

Topic 3. Administrative Organization and Finance

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1. Government Organizations Involved in Waste Management

1.1 The Structure of Government Organizations

In Japan, various geographic administrative areas have departments in charge of particular sectors. In the waste management sector, a national management system has been set up under the central government ministry, the Ministry of the Environment with divisions responsible for waste management in the local governments.

In order to ensure that a proper waste management system is in place, all concerned persons; citizens, businesses, and administrators must be proactive in fulfilling their roles and responsibilities within the system. It is essential for them to work together in developing a united front by integrating their respective actions through exchange of opinions and maintaining communication. To do this, it is important to clarify the roles and responsibilities of each person concerned.

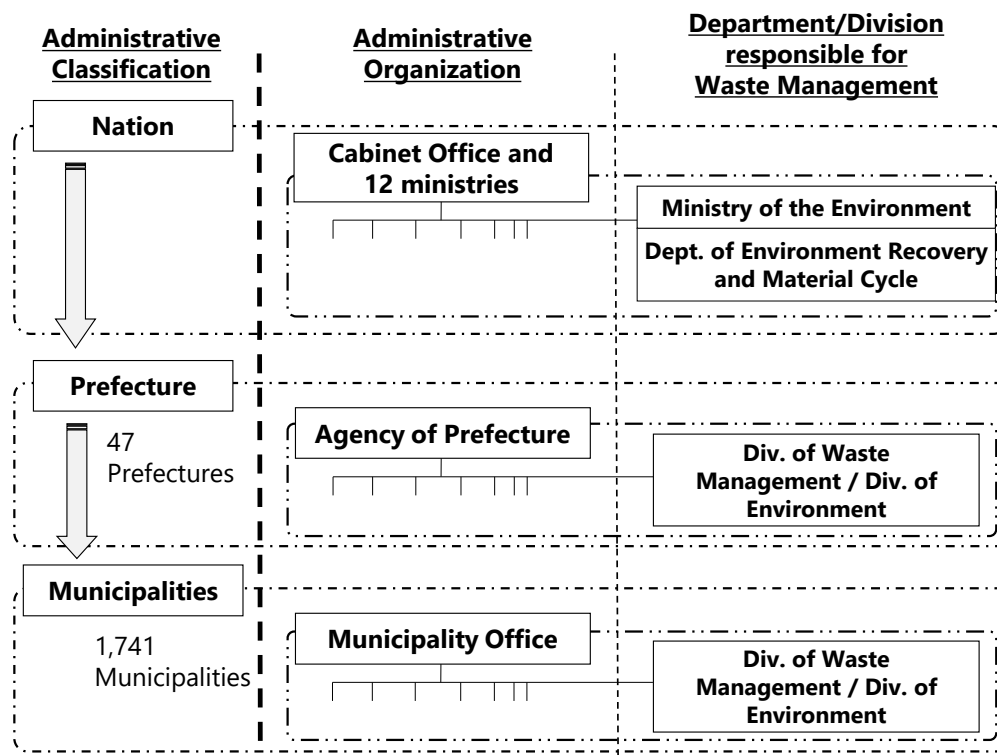
Under the central government of Japan there are 47 geographic administrative areas referred to as prefectures, major cities and districts. Within these prefectures there are different types of municipalities and special cities, and each of the prefectures, cities, towns, villages and special cities have their own administrative organization. These are the local governments responsible for administration within their administrative areas. (Special cities and municipalities number 1,741 (2020), of which 23 are special cities, 792 cities, 743 towns, and 183 villages).

Japanese government agencies are made up of the Cabinet Office and 12 government ministries, of which the Ministry of the Environment is responsible for central management of the waste management system. Other government agencies coordinate with the Ministry of the Environment and have specific responsibilities. For instance, the Ministry of Economy, Trade and Industry promotes efforts within the industrial community to construct a sound material-cycle society and controls the import/export of waste, the Ministry of Education, Culture, Sports, Science and Technology promotes environmental education, the spread of information, and research, and the Ministry of Health, Labor and Welfare works to improve public health and the working environment.

Table 3-1 Division of Responsibilities for Waste Management within the Central Government Ministries

Ministry	Division of Responsibilities
Ministry of the Environment	This is the central government ministry that supervises all of Japan's waste management administration. It coordinates with each ministry and implements all relevant policies based on the laws.
Ministry of Economy, Trade and Industry	Implements waste management activities related to trade, and promotes efforts within the industrial community to establish a sound material-cycle society
Ministry of Land, Infrastructure, Transport and Tourism	Researches the current situation of construction and building byproducts (waste), and promotes the <i>Construction Material Recycling Law</i> .
Ministry of Education, Culture, Sports, Science and Technology	Promotes environmental education, and awareness-raising activities in the whole environmental field, including waste management. Promotes development of research in the waste management field at universities and research institutes.
Ministry of Health, Labor and Welfare	Promotes initiatives related to improving public health, improving the working environment in waste management, and developing human resources.
Ministry of Agriculture, Forestry and Fisheries	Implements proper management of livestock excrement and promotion of the <i>Food Waste Recycling Law</i> .

Divisions have been set up in many prefectures and municipalities (in this text municipalities include special cities) to manage waste, and the respective responsibilities of the various levels of government agencies are determined by law.



Note: The 1,741 municipalities include cities designated by government ordinance that are at the prefectural level.

Figure 3-1 Waste Management System in Japan

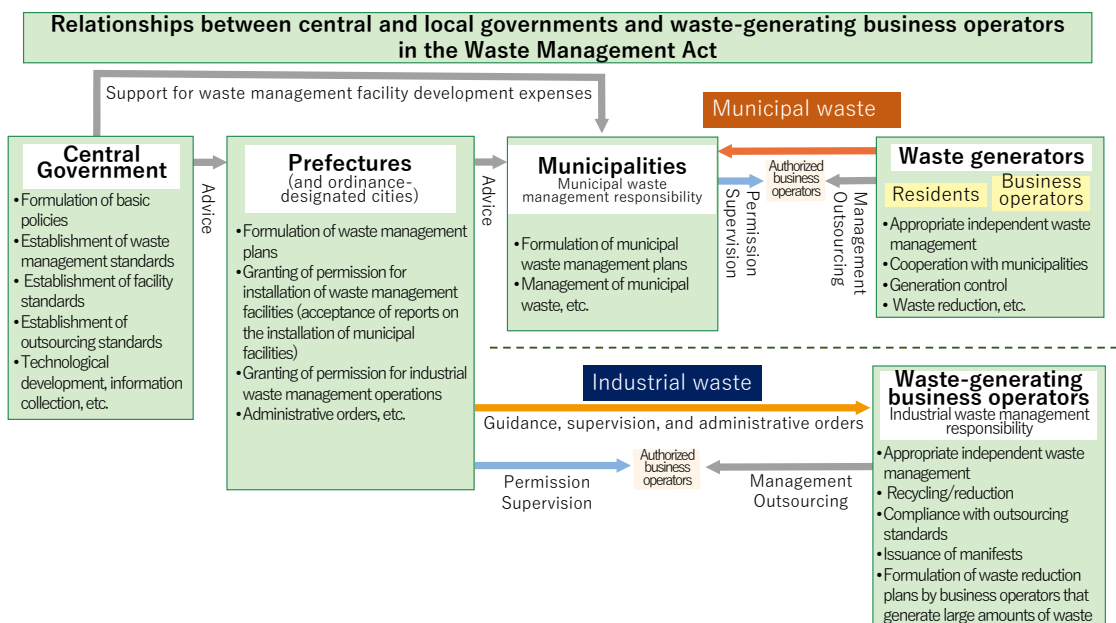
Column: Central Environment Council

The Central Environment Council is an advisory body to the Minister of the Environment, established in 2001 by the Ministry of the Environment in accordance with Article 41 of the *Basic Environment Law*. The Central Environment Council has eight subcommittees, such as the Integrated Policy Subcommittee, the sound material-cycle society Subcommittee, and the Global Environment Subcommittee etc. The Council deliberates on consultations and provides important insights regarding environmental policies and other issues, upon the request of the Minister of the Environment or other ministers.

Name of Subcommittee	Duties stipulated
Central Environment Council	<ol style="list-style-type: none"> 1. To deal with matters stipulated in Article 15, Paragraph 3 of the <i>Basic Environment Law</i> with regard to the Basic Environment Plan 2. To study and deliberate on important matters related to environmental conservation in response to consultations by the Minister of the Environment or relevant ministers. 3. Affairs under its authority pursuant to the provisions of other laws and regulations 4. To be able to state its opinions to the Prime Minister, the Minister of the Environment, or the ministers concerned in relations to the matters mentioned above.
Integrated Policy Subcommittee	<ol style="list-style-type: none"> 1. Matters related to the Basic Environmental Plan 2. Important matters related to the preservation of the environment (excluding those under the jurisdiction of other subcommittees).
Sound Material-Cycle Society Subcommittee	<ol style="list-style-type: none"> 1. Important matters concerning waste treatment and recycling promotion 2. Matters related to the Fundamental Plan for Establishing a Sound Material-Cycle Society based on the provisions of the <i>Basic Act for Establishing a Sound Material-Cycle Society</i>.
Global Environment Subcommittee	Important matters concerning the preservation of the global environment

Source: Ministry of the Environment Website “List of the Central Environment Council Subcommittees”
<https://www.env.go.jp/council/bukai.html> (accessed February 23, 2022)

The main waste management responsibilities of the central government, prefectures, and municipalities, together with the responsibilities of waste-generating business operators and individuals generating waste are shown in Figure 3-2. In addition to the responsible government agencies, both business operators and citizens generating waste also have roles to fulfill in waste management from their respective positions.



Source: Ministry of the Environment “History and Current State of Waste Management in Japan” (2014)

Figure 3-2 Division of Waste Management Responsibilities among Various Entities

Table 3-2 Description of Waste Management Responsibilities among Various Entities

Entity	Responsibilities
Central government	Gathers and collates information about waste, makes laws and sets standards, and promotes the development of technology. Gives technical and financial assistance to municipalities and prefectures, so as to devise and put into effect comprehensive measures that contribute to other related entities fulfilling their responsibilities.
Prefectures (Large cities designated by government ordinance)	Give technical assistance so that municipalities can fulfil their responsibility for municipal waste treatment. Assess the current situation with industrial waste in the region concerned, devise an industrial waste treatment plan so that treatment of the waste can be carried out properly and provide leadership and supervision to the waste-generating business operators. Also, register and supervise the industrial waste businesses of industrial waste treatment operators. (Large cities designated by government ordinance have responsibilities generally equivalent to those of prefectures, due to the transfer of authority from prefectures, etc. in addition to the responsibilities of municipalities.)
Municipalities	Responsible to treat general waste generated in their respective areas and develop plans for various types of waste targeted in their cleaning operations. They also promote voluntary activities by the residents to reduce municipal waste generated and take measures to support proper treatment of municipal waste.
Waste-generating business operators	Responsible to properly treat the waste produced from their own businesses (industrial waste), by their own initiatives. Make efforts to reduce the amount of waste by promoting recycling within their businesses and treat waste properly by outsourcing it to reliable private treatment businesses. They also anticipate the contribution of their products and containers to the waste flow, and prevent treatment and recycling from becoming a problem by trying to develop environmentally friendly products and containers and providing information contributing to proper treatment methods.
Waste-generators, citizens	Work to promote waste recycling through proactive use of recycled or environmentally friendly products and by minimizing waste and sorting waste for disposal. In this way they cooperate with the policies of national and municipal entities to reduce waste and to treat it properly.

Source: Ministry of the Environment “History and Current State of Waste Management in Japan” (2014)

1.2 Changes in the Administrative Organization of Waste Management

The government agency with jurisdiction over waste management used to be the Ministry of Health and Welfare, because of its public health perspective until 2001. However, societal changes redefined the purposes and requirements of waste management, as well as the jurisdiction of government agency. The Ministry of the Environment has been the managing agency since the rearrangement of government ministries in 2001, and a national management system has been built that includes municipalities.

Municipal waste was previously under the jurisdiction of the Ministry of Health and Welfare from the perspective of public health, along with the works related to water services. In 1971, the Environment Agency was set up with the purpose of centralizing and integrating the regulatory administration for pollution issues, which was scattered in various ministries. The Environment Agency also took over general administration relating to preserving the natural environment, conservation of the environment and related matters. But policies that the Environment Agency could actually implement were limited, and information sharing at the different levels of administration in some ministries and agencies was inefficient, making it difficult to develop an effective environmental administration.

Against this background, in January 2001 there was a rearrangement of the central government ministries and agencies during which the Environment Agency became the Ministry of the Environment. Responsibilities under the jurisdiction of the Ministry of Health and Welfare's Water Supply and Environmental Sanitation Department were reorganized; water services were moved to the Ministry of Health and Welfare's Health Bureau and waste treatment and cleaning related work came under the Waste Management and Recycling Department, in the Ministry of the Environment.

In addition, part of the work relating to waste was removed from the Water Quality Bureau in the Environment Agency and placed under the Waste and Recycling Policy Division and a system was set up whereby the Ministry of the Environment was put in charge of waste management.

1.3 Government Waste Management Services

Waste management is a major administrative service for which the government needs to take responsibility. In the past the government took the initiative in waste management, but now the use of private sector technology and know-how is increasing to meet a variety of waste management demands. This includes tackling the increasingly diverse waste stream, providing high-quality services, and implementing waste management in an economically efficient manner. But, even given use of the private sector, it is essential to provide government oversight in order to secure provision of government services providing proper, safe waste management.

Under the *Waste Management Act* municipalities are designated as the management entities for municipal waste operations. Thus, waste management is one of the important services municipalities must provide for citizens within the administrative area under their jurisdiction.

In addition to waste collection and the various work processes leading to final disposal, municipalities are also responsible for public awareness directed to citizens. Many municipalities have a specialized division dealing with waste management, but in the case of collection, transport and managing the operation of facilities, some municipalities do this work directly and some by outsourcing part of it to the private sector.

Also, some municipalities with relatively low populations join with other nearby municipalities and set up joint waste management (referred to hereafter as “Clean Association”). Thus, specialized associations are set up to provide government waste management services so that the municipalities can carry out their responsibility to provide waste management in an efficient way. These Clean Associations provide the government waste management services for all the administrative areas under the jurisdictions of the member municipalities. The parts of the work done directly by each municipality differs depending on each municipality’s population size and area characteristics, however each municipality is responsible for the overall waste management under its jurisdiction.

The basic approach to waste management of Japan is that waste should be treated in the locality where it is generated and as close to the point of generation as possible. This is the principal of local treatment within each area.

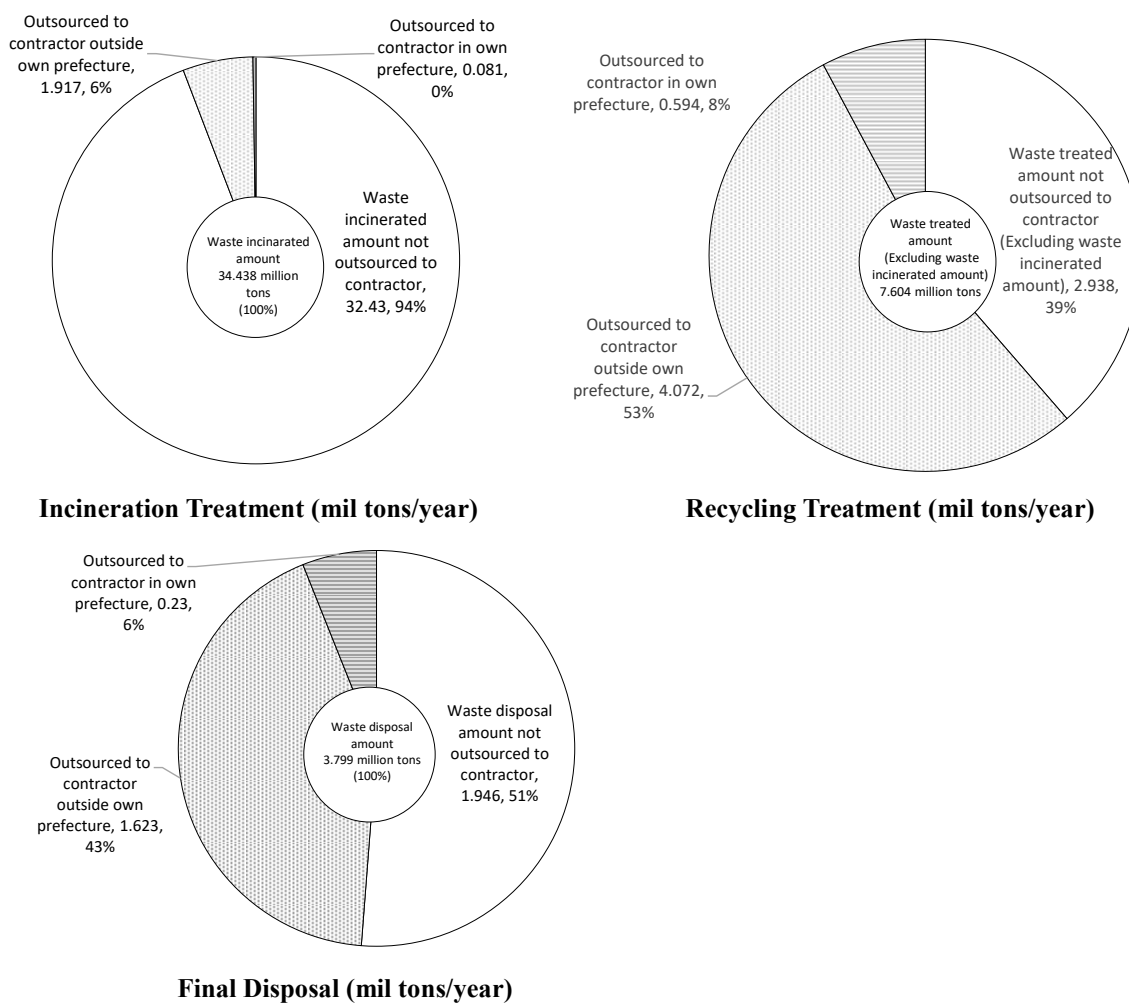
The status of outsourcing by municipalities for incineration treatment, recycling treatment, and final disposal is shown in Figure 3-3. The outsourcing mentioned refers to agreements under which treatment or disposal of waste takes place outside of the municipalities or Clean Associations, which do not treat or dispose of the waste by themselves, and implies that disposal does not occur within the area.

For incineration treatment, the amounts treated by outsourcing respectively within prefectures is 1,917,000 tons (5.6% of the total waste incinerated amount) and outside prefectures is 81,000 tons (0.2%), and the total amount outsourced for incineration is 1,998,000 tons (5.8%). The amount of incineration treatment not outsourced (the amount treated by municipalities or Clean Associations) is 32,430,000 tons (94.2%), so that most of the amount is treated according to the principal that treatment occurs within the area of generation and is treated in municipally owned facilities.

For recycling treatment, the amounts treated by outsourcing respectively within prefectures is 4,072,000 tons (53.6% of the total waste recycling treatment amount) and outside prefectures is 594,000 tons (7.8%) with a total treated amount of 4,666,000 tons (61.4%). The amount of recycling treatment waste that is not outsourced (the amount treated by municipalities or Clean Associations) is 2,938,000 tons (38.6%). In the case of recycling treatment, the amount rate treated at municipality owned facilities is less than that for the amount rate of incinerated treatment, but recycling is done

efficiently in neighboring areas.

For final disposal, the final disposal amounts by outsourcing within prefectures is 1,623,000 tons (42.7% of total waste disposal amount) and outside prefectures 230,000 (6.1%) for a total amount of 1,853,000 tons (48.8%). The amount of final disposal treatment waste that is not outsourced (the amount treated by municipalities or Clean Associations) is 1,946,000 tons (51.2%) which means that more than half the amount is treated at facilities owned by municipalities. As of 2019, there were 285 municipalities without final disposal sites, which was about 16% of the total.



Source: Ministry of the Environment “Waste Management in Japan (FY2019)” (2021)

Figure 3-3 Status of Outsourced Waste Treatment and Disposal

1.4 Waste Management through Outsourcing and Collaboration with the Private Sector

There are many private sector enterprises in Japan which have the necessary technology and knowledge that can provide sufficient waste management services on behalf of municipalities. Accordingly, there are many municipalities that use private sector to provide the necessary governmental services in their administrative areas.

In many municipalities in Japan, the government administrators outsource part of the waste management service to the private sector for which the government is responsible for, such as the collection and transport of waste or the operation of facilities.

Municipalities must set up fairly large organizations within their administrations to provide citizens directly with waste management government services, and they have to ensure the necessary personnel and budget to do the work. They also need to secure and implement budgets on an ongoing basis for the operation and maintenance of equipment and facilities. For these reasons, in order to supply services for waste collection and transport efficiently and economically, many municipalities outsource waste collection and transport services to private sector collection and transport businesses. Many municipalities outsource the operation and management of their own waste treatment facilities (incineration facilities, recycling facilities, etc.) and final disposal sites to the private sector in order to ensure stable operation and management by highly skilled engineers.

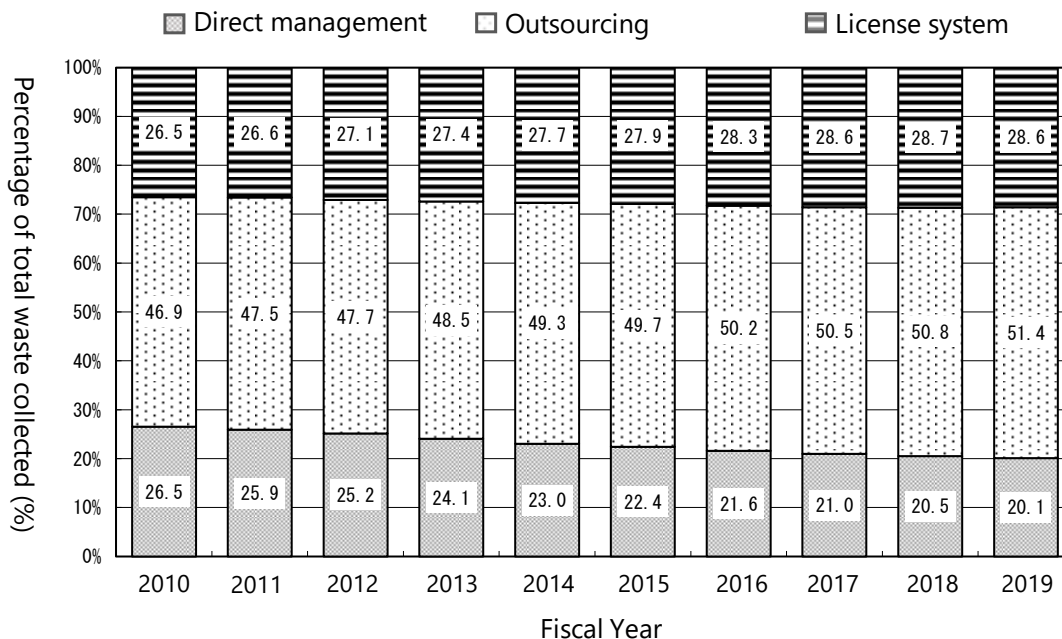
The work itself is carried out by the private sector, but the municipalities oversee the outsourced work and bear responsibility for it.

Table 3-3 The Advantages and Disadvantages of Direct Operation and Outsourcing (Collection and Transport)

Item	Direct Operation	Outsourcing
Advantages	<ul style="list-style-type: none"> ✓ Lines of responsibility are clear ✓ Easy to align with other policies such as 3R. ✓ Easy to adjust to citizens requirements ✓ Can respond flexibly to plans ✓ Can react to unforeseen events. ✓ It is possible to provide stable employment for a large number of workers. 	<ul style="list-style-type: none"> ✓ Can use private sector technology and knowhow, and improve efficiency of collection. ✓ No large organization is needed, and administration is easy to manage. ✓ Reduction of collection costs is possible
Disadvantages	<ul style="list-style-type: none"> ✓ A large organization must be set up and managed for collection ✓ Facilities, equipment, and personnel must always be maintained. ✓ There will be high collection costs. ✓ It is hard to raise collection efficiency (maintain staff motivation). 	<ul style="list-style-type: none"> ✓ Hard to tie down responsibility for collection ✓ Only work specified in the contract is done so flexible responses are difficult ✓ As the private enterprise is profit driven there is a danger that the quality of the collection work may fall. ✓ The government loses the opportunity to be in touch with its citizens. ✓ A pre-condition to ensure competitive selection is that there should be a number of private businesses able to provide a stable and efficient collection and transport service.

In addition to industrial waste generated from business activities, waste generated from offices and other facilities is positioned as business-related waste, and is collected separately from industrial waste and household waste. Business-related waste is transferred to treatment facilities either by the waste generators themselves or the more likely case of private companies with collection and transportation licenses.

Changes in the ratios of waste collection amount for each category is shown in Figure 3-4. The ratio of waste collection done by municipalities outsourcing is increasing annually with a corresponding tendency for the ratio of collection directly implemented by municipalities to continually decline. In 2019, the ratio of waste collection amount directly collected by municipalities was 20.1%, the ratio of municipalities' outsourced waste collection was 51.4%, and licensed businesses collected 28.6%. Thus, contractors, who entered into outsourcing agreements with municipalities to collect waste, collected over half the total collected waste, and represent the largest share.



Source: Ministry of the Environment “Waste Management in Japan (FY2019)” (2021)

Figure 3-4 Changes in the Ratios of Waste Collection Amount for Each Category

1.5 Roles of Government, Waste-generating Businesses, and Private Sector

It is important to clarify the various roles of administration (Government, Prefectures and Municipalities), waste-generating businesses, and the private sector, and in Japan the responsibilities of each is defined by law. The plans made by local governments for waste management show the roles and responsibilities of each entity concerned, and they make aware of these plans, as each entity is required to proactively carry out their duties.

The *Waste Management Act* sets out each of the responsibilities of citizens in Article 2-4, businesses in Article 3, and the central and local governments in Article 4 respectively.

Table 3-4 The Roles of Government, Businesses and Citizens Defined in the Waste Management Act

Government Businesses Citizens	Act	Responsibility
Central Government	Article 4 3,4	<p>The central government shall collect information about waste, keep it in orderly arrangement and use it, take measures for promotion of waste management technology development and also take suitable action for proper and smooth waste management throughout Japan. The central government shall endeavor to give the necessary technical and financial assistance to the municipalities and to the prefectural governments for adequate performance of their duties mentioned in the preceding two Paragraphs.</p> <p>To suppress discharge of waste and ensure their proper management, the central government, prefectural governments and municipalities shall all endeavor to enlighten both the general public and businesses on the importance of appropriate solid waste management.</p>
Prefecture (Local Government)	Article 4 2	<p>The prefectural governments shall endeavor to give the necessary technical advice to the municipalities under their administration to ensure their adequate performance of the duties prescribed in the preceding Paragraph and shall endeavor to grasp the conditions of industrial waste in the respective prefectures and take the necessary action for proper management of such industrial waste.</p>
Municipality (Local Government)	Article 4	<p>The municipalities (self-governing bodies of cities, towns and villages) shall endeavor to promote residents' voluntary activities to reduce their municipal solid waste in their respective administrative areas and take the necessary action for proper management of those municipal solid waste. They shall also endeavor to perform the management work efficiently by improving the ability of the management personnel, consolidating disposal facilities and developing operation techniques.</p>
Businesses	Article 3	<p>The businesses shall appropriately manage of the waste left as a result of their business activities.</p> <p>The businesses must endeavor to reduce the amount of waste by recycling or re-use of waste. The businesses shall assess the handling or processing difficulty of the waste generated when the products, their containers or whatever they manufacture, process and sell the like are discarded. They shall develop such products, containers or the like which are unlikely to present handling or processing difficulty, provide information on appropriate management of the waste generated when the products, their containers or the like are discarded, or take some other actions to ensure appropriate management of the said products, containers or the like without difficulty.</p> <p>In addition to the preceding duties in this Article, the businesses shall cooperate with the central government and local governments in their activities to reduce waste, ensure appropriate management and so on.</p>
Citizens	Article 2 4	<p>The citizens shall cooperate with the central government and local governments in their activities for waste reduction by restricting their waste discharge, using recycled articles or otherwise contributing toward the recycling and re-use of waste, sorting waste prior to discharge, managing of waste by themselves as far as possible and so on.</p>

Source: Waste Management and Public Cleansing Law (1970)

The *Basic Act for Establishing a Sound Material-Cycle Society* sets out in Article 12 the responsibility of citizens, in Article 11 the responsibility of businesses, and in Article 9, 10 the responsibility of the central and local governments.

Table 3-5 The Responsibilities of Government and Waste Dischargers Stipulated in the Basic Act for Establishing a Sound Material-Cycle Society

Government Businesses Citizens	Act	Responsibility
Central Government	Article 9	The central government shall be responsible for formulating and implementing basic and comprehensive measures for the formation of a recycling-based society in accordance with the basic principles for the formation of a recycling-based society set forth in Articles 3 to 7 inclusive (hereinafter referred to as the "Basic Principles")
Local Government	Article 10	Local governments shall, in accordance with the Basic Principles, implement the necessary measures to ensure that Recyclable Resources are used and disposed of in an appropriate manner, and shall also be responsible for formulating and implementing measures for the formation of a sound material-cycle society in accordance with the natural and social conditions of the area of the local government, based on an appropriate sharing of roles with the central government.
Business	Article 11	<p>Business Operators shall, in conducting their business activities in accordance with the Basic Principles, take necessary measures to prevent Raw Materials, etc. from becoming Wastes, etc. in their business activities, and, in the case where Raw Materials, etc. become Recyclable Resources in their business activities, they shall be responsible for making their own appropriate use of the Recyclable Resources or taking necessary measures to ensure that the Recyclable Resources are used appropriately. (2) A business operator shall have the responsibility to take necessary measures to ensure that Raw Materials, etc. become Recyclable Resources in the course of its business activities, or to dispose properly of Recyclable Resources that are not used in a recycling manner on its own responsibility.</p> <p>2 Business operators engaged in the manufacture, sale, etc. of products, containers, etc. shall, in accordance with the basic principles, take necessary measures to improve the durability of products, containers, etc., enhance the system for repairing them, and otherwise take necessary measures to prevent such products, containers, etc. from becoming waste, etc., when conducting their business activities. Business Operators shall be responsible for devising the design of the Products, Containers, etc. and labeling the materials or components of the Products, Containers, etc. and for taking other necessary measures to promote the proper recycling of the Products, Containers, etc. that have become Recyclable Resources and to ensure that the proper disposal of the Products, Containers, etc. does not become difficult.</p> <p>3 In addition to what is provided for in the preceding paragraph, it is necessary for the national government, local governments, business operators, and citizens to appropriately share the roles of products, containers, etc., when they become recyclable resources, in order to properly and smoothly utilize them in a cyclical manner. With respect to products, containers, etc. for which the role to be played</p>

Government Businesses Citizens	Act	Responsibility
		<p>by the business operator is recognized to be important in promoting the formation of a recycling-based society from the viewpoint of design and selection of raw materials for the products, containers, etc., and collection of products, containers, etc. that have become recyclable resources, the business operator that manufactures, sells, etc. the products, containers, etc. shall, in accordance with the basic principles. In this case, the business operator that manufactures, sells, etc. the products, containers, etc. shall, in accordance with the basic principles, be responsible for taking back or delivering the products, containers, etc. that have become recyclable resources, or utilizing them in an appropriate manner, as a role to be shared by the business operator.</p> <p>4 With regard to circulative resources for which it is technically and economically feasible to use them in a sound material-cycle manner, and for which it is recognized that it is important to promote the sound material-cycle use in order to promote the formation of a sound material-cycle society, business operators who are able to use such circulative resources in a sound material-cycle manner shall have the responsibility to use them in a sound material-cycle manner appropriately when they conduct their business activities in accordance with the basic principles.</p> <p>5 In addition to what is provided for in the preceding paragraphs, business operators shall, in accordance with the basic principles, endeavor to form a sound material-cycle society by using recycled products, etc. in their business activities, and shall be responsible for cooperating with the measures implemented by the central or local governments concerning the formation of a sound material-cycle society.</p>
Citizens	Article12	<p>In accordance with the Basic Principles, the citizens have the responsibility to reduce the amount of Products, etc. that become Wastes, etc. by using them for as long as possible, using recycled products, and cooperating in the separate collection of recyclable resources, and to endeavor to promote the proper recycling of Products, etc. that have become recyclable resources, as well as to cooperate with the measures taken by the central and local governments for the proper disposal of such products.</p> <p>2 In addition to what is provided for in the preceding paragraph, with regard to the Products, Containers, etc. prescribed in paragraph 3 of the preceding Article, the citizens of Japan shall be responsible for cooperating with the measures taken by the business operators prescribed in the same paragraph by, in accordance with the basic principles, appropriately delivering the Products, Containers, etc. that have become recyclable resources to the business operators prescribed in the same paragraph.</p> <p>3 In addition to what is provided for in the preceding two paragraphs, citizens shall be responsible for making their own efforts to form a sound material-cycle society in accordance with the basic principles and for cooperating with the measures for the formation of a sound material-cycle society implemented by the central or local governments.</p>

Source: Basic Act for Establishing a Sound Material-Cycle Society (2000)

The roles of citizens, businesses, and government are set out in a municipal waste management basic plan made by the municipalities in order to carry out the planned measures efficiently according to the basic policies set out in the basic plan. Examples are shown below of the roles of citizens, businesses, and government in the municipal waste management basic plans of Shibushi City (population: approx. 30,000 as of October 2015).

“Aim for a Zero-waste Emission Society”

1 Basic Responsibilities and Roles of Citizens, Businesses, and the City Administration.

(1) Present Status and Issues

From the year 2000 separate collection of sorted waste for recycling commenced, followed by separate collection of sorted kitchen waste from 2004, and as a consequence the lifetime of the final disposal site has been extended.

Sorting and separate collection of recyclables have become established but there are still cases where some unsorted waste is being disposed as landfill waste. It is necessary to make more efforts to strengthen the information and guidance system in order to prevent the disposal of recyclables at the final disposal site.

Furthermore, measures such as surveillance, guidance, and treatment need to be taken promptly to resolve the issues of illegal waste dumping, littering, and scattered waste.

(2) Basic Direction

Citizens, businesses, and the city will fulfill their respective responsibilities and roles throughout the stages of products manufacturing, distribution, consumption, and disposal of the waste generated in these stages, and work together to reduce waste, as well as to recycle and reuse resources.

A The City’s Basic Responsibilities and Roles

- (a) In order to appropriately respond to the diversified types of waste, set up and operate a sorting and separate collection and transport system that is stable, efficient, and reliable.
- (b) Provide, or ensure the provision of intermediate treatment facilities, recycling facilities (for kitchen waste, human waste), and cleaning center recycling equipment to treat or reuse waste in a quick and sanitary manner.
- (c) Arrange environmental education for citizens and businesses, and raise public awareness on minimizing waste generation and recycling, and assist related voluntary activities.
- (d) Adopt a procurement policy based on the *Act on Promoting Green Purchasing*, and promote effective use of resources.
- (e) Formulate a separate collection plan based on *Containers and Packaging Recycling Law*, and continue to work to improve the sorting guidance system.
- (f) While maintaining the designated garbage bag system, the city is considering the possibility of charging fees for business-related recyclables and a revision of fees charged for business related general waste, aiming for waste recycling and amount reduction.
- (g) In order to respond to illegal dumping and littering, plan a guidance system for various groups and for citizens, and a cooperation system for relevant organizations, together with strengthening environmental patrols and supporting volunteer activities.

B Businesses' Basic Responsibilities and Roles

- (a) Limit the manufacture of disposable products and excessive use of packaging, and use returnable containers. Work to minimize waste generation at the various stages of product development, manufacture, and distribution.
- (b) Cooperate with the basic plan set up by the city, by thorough sorting of waste, work to reduce the waste amount generated and to recycle, and also procure recycled products using resources effectively.
- (c) Take responsibility to treat waste resulting from business activities properly.
- (d) For food waste produced during business activity, when possible, make compost or feed stock with a treatment machine and when self-treatment is not possible manage the waste in accordance with the City's basic plan.
- (e) For products that inevitably become waste, make efforts to develop these products so that they can be properly disposed.
- (f) Always use designated business waste bags.
- (g) Cooperate with fees charged on industrial waste.
- (h) Take part proactively in volunteer work, and also participate in city beautification projects.

C Citizens' Basic Responsibilities and Roles

- (a) Limit the use of disposable products, cooperate with lite-packaging and non-packaging, use returnable containers, make long-term use of products, and in other ways work to minimize waste generation.
- (b) A slogan says, "What is sorted is a resource, what is mixed is a waste", and citizens should respect the basic plan contents to neither burn nor bury waste. Instead, citizens should thoroughly sort their waste, work to reduce generation of waste and make more efforts in recycling. They should proactively join in volunteer activities, and take part in city beautification activities.
- (c) Treat kitchen waste at homes and cooperate in minimizing waste generation.
- (d) Promote the effective use of resources by procuring reusable products.
- (e) Waste stations are managed by the hygiene unit of each residents association. Citizens join the self-governing association set up in their area of residence, and together with the other members, manage waste disposal, waste stations, etc.
- (f) Citizens discharge their waste to the designated waste station, at the designated collection day and time, participate in the joint waste sorting at collection at the waste station, strictly observe the rules set up by the association at each station and cooperate together for the successful operation of the waste station.
- (g) Always use the designated household waste bag.
- (h) Cooperate in elimination of offences, and take prevention measures against illegal dumping, waste scattering and littering.
- (i) Volunteer to attend study meetings to learn about the environment and better understand about waste treatment.

Source: Shibushi City "Shibushi City General Waste Management Basic Plan" (2016)

1.6 Residents Participation and Consensus Building

(1) Residents Participation in Waste Administration

In order to establish proper waste management systems, it is important for residents, business operators, and governments to understand their respective roles, and for the three parties to work together as one.

The governments' roles are extremely important. Governments must provide opportunities for exchanging opinions and ensure an environment for continuous communication with residents and business operators. Communication based on the disclosure of all information is extremely effective in venues for exchanging opinions.

If plans are created based on the opinions of residents and business operators, governments can plan and implement highly feasible initiatives that are understood by the residents and business operators, and encourage them to take specific actions in accordance with the plans.

Proper waste treatment depends on the cooperation of residents in properly sorting and discharging waste. Each municipality clarifies the roles of residents, business operators, and the government in its ordinances and basic plans, and stipulates what each of them should respectively do.

As an example, Table 3-6 shows the efforts required of each of residents, businesses, and Ota City municipality to reduce plastic waste, which is one of the priority policies indicated in the Ota City Municipal Waste Treatment Basic Plan (2021). In this plan, the action guideline for residents is to try to refuse or reconsider the excessive or unnecessary use of plastics, and the action guideline for businesses is to try to purchase products that can be used instead of plastics and to reconsider the use of disposable plastics. Concrete examples of these required efforts are also described. The plan also provides examples of efforts the municipality needs to make to promote actions by residents and businesses, such as the development of a 3R promotion campaign.

Thus, in order for residents, business operators, and municipalities to collaborate and take specific actions, it is necessary for municipalities to engage in discussions with the other parties and seek their opinions, and then prepare municipal plans for waste management and the environment that set out the respective roles and efforts of all three parties.

Table 3-6 Roles and Efforts of Residents, Business Operators, and Ota Municipality set out in the Ota City Municipal Waste Treatment Basic Plan

Entity	Action guideline /efforts	Details
Residents	Action guideline	Try to refuse or reconsider the excessive or unnecessary use of plastics
	Specific efforts	<ul style="list-style-type: none"> • Gather information on concrete methods to reduce plastic waste. • When shopping at convenience stores (e.g., for take-out meals), refuse disposable plastic spoons, forks, etc. (except when the intended use is for hygiene purposes). • Bring own bottles, straws, chopsticks, etc. when going out. • Bring own bag and refuse unnecessary plastic bags. • Choose glass bottled and canned beverages whenever possible.
Business operators	Action guideline	Try to purchase products that can be used instead of plastics
	Specific efforts	<ul style="list-style-type: none"> • When purchasing equipment and supplies, try to choose products that are plastic-free or products with recognized environmental performance, such as biodegradable or biomass plastics. • Use water servers and personal cups. • Reconsider the use of disposable plastic products at events.
Restaurant	Action guideline	Try to reconsider the use of disposable plastics
	Specific efforts	<ul style="list-style-type: none"> • Serve food in containers that can be used multiple times or in non-plastic containers. • Stop using disposable tableware and use reusable items.
Municipalities	Specific efforts	<ul style="list-style-type: none"> • Teach resource recycling classes (environmental education) to promote collaboration • Develop a 3R promotion campaign • Conduct activities to promote and raise awareness at events • Promote initiatives to reduce plastic waste • Create a mechanism to promote reduction of plastic waste • Examine new methods for plastic recycling

Source: Ota City "Ota City Municipal Waste Treatment Basic Plan" (2021).

(2) Environmental Education and Public Awareness Activities in Municipalities

In order to promote environmental conservation activities and environmental education, governments must create environmental education programs with content tailored to target audiences, disseminate information that is highly relevant to communities, and develop human resources for environmental education to provide opportunities for environmental education that people of all ages can take an interest in and enjoy putting into practice.

Given the increasing need for environmental conservation activities and cooperation among municipalities, business operators, and private organizations in promoting growth with the environment at the center, and to further enhance environmental education that leads to the development of people with a wealth of humanity, the *Act on the Promotion of Environmental Conservation Activities through Environmental Education* was promulgated on June 15, 2011 and came into full effect on October 1, 2012. The act specifies a framework for promotion by municipalities, enhancement of environmental education in schools, participation of private organizations and promotion of collaborative efforts in environmental administration, and more for the creation and utilization of a wide range of pragmatic human resources who are essential for promoting environmental conservation activities and environmental education.

As an example, Table 3-7 shows the environmental programs objectives and content for each target age group implemented in Yokohama City, and Table 3-8 shows examples of environmental programs for different courses. In Yokohama, the content of environmental education is devised according to the target age group (e.g., nursery school and preschool, elementary school, junior high and high school). In addition to visiting schools to give lectures, city officials also offer courses involving facility tours and the like.

Tailoring the content to the target age group in this way makes environmental education more interesting and enjoyable. Environmental issues that are familiar to residents should be taken up as themes of the courses to encourage residents to take specific actions and put what they have learned into practice on a daily basis.

To institutionalize environmental education in schools, it is essential to cooperate with the organizations in charge of school education (boards of education in the case of Japan).

Table 3-7 Targets, Objectives and Content of Environmental Education in Yokohama City

Target	Objectives and content
Nursery schools and preschools	Keep talks short, use picture cards or the like to make things easy to understand, and incorporate activities to keep children focused and engaged. Additionally, use mascot costumes, actual waste collection vehicles, and other props to help children develop a sense of familiarity with environmental issues and to foster awareness that drives them to take action in their daily lives.
Elementary school	Create opportunities for students to acquire basic knowledge about environmental issues and think about the actions needed to solve them. Then, help students develop awareness of environmental consideration (e.g., attitudes toward creating sustainable societies, sensitivities, kindness and compassion) that drives them to take action in their daily lives.
Junior high school, high school, university	Help students steadily acquire basic knowledge and correct information. Additionally, create opportunities for students to confront environmental issues and take action to solve them while helping them understand the similarities and differences in each other's ways of thinking through dialogue and discussion.
Communities and business operators	In some cases, failure to sort waste or mismanagement of collection points have caused problems in local communities; therefore, it is important for each and every person to act with awareness regarding the environment and beautification of their communities. Neighborhood association meetings and briefings for residents are examples of events that can be used to help people learn about these things.

Source: Yokohama City "Environmental Education Program" (2020)

Table 3-8 Example Themes of the Environmental Education Program in Yokohama City

Course Theme	Programs
Reducing Food Loss	Basic course: Understanding the Circumstances and Basics of Food Loss Elective: Interactive Study of Food Circulation through Composting Kitchen Waste and Growing Food Elective: Study of Waste-Free Food Preparation and Preservation Elective: Efforts by Society and Companies
Plastic Countermeasures	Basic course: Understanding the Basics of Problems with Plastic Waste Elective: Plastic in Society Elective: Microplastics Elective: Companies' Efforts Involving Plastic
What Happens to Waste	Basic course: Understanding the Flow of Waste Treatment Elective: A Full Day's Waste Collection Work Elective: Seeing/Touching a Waste Collection Vehicle Elective: How Resource Sorting Centers and Incineration Plants Work
Sorting and Recycling Waste	Basic course: Understanding the City's Sorting Rules Elective: Let's Try Sorting (Sorting Game) Elective: Efforts for Thorough Sorting Elective: Group Work: What We Can Do

Source: Yokohama City "Environmental Education Program" (2020)



Photo 3-1 Storytelling about the Environment Around us (Nursery schools and preschools)



Photo 3-2 Explanation of the Structure of the Collection Vehicle



Photo 3-3 Workshop to Confront Environmental Issues (Junior High School, High School and University Students)



Photo 3-4 Briefing Session for Residents Regarding the Cleaning of their Local Area (Local Residents)

Source: Yokohama City “Environmental Education Program” (2020)

The fact that these programs are designed to meet the needs of people of all ages, and that sustainable environmental education is rooted in local communities greatly contributes to the formation of consensus among local residents, as explained in the following pages.

(3) Methods for Building Consensus among Residents in Facility Development

1) Relationship between Governments and Residents

When waste treatment plants and landfill sites are constructed in Japan, the construction work does not start until sufficient time has been taken to explain the project to residents and gain their understanding.

Some local governments also provide explanations to residents during the construction if necessary, and continue to communicate with residents even after plants and sites are in operation. Ensuring opportunities for residents and governments to exchange opinions about impending facility or plant construction and engaging in ongoing communication in this way makes it less difficult to gain residents' understanding about waste management performed by governments. Furthermore, if good relationships can be sustained, residents are likely to become more cooperative and better educated about the project and waste management.

To build good relationships between governments and residents, it is important for both sides to understand how their respective views differ; residents should make efforts to understand the governments' explanations, and on the other hand governments should anticipate residents' questions and concerns and prepare responses accordingly.

When constructing waste treatment plants or landfill sites, it is essential to consider residents living near the planned locations of the plants and sites. Opposition from local residents or environmental groups could arise if sufficient consideration and explanation are not given to them, hindering the progress of projects.

The types of residents who oppose construction can be classified as confrontational, conditional, active, and cooperative as shown on Table 3-9, however, most conflict is caused by the confrontational type, who behave emotionally and aggressively and stand in total opposition to the construction.

Table 3-9 Residents Perspectives and Behavior by Types of Opposition

Type	Residents' perspective	Residents' behavior	Characteristics
Confrontational	Total opposition, complete revocation	Emotional, aggressive	Many conflicts stem from this type of relationship, and in the event of violent conflicts, resolution may be sought in court
Conditional	Conditional agreement	Petitioning, demanding	If residents essentially have no option but to accept the construction, they will try to resolve the conflict under conditions advantageous to them
Active	Basically opposed	Make efforts to resolve the conflict	Residents opposed to construction hold seminars and collaborate with other opposition groups while presenting alternative proposals to the government
Cooperative	Basically opposed	Make efforts to engage in cooperative discussion	The government seeks engagement from local residents, members of the general public, and academics in an effort to resolve problems

Source: Toru Furuichi, Kyoritsu Shuppan Co., Ltd. "Haikibutsu keikaku sakutei to jumin goi (Formulation of waste plans and consensus with residents)" (2000)

Table 3-10 presents a systematic classification of common reasons for residents' opposition to the construction of waste treatment plants and landfill sites. Reasons for opposition among residents who are categorically opposed or distrustful of the government are rooted in their fear of pollution and adverse effects on their own health; these residents identified the insufficiency of assessments, one-sided explanations, and the lack of clarity as to the reasons for site selection among the causes of complications. In the process of gaining the understanding and cooperation of residents, explanatory meetings on facility development, public inspection of assessment reports, and public hearings are held, but in many cases these meetings are informal and do not function sufficiently, and mismatches between what residents want to know and say and how operators respond create dissatisfaction and opposition among residents. Additionally, whenever things become contentious between the governments and residents, residents of all types likely become distrustful of the government. In these cases, the lack of common ground and opportunities to talk things over are issues to overcome in order to solve the problems.

The realistic course of action for building consensus to move ahead with facility development is to make efforts to shift residents who are categorically opposed or distrustful of the government into other opposition categories that may be resolvable (e.g., concerned about pollution and health problems, seeking compensation). In order to achieve this, both governments and residents must make efforts to understand each other, and must seek common ground through discussion to reach agreements. When doing so, it is necessary to recognize that governments' perspectives differ widely from residents' perspectives. It is also important for residents to listen to explanations from

governments and try to understand them, and for governments to anticipate residents’ questions and concerns and prepare responses accordingly.

Table 3-10 Reasons for Residents Opposition by Types (as Related by Residents)

Type	Reasons for residents’ opposition	Factors behind the intractability of the conflict	Examples of issues to consider
Categorically opposed	<ul style="list-style-type: none"> • Residents consider waste treatment plants and landfill sites to be smelly and dirty, and they generally have a bad impression of these facilities 	<ul style="list-style-type: none"> • Inadequate pollution control in the past causes residents unable to help but hate these facilities or view them as unwanted 	<ul style="list-style-type: none"> • Enhancement of pollution control facilities in the project • Amenitized facilities
Distrustful of the government	<ul style="list-style-type: none"> • Decisions were made without residents’ knowledge • Residents feel that unnecessary waste treatment plant or landfill site is being forced upon them while they are hardly receiving any other government services on a daily basis • They feel that the government will not keep their promise to control pollution or install facilities nearby • The government renegeed on their promises and plowed ahead with the construction in the rush to get the waste treatment plant or landfill site up and running • The government only talks about things that appear easy to agree upon 	<ul style="list-style-type: none"> • There are no opportunities to talk things out • There is no common ground 	<ul style="list-style-type: none"> • Appropriate timing and content of information disclosure to residents • Provide sufficient government services on a daily basis • Disseminate about waste-related problems and the need for waste treatment plants and landfill sites, etc. • Plans that fully reflect the views of local residents
Concern about pollution and health problems	<ul style="list-style-type: none"> • Residents fear that pollution control facilities will be inadequate, or will create pollution or adverse effects on health • An environmental assessment either was not conducted, or was insufficient and did not provide any proof with regard to absence of pollution or adverse effects on health 	<ul style="list-style-type: none"> • The waste treatment plant or landfill site is the largest source of anxiety for residents. Governments may not have the capacity to provide full explanation 	<ul style="list-style-type: none"> • Revise/enhance pollution control facilities • Enhance environmental assessments

Type	Reasons for residents' opposition	Factors behind the intractability of the conflict	Examples of issues to consider
Concern about site selection	<ul style="list-style-type: none"> Residents feel that reasons for the selection of the site are unclear, and that the selection process is not transparent The government does not provide clear answers to simple questions put forward by the residents (e.g. why the waste treatment plant or landfill site has to be near their house or in that location) 	<ul style="list-style-type: none"> Site selection methods have not been established 	<ul style="list-style-type: none"> Clear positioning of the site in municipal comprehensive plans and city planning Make recovery facilities attached to the project beneficial to the entire community (e.g. thermal utilization) rather than just to compensate residents nearby for the project inconvenience
Seeking compensation	This is rarely the main reason for opposition to the construction of waste treatment plants or landfill sites. Also, residents in this category are different from those who seek conditional agreement from the start. When the conflict draws to a close, residents in this category always shift toward fighting over the conditions.		
Protective of their hometowns	<ul style="list-style-type: none"> Residents cannot accept that an outsider (even if the government) can simply come into their beloved communities and change them 	<ul style="list-style-type: none"> Rigidly uniform response 	<ul style="list-style-type: none"> Develop waste treatment plants and landfill sites that are highly relevant to communities
Concerned about personal interests	<ul style="list-style-type: none"> Land values will fall if the waste treatment plant or landfill site is constructed Neighbors sold their land for higher prices 	—	<p>To ensure that land values do not fall:</p> <ul style="list-style-type: none"> Construct state-of-the-art waste treatment plants and landfill sites (facilities that offer amenities) Consider facilities that give back in ways the community finds desirable

Source: Toru Furuichi, Kyoritsu Shuppan Co., Ltd. "Haikibutsu keikaku sakutei to jumin goi (Formulation of waste plans and consensus with residents)" (2000)

2) Residents Participation

It is important for governments considering and implementing plans and projects to reflect the opinions of residents at every stage of the process: basic plans, potential site selection, environmental impact assessments, and facility development plans. Additionally, governments must involve residents (including foremost those who oppose the facilities) as early as possible from the initial planning stage to create opportunities for exchanging opinions and to maintain transparency in information disclosure.


When exchanging opinions with residents, it is often effective to involve a neutral party capable of listening to the opinions of both residents and governments. In these cases, academics can fulfill the important role of bridging gaps between residents and governments.

Governments are expected to communicate appropriate information and understand residents' needs and thinking and reflect them in project plans; thus, resident participation is essential for creating opportunities for this to happen. Table 3-11 is a categorization of methods of resident participation in terms of factors such as degree of participation and power to make planning decisions. Regarding resident participation, it must be noted that circumstances differ from region to region in terms of the natural environment, land use, culture, history, political climate, the history of the relationship between governments and residents, and other factors.

One effective way to involve residents in solving the problems at hand is to establish committees comprising government representatives, academics, and residents. There are many advantages of the committee method of resident participation, including communication (governments and residents have the opportunity to communicate their thoughts to each other), assurance of consensus (matters decided by committees are guaranteed for residents through the conclusion of agreements and the like), and well defined responsibility (governments are guaranteed basic decision-making authorities regarding construction, operation and management of facilities, which makes it easier for the governments to fulfil their responsibilities). On the other hand, the representatives who are representing the residents need to be carefully selected to reflect the collective will of the residents.

The key point here is that the members of these committees include academics who are capable of listening to the opinions of both governments and residents. They do not necessarily need to be experts, but can participate as communicators and facilitators, thereby helping the committees run smoothly.

Table 3-11 Methods of Resident Participation in Terms of Degree of Participation, Power to Make Planning Decisions, etc.

Degree of resident participation	Categorization in terms of power to make planning decisions	Methods of resident participation (examples)	Relationships with residents/issues to consider
Low  High	Planning decisions made by the government only	<ul style="list-style-type: none"> • Participation in briefings for residents • Participation in plant tours 	<ul style="list-style-type: none"> • Passive • One-sided communication of information • Few opportunities for reflection of residents' wishes
	The government takes the lead in making planning decisions (Councils, etc.)	<ul style="list-style-type: none"> • Participation in public hearings • Public inspection of city planning proposals and assessment documents/submission of written opinions 	<ul style="list-style-type: none"> • Passive, indirect • Residents' wishes can be reflected somewhat indirectly • The government has the authority to make decisions that reflect the wishes of residents
	Planning decisions are made by the government and residents together (Committees, etc.)	<ul style="list-style-type: none"> • Residents have representatives on steering committees and the like • Residents participate in meetings for dialogue and the like 	<ul style="list-style-type: none"> • Two-way communication between residents and the government is possible • Residents are represented by representatives, who may not always represent the collective will of the residents. (Representative selection is also an issue) • Essentially, decision-making authority rests with the government. Matters decided by committees are implemented based on mutual trust between the government and residents.

Source: Toru Furuichi, Kyoritsu Shuppan Co., Ltd. "Haikibutsu keikaku sakutei to jumin goi (Formulation of waste plans and consensus with residents)" (2000)

Table 3-12 shows examples of what committees discuss during each stage of the project planning. During the basic plan stage, it is especially important to discuss and clarify the rules, procedures, and schedule for determining site selection matters. Residents require governments to provide objective explanations of the reasons for site selection.

Table 3-12 Examples of Committee Items of Discussion at Each Stage of Project Planning

Planning Stage	Items of Discussion
Basic plan stage	<ul style="list-style-type: none"> • Project overview/policy • Consideration of ideal state of waste treatment, waste reduction, recycling • Consideration and selection of site selection policy • Consideration of environmental conservation measures, implementation of Initial Environmental Examination • Investigation and consideration of surrounding environment development, facilities that give back to communities, use of former sites
Development/ implementation plan stage	<ul style="list-style-type: none"> • Consideration of facility design details (especially for pollution control facilities) • Evaluation/consideration of environmental assessment • Roles of governments and the private sector • Consideration of specific measures for waste reduction and recycling • Recommendations to create residents organization against facility management, and drafting of agreement with local residents • Consideration of various problems during the construction period • Consideration of environmental monitoring and surveillance methods
Facility operation stage	<ul style="list-style-type: none"> • Implementation of discussion details (recommendations) • Revisions to plant facilities • Government-run system for monitoring private contractors • Measures to be taken when allowable standards are exceeded, complaint processing methods/measures to be taken in respond to damages • Publicizing of pollutant measurements results • Revisions to waste collection areas/incoming and outgoing transport routes

Source: Toru Furuichi, Kyoritsu Shuppan Co., Ltd. “*Haikibutsu keikaku sakutei to jumin goi* (Formulation of waste plans and consensus with residents)” (2000)

At the stage of creating a high-level plan for waste management, it is crucial to incorporate the significance and roles of future waste management in their region and to obtain the residents’ consensus on the planning direction. Importantly, it is necessary to continuously implement solid waste management with the participation of residents on a daily basis. One way to gain residents’ understanding is to involve them from the planning stages and to work together to create the master plan.

If the government’s wishes and decisions are absolute, and residents are continually forced to accept the government’s unilateral decisions, they will feel anxious and distrustful. Therefore, fair disclosure of information - including negative information, not only information that is convenient for the government - helps to increase trust between the two parties. It is important to create common ground for consensus building in this way and to convince people to agree on both the good and the bad aspects. The conditions shown in Table 3-13 should be met toward that end.

Table 3-13 Creating a Level Playing Field for Facility Site Selection

Item	Details	Relevant, specific countermeasures
Briefing	<ul style="list-style-type: none"> • The purpose, methodology, and expected benefits of, and possible accidents and discomforts associated with the facilities are explained to residents 	<ul style="list-style-type: none"> • Daily communication • Hold public hearings and briefings for residents • Establish systems for information disclosure • Provide opportunities for residents participation (e.g. committees)
In response to negative information	<ul style="list-style-type: none"> • Risks and benefits are balanced from residents' viewpoints 	<ul style="list-style-type: none"> • Establish facilities that communities can accept (power generation, thermal utilization, regional development, regional revitalization, local recreational areas, environmental education)
	<ul style="list-style-type: none"> • Efforts are being made to minimize risks to the extent possible • Even if agreements have been reached, efforts must be made to make the facility as best as possible 	<ul style="list-style-type: none"> • Enhance pollution control facilities • Conduct thorough environmental assessment • Establish systems for monitoring and information disclosure • Conclude pollution control agreements
Agreements	<ul style="list-style-type: none"> • In principle, residents have the right to refuse, and to request suspension of projects if they anticipate significant disadvantages in the interim stages • Even if agreements have been reached, responsibility for dealing with problems rests with the government, not residents • Residents must not be treated unfairly, even if they reject the project 	<ul style="list-style-type: none"> • Create opportunities for residents participation (e.g. committees), respect minority views • Agreement and a checking mechanism by committees at each stage of planning • Conclude pollution control agreements and the like • (Disclose monitoring results and other information, monitor plant and conduct inspections with residents present, establish a liaison for receiving complaints, countermeasures/compensation in response to damage)

Source: Toru Furuichi, Kyoritsu Shuppan Co., Ltd. "Haikibutsu keikaku sakutei to jumin goi (Formulation of waste plans and consensus with residents)" (2000)

Column: A Case of Risk Communication with Residents (Illegal Dumping in Mie Prefecture)**The Situation**

In 1994, concerns about soil contamination and groundwater pollution surfaced after an industrial waste landfill site in the city of Yokkaichi, Mie Prefecture had greatly exceeded the permitted area and amount of waste disposal, and had disposed of waste other than the permitted waste materials.

In 1980, a waste disposal contractor obtained a disposal business license and started landfill disposal. The following year, 1981, the contractor applied for a permit to change its industrial waste disposal business (increasing the number of landfills the contractor operated and types of waste materials disposed). The application was based on a landfill owned by another company. The contractor then started operations using a stable final disposal site. In 1988, the then local district mayor submitted a written request to the prefectural government requesting an investigation into the actual conditions of excessive waste disposal, etc., and the prefectural government requested the contractor to submit a notification of change after conducting an investigation into the current conditions. In 1990, the contractor submitted a change notice regarding the large scale of expansion of the structure (facility), which was accepted by the prefecture. As the illegal expansion continued even after the change notification was submitted, the prefecture continued to supervise and instruct the contractor. After that, the prefecture directed the contractor to carry out a topographical survey of the disposal site, and the result of survey showed that the site area and capacity far exceeded those defined in the permit issued to the contractor. The prefectural government then did not allow the contractor to renew the permit after the disposal site permit expired (October 1994).

After the problems were discovered, the prefectural government initiated a safety confirmation survey. However, the residents' dissatisfaction with the prefectural government increased, as it gave the impression of ignoring them by prioritizing explanations to the prefectural assembly over explanations to residents, from the survey plan and interim announcement to the final announcement of the basic policy.

In response, the prefecture started risk communication with residents in 2008. Since then, the relationship between the prefecture and residents has changed from one of confrontation to one of collaboration.

(Risk communication: It is a method for stakeholders to exchange and share information and opinions on possible risks such as pollution of the living environment when constructing waste treatment facilities, etc., and to share awareness of prevention and countermeasures, aiming for mutual understanding.)

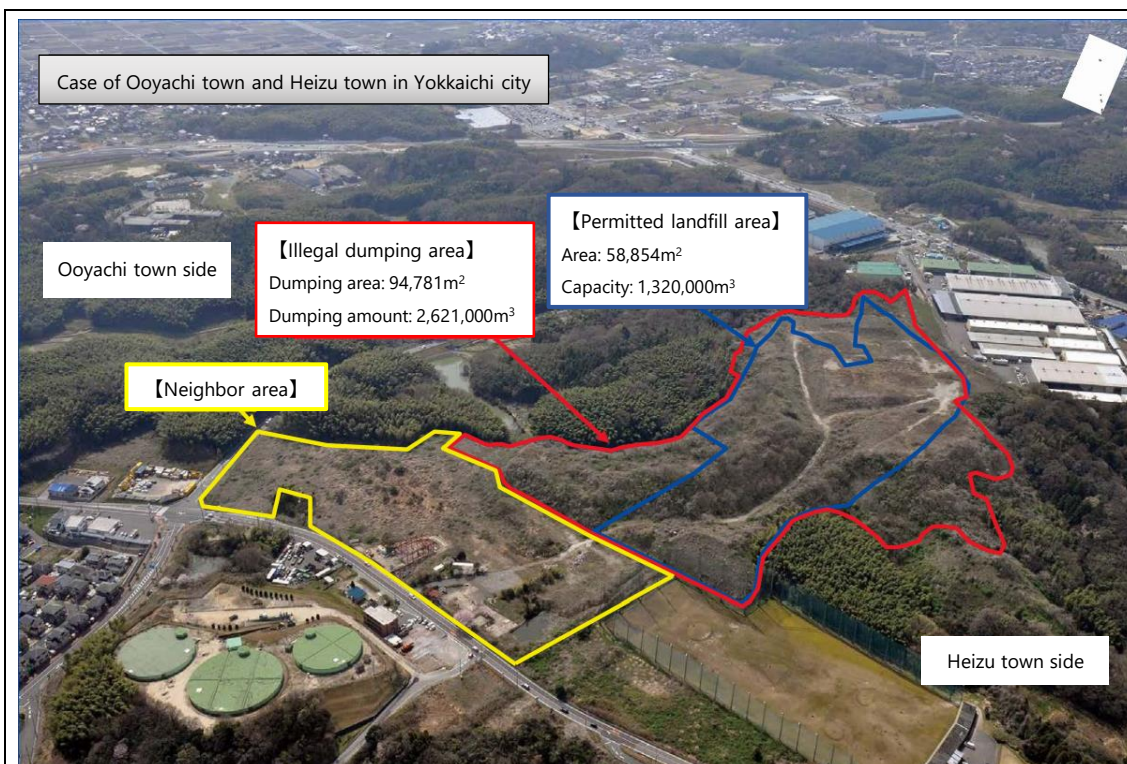


Photo 3-5 Aerial View of the Site where Illegal Dumping Occurred

The Response

1. Residents Participation from the Survey Phase

As described hereafter, the prefectural government proceeded with the survey with a recognition of residents as important stakeholders, and with respect for their opinions.

1. In response to residents' requirements for the survey, the government made adjustments such that waste-generating entities pay for additional surveys
2. The government responded to residents' requests for a new analytical entity to analyze material feed at survey sites
3. The government accepted residents' request to have third-party experienced academics evaluate the analysis results
4. The government selected survey sites of interest to residents

Key Point

- Given the importance of sharing current risks and straightforwardly communicating them to residents, the government held lectures for residents on risks and risk communication before conducting the new survey. This helped residents and the government develop a common understanding of the risks.

2. Risk Communication through Four-way Discussions

The safety confirmation survey revealed that standards were greatly exceeded in some cases of pollutants, and some values were far off the results of the safety confirmation survey conducted previously. Based on the results, the prefectural government set up a three-way discussion comprising itself, resident representatives, and academics (which later became a four-way discussion with the participation of the Yokkaichi municipal government), and followed the procedure listed below to engage in constructive, interactive risk communication to ensure residents' safety and security in a sustainable manner.

1. Resident representatives and the prefectural government met to identify the main issues to be discussed so that the government could develop an understanding of residents' opinions and needs
2. The issues discussed in the previous step were reviewed by a group of academics
3. Resident representatives and representatives of the academics discussed the results of the review conducted in the previous step
4. Under the four-way format the participants held thorough discussions
5. The academics' views and the prefectural government's policies were explained at four-way discussions that were open to the general public

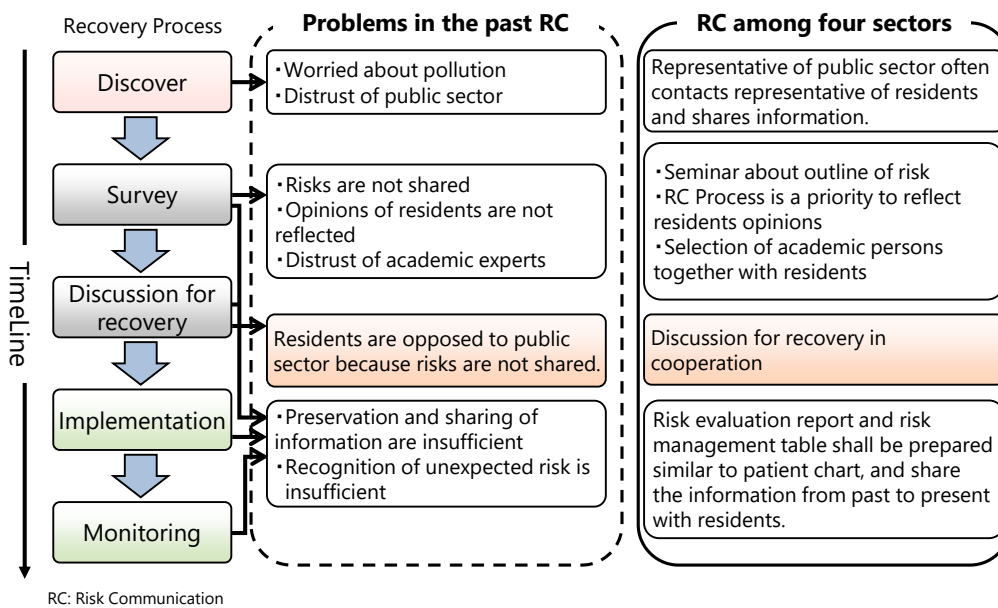
Key Points

- The residents participated in the selection of the academics, and local academics were appointed as coordinators. Accordingly, the academics gained the residents' trust, and functioned as neutral parties the residents found easy to consult with.
- The residents were given ample opportunities to speak, and the academics examined the issues they raised and exchanged opinions with them. The main opinions and agreements were recorded in risk assessment and risk management matrices that served as the basis for a series of cycles of surveys and countermeasures. This made it possible to share risk information, increased the transparency of the decision-making process, and enabled the reflection of residents' opinions in decision-making.
- While preparing the risk assessment and risk management matrices, the levels and limitations of surveys and countermeasures were explained to the residents, and a system for managing risks involving uncertainty was established by determining that residents would be intimately involved in four-way discussions if unexpected events were to occur.

The Results

Discussions were held a total of 23 times from 2008 to 2021. Some of the items on which agreement was reached with local residents during the four-way discussions are listed below.

- Invite academic experts with expertise and knowledge on how to proceed with the consultation and hear their opinions
- The prefectural government should take responsibility for conducting the survey based on the “Draft Survey Implementation Plan”.
- Prepare a “risk assessment table” to ensure safety and security, and proceed with future discussions based on this table (local request).
- The framework (frame) of the “Risk Assessment Chart”
- Basic agreement on the “draft framework of countermeasure construction methods” signed between the presidents of the neighborhoods and the governor.
- Specific Countermeasure Methods



Source: Mie Prefecture “What We Gained from Environmental Restoration Efforts in the Case of Improper Treatment of Industrial Waste” (2016)

Figure 3-5 Comparison of Past Cases of Risk Communication to Risk Communication in the Case of Mie Prefecture

2. Waste Management Utilizing the Private Sector with Private Finance Initiative (PFI)

2.1 Utilization of Private Sector Resources

Municipalities are responsible for the administration of municipal waste; therefore, they have directly managed the collection, transport, intermediate treatment, and final disposal of waste. Municipalities have outsourced waste collection and transport, or facility operation and maintenance, or other parts of waste management to the private sector in order to streamline processes or enable operations that require advanced technology, among other aims.

Amid the strain on the finances of local governments, there is a need to further utilize private-sector resources to provide economical, high-quality operation and maintenance services for waste management as well as other public services.

With the strain on finances, demographic changes, the diversification of citizens' needs, and other elements, municipalities are confronted with the need for more efficient fiscal management. Under these circumstances, more municipalities are adopting project methods that introduce private-sector resources, such as the private finance initiative (PFI, facilities privately constructed and operated) and design build operate (DBO, facilities publicly constructed, privately operated) formats, for developing projects to and operate waste treatment plants, since the enforcement of the *Act on Promotion of Private Finance Initiative (PFI Act)* in 1999 and the publication of Guidelines for Outsourcing with the Approach of Performance-Based Ordering by the Ministry of Land, Infrastructure, Transport and Tourism in 2001.

In 2006, the Ministry of the Environment compiled the Guide to Bidding and Contracting for the Construction of Waste Treatment Plants, etc. and proposed measures to improve bidding and contracting to ensure fairness and to increase competition and transparency. Regarding the method of placing orders for waste treatment plants, the guide states that it is “effective to introduce competition not only for the construction of waste treatment plants but for projects in total, including operation (comprehensive operation works including repair work), by using expanded performance-based ordering or PFI, which calls for price competition that incorporates long-term, comprehensive operation after construction is completed.”

Name of act: Act on Promotion of Private Finance Initiative (PFI Act)

Enacted: 1999

Amended: Years 2001, 2003, 2005, 2007, 2011, 2013, 2016, 2018

Purpose: To develop social infrastructure efficiently and effectively and ensure the provision of good, affordable services to residents of Japan through measures such as promoting the development of public facilities and the like using private-sector funds as well as private-sector management and technical capabilities.

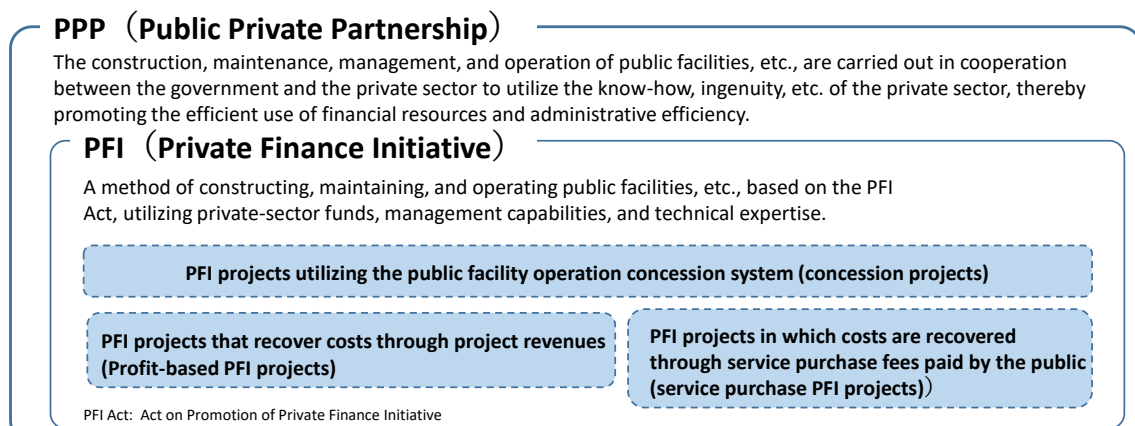
Source: Act on Promotion of Private Finance Initiative (1999)

2.2 Overview of PFI projects

Since laws have been enacted allowing the use of private sector resources, the utilization of the private sector in the development, operation, and maintenance of facilities has been promoted in the waste treatment sector as well for technical and financial reasons.

Public Private Partnership (PPP) occurs where government bodies that originally provided various services now cooperate with the private sector to carry them out. In this way, they use private sector's technology and knowhow, as well as its originality and ingenuity, aiming at the efficient provision of state of the art services. PFI (Private Finance Initiative) is one type of PPP. PFI is one way of implementing public works, such as constructing facilities and their operation and management, using private sector finance and technical knowhow. The concept of PPP and PFI is shown in Figure 3-6.

In 1999, the *Act on Promotion of Private Finance Initiative (PFI Act)* was enacted. Since that time, besides provision of related laws and regulations, the basic direction and action plans for promotion of PFI have been formulated and the encouragement of PPP/PFI has been planned. As a result, PFI projects have been set up in many fields based on this law, and in order to plan and set up efficient projects related to building and operating waste treatment facilities the PFI method was adopted in this area too.



Source: Ministry of Land, Infrastructure, Transport and Tourism “Recommendations for public-private partnership projects (PPP/PFI)” (2020)

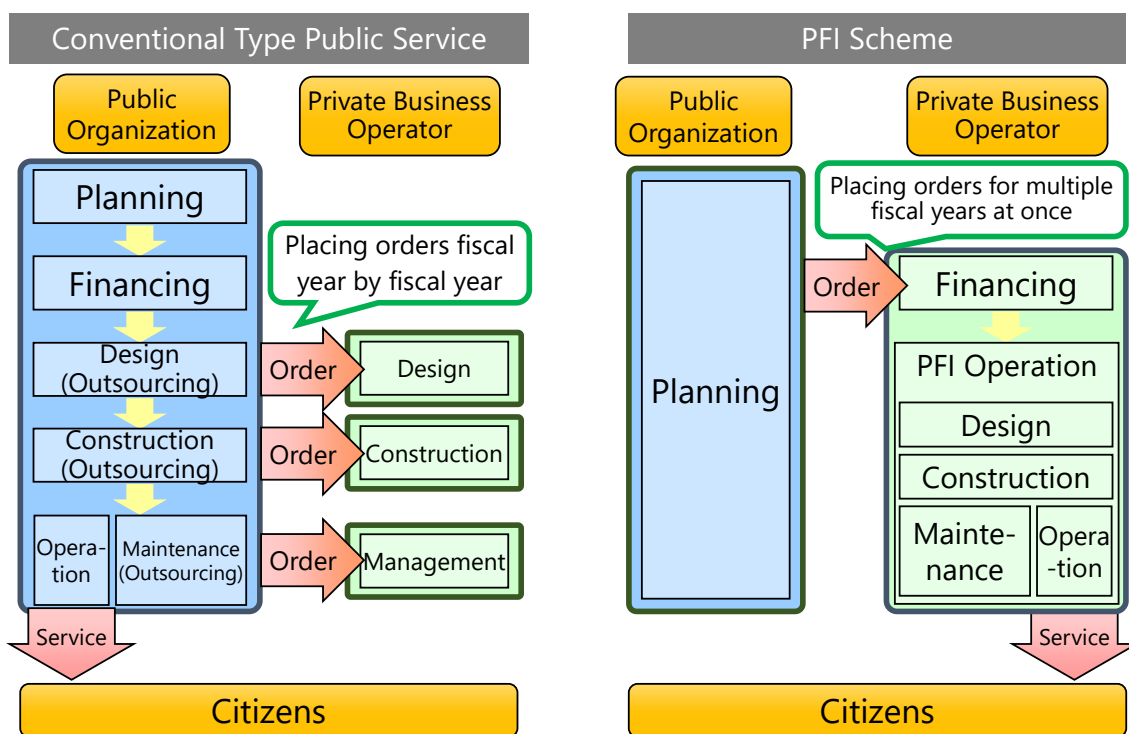
Figure 3-6 Concept of PPP and PFI

2.3 How PFI projects work

PFI projects can be divided into categories according to their content and scale, etc., and private sector resource use is planned to meet a specific local situation, after considering the characteristics and the expected effects of the PFI project.

Until recently, when a public facility was being developed as a public service, public authorities of local governments took the lead in formulating plans or projects. They then developed the public facility to provide the service by outsourcing designs or construction to a public authority or the private sector.

In place of this previous public service method, the introduction of PFI projects is being recommended to improve efficiency and financing. With PFI projects, after public bodies have formulated plans or projects, private sector technical capabilities are used. Work from design and construction to service provision is carried out as a unified whole. In addition to providing a good quality public service, private sector finance and management knowhow are used, and a low cost and economical government service is provided.

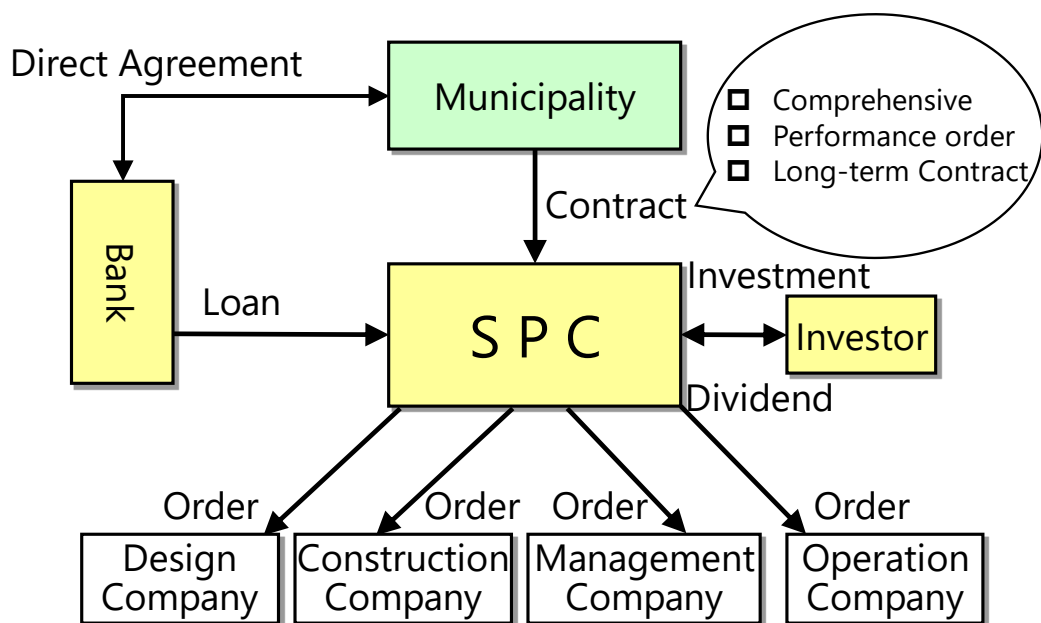


Source: Ministry of Land, Infrastructure, Transport and Tourism “Recommendations for public-private partnership projects (PPP/PFI)” (2020)

Figure 3-7 Flow of Conventional Public Works and PFI Projects

Special Purpose Companies (SPCs) are companies established to carry out one particular PFI project. SPCs use their earning power from the project as collateral to gain financing, using a funding method known as project finance, and they carry out the project by financing part of the construction and other costs by loans from financial organizations. Also, SPCs are compensated for the services they provide, being paid for construction funding and management costs by local governments.

In case the project does not proceed smoothly, the local government and the financial institution financing the SPCs will conclude a direct agreement that stipulates arrangements for the establishment and execution of security interests, withholding of the local government's right to terminate the contract, and consultation on business succession to a third party.



Source: Cabinet Office Website "Guide to the Introduction of PFI Projects: The Basics"
https://www8.cao.go.jp/pfi/pfi_jouhou/tebiki/kiso/kiso04_01.html (accessed February 8,

2022)

Figure 3-8 System of PFI Project

(1) The PFI Method

PFI projects are characterized based on the type of facility ownership. In addition to the privatized BTO (Build-Transfer-Operate), BOT (Build-Operate-Transfer) and BOO (Build-Own-Operate) models, there is the public-build-private-run DBO (Design-Build-Operate) model. Outlines of these models are shown in the following Table 3-14 and Table 3-15.

Table 3-14 Operating Entity and Owner by Project Format

Operation Project format	Fund raising (construction expenses)	Design/ construction period	Launching of operation	Operation/ maintenance management	End of the project	After the end of the project
BOT	Private sector	Private sector	Private sector	Private sector	Transfer of ownership	Public sector
BTO	Private sector	Private sector	Transfer of ownership	Private sector	Public sector	Public sector
BOO	Private sector	Private sector	Private sector	Private sector	Private sector	Private sector
DBO	Public sector	Private sector	Transfer of ownership	Private sector	Public sector	Public sector

*1: In the table orange cell indicates that facilities are owned by the public, and blue cell indicates that facilities are owned by the private-sector operator.

*2: In the table “Private sector” refers to PFI operators.

Source: National Association of Regional PFI Website “About PFI”
http://pfi-as.jp/pfi/pfi/post_8.html (accessed February 8, 2022)

Table 3-15 PFI System

●PFI method

<p>BTO model Build- Transfer- Operate</p>	<ul style="list-style-type: none"> The private sector designs and constructs the public facility, transfers ownership of the facility to the public sector immediately after completion of construction, and the private sector operates and maintains the facility. <ul style="list-style-type: none"> BTO has been widely adopted in service purchase PFI projects and the types of facilities that are implemented under this model are diverse. The scope of work of the private sector during the operation and maintenance period will be considered and decided from the viewpoint of appropriateness of a long-term contract, among other factors. The scope of work generally includes design, construction, operation and maintenance. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>Design</th> <th>Construction</th> <th>Operation and Maintenance</th> </tr> </thead> <tbody> <tr> <td>Scope of work</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Contract type</td> <td colspan="3" style="text-align: center;">Business contracts</td> </tr> <tr> <td>Private contracting entities</td> <td colspan="3" style="text-align: center;">Mostly Special Purpose Company (SPC)</td> </tr> </tbody> </table> 		Design	Construction	Operation and Maintenance	Scope of work	✓	✓	✓	Contract type	Business contracts			Private contracting entities	Mostly Special Purpose Company (SPC)		
	Design	Construction	Operation and Maintenance														
Scope of work	✓	✓	✓														
Contract type	Business contracts																
Private contracting entities	Mostly Special Purpose Company (SPC)																
<p>BOT model Build- Operate- Transfer</p>	<ul style="list-style-type: none"> The private sector designs, constructs, maintains and operates the public facility, and transfers ownership of the facility to the public sector at the end of the project. <ul style="list-style-type: none"> BOT has been adopted in PFI projects where the private operator has a wide margin of discretion, such as when the private operator directly receives income from user fees. As the private operator has ownership of the public facility during the period of operation and maintenance management, there is a wider degree of freedom in terms of operation and maintenance management, including renovation etc. The scope of work and contract are the same as those of the BTO model. Compensation is generally paid during operation and maintenance period 																

BOO model Build-Own-Operate	<ul style="list-style-type: none"> The private sector designs, constructs, and manages operation and maintenance of the public facility, and at the end of the project the facility is dismantled or demolished without transferring ownership of the facility to the public sector. <ul style="list-style-type: none"> Used in PFI projects where the operation and maintenance period can be adjusted to the demand period and useful life of the facility. BOO can also be used in facilities where the site on which the facility is built has a defined period of use, or are suitable for scrap-and-build at regular intervals due to damage or obsolescence. The scope of work and contract are the same as those of the BTO model. Compensation is generally paid during operation and maintenance period
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● **Method other than PFI**

DBO model Design-Build-Operate	<ul style="list-style-type: none"> This is a method of placing a comprehensive order to the private sector for the design and construction of public facilities, as well as for operation and maintenance management. <ul style="list-style-type: none"> DBO is used alongside the PFI approach in facilities of the waste management sector as well as facilities of other sectors. The scheme is funded, ordered and owned by the public sector. The scope of work generally includes design, construction, maintenance and operation. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>Design</th> <th>Construction</th> <th>Maintenance and Operation</th> </tr> </thead> <tbody> <tr> <td>Scope of work</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Contract type</td> <td colspan="2" style="text-align: center;">Construction contract</td> <td style="text-align: center;">Business contracts</td> </tr> <tr> <td>Private contracting entities</td> <td colspan="2" style="text-align: center;">Construction company or Joint Venture(Design company and Construction company)</td> <td style="text-align: center;">Mostly Special Purpose Company (SPC)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Design and construction fees are generally paid before the facility is handed over. 		Design	Construction	Maintenance and Operation	Scope of work	✓	✓	✓	Contract type	Construction contract		Business contracts	Private contracting entities	Construction company or Joint Venture(Design company and Construction company)		Mostly Special Purpose Company (SPC)
	Design	Construction	Maintenance and Operation														
Scope of work	✓	✓	✓														
Contract type	Construction contract		Business contracts														
Private contracting entities	Construction company or Joint Venture(Design company and Construction company)		Mostly Special Purpose Company (SPC)														

Source: Cabinet Office “Based on Manual for Prioritizing Introduction of the PPP/PFI Process” (2017)

(2) Results Expected from Introducing PFI

The results expected from introducing PFI and points to consider about introducing PFI are shown in the following Table 3-16 and Table 3-17.

Table 3-16 Results Expected from Introducing PFI

Results Expected	Specific Examples
<p><u>Cost reduction</u> Under comprehensive orders large discretion can be given to private business and cost reduction can be expected.</p>	<p>If construction costs are lower, but management costs are higher than would otherwise be the case, the total cost will be more expensive. Among the PPP/PFI models, by using total outsourcing that is based on the idea of performance ordering, and that reaches from design and building through operation and maintenance management, as in the PFI or DBO models, the total cost can be considered and the private business can be selected based on this.</p>
<p><u>Raising the quality of service</u> Under performance ordering private business is in a better position to provide originality and ingenuity, and improvement in service quality can be expected.</p>	<p>Regarding public facilities for attracting customers, rather than having public administrators themselves manage these facilities, the public sector will totally outsource the facilities management to private businesses that have ample knowhow in running facilities aimed at attracting customers. This method is based on the concept of performance ordering, that reaches from design and building through management of operation and maintenance, and can possibly raise the quality of service.</p>
<p><u>Increase in income</u> Under performance ordering private business is in a better position to provide originality and ingenuity and an increase of income can be expected.</p>	<p>There is a possibility that income will increase as private business operators increase the number of customers through improving the quality of services and providing new services.</p>
<p><u>Regional revitalization</u> Under performance ordering private business is in a better position to provide originality and ingenuity and regional revitalization can be expected.</p>	<p>There is a possibility that the implementation of projects by private businesses will lead to the revitalization of the region by creating new business opportunities and employment, and by creating prosperity in the region through the utilization of vacant land.</p>

Source: Cabinet Office “Based on Manual for Prioritizing Introduction of the PPP/PFI Process” (2017)

Table 3-17 Points to Consider in Introduction of PFI

Points to Consider	Details
Careful selection of private businesses	When selecting an enterprise for outsourcing the work to, the price should not be considered alone, but the knowhow the enterprise has, and the details of the business plan should also be assessed. Under the PFI method more work will be needed to select the qualified enterprise, than was previously required and consequently more time will be needed.
Proper management of private business	A wide scope of work will be outsourced to the private sector, and if public administrators do not better understand the working system under the private sector, and do not manage and give guidance as required, there may be a decline in the quality of the public services. This must be carefully considered especially for work where needs are rapidly changing.

Source: Cabinet Office Website “Guide to the Introduction of PFI Projects: The Basics”

https://www8.cao.go.jp/pfi/pfi_jouhou/tebiki/kiso/kiso02_01.html (accessed February 8, 2022)

3. Finances Concerning Waste Management

Municipalities in Japan spend heavily to conduct proper waste management. Waste management is mostly funded by the general finances, and many subsidies are also used for improvement of waste treatment facilities.

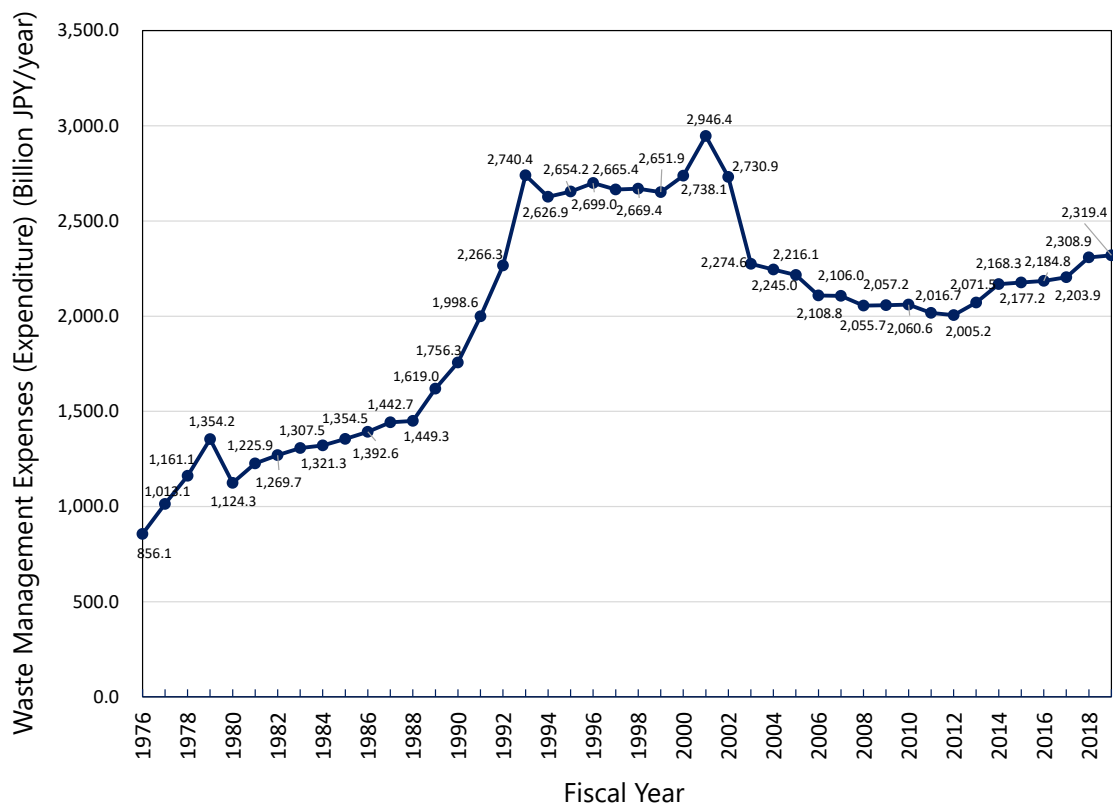
Although measures and policies based on the introduction of PFI projects and the “beneficiary pays principle” have been promoted in Japan, such measures and policies are implemented only by a small portion of the municipalities. Therefore, careful consideration should be given to the introduction of an independent accounting system for waste management services.

3.1 Financial Situation of the Central Government Concerning Waste Management

Confronted by an increasing amount of waste and the necessity to implement proper waste management, waste management expenses covered by municipalities have been increasing. Due to tightening of regulations for waste treatment facilities and improvement of facilities to control dioxins, etc. conducted for a limited term until 2002, the expenditure temporarily increased and peaked in 2002.

Under this background local governments continue to take a proactive approach to the administration of waste management by securing necessary budgets as policies and laws are revised.

Figure 3-9 shows the changes in waste management expenses (expenditure) of the municipalities in Japan. In FY 2019, the total expenditure was JPY 2,319.4 billion, comprising waste management expenses of about JPY 2,088.5 billion and human waste management expenses of about JPY 230.8 billion.



Source: Ministry of the Environment “Waste Management in Japan (FY2019)” (2021)

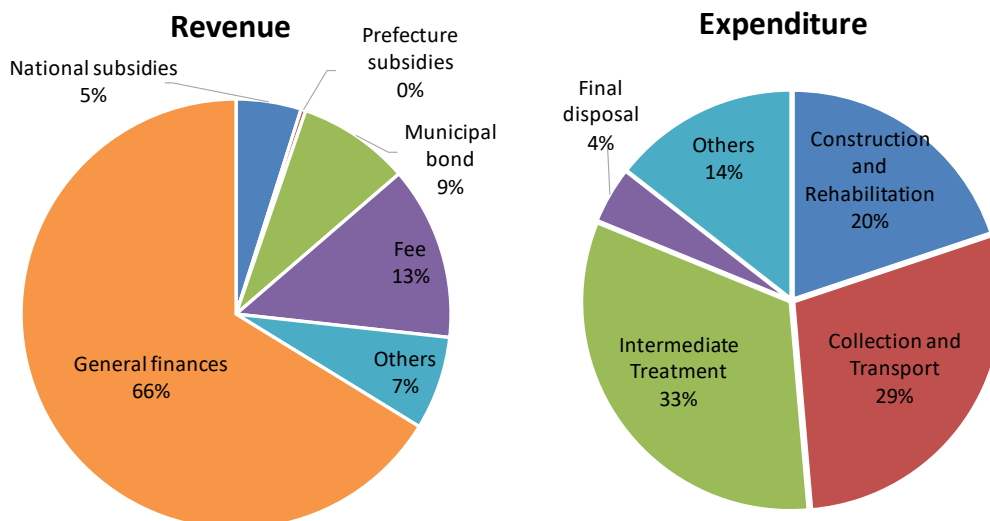
Figure 3-9 Waste Management Expenses (Expenditure) of the Municipalities

3.2 Financial Conditions of Local Governments Concerning Waste Management

The expenses of waste management are mostly covered by general finances, on the basis that waste management is the responsibility of municipalities and is part of their administrative services. Many municipalities are starting to charge for waste collection (using municipality-designated waste bags with service fee added to the purchase price), not to cover the expenses for waste management but mainly to reduce waste by increasing people’s awareness and to extend the life of final disposal sites.

Figure 3-10 shows the revenues and expenditures for waste management in the municipalities of Japan in FY 2019. The costs of waste management were covered by revenue of about JPY 1,383.3 billion (about 66% of the total revenue) which came from general finances, with other sources contributing 5-15% each including fee income contributing JPY 272.5 billion (13%). Concerning the expenditure breakdown, the operation and maintenance costs for intermediate treatment was about JPY 680 billion, taking up the largest share (33%), followed by the operation and maintenance cost for collection and transport of about JPY 600 billion (29%) and the facilities construction and improvement cost of JPY 415 billion (20%). In Japan, a large amount of financial resources are

expended for intermediate treatment, mainly incineration, to ensure stable and appropriate intermediate treatment and to alleviate the shortage of final disposal sites.



Source: Ministry of the Environment “Results of the survey on municipal waste management (FY 2019)” (2021)

Figure 3-10 Revenue and Expenditure of Waste Management (FY 2019)

3.3 Central Government Financial Support Programs for Waste Management

The grant system for promoting the formation of a sound material-cycle society is no longer simply a system of spending subsidies on facilities; it now requires municipalities to prepare regional plans and to indicate the direction of the sound material-cycle society in the region, including the facilities to be developed. With the change in requirements from preservation of the living environment to the establishment of a sound material-cycle society, the government support system has also changed. In contrast to the government subsidy system established to achieve proper waste treatment and disposal, the grant system for promoting the formation of a sound material-cycle society is designed to realize the establishment of a sound material-cycle society.

The major portion of waste management costs, 66% is covered by general finances, and waste treatment facility improvement costs, which requires large funds, are financed by grants or subsidies and local government bonds.

(1) Changes in Subsidies and Grants for Facility Improvement

Under the *Act on Emergency Measures to Develop Facilities for Living Environments*, promulgated in 1963, it was decided to formulate a 5-year waste treatment improvement plan and establish a subsidy program to encourage municipalities to build modern incineration plants. The central government also started to provide support for landfill sites in 1977, about 15 years after the subsidy program for incineration plants was established.

The traditional subsidy program was abolished in 2004 and the Grant for Establishing a Sound Material-Cycle Society was created in 2005. While the old subsidy program provided subsidies to individual facility improvement projects to ensure proper waste treatment, the new grant program is a comprehensive support program for regional planning to form a sound material-cycle society that is supported by facility improvement projects. The grant program has the following characteristics.

a. Flexible planning and budget allocation according to the actual circumstances of the region

Grants can be moved to other projects or different years as long as the projects are included in the regional plan.

b. Focus on clear target setting and ex-post evaluation

Clear targets are set to control waste generation, promote recycling, control the amount of landfill waste, etc. Ex-post (actual results based) evaluation is conducted for target achievement and project progress, and the results are disclosed.

c. Cooperation between the central and local governments starting from the planning stage to promote the creation of a sound material-cycle society

For the development of a regional plan, an optimum 3R system is established through opinion exchange among the central, prefecture and municipal governments from the perspective of the whole country and with a view to international cooperation. At the same time, exercise of regional identity and autonomy is also ensured through the creation of a program with a high degree of freedom.

Source: Ministry of the Environment “Manual for the Development of a Regional Plan for Establishing a Sound Material-Cycle Society” (2005)

The transition of the government subsidy and grant system is shown in Figure 3-11, and the content of the grants has been updated to enable municipalities to implement stable and systematic improvement of waste treatment facilities in accordance with the emerging demands and needs of each era.

The central government is promoting the introduction of Stock Management for efficient renewal and maintenance of waste treatment facilities through efforts to extend the life of such facilities and reduce their lifecycle costs. Accordingly, the grant program is being expanded not only to cover the construction of new waste treatment facilities, but also for other types of construction works such as extending the life of facilities. (for more details on stock management, refer to “Topic 1 2.4 Column: What is stock management?”)

Year	1963	1977	2005	2010	2015	2020
Name	Government subsidies					
Objective						
Subsidy rate	Incineration facility 1/4 (in Pollution control area 1/2)					
Period	Landfill 1/4					
Name	Grant for Establishing a Sound Material-Cycle Society					
Objective	To Establish a Sound Material-Cycle Society					
Subsidy rate	1/3					
Period	1/2, 1/3 (Depends on requirements and equipment category)					
Name	Grant for Waste Treatment Facility Development					
Objective	Resilience of local waste management systems to prepare for smooth and rapid disposal of disaster waste in the event of a major disaster.					
Subsidy rate	1/2, 1/3 (Depends on requirements)					
Period	1/3					
Name	Grant for carbon dioxide emission control project (Project to promote the introduction of advanced equipment)					
Objective	Reducing energy-related carbon dioxide emissions from waste treatment facilities					
Subsidy rate	1/2, 1/3 (Depends on requirements)					
Period						
Name	Subsidies for carbon dioxide emission control projects (Project for the construction of a regional recycling symbiosis zone with waste treatment facilities at its core)					
Objective	Reducing energy-related CO ₂ emissions					
Subsidy rate	1/2, 1/3					
Period						

■ : Incineration facility ■ : Landfill

Name of subsidy/grant	Objective
Government subsidies (1963~2004)	Development of facilities for the proper treatment and disposal of waste
Grant for Establishing a Sound Material-Cycle Society (2005)	Comprehensive support system for regional planning for the creation of a sound material-cycle society, including the development of facilities
	Promotion of measures to combat global warming (expansion of subsidies for high-efficiency waste power generation facilities)
Grant for Waste Treatment Facility Development (2015)	Development of a waste treatment facility to serve as a disaster response center in the event of a major disaster
Grant for carbon dioxide emission control project (2015)	Strengthening the fight against global warming
Subsidies for carbon dioxide emission control projects (2019)	Highly efficient use of waste heat through the introduction of equipment capable of significant energy savings
	Reducing energy-related CO ₂ emissions

Figure 3-11 Changes in the System of Subsidy and Grant

(2) Grant Program for Establishing a Sound Material-Cycle Society

1) Overview of the Grant Program for Establishing a Sound Material-Cycle Society

The Grant Program for Establishing a Sound Material-Cycle Society is essential to municipalities improving waste treatment facilities in their districts. Improvement of waste treatment facilities are large projects that municipalities implement only every few decades and temporarily pose a huge financial burden on them. As such projects are important for the formation of a sound material-cycle society, the central government has created this grant program to provide not only technological support but also financial support necessary for such facility development.

The overview of this grant program is described below. It is a comprehensive support program for Regional Plans for Establishing a Sound Material-Cycle Society developed by municipalities, covering not only intermediate treatment facilities such as facilities for material recycling, waste-to-energy and organic waste recycling, but also projects to improve key equipment for landfill sites and existing waste treatment facilities. The funding share is determined depending on the type of facilities and contents of the project, but budget can be allocated in a flexible manner according to the conditions of the district.

[Overview of the Grant Program for Establishing a Sound Material-Cycle Society]

1. Purpose of the Grant Program

The purpose of the program is to form a sound material-cycle society through the comprehensive and regional promotion of improvement of waste treatment and recycling facilities under clearly defined goals related to 3Rs (Reduce, Reuse and Recycle) in order to comprehensively promote 3Rs through the municipalities use of their autonomy and ingenuity.

2. Overview of the Grant Program

Municipalities develop their Regional Plans for Establishing a Sound Material-Cycle Society (normally for 5 years) as a comprehensive regional plan to improve waste treatment and recycling facilities in order to promote 3Rs (Reduce, Reuse and Recycle) of waste management in a comprehensive manner. Grant is provided for the cost of projects carried out under the regional plan.

(1) Development of Regional Plan for Establishing a Sound Material-Cycle Society

Municipalities in the target region form a Council for Establishing a Sound Material-Cycle Society together with the participation of the central and prefecture governments. The Council commences discussions at the planning phase to develop a Regional Plan for Establishing a Sound Material-Cycle Society that describes 3R targets (to be achieved with the use of the grant) and projects to be carried out to achieve these targets.

(2) Provision of Grant

The central government provides grant each fiscal year if the Regional Plan for Establishing a Sound Material-Cycle Society complies with the basic principle of the *Waste Management Act*.

(3) Ex-post Evaluation

After the completion of the plan, municipalities are required to carry out ex-post evaluation of targets achievement and confirm and disclose the results. In the ex-post evaluation, municipalities evaluate achievements through the comprehensive efforts to promote 3Rs using the facilities improved with the grant.

3. Grant Eligibility

Eligible regions:	Eligible regions for the Regional Plan are municipalities with a population of 50,000 or more or with a total area of 400 km ² (except for special regions including Okinawa and remote islands).
Eligible facilities:	<ul style="list-style-type: none"> • Material recycling facilities: Recycling facilities for incombustible waste and plastic, stockyards, etc. • Waste-to-energy facilities: Facilities for power generation by waste incineration, heat recovery facilities, bio gasification facilities, etc. • Organic waste recycling facilities: Recycling facilities for human waste, kitchen waste, etc. • Johkasou (Septic tanks) • Landfill sites • Improvement of key equipment in existing waste treatment facilities

4. Funding Rate

1/3rd of eligible expenses (1/2 for advanced facilities such as high-efficiency facilities for power generation by incineration)

Source: Ministry of the Environment “Reform toward the Sound Material-Cycle Society: Recipe Book - Guide for 3R Promotion Grant (Grant for Establishing a Sound Material-Cycle Society)” (2006)

Table 3-18 Eligible Projects and Facilities for Grants and Subsidies (Intermediate Treatment)

Eligible Project	Eligible Facilities
Material recycling facilities	<p>Facilities for resource recycling processes such as separation and compression to reuse wastes as materials</p> <p>(1) Recycling Center Facilities for recycling through such processes as separating wastes (combustible and incombustible wastes), including functions to promote reuse of waste through repair of disused goods and display of recycled goods as well as raising awareness about 3Rs</p> <p>(2) Stockyard Facilities for temporary storage of recyclables such as glass bottles, cans and plastic bottles after they are collected separately, further sorted out and compressed for effective reuse as resources</p> <p>(3) Ash Melting Facilities Facilities to promote recycling of incinerated ash through processing incineration residue (such as incinerated ash) collected from heat recovery facilities into molten and solidified materials (so called molten slag)</p> <p>(4) Containers and Packaging Recycling Facilities Projects to establish a system for separate collection of containers and packaging as recyclable materials through the development of such facilities as separate collection centers, storage facilities and compression facilities for recyclables</p>
Waste-to-energy facilities	<p>Facilities to use remaining heat for power generation, etc. by collecting heat generated from waste incineration as steam energy or through gasification; facilities to use remaining heat for power generation, etc. by converting waste into biogas; and facilities to convert waste into such fuels as biodiesel fuel, refuse derived fuel and reformed gas</p> <p>(1) Heat Recovery Facilities (Incineration Including Gasification Melting) Facilities to transform waste into residue or molten and solid materials by reducing volume of waste through high temperature oxidation using a single or combination of unit processes such as thermal decomposition and melting. Specifically, waste incineration plants with stoker-type or other types of incinerators, or thermal decomposition and melting facilities with equipment to combust or collect (reform) gas generated from thermal decomposition of waste.</p> <p>(2) Waste-to-fuel Facilities (RDF, BDF, Charcoal, Ethanol Fuel, Wood Chip, etc.) Facilities to recover energy contained in waste through compression, chemical reaction, thermal decomposition, etc.</p>
Organic waste recycling facilities	<p>Facilities to treat kitchen waste and other types of organic waste (biomass waste) together with human waste, septic tank sludge, etc. and facilities for resource recycling through composting or feed production</p> <p>(1) Sludge Recycling Center Facilities to treat kitchen waste and other types of organic waste together with human waste and septic tank sludge and recover resources (methane, compost, etc.)</p> <p>(2) Facilities to Produce Feed from Waste Facilities to produce animal feeds by decomposing and drying kitchen waste, sorted out and separated to be free of foreign matter as well as other types of waste suitable for feed, through biological response using microorganisms, warming, etc.</p> <p>(3) Waste Composting Facilities Facilities to produce compost by mechanically stirring organic waste suitable for composting and exposing it to aerobic atmosphere to promote decomposition by microorganisms</p>

Source: Ministry of the Environment “Guide for Application for Grant for Establishing a Sound Material-Cycle Society (Facility)” (2021)

2) Contents of the Regional Plan for Establishing a Sound Material-Cycle Society

Clear target setting is extremely important for the Regional Plan for Establishing a Sound Material-Cycle Society developed by municipalities, and facility improvement projects included in the plan are considered as measures to achieve such targets. Matters to be covered in the plan include facility improvement projects and the related support plans, waste generation control, promotion of reuse, establishment of a treatment system, and follow-up of the plan. Table 3-19 shows the contents of the Regional Plan for Establishing a Sound Material-Cycle Society.

Table 3-19 Contents of the Regional Plan for Establishing a Sound Material-Cycle Society

No.	Item	Overview
1	Basic matters to promote the establishment of a sound material-cycle society in the region	<p>(1) Target Region Target region (name of target municipality, and area and population of municipal waste treatment target area), and target region map (as attachment for reference)</p> <p>(2) Plan Period Period for the plan (fiscal years): about 5 years</p> <p>(3) Basic Direction Goals for the region according to the purpose and schedule of the plan</p>
2	Current state and targets for establishing a sound material-cycle society	<p>(1) Current State of Municipal Waste Treatment Amounts of waste generated, recycled, and reduced through intermediate processing (incineration, crushing and sorting, etc.), amount of heat recovered, amount of waste landfilled, etc. (to be illustrated in a flowchart, etc. in an easy-to-understand way)</p> <p>(2) Targets for Municipal Waste Treatment Target waste amount for usage, amount reduced through intermediate treatment, amount of heat recovered, amount of waste disposed in landfills, etc.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>[Example of target setting for 3R promotion] (Target achievement to be evaluated after the plan period)</p> <p>Reduction of waste generation: Amount of waste generated per person per day (xx % reduction from year xxxx)</p> <p>Recycling: Recycling rate (xx% reduction from year xxxx)</p> <p>Thermal recovery: Amount of power generated with each ton of waste (xx kWh/t)</p> <p>Landfill: Amount of waste disposed in landfills (xx% reduction from year xxxx)</p> </div>
3	Contents of the measures	<p>(1) Reduction of Waste Generation and Promotion of Reuse Current and future state of measures for reduction of waste generation and reuse: matters concerning measures that can be taken by the community such as switching to fee charging for the waste services, environmental education and awareness raising, promotion of reusable bags, elimination of disposable shopping bags and simplified packaging</p> <p>(2) Waste Treatment System Current and future conditions of the waste treatment system: Matters concerning waste categories, collection, transport and treatment methods, and response to various recycling laws</p> <p>(3) Improvement of Treatment Facilities Overview of facilities for improvement: Name and type of facilities,</p>

No.	Item	Overview
		type of waste to be treated, treatment capacity, location, project period, year of completion, etc. (4) Projects to Support Plan for Facility Improvement Matters concerning facility improvement planning: Topographic and geological investigation, surveys, basic design, investigation of impact on living environment, etc. (5) Other Measures Matters concerning awareness raising, environmental education, discussion with residents, measures against illegal dumping and waste treatment during disaster
4	Follow-up and ex-post evaluation of the plan	Matters concerning assessment of progress, ex-post evaluation, review of the plan, amongst others

Source: Ministry of the Environment “Manual for the Development of a Regional Plan for Establishing a Sound Material-Cycle Society” (2005)

3) Procedure of the Regional Plan for Establishing a Sound Material-Cycle Society

The flow of the Regional Plan for Establishing a Sound Material-Cycle Society until the provision of the grant is as depicted in Figure 3-12.

The municipality applying for the grant prepares the Regional Plan for Establishing a Sound Material-Cycle Society (draft). The municipality organizes the Council for Establishing a Sound Material-Cycle Society together with the central and prefecture governments to exchange opinions about the draft.

The municipality develops the Regional Plan for Establishing a Sound Material-Cycle Society based on the discussion at the Council. The prefecture government sends the plan to the Minister of Environment after checking whether the opinions expressed in the Council are incorporated into the regional plan developed by the municipality.

Upon approval of the Minister of Environment, projects to support the plan and projects for facility improvement are carried out.

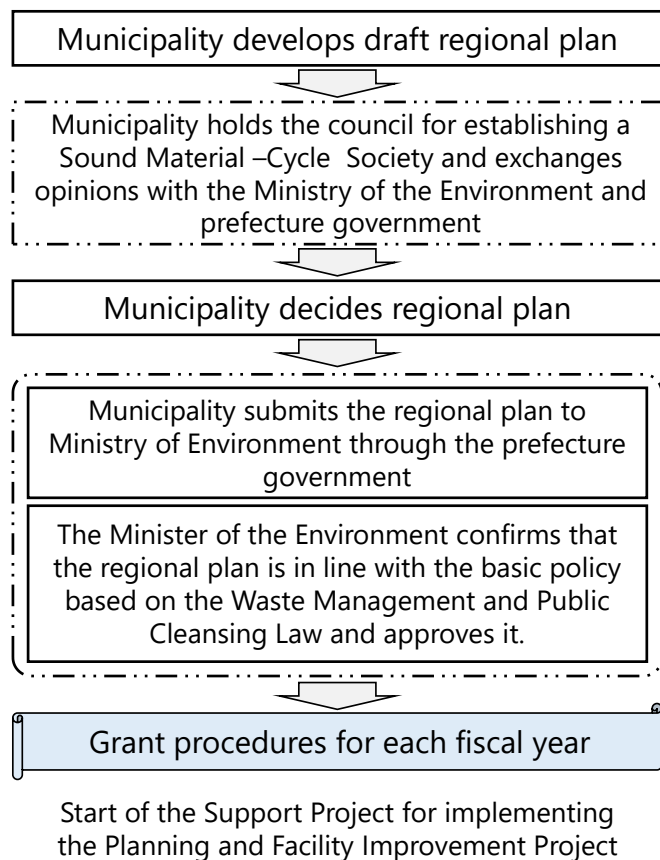


Figure 3-12 Grant Scheme Flow

4) Support for the Procedures Concerning the Grant Program

An important national policy in Japan is to develop necessary facilities for proper waste treatment in as many municipalities as possible. For large-scale waste treatment facility improvement projects that impose a large burden on municipalities, the central government provides support such as establishing guidelines for grant projects and holding explanatory meetings so that municipalities can carry out grant procedures smoothly.

3.4 Fee Collection Methods by Local Governments and Fee Bearing by Residents and Business Operators

In Japan, in building the sound material-cycle society, mechanisms have been created that incorporate ideas about extended producer responsibility and beneficiaries burden sharing.

Respective parties (i.e., residents, business operators and governments), by meeting their own responsibilities under appropriate role sharing, contribute to build mechanisms to help reduce burdens (especially, financial burdens) for municipalities, and to promote further recycling, reduce illegal dumping, and support proper waste treatment.

While water supply service adopts the independent accounting system of consumption as the principal financial revenue in the form of “water charges” collected from residents, in the case of municipal waste management service the expenses are covered by taxes (such as resident taxes) as principal financial revenues.

With the aim of promoting the reduction of waste generation and reuse, the government examined how waste should be managed by municipalities to create a sound material-cycle society. In 2010, The “Basic Policy for the Comprehensive and Systematic Promotion of Measures for the Reduction and Other Appropriate Disposal of Waste” was revised. This basic policy identified that the roles of municipalities should be to “promote charging fees for municipal waste management, in order to minimize waste and promote recycling by utilizing economic incentives, to advance fairness of burden sharing in proportion to generated-waste amounts, and to build residents’ awareness”. In response to this basic policy, each municipality is either already charging fees for waste management services, or considering to do so. Many municipalities have introduced a fee system for household waste because this encourages residents to change their lifestyles and behavior, in favor of reducing waste generation and promoting recycling of resources through recycling.

In line with the principle of “extended producer responsibility”, the *Containers and Packaging Recycling Law* has established a mechanism that obliges business operators to bear recycling-related expenses for waste containers and packaging. As it is difficult for municipalities to conduct proper treatment or to recycle large and heavy home appliances, the *Home Appliance Recycling Law* provides a mechanism by which waste-generators bear waste collection and transport fees as well as recycling fees when discharging their own home appliances. Regarding automobiles, the *End-of-Life Vehicle Recycling Law* provides a mechanism by which, in general, automobile owners should bear recycling fees when purchasing their own automobiles.

Table 3-20 shows laws and regulations providing for expense sharing mechanisms.

Table 3-20 Expense Sharing Mechanisms by Laws and Regulations and their Expected Impacts

Law and regulations / Targeted products	Financial revenues secured (Use of financial revenue)	Expense bearers	Expected impacts
<i>Containers and Packaging Recycling Law / Containers and Packaging</i>	Outsourcing Fees for collection, transport and recycling (recycling and merchandising) of containers and packaging	Designated business operators (retailers, manufacturers, etc.)	Reduction of waste, life extension of landfill site, promoting of recycling
<i>Home Appliance Recycling Law / Four Items of Home appliances</i>	Fees for collection, transport and recycling of Home Appliances	Waste-generators of used home appliances	Reduction of illegal dumping of used home appliances, reduction of waste, life extension of landfill site, promotion of recycling
<i>End-of-Life Vehicle Recycling Law / End-of-life vehicles</i>	Recycling fees for end-of-life vehicles	Vehicle owners	Reduction of illegal dumping of end-of-life vehicles, reduction of wastes, life extension of landfill site, promotion of recycling
Waste discharged from household	Forming part of financial revenue for waste management (used for public awareness building, etc.)	Residents	Reduction of wastes, life extension of landfill site, ensuring fairness of expense sharing, raising residents' awareness, building awareness and technology capacities of business operators, securing part of financial resource necessary for waste management

(1) Containers and Packaging Recycling Law

The *Containers and Packaging Recycling Law* covers waste containers and packaging included in municipal wastes, and provides for a system by which designated business operators (such as sellers and manufacturers) should bear expenses necessary for collection, transport and recycling process of containers and packaging.

One of the difficulties in introducing this law was to build consensus among interested parties. Employment is an extremely serious issue, and if there are stakeholders who are concerned about losing their jobs due to a decrease in the amount of waste, it is important to build consensus by holding repeated explanatory meetings.

In establishing recycling statutes, it is important to shift part of the responsibilities of municipalities to the manufacturers, and therefore, while limited, this law has shifted the waste treatment responsibility. It should be kept in mind that if the proposed share of responsibilities to be met by manufacturers becomes too large, it will be difficult to obtain their consent.

1) Background

Amid a rapid increase in the amount of waste discharged, cans, glass bottles, plastic bottles, and other container and packaging waste comprised roughly 60% of municipal waste in terms of volume, and roughly 30% in terms of weight. Very little container and packaging waste was being recycled despite the fact that it is technically relatively easy to recycle this waste type due to its homogeneity and the sheer amount. Given this background, and in an effort to reduce the overall amount of waste by promoting the recycling of container and packaging waste, a new system was created to assign the roles and responsibilities of municipalities, consumers, and producers.

Furthermore, the law aims to improve the administration of waste by municipalities confronting dioxin-related problems by reducing the amount of container and packaging waste incinerated along with municipal waste.

2) Overview of Containers and packaging Recycling Law

Up to the enactment of the *Containers and Packaging Recycling Law*, treatment and disposal of waste discharged from each household were wholly borne by municipalities as services under their own responsibility, and accordingly, municipalities incurred significant expenses for such services. When the *Containers and Packaging Recycling Law* was established, the concept of “extended producer responsibility” was introduced, and the law provided for obligations on business operators (such as manufacturers, sellers, importers) to implement recycling (recycling and merchandising) for these wastes.

For the cases where business operators themselves cannot implement recycling, the law set up another mechanism by which business operators shall pay “outsourcing fees” for recycling to the

Japan Containers and Packing Recycling Association (the corporation designated by the central government), so that the business operators can meet their respective recycling and merchandising obligations by such fee payment.

Name of law: Law for the Promotion of Sorted Collection and Recycling of Containers and Packaging
(Containers and Packaging Recycling Law)

Enacted: 1995

Amended: 2006, 2021

Purpose: To ensure the effective use of resources and proper treatment of waste through the reduction of municipal waste, and proper use of recycled resources by reducing the generation of containers and packaging waste discharged from households together with municipal waste and clarifying roles and responsibilities - specifically, sorted discharge by consumers, separate collection by municipalities, and recycling by business operators.

Overview of law: The law sets out a recycling system based on the roles and responsibilities of three entities: sorted discharge by consumers, separate collection by municipalities, and recycling and merchandising by business operators (container manufacturers, and business operators that sell goods in containers and packaging). It marks the first incorporation of the concept of extended producer responsibility (EPR) in Japan, and imposes physical and financial responsibilities for recycling and merchandising on business operators.

Targets: Steel cans, aluminum cans, glass bottles, cardboard, beverage cartons, paper containers and packaging, PET bottles, plastic containers and packaging

Source: Law for the Promotion of Sorted Collection and Recycling of Containers and Packaging (1995)

3) Recycling System under the Containers and Packaging Recycling Law

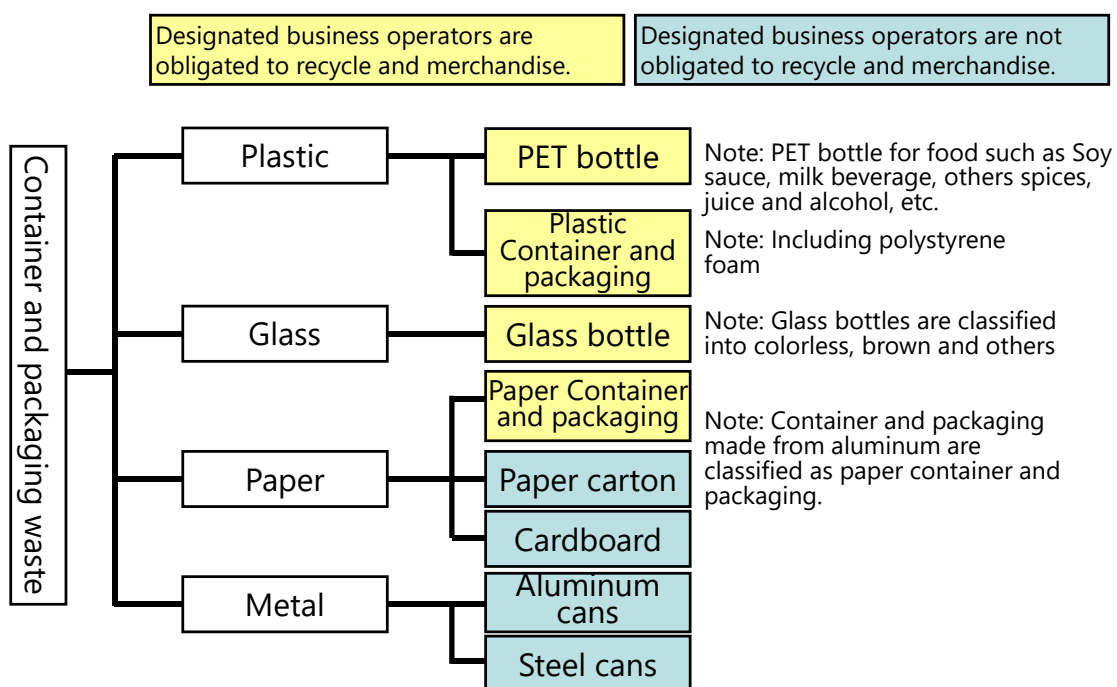
A) Containers and Packaging Covered by the Containers and Packaging Recycling Law

The *Containers and Packaging Recycling Law* defines containers and packaging as follows: “the term “containers and packaging” as used in this law means containers and packaging of goods (including the cases where containers and packaging of goods are paid for) which become unnecessary when the relevant goods have been consumed or when the goods have been removed from the relevant containers and packaging.” (Article 2, paragraph (1) of the Act)

Specifically, containers and packaging subject to separate collection can be divided into eight (8) categories: glass bottles, PET bottles, paper containers and packaging, plastic containers and packaging, aluminum cans, steel cans, paper packing, and cardboard.

Among these categories, the law specifies four (4) categories (glass bottles, PET bottles, paper

containers and packaging, and plastic containers and packaging) as being subject to the recycling and merchandising obligations, because under the current circumstances the wastes under these categories cannot be recycled even after separate collection due to having less value for use as resources. On the other hand, the wastes under the other four (4) categories of aluminum cans, steel cans, paper packing and cardboard are not subject to the recycling and merchandising obligations, because under the current circumstances, they are already being recycled and traded in the market economy due to having a high value as resources.



Source: The Japan Containers and Packing Recycling Association “The Containers and Packaging Recycling System in Japan” (2020) <https://www.jcpra.or.jp/Portals/0/resource/eng/JCPRAdocuments202012.pdf>

Figure 3-13 Types of Containers and Packaging



Photo 3-6 PET Bottles



**Photo 3-7 Plastic Containers
(Polystyrene foam)**



Photo 3-8 Glass Bottles



**Photo 3-9 Paper
(Cardboard, Paper Container)**



Photo 3-10 Paper Carton



Photo 3-11 Cans

Source: Yachiyo Engineering Co., Ltd.

B) The Roles of each Party defined in Containers and Packaging Recycling Law

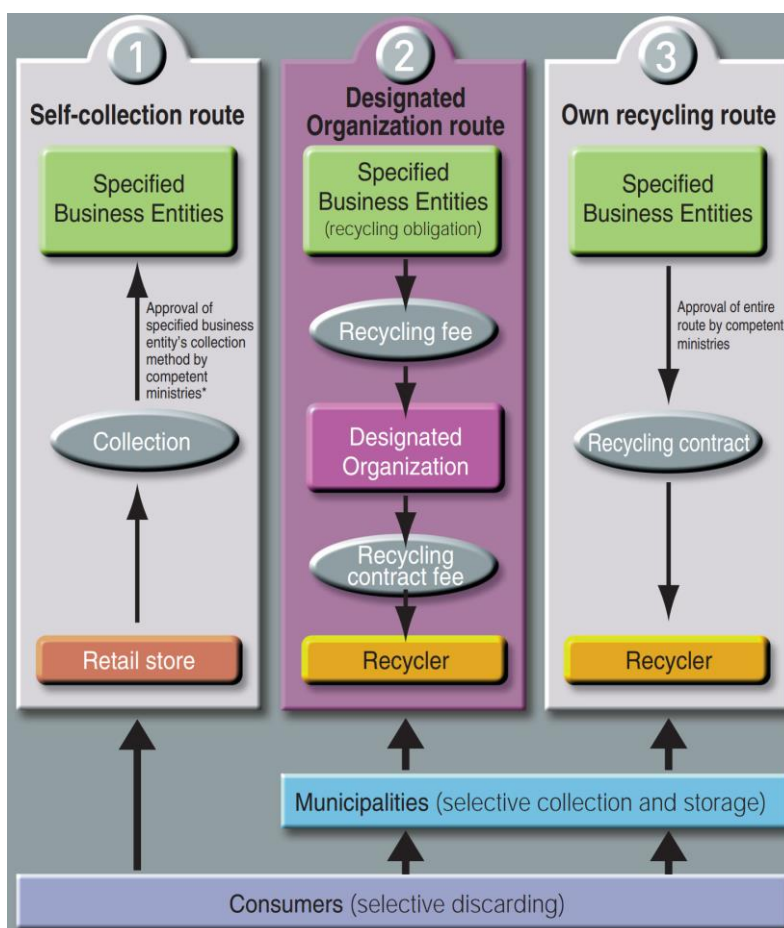
Table 3-21 shows the roles of each party under the *Containers and Packaging Recycling Law*.

Table 3-214 Roles of each Party under the Containers and Packing Recycling Law

Party	Overview of Roles
Designated business operators	Designated business operators ((1)business operators selling goods using “containers” or “packaging”, (2)business operators manufacturing “containers”, (3)business operators importing “containers” or goods with “containers” or “packaging”) have recycling and merchandising obligations. Small business operators are exempted.
Consumers “Sorted discharge”	Recycling starts from each consumer’s good manner and thoughtfulness, and accordingly consumers have to observe “discharge rules” established by the respective municipalities. Consumers will make efforts to minimize waste containers and packing, by carrying their own bags while shopping and not using plastic bags, selecting simply packaged goods, actively using returnable containers, etc.
Municipalities “Separate collection”	By separate collection, sorting and cleaning etc. of containers and packaging, municipalities will satisfy the “sorting standards” provided for in the Law. They will store the sorted wastes at appropriate storing facilities. Properly stored waste will become “waste containers and packaging that conform to the sorting standards”, which will be collected by the designated corporation.
Recycling and merchandising operators “Recycling and merchandising”	These recycling operators will transport and reproduce “waste containers and packaging that conform to the sorting standards”, and utilize them as new “resources”.
Designated corporation	The Japan Containers and Packing Recycling Association is the designated corporation appointed by the five (5) principal ministries (Ministry of the Environment, Ministry of Economy Trade and Industry, Ministry of Finance, Ministry of Health, Labour and Employment, and Ministry of Agriculture, Forestry and Fisheries), and will smoothly and properly proceed with recycling (recycling and merchandising) of “waste containers and packaging that conform to the sorting standards”.

Source: Ministry of Economy, Trade and Industry “*The Containers and Packing Recycling Law*” is responsible for most of our ‘resources’ (2006)

The *Containers and Packaging Recycling Law* indicates three (3) routes through which designated business operators having recycling obligations can perform their obligations (i.e., self-collection route, own-recycling route, and designated organization route). Self-collection route is the method in which designated business operators collect containers and packaging from consumers through their own distributors, and then re-use them. Own-recycling route is the method in which designated business operators directly outsource recycling and merchandising operators to process and recycle (i.e., recycling and merchandising) of containers and packaging collected by municipalities. Designated organization route is the mechanism introduced by the *Containers and Packaging Recycling Law*. This method of recycling (recycling and merchandising) through the Japan Containers and Packing Recycling Association (the designated corporation), in which the designated corporation executes outsourcing agreements with recycling and merchandising operators on behalf of the relevant designated business operators. By paying recycling expenses to the designated corporation, the designated business operators are deemed to meet their own recycling and merchandising obligations.

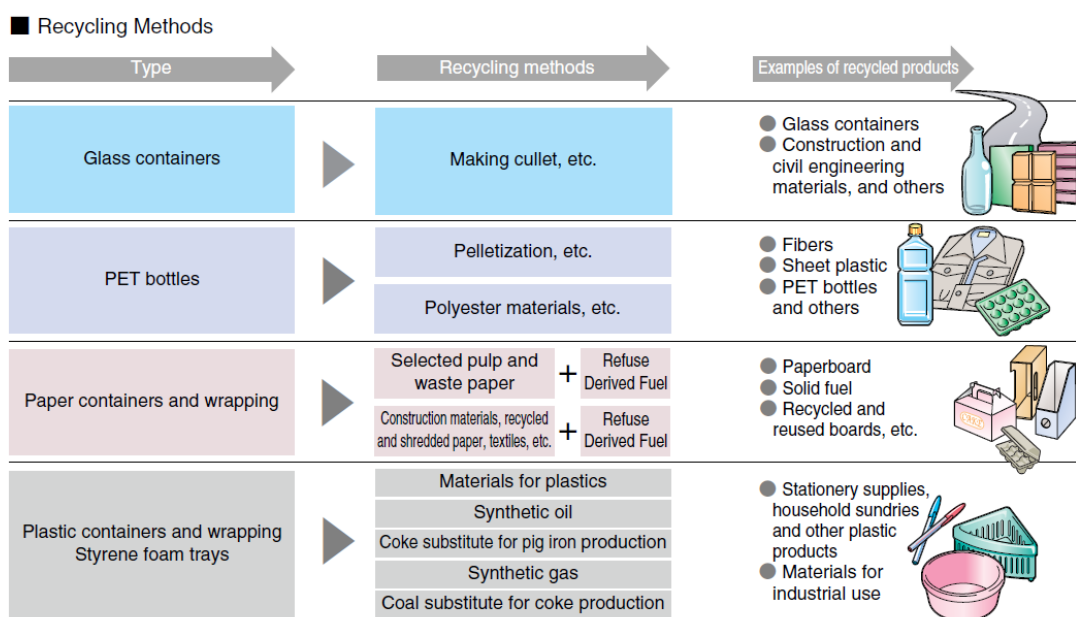


Source: Ministry of Economy, Trade and Industry “The Containers and Packing Recycling Law makes the most of our ‘resources’” (2006)

Figure 3-14 Method of Implementation of Recycling Obligations of Designated Business Operators

C) Flow of Recycle Process for Containers and Packaging

Among containers and packaging sorted and collected in accordance with the separate collection plan established by the municipality, those collected, transported and stored in accordance with the standards established under laws and regulations are certified “waste containers and packaging that conform to the specified sorting standards”. “Waste containers and packaging that conform to the specified sorting standards” are subject to material recycle for resource use by recycling and merchandising operators, and then are used for manufacturing of various products.



Source: Ministry of Economy, Trade and Industry “The Containers and Packing Recycling Law” makes the most of our ‘resources’” (2006)

Figure 3-15 Recycling Methods

4) Flow of Recycling Fees

The *Containers and Packaging Recycling Law* covers waste containers and packaging included in municipal wastes, and provides for a system by which a designated business operator (such as retailers and manufacturers) should bear expenses necessary for collection, transport and recycling process of containers and packaging.

When a designated business operator performs its recycling obligation through either of the self-collection route or own-recycling route, the designated business operator will have to implement recycling or execute an outsourcing agreement with recycling and merchandising operators by themselves.

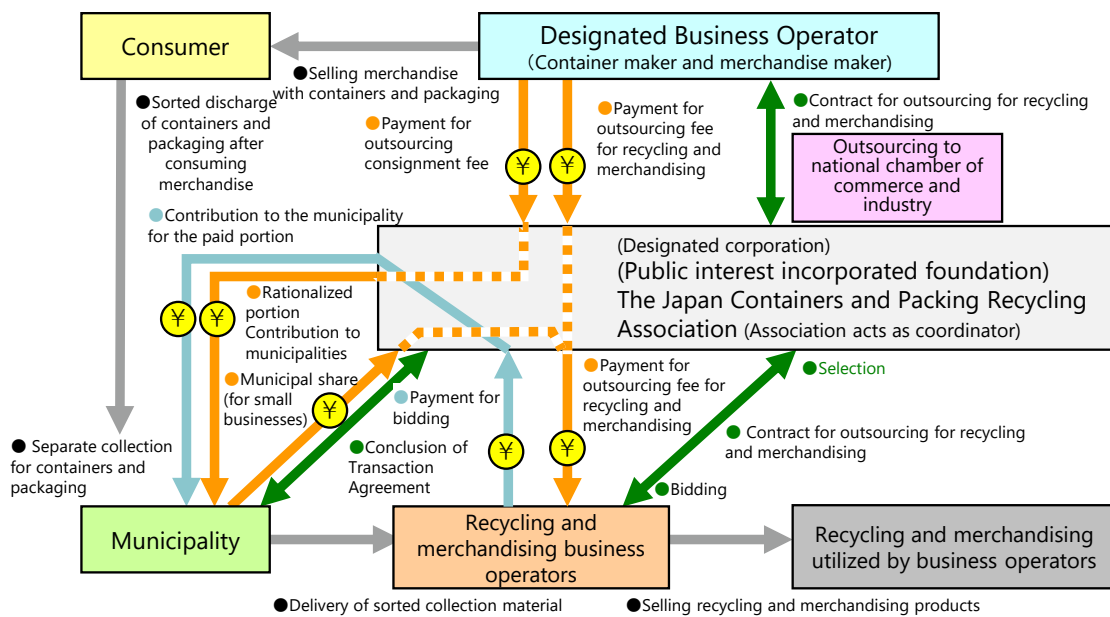
Figure 3-16 shows the flow in case where a designated business operator carries out its recycling obligations through the designated organization route.

Outsourcing fees are divided into two types: “recycling and merchandising outsourcing fees” and “municipality rationalization-contributing outsourcing fees”. By paying both fees to the designated corporation, the designated business operator will be deemed to have met its recycling and merchandising obligations.

“Recycling and merchandising outsourcing fees” are applied to cover recycling fees, and are paid from the designated corporation to the companies that actually carry out recycling (i.e., recycling and merchandising operators). “Municipality rationalization-contributing outsourcing fees” will become source for rationalization contribution paid to municipalities.

The system of contributing funds to municipalities is the mechanism adopted to distribute any benefits of reduced expenses to both business operators and municipalities when the efforts by business operators and municipalities are contributing to rationalize and streamlining the recycling of containers and packaging. Rationalization contributions to municipalities are paid as contribution to municipalities, of half amount of recycling expenses that had been reduced more than expected. Rationalization contributions are paid once a year, by the designated corporation to the municipalities in accordance with “quality” standard and depending upon extent of contribution to “reduced amounts”.

At the end of each fiscal year, the outsourcing fee is settled, and then, in proportion of any recycling expenses actually required, any excess will be returned to business operators, and on the other hand the business operators will be expected to pay for any deficit incurred in the recycling expenses.



Source: The Japan Containers and Packing Recycling Association “Business Report and Financial Statements in FY2018” (2019)

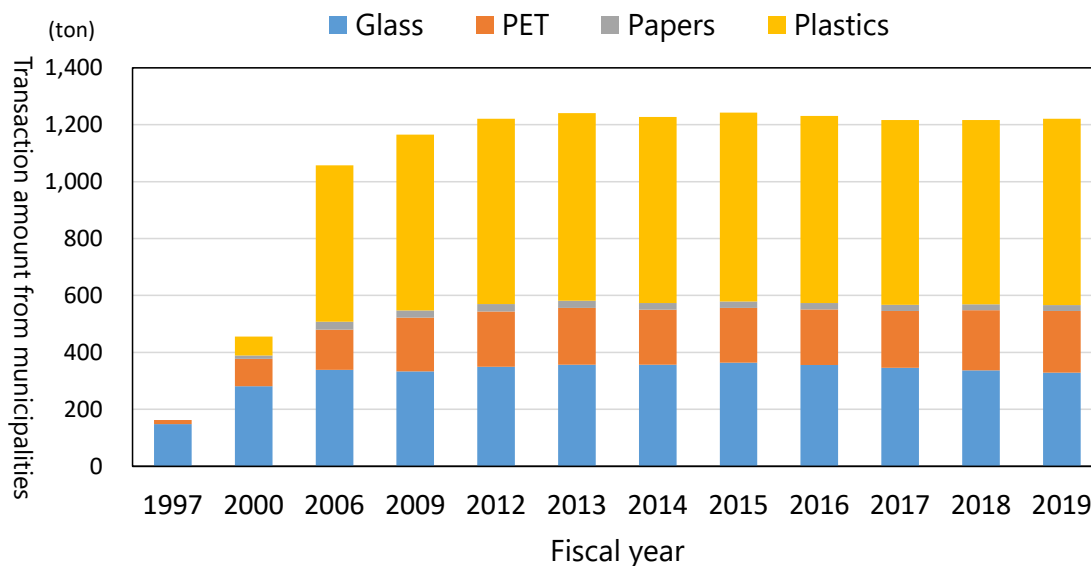
Figure 3-16 Scheme of Recycling and Merchandising

5) Actual Performance and Impacts of Containers and Packaging Recycling Law

The *Containers and Packaging Recycling Law* has positively impacted the reduction of final disposal amount. In addition, the law contributed to the thorough sorting for resource use, and reduction of excessive packaging, with improved resident awareness on containers and packaging.

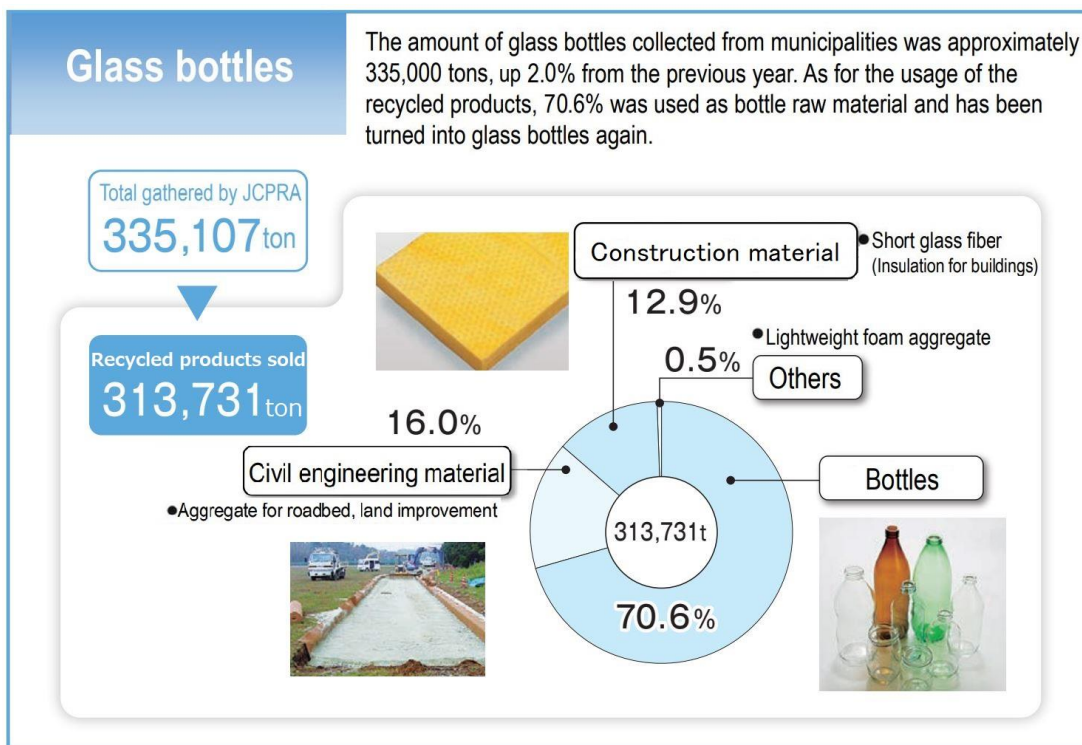
Figure 3-17 shows the actual performance of recycling of four (4) categories subject to recycling and merchandising obligations: glass bottles, PET bottles, paper containers and packaging, and plastic containers and packaging.

Containers and packaging amounted to about 60% in quantity of wastes discharged from household in 2019, but they are now re-used as resources through the enforcement of *Containers and Packaging Recycling Law*. In addition, progress in material recycling contributed to reduction of final disposal amount, and life extension of landfill sites. Furthermore, since containers and packaging are now subject to sorting and separate collection, consumers and business operators are increasing their awareness about 3R, and manufacturers have developed advanced technologies in the production of containers and packaging (weight saving of containers and packaging, and simplified structure to make sorting easier), contributing to the establishment of the sound material-cycle society.



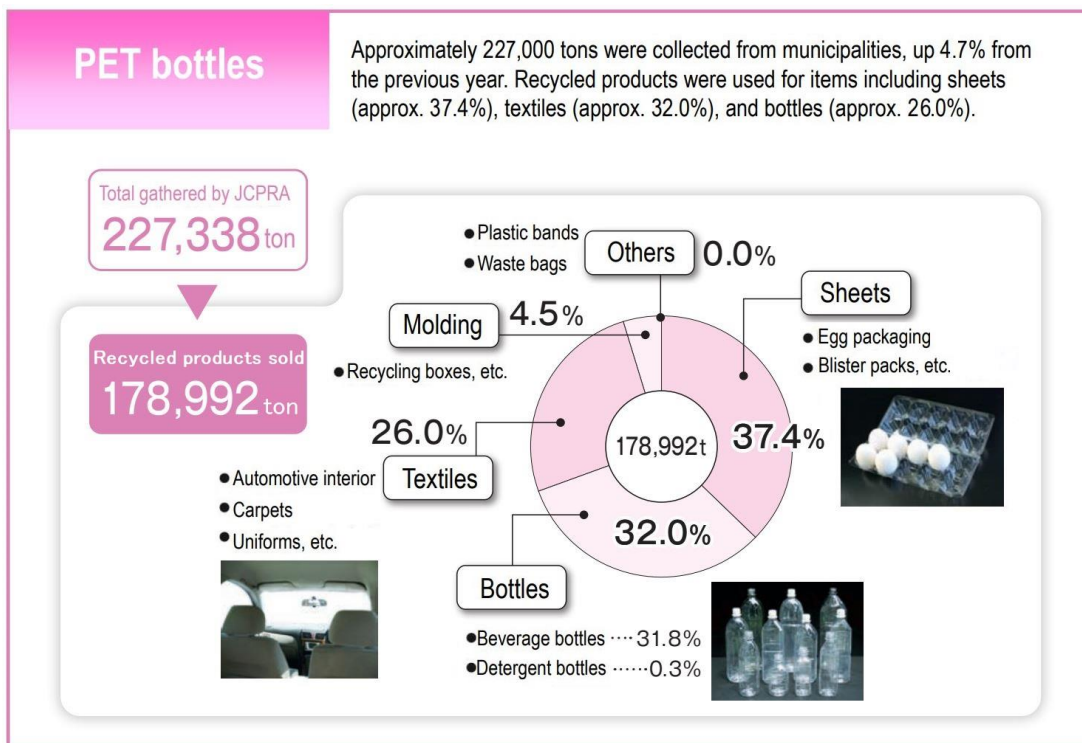
Source: The Japan Containers and Packing Recycling Association Website “Graph of actual collected amount over time” https://www.jcpra.or.jp/municipality/municipality_data/tabid/401/index.php#Tab401 (accessed February 16, 2022)

Figure 3-17 Municipalities Collected Amounts of Four Waste Categories Subject to Recycling and Merchandising Obligations



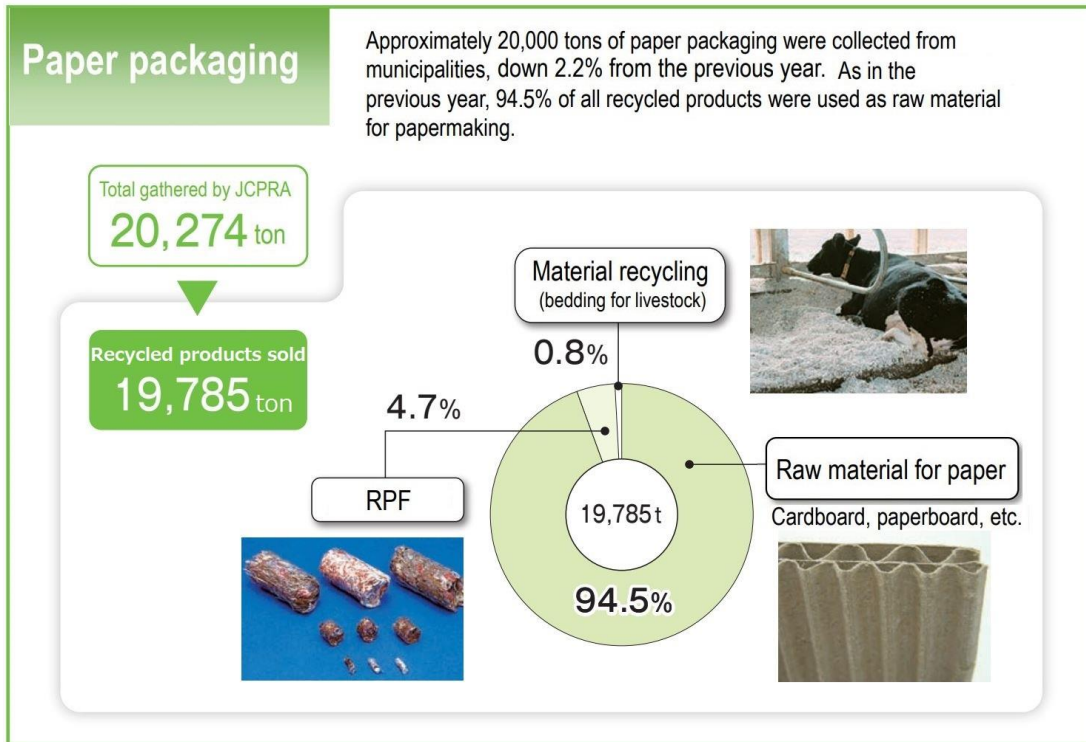
Source: The Japan Containers and Packing Recycling Association “Annual Report 2021” (2021)

Figure 3-18 Breakdown of Collected Glass Bottles Waste Amount from Municipalities



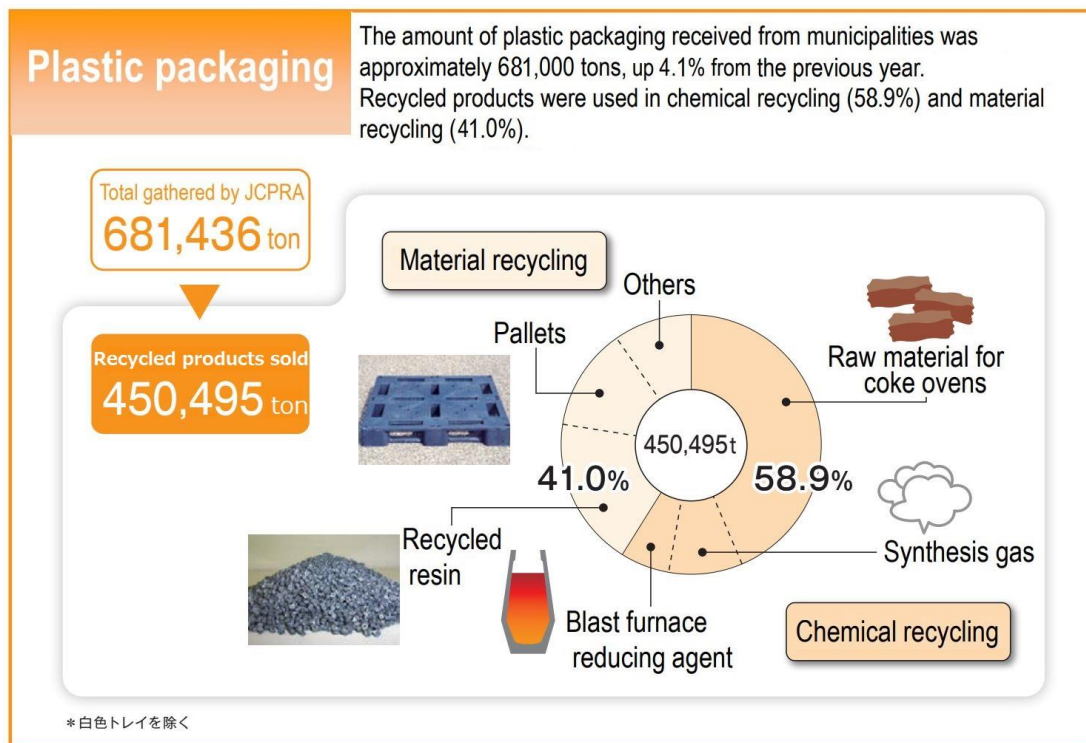
Source: The Japan Containers and Packing Recycling Association “Annual Report 2021” (2021)

Figure 3-19 Breakdown of Collected PET Bottles Waste Amount from Municipalities



Source: The Japan Containers and Packing Recycling Association “Annual Report 2021” (2021)

Figure 3-20 Breakdown of Collected Paper Packaging Waste Amount from Municipalities



Source: The Japan Containers and Packing Recycling Association “Annual Report 2021” (2021)

Figure 3-21 Breakdown of Collected Plastic Packaging Waste Amount from Municipalities

(2) Home Appliance Recycling Law

The *Home Appliance Recycling Law* established a new system for recycling by relevant entities to ensure the proper treatment of used home appliances and the effective recycling of resources found in the appliances. Under this scheme, retailers are obligated to take used home appliances from dischargers and deliver them to manufacturers, etc., and manufacturers are obligated to take the home appliances and recycle them. Additionally, given the problematic destruction of the ozone layer, it became necessary to properly treat the chlorofluorocarbons that are used in home appliances.

1) Background

TVs, air conditioners, refrigerators, washing machines, and other home appliances have been widely viewed as household essentials since Japan's period of high economic growth. Originally, used home appliances were discharged for municipal collection (roughly 600,000 tons as of 1997), and about half the collected used appliances were directly dumped into landfill sites because their size and weight made proper treatment difficult. Additionally, although home appliances contain iron, aluminum, glass, and many other useful resources, municipalities have difficulty recycling them. As a result, municipalities only collected some iron and other metals after shredding the used appliances. Consequently, the strain on remaining landfill capacity grew more severe, and highlighted the need for the reduction and recycling of waste as key issues. In light of these conditions, a new recycling system based on new obligations pertaining to home appliances for manufacturers and retailers, was created in an effort to effectively use resources and reduce waste by promoting the recycling of used home appliances.

Additionally, the proper treatment of used home appliances including the recovery of chlorofluorocarbons became an issue given the problematic destruction of the ozone layer by chlorofluorocarbons and environmental contamination by heavy metals and other harmful substances found in used home appliances.

2) Overview of Home Appliance Recycling Law

The *Home Appliance Recycling Law* defines four items of home appliance which are subject to the stipulations of this law, the role sharing by each party, the recycling and merchandising obligations, and expense claims, etc.

The four home appliances are air conditioners, TVs, refrigerators and freezers, and washing machines and dryers. All are large appliances that have their individual characteristics which make it difficult for municipalities to provide for their proper treatment after usage. Therefore, the proper treatment and disposal of the used appliances shall be implemented through allocation of roles to each of waste-generators, retailers and manufacturers (manufacturers and importers

when relevant).

The waste-generators using home appliances will make efforts to use them for longer periods of time, and under the law will have to bear expenses necessary for recycling (i.e., collection, transport and recycling fees). The law further establishes the respective roles of the other parties: retailers selling home appliances will have to collect waste home appliances from waste-generators and deliver them to manufacturers, and manufacturers will then have to collect and recycle those wastes.

Name of law: Law for the Recycling of Specified Kinds of Home Appliances

(Home Appliance Recycling Law)

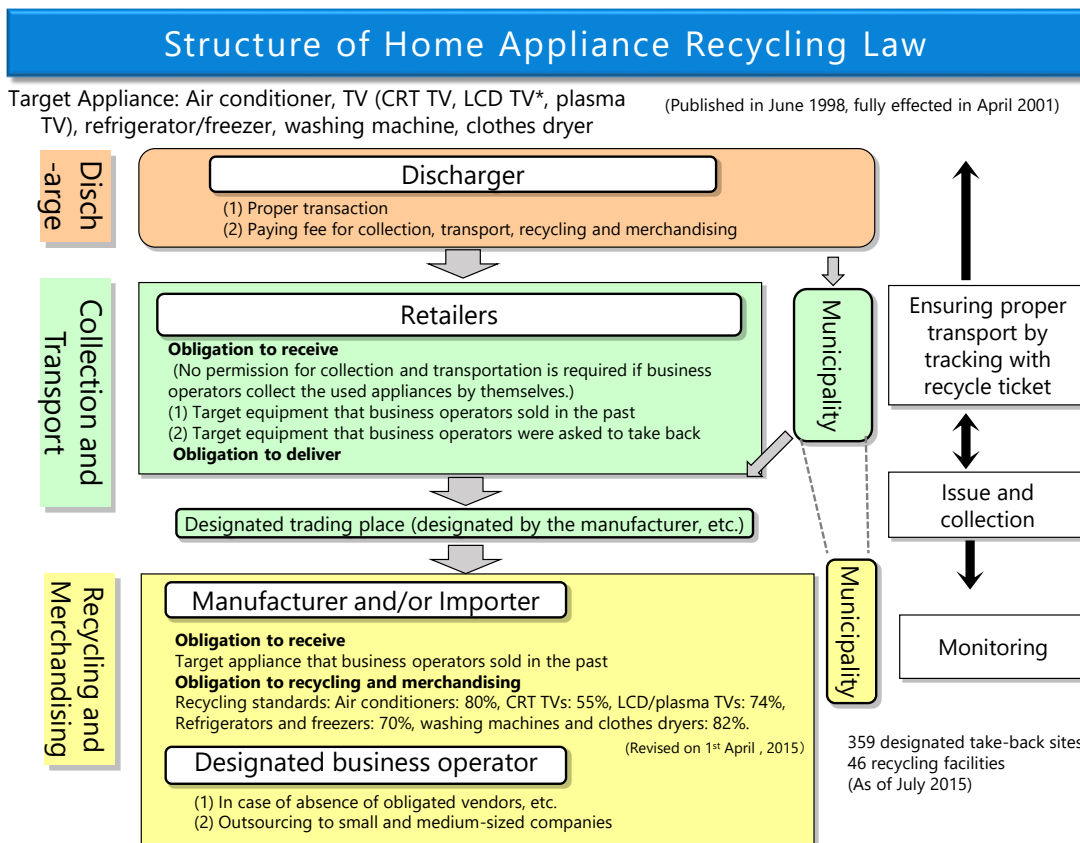
Enacted: 1998

Purpose: To ensure the effective use of resources and proper treatment of target home appliances that have become waste by sufficiently using recyclable resources, reducing waste, and the like through obligating retailers and manufacturers to implement certain measures in order to properly and smoothly collect, transport, and recycle waste.

Overview: The law sets out a new recycling system for four types of home appliances in which retailers are obliged to accept used home appliances from consumers (waste generators) and deliver them to manufacturers, and manufacturers are obliged to recycle them, among other things. The law sets out roles and responsibilities, for example obliging customers (waste generators) to pay fees for waste collection, transport, and recycling when they dispose of used home appliances.

Targets: Household air conditioners, TVs, electric refrigerators and freezers, and electric washing machines and dryers

Source: Law for the Recycling of Specified Kinds of Home Appliances (1998)



*: Excluding mobile TVs, car TVs and bathroom TVs, etc.

Source: Ministry of the Environment Website “Structure of Home Appliance Recycling Law”
<https://www.env.go.jp/recycle/kaden/gaiyo.html> (accessed February 16, 2022)

Figure 3-22 Overview of Home Appliance Recycling Law

3) Recycling System Stipulated in the Home Appliance Recycling Law

The *Home Appliance Recycling Law* covers waste units of four items of home appliances: TVs, air conditioners, refrigerators, and washing machines and dryers, and provides for a system by which consumers (waste-generators) of home appliances shall bear the expenses necessary for collection, transport and recycling process of their home appliances after they are discharged as waste.

A) Appliances Covered by Home Appliance Recycling Law

Air conditioners, TVs, refrigerators and freezers, and washing machines and dryers are covered by the *Home Appliance Recycling Law*. These items have been selected on the basis of the following requirements established in the law:

【Requirements for Waste Treatment of the Covered Appliances】

- 1 Considering the limitations of municipality's facilities and their technical capacities regarding waste treatment it is difficult for them to recycle and merchandise these waste home appliances.
- 2 It is especially important to recycle and merchandise these waste appliances in order to promote effective utilization of the many resources that are found in them, but for which there are significant economic constraints on recycling, etc.
- 3 The selection of design, parts etc. has significance on the implementation of recycling and merchandising.
- 4 As appliances retailers are engaged in the delivery of significant amounts of appliances, they have the capabilities and facilities to smoothly collect the used appliances.

Source : Ministry of Economy, Trade and Industry, "2019 Guidebook on *Home Appliance Recycling Law* for Use by Persons in Charge" (2019)

The four items of home appliances targeted in the law apply only to the appliances that were manufactured and sold for household use, and appliances that were manufactured and sold for business use are out of the scope of the law.

Table 3-22 shows the four items of home appliances covered in the law.

Table 3-22 Home Appliances Covered by the Home Appliance Recycling Law

Covered Home Appliances	Notes
Air conditioners for household use	—
TVs (cathode-ray tube type, LCD/plasma type)	Added LCD/plasma type TVs in April 2009
Refrigerators and freezers	Added freezers in April 2004
Washing machines and clothes dryers	Added clothes dryers in April 2009

B) The Roles of each Party related to Home Appliance Recycling

Table 3-23 shows the roles of each party as stipulated under the *Home Appliance Recycling Law*.

Table 3-23 Roles of each Party under the Home Appliance Recycling Law

Party	Roles	Overview of Roles
Waste-Generators (Consumers)	Proper delivery	To minimize wastes by using the four items of home appliances as long as possible. To be responsible to properly deliver the waste units to retailers, etc. at the time of discharging them in order to ensure recycling.
	Bearing of recycling fees	Consumers are obligated to pay collection, transport and recycling fees.
Retailers	Collection obligation	When waste-generators request retailers to collect any waste units of the four items of home appliances originally sold by the retailers, or waste-generators request retailers to collect any waste units when purchasing new items of the same types from them (i.e., replacement purchase), then in both cases retailers are obligated to collect the waste units at places designated by waste-generators (such as their homes)
	Delivery obligations	When retailers collect any of the waste units of the four items of home appliances from waste-generators, and except for cases where retailers re-use them by themselves, or retailers transfer these waste units with or without charge to other parties intending to reuse or sell them, the retailers are obligated to deliver the waste units to the manufacturer (if the manufacturer does not exist or is unknown, then to the designated corporation) at the designated collection place.
	Publication of collection/transport fees	Retailers are obligated to set collection and transport fees in advance, and publicly display those fees in their stores, etc. The collection and transport fees shall be set taking into consideration costs of efficient collection and transport of the waste units of the four items of home appliances, and facilitating their proper discharge by waste-generators. In addition, retailers are obligated to respond to any inquiries concerning collection, transport or recycling fees.
	Issues and management of home recycle coupons	To issue manifests (home appliance recycling coupons) upon collecting any waste units of the four items of home appliances, and provide copies of the coupon to the waste-generators. Retailers have to retain, for three (3) years, home appliance recycle coupons delivered from manufacturers at designated collection places, and are obligated to respond to any requests for inspection by waste-generators.
Manufacturers (manufacturers and/ or importers)	Collection obligations	Manufacturers are obligated to collect, at designated collection places, any waste units of the four items of home appliances, etc., by themselves upon receiving a request for their collection.
	Recycling and merchandising obligations	Manufacturers are obligated, without delay, to recycle the waste units of the four items of home appliance that they collect by themselves. In addition, manufacturers are obligated to recover, reuse or destroy fluorocarbon refrigerants and fluorocarbon heat insulators found in the waste units. In this regard, manufacturers have to recycle them in accordance with the established standards of recycling and merchandising.

Party	Roles	Overview of Roles
Manufacturers (manufacturers and/ or importers)	Publication of recycling fees	Manufacturers are obligated to set recycling fees in advance, and publish them. Manufacturers have to set recycling fees that do not exceed the necessary costs for effective recycling, and do not prevent waste-generators from properly discharging their waste units.
	Suitable placement of designated collection places	Manufacturers are obligated to properly place the designated collection places, taking into consideration the geographical conditions, traffic circumstances, sales conditions for the four items of home appliances that they manufacture, and any other relevant conditions, in order that they can effectively recycle the waste units of the four items of home appliances, or can smoothly collect those waste units from retailers.
	Delivery and retaining of home appliance recycling coupons	Manufacturers are obligated to affix a receipt seal on home appliance recycling coupons submitted to them by retailers upon collecting the waste units of the four items of home appliances from retailers at designated collection places, and to deliver the sealed coupons to those retailers, and are further obligated to retain the copy of such coupons for three (3) years.
Central Government	Observance and guidance on enforcement status of <i>Home Appliance Recycling Law</i>	The central government is responsible to observe the performance status of obligations stipulated in the <i>Home Appliance Recycling Law</i> by retailers and manufacturers, etc. and to issue public notifications, perform guidance and impose sanctions as necessary.
	Information provision and public awareness building on home appliances recycling	The central government is responsible to provide information about home appliance recycling to consumers, etc. and make efforts to build public awareness.
Local Governments	Information provision and public awareness building for residents	Local governments are responsible to provide residents with information about proper waste-discharge and recycling of waste units of the four items of home appliances, and to better the understanding residents have through public relation activities, etc.
	Collection and recycling of waste of the four items of home appliances	Local governments are required to establish the collection system for waste units of home appliances of the four items that retailers are not obligated to collect. In this regard, under the <i>Waste Management Act</i> , local governments can recycle by themselves the waste units that they collect, or they can deliver those waste units to manufacturers for disposal.
	Efforts to prevent illegal collection or dumping	Local governments are required to police unlawful waste collection operators, and to make efforts to prevent illegal dumping.

Source: The Association for Electric Home Appliances Website “What is home appliances recycling system?”
<https://www.aeha-kadenrecycle.com/system/?page=1#tab01> (accessed January 20, 2022)

4) Flow of Recycle Fees

The *Home Appliance Recycling Law* covers home appliances (such as TVs, air conditioners, refrigerators, and washing machines/dryers), and provides for a system by which consumers (waste-generators) shall bear expenses necessary for collection, transport and recycling process for home appliances they discharge as waste.

Expenses necessary for recycling (i.e., collection, transport and recycling fees) shall be borne by consumers (waste-generators), who are supposed to pay those fees to retailers upon discharge of any waste units of the four items of home appliances (no payment of fees will be made upon purchasing them). The recycling fees will be paid to manufacturers through retailers.

Collection and transport fees vary from region to region, and by retailer. Retailers are obligated to set collection and transport fees in advance and publicly display them in their stores, etc. Manufacturers (manufacturers and importers) are obligated to set recycling fees with detailed pricing tables depending upon respective appliances and types, and publish them in advance.

Table 3-24 shows examples of recycling fees.

Table 3-24 Examples of Recycling Fees

Item	Type	Size	Recycling Fees
Air Conditioners	—	—	JPY 900
TVs	Cathode-ray tube type	15 inch or smaller	JPY1,200
		16 inch or larger	JPY 2,200
	LCD / plasma type	15 inch or smaller	JPY 1,700
		16 inch or larger	JPY 2,700
Refrigerators / freezers	—	170 L or less	JPY 3,400
		170 L or more	JPY 4,300
Washing machines / dryers	—	—	JPY 2,300

*: 15 inch-size is 33.15cm wide, 16-inch size is 35.36cm wide.

Source: Ministry of Economy, Trade and Industry “2019 Guidebook on Home Appliance Recycling Law for Use by Persons in Charge” (2019)

5) Actual Performance and Impacts of the Home Appliance Recycling Law

The *Home Appliance Recycling Law* has diverted a large amount of waste units of home appliances from illegal dumping to the recycling process. In addition, securing the flow of proper recycling process, has contributed to the re-use of various valuable recyclables contained in the waste units of home appliances.

In 2020, approx. 16.02 million waste units of the four items of home appliances were collected at nation-wide designated collection places (approx. 8.4% increase from the previous year). The breakdown of these waste units comprised approx. values of 3.85 million air conditioners, 0.98

million cathode-ray tube type TVs, 3.00 million LCD/ plasma TVs, 3.71 million refrigerators/ freezers, and 4.48 million washing machines/ dryers. Table 3-25 shows the annual trend since 2016 for the number of waste units of the four items of home appliances discharged nation-wide.

While the number of collected waste units of cathode-ray tube type TVs significantly increased from 2009 to 2011 due to the complete shift to digital terrestrial broadcasting in 2011, the total number of collected waste units of the four items of waste home appliances increased annually since 2014 (refer to Figure 3-23).

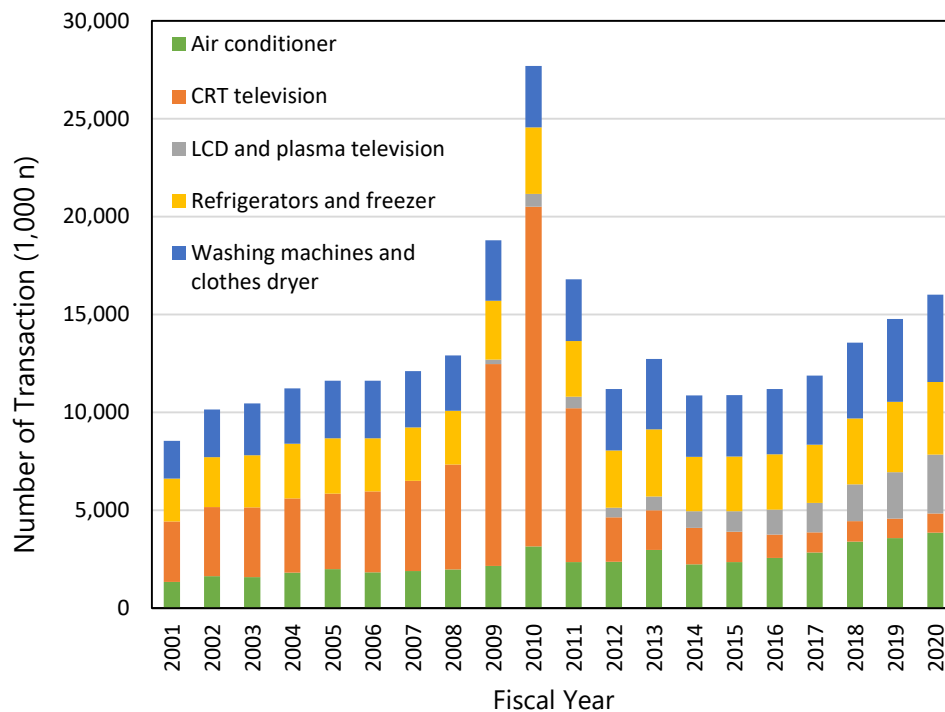
Table 3-25 Annual trend in Amounts of Collected Waste Units of the Four Items of Home Appliances

Unit: Million

Fiscal Year	Air conditioners	TVs		Refrigerators, Freezers	Washing machines, Dryers	Total
		Cathode-ray tube type	LCD / plasma type			
2016	2.567	1.184	1.278	2.829	3.339	11.197
2017	2.833	1.039	1.493	2.982	3.538	11.885
2018	3.398	1.035	1.894	3.354	3.880	13.561
2019	3.581	0.993	2.371	3.597	4.230	14.772
2020	3.854	0.983	2.998	3.709	4.476	16.020

*: Totals may differ due to rounding.

Source: Association for Electric Home Appliances “2020 Annual Report of Home Appliance Recycling” (2021)



Source: Association for Electric Home Appliances “2020 Annual Report of Home Appliance Recycling” (2021)

Figure 3-23 Annual Trend in of Amounts of Collected Waste Units of the Four Items of Home Appliances

From the waste units of the four items of home appliances delivered to recycling plants of home appliances manufacturers, iron, copper, aluminum, glass, plastic etc. are recovered as recyclable materials through recycling treatment (process for recycling and merchandising).

While the *Home Appliance Recycling Law* provides standards for each home appliance item to ensure recycling and merchandising (i.e., recycling and merchandising standards), all recycling plants have been achieving recycling and merchandising rates above the respective standards. Table 3-26 shows revisions of recycling and merchandising standards, while historical trends of recycling and merchandising rates for waste units of the four items of home appliances are shown in Table 3-27.

Table 3-26 Revision of Recycling and Merchandising Standards

Fiscal Year	Air conditioners	TVs		Refrigerators/ freezers	Washing machines, Dryers
		Cathode-ray tube type	LCD / plasma type		
Year Starting April 2001	60% or more	55% or more	Out of scope	50% or more	50% or more
Year Starting April 2009	70% or more	55% or more	50% or more	60% or more	65% or more
Year Starting April 2015	80% or more	55% or more	74% or more	70% or more	82% or more

*: "Recycling and merchandising" is defined as separating parts and materials, and re-using them as they are or after processing, as parts or raw materials in manufacture of new products, with or without charges."

Source: Association for Electric Home Appliances "2020 Annual Report of Home Appliance Recycling" (2021)

Table 3-27 Historical Trend of Recycling and Merchandising Rate for Waste Units of the Four Items of Home Appliances

Fiscal Year	Air conditioners	TVs		Refrigerators, Freezers	Washing machines, Dryers
		Cathode-ray tube type	LCD / plasma type		
2016	92%	73%	89%	81%	90%
2017	92%	73%	88%	80%	90%
2018	93%	71%	86%	79%	90%
2019	92%	71%	85%	80%	91%
2020	92%	72%	85%	81%	92%

Source: Association for Electric Home Appliances "2020 Annual Report of Home Appliance Recycling" (2021)

Table 3-28 shows the implementation status of recycling and merchandising of the waste units of the four items of home appliances in FS 2020.

Almost all of the waste units collected at the designated collection places in FY 2020 were

processed for recycling and merchandising at recycling plants.

Considering the recycling and merchandising rates by waste units, the rate for air conditioners was 92% (above the recycling and merchandising standard of 80%), for cathode-ray tube type TVs 72% (above the 55% standard), for LCD / plasma type TVs 85% (above the 74% standard), for refrigerators/ freezers 81% (above the 70% standard), and for washing machines/dryers 92% (above the 82% standard). All items achieved recycling and merchandising rates above their respective recycling and merchandising standards.

Table 3-28 Implementation Status of Recycling and Merchandising of Waste Units of the Four Items of Home Appliances (FY 2020)

Items	Air Conditioners	TVs		Refrigerators, Freezers	Washing machines, dryers
		Cathode-ray tube type	LCD/plasma type		
Number of waste units collected at designated collection places	3.85million units	0.98 million unit	3,00 million units	3.71 million units	4.48million units
Numbers of waste units processed for recycling and merchandising	3.82 million units	1.00 million units	2.96 million units	3.64 million units	4.46 million units
Processing Weight for recycling and merchandising	154,908 tons	23,608 tons	51,707 tons	222,371 tons	178,168 tons
Weight of Recycling and merchandising	143,676 tons	17,006 tons	44,430 tons	180,148 tons	163,930 tons
Recycling and merchandising Rate	92%	72%	85%	81%	92%

Source: Association for Electric Home Appliances “2020 Annual Report of Home Appliance Recycling” (2021)

Table 3-29 show the breakdown of amounts of waste units processed for recycling and merchandising and reused as raw materials and parts, etc.

Regarding cathode-ray tube type TVs, 35% of processed waste amount, in terms of weight was recovered as cathode-ray tube glass, and a large quantity (27% to 44%) of iron was recovered from the other home appliance items. Copper and aluminum were recovered from waste units of all four items of home appliances, and then subjected to recycling and merchandising. Also, regarding other recyclables (such as plastics), large quantity (18% to 40%) was recovered and utilized as raw materials, etc.

Furthermore, the *Home Appliance Recycling Law* mandates the recovery of CFCs used as refrigerants and heat insulators in air conditioners and refrigerators, and the reuse and destruction of recovered CFCs. Non-recycled CFCs are destroyed in accordance with the “CFC Destruction Treatment Guidelines”.

Since *Home Appliance Recycling Law* subjected almost all waste units of home appliances to treatment at recycling plants and prohibited illegal dumping, the law significantly contributed to reducing the amount of illegal dumping for waste units of home appliances. In addition, proper treatment of waste units of home appliances was secured, significantly contributing to promotion of material recycling.

Table 3-29 Implementation Status for Material Recycling (FY 2020)

Unit: ton

Item	Air Conditioners	TVs		Refrigerators, freezers	Washing machines, dryers
		Cathode-ray tube type	LCD/plasma type		
Iron	41,228 (27%)	2,419 (10%)	20,262 (39%)	85,346 (38%)	78,107 (44%)
Copper	10,146 (7%)	969 (4%)	465 (1%)	4,104 (2%)	3,047 (2%)
Aluminum	11,792 (8%)	22 (0%)	1,948 (4%)	1,906 (1%)	3,551 (2%)
Mixed ferrous and non-ferrous materials	53,224 (34%)	54 (0%)	967 (2%)	27,749 (12%)	19,358 (11%)
Cathode-ray tube glass	—	8,372 (35%)	—	—	—
Other recyclables	27,286 (18%)	5,170 (22%)	20,788 (40%)	61,043 (27%)	59,867 (34%)
Total weight	143,676 (92%)	17,006 (72%)	44,430 (86%)	180,148 (81%)	163,930 (92%)

*1: "Other recyclables" means plastic, etc.

*2: % (percent) within brackets indicates the ratio to recycling and merchandising treatment by weight.

Source: Association for Electric Home Appliances "2020 Annual Report of Home Appliance Recycling" (2021)

(3) End-of-Life Vehicle Recycling Law

The *End-of-Life Vehicle Recycling Law* focuses on automobiles, which are manufactured using a large amount of useful resources, and promotes the recycling of useful resources contained in automobiles by defining the roles of each related entity in the recycling process. It also stipulates the proper treatment of chlorofluorocarbons against the background of the problem of ozone layer depletion.

1) Background

Roughly 3 million used vehicles are disposed annually, which are highly valuable in terms of recyclable resources, since they are consisted of great amount of metals (e.g. iron, which comprises approximately 70% in terms of weight). Roughly 80% of their gross weight was recycled, with the remaining 20% turned to shredder dust (plastic bits and other materials left over after dismantling and shredding) which are mainly disposed of in landfills.

However, factors such as the shortage of landfill sites and the associated increase in the cost of disposal gave rise to concerns over illegal dumping and improper treatment of used vehicles. Additionally, cars' air conditioners were full of fluorocarbon refrigerants, a factor that caused problems such as the destruction of the ozone layer and global warming; thus, proper collection and treatment became essential. Furthermore, Japan had confronted many new issues in the years leading up to the enactment of the law, including the need to use special techniques when demolishing the many used vehicles equipped with airbags which contain explosives.

2) Overview

End-of-life vehicles contain useful metals and parts which are of high value as resources, so they have traditionally been distributed, recycled, and processed through trades by dismantlers and shredders, and have been subject to recycling and treatment. However, due to the shortage of industrial waste final disposal sites, the need to reduce the amount of shredder dust generated from recycling processes of end-of-life vehicles has increased, and with the competing factors of high increases in costs of final disposal, and decline in iron scrap market prices, the threats of increased illegal dumping and improper treatment became serious issues. To mitigate all these concerns the *End-of-Life Vehicle Recycling Law* was enacted.

<p>Name of law: Law for the Recycling of End-of Life Vehicles (End-of-Life Vehicle Recycling Law)</p> <p>Enacted: 2002</p> <p>Purpose: To establish a new recycling system for promoting the recycling and proper treatment of used vehicles by obliging entities - namely manufacturers and importers of motor vehicles - to fulfill appropriate roles and responsibilities.</p> <p>Overview of law: The law sets out roles and responsibilities pertaining to motor vehicle recycling for the owners of the vehicles, relevant business operators, and manufacturers and importers of motor vehicles. The law also requires motor vehicle manufacturers to accept and recycle shredder dust and airbags, and to accept and destroy chlorofluorocarbons, as these three articles in motor vehicles are difficult to treat and lead to illegal dumping. Additionally, the law requires the owners of used motor vehicles to pay fees for treatment and recycling of their vehicles.</p> <p>Targets: Nearly all four-wheeled vehicles, excluding some vehicles (including trucks, buses, and other large vehicles, special-purpose vehicles, and commercial vehicles)</p> <p>Source: Law for the Recycling of End-of Life Vehicles (2002)</p>
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3) Recycling System Defined in the End-of-Life Vehicle Recycling Law

The *End-of-Life Vehicle Recycling Law* covers end-of-life automobiles, and provides for a system by which automobile owners shall bear expenses necessary for the recycling process of their end-of-life automobiles.

A) Responsibilities of Relevant Entities

a. Owners of Vehicles (last owners)

Pay recycling fees. Deliver used vehicles to used vehicle collectors registered with the local government.

b. Used Vehicle Collectors

Accept used vehicles from their final owners, and deliver them to chlorofluorocarbon collectors or scrapping operators.

c. Chlorofluorocarbon Collectors

Properly collect chlorofluorocarbons in line with standards, and deliver the chlorofluorocarbons to the manufacturers or importers of the vehicles. After collecting chlorofluorocarbons, deliver car chassis to scrapping operators.

d. Scrapping Operators

Properly dismantle used vehicles in line with standards, collect the airbags, and deliver them to the manufacturers or importers of the vehicles. After scrapping the vehicles, deliver the chassis to shredding operators.

e. Shredding Operators

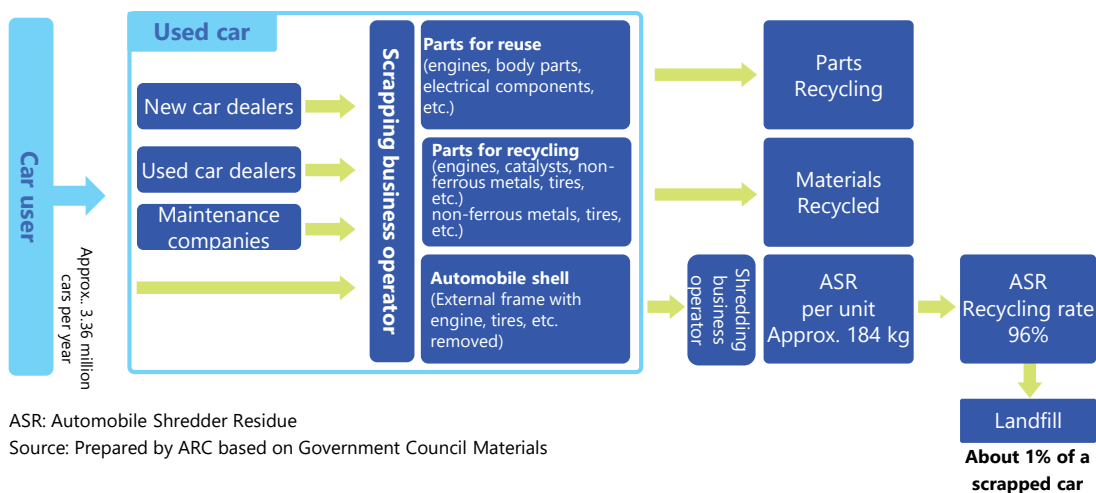
Properly shred (pressing, shearing treatment, shredding) dismantled vehicles (vehicle frame) in line with standards, and deliver the shredder dust (the waste that remains after scrapping/shredding the vehicles) to the manufacturers or importers of the vehicles.

f. Manufacturers and Importers

Accept and recycle the automobile shredder dust, airbags, and chlorofluorocarbons generated from the automobiles when automobiles manufactured or imported by the company are no longer in use..

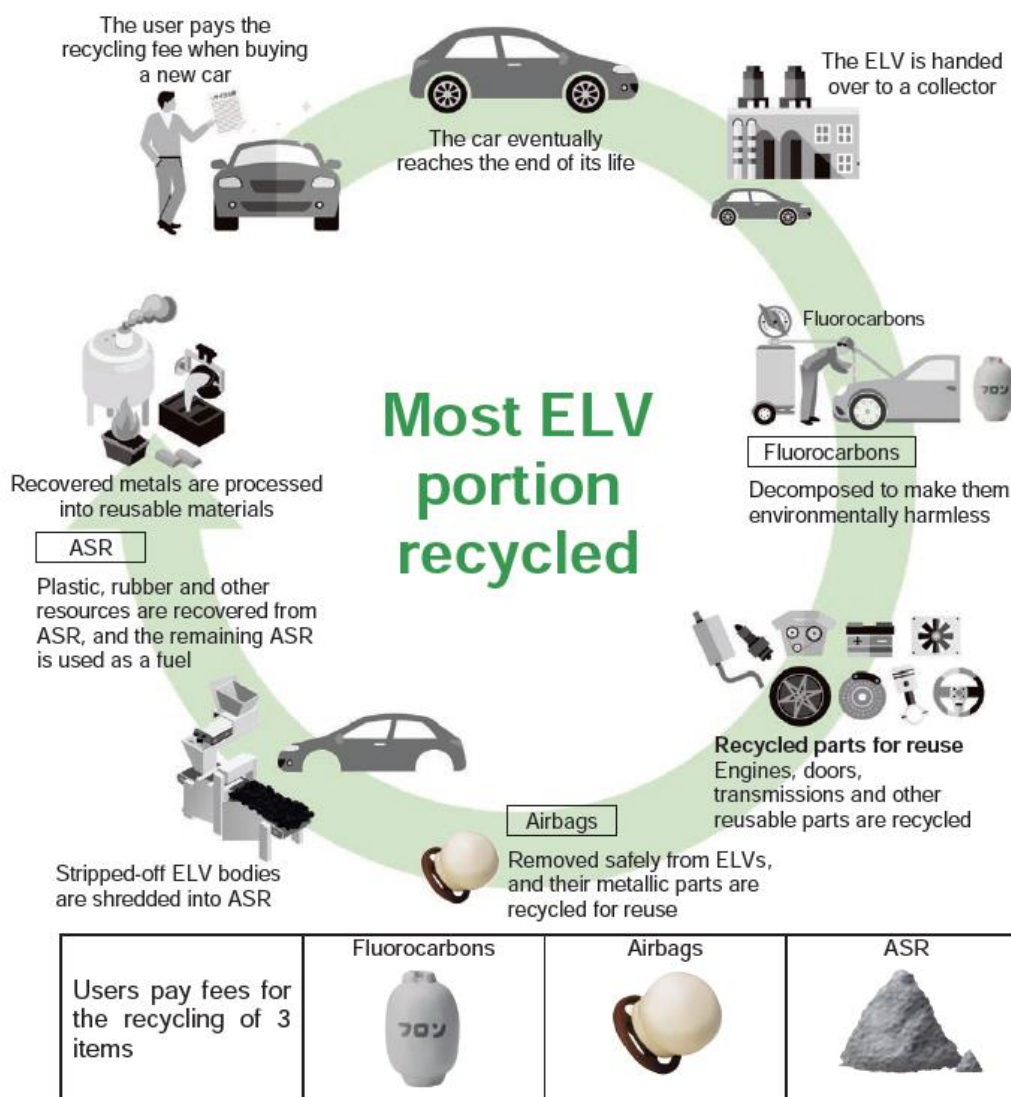
B) Flow of Recycling Process for End-of-life Automobiles

In recycling end-of-life automobiles, many stakeholders (such as automobile users, automobile sales operators, and treatment operators) are implementing recycling in cooperation with each other, under appropriate role sharing. Figure 3-24 and Figure 3-25 show the recycling process stipulated under the *End-of-Life Vehicle Recycling Law*, and the recycling flow.



Source : Japan Automobile Recycling Promotion Center “Go! Recycle Your Vehicle” (2021)

Figure 3-24 Recycling Process stipulated by End-of-life Vehicle Recycling Law



- [1]. Automobile users pay recycling fees upon purchasing their automobiles.
- [2]. Automobile users deliver their end-of-life automobiles to collection operators (such as automobile sales operators or automobile repair operators) who are registered or have permits issued by local governments.
- [3]. Collection operators deliver the end-of-life automobiles to fluorocarbons recovery operators.
- [4]. Fluorocarbons recovery operators collect fluorocarbons used in their end-of-life automobiles air conditioners, and then deliver the same to automobile maker or importers. Thereafter, fluorocarbons recovery operators deliver the end-of-life automobiles to dismantlers.
- [5]. Dismantlers (scrapping operators) recover air bags from the end-of-life automobiles, and deliver the same to automobile manufacturers or importers. Dismantlers then remove useful parts or elements (such as engines or doors), and deliver the automobiles to shredder operators.
- [6]. Shredder operators shred the end-of-life automobiles by using shredding machines, and recover useful materials (such as iron). Shredder operators deliver the sorted and collected shredder dust (ASR), to automobile manufacturers or importers.
- [7]. Automobile manufacturers or importers properly treat the recovered shredder dust, air bags and fluorocarbons.

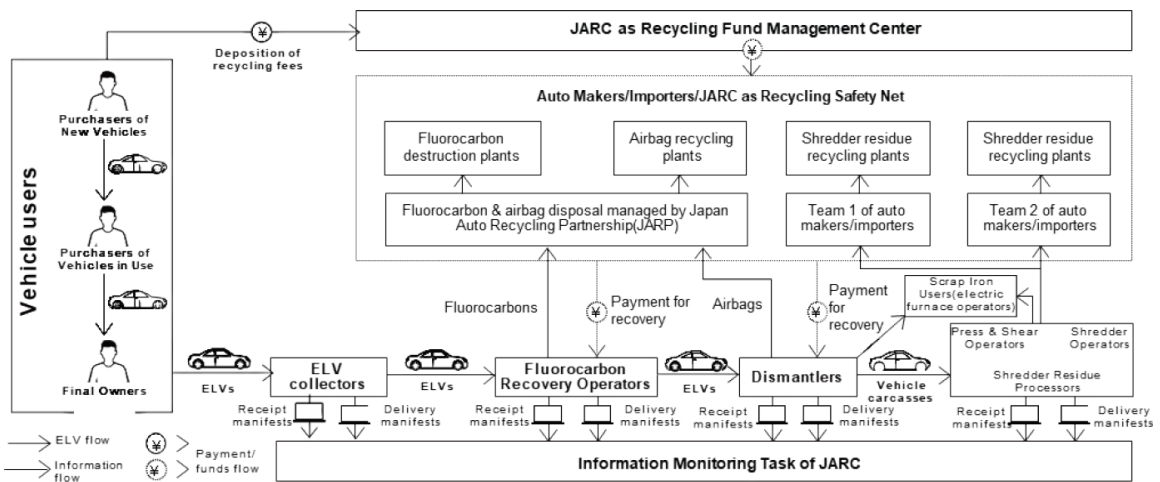
Source: Japan Automobile Recycling Promotion Center “10 questions to find out what people are doing to recycle automobiles for a sound material-cycle society” (2019)

Figure 3-25 Recycling Process of End-of-life Vehicles

4) Flow of Recycling Expenses

The *End-of-Life Vehicle Recycling Law* establishes a system under which vehicle owners bear the costs necessary to recycle end-of-life vehicles they dispose of.

Under the *End-of-Life Vehicle Recycling Law*, automobile owners are in principle supposed to bear recycling fees of their own automobiles upon purchasing the automobile. Recycling fees paid by automobile owners are managed by the fund management corporation which has been designated by the central government, in order to prevent any losses due to bankruptcy or dissolution of automobile manufacturers, etc. When recycling shredder dust, air bags and others, automobile manufacturers, dismantlers etc. will request payout of those fees from the fund management corporation. Figure 3-26 shows the flow of recycling fees.



Source: Japan Automobile Recycling Promotion Center “10 questions to find out what people are doing to recycle automobiles for a sound material-cycle society” (2019)

Figure 3-26 Recycling Fee Flow under the End-of-Life Vehicle Recycling Law

Expenses included in recycling fees paid by automobile owners are shown in Table 3-30.

Table 3-30 Breakdown of Expenses of Recycling Fees

Setting Party	Composition	Use of Fees
Automobile manufacturer, importers	Shredder dust	Expenses to recover shredder dust, and properly treat them.
	Air Bags	Expenses to recover air bags, and properly treat them. Remaining metal parts will be used as raw materials.
	Fluorocarbons	Expenses to recover fluorocarbons, and then to thermally decompose them and make them harmless.
Japan Automobile Recycling Promotion Center	Information management fees	Expenses necessary to electronically manage the status of proper treatment of end-of-life automobiles.
	Fund management fees	Expenses necessary for receipt, administration and management of recycling fees

Source: Japan Automobile Recycling Promotion Center Website “Recycling Fee”
<https://www.jarc.or.jp/automobile/fee/feeindex/> (accessed February 2, 2022)

Expenses related to shredder dust, air bags, and fluorocarbons included in the recycling fees are not uniform rates, but should be set and published by automobile manufacturers or importers. On the other hand, information management fees and fund management fees (which are expenses for management of recycling expenses by the fund management corporation) are fixed amounts (approx. JPY 500 per automobile; approx. US\$ 5.00 per automobile).

Table 3-31 Ranges of Recycling Fee Rates

Type of Automobiles	Recycling Fee Rate
Standard passenger cars (with A/C and four (4) air bags)	In the range of JPY10,000 to JPY18,000 (US\$91.00~US\$164.00)
Light and small passenger cars (with A/C and four (4) air bags)	In the range of JPY 7,000 to JPY16,000 (US\$64.00~US\$145.00)
Middle and large-size trucks (with A/C and two (2) air bags)	In the range of JPY10,000 to JPY16,000 (US\$91.00~US\$145.00)
Large-size fixed-route buses / sightseeing buses (with A/C and two (2) air bags)	In the range of JPY10,000 to JPY65,000 (US\$364.00~US\$591.00)

*: US\$1.00=JPY110

Source: Ministry of Land, Infrastructure, Transport and Tourism Website “Ministry of Land, Infrastructure, Transport and Tourism and *End-of-Life Vehicle Recycling Law*”

<https://www.mlit.go.jp/jidosha/sesaku/environment/recycle/recycle/charge02.html> (accessed February 15, 2022)

5) Actual Performance and Impacts of Recycling of End-of-Life Automobiles

The *End-of-Life Vehicle Recycling Law* significantly reduced the number of end-of-life automobiles illegally dumped or improperly stored. In addition, the law promoted recovery of fluorocarbons and recycling of shredder dust, leading to substantial impacts upon recycling end-of-life automobiles.

Almost all end-of-life automobiles are being recycled. The recycling rate of air bags is 95%, as iron, copper, aluminum, etc. that are found in airbags are recycled for use as resources. Shredder dust are processed by material recycling or thermal recycling, and 0.56 million tons (about 3 million automobiles) were recycled in FY 2020, at a rate of 96% of the generated end-of-life vehicles generated as waste.

Since January 2005 when the *End-of-Life Vehicle Recycling Law* was enacted, the number of end-of-life automobiles subject to illegal dumping or improper storing was significantly reduced. Compared with the situation in September 2004 (i.e., before the enforcement of the law), the number of illegally dumped end-of-life automobiles as of March 2021 was 560 (a decrease of 21,939), and the number of improperly stored automobiles was 5,194 (190,666 decrease), leading to a reduction achievement of 5,754 automobiles in total, i.e., a reduction rate of more than 97%.

Table 3-32 Trend in Recycling of Specified Automobile Parts

< Air bags >

Items	Standard (Target)	Actual in FY 2019	Actual in FY 2020
Air bags	85%	94~95%	95~96%

< Shredder Dust >

Items	Actual in FS 2005	Actual in FY 2019	Actual in FY 2020
Weight of Shredder Dust Collected ①	480,463 tons	601,055 tons	564,895 tons
Weight of Shredder Dust Recycled ②	297,130 tons	576,787 tons	542,718 tons
Recycling Rate (②/①)	61.8%	96.0%	96.1%

Source: Japan Automobile Recycling Promotion Center Website "Achievements to date"

<https://www.jarc.or.jp/automobile/effort/> (accessed March 1, 2022)**Table 3-33 Trend in Illegal Dumping and Improper Storing of End-of-life Automobiles**

Items	As of End of September 2004	As of End of March 2021
Illegal dumping ①	22,499 vehicles	560 vehicles
Improper Storing ②	195,860 vehicles	5,194 vehicles
Total (①+②)	218,359 vehicles	5,754 vehicles

Source: Japan Automobile Recycling Promotion Center Website "Achievements to date"

<https://www.jarc.or.jp/automobile/effort/> (accessed March 1, 2022)

(4) Charging Fees for Waste Management

Municipalities are responsible for management of municipal wastes. Municipalities procure budgets necessary for waste collection and transport, and provide residents with collection and transport services as part of government services, either directly by themselves, or outsourcing those services to other entities. Many municipalities have introduced waste management fees due financial constraints, as well as for the purposes of raising the awareness of residents about reducing the generated waste amounts and extending the life of landfill sites.

1) History of Charging Fees

In the past, some areas had already introduced waste management fees, but the number of municipalities introducing the fees has since changed in response to the legal system and economic conditions.

During the era of the *Waste Cleaning Act* (1900 to 1954) municipalities could not legally charge fees for waste collection. Municipalities imposing waste management fees increased during the post-war era when the waste services were governed by the *Public Cleansing Act* (1954 to 1970), but thereafter in the period spanning the late 1960's to early 1970's, the number of municipalities imposing fees decreased. Thereafter from the late 1970's to the 1980's, the number of municipalities imposing fees remained almost unchanged. From 1970 to 2000, during the era of the *Waste Management Act* (1970 to 2000), the introduction of management fees was postponed due to various reasons, including the issue of maintaining public services for residents and the anticipated workload of collecting fees.

After the 1990s, and in order to address issues such as an increase in the amount of waste and a shortage of landfill sites, charging management fees for the purpose of reducing the amount of waste generated has been promoted, and the number of municipalities charging fees increased once more.

2) Purpose of Charging Fees and Expected Impacts

The municipalities are responsible for management of municipal wastes. The costs thereof are principally covered by municipal taxes. Since 2005, an increasing number of municipalities have started charging fees with the purpose of reducing the generated waste amounts.

In 2015, the Central Environment Council issued “Opinion about Desirable Processing of Municipal Wastes by Municipalities towards Building Sound Material-Cycle Society (2015)”, recommending the desirable management of municipal wastes the municipalities should implement, as well as encouraging the involvement of the central government, in pursuit of establishing a sound material-cycle society. In response, the Ministry of the Environment revised the “Basic Guidelines for the Comprehensive and Systematic Promotion of Waste Reduction Measures and Other Appropriate Treatments”, which is established by the Minister of Environment as stipulated under Article 5-2, paragraph (1) of the *Waste Management Act*. With this revision, the Ministry clarified that the policy on nation-wide measures is to promote charging fees for municipal waste management.

In response to this revision, the “Guidance for Charging Fees on Municipal Waste Treatment (Established June 2007, revised April 2013)”, was prepared by the Ministry of the Environment for municipalities, and explains the purpose of charging fees, and their expected impacts, as follows.

【Purpose of Charging Waste Treatment Fees and Expected Impacts】**(1) Promotion of Waste Minimization and Recycling**

Charging fees for municipal waste treatment will incentivize reducing of expenses bearing, leading to expectation to minimize generated-municipal waste amount.

The amount of waste generated has a major impact on the scale and construction timing of treatment facilities such as incineration facilities and final disposal sites. Reduction of generated waste amounts will make it possible to develop or improve smaller treatment facilities, as well as to extend the lifetime of landfill sites. In addition, reducing of incineration treatment amounts will contribute to minimization of greenhouse gas emission.

In this regard, comparing with fees for combustible wastes and incombustible wastes, the fees for recyclables can be set at lesser levels or even without charge, and thereby differentiated fee levels, promotion of sorting, as well as an increase of resource recovery amounts will be expected.

(2) Ensuring Fairness

Municipal waste treatment service implemented solely by tax revenues, will not provide differences in cost sharing depending upon extent of services provided, with more service necessary for residents generating more waste compared to residents generating less waste. There is also further concern that some people are receiving waste treatment services in their municipality of residence, while they are registered in another municipality where they pay their residence taxes, and therefore are unfairly receiving the services free of charge. By introducing service charging fee that is proportional to the generated waste amount, more fairness of cost sharing can be ensured.

Furthermore, for small business operators, or business operators generating smaller waste amounts, some municipalities collect their generated waste as household wastes, and do not collect treatment expenses. However, if these municipalities charge fees directly to households, it will be necessary to charge fees to those business operators as well, in order to maintain fairness.

(3) Raising Awareness of Residents and Business Operators

If fees are not charged on discharge of municipal wastes, economic incentives for waste minimization will be smaller, because there is no match between waste discharge and timing of cost sharing, and discharged-waste amount and amount of shared costs.

Introduction of fees will lead to cost sharing in proportion to the discharged municipal waste frequencies and amounts of municipal waste, and will increase the necessity for municipalities to explain to residents and business operators about municipal waste treatment expenses, etc. Introduction of fee charging will therefore raise the awareness of residents and business operators about waste treatment expenses, and improve their overall understanding on the consequences of generating waste. As a result, waste minimization may finally take root as residents select less-waste generating products (such as simply packaged products and refilling products), minimize purchase of unneeded or non-urgent products, and promote the reuse of products, and on the other hand, business operators will thoroughly sort waste and promote reuse.

(4) Other Impacts

It is anticipated that environmental burden, as well as expenses for waste collection, transport and treatment will be reduced, because minimization of municipal waste, and promotion of recycling will reduce the waste amounts carried into incineration treatment facilities and final disposal sites. In addition, revenues obtained from charging fees may be allocated to implement measures for the purpose of building sound material-cycle society, such as separate collection and recycling, as well as providing support for group collection.

Source : Ministry of the Environment, "Guidance for Charging Fees on Municipal Waste Management" (2013)

3) Methods of Charging Fees

Most of the waste fees are collected through the designated waste bag method or seal method. Regarding household waste (excluding bulky wastes), many municipalities have adopted the method of selling waste bags designated by the relevant municipality with the fees added to the sale cost.

Regarding business wastes, methods differ by municipality. Some municipalities that collect business waste employ the designated waste bags or seals methods. However, most municipalities do not collect business wastes, and business operators must either arrange for approved collection operators to collect their waste, or deliver the waste directly to the treatment facilities. In the latter case, the waste receiving fees are set depending on the wastes delivered by the operators.

Furthermore, regarding fee structures, depending upon the characteristics of regions, etc. various methods are adopted, such as the simple proportion formula, multi-step proportion formula, and quantitative formula),.

Table 3-34 Advantages and Disadvantages of Designated Waste Bag Method and Seal Method

Item	Designated Waste Bag Method	Seal Method
Advantages	<ul style="list-style-type: none"> • Possible to collect fees in proportion to the bag size • Does not decrease work efficiency because bags can be more easily identified as designated bags during collection. 	<ul style="list-style-type: none"> • Other bags, such as plastic shopping bags can be used. • In cases where municipalities manage the service, seals have less weight and are compact in size, and as a result storing expense and working burdens are reduced.
Disadvantages	<ul style="list-style-type: none"> • Bags other than the designated ones cannot be used. • In cases where municipalities manage the service, designated bags are heavy and large in size, leading to increased storing expense and working burdens. 	<ul style="list-style-type: none"> • It is difficult to collect fees responding to size (there is an issue of not using the proper seals) • It is likely that seals will be removed and used for other wastes. • It is less easier to identify specific seals, leading to reduced working efficiency.
Actual Introduction	Many municipalities have introduced this method.	Not many municipalities have introduced this method.



Source: Yachiyo Engineering Co., Ltd.

Photo 3-12 Designated Waste Bag (Kyoto City)

(Left : For plastics, Right : For Combustible waste)

*: Kyoto City's designated 30 liters waste bags for plastics are sold at JPY 75 per pack of 5 bags and JPY 300 per pack of 10 bags for combustible waste.



Source: Ota City "How to separate and dispose of resources and waste" (2021)

Photo 3-13 Seals for Bulky Waste (Ota City in Tokyo)

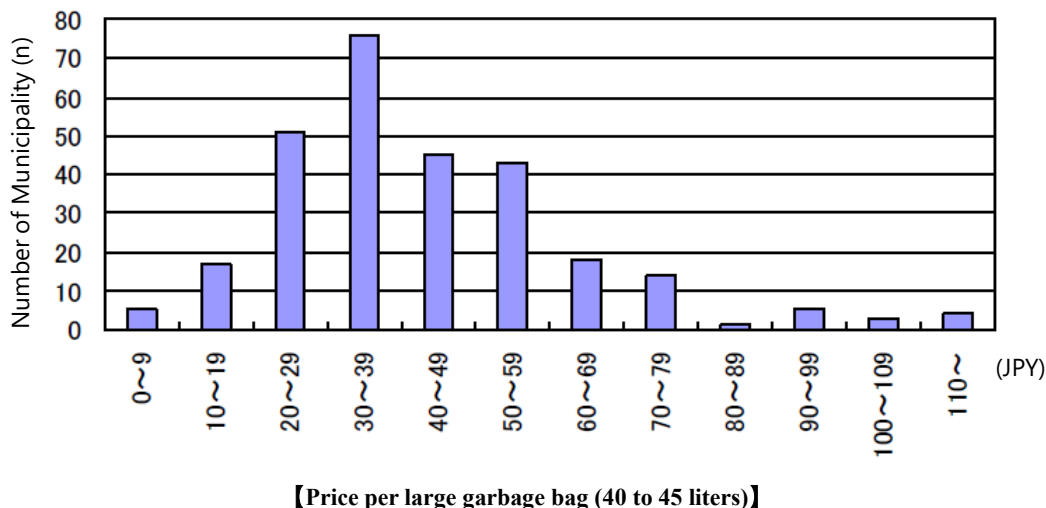
4) Setting of Fees

According to the “Guidance for Charging Fees on Municipal Waste Management”, fees should be set for waste treatment “in consideration of the effects of municipal waste minimization and recycling promotion, public acceptability, fee levels in surrounding municipalities and other factors.” The guide shows that for recycling promotion, it is appropriate to set a difference in fee levels among different types of waste by either waiving the charge or setting a low fee for recyclables treatment.

As waste-generating business operators are obliged to properly treat business waste at their own responsibilities, it is desirable to collect a fee equivalent to the cost of waste management. On the other hand, the relevant fee is sometimes waived or set at a low fee level as a support for small and medium-sized firms and local industries, or other purposes. In this case, efforts are made as much as possible to reduce financial burdens of municipalities, such as obliging the waste-generating business operator benefiting from this support to submit a plan for reduction of waste generation.

The ratio of the charged fee to household waste management costs varies from about 10% to over 30%, as each municipality sets the fee in consideration of its own actual situation. Figure 3-27 shows the distribution of fee levels adopted by the municipalities and set by simple proportion to waste discharge (price per one large garbage bag, of 40 to 45 liters). For household waste, the collection fee of JPY 30 per large bag is the most common amongst the municipalities, after which the number of municipalities tends to decrease as the fee increases.

(Municipalities)

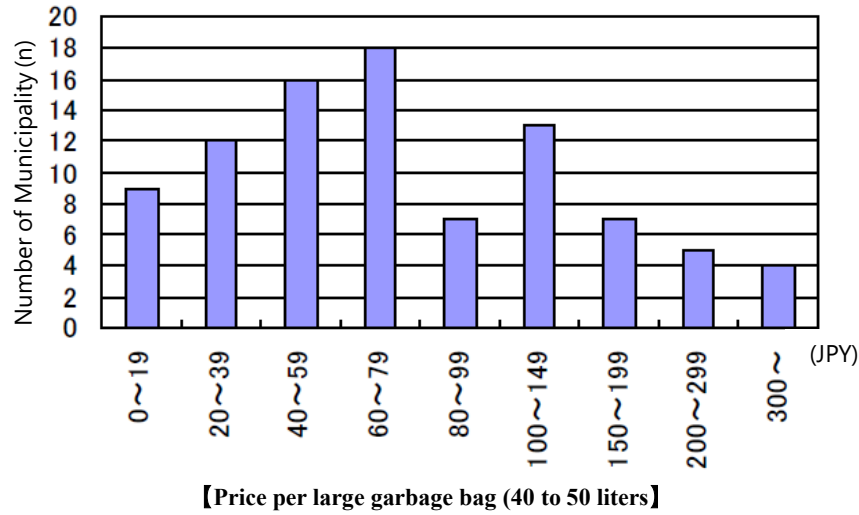


Source: Ministry of the Environment “Questionnaire survey for the promotion of 3R and reduced carbon emissions in waste and recycling fields” (2011)

Figure 3-27 Distribution of Fee Levels set by the Simple Proportion Formula to Household Waste Discharge

The price of each large waste bag for business waste, which peaks at 60 to 79 JPY, is set higher than that for household waste. On the other hand, the collection fee for 1 kg of business waste directly delivered to the waste treatment facility peaks at the 10 JPY level and accounts for 50% of the total.

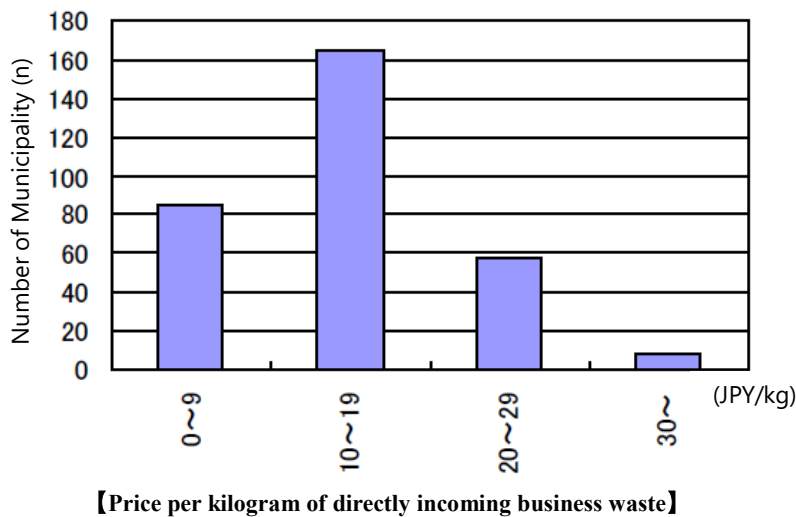
(Municipalities)



Source: Ministry of the Environment “Questionnaire survey for the promotion of 3R and reduced carbon emissions in waste and recycling fields” (2011)

Figure 3-28 Distribution of Fee Levels Set by the Simple Proportion Formula to Business Waste Discharge

(Municipalities)



Source: Ministry of the Environment “Questionnaire survey for the promotion of 3R and reduced carbon emissions in waste and recycling fields” (2011)

Figure 3-29 Distribution of Fee Levels Set by the Simple Proportion Formula to Business Waste Directly Delivered to Facilities

5) Achievements of Charging for Waste Collection

Of the total 1,741 municipalities, 1,140 municipalities (65.5% of total municipalities) introduced fee charging for collection of household waste (excluding bulky waste) in 2019. In addition, 1,501 municipalities (86.2%) introduced fee charging for collection of business waste (excluding bulky waste).

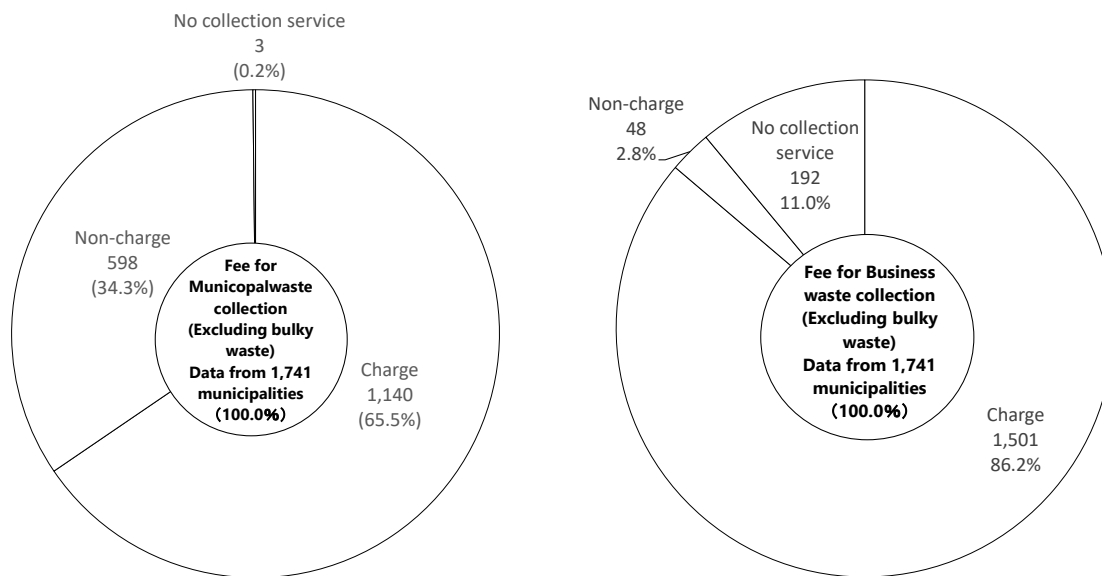
Table 3-35 Number of Municipalities by Status of Fee Charges Introduction for each Type of Waste Collection in 2019

Unit: Number of municipalities

Waste types	Discharge pattern	Mixed waste	Combustible waste	Incombustible waste	Recyclables							
					Paper items	Paper packaging	Paper containers/ packaging	Metals	Glass items	Plastic bottles	White plastic trays	Plastic containers/ trays
Household waste (Waste for collection)	Charge	40	1,086	838	103	83	103	357	345	336	251	296
	No-charge	20	607	786	1,389	1,337	1,119	1,280	1,325	1,375	1,008	856
	No collection	1,681	48	117	246	321	519	104	71	30	182	589
Business Waste (Waste for collection)	Charge	54	1,459	1,090	518	427	397	694	710	638	420	352
	No-charge	4	45	70	303	278	233	234	239	264	157	137
	No collection	1,683	237	581	920	1,036	1,111	813	792	839	1,164	1,222

Waste types	Discharge pattern	Recyclables							Other waste for collection	Any one of the preceding items, charged	Bulky waste	Any one of the preceding items including bulky waste, charged
		Plastic items	Clothes	Kitchen waste	Edible oil waste	Pruned branches	Compact home appliances	Other				
Household waste (Waste for collection)	Charge	98	96	96	10	32	104	60	118	1,140	1,118	1,409
	No-charge	229	868	129	532	153	833	499	646	598	361	329
	No collection	1,414	749	1,516	1,199	1,556	804	1,182	977	3	262	3
Business Waste (Waste for collection)	Charge	140	252	181	62	120	121	151	228	1,501	820	1,509
	No-charge	48	103	45	72	15	63	64	90	48	43	40
	No collection	1,553	1,386	1,515	1,607	1,606	1,557	1,526	1,423	192	878	192

Source: Ministry of the Environment "Waste Disposal in Japan (FY2019)" (2021)



Source: Ministry of the Environment “Waste Disposal in Japan (FY2019)” (2021)

Figure 3-30 Number of Municipalities by Status of Fee Charges Introduction for each Type of Waste Collection in 2019

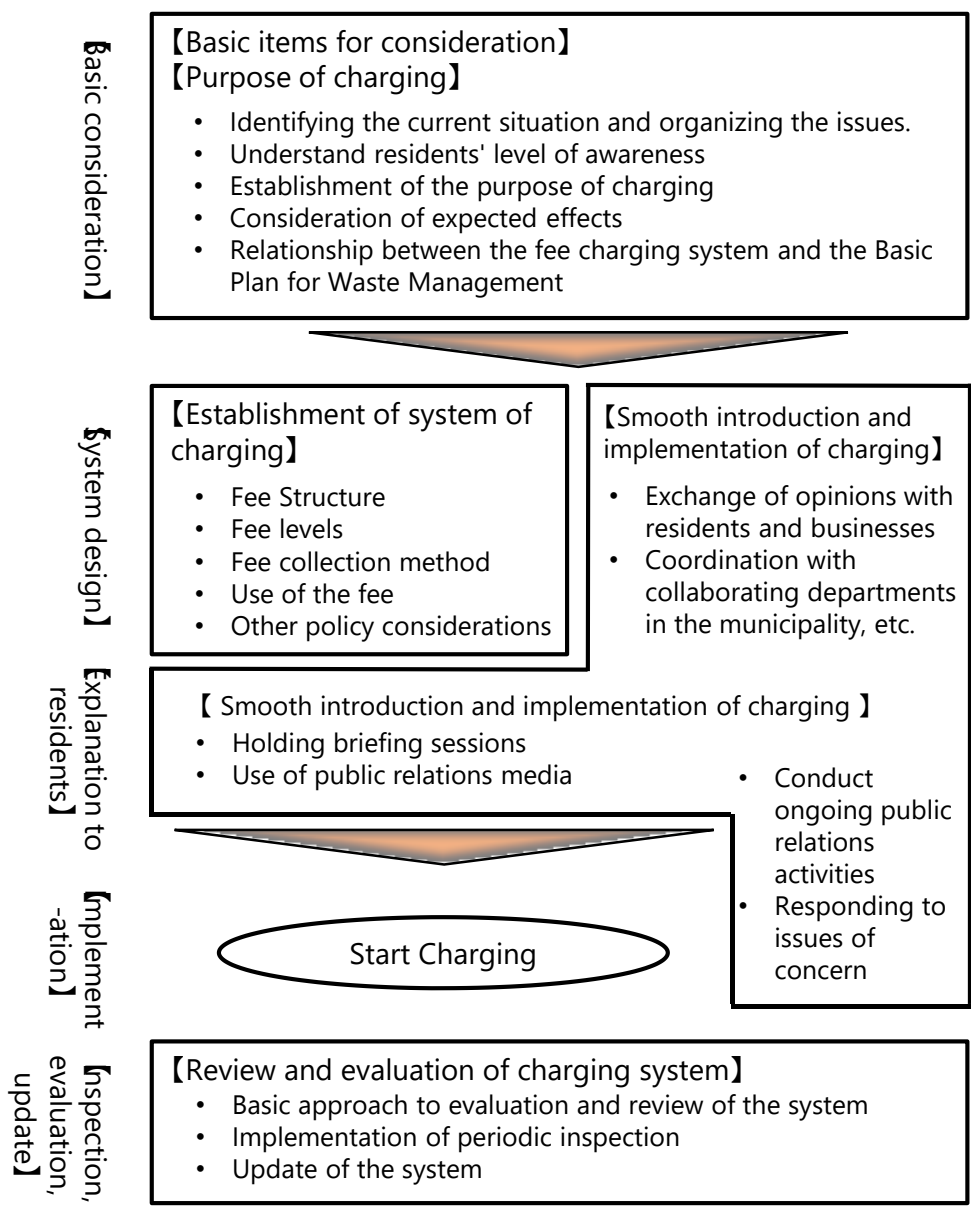
6) Processes for Introduction of Charging for Waste Collection and Items of Review

The “Guidance for Charging Fees on Municipal Waste Treatment” (April 2013) prepared by the Ministry of the Environment provides a road map for municipalities to examine the introduction of charging for waste collection and start charging.

The processes for introduction of charging for waste collection, and the items of review are shown in the guidance.

A) Whole Process for Introducing Fee Charging for Waste Treatment

The basic process for municipalities to introduce fee charging is shown in Figure 3-31.

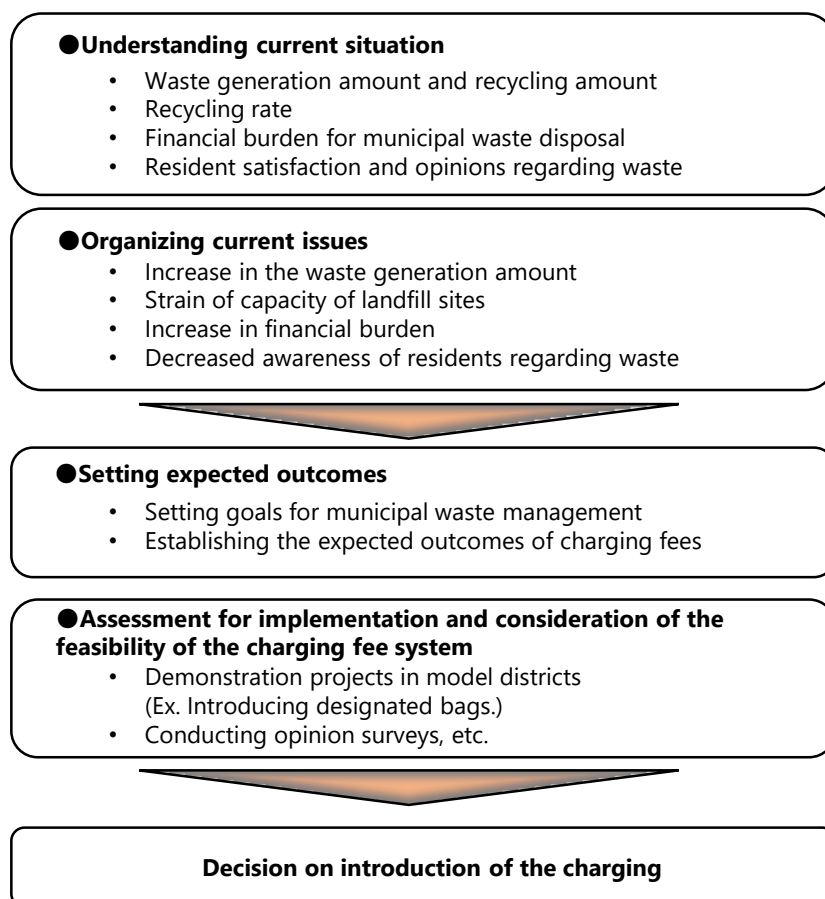


Source: Ministry of the Environment “Guidance for Charging Fees on Municipal Waste Management” (2013)

Figure 3-31 Basic Process for Introducing Charging fees for Municipal Waste Management

B) Assessment on Whether to Introduce Charging for Waste Management

It is important to clarify the relationship between charging for waste collection and basic policies or strategies/measures for waste management, the issues to be solved due to charging and the target effect of charging before assessing whether to introduce charging or not. Many municipalities have introduced charging systems, with the goal of reducing waste generation and extending the life of landfills through raising residents' awareness. An example of an effective assessment flow for introduction of charging is shown in Figure 3-32. The interested municipality collects and organizes information on waste collection in its region, to form an understanding of the "current situation" of waste management and organizes the "current issues" to be solved. After that, the municipality proceeds to "setting expected outcomes" from introducing charging and to implementing "Demonstration projects in model districts" in order to assess the feasibility of charging fees, and thereby have sufficient information to reach a "Decision on introduction of charging fee" in the municipality.



Source: Ministry of the Environment "Guidance for Charging Fees on Municipal Waste Management" (2013)

Figure 3-32 Example of Assessment Process for Introduction of Charging Fees

C) Items of Review at each Stage in Introduction of Charging Fees on Waste Management

When the introduction of charging is decided, items required to start charging are reviewed in line with the steps defined in the basic process flow (shown earlier in Figure 3-32) and after completion of the “Basic items for consideration”, namely; “Establishment of system of charging fees” → “Smooth introduction and implementation of fee charging” → “Review and evaluation of fee charging system”. Also, after the start of charging fees, it is important to assess and review the charging system on a regular basis with the aim to attain a sustainable charging system. The review items at each stage are shown in Table 3-36 to Table 3-38.

Table 3-36 Review of “Establishment of System of Charging fees”(1)

Review item	Overview
1. Fee schedule	The method to set a fee schedule based on the “type of simple proportion to waste discharge (in which fees charged to waste generators depend on the municipal waste amount they discharge)” is the simplest way that the public can easily understand. With a focus on this method, as needed, other ideas can be considered, such as multistep fees, non-charging for collection of partial waste, and greater fee burden on business operators with a large amount of waste discharge.
2. Fee level	The fee level is set considering the effect on the control of municipal waste discharge, promotion of recycling, acceptability of residents and fee levels in surrounding municipalities
3. Method for fee collection	In the case of household municipal waste, the standard methods for collecting fees is to sell designated municipal garbage bags with the fees added on the selling price, and stickers which are attached to garbage bags. On the other hand, in the case of business-related municipal waste, the standard method is to measure the weight of the waste when bringing it in to the waste treatment facilities and collect the fees accordingly. The fee collection method should be determined in consideration of the fee structure and advantages, amongst others.
4. Use of fee revenues	It is necessary to determine the appropriate use of the fees collected under the charging system for municipal waste treatment, in addition to the expenses necessary for the operation of charging fees, and to make this usage transparent. In addition, it is expected that by specifying the usage that contributes to the control of municipal waste discharge and the promotion of recycling, it will be possible to deepen residents' and businesses' understanding of the fee charging system and raise their awareness on waste discharge control.
5. Combination with other measures	In order to control the discharge of municipal waste and promote recycling, in addition to fee charging for municipal waste disposal, it is required to reassess the separate waste collection categories, provide public funds for group collection of recyclables, and support retailers that are working on waste generation control and recycling. In addition other measures should also be considered, such as certification and support of eco-shops, and promotion of reuse.

Source: Ministry of the Environment “Guidance for Charging Fees on Municipal Waste Management” (2013)

Table 3-37 Review of “Smooth Introduction and Implementation of Fee Charging”

Review item	Overview
1. Collaboration with concerned parties towards smooth introduction	In order to smoothly introduce and implement fee charging of municipal waste treatment, it is necessary to exchange opinions with residents at the stage of “Review and evaluation of fee charging system” and incorporate their ideas into the charging mechanism.
2. Collaboration with concerned parties towards smooth implementation	In order to smoothly implement fee charging of municipal waste treatment, relevant information shall be provided to residents and business operators through convening of explanatory meetings, using the PR system of the municipality and other means. It can be expected from these efforts that residents and business operators will deepen their understanding of fee charging and waste management and pay the waste treatment fees.
3. Response to concerned issues	In order to smoothly implement fee charging for municipal waste treatment, it is required to consider in advance the issues that may surface during implementation, such as improper discharge of waste, illegal dumping and low achievement in waste discharge control, and prepare the necessary countermeasures to confront such issues should they occur.

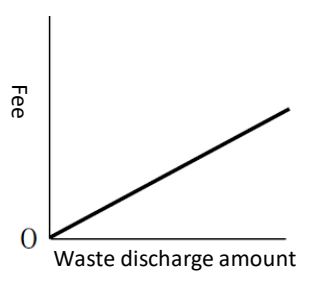
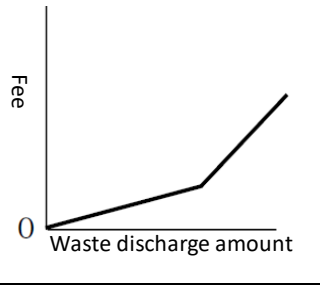
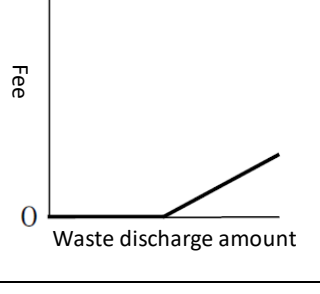
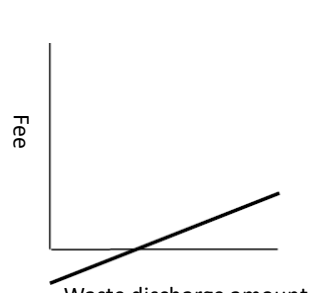
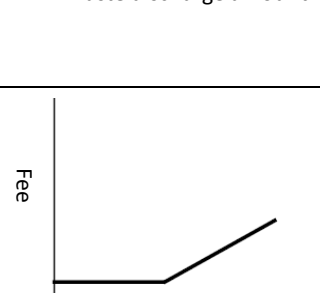
Source: Ministry of the Environment “Guidance for Charging Fees on Municipal Waste Management” (2013)

Table 3-38 Review of “Review and Evaluation of Fee Charging System”

Review item	Overview
1. Basic concept of assessment and review of fee charging system	In order to implement an effective charging system, the implementation conditions and their effects shall be inspected annually, while the evaluation of the system shall be carried out once every 5 years, based on the annual inspection results, and shall be reassessed together with the reassessment of the waste disposal master plan. In addition, the results of annual inspections and evaluation shall be made public to residents and business operators.
2. Implementation of inspection	After introducing the fee charging system for municipal waste treatment, the status and effects of charging shall be inspected every year. Based on the inspection results it is required to consider and implement measures to maintain and improve the system as necessary. Information on the implementation status and results shall be made public to the residents and business operators.
3. Evaluation of the system	The fee charging system shall be evaluated once every 5 years together with the reassessment of the waste management plan, the merger of municipalities or any other occurrence that has a significant effect on waste management in the municipality.

Source: Ministry of the Environment “Guidance for Charging Fees on Municipal Waste Management” (2013)

Table 3-39 Fee Structure and Mechanism by Type (1)

Type	Fee structure chart*	Fee mechanism
(1) Simple proportion to waste discharges		Under this method a waste generator is charged fees according to the municipal waste amount discharged. A fee level per unit waste amount is fixed regardless of waste amount discharged. For instance, if a unit price is charged for the collection of each garbage bag as the fixed collection fee, the total fee charged to a waste generator will equal the product of the unit price of collection charge per garbage bag and the number of garbage bags used. (Flat fee).
(2) Multistage proportion to waste discharges		Under this method a waste generator is charged a fee according to the waste amount discharged, and when the amount of waste exceeds a certain amount, the fee level per unit amount of waste is raised. (Progressive fee)
(3) Non-charging for collection of a fixed amount of waste		Under this method no fee is charged until the waste discharged reaches a fixed waste amount, after which a waste generator is charged a fee according to the waste amount discharged. For instance, municipalities distribute a certain number of garbage bags and stickers required for discharging waste free of charge, and if a waste generator needs more garbage bags and stickers, the waste generator purchases the additional garbage bags and stickers for a fee.
(4) Combination of burden and subsidy for waste collection		Under this method the fee is free up to a fixed discharged waste amount, after which waste generators are charged fees according to waste amounts discharged up to a second fixed waste discharge amount. Should the discharged waste amount be less than the second fixed waste amount, then discharge savings are passed on to waste generators according to the reduced discharged amounts. For instance, municipalities distribute to waste generators at no charge, a fixed number of garbage bags or seals required for waste discharge. Generators pay for additional bags or seals they may need. On the other hand, generators can sell back to municipalities unused garbage bags or seals.
(5) Combination of fixed-fee and pay-for-use systems		Under this method a fee is charged regardless of the waste amount discharged up to a fixed waste amount. When the discharged waste amount exceeds this fixed amount, waste generators are charged according to their discharged waste amounts at a fixed fee.

*: (Source) Yukiko OCHIAI (1996) "Approach to Waste Reduction by Charging of Household Waste - Questionnaire Survey for 533 Cities in Japan and Introduction of Municipality Cases- " Life Design Laboratory

Table 3-40 Fee Structure and Mechanism by Type (2)

	Advantages	Disadvantages
(1) Simple proportion to waste discharges	<ul style="list-style-type: none"> The system is simple and easy-to-understand. It is unnecessary to manage each waste generator's waste discharges, and the system is operated at a lower cost than other fee systems. 	<ul style="list-style-type: none"> The case of a low fee level may not lead to control of waste discharge.
(2) Multistage proportion to waste discharges	<ul style="list-style-type: none"> A higher fee level in the case of a large amount of discharged waste can be expected to motivate large waste generators to control waste discharge. 	<ul style="list-style-type: none"> The cost for operating this fee system will increase as it is necessary to identify the waste amount discharged by each generator which will require additional operating resources.
(3) Non-charging for collection of a fixed amount of waste	<ul style="list-style-type: none"> The employment of the pay-for-use system only for the amount of waste discharged above the fixed discharged waste amount can be expected to control discharge amounts below the fixed amount. 	<ul style="list-style-type: none"> There is less incentive to motivate control of discharge within a range in which there is no charge. In order to identify the waste amount discharged by each generator costs will be incurred (e.g. cost for distribution of garbage bags used up to a fixed amount of discharged waste), which will increase the cost for operation of the system.
(4) Combination of burden and subsidy for waste collection	<ul style="list-style-type: none"> The employment of the pay-for-use system only for the amount of waste discharged above the fixed discharged waste amount can be expected to control discharge amounts below the fixed amount. As discharge savings are passed on to waste generators according to their reduced discharge amounts, this fee type can be expected to be more effective in controlling waste discharge than the preceding Type 3 fee system. 	<ul style="list-style-type: none"> In order to identify the waste amount discharged by each generator costs will be incurred (e.g. cost for distribution of garbage bags used up to a fixed amount of discharged waste), which will increase the cost for operation of the system.
(5) Combination of fixed-fee and pay-for-use systems	<ul style="list-style-type: none"> The employment of the pay-for-use system only for the amount of waste discharged above the fixed discharged waste amount can be expected to control discharge amounts below the fixed amount. The employment of the fixed-fee system to a fixed amount of discharged waste enables municipalities to collect a stable amount of money. 	<ul style="list-style-type: none"> There is less incentive to motivate control of discharge within a range in which there is no charge. In order to identify the waste amount discharged by each generator costs will be incurred (e.g. cost for distribution of garbage bags used up to a fixed amount of discharged waste, costs for fee collection), which will increase the cost for operation of the system.

Source: Ministry of the Environment "Guide for Charging for Municipal Waste Management" (2013)

Table 3-41 Comparison of Characteristics of Methods Used for Fee Collection

Items	Designated garbage bag	Seal
Ease of handling	<ul style="list-style-type: none"> • It is easy to check the amount of discharged waste. • Over filling garbage bags makes them too heavy and bulky. 	<ul style="list-style-type: none"> • In cases where waste items of certain sizes or shapes cannot be contained in a garbage bag, these items may be discharged using seals. • It is relatively difficult to check the amount of discharged waste. • The seal is easily handled due to its small size. • The seal is easy to lose.
Necessary measures	<ul style="list-style-type: none"> • It is necessary to place on the bag, a mark or color that makes it prominent. • It is important to prepare garbage bags that have different sizes, and provide incentives to use a smaller garbage bag. 	<ul style="list-style-type: none"> • It is necessary to place on the seal, a mark or color that makes it prominent. • It is important to prepare seals that have different sizes, and provide incentives to use a smaller garbage bag.
Market impact	<ul style="list-style-type: none"> • It is necessary to consider the impact of the designated bags on the existing waste bag market. 	<ul style="list-style-type: none"> • The seal has a lesser impact on the existing market.
Treatment of plastic bag	<ul style="list-style-type: none"> • A plastic shopping bag cannot be utilized as a garbage bag. 	<ul style="list-style-type: none"> • In some cases, the plastic shopping bag cannot be utilized as a garbage bag.

Source: Ministry of the Environment “Guidance for Charging Fees on Municipal Waste Management” (2013)

Table 3-42 Example of Use of Advertising Media

<p><Advertising Media/Publicity Method></p> <ul style="list-style-type: none"> • Provision of information through TVs, newspapers, radios and other media • Periodical publication in municipal PR magazine • Use of advertisements on trains, buses and other vehicles • Street speech/explanation • Presentation on waste-collection point • Use of circular boards • Distribution of booklets and/or flyers to all homes • Holding of festivals and events <p><Content of Information></p> <ul style="list-style-type: none"> • Details of charging system • Dates of fee collection • Sorting waste categories • Amount of discharged municipal waste <p>Source: Ministry of the Environment “Guidance for Charging Fees on Municipal Waste Management” (2013)</p>
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