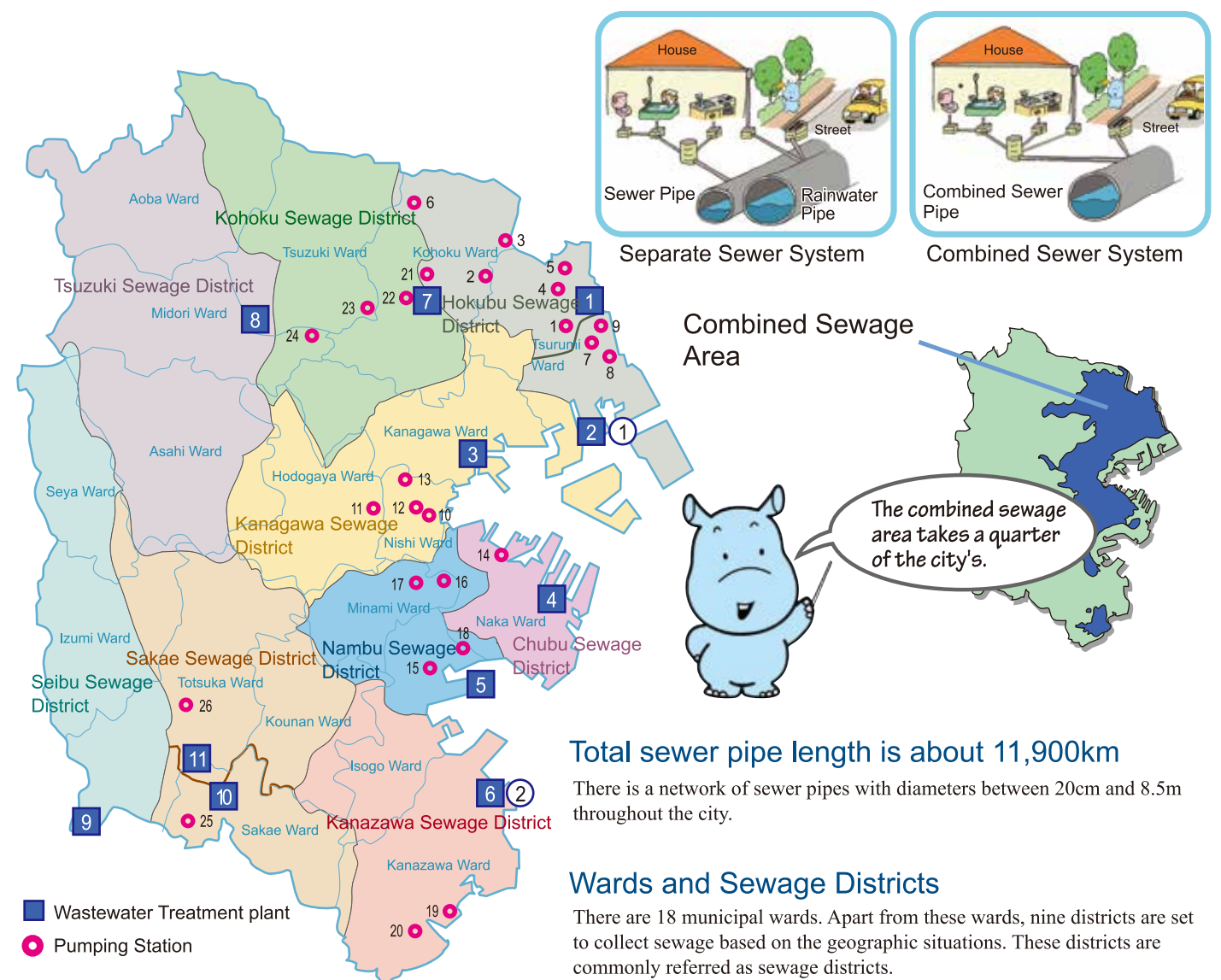


Municipal Sewerage System

The sewerage system consists of sewers, wastewater treatment plants and sludge treatment plants. By setting up the sewers at a gently tilted angle, the wastewater is allowed to flow. Wastewater treatment plants purify domestic wastewater while sludge treatment plants recycle sludge. Pumping stations carry domestic wastewater to wastewater treatment plants and drain rainwater to rivers and ocean. The following map shows the 11 wastewater treatment plants and sewage districts across Yokohama. There are two methods to collect sewage - combined sewer system and separate sewer system. Combined sewer system collects domestic wastewater and rainwater together with shared pipes. Separate sewer system collects domestic wastewater and rainwater by separate pipes.



No.	Name	Address	Tel	Fax
1	Hokubu No.1 Wastewater Treatment plant	2-6-1 Motomiya, Tsurumi ward	572-2281	572-1109
2	Hokubu No. 2 Wastewater Treatment Plant	1-6-8 Suehiro-cho, Tsurumi ward	503-0201	503-0132
3	Kanagawa Wastewater Treatment Plant	1-1 Chiwaka-cho, Kanagawa ward	453-2641	453-2559
4	Chubu Wastewater Treatment Plant	1-1 Honmoku jyuniten, Naka ward	621-4114	624-3428
5	Nambu Wastewater Treatment Plant	39 Shin-isogo-cho, Isogo ward	761-5251	754-2367
6	Kanazawa Wastewater Treatment Plant	1-17 Sachiura, Kanazawa ward	773-3096	776-1689
7	Kohoku Wastewater Treatment Plant	7-40-1 Okurayama, Kohoku ward	542-3031	545-6564
8	Tsuzuki Wastewater Treatment Plant	25 Saedo-cho, Tsuzuki ward	932-2321	931-8919
9	Seibu Wastewater Treatment Plant	231 Higashimatano-cho, Totsuka ward	852-6471	852-7604
10	Sakae No.1 Wastewater Treatment Plant	2-5-1 Kosugaya, Sakae ward	891-9711	895-0248
11	Sakae No.2 Wastewater Treatment Plant	82 Naganuma-cho, Sakae ward	861-3011	863-0664
①	Hokubu Sludge Treatment Plant	1-6-1 Suehiro-cho, Tsurumi ward	502-3738	502-2866
②	Nambu Sludge Treatment Plant	1-9 Sachiura, Kanazawa ward	774-0848	771-1825

No.	Name of Pumping Station	Corresponding Wastewater Treatment plant
1	Sueyoshi Pumping Station	Hokubu No.1
2	Tarumachi Pumping Station	Hokubu No.1
3	Kitatsunashima Pumping Station	Hokubu No.1
4	Kamisueyoshi Pumping Station	Hokubu No.1
5	Egasaki Pumping Station	Hokubu No.1
6	Takada Pumping Station	Hokubu No.1
7	Tsurumi Pumping Station	Hokubu No. 2
8	Ushioda Pumping Station	Hokubu No. 2
9	Ichiba Pumping Station	Hokubu No. 2
10	Sakuragi Pumping Station	Kanagawa
11	Hodogaya Pumping Station	Kanagawa
12	Hiranuma Pumping Station	Kanagawa
13	Kusunoki Pumping Station	Kanagawa
14	Yamashita Pumping Station	Chubu
15	Isogo Pumping Station	Nambu
16	Mansai Pumping Station	Nambu
17	Yoshino Pumping Station	Nambu
18	Isogo No.2 Pumping Station	Nambu
19	Kanazawa Pumping Station	Kanazawa
20	Mutsura Pumping Station	Kanazawa
21	Futoc Pumping Station	Kohoku
22	Nippa Pumping Station	Kohoku
23	Kawamuko Pumping Station	Kohoku
24	Kamoi Pumping Station	Kohoku
25	Kasama Pumping Station	Sakae No.1
26	Totsuka Pumping Station	Sakae No.2

Would you like to know more about the sewerage system?

★ **Internet Resource**
 Please visit the Environmental Planning Bureau website for more information.
URL <http://www.city.yokohama.lg.jp/kankyo/gesui/>



★ **Sewerage Facilities Tour**
 Wastewater Treatment Plants and Sludge Treatment Plants have facility tour programs for Yokohama City Citizens. Please make reservations directly with the facilities you would like to visit.

★ **Contact Us for Issues Related to the Sewerage System**

<ul style="list-style-type: none"> For flushing related issues To report malfunctions or problems with sewer pipes To request for sewer maintenance on private properties 	<ul style="list-style-type: none"> For questions and concerns regarding the expected completion time of sewer installation
Tsurumi Public Works Office 510-1669 Nishi Public Works Office 242-1313 Minami Public Works Office 341-1106 Hodogaya Public Works Office 331-4445 Isogo Public Works Office 761-0081 Kouhoku Public Works Office 531-7361 Aoba Public Works Office 971-2300 Totsuka Public Works Office 881-1621 Izumi Public Works Office 800-2532	Kanagawa Public Works Office 491-3363 Naka Public Works Office 641-7681 Kounan Public Works Office 843-3711 Asahi Public Works Office 953-8801 Kanazawa Public Works Office 781-2511 Midori Public Works Office 981-2100 Tsuzuki Public Works Office 942-0606 Sakae Public Works Office 895-1411 Seya Public Works Office 364-1105
Sewer Pipeline Design Division 671-2843	Sewer Pipeline Management Division 671-2829
Accounting and Management Division 671-2826	General Affairs Division 671-2821



Sewage Works of Yokohama



By developing the sewerage works,
 We work hard to create a safer and more comfortable Yokohama City and an environment where it is safe for children to play in.

The Role of the Sewerage System

Where do the domestic wastewater and the rainwater go?
 What role does the sewerage system play?

Draining Rainwater

Protects the city from flooding.
 Drains rainwater and prevents flood.



Please!
 Don't discard trash and cigarette buds into the sewers.

Eliminating Bad Odor

Allows toilets to flush.
 Liberates people from bad smells and unpleasant labor, Provides a sanitary and comfortable living environment.



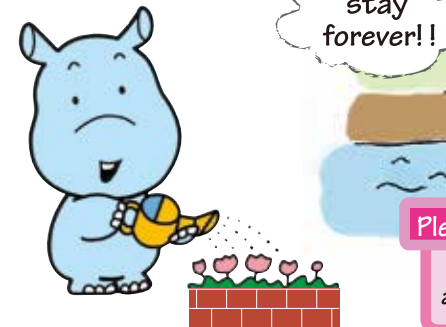
Making the Rivers and Ocean Clean

Protects the Natural Environment.
 Purifies wastewater from households and businesses before it returns to the rivers and ocean.

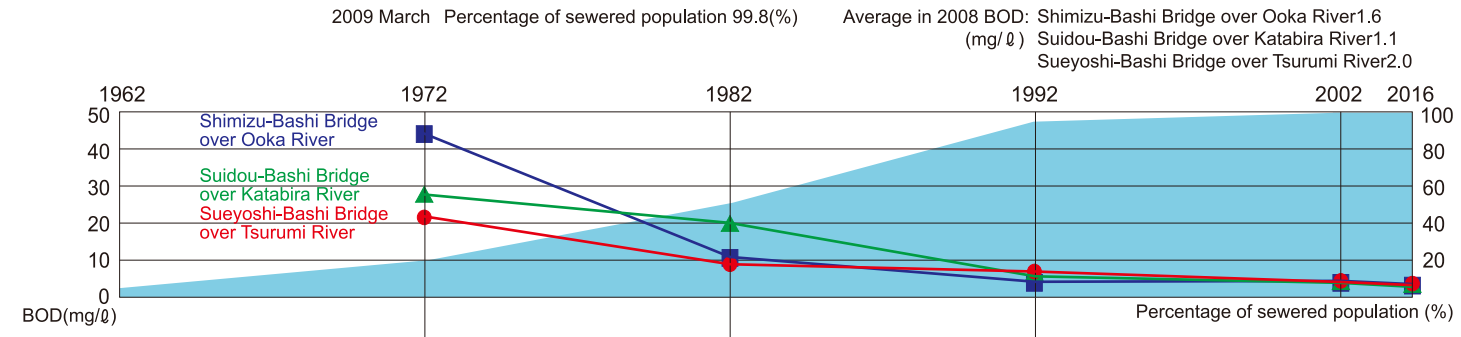


Contributing to a Sustainable Society

Recycles Sewerage Resources.
 Utilizes purified wastewater for the nearby streams and flushing.



Diffusion Rate of Sewage and the Change in River Water Quality



The year when the sewerage system started operating	1962 Chubu Wastewater Treatment Plant	1972 Sakae No.2 Wastewater Treatment Plant	1982 Seibu Wastewater Treatment Plant	1995 Total pipe length exceeds 10,000km
	1965 Nambu Wastewater Treatment Plant	1972 Kohoku Wastewater Treatment Plant	1984 Hokubu No. 2 Wastewater Treatment Plant	2016 Total pipe length 11,861km
	1968 Hokubu No.1 Wastewater Treatment Plant	1977 Tsuzuki Wastewater Treatment Plant	1984 Sakae No.1 Wastewater Treatment Plant (There are 11 Wastewater Treatment Plants in operation)	
		1979 Kanagawa Wastewater Treatment Plant	1987 Hokubu Sludge Treatment Plant	
			1989 Nambu Sludge Treatment Plant	
The Population of Yokohama City	1962 1,550,000	1973 2,500,000	1985 3,000,000	2003 3,500,000 2017 3,730,000

The Mechanism of Wastewater Treatment

Domestic wastewater is treated at wastewater treatment plants and discharged to the rivers and ocean.

Grit Tank / Pump Facility



Large-sized debris and sedimentary sand are removed, and the wastewater is transferred to the primary sedimentation tank by pumps.

Primary Sedimentation Tank



Suspended solids in the sewage sink slowly. The wastewater at the top flows into the reaction tanks. The sludge accumulated on the tank bed is transferred to sludge treatment plants.

Reaction Tank



This is the critical step of wastewater treatment process. Pollutants (organic matters, nitrogen, phosphorus, etc.) are mixed with activated sludge, stirred by air blowers and machines and consumed as food of activated sludge.

Final Sedimentation Tank



Activated sludge gather and sink slowly. The water at the top flows into the disinfection facility. After settling to the bottom of the tank, activated sludge is sent back to the reaction tank. The surplus sludge is transported to sludge treatment plants.

Disinfection Facility



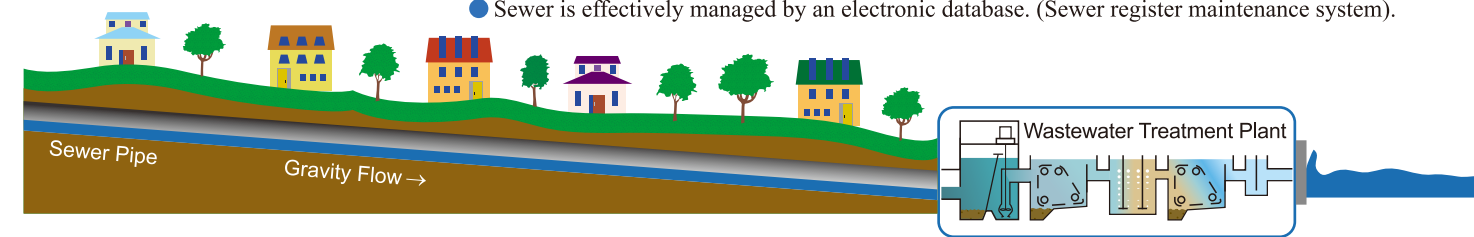
Treated wastewater is disinfected and discharged to the rivers and ocean.

Maintenance of Sewerage System

The sewerage system consists of sewer pipes, pump stations, wastewater treatment plants and sludge treatment plants. Consistent inspection and maintenance are required to keep the system in proper condition and fully functional.

Maintenance of Sewer Pipes

- By laying the sewer pipes at a gently tilted angle, wastewater can flow through the sewer with the help of gravity.
- Sewer is periodically inspected and cleaned because accumulated sand and trash obstruct the wastewater flow.
- Sewer is effectively managed by an electronic database. (Sewer register maintenance system).



Maintenance of Pump Stations and Wastewater Treatment Plants



- There are two types of pump stations: "Relay Pump Station", which transports domestic wastewater to wastewater treatment plant and "Rainwater Pump Station", which discharges rainwater to rivers and ocean.
- Wastewater treatment plants treat domestic wastewater 24 hours and discharge purified wastewater to rivers and ocean.
- For these purposes, pump stations and wastewater treatment plants need consistent inspection and maintenance.
- Pump stations and wastewater treatment plants are automated by computers and managed at the central control room in wastewater treatment plants. Sewage sludge is intensively treated at two sludge treatment plants for labor saving.
- Reclaimed wastewater and sludge are being effectively utilized as recyclable resource from the sewerage system.
- To predict the amount of rainfall in Yokohama City, a radar system is being used to monitor the climate. As a result, the sewerage system can promptly respond to intensive rainfall.

Regulations and Guidelines on Industrial Wastewater

- Guidelines for factories to install pretreatment facilities are offered, and the industrial wastewater is monitored (sampled, analyzed and guided) to prevent harmful materials that cannot be removed by the sewage processes from entering the sewer.

Water Quality Control

- There are more than 40 quality standards applied to the outflows from wastewater treatment plants. Water quality is monitored to satisfy these standards.
- Beginning from incoming wastewater, each wastewater treatment process undergoes its own water quality inspection to maintain stable quality.
- Microorganisms purify the wastewater. Operation management is conducted based on the results of water quality control inspections to maintain the condition of the microorganisms in activated sludge inside the reaction tank.



In the reaction tank, active sludge consumes pollutants.

Actions to Control Trace Chemical Substances

- There are concerns regarding the negative influences from trace chemical substances including dioxin and environmental hormones toward human body and natural environment. For this reason, inflowing wastewater and discharged water qualities are analyzed to understand the actual properties of chemical substances.



Heavy metal amount is analyzed.

Wastewater Treatment and Costs

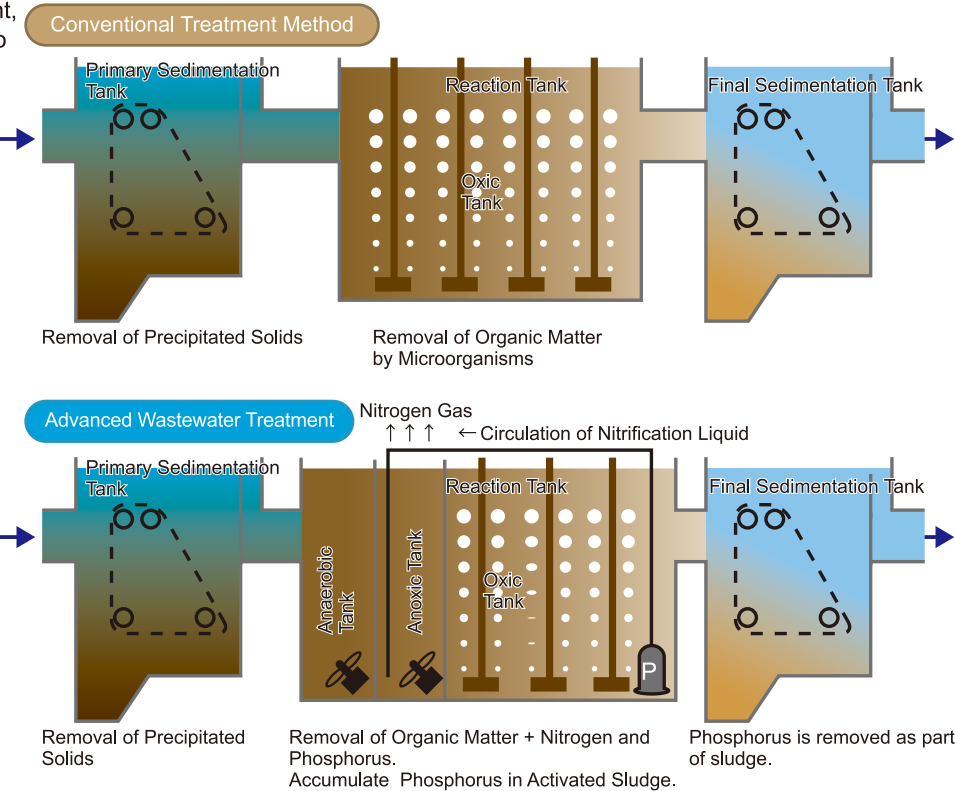
- Sewage treatment encompasses wastewater treatment and rainwater drainage.
- As a general rule, the expense for wastewater treatment is covered by the sewerage service charges, and the expense for rainwater drainage is covered by tax.
- Sewage service charges is used to cover administrative expense of the sewerage system, depreciation expense and interest payments for debt (Income Bond).

Advanced Wastewater Treatment (Prioritized Action toward Water Quality Improvement)

Compared to conventional wastewater treatment, advanced wastewater treatment is performed to achieve better water quality. It is effective to prevent red tide in Tokyo Bay, which is a closed water area.

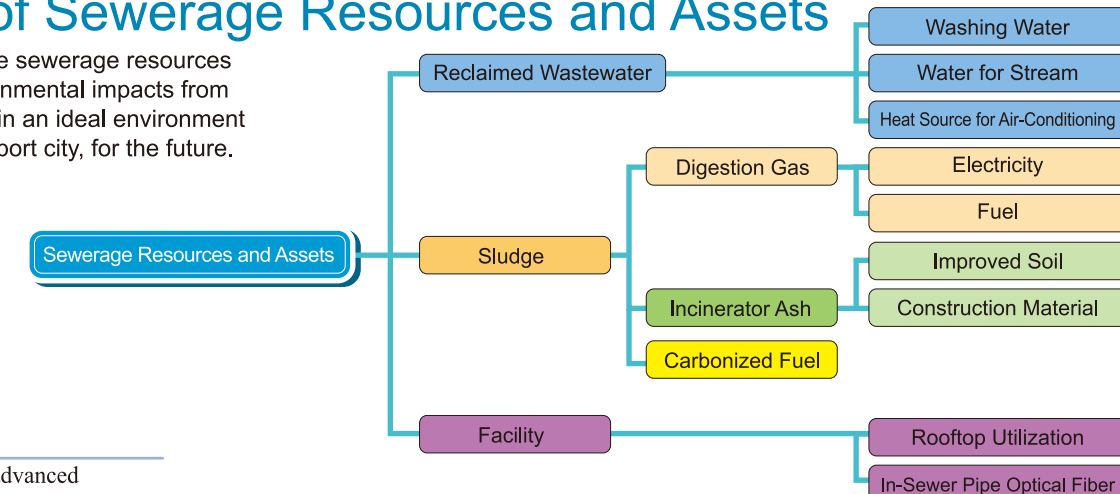


Red tide in Yokohama Bay, May 21st 2001, Yomiuri Shimbun



Effective Use of Sewerage Resources and Assets

The city is taking action to utilize sewerage resources and assets to reduce the environmental impacts from wasted materials and to maintain an ideal environment for Yokohama, an international port city, for the future.



Reclaimed Wastewater

Reclaimed wastewater undergoes advanced treatment from the Tsuzuki and Kanagawa wastewater treatment plants and is discharged into streams. The wastewater from Kohoku wastewater treatment plant is sent to Nissan Stadium and Yokohama Arena and used as a heat source for air conditioning and as water for miscellaneous use. Reclaimed wastewater is also used in each wastewater treatment plant as washing water.



Digestion Tank (Hokubu Sludge Treatment Plant)



Kohoku Wastewater Treatment Plant Rooftop (Futoo Park)

Sludge

Incinerated ash is used as improved soil and construction material. By changing the treatment methods from incineration to carbonization, sewage sludge is partly used as an alternative fuel to coal. Digestion gas generated from sludge treatment is used in power generator and as fuel.

Facility

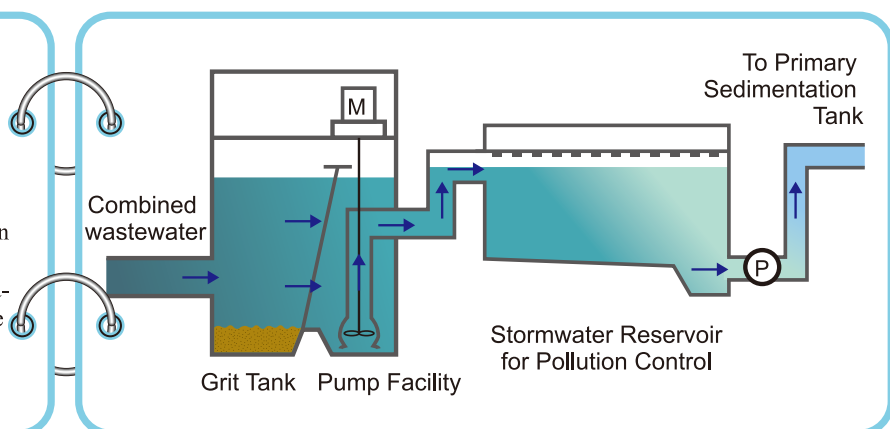
The rooftops of wastewater treatment plants and stormwater reservoir for pollution control are converted into playgrounds and parks, and they are open to public. Internal spaces of sewer pipes are used by telecommunication carriers to install optical fibers.



Inside of Sewer Pipe (Optical Fiber Installation) Water from Advanced Treatment (Stream at Irie-River)

Improving the Combined Sewer System

In the combined sewage, rainwater carries lots of debris and accumulated wastes from streets and pipes when rainwater enters for the first time. If the inflow exceeds the wastewater treatment plant's capacity, this water is discharged directly into rivers and ocean and contaminates the environment. Stormwater reservoir for pollution control temporarily accept the initial contaminated rainwater, and after raining stops, the combined wastewater is transported to the wastewater treatment plants to be purified. Combined wastewater from the grit tank is also sent to the wastewater treatment plant and treated. Many other actions are taken to treat combined wastewaters.



Sludge Treatment Plant

The sludge transported from wastewater treatment plants is thickened, digested, dehydrated, incinerated and turned into odor-free and sanitary ash. This ash is recycled as construction material and modifier of the soil generated by construction.

