

Waste Management in Japan

~Rules and Figures~

November, 2018
Japan Industrial Waste Information Center

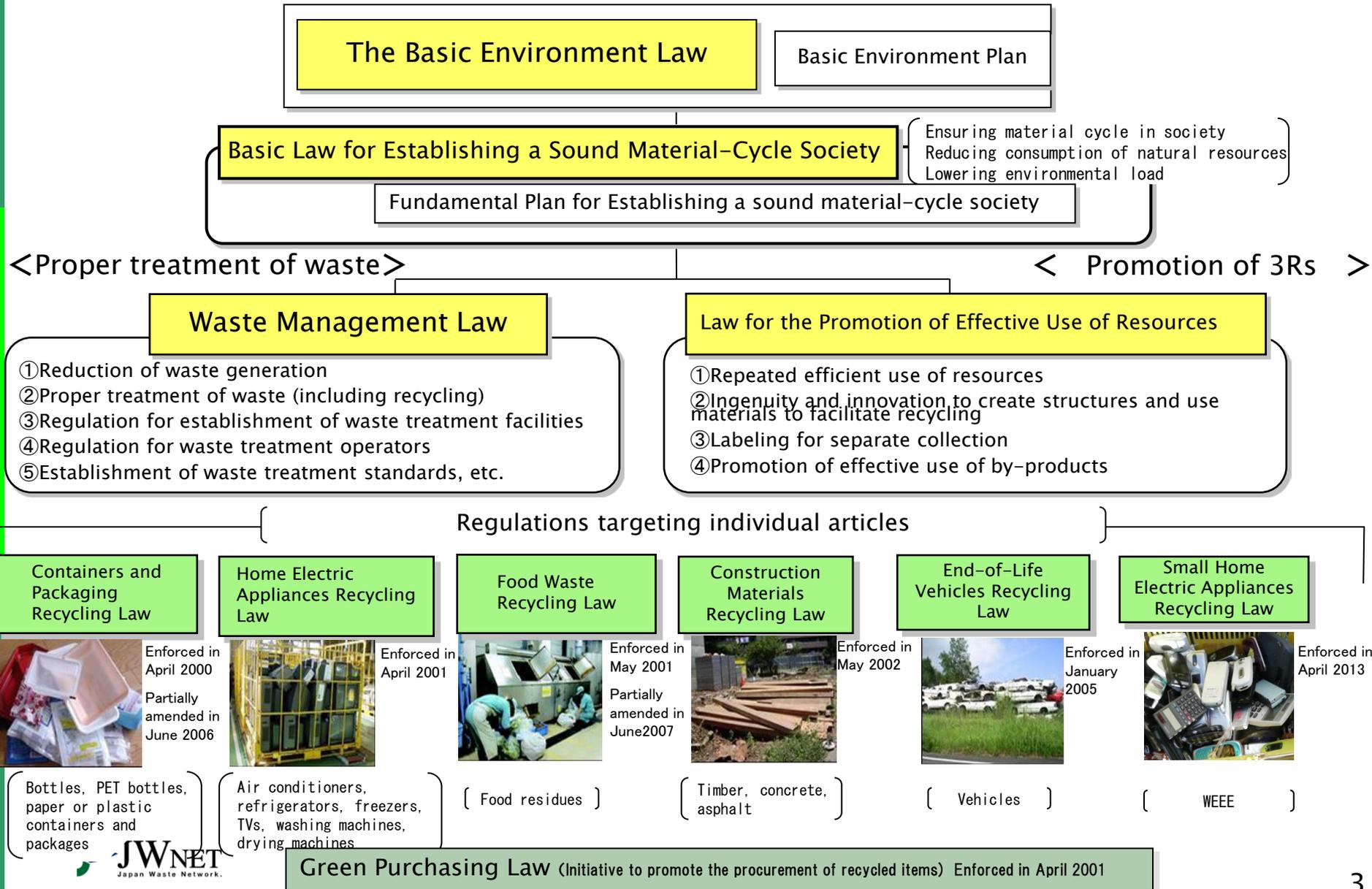


1. Outline of the development of the legal and regulatory framework relating to waste management in Japan

Title of the law (year of enactment)	Key features	Background
Waste Sanitation Law (1900)	<ul style="list-style-type: none"> • Main target: night soil • Individual municipalities made responsible for the waste disposal 	<ul style="list-style-type: none"> • Beginning of rapid urbanization
Public Cleansing Act (1954)	<ul style="list-style-type: none"> • Target changed from night soil to solid waste (hereafter referred to as “waste”). • Clearly stipulated that the purpose of the law was to promote the speedy removal of waste from places where people are engaged in their daily life • In principle, waste should be incinerated 	<ul style="list-style-type: none"> • Increase in the amount of waste being generated as a result of the economic revival after the end of World War II
Waste Management and Public Cleansing Law (1970)	<ul style="list-style-type: none"> • Clarification of the responsibility for waste disposal <ul style="list-style-type: none"> ➢ Industrial waste: waste generator ➢ Municipal waste: municipality • Setting criteria for waste disposal 	<ul style="list-style-type: none"> • Increase in the amount of, and change in of the quality of, the waste derived from business activities, as a result of Japan’s high economic growth • Responding to environmental conservation measures relating to waste disposal
Amendment to Waste Management and Public Cleansing Law (1976)		

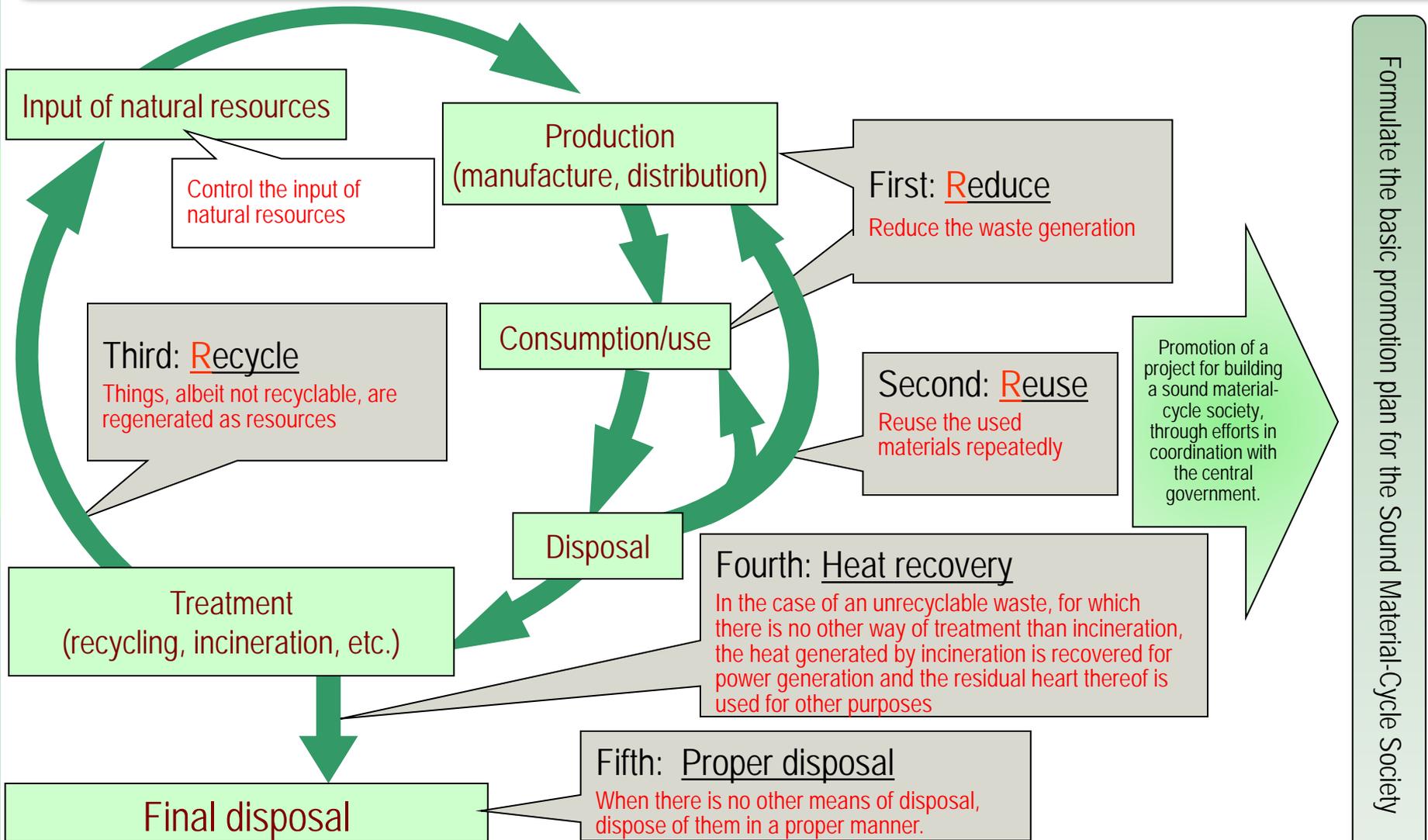
Title of the law (year of enactment)	Key features	Background
Amendment to Waste Management and Public Cleansing Law (1991, 97)	<ul style="list-style-type: none"> Promotion of the reduction of waste discharge, and also sorting and recycling Promotion of the construction of safe and appropriate facilities, through public sector involvement Thorough implementation of the responsibility for waste disposal Environmentally conscious and appropriate waste treatment 	<ul style="list-style-type: none"> Growing concern within society regarding the emission of Dioxins after incineration Pressing situation regarding residual volume of the final disposal sites
Basic Environment Law (1993)		
Containers and Packaging Recycling Law (1995)		
Home Electric Appliances Recycling Law (1998)		
Dioxins Control Law (1999)		
Basic Law for Establishing a Sound Material-Cycle Society (2000)	<ul style="list-style-type: none"> Promotion of the 3R(Reduce, Reuse and Recycle) concept to support the establishment of a sound material-cycle society Strengthening the industrial waste disposal measures Strengthening the anti illegal dumping measures 	<ul style="list-style-type: none"> Growing awareness of the need for effective utilization of resources, and of the global scale of environmental pollution Further deterioration in the situation in regard to the securing of final disposal sites
Construction Material Recycling Law (2000)		
Food Waste Recycling Law (2000)		
End-of-Life Vehicles Recycling Law (2000)		
Amendment to Waste Management and Public Cleansing Law (2003-06, 10, 15, 17)		
Small Home Electric Appliances Recycling Law (2013)		

2. Legislative Framework for Waste Management in Japan



2. Legislative Framework for Waste Management in Japan (continued)

"Sound Material-Cycle Society" means a society in which the consumption of natural resources will be conserved and the environmental load will be reduced to the greatest extent possible, by preventing or reducing the generation of wastes, etc. from products, etc., by promoting proper cyclical use of products, etc. and proper disposal of waste. [Basic Act on Establishing a Sound Material-Cycle Society] (Promulgated in June 2000, and put completely into effect in January 2001)



2. Legislative Framework for Waste Management in Japan (continued)

2.1 The Basic Law for Establishing a Sound Material-Cycle Society

(1) Purpose

Regarding the establishment of a Sound Material–Cycle Society:

1. to thoroughly articulate the basic principles underpinning the establishment of a Sound Material–Cycle Society
2. to clarify the responsibilities of the State, local governments, business operators and citizens
3. to articulate fundamental matters regarding the formulation of policies for the formation of a Sound Material–Cycle society, including those relating to the drawing up of the fundamental plan for Establishing a Sound Material–Cycle Society



To promote comprehensively and systematically the policies for the establishment of a Sound Material–Cycle Society and thereby help ensure healthy and cultured living for both the present and future generations of the nation

2.1 The Basic Act for Establishing a Sound Material-Cycle Society (continued)

(2) Outline

1. Clarifying the shape that the "recycling society" should take: a society in which the consumption of natural resources will be conserved and the environmental load will be reduced to the greatest extent possible
2. Defining those items within the scope of wastes, etc. regulated by the law that are deemed to be useful as "circulative resources"
3. Promoting the cyclical use of "circulative resources," which are those items within the scope of wastes, etc. regulated by the law that are deemed to be useful
4. Establishing, for the first time, a legal basis for the setting of priorities in regard to waste processing:
 - ①Reduce, ②Reuse, ③Recycle, ④Heat recovery, and ⑤Proper disposal

2.1 The Basic Act for Establishing a Sound Material-Cycle Society (continued)

5. Clarifying the roles of the central government, local governments, businesses and citizens
 - Businesses and people will bear the "responsibility as emitters"
 - Producers will continue to bear some degree of responsibility ("extended producer responsibility") with respect to their products after their products, etc. have been used and become waste.
6. Formulation by the government of the "Fundamental Plan for Establishing a sound material-cycle society" every five years
7. Announcement of the measures being implemented by the state to bring about the establishing a sound material-cycle society
 - Measures to reduce generation of waste, etc.
 - Regulatory measures or the like for the thorough implementation of "discharge responsibility"
 - Measures based on the "extended producer responsibility"
 - Measures to ensure that, when obstacles to environmental conservation occur, the responsible business enterprises bear the cost of restoration, etc.

2.1 The Basic Act for Establishing a Sound Material-Cycle Society (continued)

(3) Basic Plan for Establishing a Sound Material-Cycle Society

So far, indices and goals have been set for (1) entrance, (2) circulation and (3) exit of the material flow to establish the recycling-based society in which the measures for the reduction of waste discharge, reuse, recycling, etc. can be developed in a balanced manner.

Indices and Goals in the Basic Plan for Establishing a Sound Material-Cycle Society

Section of the material flow	Index	Goal (target year)			
		1st Plan	2nd Plan	3rd Plan	4th Plan
		(2010)	(2015)	(2020)	(2025)
(1) Entrance	Resource productivity (10,000yen/t) (GDP/ inputs of natural resources, etc.)	37	42	46	49
(2) Circulation	Recycling ratio (%) [Recycling Amount/ (Recycling Amount + inputs of natural resources, etc.)]×100	14	14-15	17	18
(3) Exit	Amount of final disposal (10,000t) (Amount of the final landfill)	2,800	2,300	1,700	1,300

2.2 Waste Management and Public Cleansing Law

(1) Purpose

Basic legal framework for waste management

Maintenance of a clean living environment through the restriction of waste discharge, appropriate sorting, storage, collection, transport, recycling, etc.



Conservation of the living environment and enhancement of public health



Stipulating the following items: definition of waste, discharger responsibility, issuing of permits to waste disposal contractors, issuing of construction permit for waste disposal facilities, and waste disposal standards, etc.

2.2 Waste Management and Public Cleansing Law (continued)

(2) Definition of waste – Waste subject to controls

Sludge, excreta and other filthy and unwanted matter, which are in solid or liquid state

The term “unwanted matter” is used to refer to things which have become needless because one cannot use it oneself nor transfer it to another person for profit;

Whether unwanted matter can legally be classed as “waste” or not should generally be determined on the basis of the following criteria:

State of the object, discharge situation, normal form of handling, presence or absence of value for a transaction, and the intention of a possessor

Category	Industrial waste	Municipal waste
Definition	Designated in the Waste Management and Public Cleansing Law (20 items) <ul style="list-style-type: none">• all the wastes left as a result of business activity• wastes which might damage or contaminate the environment unless they are treated appropriately. (toxic, large quantities)	Waste other than industrial waste
Responsible party	Waste generator	The municipalities (self-governing bodies of cities, towns and villages)

2.2 Waste Management and Public Cleansing Law (continued)

Definition of waste –Industrial waste

20 items designated in the Law

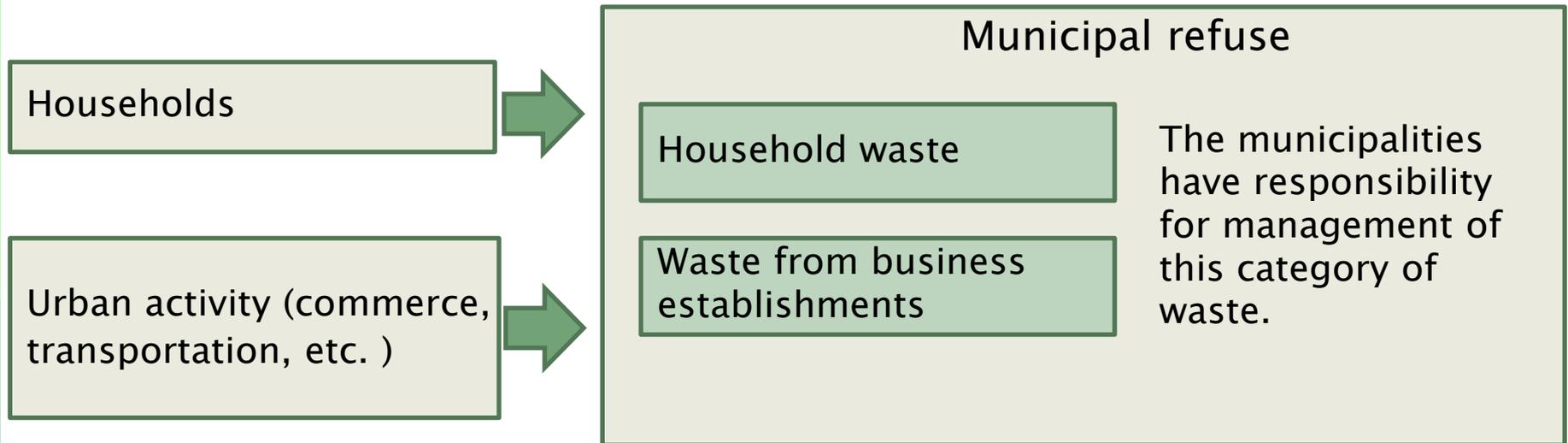
Waste paper*	Livestock excreta*
Waste wood*	Animal carcass*
Waste textile*	Cinder
Animal and plant residues*	Sludge
Unwanted animal solid matter*	Waste oil
Waste rubber	Waste acid
Waste metal	Waste alkali
Waste glass, concrete and ceramic	Waste plastics
Waste casting sand and slag	Dust
Bricks	Waste generated by the treatment of the above 19 industrial wastes

*denotes that there are restrictions depending on the type of industry that the waste-discharging enterprise belongs to.

2.2 Waste Management and Public Cleansing Law (continued)

Definition of the waste –Municipal waste

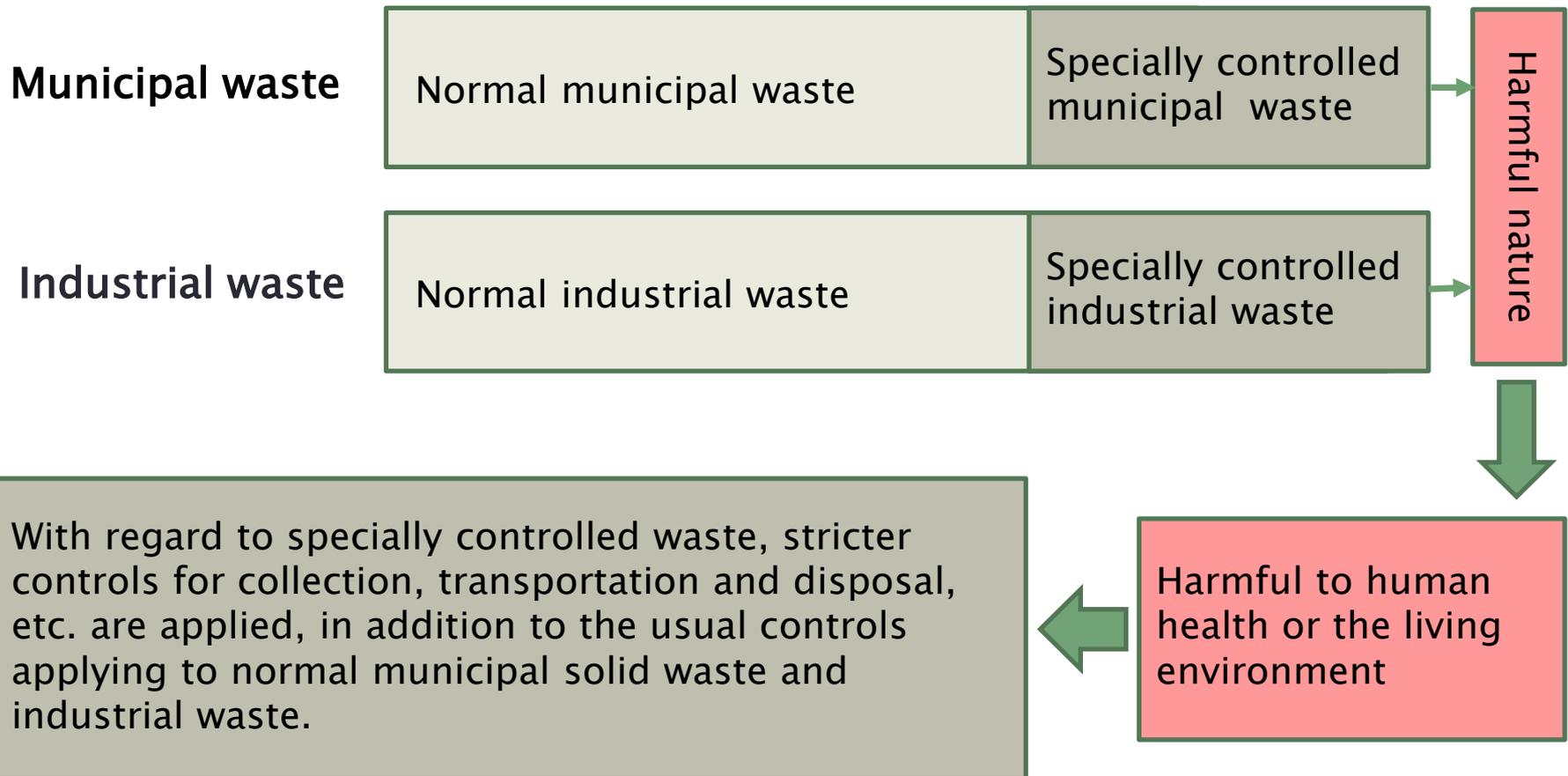
Waste generated from households and urban activities:
The municipalities have the responsibility for taking the necessary actions (planned collection, and proper management and treatment)



2.2 Waste Management and Public Cleansing Law (continued)

Definition of the waste – Specially controlled waste

Explosive, toxic, infectious or of a nature otherwise harmful to human health or the living environment.



Definition of the specially controlled municipal waste

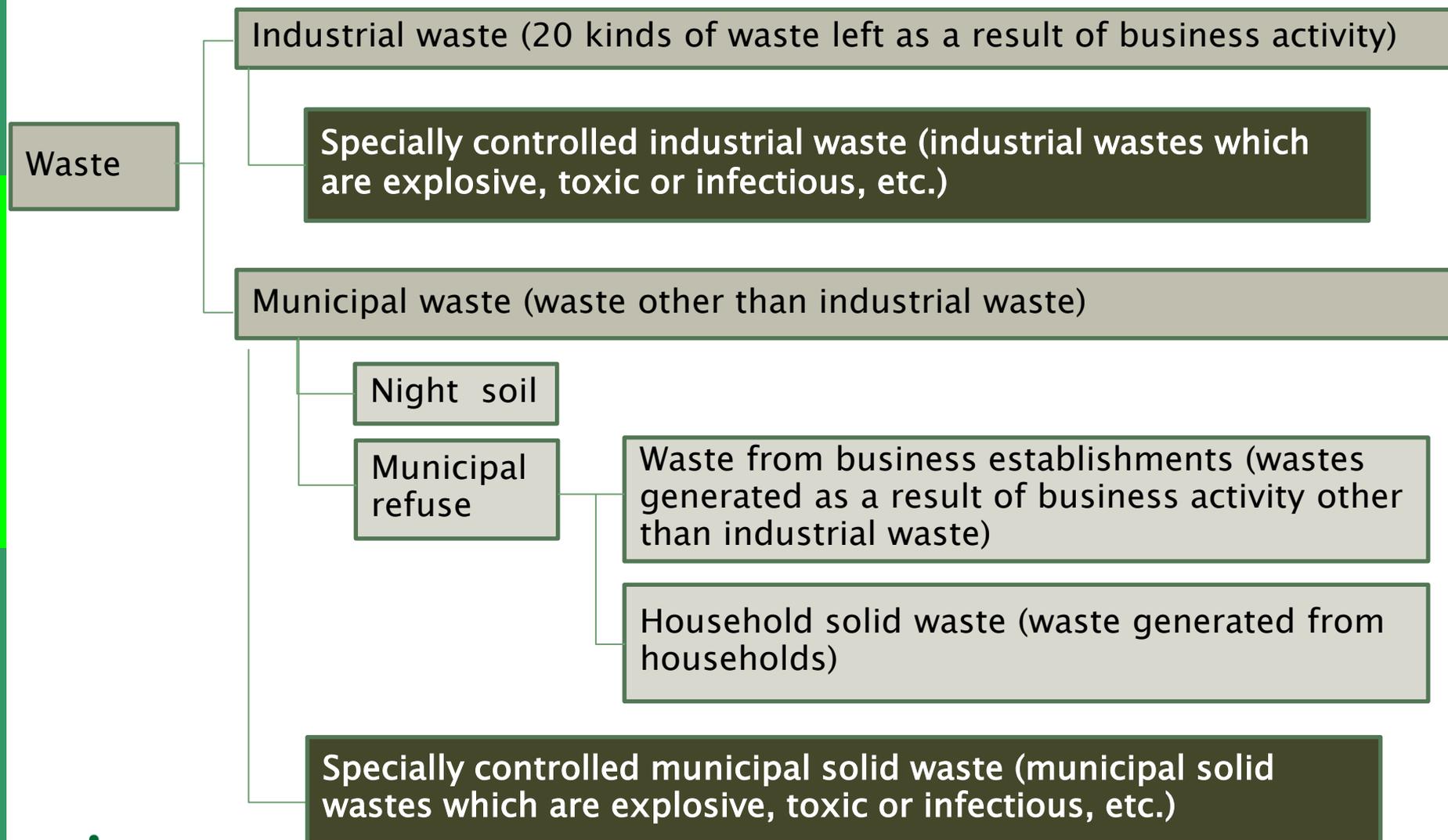
Parts made using PCBs	Parts made using PCBs that are contained in discarded air-conditioners, discarded television receivers and discarded electronic ovens
Waste mercury	Waste mercury recovered from municipal waste deriving from products
Soot and dust	Soot and dust produced at waste incineration facilities, which are collected by dust-collecting devices
Soot and dust, cinders and sludge	Those containing more than 3ng/g of dioxins generated from waste incinerators that are classed as facilities specified by the Dioxins Control Law
Infectious municipal waste	Municipal waste generated from hospitals, clinics, etc., in which a pathogen is contained or to which one adheres, or waste in which a pathogen may be contained or to which it may adhere

Definition of the specially controlled industrial waste

	Waste oil	Gasolines, kerosene and light oils (excluding flame-retardant tar, pitch or the like)
	Waste acid	Significant corrosive waste acid (less than pH2.0)
	Waste alkali	Significant corrosive waste alkali (more than pH12.5)
	Infectious industrial waste	Industrial waste generated from hospitals, clinics, etc., in which a pathogen is contained or to which one adheres or waste in which a pathogen may be contained or to which it may adhere
Specified hazardous industrial waste	Waste PCBs	Waste PCB and waste oil containing PCB
	PCB contaminated material	Sludge impregnated with PCB, waste paper to which PCB is applied or in which it soaks, waste wood or waste fiber to which PCB soaks, plastics or metal scrap to which PCB adheres or in which it is enclosed, waste ceramics or demolition debris to which PCB adhere
	PCB handling materials	Materials used in the handling of waste PCBs etc. or of PCB-contaminated materials are included within the scope of the controls applying to PCBs
	Waste mercury, etc.	① Waste mercury, etc. generated in designated facilities ② Industrial waste containing mercury or compounds of mercury, and waste mercury recovered from industrial waste deriving from products in the manufacturing of which mercury was used
	Specific sewage sludge	Sludge specified) in Article13-4 of the Cabinet Order for the Sewerage Law
	Slag	Those containing beyond a certain concentration of heavy metals
	Waste asbestos	Those which are related to asbestos construction material removing companies or which are produced at a place of business having a soot and dust generating facility as specified in the Air Pollution Control Law and which may scatter
	Cinders	Those containing beyond a certain concentration of heavy metals and Dioxins
	Soot and dust	Those containing beyond a certain concentration of heavy metals, 1,4-dioxane and Dioxins
	Waste oil	Those containing organochlorine compounds and 1,4-dioxane
Sludge, waste acid or waste alkali	Those containing beyond a certain concentration of heavy metals, PCB, organochlorine compounds, pesticides, 1,4-dioxane and Dioxins	

2.2 Waste Management and Public Cleansing Law (continued)

Definition of waste and waste classification system



2.2 Waste Management and Public Cleansing Law (continued)

(3) The responsibility of industrial waste generator

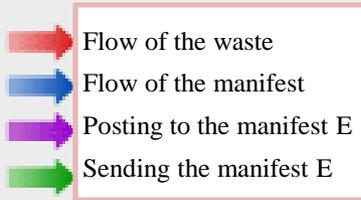
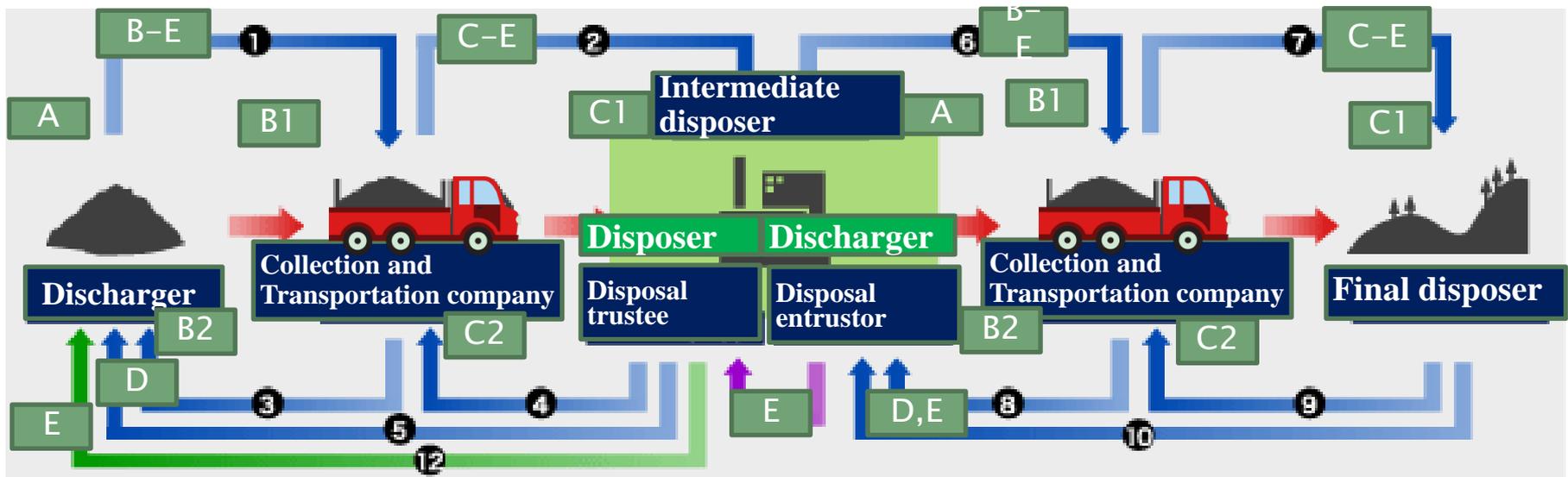
1. Businesses shall bear the responsibility of properly managing waste materials generated in their activities or entrust such management in writing to licensed waste disposal businesses (i.e. collection and transportation companies, and waste disposal businesses).
2. In case the waste generator commissions the waste disposal to others, in compliance with the manifest system, the generator is required to maintain oversight over the flow of the waste to the final disposal by paper manifest or e-manifest.
3. No one shall incinerate waste with the following exceptions:
Incineration of waste which is conducted in accordance with the municipal solid waste disposal standards or other relevant standards or where incineration is unavoidable for the public good or in accordance with social customs, etc. as specified by Cabinet Order.

2.2 Waste Management and Public Cleansing Law (continued)

(4) Waste manifest system

1. When a business (including contractors of intermediate treatment) generating industrial waste as a result of his activities is to commission waste processor to transport or dispose of his waste (including industrial waste of intermediate treatment), he shall issue the waste processor an “industrial waste control manifest” (hereafter referred to as manifest) at time of delivering his waste.
2. Manifest shall be transferred to the commissioned agents one after another at the completion of each treatment of the waste and shall return a copy of manifest to the issuer within a period prescribed in the Law.
3. When the issuer receives a copy of manifest, he must confirm each completion of the treatments and keeps the copies of Manifest for a period specified in the Law.
4. Annual reporting of the record of issued manifests to a competent governor is required.

Paper-based manifest

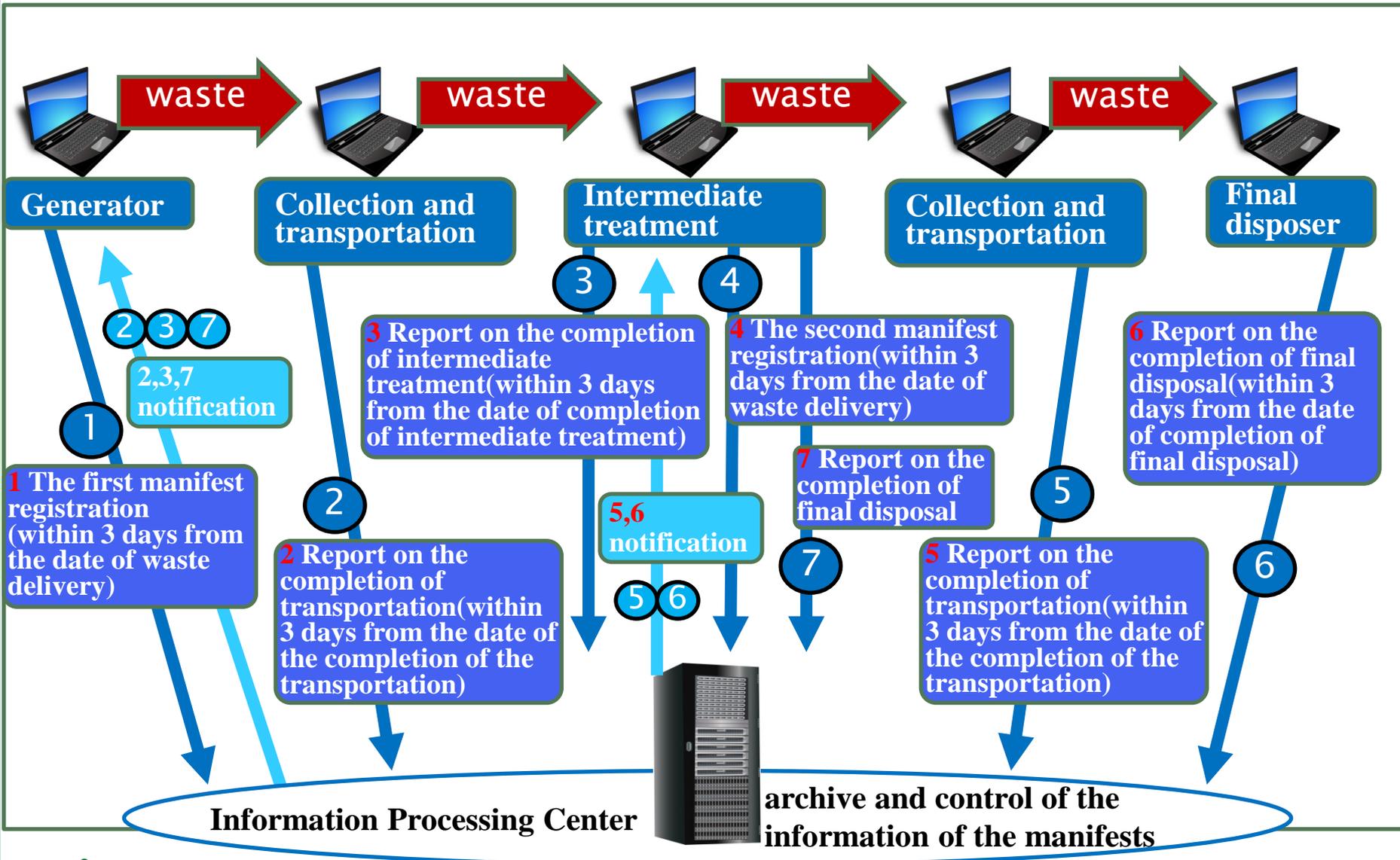


Manifest for archive

- Discharger : A, B2, D, E
- Collection and Transportation company 1: C2
- Intermediate disposer as disposal trustee : C1 as disposal entrustor : A, B2, D, E
- Collection and Transportation company 2: C2
- Final disposer : C1

Classification	Manifest for archive
Discharger	A, B2, D, E
Collection and Transportation company	C2
Intermediate disposer	as disposal trustee C1
	as disposal entrustor A, B2, D, E
Final disposer	C1

Electronic manifest



2.2 Waste Management and Public Cleansing Law (continued)

(5) Controls relating to appropriate management

1. In the case where a firm wishes to undertake as a contractor to collect, transport and dispose of industrial waste, permission must be obtained from the prefectural or designated city governments. The permit must be renewed every 5 or 7 years. The capabilities of an applicant are requested to be complied with the permit standards as specified in the law. Conditions to be satisfied include a) facilities to be used satisfy the technological standards specified, b) the knowledge and skill of industrial waste, and c) financial feasibility.
2. In the case where a firm wishes to install the intermediate treatment disposal facilities, permission must be obtained from the prefectural or designated city. Permission must also be obtained in the case where changes were made to facilities.
3. An exception to the above is the case where wide-area management of waste (such as waste spring mattresses, etc.) is implemented. For recycling specified waste (e.g. to recycle waste rubber tires into cement raw material, etc.), the above permission is not required, as an exceptional case.

2.2 Waste Management and Public Cleansing Law (continued)

(6) Responsibilities of a waste generator on the commission of waste treatment

A waste generator is responsible for managing his waste on a cradle-to-grave base.

Three key responsibilities:

1. required to comply with the commission standards.
2. required to confirm the proper treatments of his waste by a control manifest.
3. required to perform his necessary cares to ensure the proper treatments of his commissioned waste.

2.2 Waste Management and Public Cleansing Law (continued)

(7) Waste disposal standards

With regard to the operation of waste disposal facilities, the following standards or references have been established. Industrial waste disposal operators are required to comply with these.

1. Standards applying in the case where waste is stored for a given period of time (waste storage standards)
2. Standards relating to collection and transportation
3. Standards relating to disposal or recycling (intermediate disposal)
 - Standards relating to operation and management of intermediate disposal facilities
 - For incineration systems, etc., technical and maintenance guidelines have been established
4. Landfill disposal references
 - Technical guidelines relating to sanitary landfill system, and maintenance guidelines

(8) Supervision by administrative agencies

Prefectural and designated city governments (hereafter collectively referred to as “supervisory authorities”) conduct spot inspections to guide and supervise the businesses in their respective administrative areas to which they have granted permission for operation as industrial waste disposal businesses or for installment of disposal facilities.

- ❑ Spot inspection of the contractors after granting permission
- ❑ Pre-operation test for the facility
- ❑ Periodic spot inspection
 - to check manifests, outsourcing agreements, account books and other documents and items such as facility inspection markers, etc.
 - to confirm whether they are complying with the maintenance guidelines on site, and to confirm the state of facility installation, etc.
- ❑ Periodic inspection
 - Inspection of incineration facilities, treatment facilities for PCB waste, and facilities such as final disposal sites, etc.
 - to check the adapting situation of technical standards (technical guideline)

2.2 Waste Management and Public Cleansing Law (continued)

(9) Administrative action

Supervisory authorities can order industrial waste management contractors to adopt the following measures:

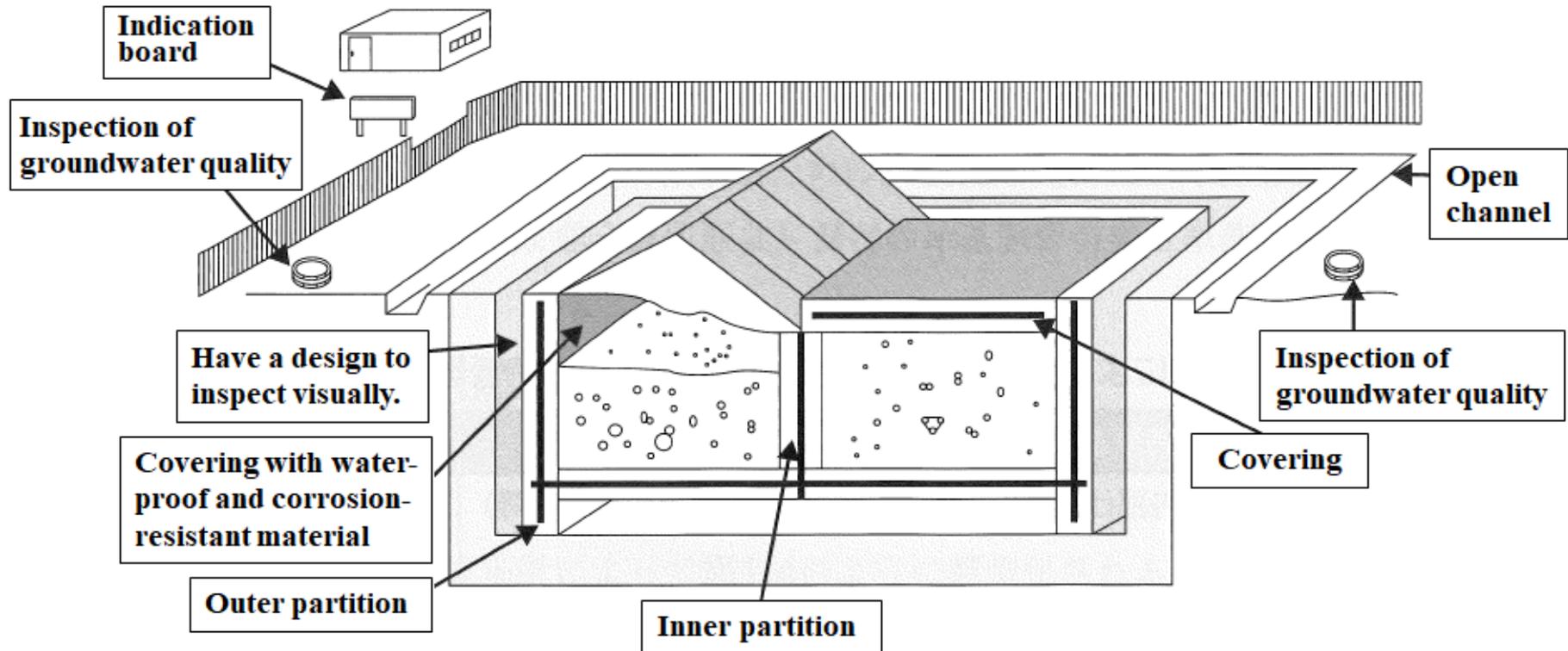
With respect to industrial waste management contractors

- Order for Suspension of Business (to stop the waste disposal business in the case of facilities used for commercial purposes, or where the capabilities of that contractor do not comply with the relevant standards, or when violations are observed)
- Order for Improvement (to order the making of improvements at the facility in the case where the facility is incompatible with the technical and maintenance guidelines or where the capabilities of that contractor do not comply with the relevant standards, or when violations are observed)
- Failure to follow such instructions from the supervisory authorities is punishable with penalties such as imprisonment and fines

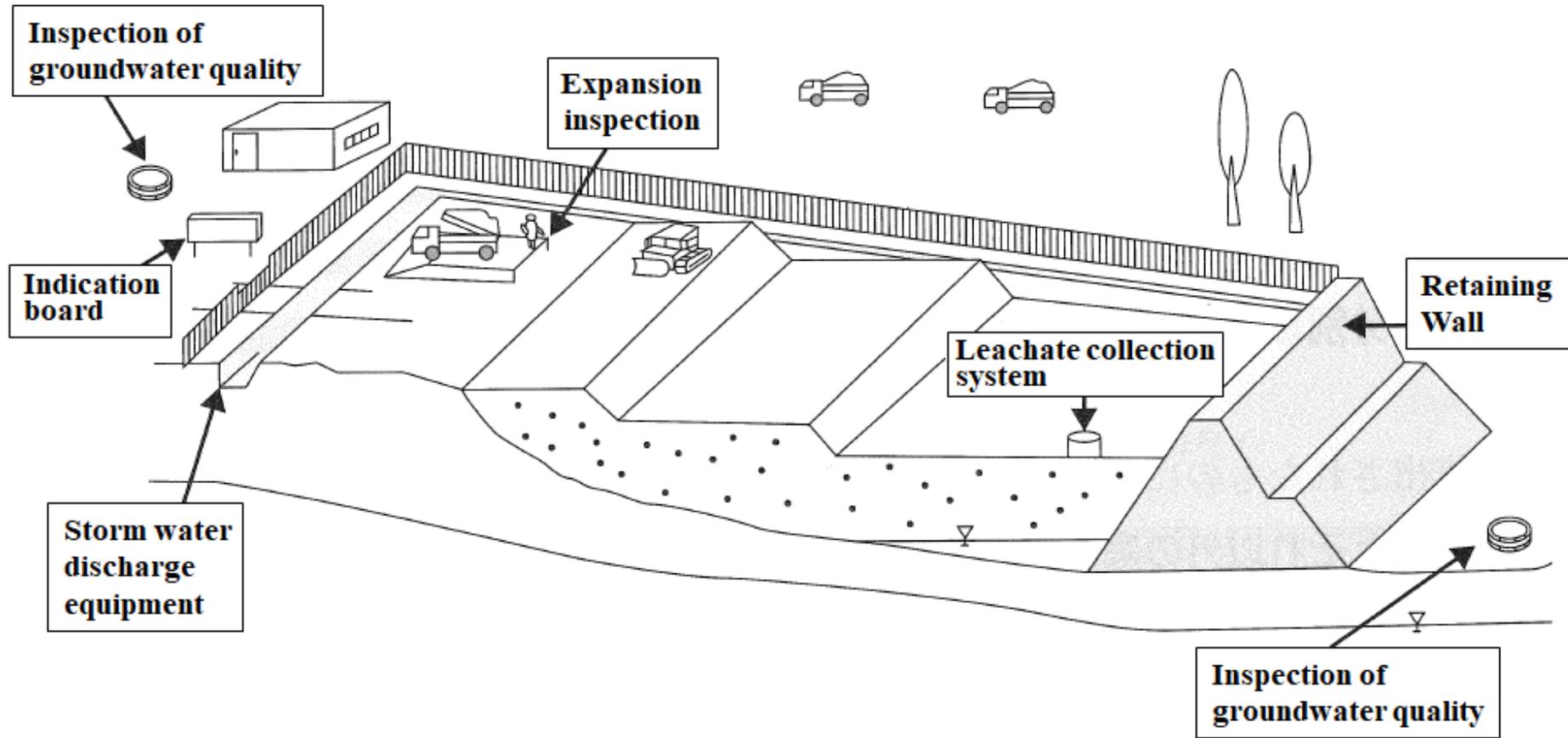
2.2 Waste Management and Public Cleansing Law (continued)

(10) Landfill facilities

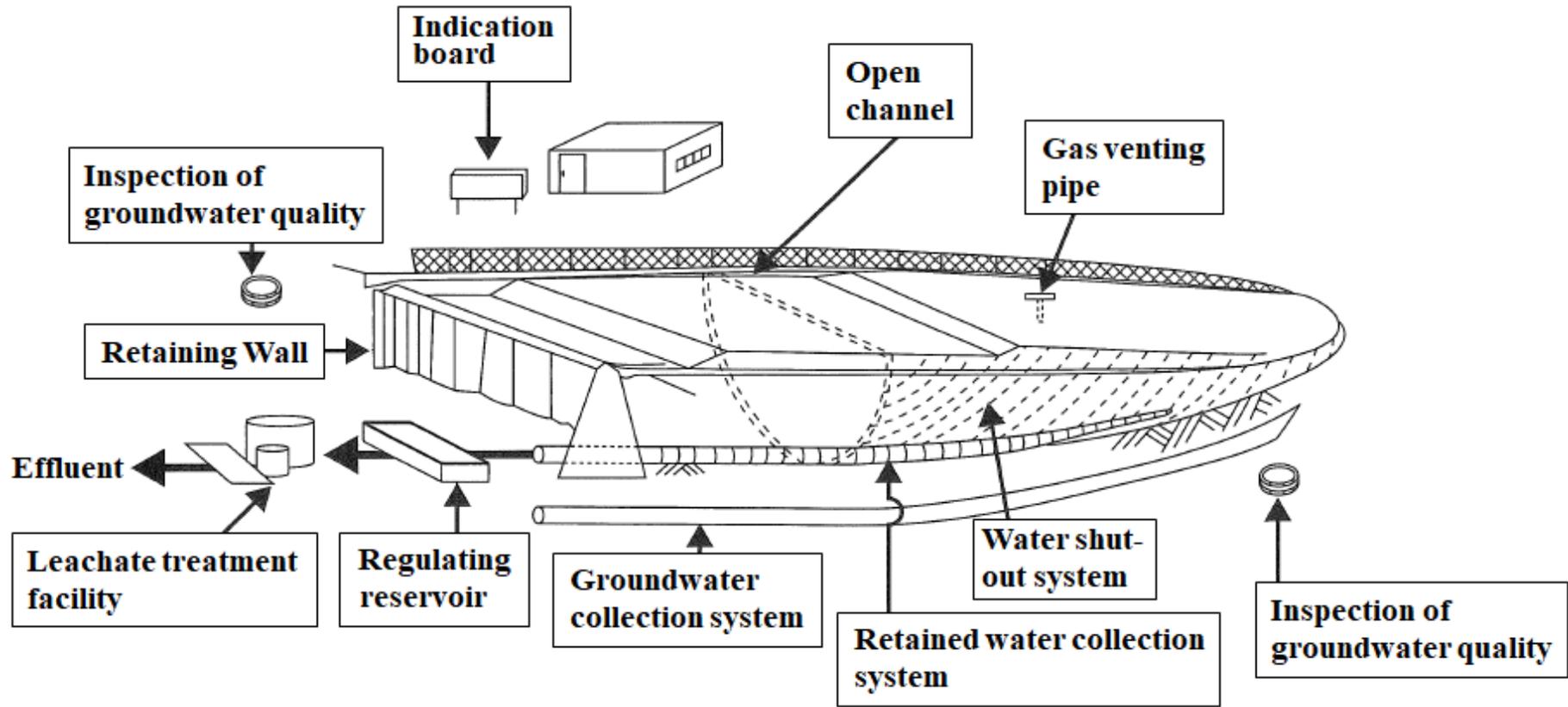
Isolated Type Landfill



Stabilized Type Landfill



Controlled Type Landfill



2.3 Law for the Promotion of Effective Use of Resources

1. Strengthening of recycling measures such as the implementation of the recovery and reuse of products by businesses
2. Reducing waste generation by resource saving and through longer service life of products
3. A new implementation of the measures for the re-use of parts from recovered products (reuse)

Through the above, the aim is to bring about the establishment of a recycling-oriented economic system.

Responsibility of business operators

- ① 3R measures in the manufacturing phase of the product (use of recycled raw materials, reduction of the amount of resources used, etc.)
- ② Consideration of 3R at the design stage (easy-to-recycle design of the products, etc.)
- ③ Identification marks to facilitate separate collection, and the putting in place by businesses of systems for voluntary collection and recycling

A total of 10 types of industry and 69 articles have been designated as requiring 3R initiatives

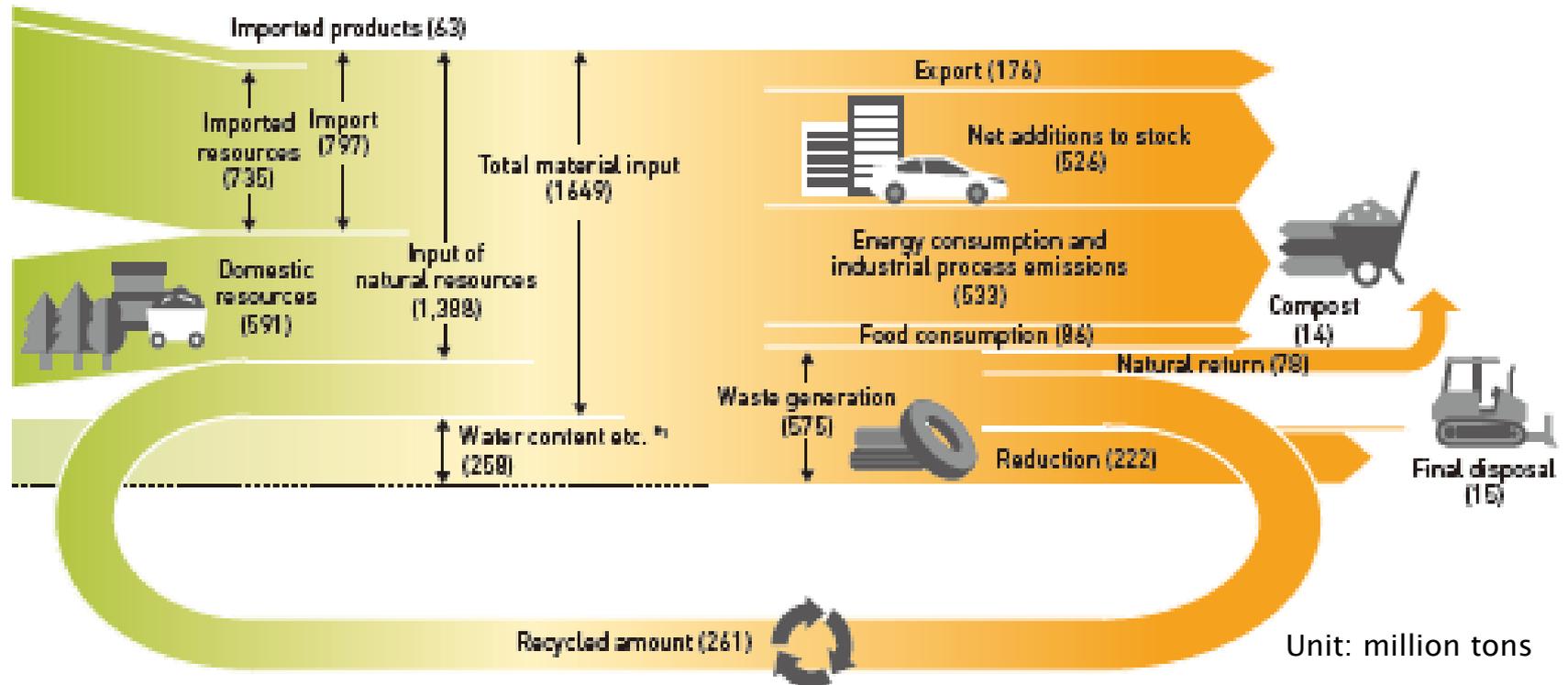


3. Waste related data in Japan

Data structure

1	Material cycle <ul style="list-style-type: none">➤ Material flow of Japan➤ Material flow indicators
2	Gross emissions <ul style="list-style-type: none">➤ Municipal waste➤ Industrial waste
3	Waste treatment flow <ul style="list-style-type: none">➤ Municipal waste➤ Industrial waste
4	Recycling rate <ul style="list-style-type: none">➤ Municipal waste➤ Industrial waste
5	Final disposal and landfill <ul style="list-style-type: none">➤ Final disposal amount➤ Remaining landfill capacity➤ Remaining landfill lifetime
6	Illegal dumping of waste

1 Material cycle: Material flow of Japan (FY2014)



Material flow indicators in Japan (A. resource productivity , B. cyclical use rate and C. final disposal amount) , set forth in the Fundamental Plan for Establishing a Sound Material–Cycle Society, show a steady progress toward their targets, due to implementation of the 3Rs.

A. Resource Productivity

GDP

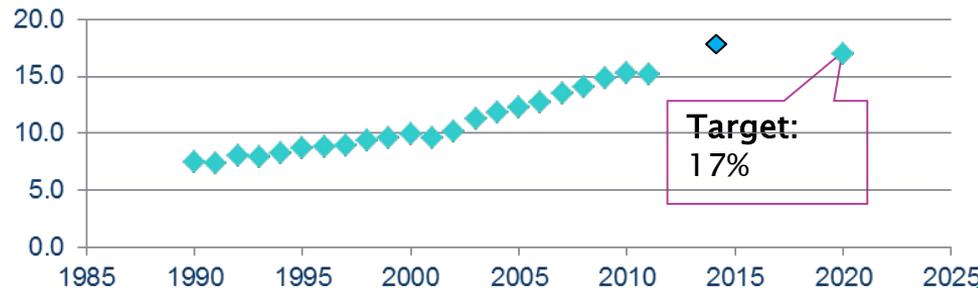
DMI* (Input of natural resources , etc.)

*DMI: Direct Material Input



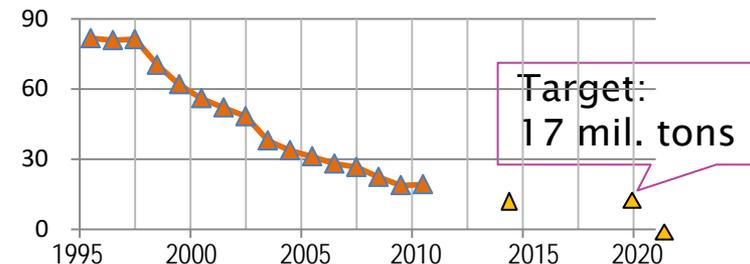
B. Cyclical Use Rate

Amount of cyclical use (reuse + recycling) %
 = $\frac{\text{Amount of cyclical use (reuse + recycling)}}{\text{DMI + Amount of cyclical use}}$

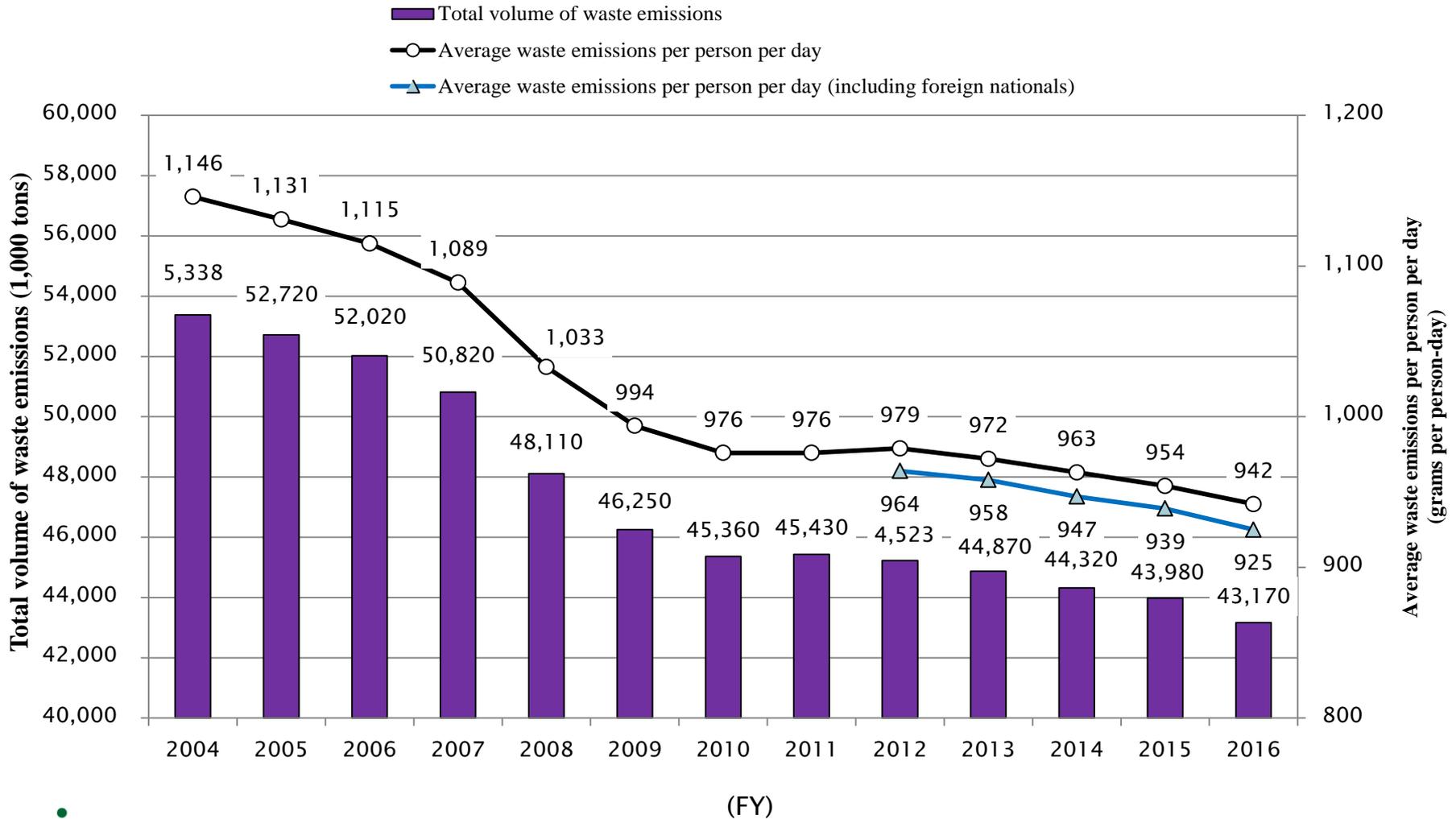


C. Final Disposal Amount

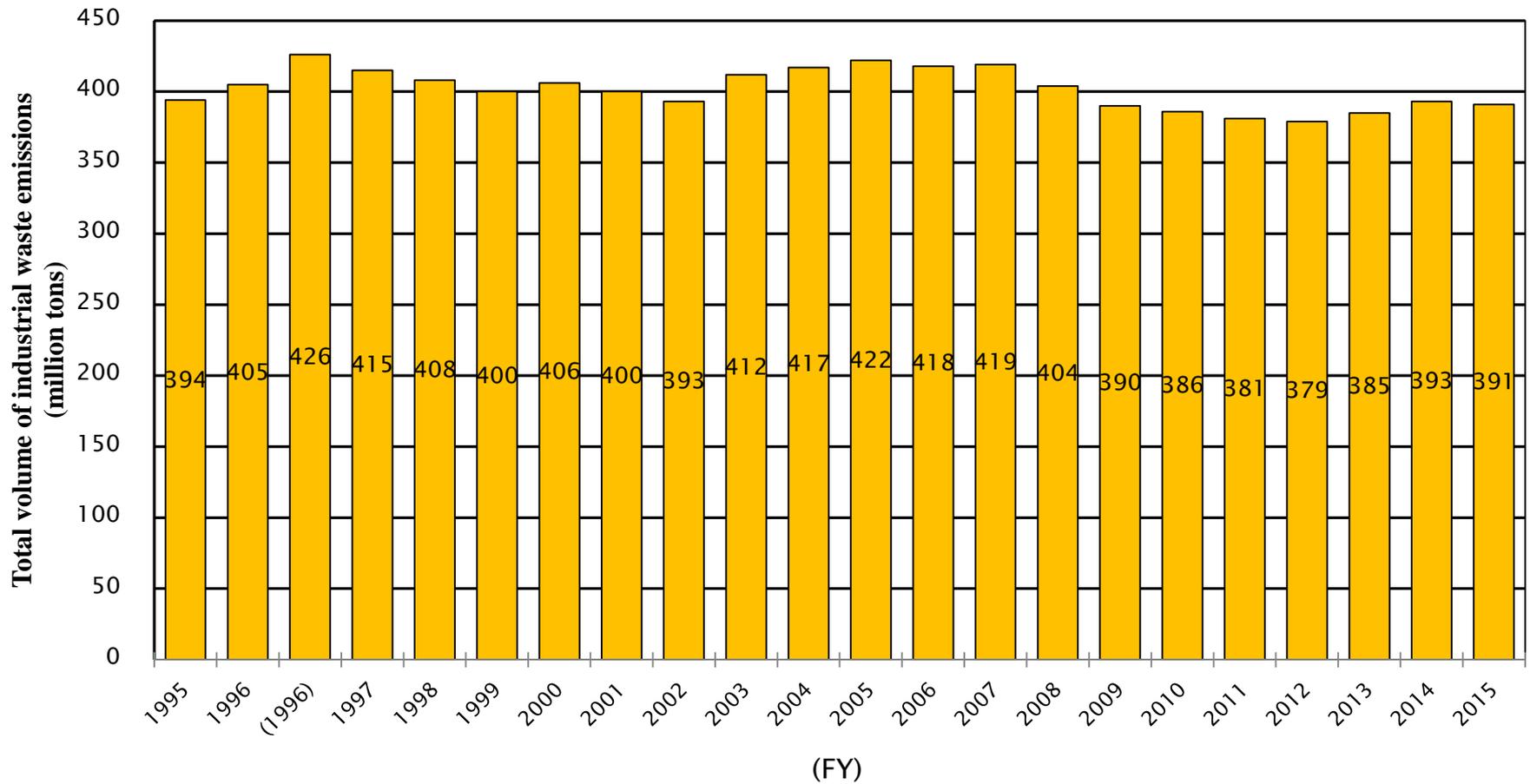
= Final disposal amount of waste



2 Gross Emissions: Municipal waste

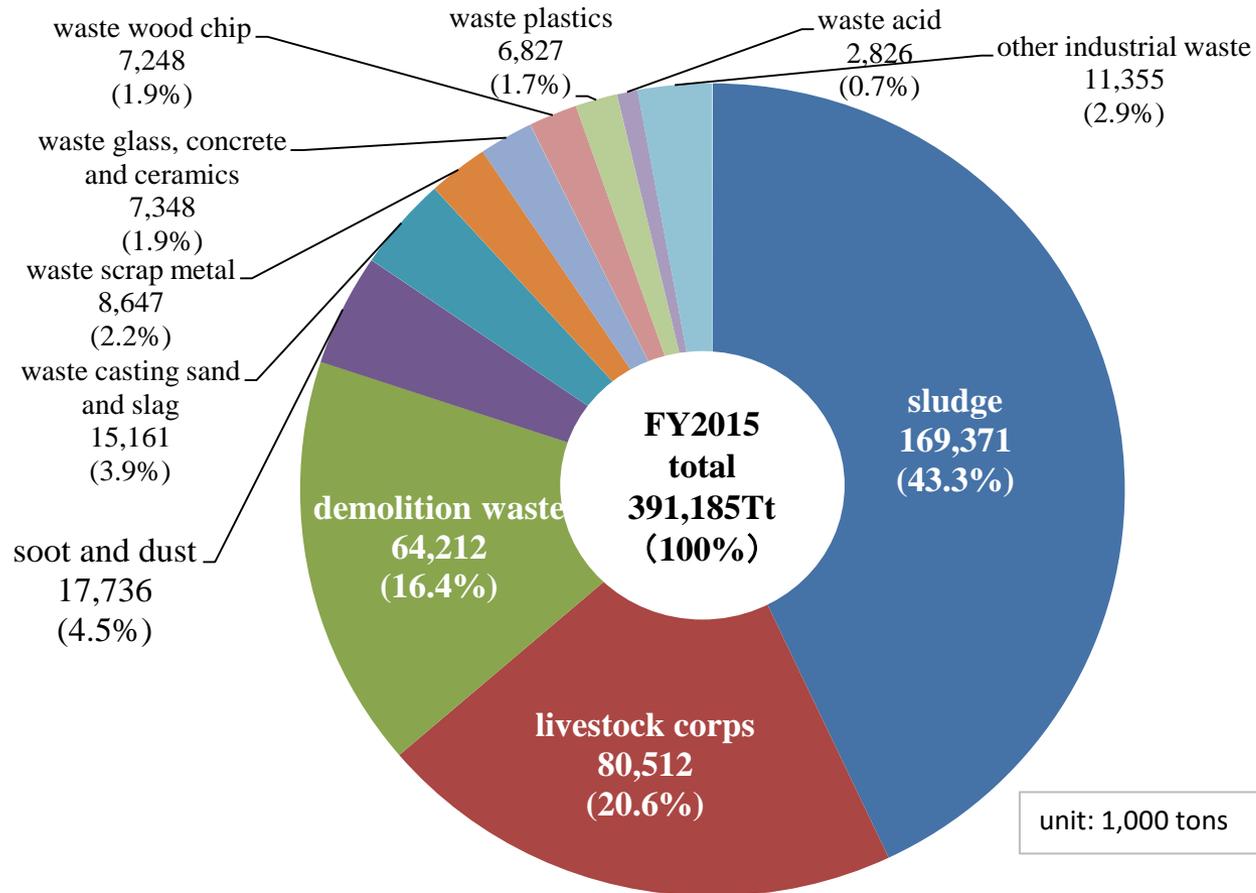


2 Gross Emissions: Industrial waste



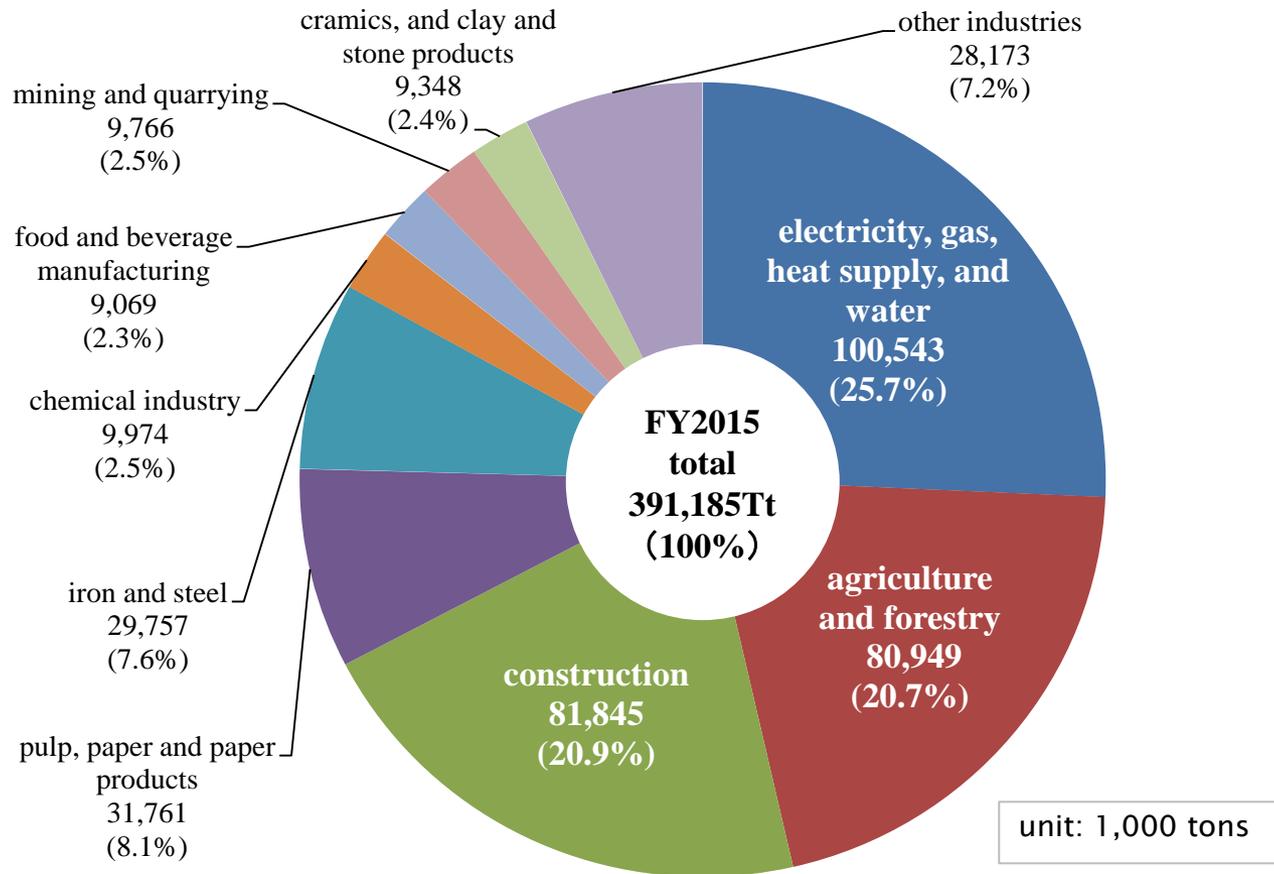
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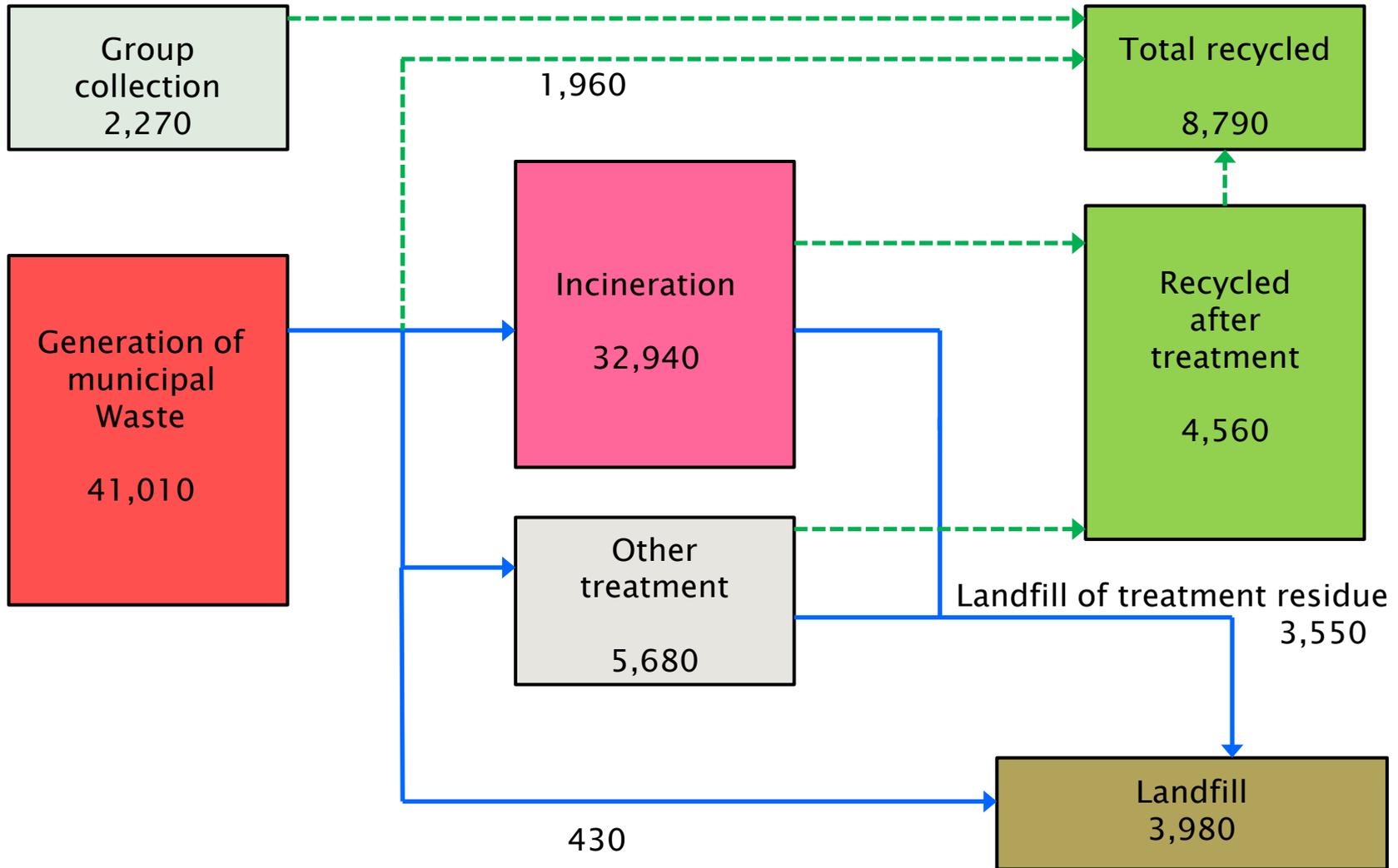
Gross Emissions: Industrial waste by category

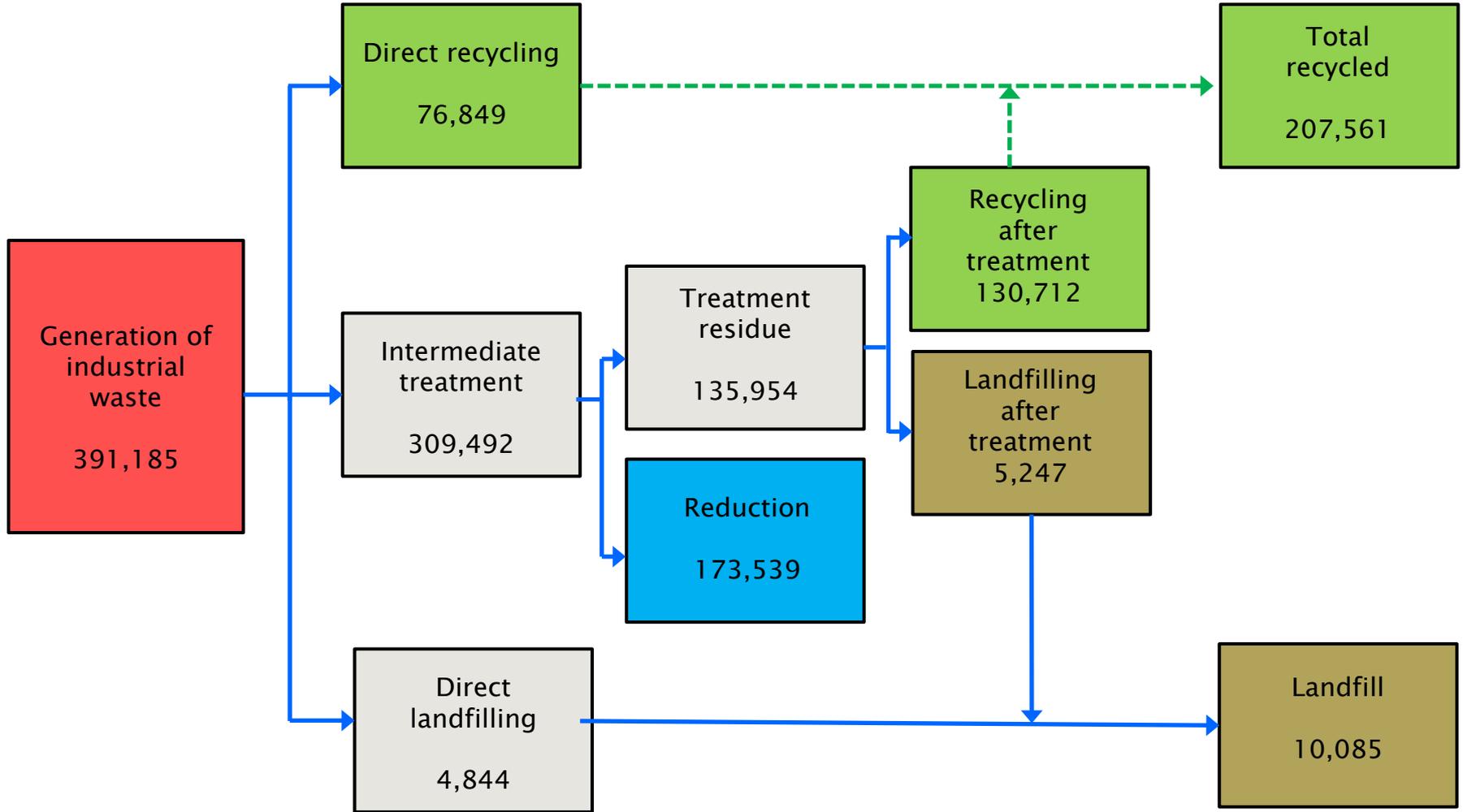


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Gross Emissions: Industrial waste by sector



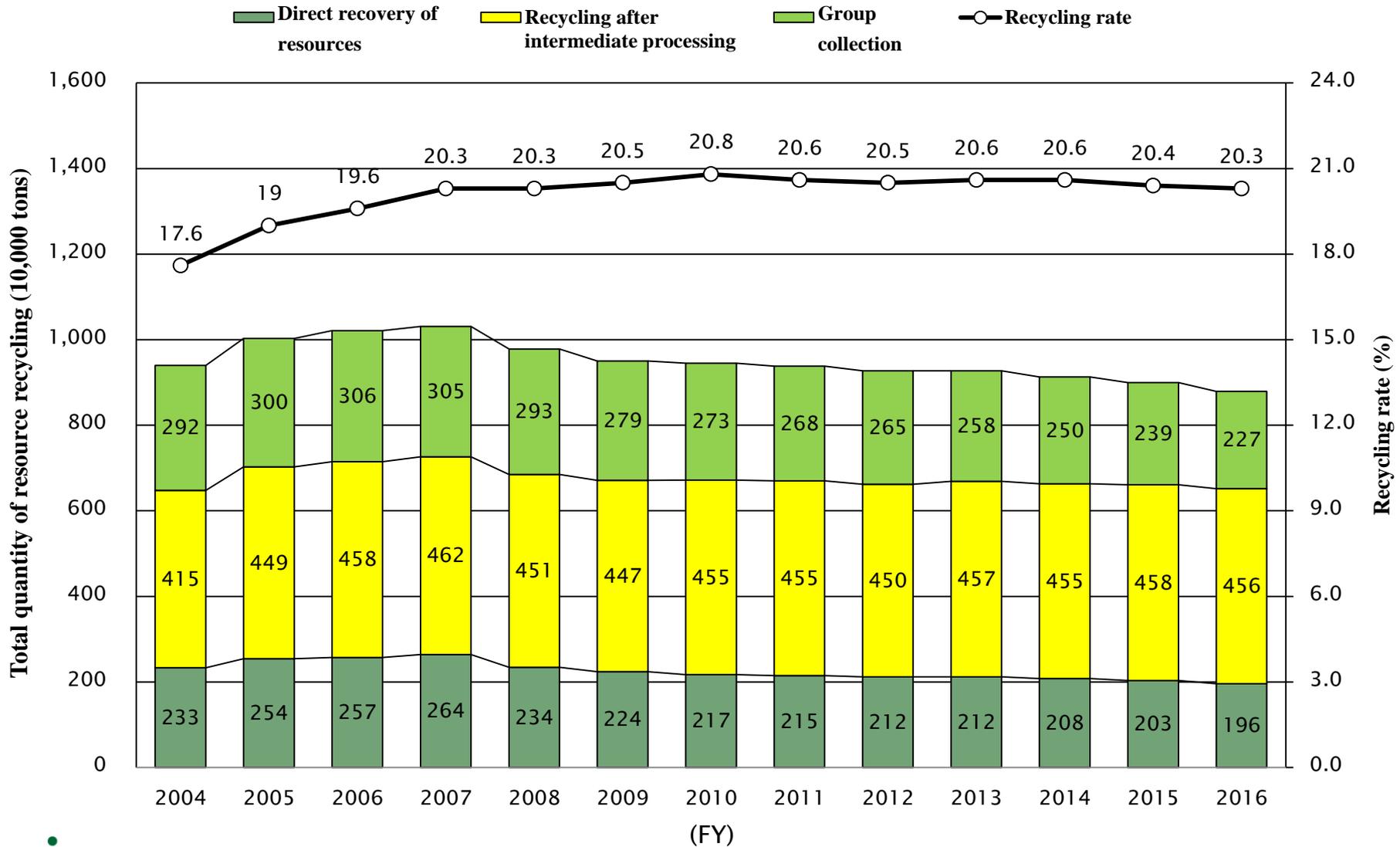




Unit : 1,000 tons/year

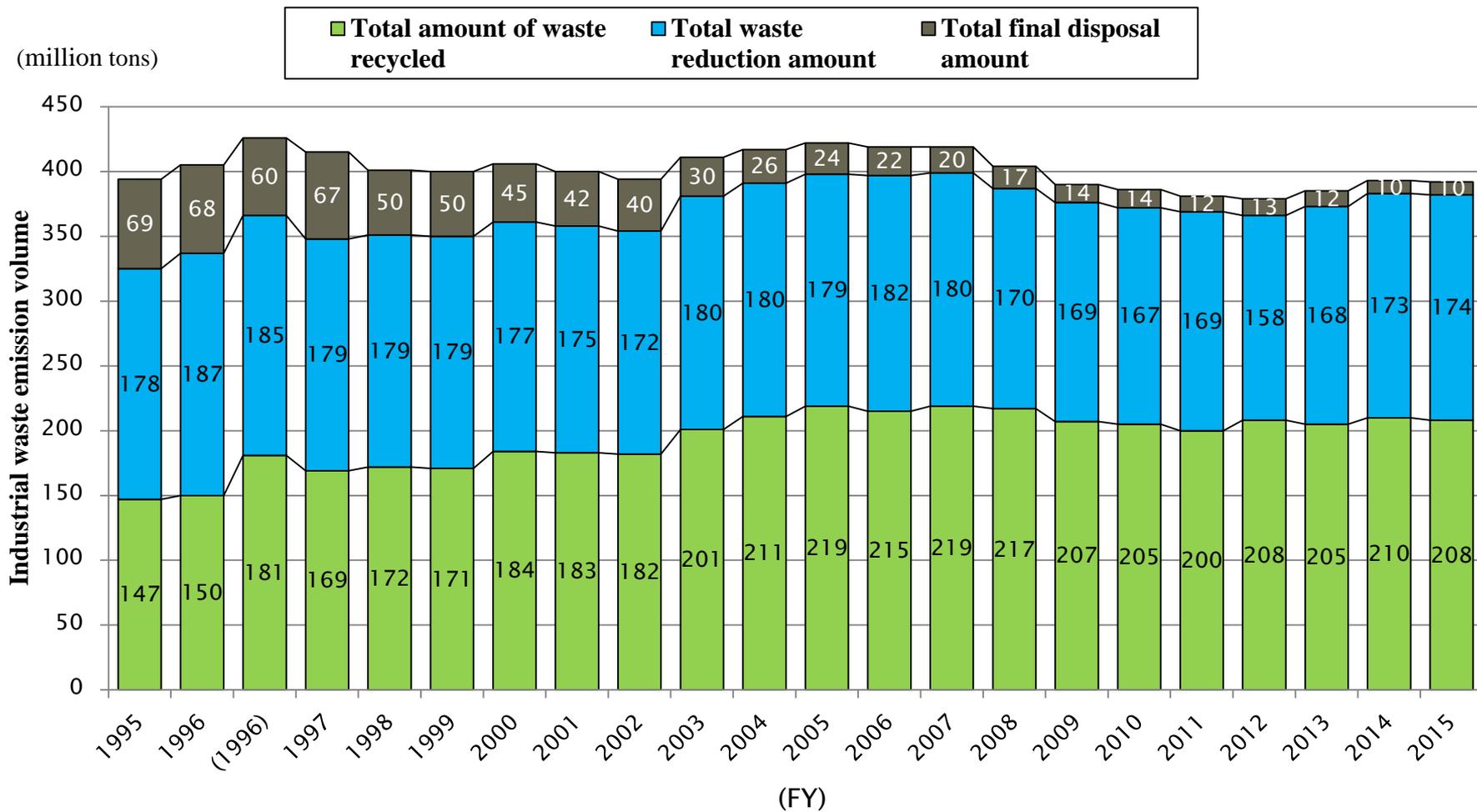
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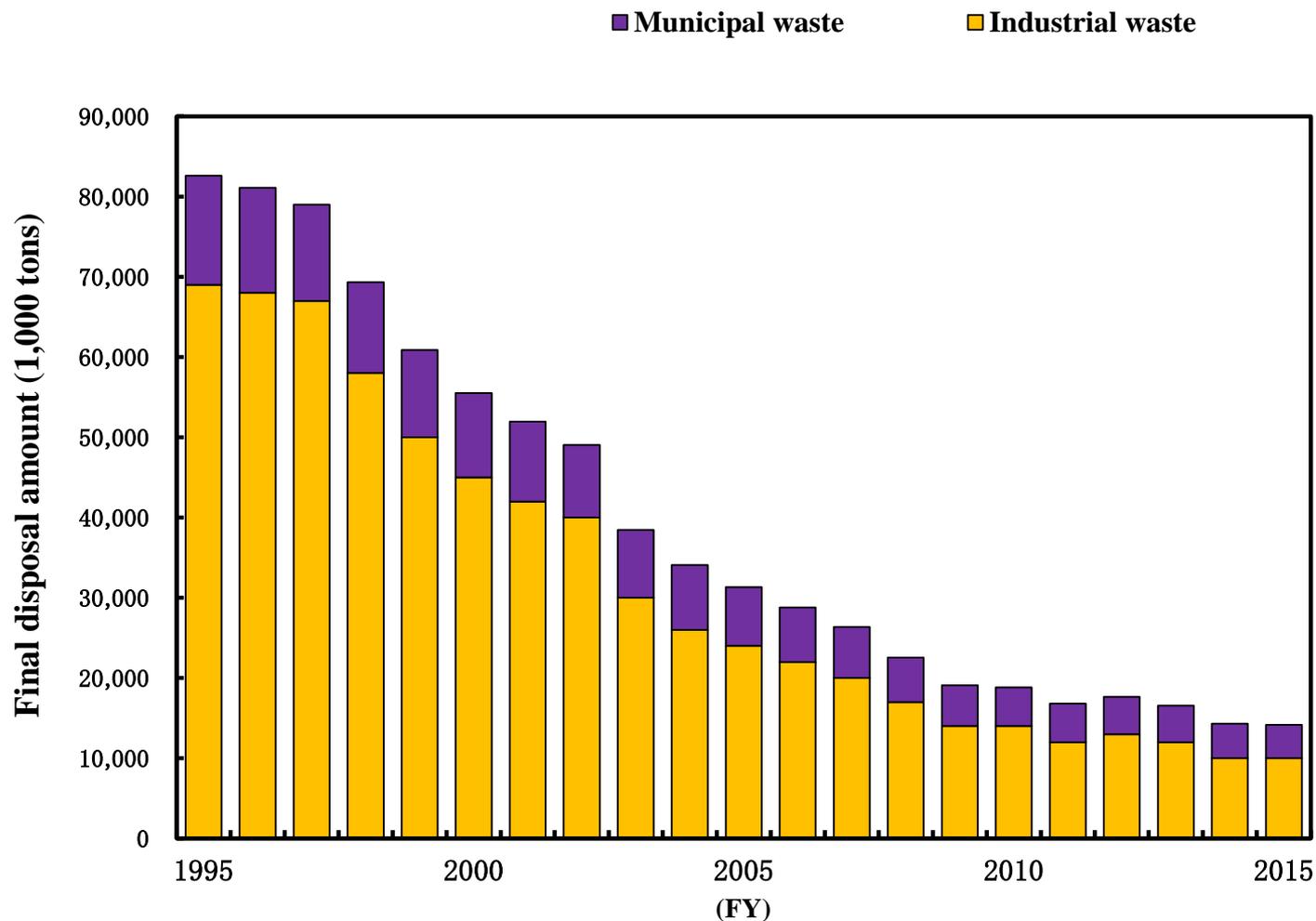
Recycling rate: Municipal waste



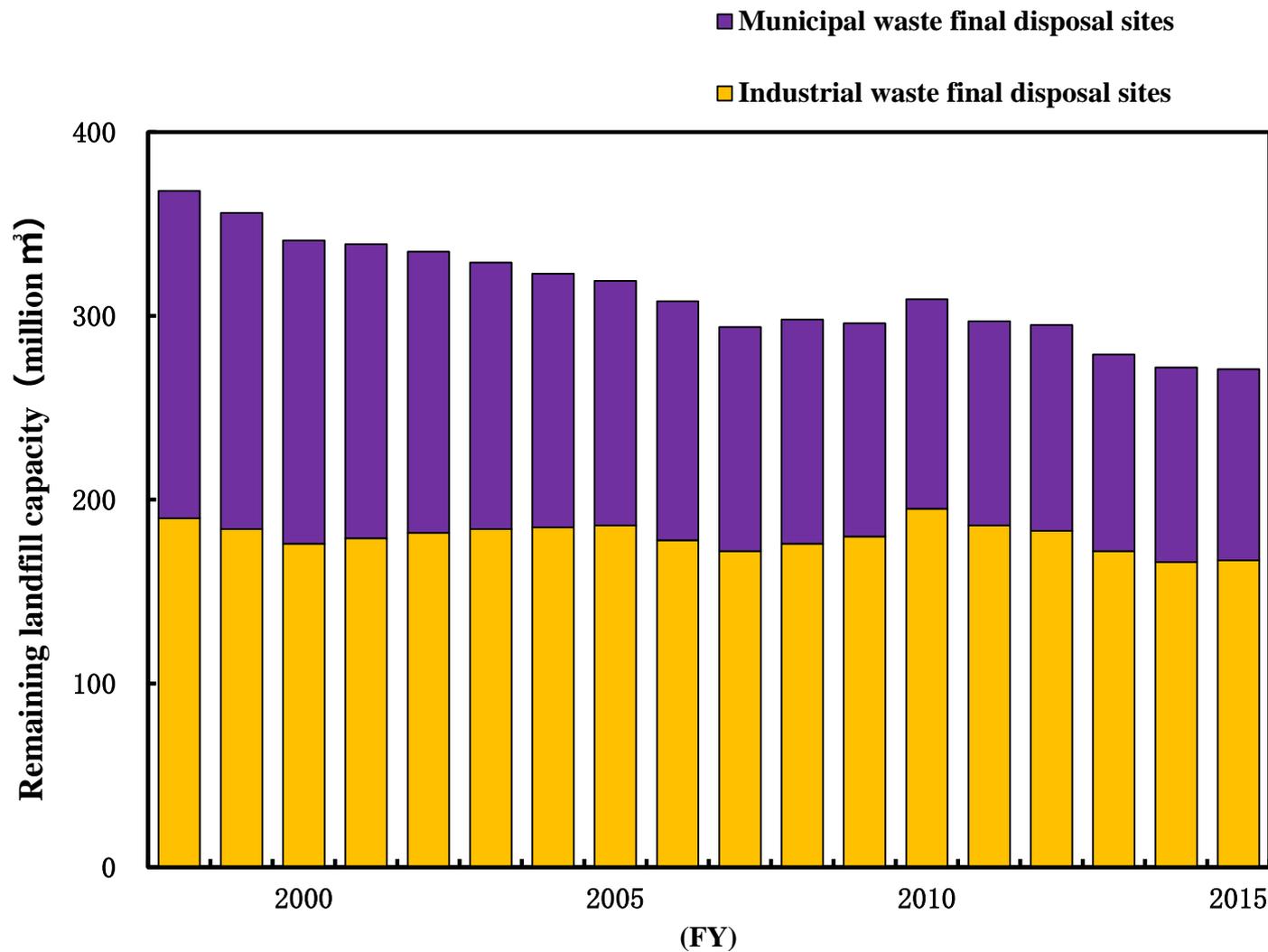
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Recycling rate: Industrial waste

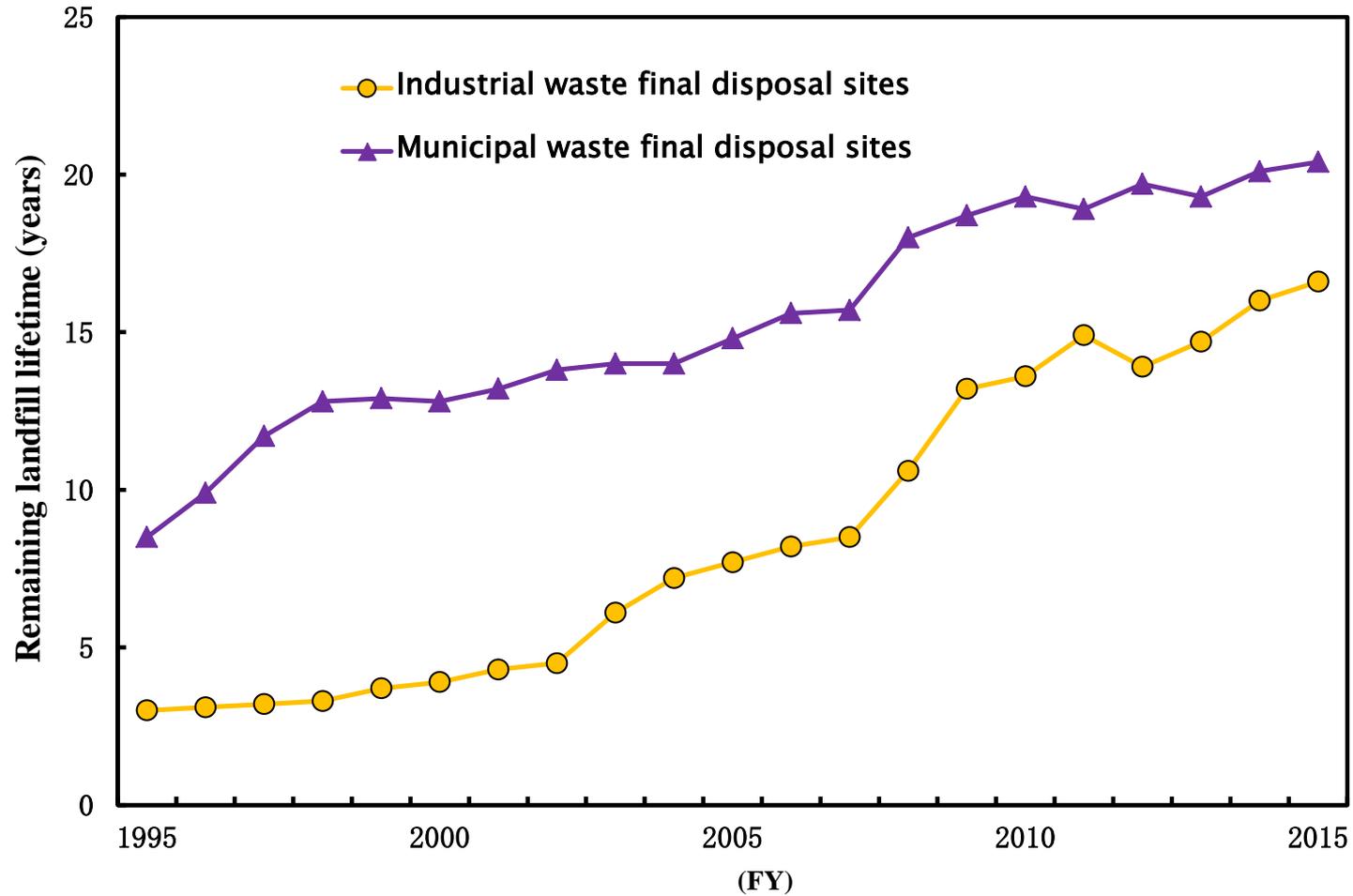




5 Final disposal and landfill (Remaining landfill capacity)



5 Final disposal and landfill (Remaining landfill lifetime)



6 Illegal dumping of waste

