

To generate electricity

Micro hydraulic power stations

The outfall for the treated water is installed several meters higher than the sea level to protect from flood tide. There are 5 stations that generate around 800,000kWh electricity/year using the discharging gap (that equals to electricity consumption for 220 ordinary households). Hydropower generation is capable to generate more stably than solar power generation or wind power generation. Moreover, it is the clean energy that does not emit greenhouse gas causes global warming. Also it is transferred to a third party through Tradable Green Certificates as environmental valued energy.

●Operation started: June 2005

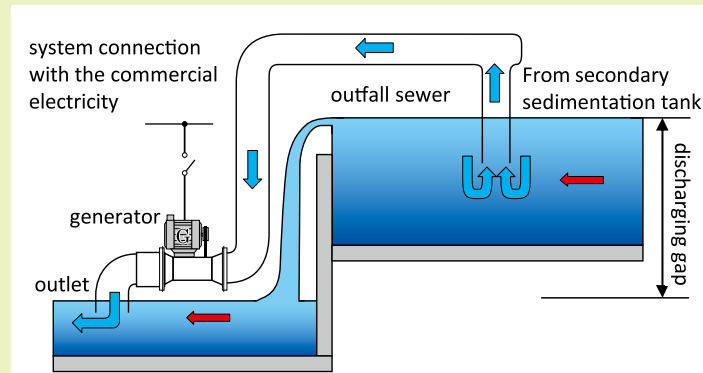
Solar photoelectric generation

There are no tall buildings around the Eastern facility of the Center, and therefore 4,480 sheets of solar cell modules of 250 W have been installed on the shelter coverings of the openings of reaction tanks. The maximum power output is 1MW, and the power of 1.15 million kWh (equivalent of the power consumption of 320 households) is obtained annually.

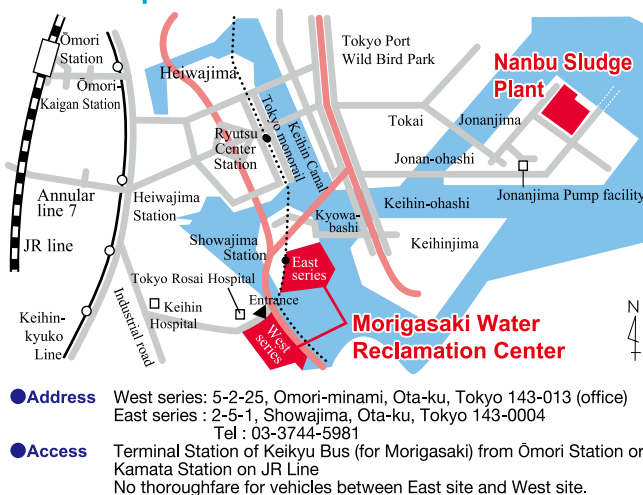
●Operation started: April 2016

Hydraulic power generation and solar photoelectric generation are the sources of clean energy, which does not emit greenhouse gases such as carbon dioxide.

These kinds of power generation reduce 900 tons of carbon dioxide annually, contributing to the reduction of environmental load.



Guide map



Beware of crooked dealers who pretend to be related to the Bureau of Sewerage!

The Bureau of Sewerage does not rely on businesses to repair or clean drainage facilities in housing.

Facility tours of Water Reclamation Centers

Facility tours of water reclamation centers are available except weekends, holidays, and the New Year's season.

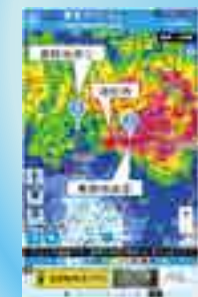
Please contact us about reservations and details.

● Tokyo Amesh

Tokyo Amesh is the system that shows rainfall in and around Tokyo in real time.

The rainfall is measured by radars and ground rain gauges.

※ Tokyo Amesh is the registered trademark of the Tokyo Metropolitan Government.



● Sewer Adventure

Pass the sewer quiz to become a sewer master.



● Bureau of Sewerage website

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

«Contact point for arranging facility tours»

Telephone: 03 (3241) 0944

Hours: 9:00 ~ 17:00 (weekdays only)



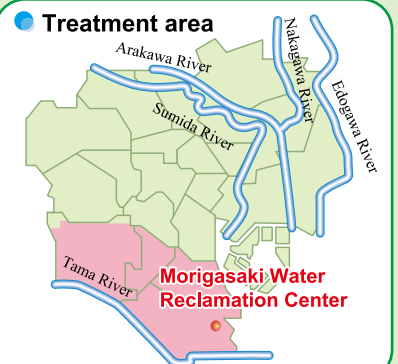
Water environment cultivated by the district Morigasaki Water Reclamation Center



Earth-kun, the mascot of Bureau of Sewerage

Morigasaki Water Reclamation Center is the largest water reclamation center in Japan that is organized with two facilities in the east and west. Treatment area includes most of Shinagawa Ward, Meguro Ward, Ota Ward, Setagaya Ward, part of Shibuya Ward and Sugunami Ward, consequently the whole area amounts to 14,675ha. That equals to the one-fourth of the whole ward area. Also it accepts wastewater from Nogawa treatment area in Tama district.

Part of the sludge produced in Morigasaki Water Reclamation Center is utilized to generate electricity through a process of gasification in the digester tank. The rest is sent to Nanbu Sludge Plant through a pressure pipe, together with the sludge which is sent from Shibaura Water Reclamation Center.



(As of April 2023)

- Operation started :
April 1966 (stormwater drainage)
April 1967 (water treatment)
- Site area : 415,309m²
- Treatment capacity: 1,540,000m³/day
- Sludge treatment facilities:
Concentrator : 4
Thickener : 3
Digester : 4
Sludge elutriation tank : 1
- Storm water storage tank : 26,000m³
- Storage tank in wet weather : 118,000m³

● Water treatment facilities

- Western facility:**
Grit chamber : 28
Primary sedimentation tank : 11
Reaction tank : 12
Secondary sedimentation tank : 24
High-rate filtration system : 1
- Eastern facility:**
Primary sedimentation tank : 18
Reaction tank : 11
Secondary sedimentation tank : 20

● Average quality of influent and final effluent

The final effluent from the water reclamation center complies completely with the water quality standards of the Tokyo Metropolitan Environmental Security Ordinance and is sufficiently clean for fish to live in.

Item	Influent		Final effluent		Regional water quality standards
	Omori trunk	Ota trunk	West series	East series	
B O D	140	130	2	5	—
C O D _{Mn}	70	68	6	8	35 or below
Total nitrogen	28.7	27.2	9.9	11.3	30 or below
Total phosphorus	3.0	2.9	0.8	1.2	3 or below

Average values of 24-hour test conducted in FY2021

※The higher values of BOD and COD indicate the higher levels of water contamination. BOD describes the amount of oxygen required by microorganisms to eat organic material in water, and COD describes the amount of oxygen required by oxidizer to decompose organic material in water. The quality levels of discharged water are specified in terms of BOD for rivers and COD for seas. Total nitrogen and total phosphorus are closely related to the generation of red tides.



The diagram illustrates the sewerage system's flow. On the left, a yellow box labeled 'Homes, factories, offices, etc' points to a residential house and an industrial building. A 'Road catch basin (storm water)' is shown near the industrial building. Wastewater flows through a 'public inlet' and 'Branch sewers' into a 'Sewer' pipe. A 'Manhole' is also indicated. The 'Sewer' pipe is shown sloping downwards. A blue box labeled 'Sewer' is placed over the pipe. The flow continues to a 'Pumping Station', which is shown as a large structure with a pump. A blue box labeled 'Pumping Station' is placed over the structure. The flow then enters a 'Grit chamber', which is a large circular tank. A blue box labeled 'Grit chamber' is placed over the tank. The flow then enters a 'Wastewater treatment plant' (WWTP), which is shown as a large industrial facility. A blue box labeled 'Wastewater treatment plant' is placed over the facility. The flow then enters a 'Discharge' point, which is shown as a large pipe leading to a body of water. A blue box labeled 'Discharge' is placed over the pipe. The flow then enters a 'Sewage flow' pipe, which is shown as a large pipe leading to a body of water. A blue box labeled 'Sewage flow' is placed over the pipe.

Homes, factories, offices, etc

Industrial pretreatment facility

Road catch basin (storm water)

public inlet

Manhole

Branch sewers

Sewage flow

Sewer

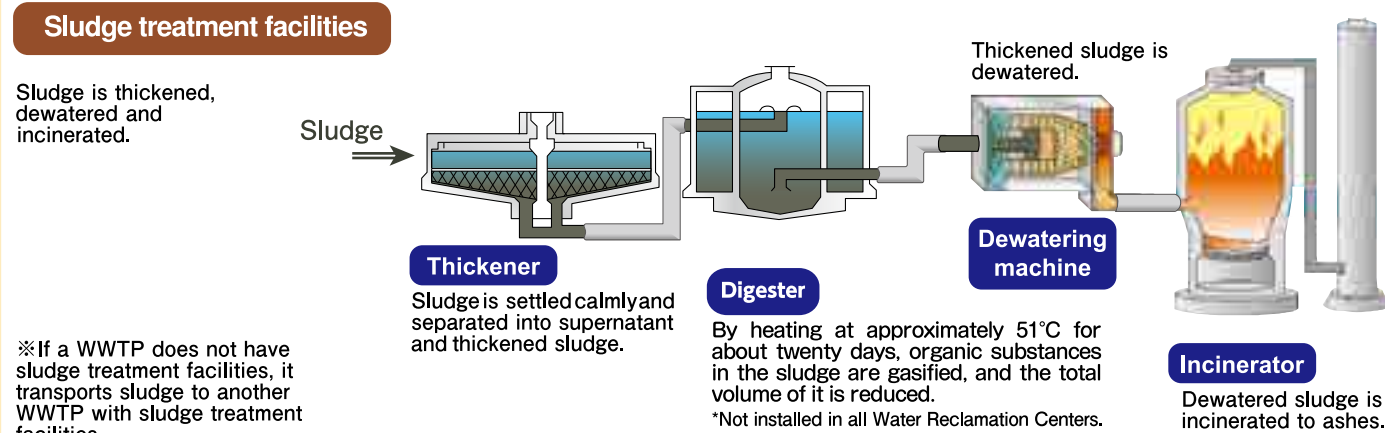
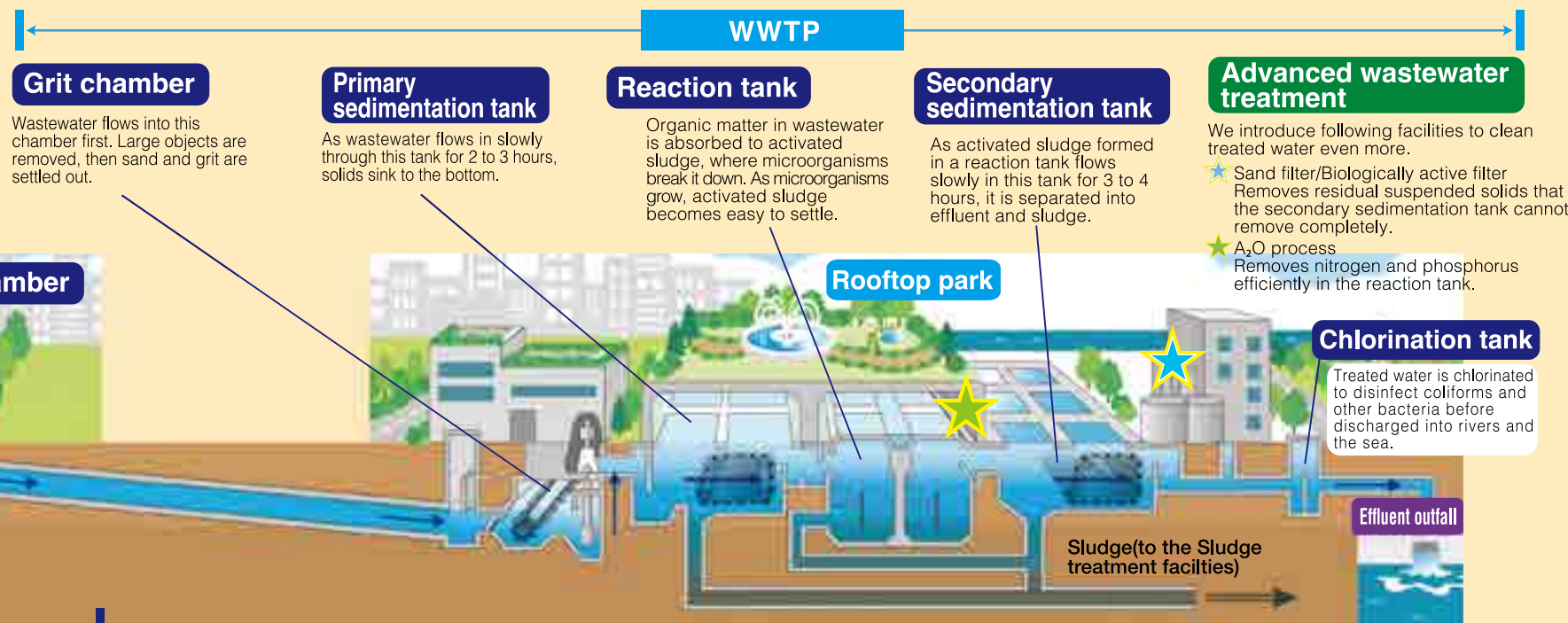
Pumping Station

Grit chamber

An industrial pretreatment facility removes harmful substances such as heavy metals beforehand.

Sewers collect and carry wastewater to WWTPs. The internal diameter of the sewer ranges from 25cm to 8.5m.

Sewers slope down to let wastewater flow naturally by gravity. Wastewater is pumped up to nearly ground level at pumping stations and flows naturally again.



Improvement of a Living Environment by Treating Wastewater

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

Flood Prevention by Draining Stormwater

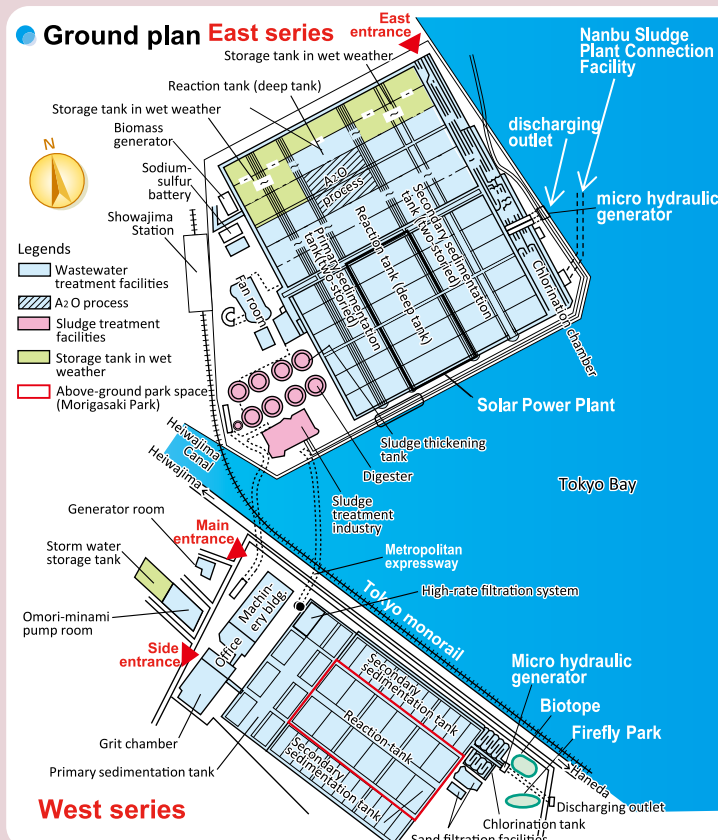
We protect the city from flooding by draining stormwater immediately from roads or residential areas.

Water Quality Control in Rivers and the Sea

We improve and control the water quality of rivers and the sea by treating wastewater and returning it to them.

Our New Role

Now we play a new role in creating a good urban environment. We use sewerage resources and energy effectively, for example, reclaimed water and sewerage heat. We also utilize rooftop spaces of our facilities as parks.



Features of Morigasaki Water Reclamation Center

Generating business uses methane gas
-First introduction of PFI
as domestic sewerage works -

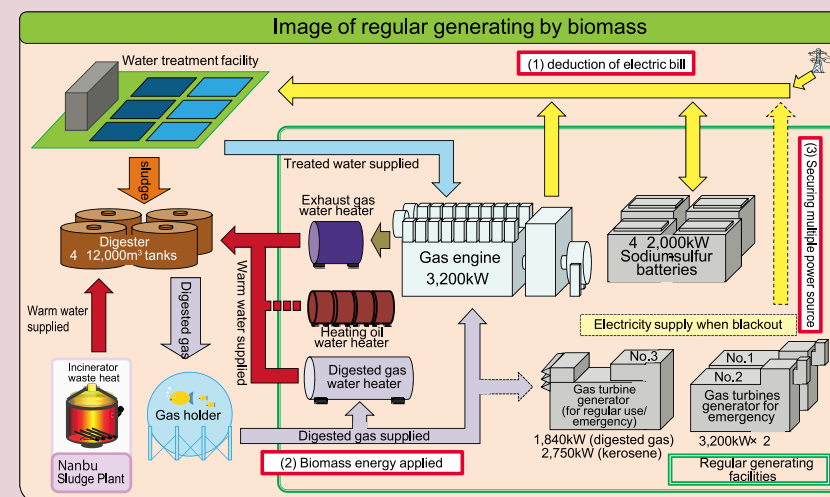
Sludge generated in the wastewater treatment process is thickened in the thickener. Thickened sludge is heated^{*1} in an anaerobic state^{*2} and the organic content of sludge is gasified for a sludge digestion period of about twenty days at approximately 51°C, and then supplied to an electricity generation facility that uses biogas^{*3}.

Approximately 20 million kWh of electricity is generated annually using methane gas, the biomass energy*³, as fuel for generating facilities.

Regarding installation and management of the generating facilities, we introduced PFI^{*4} first domestically in sewerage works. It leads to cost reduction of facility building or maintenance/management.

Also it is transferred to a third party through Tradable Green Certificates as environmental valued energy.

- Started in April 2002
- *1 A state of being without oxygen
- *2 To warm up the sludge, hot water from generating facilities and hot water produced with waste heat at Nanbu Sludge Plant are used.
- *3 Renewable energy generated by bacteria



***4 PFI (Private Finance Initiative)**

PFI is the method that absorbs private funds, techniques and management ability to public works. Inexpensive power is secured by applying private know-how by PFI at Morigasaki Water Reclamation Center.

To store electricity

Electric bill is reduced by using the power from the sodium-sulfur battery that is charged in the nighttime with low power rate. Also we tackle with the power shortage caused by power demand control.

