Kuramae Water House(Kuramae Mizu no Yakata)

It is the only facility in the Tokyo 23-ward areas that you can see sewage actually flowing in a sewer pipe buried underground which is usually invisible to the public. There is also an exhibition of the manhole iron covers which were actually used.

Entry fee : Free
Address : 2-1-8 Kuramae,Taito-ku, (Hokubu Sewerege Office)
telephone : 03(3241)0944
Closed day : Saturdays, Sundays, National holidays, and the New Year's holiday
Opening hours : 9:00～16:30
How to use : Reservation is required for site visit

Site visits to Wastewater Treatment Plants

Facility tours of wastewater treatment plants are available except weekends, holidays, and the year-end and New Year Holidays.
<Contact for arranging site visits>
Wastewater treatment plants in the 23 wards /Telephone:03(3241)0944
Hours:9:00 - 17:00 (weekdays only)
Wastewater treatment plants in Tama area: Please contact each wastewater treatment plant.

We distribute free manhole cards.

Tokyo Sewerage Museum" Rainbow" 03-5564-2458
Former Mikawashima Sewage Disposal Plant 03-6458-3940
Kuramae Mizu no Yakata 03-3241-0944
TOKYO Tourist Information Center Tama (Regional Sewerage Office,Bureau of Sewerage,TMG) 042-527-4281
Zenigame Place (Public Relations and Service Section,General Affairs Division, Bureau of Sewerage,TMG) 03-5320-6515

Tokyo Sewerage Museum " Rainbow"

Former Mikawashima Sewage Disposal Plant

Kuramae Water House (Kuramae Mizu no Yakata)

TOKYO Tourist Information Center Tama

Zenigame Place

What is a manhole card?

It is a collection card created by Gesuido Koho Platform (Sewerage Public Relations Platform, GKP) in collaboration with local municipalities.
They are distributed for the purpose of making people interested in sewerage and enjoy collecting cards.

リサイクル適性Ⓐ
この印刷物は、印刷用の紙へリサイクルできます。
R60 古紙パルプ配合率60％再生紙を使用

東京都の下水道
2024

令和６年11月発行
編集・発行　東京都下水道局総務部広報サービス課
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令和6年度 規格表第4類 登録第10号

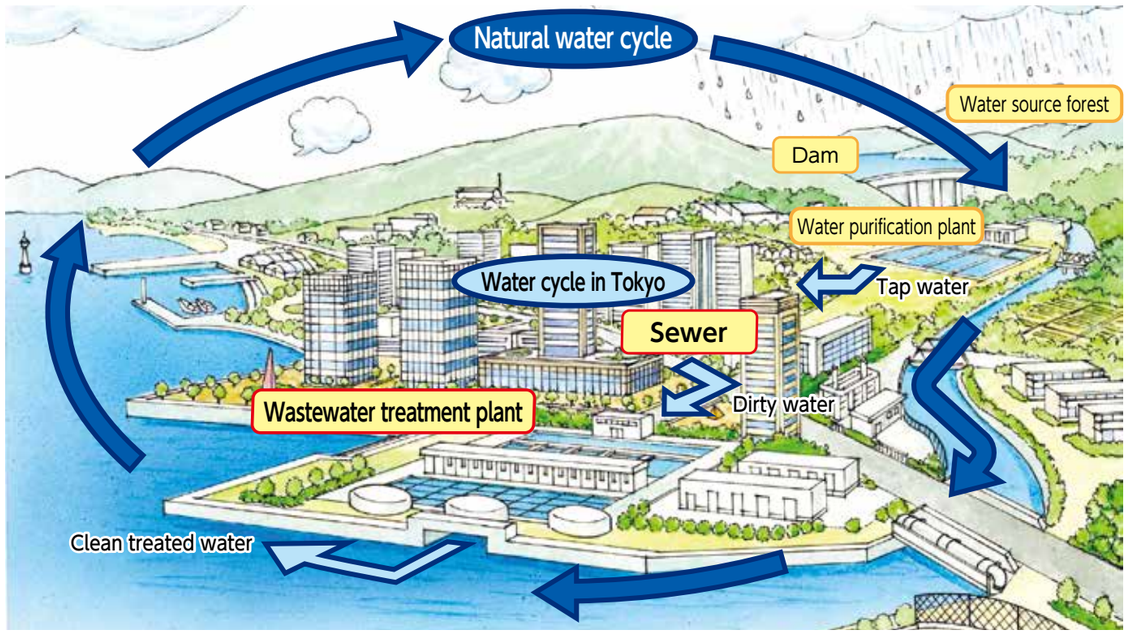
HTT 電力をへらす つくる ためる
TokyoTokyo

SEWERAGE in TOKYO 2024

The VR Tours of Tokyo Sewerage System application uses virtual reality (VR) technology to simulate a visit to Tokyo's sewerage facilities in a 360-degree experience that responds to the viewer's gaze.

Sewerage in the Water Cycle

We contribute to the water cycle in Tokyo through sewerage system.



Contents

Earth-kun

This is a character that was created on September 10, 2000, aiming at further deepening customer's interest in and understanding of sewage works and boosting the image of Bureau of Sewerage, Tokyo Metropolitan Government. Along with 100% spread and almost completion of sewerage system, it uses "the Earth" as a motif, for the purpose of representing new roles including contribution to sound material-cycle society etc. in addition to conventional ones of sewerage including wastewater treatment and removal of rainwater. It will commemorate the 25th anniversary in the next fiscal year (FY2025).

The website of Bureau of Sewerage

https://www.gesui.metro.tokyo.lg.jp/

1 The Role of Sewerage in Tokyo

Sewerage plays a vital role in ensuring a safe and comfortable living environment and creating a good water cycle. We, "Bureau of Sewerage, Tokyo Metropolitan Government (TMG)", treat wastewater from daily lives or urban activities and return it to rivers and the sea. In addition, we drain stormwater immediately from roads or residential areas.

Improvement of a Living Environment by Treating Wastewater

We treat wastewater from houses and factories and ensure a comfortable living environment.

Effluent

Flood Prevention by Draining Stormwater

We protect the city from flooding by draining* stormwater immediately from roads or residential areas.

*Drained stormwater is discharged into rivers and the sea or stored in storage facilities.

A drained road

Water Quality Control in Public Water Bodies

We improve and control the water quality of rivers and the sea by treating and discharging the wastewater.

Revived Sumida River

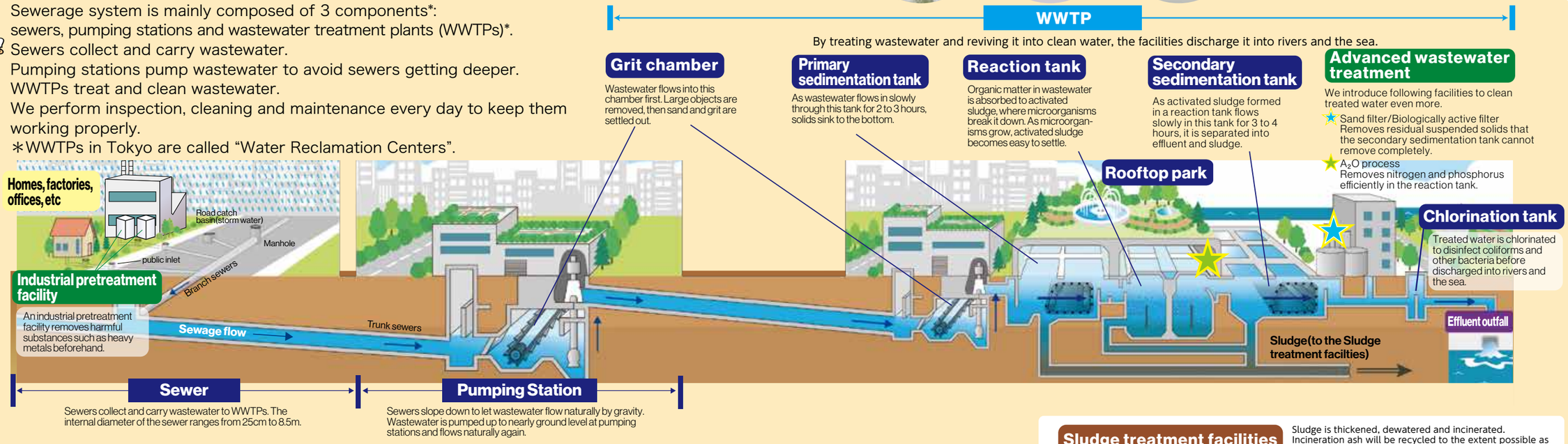
Our New Role

Now we play a new role in creating a favorable urban environment. We effectively utilize the resources and energy generated by sewerage, such as reclaimed water and sewerage heat. We also utilize roof floor spaces of our facilities.

Shinagawa Season Terrace constructed in the roof floor space of Shibaura Water Reclamation Center

2 Sewerage System

Sewerage system is mainly composed of 3 components*:
sewers, pumping stations and wastewater treatment plants (WWTPs)*.
Sewers collect and carry wastewater.
Pumping stations pump wastewater to avoid sewers getting deeper.
WWTPs treat and clean wastewater.
We perform inspection, cleaning and maintenance every day to keep them working properly.
＊WWTPs in Tokyo are called “Water Reclamation Centers”.



Entrance to the Sewer

House Drain

Private sewers in residential areas of our customers are called house drains. The connection method to the public sewer system depends on the type of the system as shown in figures below. If you are planning to establish, expand or renovate your house drain, you are required to notify the sewerage administrator (the Director General of Bureau of Sewerage in the 23 wards area). In Tama area, please contact your local municipality.

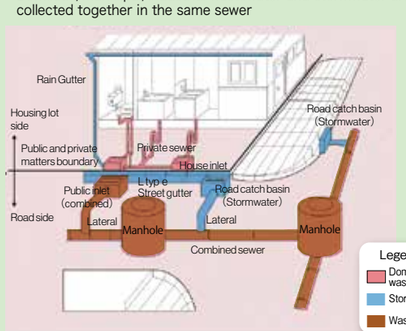
Types of Sewer Systems (Combined and Separate Sewer System)

Wastewater includes domestic wastewater from houses, municipal wastewater from communities, industrial wastewater from factories and stormwater. There are two types of sewer systems : combined sewer system and separate sewer system.

In combined sewer system, domestic/municipal/industrial wastewater and stormwater are collected and carried to WWTPs together in the same sewer. On the other hand, in separate sewer system, they are collected separately. Then domestic/municipal/industrial wastewater is carried to WWTPs, while stormwater is discharged directly into rivers and the sea.

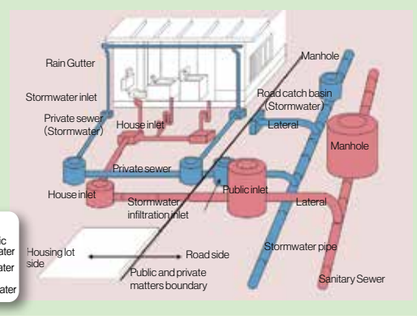
●Combined sewer system

Domestic/municipal/industrial wastewater and stormwater are collected together in the same sewer



●Separate sewer system

Domestic/municipal/industrial wastewater and stormwater are collected separately



3 Components of Sewerage

Sewer

The pipes that convey sewage to WWTPs are referred to as “conduits.” Sewage is collected through smaller sewer pipes (branch sewers) to larger sewer pipes (trunk sewers). The sewer network is stretched across Tokyo with total length of approximately 16,100 km in the 23 wards area. The common materials used are concrete, polyvinyl chloride (PVC), clay, etc. The internal diameter of the sewer ranges from 25cm to 8.5m.

Pumping Station

Sewers slope down to let wastewater flow naturally by gravity (gravity flow). Therefore, sewers get deeper and deeper in the ground. (About 50m underground at the deepest.) Because it is difficult to lay sewers deep in the ground, wastewater is pumped up to nearly ground level at pumping stations and flows naturally again. In this way, wastewater flows to WWTPs by way of pumping stations. In addition, pumping stations play an important role of flood prevention in case of heavy rainfall by discharging stormwater from sewers to rivers and the sea immediately.

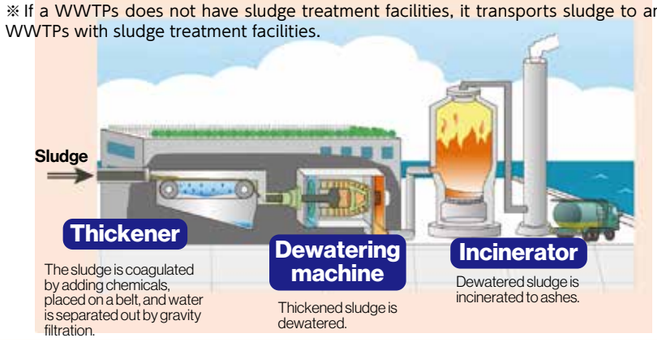
Wastewater Treatment Plant (WWTP)

WWTPs have facilities to treat wastewater and sludge. Wastewater is treated with a system of tanks and sludge is produced. The volume of wastewater treated in our 20 WWTPs is approximately 5.50 million cubic meters per day.
To treat a large volume of wastewater, we need extensive sites for WWTPs. We save and utilize spaces effectively by introducing two-layer sedimentation tanks or deeper reaction tanks, etc. In addition, we cooperate with wards and cities to turn roof floor spaces of WWTPs into parks for citizens.

Sludge treatment facilities

Sludge is thickened, dewatered and incinerated. Incineration ash will be recycled to the extent possible as raw materials including cement etc., and then the remaining one will be disposed as landfill.

※ If a WWTPs does not have sludge treatment facilities, it transports sludge to another WWTPs with sludge treatment facilities.



3 Sewerage in the Ward Area

Sewerage Service in the Ward Area

In Japan, cities, towns or villages are responsible for sewerage service. But in the 23 wards area, we, TMG, provide sewerage service on their behalf.

There are 13 WWTPs in 10 treatment districts. The volume of wastewater treated is 4.43 million cubic meters per day.

Sewerage Plan

Planned Population*	8,692,000
Planned Area*	57,839 hectares

*Source: Regional Sewerage Service Master Plan decided in July 2009.

Ward Area Sewers (as of March 2024)

Total Length of Sewers		16,211,065m
	Trunk Sewers	1,140,020m
	Branch Sewers	15,071,045m
Number of Manholes		488,112
Number of Public Inlet		1,976,587

Pumping Stations

Number of Pumping Stations (April 1, 2024)	81*	
Volume of Pumped Wastewater in FY2023	Annually	727,788,420m³
	Daily Average	1,988,493m³

*Excluding the Kuramae, Higashi-Ogu, and Seijo drainage control stations

Wastewater Treatment Plants

Number of Wastewater Treatment Plants (April 1, 2024)	13	
Volume of Treated in FY2023	Annually	1,587,939,740m³
	Daily Average	4,338,630m³

Overall Plan for Sewerage Systems in the Ward Area

4 Sewerage in Tama Area

Sewerage Service in Tama Area

In Tama area of Western Tokyo, there are several types of sewerage service: regional sewerage service, independent public sewerage service, etc.

In regional sewerage service, TMG, and local governments (26 cities, 3 towns and 1 village) cooperate to provide sewerage service. We construct and manage regional trunk sewers and wastewater treatment plants, while local governments are responsible for sewers from houses to regional trunk sewers.

The volume of wastewater treated in our 7 WWTPs is 0.97 million cubic meters per day.

Regional Sewerage System Plan

Planned Population*	3,496,400
Planned Area*	49,083 hectares

*Source: Regional Sewerage Service Master Plan decided in July 2009.
Including some single treatment districts.

Sewers* (End of the fiscal year 2023)

Total Length of Sewers	232,240m
Number of Manholes	1,235
Number of Connection Points to Regional Sewers	344

*Managed by TMG

Pumping Stations and Wastewater Treatment Plants*

Number of Pumping Stations (April 1, 2024)	2	
Number of Wastewater Treatment Plants (April 1, 2024)	7	
Volume of Treated Wastewater in FY2023**	Annually Daily Average	353,502,910㎥ 965,855㎥

* Managed by TMG
**Except for Nogawa treatment area

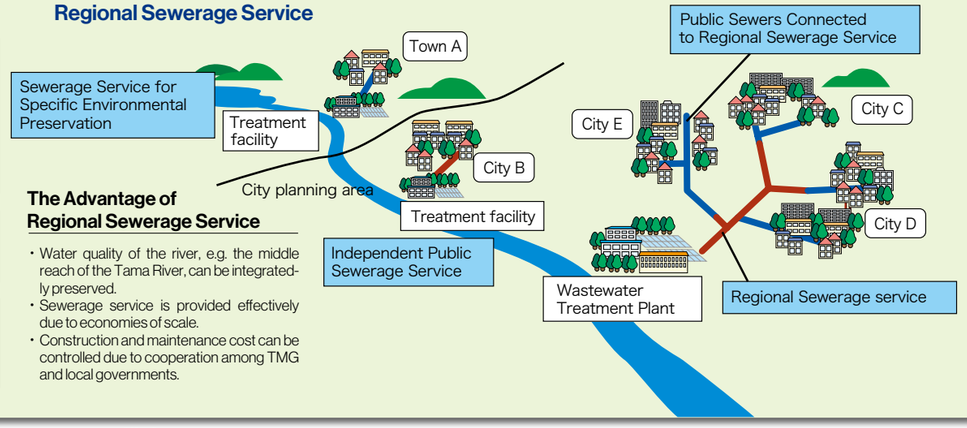
Sewerage in Tama Area

Regional sewerage service
We construct and manage principal sewerage regional trunk sewers and wastewater treatment facilities such as plants.
+
Public sewers connected to regional sewerage service
Local governments construct and manage sewers from houses to regional trunk sewers.

Independent public sewerage service
Each local government constructs and manages all of sewerage facilities.

Sewerage service for specific environmental preservation
Town and villages construct and manage sewerage facilities in non-urbanization promotion areas where water environmental preservation is required.

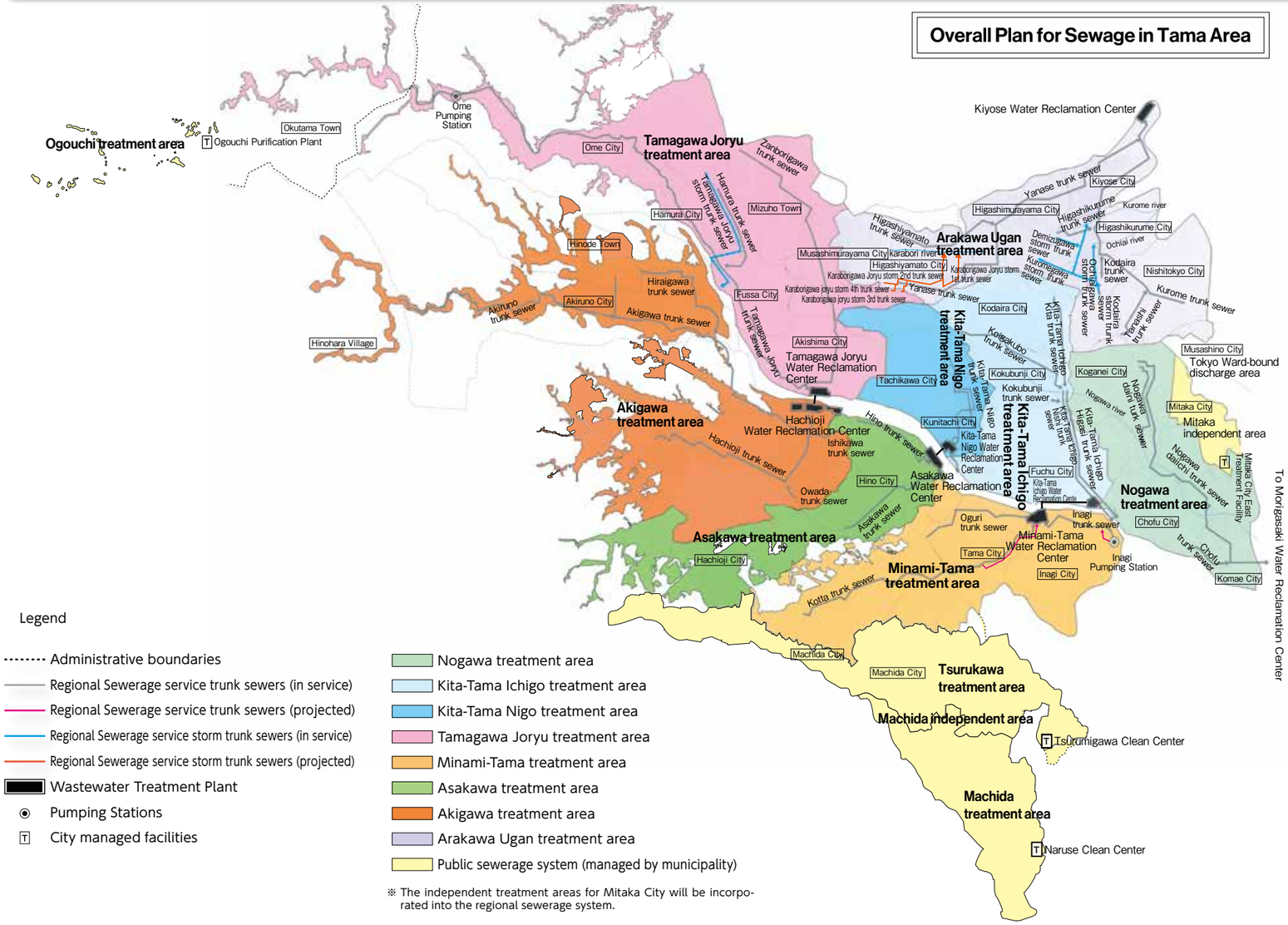
Regional Sewerage Service



The Advantage of Regional Sewerage Service

- Water quality of the river, e.g. the middle reach of the Tama River, can be integratedly preserved.
- Sewerage service is provided effectively due to economies of scale.
- Construction and maintenance cost can be controlled due to cooperation among TMG and local governments.

Overall Plan for Sewage in Tama Area



Legend

- Administrative boundaries
- Regional Sewerage service trunk sewers (in service)
- Regional Sewerage service trunk sewers (projected)
- Regional Sewerage service storm trunk sewers (in service)
- Regional Sewerage service storm trunk sewers (projected)
- Wastewater Treatment Plant
- Pumping Stations
- City managed facilities

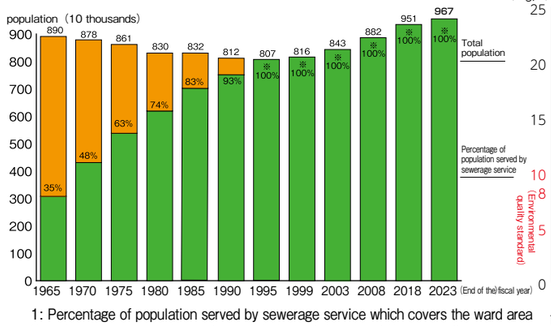
- Nogawa treatment area
- Kita-Tama Ichigo treatment area
- Kita-Tama Nigo treatment area
- Tamagawa Joryu treatment area
- Minami-Tama treatment area
- Asakawa treatment area
- Akigawa treatment area
- Arakawa Ugan treatment area
- Public sewerage system (managed by municipality)

※ The independent treatment areas for Mitaka City will be incorporated into the regional sewerage system.

5 Statistics of Sewerage in Tokyo

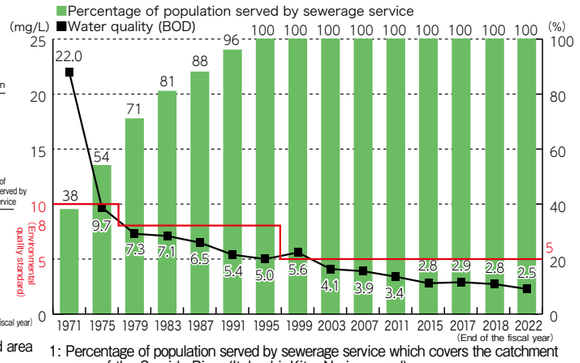
The Ward Area

Total Population and Percentage of Population Served by Sewerage Service



1: Percentage of population served by sewerage service which covers the ward area
2: Total population is taken from statistics of Bureau of General Affairs
3: Percentage over 99.5% is considered as 100%

Water Quality of the Sumida River and Percentage of Population Served by Sewerage Service



1: Percentage of population served by sewerage service which covers the catchment area of the Sumida River (Itabashi, Kita, Nerima ward)
2: Water quality is the annual BOD value (BOD 75 percentile value) at the Odaihashi Bridge (Based on data served by Bureau of Environment)

Average Water Quality of Wastewater Treatment Plants

(Unit:mg /L)

Parameter	Influent	Effluent	Effluent quality standards
BOD	160	6	25
COD	88	9	35(15)
Total nitrogen	32.3	11.2	30(20)
Total phosphorus	3.5	0.9	3.0 (1.0)

(Results in FY2023)
Average value of 13 wastewater treatment plants.
Values in brackets are effluent quality standards for wastewater treatment plants equipped with advanced wastewater treatment.
*BOD and COD are indicators of water pollution (organic matter).

Statistics of Wastewater and Sludge Treatment(Ward Area)

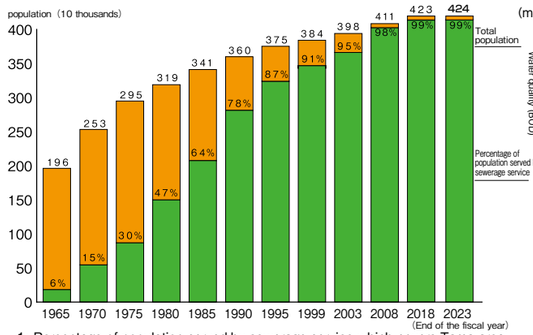
(Results in FY2023)

Results / WWTP etc.	Wastewater volume (m³)		Sludge volume (m³)		Dewatered sludge weight (t)		Incinerated sludge weight (t)	
	Annual	Daily average	Annual	Daily average	Annual	Daily average	Annual	Daily average
Shibaura	209,787,520	573,190	Transported to Nanbu Sludge Plant(via Morigasaki)					
Mikawashima	145,206,100	396,740	Transported to Sunamachi					
Nakagawa	66,843,340	182,630	Transported to Kasai(via Kosuge)					
Miyagi	61,838,500	168,960	2,658,530	7,260	47,420	130	47,420	130
Sunamachi	156,274,460	426,980	3,819,387	10,440				
Tobu Sludge Plant	-----	-----	17,994,963	49,170	235,500	643	202,374	553
Ariake	5,235,150	14,300	Transported to Sunamachi					
Kosuge	70,499,150	192,620	Transported to Kasai					
Kasai	103,323,580	282,300	11,946,620	32,640	149,908	410	149,901	410
Ochiai	110,113,260	300,860	Transported to Sunamachi(via Miyagi and Mikawashima)					
Nakano	19,697,530	53,820	Transported to Sunamachi(via Ochiai, Miyagi and Mikawashima)					
Ukima	50,037,450	136,710	Transported to Shingashi					
Shingashi	179,124,570	489,410	7,702,297	21,040	128,532	351	128,532	351
Morigasaki	409,959,130	1,120,110	6,489,060	17,730	Transported to Nanbu Sludge Plant			
Nanbu Sludge Plant	-----	-----	15,039,890	41,090	362,307	990	362,307	990
Total	1,587,939,740	4,338,630	65,650,747	179,370	923,667	2,524	890,534	2,423

Note: Of the dewatered sludge generated, 33,126 tons/year is carbonized at the Tobu Sludge Plant's carbonization facility.

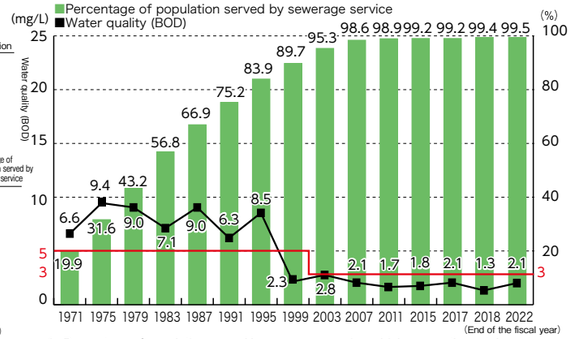
Tama Area

Total Population and Percentage of Population Served by Sewerage Service



1: Percentage of population served by sewerage service which covers Tama area
2: Total population is taken from statistics of Bureau of General Affairs

Water Quality of the Tama River and Percentage of Population Served by Sewerage Service



1: Percentage of population served by sewerage service which covers the catchment area of the Tama River
2: Water quality is the annual BOD value (BOD 75 percentile value) at the Tamagawarabashi Bridge (Based on data served by Bureau of Environment)

Percentage of Population Served by Sewerage Service for Individual Cities

(%)

	Hachioji	Tachikawa	Musashino	Mitaka	Ome	Fuchu	Akishima	Chofu	Machida	Koganei	Kodaira	Hino	Higashi murayama	Kokubunji	Kunitachi	Fussa
Percentage of population served by sewerage service FY 2023	99	100	100	100	98	100	※ 100	100	99	100	100	96	100	※ 100	100	100

	Komae	Higash iyamato	Kiyose	Higashi kurume	Musashi murayama	Tama	Inagi	Hamura	Akiru-no	Nishitokyo	Mizuho	Hinode	Hinohara	Okutama	Total
Percentage of population served by sewerage service FY 2023	100	100	※ 100	100	※ 100	※ 100	99	※ 100	95	※ 100	98	※ 100	90	92	99

1: Percentage over 99.5% is considered as 100%

Average Water Quality of Wastewater Treatment Plants

(Unit:mg /L)

Parameter	Influent	Effluent	Effluent quality standards
BOD*	170	3	25
COD*	110	7	-
Total nitrogen	33.4	8.1	30
Total phosphorus	3.7	0.7	3.0

*Water quality calculated from preliminary figures.

(Results in FY2023)
Water volume weighted average of 7 wastewater treatment plants.
*BOD and COD are indicators of water pollution (organic matter).

Statistics of Wastewater and Sludge Treatment(Ward Area)

(Results in FY2023)

Results / WWTP etc.	Wastewater volume (m³)		Sludge volume (m³)		Dewatered sludge weight (t)		Incinerated sludge weight (t)	
	Annual	Daily average	Annual	Daily average	Annual	Daily average	Annual	Daily average
Nogawa treatment area	84,312,770	230,363	Treated at Morigasaki Water Reclamation center in the ward area					
Kita-Tama Ichigo	67,109,720	183,360	2,471,690	6,753	47,063	129	47,171	129
Kita-Tama Nigo	19,112,440	52,220	622,480	1,701	13,060	36	13,149	36
Tamagawa Joryu	57,365,920	156,737	2,431,400	6,643	60,866	166	60,718	166
Minami-Tama	40,689,420	111,173	1,775,730	4,852	30,992	85	30,849	84
Asakawa	29,813,850	81,459	637,580	1,742	24,576	67	24,638	67
Hachioji	58,300,990	159,292	1,480,340	4,045	36,440	100	36,440	100
Kiyose	81,110,570	221,614	2,700,110	7,377	64,597	176	64,629	177
Regional subtotal	353,502,910	965,855	12,119,330	33,113	277,594	758	277,594	758
Total	437,815,680	1,196,218	12,119,330	33,113	277,594	758	277,594	758

1: Wastewater from Nogawa treatment district is treated at Morigasaki Water Reclamation Center in the ward area.
2: Sludge incineration facilities have been installed at all centers in the regional sewerage system.

6 Management Plan 2021

Tokyo's sewerage, which includes sewers and wastewater treatment plants that were built in the earlier era, are aging, and measures need to be taken to maintain their function. In addition, we need to strengthen efforts to deal with heavy rains, which are becoming increasingly severe and frequent due to climate change. Furthermore, as Tokyo's population is about to decline, we need to appropriately address issues such as securing human resources to support the sewerage business.

Under these circumstances, in order to continue playing a fundamental role in sewerage and to further improve sewerage services from a long-term perspective, we formulated "Tokyo Metropolitan Government Sewerage Operations Management Plan 2021" as a guideline for business operations for five fiscal years from 2021 to 2025.

Three management policies and visions

Policy 1 Ensure the safe and comfortable living environment

- Steadily fulfill the basic roles of sewerage systems, such as "improving living environments by treating wastewater", "preventing flooding by removing stormwater", and "conserving water quality in public water bodies".
- Secure the function of sewers in the event of natural disasters, such as heavy rains which are becoming increasingly severe over the years and Tokyo Inland Earthquake.

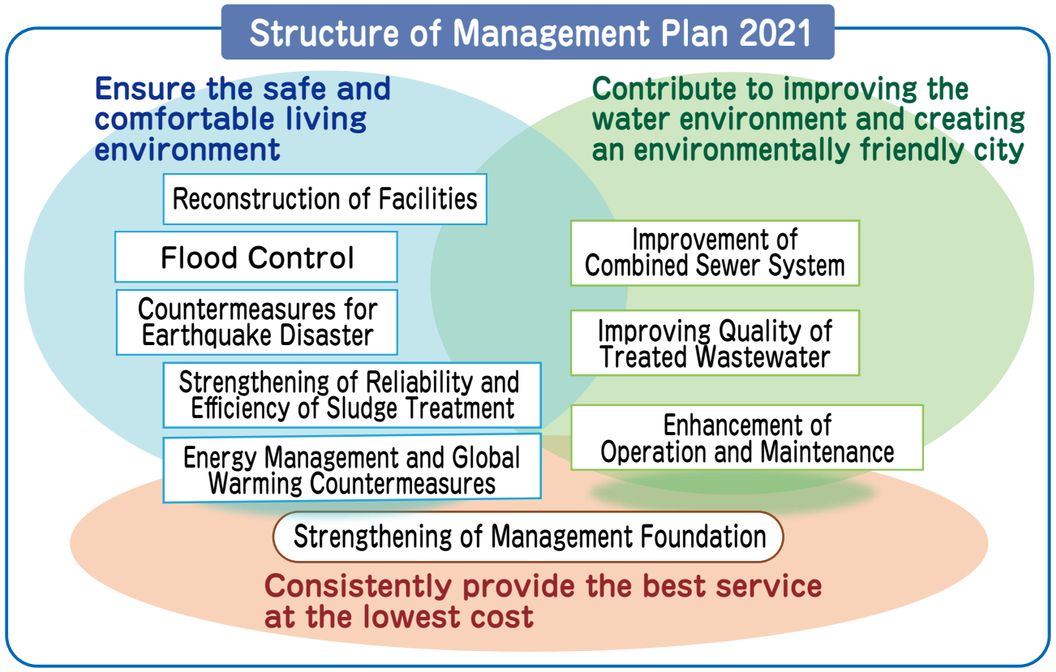
Policy 2 Contribute to improving the water environment and creating an environmentally friendly city

- Pass on a good water environment to the next generation, and improve the water quality of oceans and rivers.
- Make progress in reducing energy use and greenhouse gas emissions, and contribute to the creation of an environmentally friendly city.

Policy 3 Consistently provide the best service at the lowest cost

- Maximize publicity and economic efficiency, which are the principle of public enterprise management, and provide the best services at the least cost.
- Strengthen the management base through improvement of technological capabilities, development of human resources, and sound financial management, and conduct stable business operations with understanding and cooperation of our customers.

Structure of Management Plan 2021



7 Principal Measures for the Ward Area

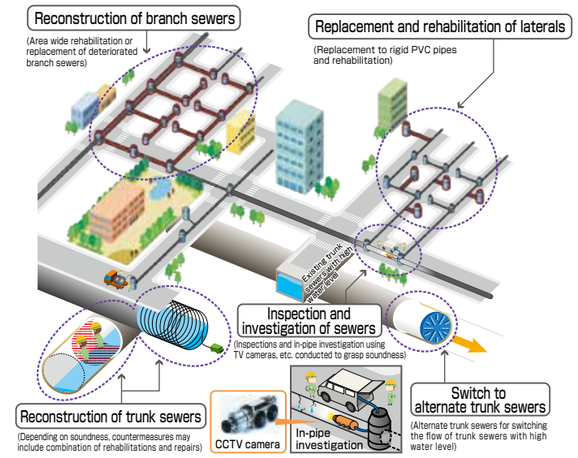
Measures Reconstruction

The sewerage works in the ward area has started operation since the 19th century and reached a 100% sewerage coverage at the end of FY1994. We are currently managing a sewer system extending as long as 16,200 km. However, the earlier sewers are aging, and the lengths of sewers that have exceeded their legal service life (50 years) account for 23% of the total, increasing to about 69% in the next 20 years. In addition, about 40% of 96 facilities such as wastewater treatment plants and pumping stations have been in operation over 50 years.

Therefore, we will reconstruct aging sewers, wastewater treatment plants, and pumping stations to ensure stable wastewater
transportation, wastewater treatment, and stormwater elimination functions toward the future.

Reconstruction of Sewers

We will conduct inspections and investigations of sewers to determine their soundness, and proceed with reconstruction and repairs as planned to enhance stormwater drainage capacity and earthquake resistance, along with countermeasures against aging. In addition to extending the service life for an additional 30 years beyond the legal service life through planned maintenance and management, we will proceed with efficient reconstruction to extend the economic service life (up to 80 years) by using asset management methods for the leveling of the business in the mid- to long-term.



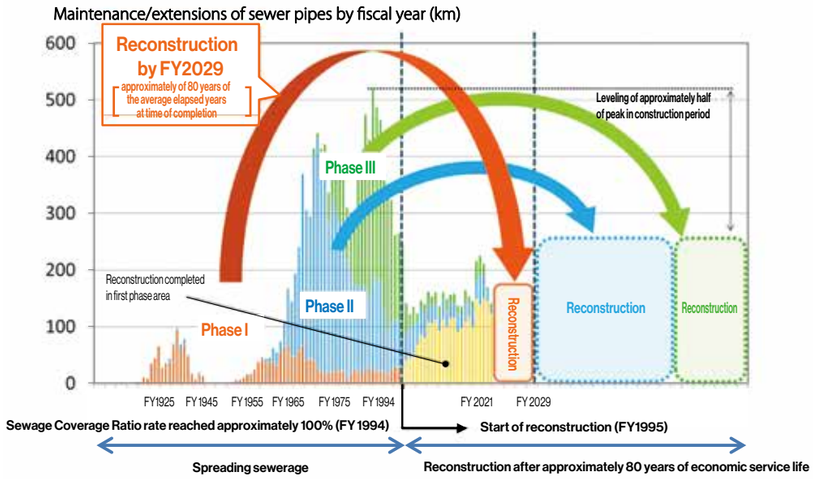


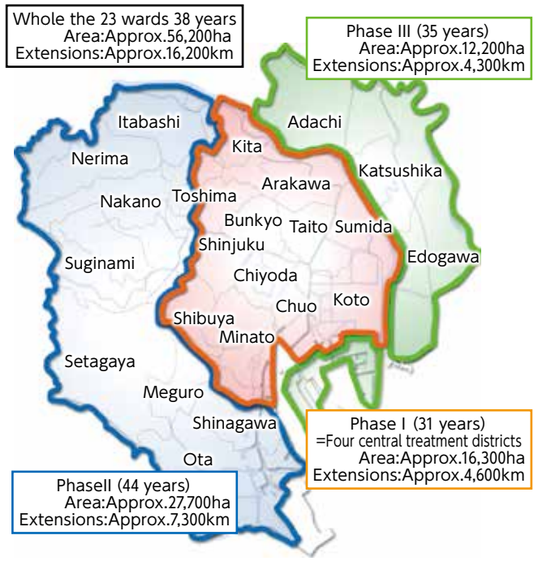
Image of asset management of sewer

Our efforts Reconstruction of branch sewers

We will divide the ward area into three according to the age of sewers installed, and promote efficient reconstruction along with other improvements such as increasing the stormwater drainage capacity. Of these, we will prioritize the reconstruction of the four city core treatment areas (Phase I reconstruction area) with aging sewers and complete it by FY2029.

※ Asset management method: This is the method that systematically and efficiently manage assets while evaluating the state of the facilities, conducting appropriate maintenance, and considering the life cycle cost and the leveling of reconstruction business in mid to long-term.

※ Economic service life: This is the number of years in which the annual average cost, computed by total cost (same as life cycle cost, construction cost plus maintenance cost) divided by the elapsed years, is the smallest.



* Number in parentheses is average age of sewer at end of FY2023.

Reconstruction of trunk sewer using rehabilitation method (Yatagawa trunk sewer)

Information about Our Large-Scale Projects

Read the 2-D code for information on improvements of Chiyoda Trunk Sewer.

Our efforts Reconstruction of trunk sewers

Trunk sewers are pipelines that constitute a core framework of the sewer network. They collect and carry a large amount of wastewater to wastewater treatment plants and pumping stations. We will proceed with reconstruction by using rehabilitation methods to reinforce sewers from the inside without digging up roads.

We will give priority to the reconstructions of 47 trunk sewers constructed before 1955 and trunk sewers that need to be fixed based on investigations.

Depending on the soundness, countermeasures may include a combination of rehabilitation methods and repairs.

For trunk sewers that are hard to reconstruct due to conditions such as high to full water level, we will construct alternate trunk sewers in advance to bypass the flow.

Reconstruction of Wastewater Treatment Plants and Pumping Stations

In addition to measures against aging, we will proceed with reconstruction as planned to increase stormwater drainage capacity, improve earthquake-proofing andmaintainability, and increase energy efficiency.

Our efforts Reconstruction of branch sewers

We will maintain the functions of facilities by performing repairs based on regular inspections and investigations, taking measures against concrete corrosion, and performing large-scale reconstructions.

For facilities that need to increase their stormwater drainage capacity, we will work to improve their functions together with measures against aging. For facilities to be insufficient in capacity during the reconstruction period, we will install alternative equipment in advance and sequentially upgrade while treating wastewater.

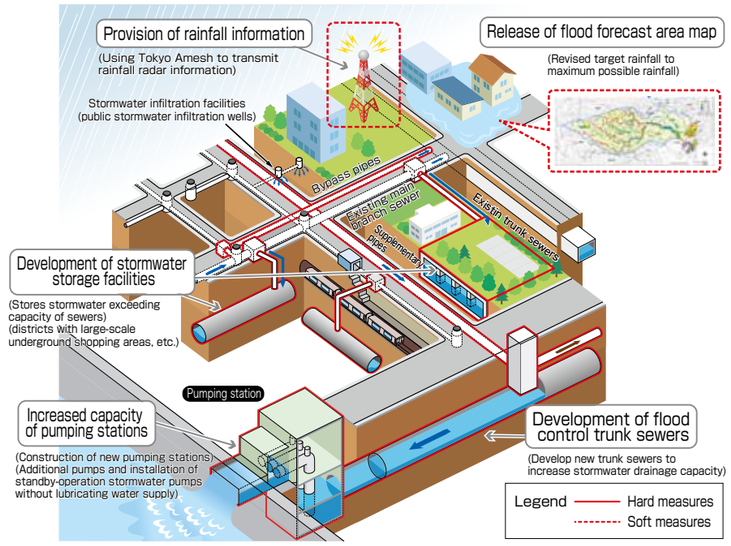
Based on the economic service life of each facility, we will carry out systematic and efficient reconstruction by leveling the project volume using asset management methods.

Measures Flood control

Promoting flood control will ensure urban functions and achieve safe and sound livelihoods.

We are developing facilities focusing on areas at high risk of flooding with the aim of being able to respond to a rainfall of 75 mm per hour in all parts of the wards area.

Concepts of flood control

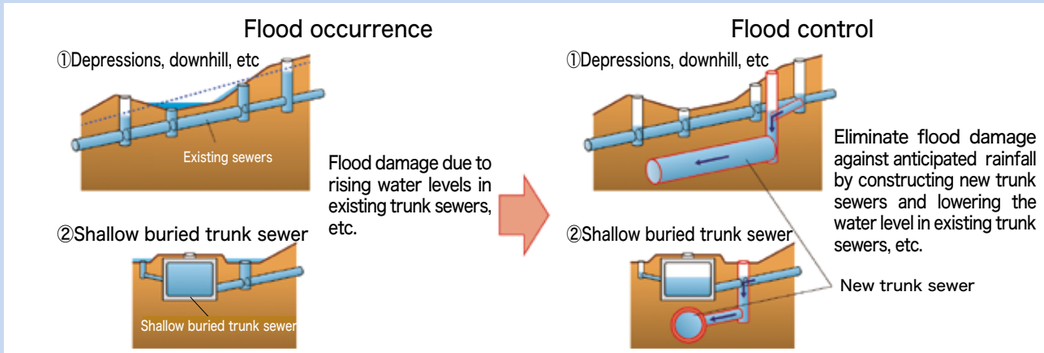


Using flow-out analysis simulations alongside an analysis of past floods, 28 of the priority districts selected for advance disaster prevention have completed their flood countermeasures, and we will continue to steadily promote facility development.

Since the construction of large scale facilities such as trunk sewers takes a long time, the effects of the facilities are quickly demonstrated through various measures such as the provisional use of partially completed facilities.

We will consider and promote both hard and soft measures to deal with rainfall that exceeds expectations.

Flood Control through Construction of Trunk Sewers



Development of Core Facilities such as Trunk Sewers and Pumping Stations

Senkawa Reinforcement Trunk Sewer

Oji Pumping Station No. 2

Measures Countermeasures for earthquake disaster

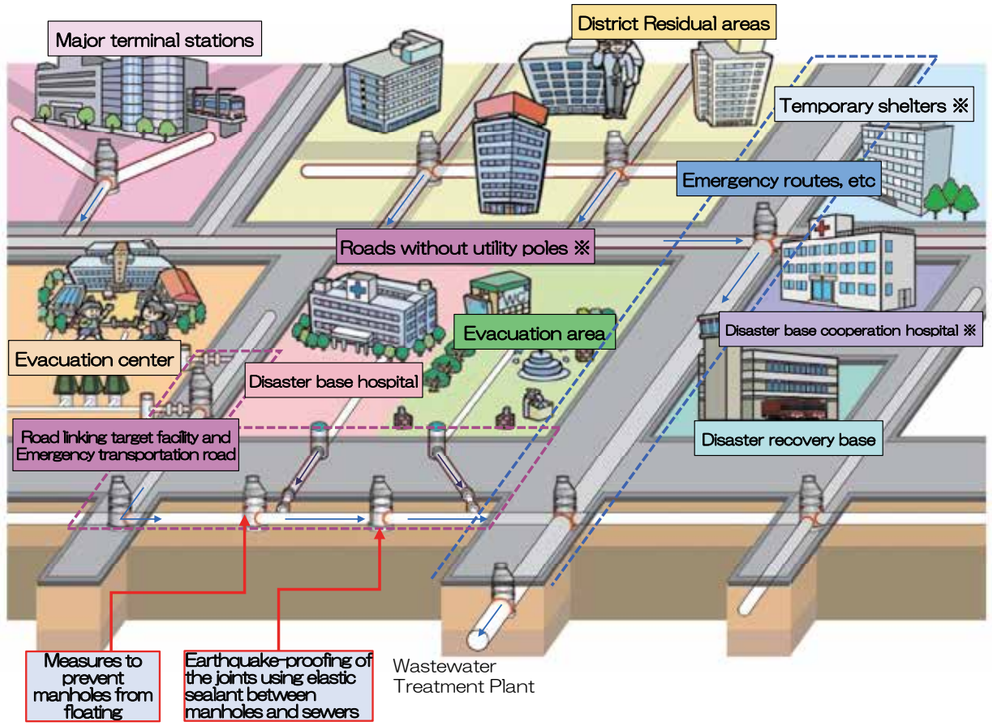
We will secure sewerage functions and traffic functions including emergency routes by promoting countermeasures against Tokyo Inland Earthquake and tsunami.

Our efforts Earthquake-proofing of junctions between sewers and manholes

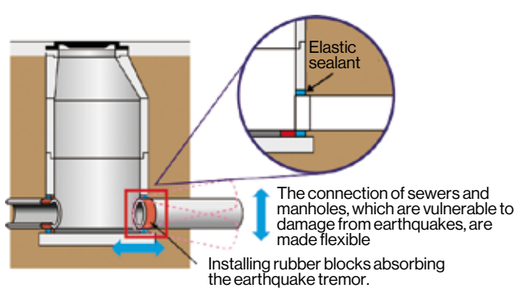
Targeting at evacuation sites and temporary shelters, we will promote earthquake-proof of junctions between sewers that receive wastewater from these facilities and manholes.

Our efforts Countermeasures to restrain manhole from floating

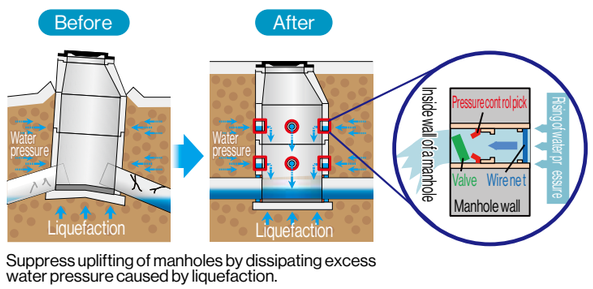
Targeting at emergency routes in the area with a high risk of liquefaction and roads that finished undergrounding of utility poles and where emergency vehicles pass, we promote countermeasures to restrain manholes from floating.



※ : Facilities that have been newly subject to the earthquake-resistance promotion project in the Management Plan 2021



【Earthquake-proofing of the joints using elastic sealant between manholes and sewers】

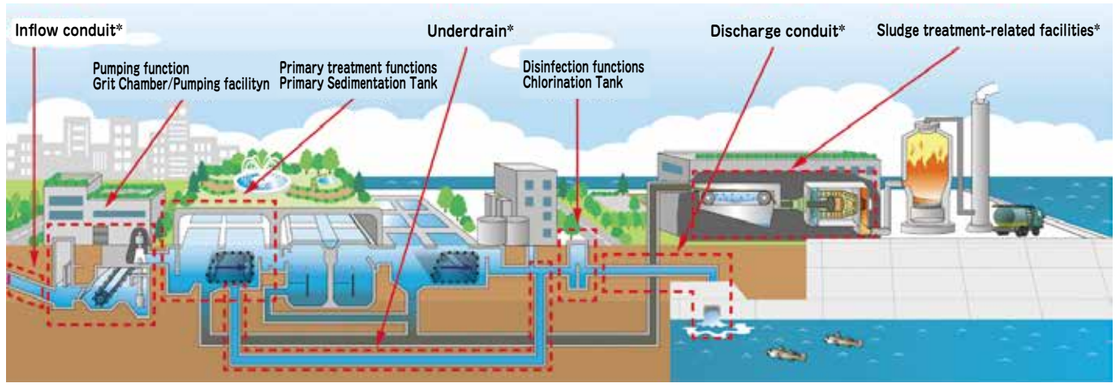


Suppress uplifting of manholes by dissipating excess water pressure caused by liquefaction.

【Countermeasures to restrain manhole from floating】

Our efforts Earthquake-proofing of structure of facilities such as wastewater treatment plant and pumping station

We are promoting earthquake-proofing countermeasures and expanding the number of target facilities to maintain sewerage system functions even in the event of an earthquake.



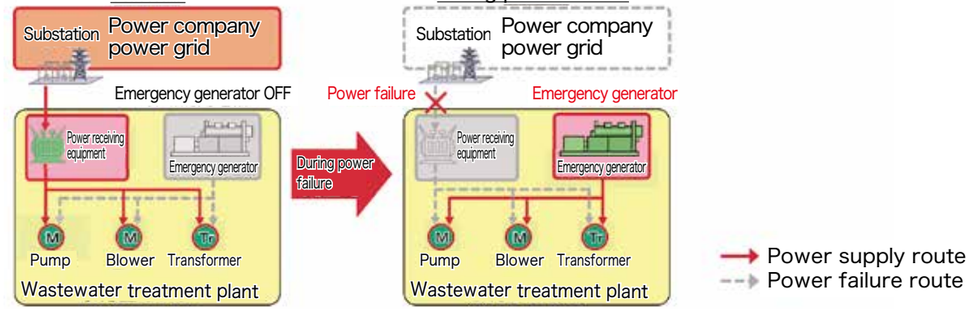
: Facilities to be made earthquake-resistant

*** Facilities that have been newly subject to the earthquake-resistance promotion project in the Management Plan 2021**

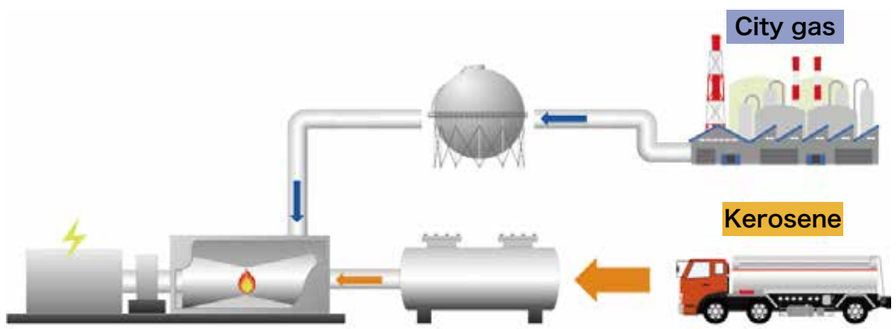
Our efforts Earthquake-proofing of equipment of facilities such as wastewater treatment plant and pumping station

We will make sure that all facilities will be equipped with emergency power generation equipment capable of generating the required electricity to ensure the continuation of sewerage services even in the event of a power outage.

We will work on diversification of power sources and fuel to ensure stable operation of the facilities even in the event of an earthquake.



【Development of emergency power generation equipment】



Power generation system using both kerosene and city gas

【Fuel diversification】

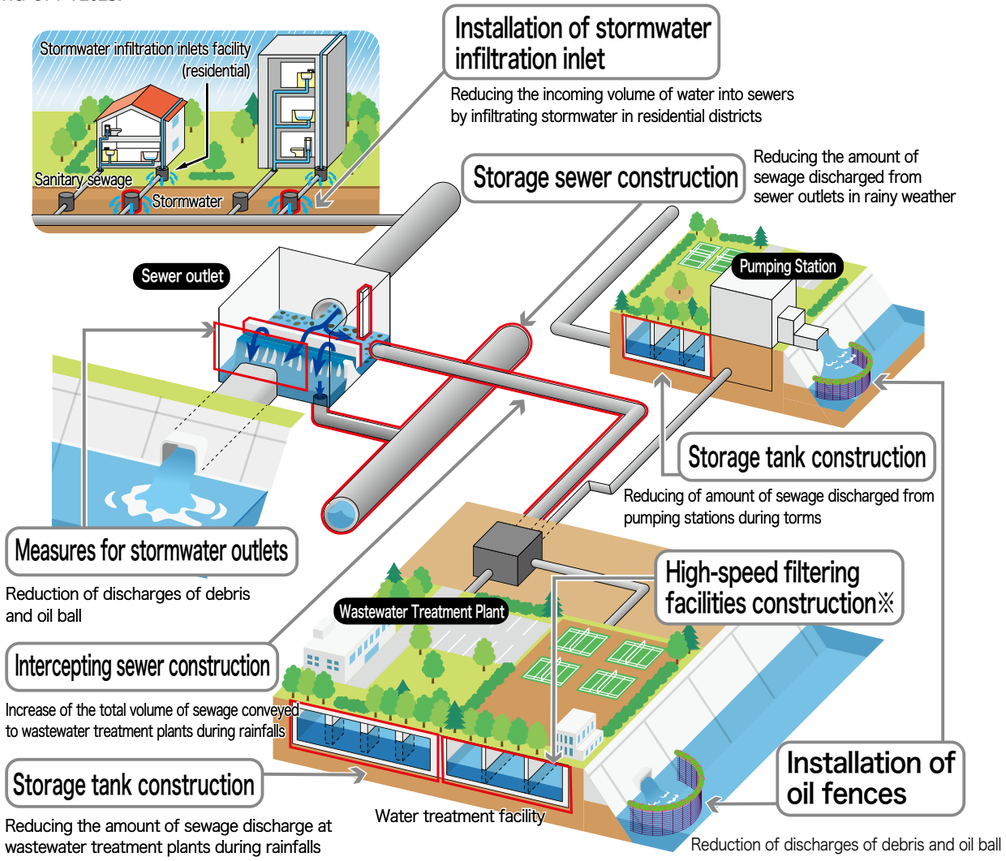
Measures Improvement of Combined Sewer System

In a combined sewer system in which wastewater and rainwater are flowed in the same single sewer pipe, the whole amount of sewage is collected and treated in the wastewater treatment plants on sunny and weak rainy days, while in case of strong rain, rainwater mixed with wastewater is discharged from the discharge outlets along rivers or from pumping stations to rivers and the sea, etc. in order to protect urban area from flood.

Storage facilities and other infrastructure will be constructed to improve water quality in rivers and oceans.

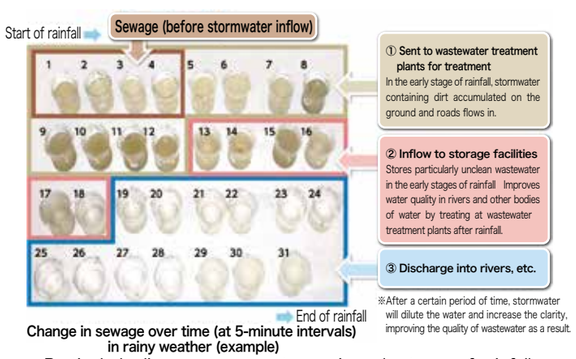
In order to reduce the amount of pollution released into water body from combined sewers in rainy weather,The Bureau is constructing storage facilities to hold the initial stormwater (which is particularly dirty). Accumulated sewage will be delivered to the wastewater treatment plants for treatment after the rain stops.

We have completed development of storage facilities equivalent to 1,700,000 m³ for securing the quality of treated water discharged of combined sewer system level prescribed in Order for Enforcement of Sewerage Service Act by the end of FY2023.



Improvement of Combined Sewer System

Storage facility (Shibaura Water Reclamation Center)



Change in sewage over time (at 5-minute intervals) in rainy weather (example)

Particularly dirty wastewater storage in early stages of rainfall

Measures Improvement of Quality of Treated Wastewater

In order to reduce the number of days of red tides in Tokyo Bay, it is necessary to further remove nitrogen and phosphorus in the effluent, which are among the factors causing red tides.

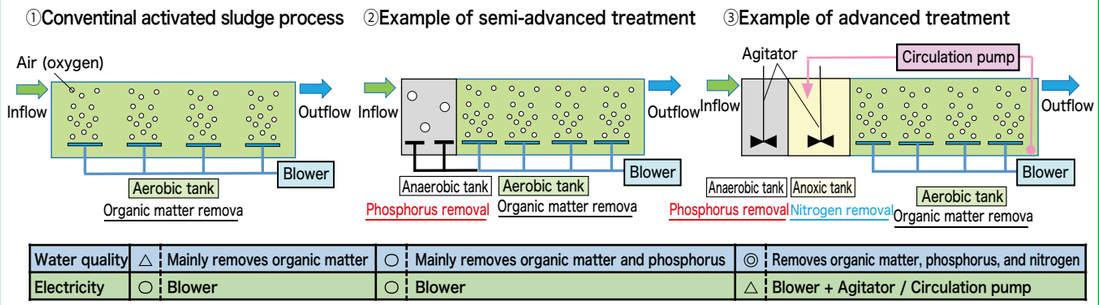
For restoration of the water environment, we will further improve the quality of the effluent discharged into Tokyo Bay and the Sumida River, while also taking energy efficiency into consideration.

In accordance with the situations of each wastewater treatment plants, we will introduce equipment for advanced treatment and phosphorus removal from sludge treatment return wastewater to effectively improve the quality of effluent.

We will take efficient countermeasures, including installation along with the reconstruction of structures and equipment.

We will work to develop technologies to solve the problems associated with the installation of advanced processing, such as site constraints and increased power usage.

Examples of processing methods



Water quality	△	Mainly removes organic matter	○	Mainly removes organic matter and phosphorus	◎	Removes organic matter, phosphorus, and nitrogen
Electricity	○	Blower	○	Blower	△	Blower + Agitator / Circulation pump

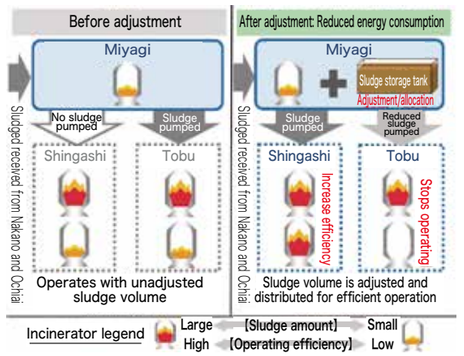
Measures Strengthening of Reliability and Efficiency of Sludge Treatment

By strengthening the reliability and efficiency of sludge treatment, we will ensure the ability to stably treat sewage in the future.

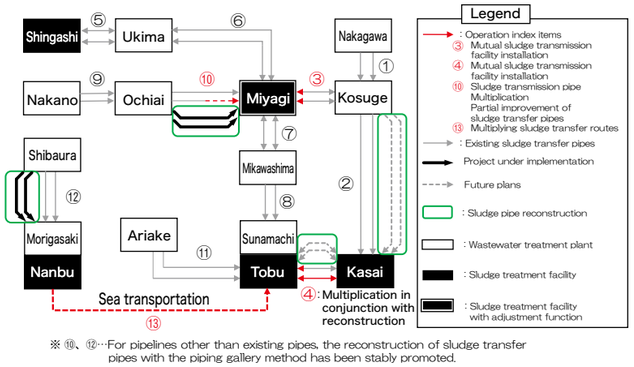
We will promote the construction of mutual sludge transfer facilities between wastewater treatment plants and the use of multiple sludge transfer pipes to ensure backup functions in the event of earthquakes, etc., as well as prioritize the reconstruction of aging sludge transmission pipes to enhance the reliability of sludge treatment.

The Miyagi Water Reclamation Center will have a sludge treatment coordination function to improve the efficiency of sludge treatment by optimally allocating the amount of sludge among sludge treatment facilities.

In order to extend the life of limited landfill space, we promote recycling of sludge etc. and reduce the amount of waste for landfill disposal generated due to sewage works.



【Efficiency improvement through adjustment/distribution of sludge volume】



※⑩、⑫…For pipelines other than existing pipes, the reconstruction of sludge transfer pipes with the piping gallery method has been stably promoted.

【Ward area sludge transmission network】

Measures Enhancement of Operation and Maintenance

In order to secure stable sewerage functions for the future, we will implement operation and maintenance for sewers, wastewater treatment plants and other facilities appropriately.

Our efforts Operation and maintenance of sewers

We will carry out effective and efficient maintenance and management to maintain the function of the vast amount of pipeline facilities and to prevent accidents.

Systematic inspection and investigation

In addition to daily patrols, we periodically conduct inspections/investigation in the pipes using TV cameras, etc.

<Inspection of manhole covers>

<Mirror-type TV camera>

<Internal pipe investigation>

Maintenance of flow function through systematic cleaning and repairs

Based on the results of inspections and investigations, we systematically carry out the cleaning of sediment, oil and grease deposited in the pipes, and repair work according to the deteriorated condition.

<Replacement of damaged installation pipe with high-impact rigid PVC installation pipe>

<Cleaning inside pipeline>

Our efforts Promotion of building pit drainage measures

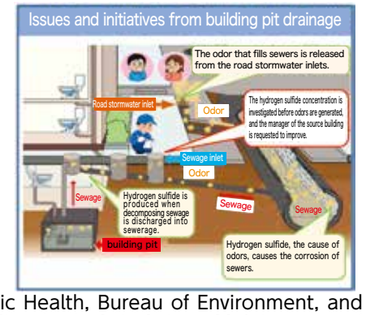
We promote building pit drainage measures to prevent odors on streets and damage caused by the corrosion of sewerage facilities.

Preventive maintenance-type measures

We conduct investigation on the concentration of hydrogen sulfide, the cause of odor, in buildings located in business and shopping districts and tourist areas before complaints about odors are received. If the standard value is exceeded, we will request the building manager for improvements.

Countermeasures against odor sources

When there are odor complaints, we investigate the source of the odor, and request the building manager to implement appropriate maintenance and management, such as regular cleaning of the building pit and operation that does not allow wastewater to accumulate for a long time.



Strengthening cooperation with relevant departments in TMG and wards

The four related bureaus (Bureau of Urban Development, Bureau of Public Health, Bureau of Environment, and Bureau of Sewerage) in charge of relevant laws and regulations (Building Standards Act, Act on Maintenance of Sanitation in Buildings, Offensive Odor Control Act, and Sewerage Act) and each ward work together to implement building pit drainage measures.

Our efforts Addressing wastewater from business sites

It is difficult for current sewerage facilities to treat wastewater containing heavy metals and other toxic substances. Even if the substances are treatable, if a large amount is discharged into sewer, they cannot be fully treated and are discharged into rivers. In addition, if toxic substances are discharged into sewer, they may interfere with the treatment capacity of wastewater treatment plants. This is why it is necessary for business sites to properly maintain and manage their wastewater treatment facilities and discharge water of a quality that conforms to standards. Besides on-site inspections, the Bureau of Sewerage effectively uses regional water quality measurements to provide appropriate guidance, etc.

Water sampling and quality testing of wastewater from business sites

Our efforts Maintenance of wastewater treatment plants and pumping stations

Proper maintenance of wastewater treatment plants and pumping stations

【Operation and management of sewerage facilities】

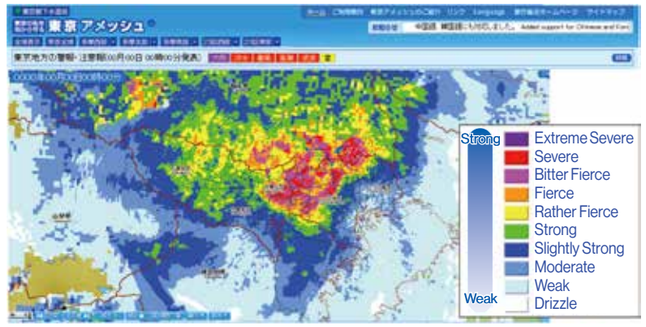
Water Reclamation Centers and pumping stations operate continuously for 24 hours a day, 365 days a year to prevent flooding, protect water quality, and ensure public health.

【Further improvement in reliability of Tokyo Amesh】

In rainy weather, the rainfall intensity and movement of rain clouds are observed by Rainfall observation radar equipment “Tokyo Amesh”, and stormwater pumps are operated by predicting rainfall to contribute to the prevention of urban flooding.

In the future, together with the update of the Amesh radar currently implemented, a system that can observe the occurrence of rain clouds with high accuracy and monitor their development will be developed, further improving reliability.

Tokyo Amesh screen



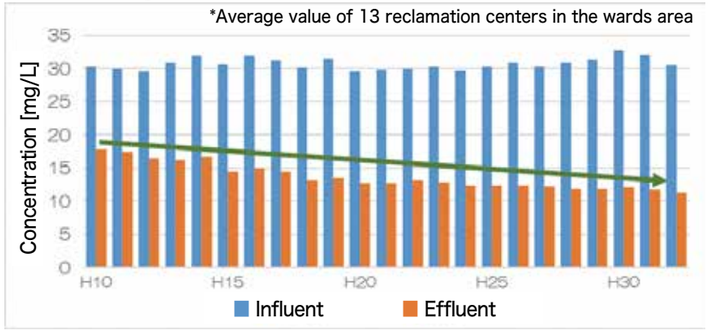
Tokyo Amesh URL

https://tokyo-ame.jwa.or.jp

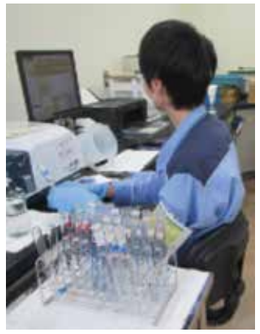
Operation and management for both water quality improvement and energy conservation

- In wastewater treatment, operation and management aimed at further improving water quality and energy conservation were implemented by upgrading blowers and air diffusers and devising operation and management methods.

Changes over time in the quality of treated wastewater (total nitrogen)* discharged from water reclamation centers in the wards area



Water quality analysis



As for the changes in total nitrogen concentration over time, while there are no significant changes in the quality of inflowing wastewater, the concentration in wastewater discharged from the centers has been lowered.

Maintenance management according to deterioration

- Systematic inspection and investigation, including areas that are usually difficult to check
- In addition to repairing facilities with significant deterioration, identify facilities that are difficult to inspect, and select and carry out measures.

Before repair

After repair

8 Principal Measures for Regional Sewerage System

Measures Reconstruction

We conduct inspections and surveys of sewers and facilities to inspect their soundness. Based on the outcomes, we systematically reconstruct them and also achieve earthquake resistance, maintenance cost cuts, and energy consumption reduction. For trunk sewers that are difficult to reconstruct due to high water levels, we will promote the construction of alternative trunk sewers to bypass the flow of sewage. Based on the economic service life of each facility, we will carry out systematic and efficient reconstruction by leveling the project volume using asset management methods.

Old trunk sewer with high water level in pipe (Kotta trunk sewer)

† Sewer damaged due to aging *Enlarged photo

Sedimentation tank machinery and equipment (before reconstruction)

Aged facilities (sludge thickener)

Sedimentation tank machinery and equipment (after reconstruction)

Measures Stormwater countermeasures

In areas where it is difficult for cities to eliminate stormwater on their own, we will install regional sewerage stormwater trunk sewers and work with them to reduce flooding damage. We will also consider making water reclamation centers and other facilities water resistant in case of river flooding.

Regional stormwater management

- Although municipalities are responsible for the construction of stormwater elimination facilities, In areas where it is difficult for cities to eliminate stormwater by themself because there are no rivers which stormwater can be discharged, regional stormwater elimination facilities maintained by multiple cities is necessary.
- We will promote construction of a regional sewerage stormwater trunk sewer in the southern part of the Upper Karabori River Catchment

In areas where it is difficult for cities to eliminate stormwater on their own, we will develop regional sewerage stormwater trunk sewers by multiple cities

Image of stormwater trunk sewer in the Upper Karabori River Catchment

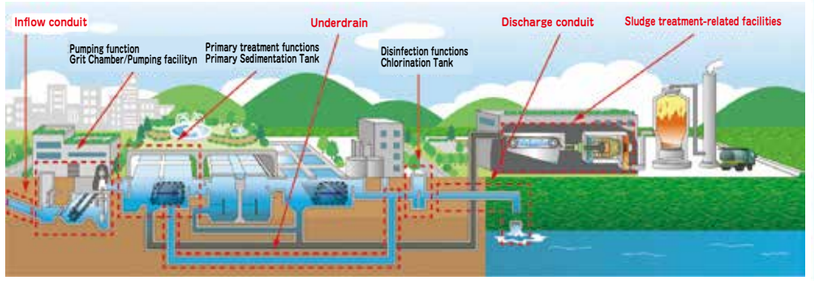
Measures Earthquake countermeasures

In addition to securing minimum sewerage system functions, we will newly target the inflow conduits, underdrains, etc. of wastewater treatment facilities for earthquake-proofing against the maximum expected earthquake motion. In addition,
to ensure the stable operation of the facilities even in the event of an earthquake, emergency power and fuel will be secured for wastewater treatment plants and manhole pumps. Furthermore, the backup function of wastewater treatment plants will be enhanced in anticipation of a damage in treatment functions.

Wastewater treatment plants and pumping stations subject to earthquake-proofing

▶ Earthquake-proofing of wastewater treatment plants, etc.

- In order to secure necessary sewerage functions in the event of an earthquake, we are newly targeting inflow conduits, underdrains, discharge conduits, sludge treatment facilities, etc. for earthquake-resistance



: Facilities to be made earthquake-resistant

* New target facilities are shown in red

Earthquake-proofing of facilities

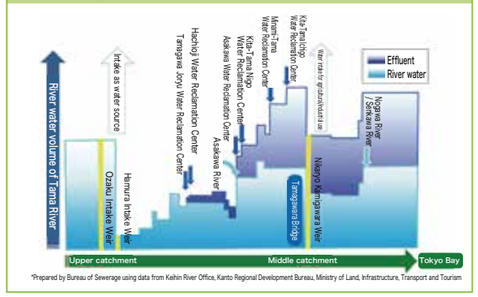
Backup of wastewater/sludge treatment

- The mutual exchange function of connecting utility tunnels between wastewater treatment plants across the Tama River is utilized

Measures Enhancement of Treated Wastewater

To achieve the target water quality, we will improve the ratio of advanced treatment capacity to 90% by FY2025 by efficiently developing advanced treatment together with the reconstruction of facilities and equipment. We will also work on energy conservation as well as water quality improvement by using digital technology.

Percentage of treated wastewater in Tama River



*Prepared by Bureau of Sewerage using data from Kanto Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism

Percentage of advanced waste treatment increased to 80%

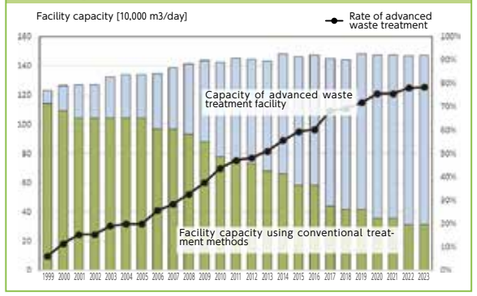
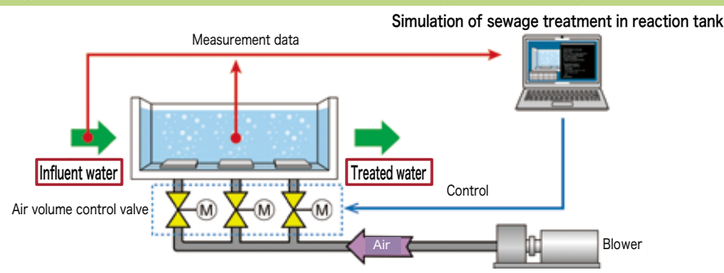


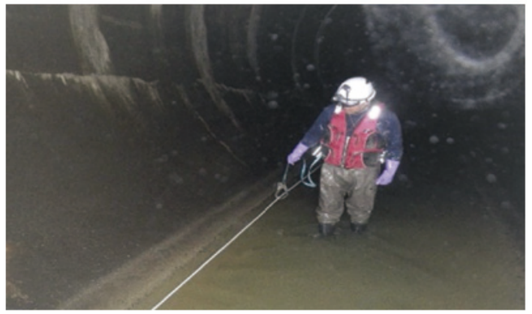
Image of a new airflow control technology using digital technology



Measures Enhancement of operation and maintenance

We will extend the life of trunk sewers and facilities by conducting inspections and investigations and promoting systematic and efficient improvements and repairs based on the level of deterioration. In addition, we will reduce maintenance and management costs by reducing the use of electricity and fuel through the introduction of energy-efficient equipment and ingenuity in operation, and we will also work on operation and management that will both improve water quality and save energy.

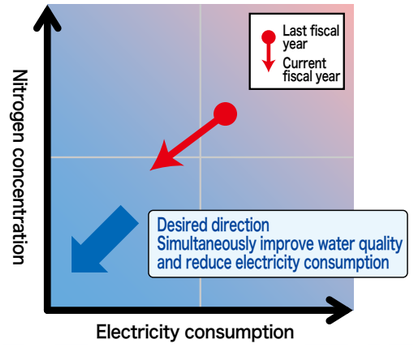
Life extension of trunk sewers and facilities



Trunk sewer inspection (Kita-Tama Nigo Trunk Sewer)

We will inspect and investigations trunk sewers and wastewater treatment plant facilities to identify damage accurately and carry out systematic and efficient improvements and repairs.

Image of optimization of wastewater treatment facility operation through two-axis management



The two-axis management chart shows nitrogen concentration on the vertical axis and electricity usage on the horizontal axis. The more the arrow points downward to the left, the more ideal the trend.

Extending life of equipments

Blower inspection (Kita-Tama Ichigo Water Reclamation Center)

We will work on systematic and efficient improvements and repairs by consolidating and analyzing the soundness and repair history of equipment and facilities through inspections and investigations.

Example of high-efficiency, energy-saving incinerator

Tamagawa Joryu Water Reclamation Center Stoker Incinerator

We will reduce auxiliary fuel and greenhouse gas emissions by prioritizing the operation of high efficiency incinerators, such as high-temperature energy-saving sludge incinerators.

Tama Area

Measures Strengthening Cooperation with Municipalities

For the efficient operation of sewerage projects we will collaborate with municipalities to promote their regionalization and joint operation. In addition, for the sustainable operation of sewerage projects, we have strengthened technical support such as providing expertise on maintenance and management operations and human resource development for municipal staffs. For strengthening municipal sewers, we have also provided new financial support since 2023. We will also strengthen our crisis management system, including mutual support in the event of disasters.

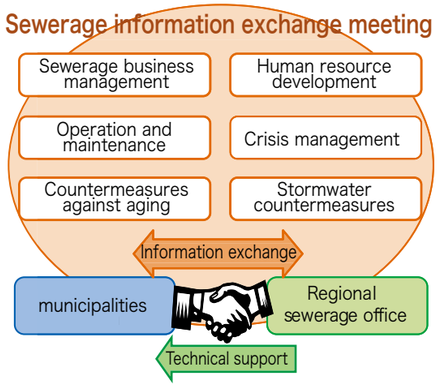
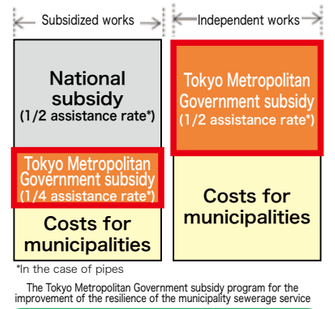


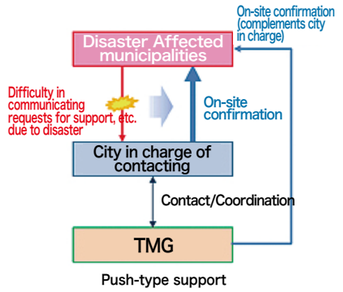
Image of sewerage information exchange meeting among the municipalities



*In the case of pipes

The Tokyo Metropolitan Government subsidy program for the improvement of the resilience of the municipality sewerage service

Through a new subsidy system that subsidizes one-half of the costs borne by municipalities, we will improve and speed up measures against floods and earthquakes in municipal sewerage systems.



Push-type support

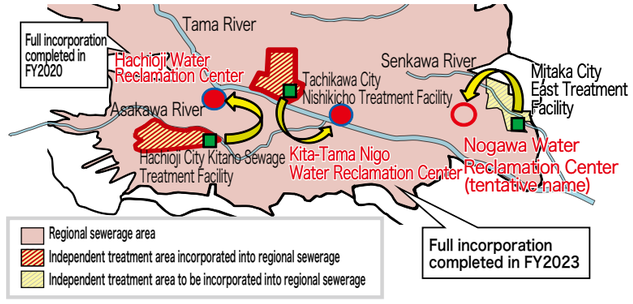
By strengthening the mutual support system, we will provide stable sewerage services even during disasters.

Measures Strengthening cooperation with municipalities (incorporation of independent treatment areas)

In order to incorporate independent treatment areas that have difficulty in dealing with facility renewals, advanced treatment, and the improvement of earthquake resistance into the regional sewerage system, we will proceed with necessary procedures and facility development in consultation with relevant cities and organizations, and we will also provide appropriate technical support to relevant cities.

Hachioji independent treatment area was incorporated into Tokyo Metropolitan regional sewerage in January, 2021 and Tachikawa independent treatment area in March, 2023.

Incorporation of independent treatment areas



Effects from incorporation

① Creation of favorable water environment by introducing advanced waste treatment
② Reduction of facility renewal and maintenance costs from economies of scale
③ Maintenance of backup functions in the event of earthquakes, etc. taking advantage of the mutual exchange function of the Water Reclamation Center utility tunnel.

Complete incorporation of Hachioji independent treatment area

Construct of wastewater treatment facilities for independent treatment area incorporation (Hachioji Water Reclamation Center)

Incorporation of Tachikawa independent treatment area

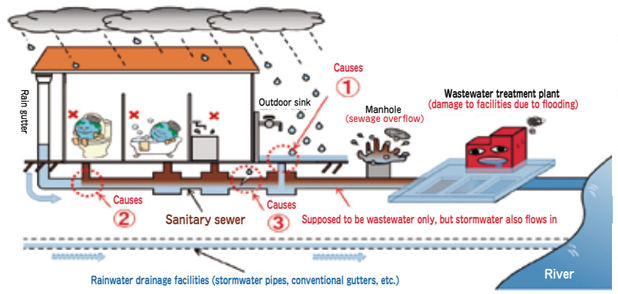
Development of pumping building to incorporate independent treatment area (Kita Tama Nigo Water Reclamation Center)

Measures Measures against water infiltration in rainy weather

By promoting measures against water infiltration in case of rainy weather in cooperation with municipalities, we will reduce the damage caused by flooding in heavy rains, which have become more frequent in recent years, to achieve safe and secure livelihoods and ensure stable sewerage functions.

The project will specifically provide technical support using digital technology to promote measures taken by municipalities to prevent water infiltration at the source in rainy weather. In addition, we will take measures to maintain sewerage functions when a large amount of water enters wastewater treatment plants, etc. in heavy rain.

Causes of water infiltration in rainy weather



<<Causes>>

① A large amount of stormwater flows into sanitary sewers through outdoor sinks without roofs.

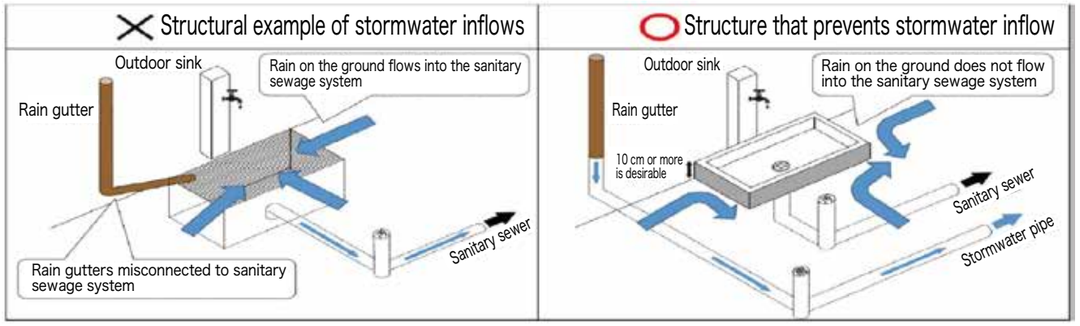
② Stormwater enters because rain gutters, etc. are mistakenly connected to sanitary sewer.

③ Stormwater or underground water enters through joints or cracks in sanitary sewer. Etc.

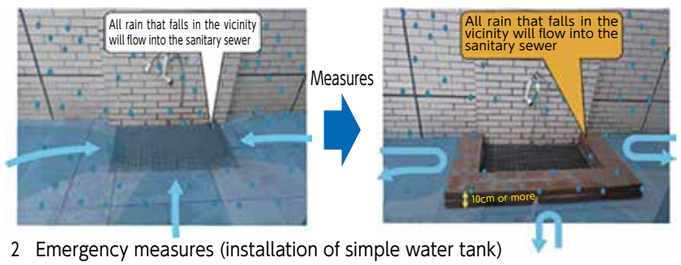
Studying and implementing measures to mitigate damage to public sewerage systems in cooperation with municipalities

Source measures

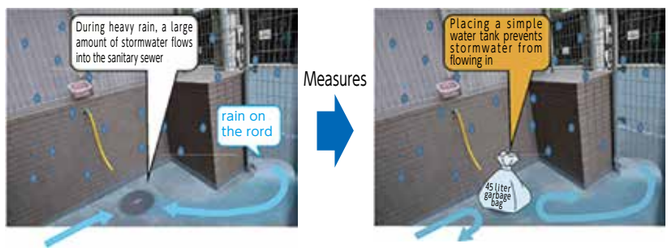
For outdoor sinks in separated sewerage areas, we stipulate precautions such as “the structure must be designed to prevent rain from flowing in the ground surface and stormwater of rain gutters from flowing in”. (Tokyo Metropolitan Government Drainage Facilities Outline)



1 Simple measures (raising outdoor sinks)

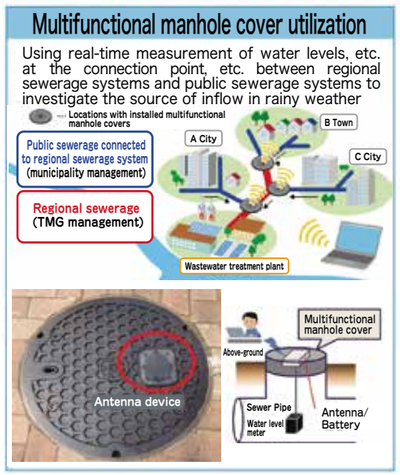


2 Emergency measures (installation of simple water tank)



Multifunctional manhole cover utilization

Using real-time measurement of water levels, etc. at the connection point, etc. between regional sewerage systems and public sewerage systems to investigate the source of inflow in rainy weather



9 Energy Management and Global Warming Countermeasures

Measures Energy Management and Global Warming Countermeasures

By promoting energy management and global warming countermeasures, we will actively reduce energy consumption and greenhouse gas emissions, to contribute to the realization of the city with a low environmental impact.

In order to achieve the goals of the “Earth Plan 2023” global warming prevention plan for the sewerage business and other such plans, we will promote initiatives such as comprehensive energy conservation and expansion of renewable energy use.

Targets and initiatives to realize “Carbon-Half” by 2030

The sewerage service emits greenhouse gases of nitrous oxide (N_2O) and methane (CH_4) in addition to energy-derived carbon dioxide (CO_2) from the use of electricity and fuel.

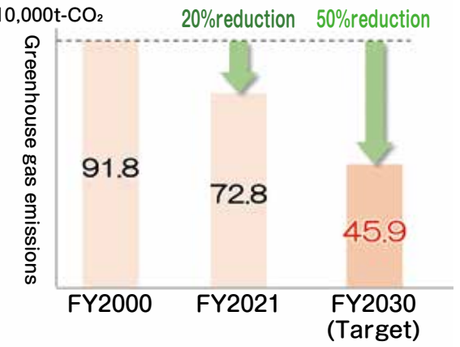
Therefore, in order to reduce greenhouse gas emissions, it is necessary to comprehensively consider the reduction of energy-derived CO_2 and N_2O, etc., and promote measures in an integrated manner. To this end, we have set targets as shown on the right.

To achieve “Carbon-Half” by 2030, a plan to halve greenhouse gas emissions by 2030, it is important to promote the introduction of newly developed advanced technologies as well as expanding the introduction of existing technologies. In addition to accelerating the Earth Plan and Smart Plan initiatives underway to date, we will strengthen our initiatives to introduce newly developed equipment and further utilize renewable energy.

Planning period 2023～2030

Target Reduction of greenhouse gas emissions 50% (compared to FY 2000) or more

Reduction of energy consumption required to achieve the above target: Approx. 25%
Renewable energy power use ratio: Approx. 45 to 50%

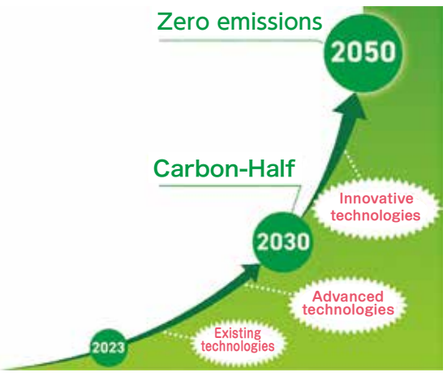


Greenhouse gas emissions reduction target

Vision for achieving zero emissions by 2050

It is difficult to achieve zero emissions by 2050 only by introducing existing and advanced technologies. It is necessary to make thorough efforts to reduce greenhouse gas emissions by maximizing the potential of sewerage systems and resources, promoting the introduction of even more advanced technologies, and developing and introducing innovative technologies.

It is also important to contribute to the realization of zero emissions for society as a whole by promoting initiatives that use sewerage resources without being bound by the boundaries of the sewerage service business.



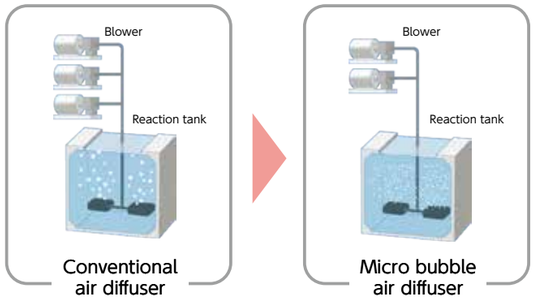
Vision for achieving zero emissions

Our efforts Comprehensive energy conservation

In addition to introducing energy-efficient equipment along with the reconstruction, we will rebuild energy-efficient equipment with significantly improved functionality compared to existing equipment ahead of schedule to further ensure energy conservation.

Wastewater treatment process

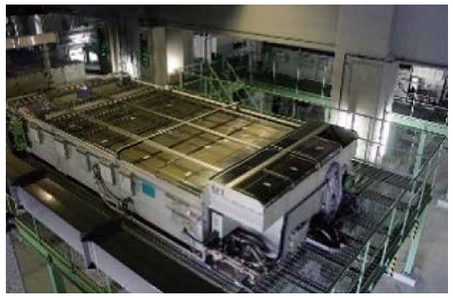
○Micro bubble air diffuser



Summary : Small bubbles make it easier for oxygen to dissolve in the wastewater in the reaction tank and reduce the amount of air flow. Micro bubble air diffuser can reduce power consumption by approx. 20% compared to conventional air diffusers.

Sludge treatment process

○Belt type sludge concentrator

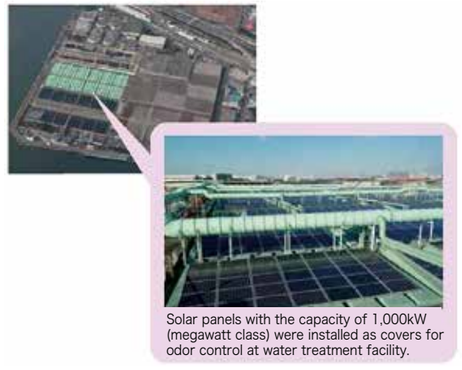


Summary : By using gravity to perform filtration thickening, power consumption is reduced by approx. 90% compared to conventional centrifugal force thickeners.

Our efforts Use more renewable energy

In addition to expanding introduction of solar power generation, we will secure energy on our own by making use of renewable energy, such as reinforcing power generation output that makes use of digestion gas generated from sludge.

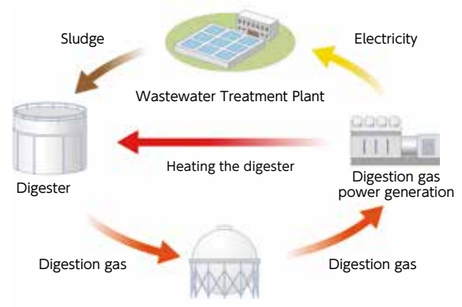
Example of solar power generation



Solar panels with the capacity of 1,000kW (megawatt class) were installed as covers for odor control at water treatment facility.

Summary : Reducing greenhouse gas emissions by introducing solar power generation on the upper level of the facility and on the site for the reconstruction of the water reclamation center.

Image of digestion gas power generation

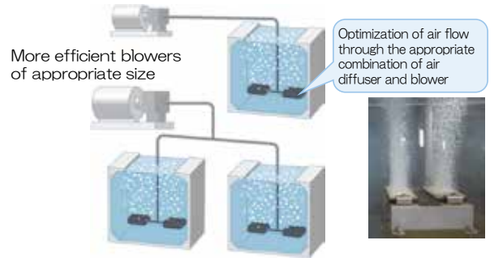


Summary : Digestion gas generated in the sludge treatment process is used as fuel to generate electricity, and waste heat generated in power generation is used for heating digester.

Our efforts Improvement of the efficiency of treatment processes and methods

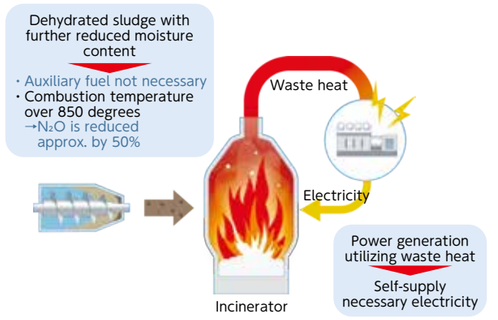
We will improve the efficiency of treatment processes and methods, such as optimizing the aeration system and introducing an energy neutral incinerator that can self-supply the electricity required for its operation by generating electricity using waste heat from sludge incineration.

Optimizing the aeration system



Summary : Reduction of greenhouse gas emissions by introducing more efficient blowers of appropriate size (capacity) together with micro bubble diffusers.

Image of energy neutral incinerator

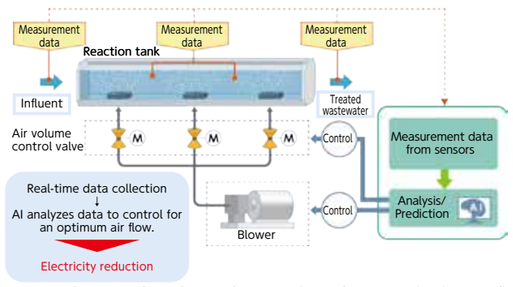


Summary : Reduction of greenhouse gas emissions by generating electricity utilizing incineration waste heat to provide self-sufficient in electricity required for the operation of the incinerator while further increasing the combustion temperature.

Our efforts Zero Emissions by 2050

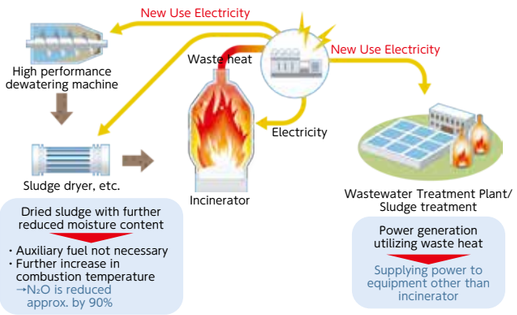
We will promote the development of technologies that can drastically reduce greenhouse gases so as to realize zero emissions by 2050.

Development and introduction of AI-based air flow control technology



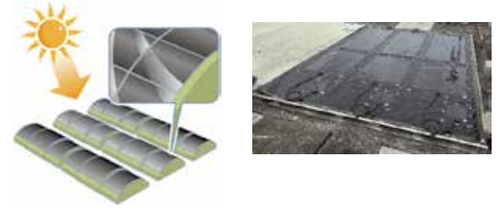
Summary:Development and introduction of a system that performs optimal real-time air flow control through machine learning by AI based on a lot of data such as inflow volume and water quality, and changes in quality of treated water according to air flow control.

Image of energy-supplying incinerator



Summary : Development and introduction of an energy-supplying incinerator that supplies power to equipment other than incinerator by generating more electricity than the electricity used in the incinerator while further increasing the combustion temperature

Image of next-generation solar cells



Install on the covering part of a facility

Summary : Conduct joint research with private companies for the practical application of next-generation solar cells, which is a domestically produced technology.

10 Enhancement of Service Quality

Measures Promotion of Technological Research and Development

In order to maintain and improve the sewerage service, we are systematically proceeding with technological research and development concerning the challenges that the business faces and the issues which will become risks in the future, and lead Japan's sewerage technology.

Our efforts Promotion of "Technological Research and Development Promotion Plan 2021"

In order to achieve the goals of Management Plan 2021 and to efficiently solve technical probrems in sewerage facilities through technological development, we have established Technological Development Promotion Plan 2021 for 2021-2025.

In addition to enrichment of the four initiatives to further promote efficient technological development, we will place greater emphasis on the use of digital technology and technological development related to maintenance management.

Efforts to promote technology development efficiently

Initiative 1	We have adapted the method of Management of Technology (MOT) in order to comprehensively manage from the setting of development theme to project realization in the PDCA cycle.
Initiative 2	In order to create and develop innovative technologies and ideas applicable for sewerage business, we will further promote open innovation to integrate technologies from various fields.
Initiative 3	We will further promote collaborative research, especially with the scheme of"Collaborative research with the premised introduction of developed technology" for enhancing and promoting incentives.
Initiative 4	We will strive to improve the technological capabilities of the industry by conducting collaborative research to induce innovations from private enterprises etc. in addition to securing inheritance of technics and know-how.

Example of efforts New Demonstration of Sewage Sludge Recycling

～ Contributing to domestic production and stable supply of fertilizers! ～

A phosphorus recovery and fertilizer conversion facility was put into operation in January 2024.
In cooperation with ZEN-NOH, the company is working on product development and experimental cultivation of fertilizers by utilizing the "recycled sewage phosphorus" produced as a raw material for fertilizers.

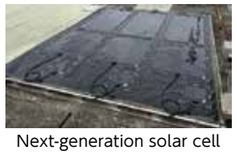
Phosphorus recovery and fertilizer conversion facility

Phosphorus recovery (recycled sewage phosphorus)

Example of efforts Next-generation solar cells

～ First verification at a sewage facility in Japan! ～

The next-generation solar cell has the features of "thin, light, flexible" and "Japan-originated technology." In May 2023, the largest-scale solar cell in Japan was installed on the cover of a water treatment facility, and its practical application will be verified until December 2025.



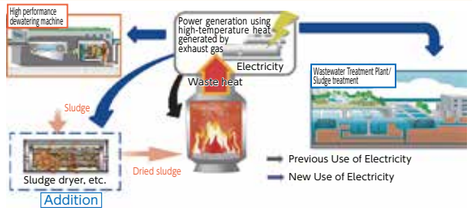
Next-generation solar cell

Kick-off of practical application verification

Example of efforts Energy-supply (carbon-negative) incinerator

～ Capable of generating more electricity than is used in the incinerator! ～

This incinerator can generate more electricity than is used by the incinerator and can also supply electricity to sludge treatment and water treatment facilities.
It was approved as a practical technology in December 2023.



Measures Work procedure review through digitalization

We will promote digital transformation (DX) for the administrative work of the Bureau of Sewerage. In addition to simplifying and streamlining administrative work by reviewing existing systems and procedures, we will utilize a variety of digital technologies to provide highly convenient services for our customers.

And also, we will continue our efforts steadily to pursue possible solutions to the digital divide.

Our efforts Thorough efforts of 5 "less"

In addition to thorough efforts to achieve the five interrelated "less" (paper-less, fax-less, stamp-less, cash-less, and touch-less), we will promote digital transformation (DX) by reviewing existing systems and procedures, while shifting from analog environments based on paper and stamps to online digital environments.

Our efforts Enhancement of system infrastructure

We will build a next-generation system infrastructure that enable us to change our work style flexibly, such as telecommuting and working from satellite offices. As a result, we can work without being restricted by devices or locations.

We will promote the use of wearable cameras, that enable us to share live streaming of sites with offices, and discuss matters interactively. Thereby, we aim to achieve work efficiency.

Example of efforts

Checking engineering drawings by making use of tablet terminal

Implementation of business reform that makes use of digital tools in the office

Reconstruction Promotion Division of Chubu Sewerage Office introduces tablet terminal and software, working on improvement of quality and optimization of design work.

By conducting the work that had been previously printed on the paper with our handwritten by tablet terminal, it has become possible to work and share such work in the data format as well as to realize paperless work.

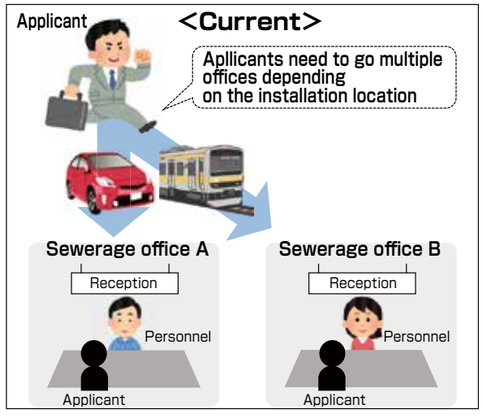
From now on, while considering further work efficiency, we will work on horizontal development to the engineering departments within the bureau.

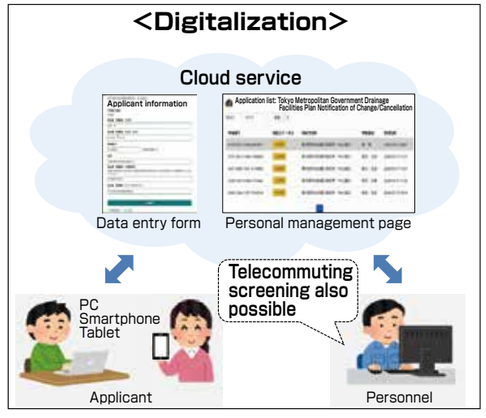
Our efforts Digitalization of administrative procedures/consultation

Based on the Tokyo Digital First Initiatives Promotion Plan, we have introduced an online application service that allows customers to complete administrative procedures such as notifications and applications anytime, anywhere without having to come to the office.

Even after introducing the services, we will make them more user-friendly by adopting user reviews during the trial phase. Additionally, upon their operation, by receiving feedback from users, we will continue to respond flexibly to changing needs of them, such as to improve the system at any time.

Based on the contents obtained from entry of the customers' feedback, we have enriched FAQ.





Measures Effective use of resources in sewerage

By effectively utilizing the resources and energy of the sewerage system, we will fully exploit its potential and create a favorable urban environment.

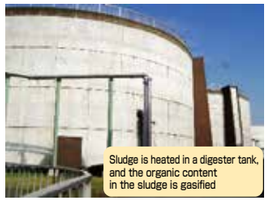
Our efforts Effective use of sludge

The amount of sludge generated in the wastewater treatment process is enormous, about 200,000m³ per day. In order to extend the life of limited landfill space, we are actively promoting recycling as well as weight reduction with total incineration.

Recycling of sewage sludge

The Morigasaki Water Reclamation Center generates electricity using sludge digestion gas to provide approximately 20% of the electricity used by the Center (approximately 20 GWh.)

In the future, we will continue to consider energy recovery from sewage sludge and the phosphorus recovery.



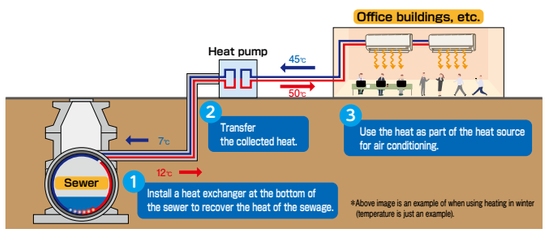
Sludge digestion gas power generation (digester tank / generator)

Our efforts Utilization of sewage heat

Sewage heat is a renewable energy that uses the temperature characteristics of sewage and can be utilized as a heat source.

Sewage heat is used as a heat source for heating and cooling at wastewater treatment plants and nearby office buildings, which effectively reduces greenhouse gas emissions.

To further promote the utilization of sewage heat, we publish a “Sewage Heat Utilization Guide” and a “Sewage Heat Potential Map” on our website, and collaborate with private businesses in urban development projects.



Use of heat from sewers (image)

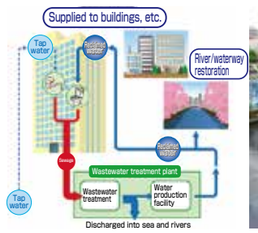
Our efforts Use of reclaimed wastewater

Reclaimed wastewater is treated wastewater that has been further cleaned through filtration and other processes. Currently, reclaimed wastewater is produced at four wastewater treatment plants including the Shibaura Wastewater Treatment Plants and is effectively used as a valuable urban water resource.

We supply approximately 100,000m³ of reclaimed wastewater per day to the three Jyo-nan urban river channels with low water levels (Shibuya River, Furukawa River, Meguro River, and Nomigawa River), and to rivers and waterways which have ceased to flow, such as the Nobidome Waterway and the Tamagawa Waterway, as river/waterway restoration.

Shibuya River waterfront space

In addition, we use reclaimed wastewater for toilets in the building, for sprinkling water to ease the summer heat, and for disaster prevention.



Utilized for toilet water in buildings, etc.

Utilized for sprinkling water

Our efforts Recycling of soil from sewerage construction sites

The amount of construction soil generated from sewerage works in the ward area is about 200,000m³ per year, and 70% of it (about 140,000m³), is recycled again as backfill soil for sewerage works by adjusting the size of soil grains and moisture content.

In order to promote the soil recycling, we will reconstruct the “Soil-Making Village” (Nakagawa Construction Surplus Soil Improvement Plant) and be continuing the recycling stably.

Recycling of soil from construction sites

Measures International developement activities for the Tokyo sewerage systems

We are promoting the international expansion of sewerage technology originating from Tokyo by leveraging the strengths of Tokyo sewerage, such as its technological capabilities and management know-how.

Through the technical support Tokyo Sewerage, we will contribute to the resolution of sustainable issues in sewerage facility development and business operation, and by encouraging the overseas expansion of sewerage related companies, we will contribute to the revitalization of the sewerage business and the strengthening of the industrial strength of Tokyo and throughout Japan.

Our efforts International developement activities of our sewerage technology

The Bureau of Sewerage, the Tokyo Metropolitan Sewerage Service Corporation (TGS), which is a policy collaboration organization, and private companies have jointly developed various technologies that are used in the Tokyo sewerage system,
and we will promote these technologies overseas in cooperation with the companies that developed them.

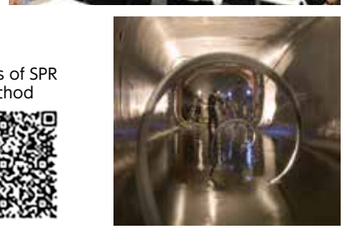
In addition, by collaborating with JICA and other related organizations, we will contribute to solving the problems of countries with inadequate sewerage facilities by using our expertise in the construction and maintenance of facilities and sewerage business operations.

JICA Partnership Program in Ulaanbaatar city.

We have commenced the project for human resource development on maintenance and management and updating of sewer pipes in Water Supply and Sewerage Authority of Ulaanbaatar City, in collaboration with TGS since June 2024.

Technological Support for Dhaka Water Supply and Sewerage Authority(DWASA)

Based on the understanding concluded between Bureau of Sewerage, TMG, DWASA and Asian Development Bank, on the field of sludge management and other fields, we share expertise and technologies through online lecture and exchange of views, acceptance of observation of work sites etc.



Worldwide Expansion of SPR method (Reconstruction of aging facilities)

SPR stands for Sewage Pipe Renewal. With this construction method, a PVC profile is wrapped around the inner surface of old sewer pipes for renewal. Construction can be done while wastewater is flowing, without digging up roads. It can be used for various cross-section shapes, including circular pipes, horseshoeshaped culverts, and even rectangular culverts. As of end of March 2024, this work has been performed on a total of approx. 191 km of sewer in Asia, North America, Europe, and elsewhere abroad.

Details of SPR method

Promotion of human resource exchanges

Through human resource exchanges, such as visits from overseas governments and local governments, accepting trainees, and dispatching staffs, we aim to promote and provide Tokyo Sewerage’s technology and know-how, and strengthen our overseas network.

Promotion of human resource development

By sending our staff overseas to present papers in English at international conferences and gain international knowledge and experience, we will raise their awareness toward the international society, which will lead to further international development.

Further enhancement of information dissemination

We will actively promote Tokyo’s sewerage at major international conferences, exhibitions, and trade fairs in the field of water environment in Japan and overseas, in order to enhance its presence.

Site visit of water reclamation centers by foreign governments

Paper presentations by staff (IWA-ASPIRE2023)

Information dissemination in international conferences (Singapore International Water Week 2024)

11 Enhancement of Reliability

Measures Strengthening Crisis Management

In order to secure sewerage functions even in the event of crises such as disasters or serious accidents, we will strengthen our crisis response capabilities by focusing on the development and enhancement of emergency recovery systems, the strengthening of disaster prevention measures in cooperation with municipalities, and the enhancement of information dissemination in preparation for disasters.

Our efforts Development and enhancement of emergency recovery systems to ensure sewerage functions

We will strengthen our ability to respond to disasters by conducting more practical drills and enhancing training in the operation of communication equipments to be used during disasters.

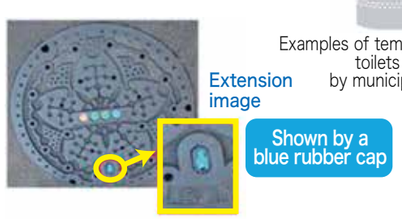
Decision-making training at Disaster Response Headquarters in Bureau of Sewerage Disaster Preparedness Drill

Our efforts Development and enhancement of emergency recovery systems to ensure sewerage functions

We will expand the number of manholes that can be designated as temporary toilets in cooperation with municipalities in 23 wards in order to secure toilet functions.

We will carry out training in cooperation with municipalities for smooth operations when carrying in and receiving night soil in a disaster.

Examples of temporary toilets set up by municipalities



A manhole that can be used as a temporary toilet

Coordinated training among municipalities for carrying in and receiving night soil

Our efforts Dissemination of information to customers at ordinary times

In addition to disseminating information about our earthquake countermeasures and flood prevention efforts at various events, we will also provide information in multiple languages and easy-to-understand Japanese. We also disseminate information on how customers can prepare against flooding by themselves.

Every year, June is designated as Flooding Countermeasure Reinforcement Month. We carry out door-to-door visits to customers who live in semi-underground house and distribute leaflets by posting to inform them of the danger of flooding from roads and backflow from sewer pipes in semi-underground house during heavy rains to ask them to prepare against flooding.

In cooperation with the relevant departments, we are working to raise awareness of the dangers of semi-underground buildings from the time of planning construction by posting information on the wards website, at housing exhibitions and design offices, and announcing at various events.

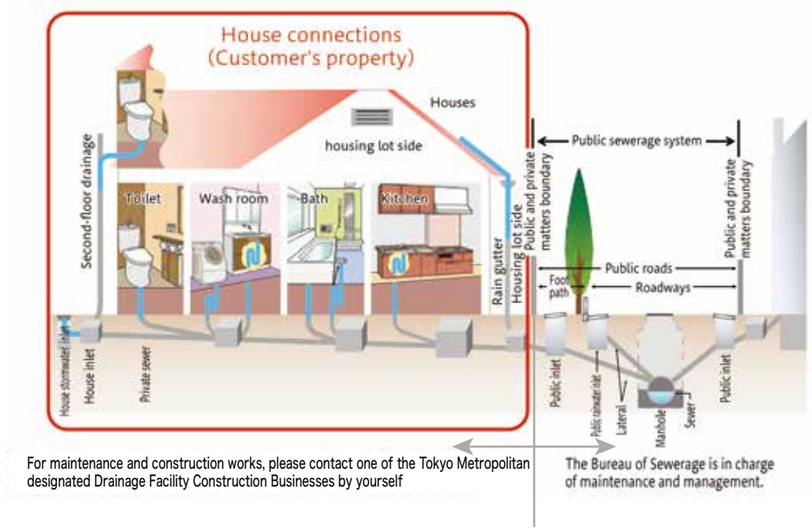
Crisis Management Industry Exhibition Bureau of Sewerage booth

Explaining the dangers of flood damage, using models at events

Our efforts System for restoring drainage facilities in case of a disaster

In case of a disaster, as during normal operation, customers need to make a request to the drainage equipment constructor designated by Tokyo Metropolitan Government for construction and other services.

For this reason, in order to promptly restore house connection facilities at the time of a disaster, we are providing on our website information on house connection facility construction business operators designated by the Tokyo Metropolitan Government that can respond to restoration works.



Measures Bureau of Sewerage public relations strategy

Based on the “Bureau of Sewerage public relations strategy” articulated in the “Management Plan 2021,” we communicate our efforts about TOKYO Resilience Project, “Earth Plan 2023” global warming prevention plan for the sewerage business, and the dissemination of Tokyo Sewerage’s technology and know-how to overseas markets. In doing so, we aim to further “improve the recognition” of Tokyo Sewerage as well as linking this to improving understanding and enhancing the image of Tokyo sewerage.

Our efforts Initiatives to deepen understanding of the sewerage business through use of sewerage facilities

Aiming at communicating the roles and attractive features and promoting understanding of the sewerage works, we conduct “Sewerage Infrastructure Tour” to guide the sewage facilities that people have less opportunities to see such as water reclamation centers and rainwater regulating reservoir.

Minamisuna Storm Water Regulating Reservoir

Sewerage Technology Training Center

Tamagawa Joryu Water Reclamation Center

We also introduce sewage facilities and sewage works online.

https://www.gesui.metro.tokyo.lg.jp/business/b4/web/infrastructure_online/index.html

Our efforts Creating opportunities for environmental education for the young generation who will lead the next generation

In order for children to have a better understanding of sewerage systems and to come to think and act independently about the future water environment, we implement a sewerage education project mainly for fourth-grade elementary school students based on the latest initiatives such as global warming countermeasures.

The on-demand classes

Tokyo Sewerage Museum “Rainbow”

Ariake Water Reclamation Center

Sewerage facility parent-child tour

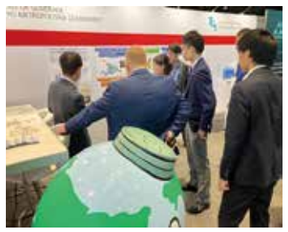
Our efforts Disseminating easy-to-understand information

In addition to the website and official X of the Bureau of Sewerage, we disseminate information by making use of various media, including Tokyo Metropolitan official SNS (X, LINE) and Tokyo Movie (YouTube).

In line with the “SusHi Tech Tokyo” movement at the core to communicate the attractiveness of Tokyo, the Bureaus of Waterworks and Sewerage collaborate to effectively send out information.

We also participate in international conferences and exhibitions at home and abroad and carry out active promotion.

Flood control



Booth display at an international conference

Information dissemination through official X of Bureau of Sewerage

Our efforts Initiatives to deepen interaction with customers

Water reclamation center are one of the few facilities that can be observed by customers, while most sewerage facilities are installed underground.

Each water reclamation center makes effective use of its vast area and opens the upper part of the facility to the public to be used as a park, this provides customers with an enriched space as a place to relax, and playing a role to promote the comprehension and cooperation regarding the sewerage business.

At water reclamation center and pumping stations, we will hold events and site visit to take advantage of the characteristics of each facility to deepen interaction with local citizens.

Our efforts Initiatives to listen to customer opinions

In addition to using the sewerage monitoring system to receive evaluations of our business measures through the internet, we also conduct various investigations on a regular basis to collect their opinions and feedbacks, so that we could refer to the operation of our business.

In addition, we will conduct a Sewerage Business Tokyo Resident Awareness Investigation targeting Tokyo citizens to identify their level of interest in and recognition of the authority’s business, which will lead to improvements in public relations projects and the promotion of understanding the sewerage business.

Measures Operational structure supporting the sewerage business

The Bureau of Sewerage, the TMG policy collaboration organization (Tokyo Metropolitan Sewerage Service Corporation (TGS)), and private sectors will work together to provide sewerage services.

Our efforts Roles of the Bureau of Sewerage, TGS, and private sectors

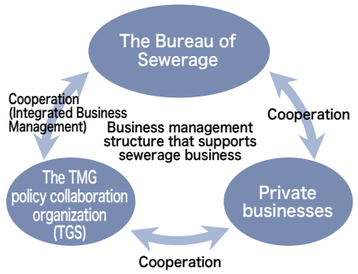
The Bureau of Sewerage, TGS, and private sectors will support the sewerage business with strengthened cooperation, each from their respective standpoints, based on a division of roles below. The Bureau of Sewerage, which is responsible for business operation/implementation, will play a central role.

【Basic division of roles of 3 sectors】

・The Bureau of Sewerage
Core works such as formulation of management policies, construction and critical maintenance of facilities, water quality regulations, and other fundamental operations

・Tokyo Metropolitan Sewerage Service Corporation (TGS)
Works that needs to be done in close cooperation with the Bureau of Sewerage and which requires expertise

・Private operators
Perform routine tasks and other works that can be performed by private businesses



Our efforts Introduction of new facility management methods for the future

To ensure the stable operation of the public sewerage in the future, we will introduce comprehensive outsourcing of water treatment facilities in some water reclamation centers, based on the characteristics of the Tokyo sewerage system.

・The Bureau of Sewerage, TGS, and private businesses will compete to provide stable sewerage services from their respective standpoints, to improve services by demonstrating technological capabilities and economic efficiency with creativity and ingenuity.

・Under the new facility management method, we aim to build a next-generation sewerage system, e.g. automatic operation using digital technology such as AI.

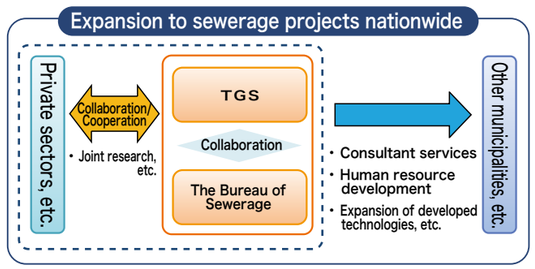
Measures Strengthening group management with TGS

The Bureau of Sewerage and the TMG policy collaboration organization (Tokyo Metropolitan Sewerage Service Corporation (TGS)) will conduct integrated business operations as the “Tokyo Sewerage Group” and provide stable services toward the future.

Our efforts New role of TGS

From FY2022, by comprehensively outsourcing the wasterwater treatment facilities of some water reclamation centers to TGS, TGS will be capable of managing and operating the entire sewerage facilities, from sewers to wastewater treatment plants and sludge treatment facilities.

As members of the Tokyo Sewerage Group, the Bureau of Sewerage and TGS will work together to improve our technical powers and technological development capabilities, and contribute to the coexistence and co-prosperity of local municipalities by expanding the technologies nationwide.



Our efforts Strengthening management foundation of TGS

Based on “Management Strategy Action Plan 2021” formulated by TGS, we will steadily execute the business plan that reflects the company’s future management vision, and strengthen the foundation of its management, including corporate governance, human resources, technology, and finance.

Measures Human resource development and technical capability improvement

By inheriting and improving the technical capabilities that Bureau of Sewerage has cultivated over the years, and by training professional sewerage administration staff who can face to the various crisis and issues appropriately, we aim to stably provide sewerage services and lead sewerage projects nationwide.

Our efforts Usage of the Sewerage Technology Training Center

The Sewerage Technology Training Center is a large-scale training facility that aims to develop human resources and improve technical skills through practical training and simulated experiences in a variety of fields. 33 different types of courses in the fields of civil engineering, machinery, electrical engineering and water quality management, and through the process of experiencing by themselves, to train young staffs and improve the leadership skills of mid-career and experienced staffs.

We will also promote the private companies to use this center, and proactively contribute to the development of human resources, carring on of technology, and the improvement of technical capabilities throughout the sewerage industry.


Sewerage Technology Training Center


Manhole Replica


Operation Simulating Equipment


In-Water Walking Model


Experimental Equipment for Industrial Wastewater Treatment

Measures Compliance promotion

We work to raise awareness of compliance and create an organizational environment in which each and every employee acts to improve business operations as well as to comply with laws and regulations.

Our efforts Compliance promotion in Sewerage Group

We consult with the Bureau of Sewerage Compliance Promotion Committee, and make a compliance plan. We also conduct training and educational activities, and strengthen the internal control system to ensure the appropriateness of operations.

In addition, the Bureau of Sewerage and TGS hold a conference to share their efforts and information, and work as a group to meet the demands of customers.


Bureau of Sewerage Compliance Promotion Committee

12 Living and Sewerage

Sewerage Service Charges

Sewerage business is supported by service charges paid by customers, calculated according to how much wastewater is discharged. Often, the sewerage service charge is collected together with the water charge every 2 months to reduce collection costs and to make payment easier.

Sewerage Service Charges(1 month)

Sanitary sewage type	Volume (m^3)	Rate (Yen)
General wastewater	0~8 m^3	560
	9~20 m^3	110／m^3
	21~30 m^3	140／m^3
	31~50 m^3	170／m^3
	51~100 m^3	200／m^3
	101~200 m^3	230／m^3
	201~500 m^3	270／m^3
	501~1,000 m^3	310／m^3
	1,001m^3 and more	345／m^3
Public Bath wastewater	0~8m^3	280
	9 $m^3$and more	35／m^3

* The sewerage service charge is the sum of the amount calculated from the table above and the amount equivalent to consumption tax.
* When not only tap water, but also well water is included in sewage, the total figures in the above table is used to calculate the charge.

●Example of calculate on (1 month)

Cost for 20m^3 of wastewater
(average water usage for households with three people)

Rate from 0~8m^3	¥560
Rate from 9~20m^3	¥1,320（¥110×12m^3）
Total	¥1,880

Sewerage Service Charge=¥1,880+consumption tax
(Fractions below 1 yen removed)

[How we verify the amount of discharged wastewater]

●Tap water
Sewage is assumed to be equal of the amount of tap water used.

●Water other than tap water (i.e. well water)
A timer is placed on a water pump to record pumping time and calculate the amount of wastewater discharge.

* If you are the operator of a business where the amount of water used is significantly different from the amount of sewage discharged, such as an icemaking business, you may be eligible for the reduction system. For more information, please consult to Customer Service and Management Section, Accounting and Contracting Division, Bureau of Sewerage at 03-5320-6573 or contact the Bureau of Sewerage branch offices.

[Sewerage service charge exemptions]

Sewerage service charges are reduced in the following situations.
・Households depending on public assistance
・For public interest projects or in other special circumstances

[Temporary Use]

In case of temporality releasing sump water corresponding construction works and so on, submission of temporary use form is required. This kind of water discharge is subject to payment for sewerage service charge

Notification in advance is required to install a house connection inside the house.

If installation of house connection inside the residentional area is planed to execute within 23 wards, it is required to submit notification to the Bureau of Sewerage no later than 7 days prior to the date of installation.

In addition, only drainage facility construction companies designated by the Tokyo Metropolitan Government are allowed to perform drainage facility construction work. Never allow unregistered or undesignated persons perform construction work, as you will be subject to penalties.

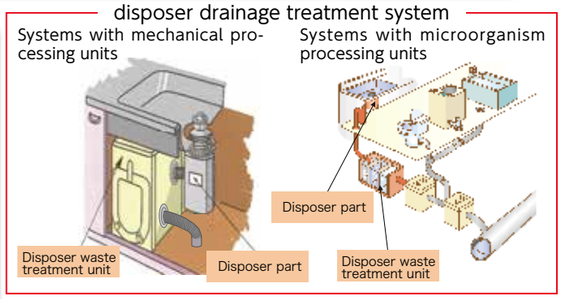
Installation of "disposer drainage treatment system"

In the 23 wards of Tokyo, disposers other than “disposer wastewater treatment systems” cannot be installed according to the ordinance of the Tokyo Metropolitan Sewerage Ordinance.

Proper maintenance of disposer drainage treatment systems is necessary to maintain their healthy function. Please sign a maintenance contract with an operation and maintenance company.

In case of installation, it is necessary to submit a notification of new drainage construction facilities and "plan concerning maintenance of disposer drainage treatment system."

disposer drainage treatment system



※ A single disposer cannot be installed in the 23-ward areas.

東京都下水道局　ディスポーザ　検索

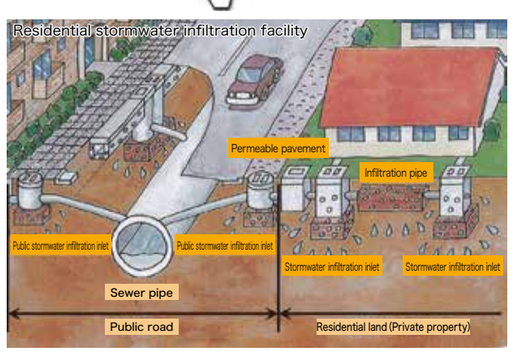
Rainwater Infiltration in Private Properties

In recent years, increased urbanization has reduced fields and other open spaces, resulting in less stormwater infiltration into the ground. Stormwater inflow into sewers has therefore increased, which is one cause of flood damage.

Moreover, in areas with combined sewers, stormwater mixed with sewerage is discharged to rivers and other waterways to protect the city from flood during heavy rain.

Therefore, in order to reduce stormwater inflow into the sewers in rainy weather, the Bureau of Sewerage coordinates with local ward governments to promote the installation of stormwater infiltration facilities in residential areas to promote infiltration of stormwater to undergrounds.

Access here for details of subsidies and other programs.→



Sewerage Offices Branch Offices

Main Bureau

Division	Address	Telephone
General affairs, Personnel, Accounting and Contracting, Planning and Coordinating, Facilities Management and Maintenance, Construction	2-8-1 Nishi-Shinjuku, Shinjuku-City	03(5321)1111 (Metropolitan Government main phone number)
Regional Sewerage Office	2-26-12, Takamatsu-cho, Tachikawa City	042(527)4821

Sewerage Offices Branch Offices

Sewerage Office address and telephone number	Coverage area	Branch Office	Telephone
Chubu Sewerage Office 2-6-3 Otemachi, Chiyoda-ku 03(3270)8317	Chiyoda-City	Chiyoda Branch Office	03（3270）7325
	Chuo-City	Chuo Branch Office	03（3668）8661~2
	Minato-City (excluding Daiba)	Minato Branch Office	03（3798）5243~4
	Shibuya-City	Shibuya Branch Office	03（3400）9477~8
Hokubu Sewerage Office 2-1-8 Kuramae, Taito-ku 03(5820)4345	Bunkyo-City	Bunkyo Branch Office	03（5976）2516~7
	Taito-City	Taito Branch Office	03（5821）2401、2043
	Toshima-City	Toshima Branch Office	03（3989）8523~4
	Arakawa-City	Arakawa Branch Office	03（5615）2891
Tobu 1st Sewerage Office 7-1-14 Toyo, Koto-ku 03(3645)9643	Sumida-City	Sumida Branch Office	03（3622）7005
	Minato-City (Daiba only)	Koto Branch Office	03（3645）9273
	Koto-City		
	Shinagawa-City (Higashi-Yashio only)		
	Ota-City (limited to Reiwa Island)		
Tobu 2nd Sewerage Office 1-2-1 Kosuge, Katsushika-ku 03(5680)1268	Adachi-City	Adachi Branch Office	03（3855）7411
	Katsushika-City	Katsushika Branch Office	03（3602）5755
	Edogawa-City	Edogawa Branch Office	03（5658）4481~2
Seibu 1st Sewerage Office 3-37-4 Arai, Nakano-ku 03(5343)6200	Shinjuku-City	Shinjuku Branch Office	03（3363）9931~2
	Nakano-City	Nakano Branch Office	03（5343）5651~2
	Suginami-City	Suginami Branch Office	03（3394）9457~8
Seibu 2nd Sewerage Office 4-27-1 Ukima, Kita-ku 03(3969)2311	Kita-City	Kita Branch Officece	03（3969）6490~1
	Itabashi-City	Itabashi Branch Office	03（5965）2161~2
	Nerima-City	Nerima Branch Office	03（5999）5650
Nanbu Sewerage Office 13-26 Yukigayaotsukamachi, Ota-ku 03(5734)5031	Shinagawa-City (excluding Higashi-Yashio)	Shinagawa Branch Office	03（3495）0351~2
	Meguro-City	Meguro Branch Office	03（3491）7867~8
	Ota-City (excluding Reiwa Island)	Ota Branch Office	03（3764）3691
	Setagaya-City	Setagaya Branch Office	03（5477）2120~2

* Each local municipalities is in charge in the Tama region.

Core Facilities Reconstruction Offices

Office name	Address	Telephone
1st Core Facilities Reconstruction Office	2-1-8 Kuramae, Taito-City	03（3862）8220
2nd Core Facilities Reconstruction Office	1-2-28 Konan, Minato-City	03（5781）8201
	1-2-40 Kamiochiai, Shinjyuku-City	03（3366）6948

Water Reclamation Centers

Reclamation Center name	Address	Telephone	Reclamation Center name	Address	Telephone
Shibaura Water Reclamation Center	1-2-28 Konan, Minato-City	03（3472）6411	Shingashi Water Reclamation Center	3-1-1 Shingashi, Itabashi-City	03（3930）9731
Mikawashima Water Reclamation Center	8-25-1 Arakawa, Arakawa-City	03（3802）7997	Ukima Water Reclamation Center	4-27-1 Ukima, Kita-City	03（3969）2457
Sunamachi Water Reclamation Center	3-9-1 Shinsuna, Koto-City	03（5632）2180	Morigasaki Water Reclamation Center	5-2-25 Omori minami, Ota-City	03（3744）5981
Ariake Water Reclamation Center	2-3-5 Ariake, Koto-City	03（5564）2035	Kita-Tama Ichigo Water Reclamation Center	6-6 Koyanagicho, Fuchu City	042（365）4302
Nakagawa Water Reclamation Center	5-1-1 Nakagawa, Adachi-City	03（3606）2812	Minami-Tama Water Reclamation Center	1492 Omaru, Inagi City	
Kosuge Water Reclamation Center	1-2-1 Kosuge, Katsushika-City	03（5680）1993	Kita-Tama Nigo Water Reclamation Center	1-24-32 Izumi, Kunitachi City	042（572）7711
Kasai Water Reclamation Center	1-1-1 Rinkaicho, Edogawa-City	03（5605）9992	Asakawa Water Reclamation Center	1-236 Ishida, Hino City	
Ochiai Water Reclamation Center	1-2-40 Kamiochiai, Shinjuku-City	03（3366）6964	Tamagawa Joryu Water Reclamation Center	3-15-1 Miyazawacho, Akishima City	042（545）4120
Nakano Water Reclamation Center	3-37-4 Arai, Nakano-City		Hachioji Water Reclamation Center	501 Komiyamachi, Hachioji City	
Miyagi Water Reclamation Center	2-1-14 Miyagi, Adachi-City	03（3919）7458	Kiyose Water Reclamation Center	3-1375 Shitajuku, Kiyose City	042（494）1451

Counseling available in Japanese.

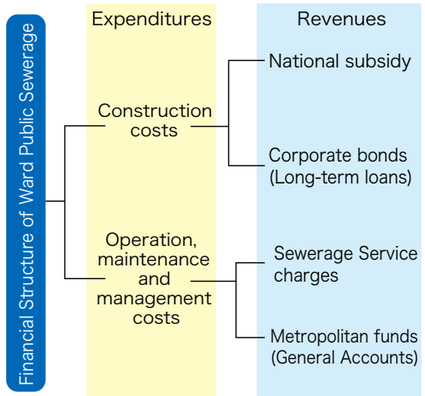
13 Finances

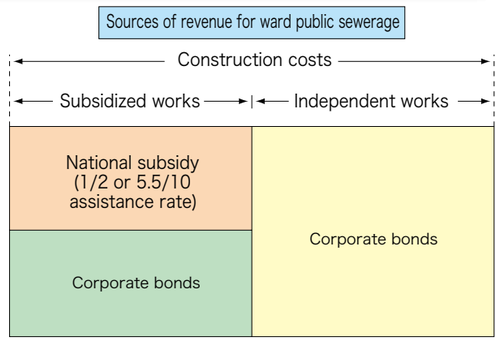
Sewerage in the Ward Area (Public Sewerage Business)

Finances

The sewerage business in the Tokyo 23-wards area is managed as local municipal enterprise. In principle, necessary costs for sewerage operations are paid for with independently acquired revenues, such as sewerage service charges from customers.

Financial Structure of Ward Public Sewerage Business





(1) Construction costs

Construction costs are the costs required to build pipes, pumping stations, and wastewater treatment plants.

Construction costs are covered by national subsidies, corporate bonds (long-term loans), etc.

(2) Operation, Maintenance and Management costs

Operation, maintenance and management costs cover expenses necessary for maintaining sewerage facilities and operations, and paying for interest, etc.

The money collected from sewerage service charges is for sanitary treatment costs, and metroplitan funds (metropolitan tax, etc.) is for stormwater removal costs.

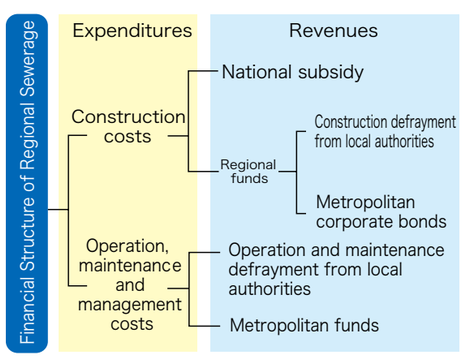
Principle of "private expense for sanitary sewage, public expense for stormwater"
- Stormwater elimination: Covered by public expense (metropolitan tax, etc.)as whole society receives benefits
- Sanitary sewage treatment: Covered by indvidual payment as only specific users receive benefits

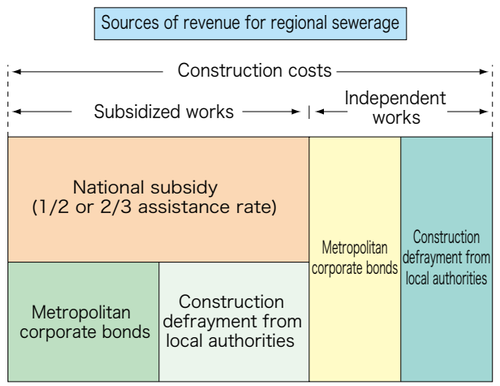
Sewerage in the Tama area (Regional Sewerage Business)

Finances

The sewerage business in Tama area is managed as a local municipal enterprise, with a promotion of the operation and construction costs defrayed from the appropriate local authorities.

Financial Structure of Regional Sewerage Business





(1) Construction costs

Construction costs for regional sewerage system are covered by national subsidy, construction defrayment from local authorities, metropolitan corporate bonds, etc.

(2) Operation, Maintenance and Management costs

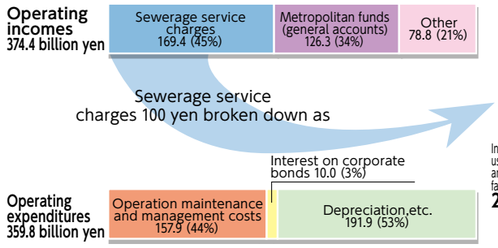
Costs for the operation, maintenance and management of regional sewerage system are collected from the local authorities. On the other hand, capital costs such as interest expences are covered by metropolitan funds, etc.

Outline of FY2024 budget

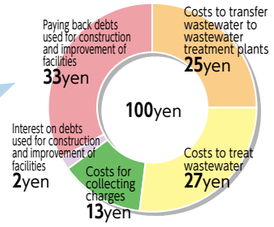
The FY 2024 budget was prepared based on the Bureau's Management Policy to steadily promote major measures set forth in the Management Plan 2021, such as the reconstruction of aging facilities, flood control, countermeasures for earthquake disaster, energy management and global warming countermeasures.

Ward Public Sewerage Operations

Profitable income and expenditure

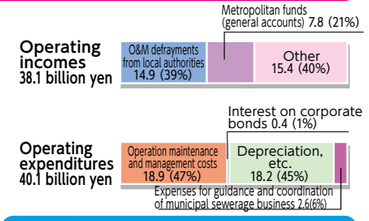


Break down of income and expenditure

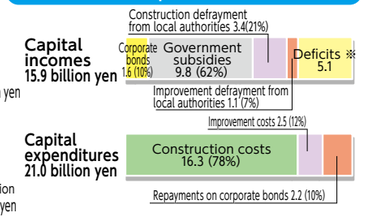


Regional Sewerage Operations

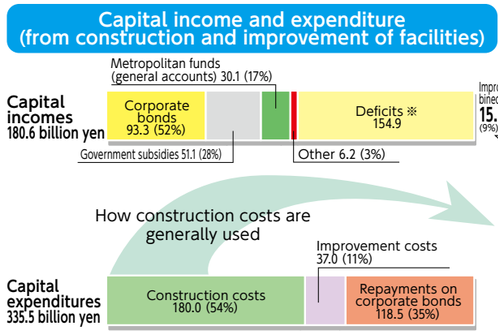
Profitable income and expenditure (from corporate activities)

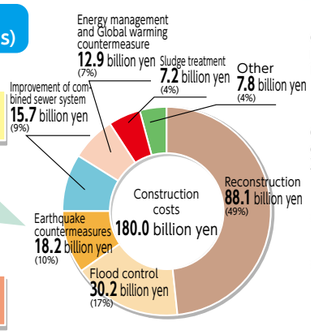


Capital income and expenditure (from construction and improvement of facilities)



Capital income and expenditure (from construction and improvement of facilities)





※ Deficits from capital income and expenditure are compensated with reserve funds from the profit and loss accounts.
※ Figures might not match with the total sum, as fractional amount under displayed unit is rounded off and not adjusted.

Outline of FY2023 Financial Statement

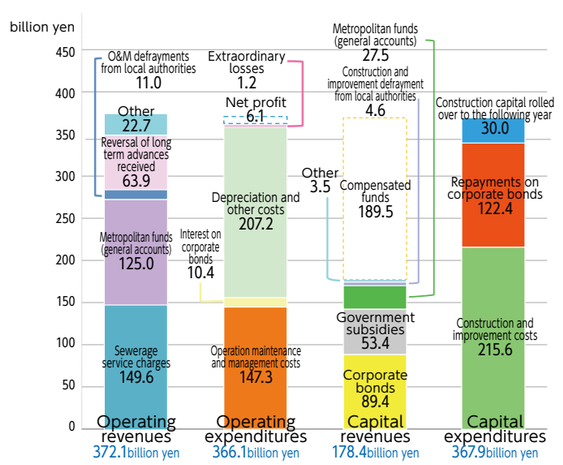
The settled accounts of ward and regional sewerage business are as follows.

Regarding revenue expenditures and receipts, revenues were 372.1 billion yen and expenditures were 366.1 billion yen. Net profit was 6.1 billion yen.

Regarding capital expenditures and receipts, revenues were 178.4 billion yen (Excludes Compensated funds) and expenditures were 367.9 billion yen (including construction capital rolled over to the following year). There were capital deficits of 189.5 billion yen, but were compensated with reserve funds from the profit and loss accounts.

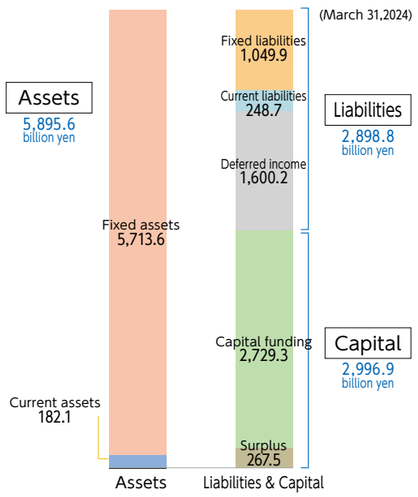
※ Figures might not match with the total sum as fractional amount under displayed unit is rounded off and not adjusted.

● Revenue /Capital Expenditures and Receipts (Ward and Regional total)



※ Consumption tax and local consumption tax are included in capital expenditures and receipts, but not in revenue expenditures and receipts.

● Balance Sheet(Ward and Regional total)



Securing of income through effective utilization of assets, etc.

We will strive to achieve sustainable financial management through constant efforts to improve management efficiency, including the effective use of assets.

More specifically, we will strive to actively secure income by utilizing the upper space of sewerage facilities, renting or selling land and buildings, and utilizing sewage heat.

Case of dealings Shibaura Water Reclamation Center Utilization of the Upper Space Project

By lending the top section of the Shibaura Water Reclamation Center to a private company and owning office floors in the upper space building, we make a steady income.

〈**Overview of the upper space building**〉
Completed : February 2015 **No. of floors :** 1 underground, 32 above ground **Building height :** approx. 151m
Total floor area : approx. 200,000m²
Constructed an basement floor storage facility to improve the combined sewer system

Shibaura Water Reclamation Center
upper space building "Shinagawa Season Terrace"

Covered the wastewater treatment facility and using the top section as a park (left side of photograph)

Installed air conditioning system using sewage heat to provide heating and cooling for the entire upper space building

Storage facility in the basement of the upper space building

14 History of Sewerage in Tokyo

- 1884 Construction of the Kanda-sewer using brick lined culverts
- 1908 "The Tokyo City Sewerage Plan" is announced (April)
- 1913 Stage 1 construction of the Tokyo Sewerage System Plan begins with District 2 (present-day Mikawashima treatment district)
- 1922 Mikawashima Sewer Treatment Plant starts operations (March)
- 1943 Start collecting sewerage service charges
- 1952 Term "sewer treatment plant" changed to "wastewater treatment plant (WWTP)"
- 1961 Sludge treatment facility starts operations (in Shibaura)
- 1962 Bureau of Sewerage is founded (April)
- 1964 "The Tokyo Urban Sewerage Plan" is changed so sewer planning includes all 23 Wards (February)
- Ochiai WWTP starts operations. World's first park on top of a treatment facility opens (March)
- Mikawashima WWTP starts reusing treated water for industrial purposes (August)
- 1968 Tokyo Metropolitan Government starts construction on the Tama Regional Sewerage system, with service determined by the Tokyo Bureau of Sewerage and Metropolitan Government (June)
- 1970 Sewerage Law amended (statement on contributing to the water quality preservation in public water districts included)
- 1983 Nanbu Sludge Plant starts operations (October)
- 1984 Flow of "Nobidome Yosui" is restarted using advanced wastewater treatment water from the Tamagawa-Jouryu WWTP (August)
- Shinjuku Subcenter District Water Recycling Center starts operations using advanced wastewate treatment water from the Ochiai WWTP (October)
- 1986 Sewerage Mapping and Information System (SEMIS) starts (April)
- 1987 Wastewater heat recycling system (Urban heat) started at the Ochia WWTP (January)
- Advanced wastewater treatment facility (high-rate filtration) starts at the Ochiai WWTP (April)
- 1988 Tokyo Rainfall Radar System for Tokyo Area (Tokyo Amesh 500) opens (June)
- 1992 "The Master Plan for the Second-Generation Sewerage" is enacted (July)
- 1994 "Kanda sewer" is designated as a Tokyo historical remains (March)
- District air conditioning started in the Koraku 1 Chome area of Bunkyo Ward (July)
- 1995 Sewered population in the Wards reaches approx. 100%. (March)
- Flow of the 3 urban channels are restarted using advanced wastewatertreatment water from the Ochiai WWTP (March)
- 1996 "Sludgelight" light-weight aggregate material production facility starts operations at Nanbu Sludge Plant (April)
- 1998 Sewerage Service Charges are revised (June)
- 2001 " Sewerage vision 2001 " is enacted (March)
- 2002 Tokyo Amesh internet site opens (April)
- 2003 Former main pump house at the Mikawashima WWTP is designated as a Tokyo Cultural asset. (March)
- 2004 The term " Wastewater Treatment Plant " is changed to " Water Reclamation Center " (April)
- 2005 SEMIS data is released on the internet (April)
- 2006 Connecting pipes between Tamagawa Jouryu and Hachioji Water Reclamation centers is completed (April)

▲Planning Diagram of the Tokyo sewer (1908)

▲Manhole and pipe construction in a sewer pipe behind Asakusa Park during the Taisho period (1912 to 1925)

▲World's first ever park on top of a Wastewater Treatment Plant (Ochiai WWTP) (1964)

▲"Kanda Sewer"designated as a Tokyo historical-remains (1994)

2011 ● To help rebuild the sewerage facilities after the Great East Japan earthquake, support teams were sent to Sendai in Miyagi prefecture, Urayasu and Katori in Chiba prefecture (from March)

2013 ● “Management Plan 2013” is enacted (February)
● Opened the Important cultural property “Old Mikawashima Sewage Disposal Facilities “to the public (April)
● Renewal opening of “Tokyo Sewerage Museum Rainbow” (April)
● Opening of “Sewerage Technology Training Center” (October)
● Commencement of operation of connection pipe(s) among Kita-Tama No.1 and Minami-Tama Water Reclamation Centers (October)
● Formulating “Sewerage Emergency Plan for Storm Rainfall Counter-measures” (December)

2014 ● Completing construction of pump house at Nishi Nippori Line, Higashi Ogu Purification Center (May)
● Formulating “Smart Plan 2014” (June)

2015 ● Grand opening of “ Shinagawa Season Terrace ”which is a private commercial building in Shibaura Water Reclamation Center (May)
● Starting incorporation of Kitano treatment area in Hachioji City public sewerage system in the separate sewer area to Akikawa regional sewerage treatment area (July)


▲Grand opening of “Shinagawa Season Terrace” in Shibaura Water Reclamation Center (2015)

2016 ● “Management Plan 2016” was developed (February)
● Dispatch of staff to Kumamoto City to support restoration of sewer facilities due to the Kumamoto Earthquake (April)
● Commencement of operation of connection pipe(s) among Kita-Tama No.2 and Asakawa Wate Reclamation Centers (April)
● Formulation of “Technical Research and Development Promotion Plan 2016” (December)
● Formulation of “Earth Plan 2017”(March)

2017 ● Release of smart phone edition of “Tokyo Amesh” (April)
● Formulation of “Tokyo Sewerage PR Master Plan” (April)

2018 ● Published the Tokyo Sewerage PR Action Plan 2018 (March)
● Signed a memorandum of understanding for collaborative research on Water Surface Control Device with the German company Steinhardt GmbH (May)
● The 11th IWA World Water Congress and Exhibition was held in Tokyo (September)

2019 ● 50th anniversary of the regional sewerage in Tokyo (April)
● Renewal opening of the renovated Sewerage Technology Research and Development Center (May)

2021 ● Completed incorporation of the Hachioji public sewerage Kitano treatment area into the regional sewerage Akigawa treatment area (January)
● Formulation of “Management Plan 2021” (March)
● Transfer of sewerage guidance administration from the Bureau of Urban Development to the Bureau of Sewerage (April)
● Formulation of “Technical Research and Development Promotion Plan 2021” (September)

2022 ● The online tour of Ariake Water Reclamation Center is started (January)
● The first “Sewerage Infrastructure Online Tour” is held at the Chiyoda trunk sewer construction site and Kuhonbutsu trunk sewer reconstruction construction site (January)
● The former Mikawashima Sewage Disposal Station celebrated the 100th anniversary of its first operation (March)
● “Sewerage flooding countermeasure plan 2022” is enacted (March)
● Completion of Zenigamecho Building(Bldg.D) (April)

2023 ● Formlation of “Earth Plan 2023”(March)

2024 ● Dispatched staff members to support swift restoration of sewage facilities in Wajima City due to 2024 Noto Peninsula Earthquake(January)
● Incorporation of Nishiki-cho treatment area in Tachikawa City public sewerage system in the separate sewer area to Kita - Tama No.2 regional sewerage treatment area (March)

Facility Tours

Tokyo Sewerage Museum “Rainbow”

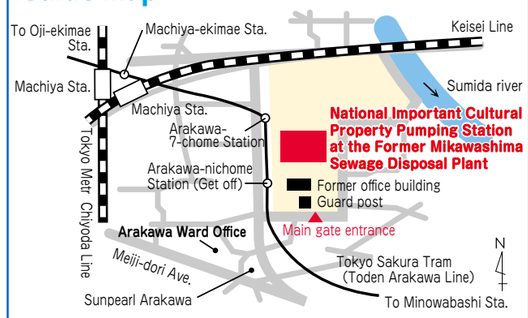
Tokyo Sewerage Museum “Rainbow”, located in the Odaiba Ariake District, is a public relations facility for the Bureau of Sewerage Tokyo Metropolitan Goverment. It is an experience type facility that appeals the role and importance of sewer by providing the opportunities to experience the work inside the sewer, pumping station, central monitoring room, and water quality inspection room at "Rainbow Town" in the museum. These rooms are not allowed to enter in real facilities.

Entry fee : Free
Address : 2-3-5 Ariake, Kotoward Ariake, the 5th Floor of Ariake Water Reclamation Center
Telephone : 03-5564-2458
Closed : Mondays (open on holiday Mondays, closed the next day),and the year-end and New Year Holidays. Open daily throughout the summer (July 16–August 31)Open on Sewerage Day (September 10) and Tokyo Citizens Day (October 1)
Hours : 9:30 - 16:30 (entry until 16:00.)

National Important Cultural Property Pumping Station at the Former Mikawashima Sewage Disposal Plant

Since the Pumping Station at the Former Mikawashima Sewage Disposal Plant has a high historical value as for the first modern sewage treatment plant in our country, it was designated as a National Important Cultural Property (Building) for the first time in the sewerage field on December 4, 2007. A series of well-preserved structures such as gate chambers and grit chambers still remain.

Guide map



●Address 8-25-1 Arakawa, Arakawa-ku, Tokyo 116-0002
●Access 13-minute walk from Machiya Station on the Tokyo Metro Chiyoda Line or Keisei Main Line
3-minute walk from Arakawa 2-chome Station on the Tokyo Sakura Tram (Toden Arakawa Line)

Entry fee : Free
Telephone : 03-6458-3940
Closed day : Tuesdays, Fridays, and the year-end and New Year Holidays
Opening hours : 9:00~16:00
How to use : Reservation is required for site visits