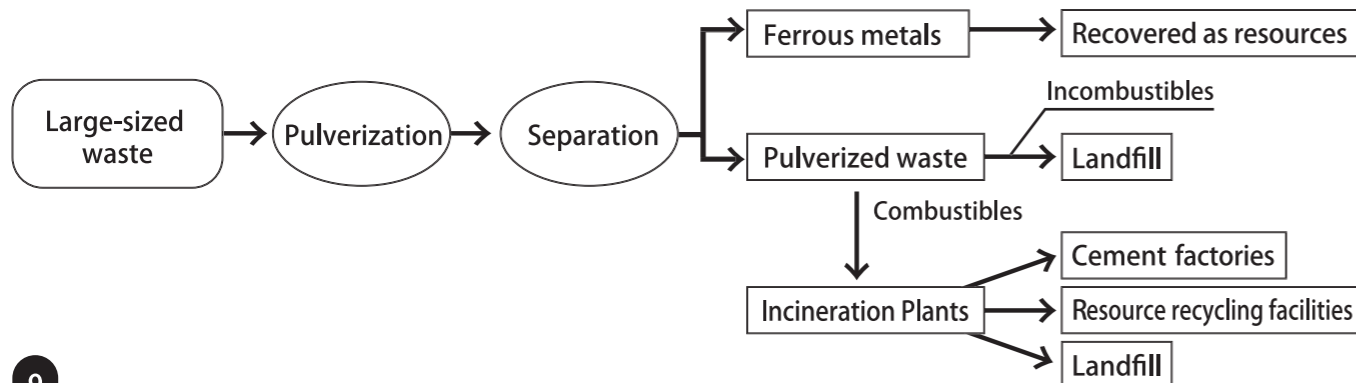
Receiving yard at a Large-sized Waste Pulverization Processing Facility

Large-sized waste is separated into combustible large-sized waste, such as wooden furniture, and into incombustible large-sized waste, such as bicycles. The separation work is performed manually at large-sized waste transfer stations in each city, or at the receiving yard of the Large-sized Waste Pulverization Processing Facility.

After crushing, the iron content will be sorted and sold as a resource.

About the residue of oversized garbage after sorting, combustible residue will be incinerated at an incineration plant, and non-combustible residue will be landfilled.

Overview of processing large-sized waste



IV Landfill disposal sites established and managed by the Tokyo Metropolitan Government

At the Outer Central Breakwater Landfill Disposal Site and New Sea Surface Disposal Site, established and managed by the Tokyo Metropolitan Government, residue after treating general waste in the 23 Cities, waste from municipal facilities such as sewage sludge, and industrial waste from small and medium-sized companies in Tokyo are put to landfill disposal.

Combustible waste, combustible part of incombustible waste and large-sized waste after pulverization are incinerated. A part of the bottom ash is recycled into cement materials or slowly cool slag, while the remainder of bottom ash and chemically treated fly ash goes to landfill.

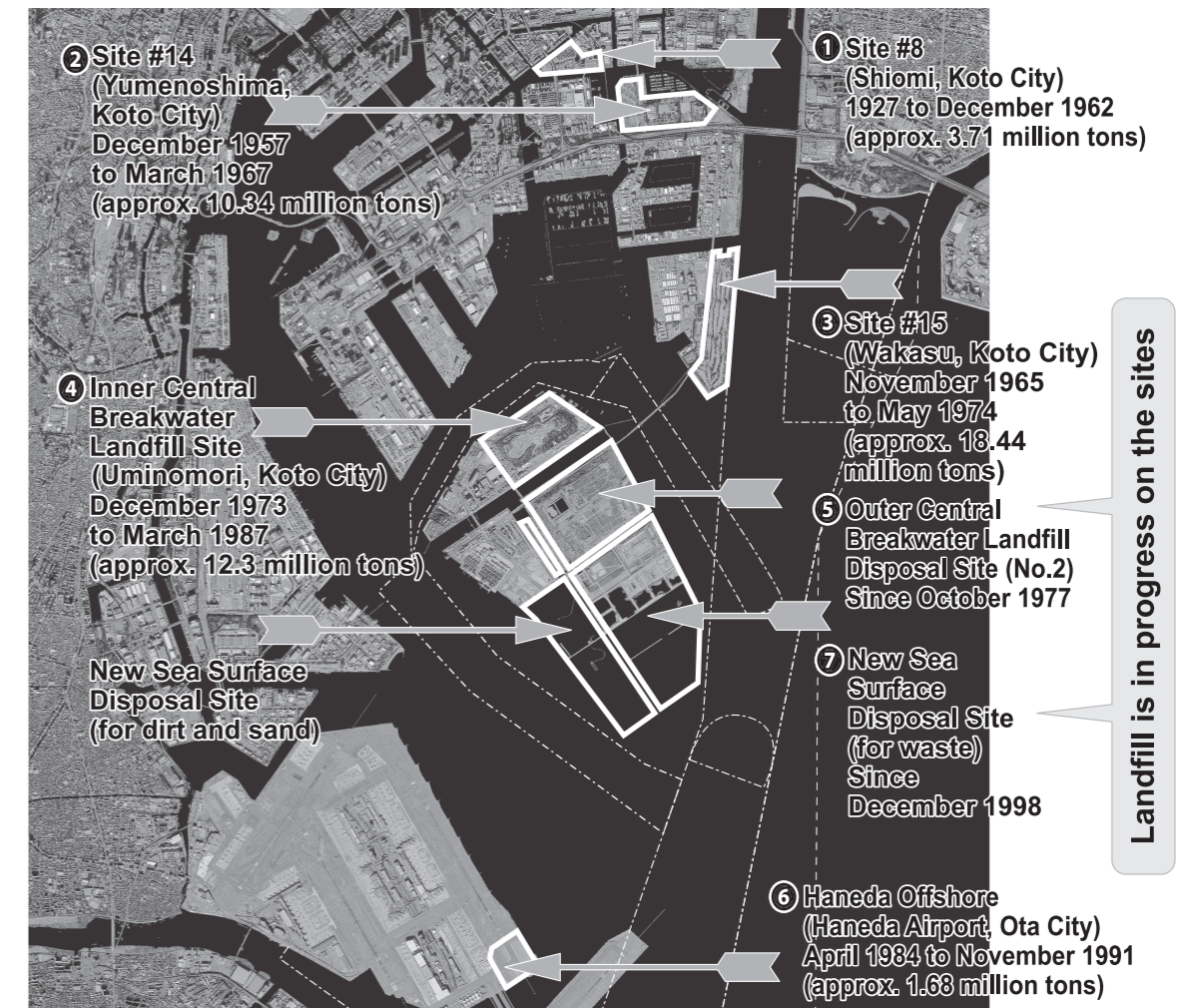
Incombustible waste is pulverized, while ferrous metals and aluminum are recovered as resources, before the incombustible residue is buried into landfill.

Large-sized waste is pulverized, while ferrous metals are recovered as resources, before the incombustible residue is buried into landfill.

In addition to waste, materials from dredging the sea and rivers as well as fill generated by construction (dirt and sand) are buried in landfills, but are placed separately from waste because their treatment method differs.

The New Sea Surface Disposal Site where landfill work is currently being carried out is the last landfill disposal site in the 23 Cities.

Landfill dates and volumes



(Source: Bureau of Port and Harbor, Tokyo Metropolitan Government) ©Tokyo Metropolitan Government

1. Chronology of landfill disposal sites

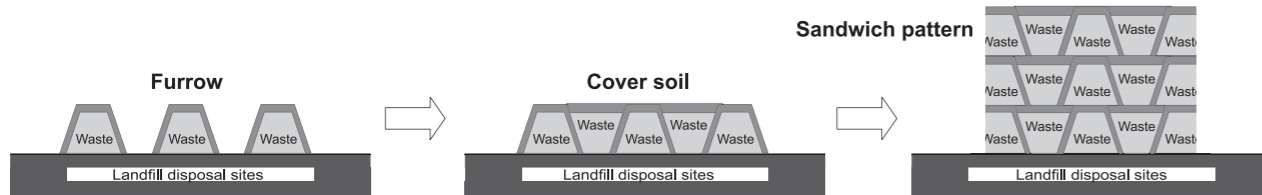
| Site | Fiscal year | | | | | | | | | | Area | |
|---|---|------|--|------|---|------|---|------|------|------|--|--------------------------|
| | 1955 | 1965 | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 | | 2021 |
| ① Site #8 (Shiomi, Koto City) | 27 | 62 | Volume of landfill: approx. 3.71 M tons | | | | | | | | | 364,000 m ² |
| ② Site #14 (Yumenoshima, Koto City) | 57 | 66 | Volume of landfill: approx. 10.34 M tons | | | | | | | | | 450,000 m ² |
| ③ Site #15 (Wakasu, Koto City) | 65 | 74 | Volume of landfill: approx. 18.44 M tons | | | | | | | | | 712,000 m ² |
| ④ Inner Central Breakwater Landfill Site | | | 73 | 86 | Volume of landfill: approx. 12.3 M tons | | | | | | | 780,000 m ² |
| ⑤ Outer Central Breakwater Landfill Disposal Site [2] | Volume of landfill: approx. 55.26 M tons (as of the end of FY 2021) | | | | | | | | | | 1,990,000 m ² | |
| ⑥ Haneda Offshore (Haneda Airport, Ota City) | | | | | 84 | 91 | Volume of landfill: approx. 1.68 M tons | | | | 124,000 m ² | |
| ⑦ New Sea Surface Disposal Site (For waste) | | | | | | | | | | 98 | Volume of landfill: approx. 9.22 M tons (as of the end of FY 2021) | 3,190,000 m ² |

2. Methods of landfill disposal

On a landfill disposal site, furrows are made with waste. When a furrow reaches the height of approx. 3 meters, it is covered with approx. 50 centimeters of soil. Subsequently, waste is buried in the resulting ridge. When the ridge is filled, it is also covered with approx. 50 centimeters of soil. Landfill disposal is performed by repeating these steps, and filled up to an altitude of 30 meters (sandwich pattern).

The soil covering prevents the scattering of waste, spread of odor, vermin, and fire.

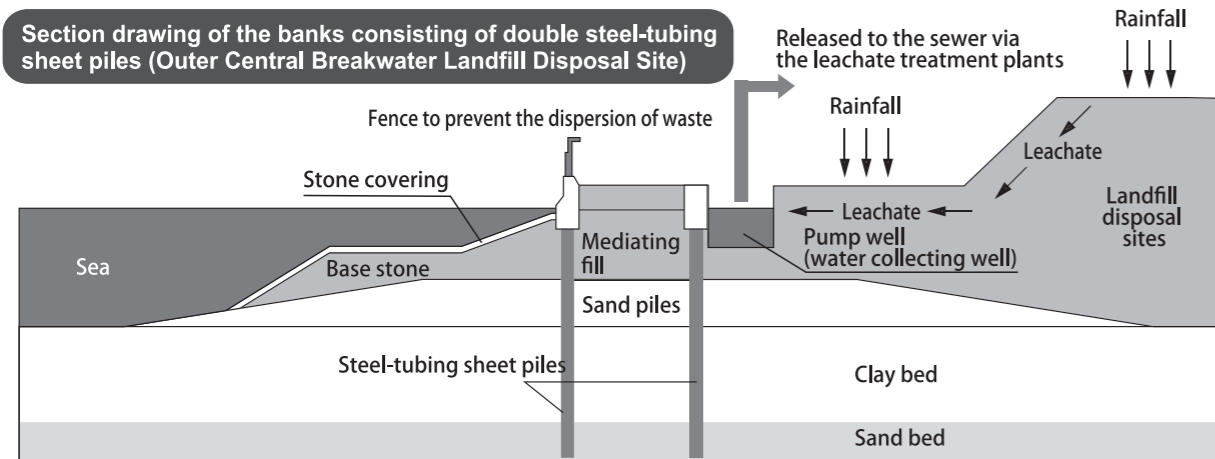
Bottom ash is disposed of using a framing method, where a trench is created into which ash is dumped, so that it will not be dispersed by wind.



3. Structure of landfill disposal sites

Landfill disposal sites are categorized into three types, depending on the level of impact the filled waste presents: namely, inert waste disposal sites, controlled disposal sites and strictly controlled disposal sites. The Outer Central Breakwater Landfill Disposal Site and the eastern area of New Sea Surface Disposal Site are controlled disposal sites that accept general waste and industrial waste.

These sites are equipped with banks consisting of double steel-tubing sheet piles or caisson type outer shore protection to prevent leachate*1 water from seeping out of the landfill disposal sites and contaminating groundwater or public waters. Leachate is processed in the leachate treatment plants through the water collection / drainage equipment*2.



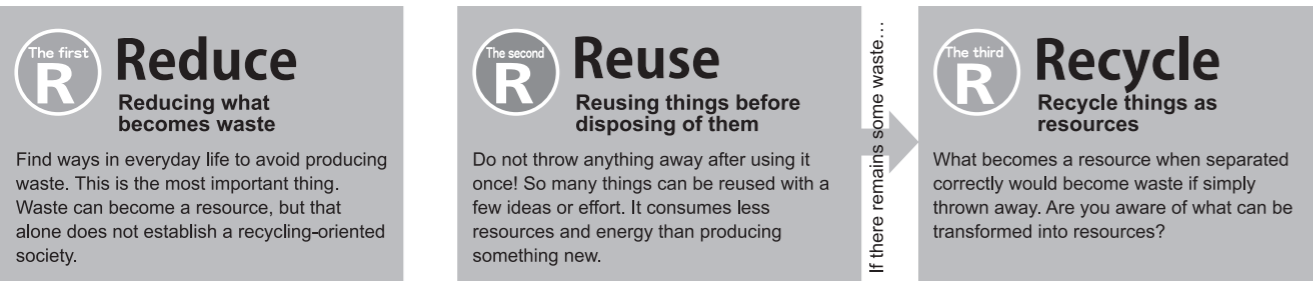
*1 "Leachate" refers to wastewater that seeps from the waste layer when rain filters through.

*2 "Water collection / drainage equipment" refers to the equipment that collect leachate and carry it to the leachate treatment plants.

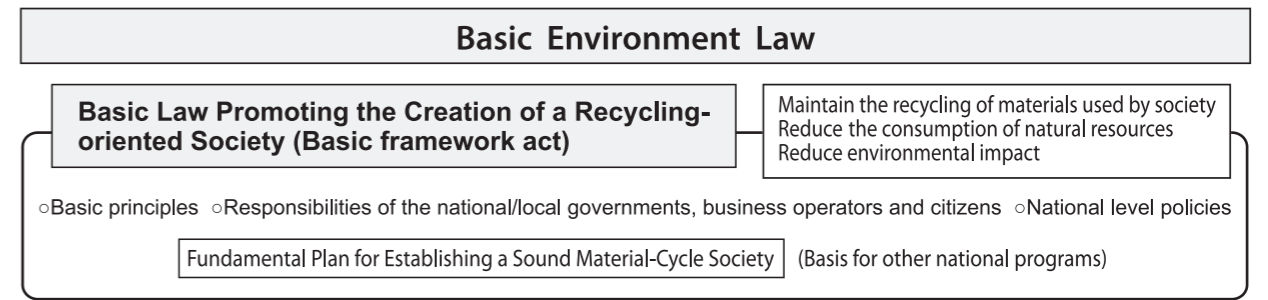
V Statistics / Data

1. Exercise 3R ~ Every person can do it ~

3R is the keyword to a life of reducing waste and cherishing resources.



2. Legal system for forming a recycling-oriented society



< Appropriate treatment of waste >

Waste Management and Public Cleansing Act

- (1) Reduction of waste generation
- (2) Appropriate treatment of waste (including recycling)
- (3) Regulation on the establishment of waste treatment facilities
- (4) Regulations regarding waste treatment businesses
- (5) Establishment of waste treatment standards

< Promotion of 3Rs >

Act on the Promotion of Effective Utilization of Resources

- (1) Recycling of reusable resources
- (2) Innovations such as easily recyclable structures and materials
- (3) Labeling for sorting of recyclables at source
- (4) Promotion of the efficient use of by-products

Recycle (1R) → Reduce Reuse Recycle (3R)

[Comprehensive legal system focusing on materials]

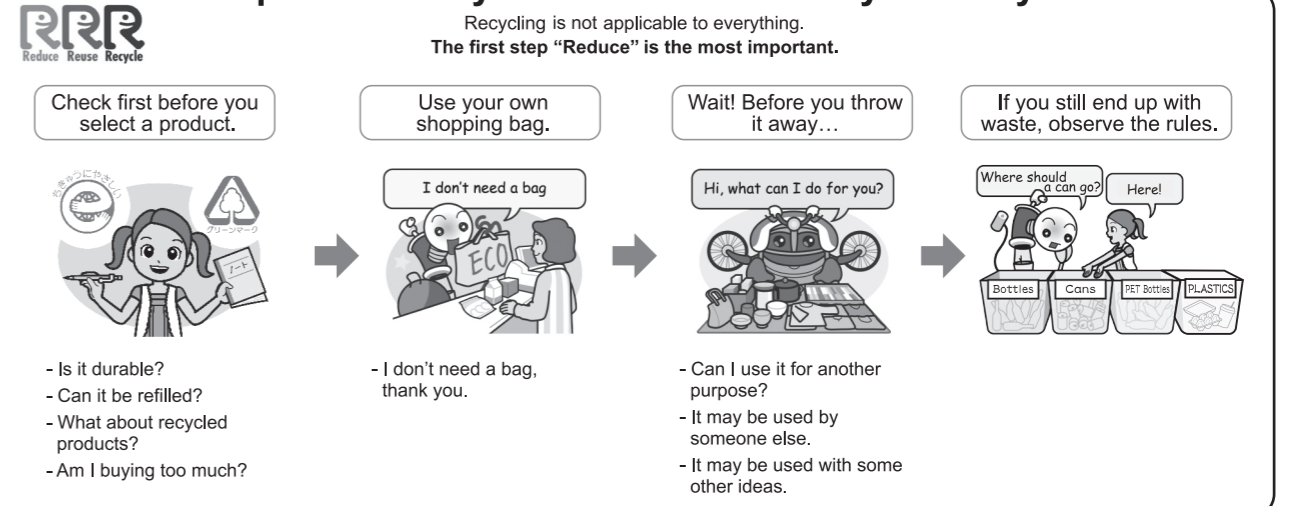
Plastic Resource Recycling Act

Regulations targeted at the characteristics of specific product groups

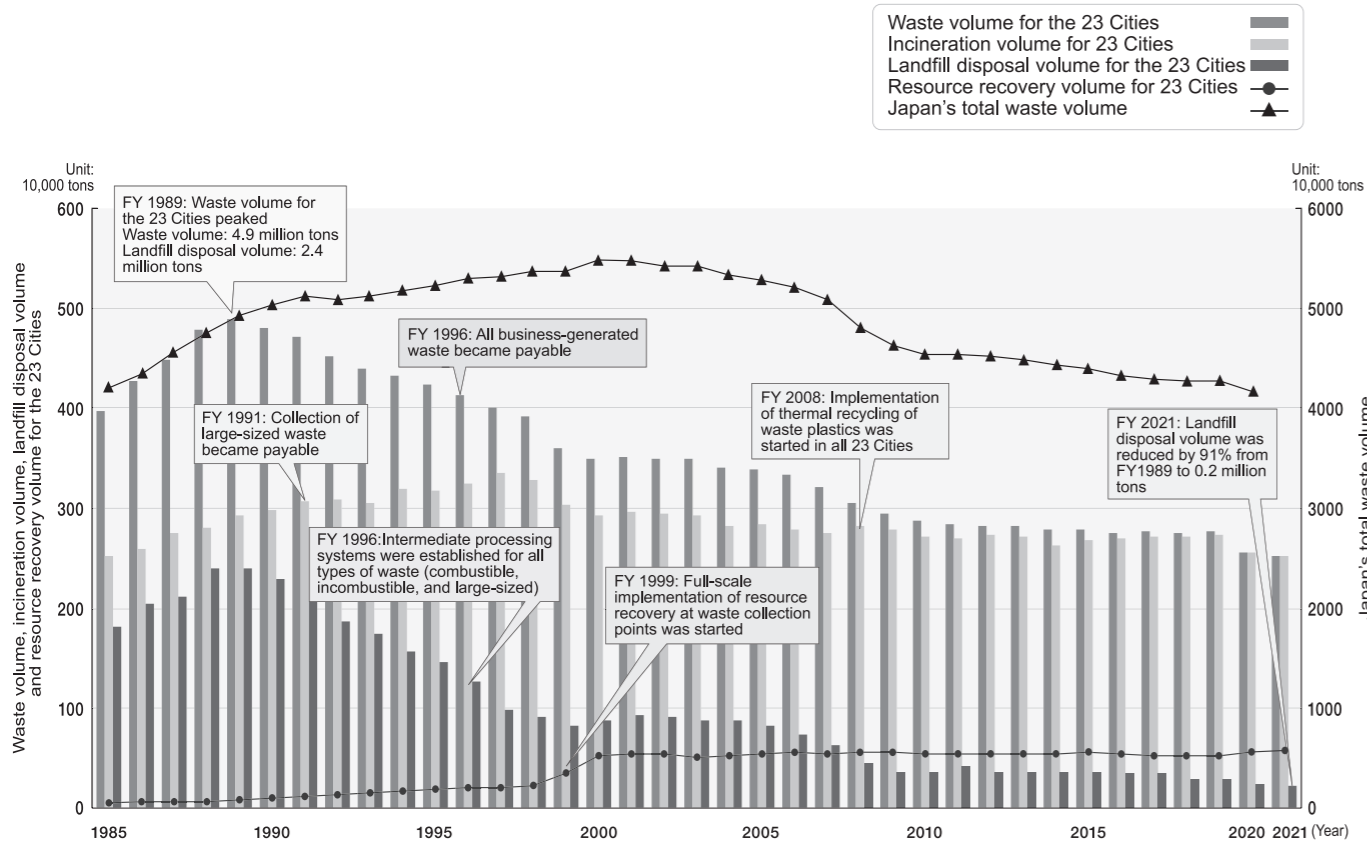
| Containers and Packaging Recycling Law | Home Appliance Recycling Law | Food Waste Recycling Law | Construction Materials Recycling Law | Law on Recycling of End-of-Life Vehicles | Small Home Appliances Recycling Law |
|--|---|--|--|--|--|
| <ul style="list-style-type: none"> Sorting and collection of containers and packaging by cities, towns and villages Recycling for reuse and resale by container manufacturers and businesses using containers and packaging <p>Bottles, PET bottles, paper or plastic containers and wrapping, etc</p> | <ul style="list-style-type: none"> Retail outlets collect used household appliances from consumers Recycling for reuse and resale by manufacturers <p>Air conditioners, TV sets, refrigerators and freezers, washing machines, clothes dryers</p> | <ul style="list-style-type: none"> Reuse of food waste by manufacturers, processors, and retailers of food products <p>Food residue</p> | <ul style="list-style-type: none"> Construction companies: Sort and demolish waste structures Recycle waste construction materials <p>Lumber, concrete and asphalt</p> | <ul style="list-style-type: none"> Concerned businesses collect, disassemble, and pulverize used vehicles and recover CFCs Manufacturers recycle air bags and shredder dust and break down CFCs <p>Automobiles</p> | <ul style="list-style-type: none"> Certified businesses recycle used small electronic appliances, etc <p>Mobile phones, game consoles, digital steel cameras, etc</p> |

Law on Promoting Green Purchasing (Promotion of the procurement of eco-friendly goods and services led by the national government)

Examples of how you can exercise it in your daily life!

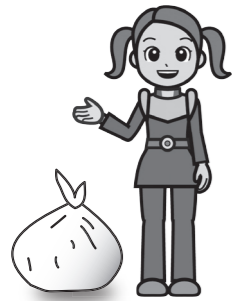


3. Transition in waste volume, incineration volume, landfill disposal volume, and resource recovery volume



* Values through to FY 1999 are taken from statistical data of the Bureau of Waste Management, Tokyo Metropolitan Government.
 * The resource recovery volume for the 23 Cities is the total volume of used paper, bottles, cans, PET bottles, plastic containers, etc. collected in the 23 Cities, and represents the combined total of resources collected by the government administration and by citizen's groups. Note that government administration collection was conducted by the Tokyo Metropolitan Government until FY 1999, and by the 23 City governments since FY 2000.
 * Values for Japan's total waste volume are based on data from the Ministry of the Environment.

4. Amount of waste generated by one person per day



727 grams

Method of calculation: The amount of waste generated was divided by population in FY 2021, and the unit was converted into grams.

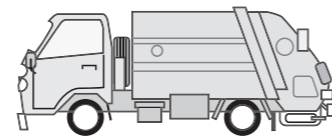
$$\frac{2,533,479 \text{ tons}}{9,543,420 \text{ people}} \div 365 \text{ days} \times 1,000,000$$

The population data is based on "Households and Population (including Japanese People and Foreign Nationals) Based on the Basic Resident Register," Statistics Department, Bureau of General Affairs, Tokyo Metropolitan Government (As of October 1, 2021).

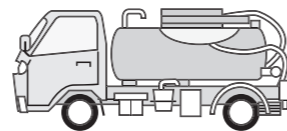
* Amount of waste generation includes business-generated waste.

5. Disposal cost for waste and night soil

* Costs required for the collection, transfer, processing, and disposal in FY 2020



¥62,932
per 1 ton of waste



¥141,934
per 1 ton of night soil

6. Facilities list of the Clean Authority of TOKYO

< In the order of completion >

(As of March 2023)

| Plant name | Date completed | Operating years ※1 | Property area: (approx. m ²) | Incinerators | | | | | Heat supplied to outside the plant | Stack height (m) | | |
|-------------|----------------|--------------------|--|--------------|------------------------|----------------------------------|--|--------------------------------|------------------------------------|------------------|-----|----|
| | | | | Type ※2 | Size (tons x furnaces) | Incineration capacity (tons/day) | Maximum designed heating value (kJ/kg) | Power generation capacity (kw) | | | | |
| Ariake | December 1995 | 27 | 24,000 | A | Mitsubishi Martin | 200x2 | 400 | 14,200 | 5,600 | ○ | 140 | |
| Chitose | March 1996 | 27 | 17,000 | A | Kawasaki Sun | 600x1 | 600 | 12,100 | 10,000 | ○ | 130 | |
| Sumida | January 1998 | 25 | 18,000 | A | Hitachi Zosen Von Roll | 600x1 | 600 | 13,000 | 13,000 | ○ | 150 | |
| Shin-koto | September 1998 | 24 | 61,000 | A | Takuma HN | 600x3 | 1,800 | 13,400 | 50,000 | ○ | 150 | |
| Minato | January 1999 | 24 | 29,000 | A | Mitsubishi Martin | 300x3 | 900 | 13,400 | 22,000 | — | 130 | |
| Toshima | June 1999 | 23 | 12,000 | B | IHI Diffuser tube | 200x2 | 400 | 13,400 | 7,800 | ○ | 210 | |
| Shibuya | July 2001 | 21 | 9,000 | B | Ebara Rotational flow | 200x1 | 200 | 13,400 | 4,200 | — | 150 | |
| Chuo | July 2001 | 21 | 29,000 | A | Hitachi Zosen Von Roll | 300x2 | 600 | 13,400 | 15,000 | ○ | 180 | |
| Itabashi | November 2002 | 20 | 44,000 | A | Sumitomo W+E | 300x2 | 600 | 12,100 | 13,200 | ○ | 130 | |
| Tamagawa | June 2003 | 19 | 32,000 | A | IHI Rotation stoker | 150x2 | 300 | 12,100 | 6,400 | ○ | 100 | |
| Adachi | March 2005 | 18 | 37,000 | A | Ebara HPCC | 350x2 | 700 | 12,100 | 16,200 | ○ | 130 | |
| Shinagawa | March 2006 | 17 | 47,000 | A | Hitachi Zosen Von Roll | 300x2 | 600 | 12,100 | 15,000 | ○ | 90 | |
| Katsushika | December 2006 | 16 | 52,000 | A | Takuma SN | 250x2 | 500 | 12,100 | 13,500 | ○ | 130 | |
| Setagaya | March 2008 | 15 | 30,000 | C | Kawasaki Fluidized bed | 150x2 | 300 | 12,100 | 6,750 | ○ | 100 | |
| Ota | Ota | September 2014 | 8 | 92,000 | A | Takuma SNF | 300x2 | 600 | 14,800 | 22,800 | — | 47 |
| | Ota No.1 | March 1990 | 26 | | A | Takuma HN | 200x3 | 600 | 12,600 | 9,000 | — | 41 |
| Nerima | November 2015 | 7 | 15,000 | A | JFE Hyper 21 stoker | 250x2 | 500 | 14,300 | 18,700 | ○ | 100 | |
| Suginami | September 2017 | 5 | 36,000 | A | Hitachi Zosen Von Roll | 300x2 | 600 | 14,300 | 24,200 | ○ | 160 | |
| Hikarigaoka | March 2021 | 2 | 23,000 | A | Takuma SNF | 150x2 | 300 | 13,500 | 9,150 | ○ | 150 | |
| Meguro | March 2023 | — | 29,000 | A | JFE Hyper 21 stoker | 300x2 | 600 | 13,500 | 21,500 | ○ | 150 | |

The operation of the Edogawa incineration plant has been suspended for plant remodeling.

The Kita incineration plant is going to suspend operation for plant remodeling.

The Meguro incineration plant is going to start operation from March 2023.

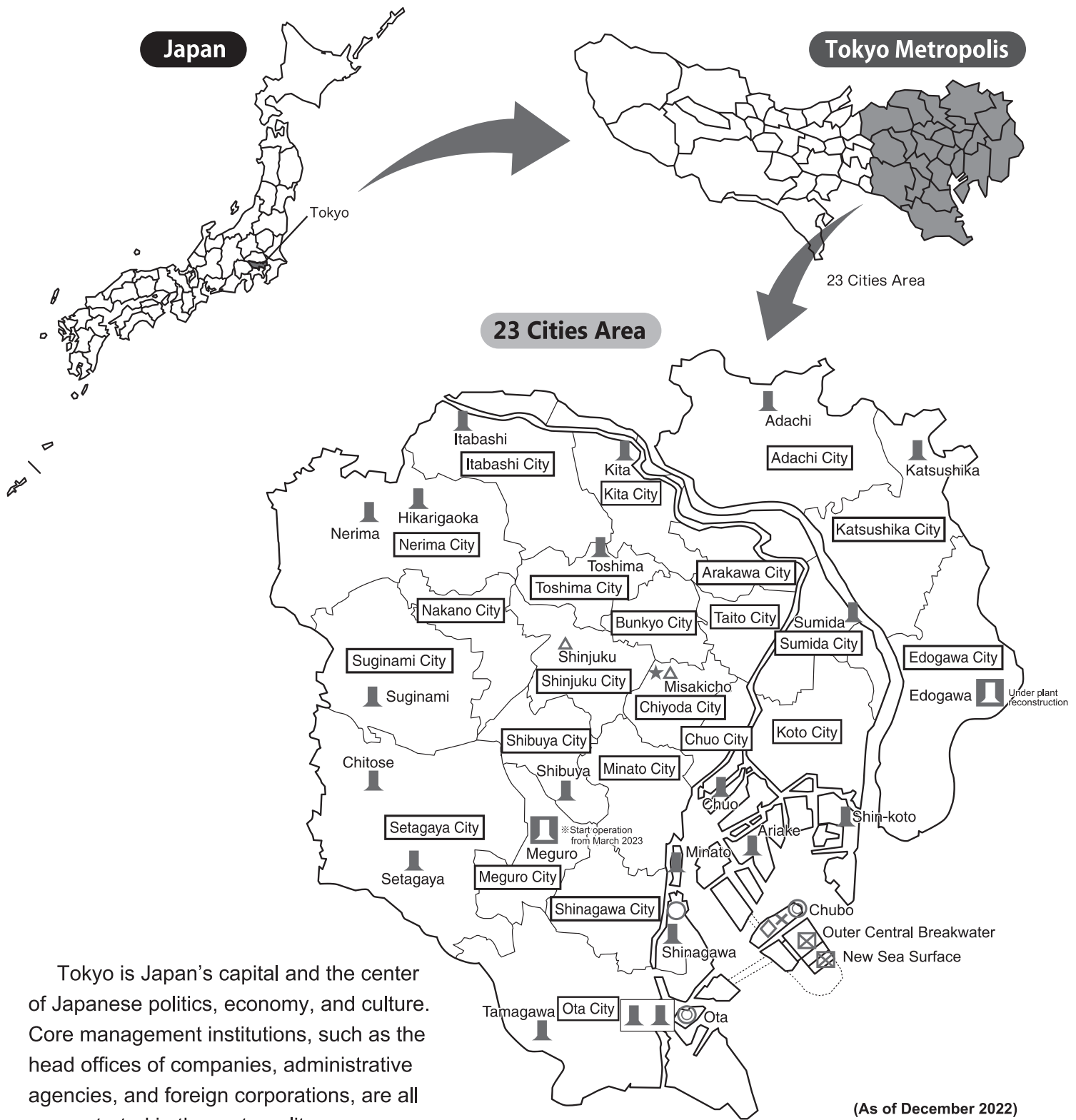
*1 The operation years is the years of operation as of FY2022 in the "Incineration plant maintenance schedule" of the general waste treatment basic plan (revised in February 2021). In the plan, the planned service life of the incineration plant is set at 25 to 30 years.

*2 Incinerator types

A...Stoker furnace(Full continuance combustion) B...Fluidized bed furnace(Full continuance combustion)
 C...Gasification melting furnace(All continuous operation)

| Classification | Name of facility | Date completed | Type of equipment | Scale |
|----------------|---|----------------|--|---------------------------|
| Incombustible | Chubo Incombustible Waste Processing Center Plant 2 | October 1996 | Hitachi Zosen, Transverse-rotary horizontal hammer mill | 48 tons/h x 2 lines |
| | Keihinjima Island Incombustible Waste Processing Center | November 1996 | Kyokuto Kaihatsu, Transverse-rotary vertical hammer mill | 8 tons/h x 4 lines |
| Large-sized | Large-sized Waste Pulverization Processing Facility | June 1979 | Kyokuto Kaihatsu, Transverse-rotary vertical hammer mill | 32.1 tons/h x 2 lines |
| | Pulverized Waste Processing Center* | July 1992 | Ebara, Fluidized bed | 180 tons/day x 1 furnace |
| Ash-melting | Chubo Ash-melting Facility* | December 2006 | Mitsubishi, Plasma Graphite electrodes | 100 tons/day x 4 furnaces |
| Night soil | Shinagawa Cleaning Facility for Night Soil (for release into the sewer) | January 1999 | Dilution (reduced water and processed water from the incineration plant) | 100 tons/day |

* Pulverized Waste Processing Center operation is being suspended. Ash melting is suspended at the Chubo Ash-Melting Facility.



(As of December 2022)

Tokyo is Japan's capital and the center of Japanese politics, economy, and culture. Core management institutions, such as the head offices of companies, administrative agencies, and foreign corporations, are all concentrated in the metropolitan area, while a web of road and transportation networks converge in the city.

This polarized concentration is causing problems of traffic congestion, air pollution, and the urban heat island phenomenon.

Geographically, most of Tokyo lies on a plain, with undulating terrain found to the west and on part of its eastern borders facing Tokyo Bay.

Area and population of Tokyo as of October 1, 2021

| | Tokyo Metropolis | 23 Cities |
|---------------------------|------------------|-----------|
| Area (km ²) | 2,194 | 628 |
| Population (in thousands) | 13,818 | 9,543 |

Waste Report 23 2023

Published December 2022
 Edited & published by Clean Authority of TOKYO
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印刷物登録
 令和4年度 第67号

Designed & printed by PattonFive Co., LTD.

Legend

- Incineration Plants (Combustible)
- ★ Iidabashi Government Office
- ◎ Incombustible Waste Processing Center
- ✕ Large-sized Waste Pulverization Processing Facility
- ◇ Ash-melting Facility (Suspended)
- Cleaning Facility (Night soil)
- △ Transfer facilities (Incombustible)
- ⊠ Landfill Disposal Site