Colors, Future!

Diversity means warmth. Diversity means potential.

There's more than just one color to Kawasaki.

More like a range of colors—

Each of them bright, vivid, overlapping with the next.

What colors will we see in Kawasaki tomorrow?

The next 100 years will see the birth of an

Entirely new city here in Kawasaki.

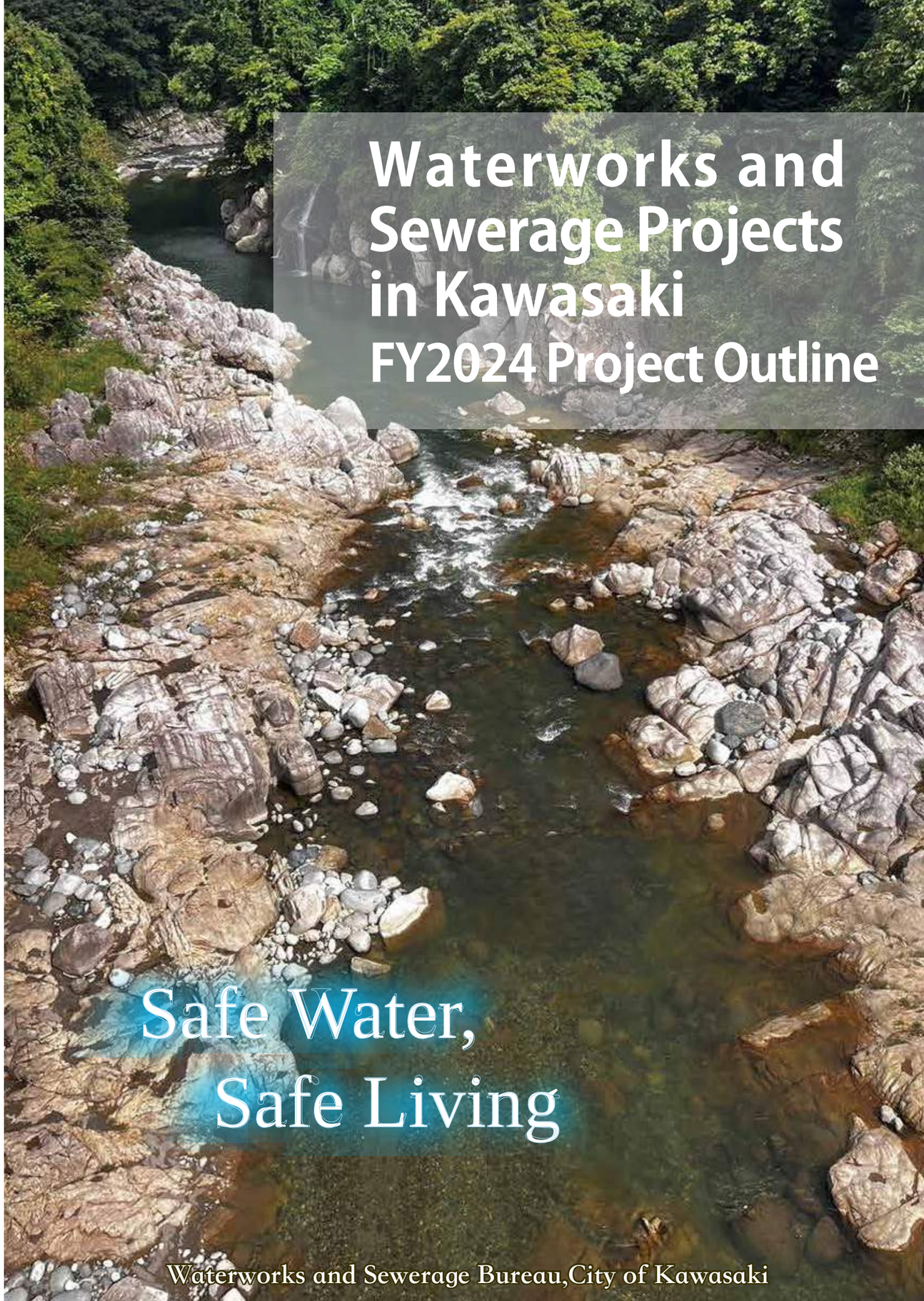
KAWASAKI CITY

Please send your suggestions and comments on the pamphlet to:

Customer Service Section,
Service Promotions Department,
Waterworks and Sewerage Bureau, City of Kawasaki

1 Miyamoto-cho, Kawasaki-ku, Kawasaki, 210-8577
Tel:044-200-3097 Fax:044-200-3996 E-mail:80suisin@city.kawasaki.jp

Issued in February 2025



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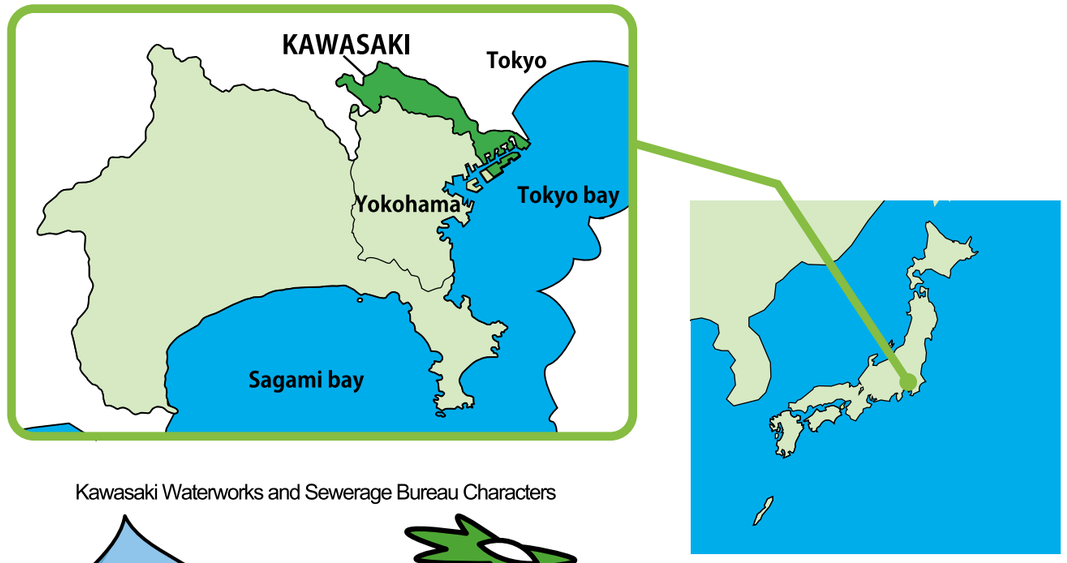
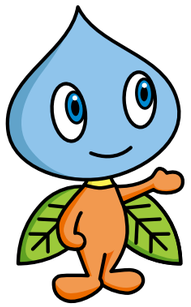


Kawasaki Waterworks and Sewerage Bureau Characters



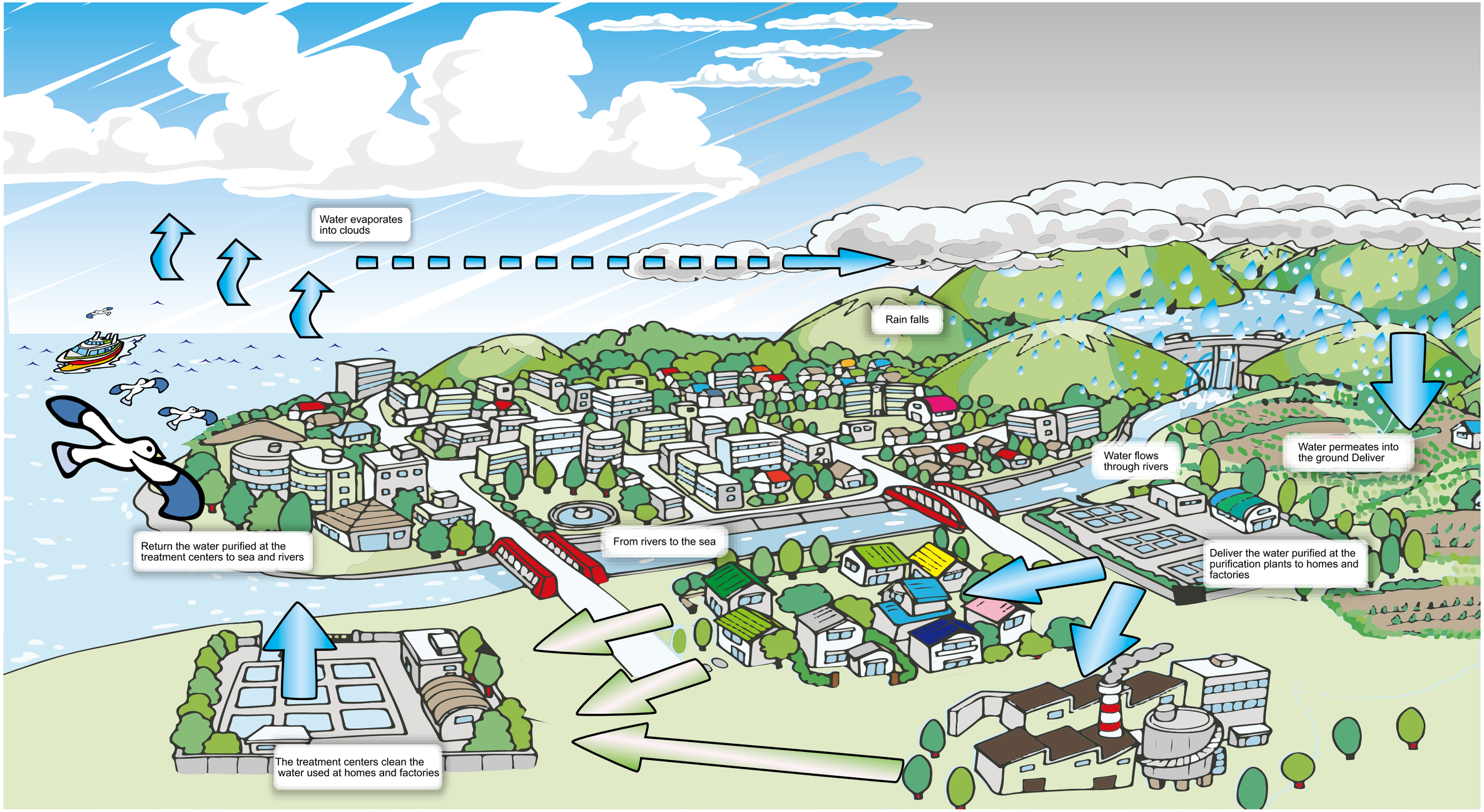
Watern

Kappy

Water Cycle

Water is an essential foundation of life—it has been cycling the globe and blessing us since the beginning of time. While of course benefiting from the continual cycle of water in the natural world, the waterworks and sewerage systems that support our daily lives/industrial activities also contribute to a sustainable cycle.

The “Fundamental Law on Water Cycle” stipulates that “water cycle is to be defined the process by which water evaporates, precipitates, flows in bodies of water/permeates into the ground, and then eventually reaches the ocean (particularly through the flow of above/below-ground rivers)”.
The water from Sagami and Tama Rivers serve as the water resource for Kawasaki; after purifying these resources into quality water for drinking and for industrial use, we distribute it to households and factories by utilizing differences in altitude.
And dirty water used in homes and factories is quickly eliminated by the sewage system, creating a comfortable living environment.The removed unclean water is purified into clean water at wastewater treatment centers and is returned to nature including the sea and rivers.
Kawasaki's Waterworks and Sewerage Systems utilize the blessings of nature and—as one part of the larger cycle of water in nature—work to provide water for drinking/industrial uses as well as to purify wastewater and discharge it back into nature in order to help maintain a sustainable cycle of water.

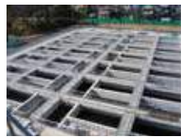


Structure of Waterworks, Industrial Water System and Sewerage System

Using an array of advanced water treatment technologies at our purification plants, we work to provide safe drinking water, as well as quality water for industrial use. In addition, we also treat the wastewater we receive from households/factories at our sewage treatment plants and then discharge the treated wastewater back into Tokyo Bay and the Tama River.

Structure of Waterworks

Activated carbon contact basin

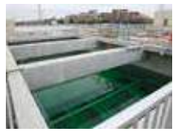


Water with a moldy smell is treated with carbon in order to remove the source of its smell.

Sedimentation basin

Mix the raw water with a coagulant (polychlorinated aluminum) to allow the precipitated suspended matter to from agglomerates called flocculation which will be removed later on.

Filter



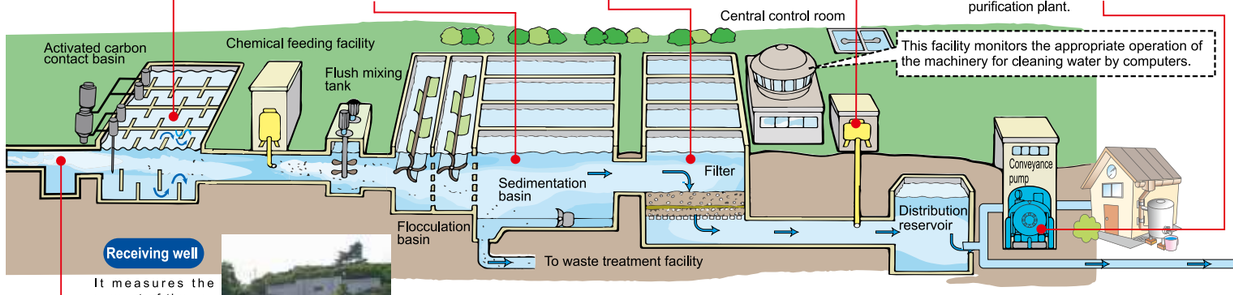
Particles and microorganisms that were not removed in the sedimentation basin are eliminated from water.

Disinfection facility

Using sodium hypochlorite, it disinfects the water cleaned by the filter beforehand, and produces potable water.

Conveyance facility

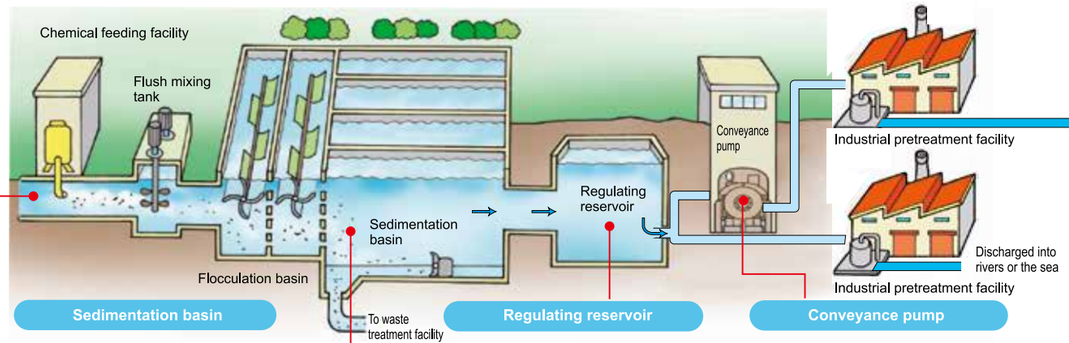
The cleaned water is stored in distribution water pond and distributed by flowing down naturally. The water is also pumped up to distribution water pond and towers that are higher than the water purification plant.



Receiving well

It measures the amount of the raw water that has passed through the raw water conveyance tunnel and sorts it out.

Structure of Industrial Water System



Sedimentation basin

Mix the raw water with a coagulant(polychlorinated aluminum) to allow the precipitated suspended matter to form agglomerates called flocculation which will be removed later on.

Regulating reservoir

The treated water goes into a regulating pond, where the amount of water distributed is adjusted according to the amount used by factories,etc.

Conveyance pump

The water in the regulating reservoir is sent to factories etc. by pumps or gravity flow.

Structure of Sewerage System

Sand setting basin-grit chamber

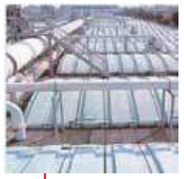
Large rubbishes are eliminated by screens, and sands are eliminated by allowing them to sink to the bottom.

Primary sedimentation tank

Sewage water is let into this tank slowly and fine rubbishes etc. are allowed to sink to the bottom; the supernatant is sent to the reactor and the sediment is sent to the sludge treatment facility (Iriezaki Sludge Treatment Center).

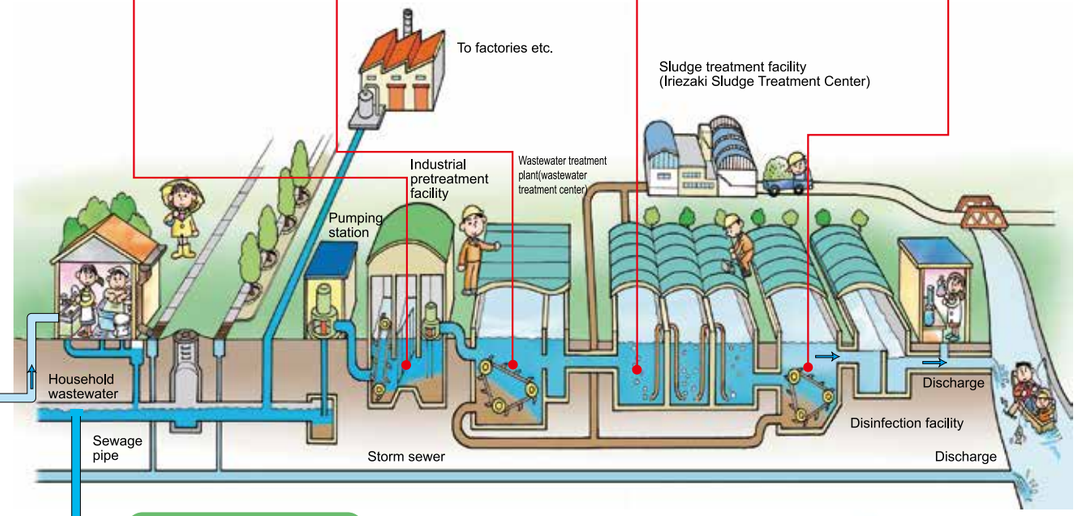
Reactor

Microorganisms in the tank (activated sludge) decompose the contamination with air drawn into the tank. This allows the contamination to accumulate into flocks of microorganisms that will sink to the bottom more easily.



Final sedimentation tank

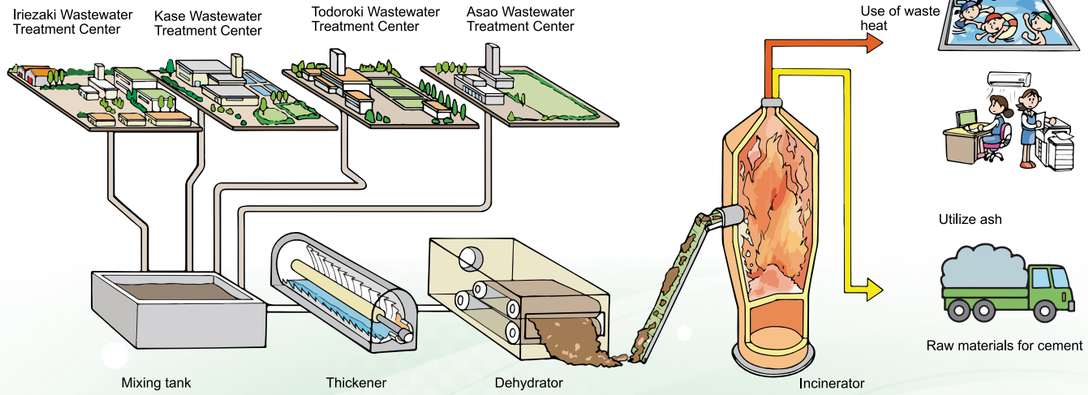
This separates the water contents into contamination, which was made easier to sink through the reactor, and the supernatant, which will be disinfected to be discharged later on, Sediments are sent the sludge treatment facility(Iriezaki Sludge Treatment Center).



Sludge treatment facility

This facility collects the sludge sunk in the sedimentation tank and burns it into ashes. The heat generated in this process is utilized in the pool and the ashes are used as a cement raw material.(※)

※Since due to the nuclear accident in the first Fukushima Nuclear Power Station we detected radioactive substances in the ashes utilized as a cement raw material, we temporarily suspend the utilization.



Overview of Waterworks in Kawasaki

The water we utilize in Kawasaki City comes from the Sagami River, whose resource is found in the bodies of Sagami Lake and Tsukui Lake. We convert these resource waters into safe/palatable water at the Nagasawa Purification Plant and then deliver it to households and businesses in the city through the utilization of altitude differences.

Since Kawasaki City's water service started in 1921, using surface water from the Tama River as its water source, several expansion projects were carried out, and by March 1981, when the 8th expansion project was completed, the plant had a water supply capacity of 1,026,000 m3 per day. These projects were required in order to cope with increasing water demand due to rapid population growth and development of industrial activities.In 2006, facing the issues as the background, such as large-scale renewal of aging water supply facilities, improvement of earthquake resistance, and discrepancy between water supply capacity and distribution volume, we began restructuring our waterworks business, like the consolidation of water treatment functions to Nagasawa Plant by abolishing the Shiomidai Water Treatment Plant and Ikuta Water Treatment Plant. In March 2016, the water supply capacity was reduced to 758,200 m3 per day, and the renewal and earthquake resistance of the water purification facilities were completed.

On the other hand, it is necessary to respond to changes in the business environment, such as the future demand for water, which is expected to slightly decrease due to the declining population, as well as the need to cope with increasingly severe natural disasters and the movement toward the realization of a decarbonized society. Currently, various initiatives are underway, including renewal and earthquake resistance of facilities and pipelines, reinforcement of backbone pipelines, measures against power outages and flooding, development of emergency water supply centers, etc., and measures to combat global warming.

Water Resource

The water resources in Kawasaki City includes own water resources such as river water of Sagami River water system and ground water in Tama Ward, and water received from the Kanagawa Water supply Authority (*) which has Sagami River and Sakawa River water systems as water resources.

Water Resourse Facilities

The Sagami River water system, one of our own water resources, takes its water from the Sagami Lake and Tsukui Lake consisting of the Sagami Dam and Shiroyama Dam managed by Kanagawa Prefecture. These water resources are used not only for tap water, but water resources for industrial use and power generation.

Purification Plants

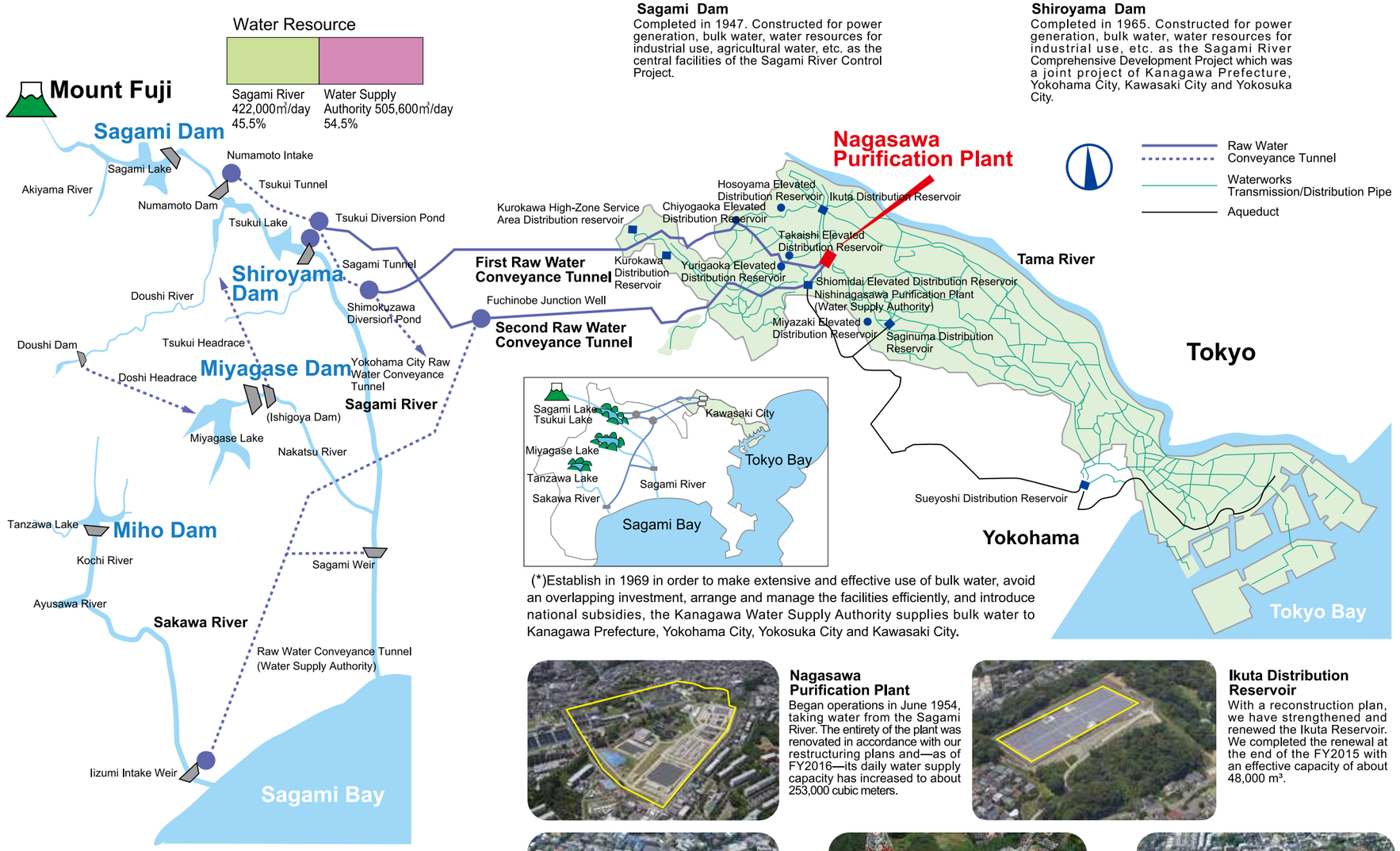
Water taken from the rivers, etc. is treated into safe and good-tasting tap water at the purification plants.

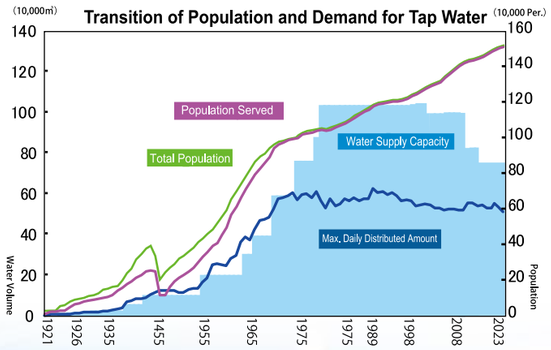
We have concentrated the city’ s three purification plants into the Nagasawa Purification Plant in accordance with our Restructuring Plans. As of FY2016, we are able to supply 252,600 cubic meters of water daily.

Distribution Facilities

The tap water produced at the purification plants is temporarily stored in the distribution reservoirs and elevated distribution reservoirs, controlling water distribution depending on water consumption which differs from one period of time to another. There are 7 distribution reservoirs in total, and 5 elevated distribution reservoirs, centering around the northwestern hilly terrain.

The distribution pipes are stretched in a finely meshed pattern throughout the city; its total extended length is about 2,400 km.





Sagami Dam
Completed in 1947. Constructed for power generation, bulk water, water resources for industrial use, agricultural water, etc. as the central facilities of the Sagami River Control Project.

Shiroyama Dam
Completed in 1965. Constructed for power generation, bulk water, water resources for industrial use, etc. as the Sagami River Comprehensive Development Project which was a joint project of Kanagawa Prefecture, Yokohama City, Kawasaki City and Yokosuka City.

(*)Establish in 1969 in order to make extensive and effective use of bulk water, avoid an overlapping investment, arrange and manage the facilities efficiently, and introduce national subsidies, the Kanagawa Water Supply Authority supplies bulk water to Kanagawa Prefecture, Yokohama City, Yokosuka City and Kawasaki City.

Nagasawa Purification Plant
Began operations in June 1954, taking water from the Sagami River. The entirety of the plant was renovated in accordance with our restructuring plans and—as of FY2016—its daily water supply capacity has increased to about 253,000 cubic meters.

Ikuta Distribution Reservoir
With a reconstruction plan, we have strengthened and renewed the Ikuta Reservoir. We completed the renewal at the end of the FY2015 with an effective capacity of about 48,000 m³.

Saginuma Distribution Reservoir
Completed in October of 1967. With an effective capacity of 112,000㎥, it is the largest distribution reservoir in our city.
The top surface of the distribution reservoir is used as a square, futsal courts and an elementary school’s playground. Seismic-reinforcement work was completed in FY2015 and the current effective capacity is 110,000 cubic meters.

Sueyoshi Distribution Reservoir
Located in Tsurumi Ward of Yokohama City, the renewal construction of this distribution reservoir was completed in FY2018, its effective capacity is 72,000㎥.

Shiomidai Distribution Reservoir
Our reconstruction plan had us get rid of the water purification function and turn this into a water distribution facility (i.e. reservoir, water pump, etc.) at the end of the FY2011. The reservoir was completed in March 1971, and has an effective capacity of about 27,000 m³. In the FY2018, seismic upgrades to the facility were completed. It was also annexed to the Kanagawa Water Supply Authority's Nishi-Nagasawa Purification Plant.

Overview of Industrial Water System in Kawasaki

The industrial water resources in Kawasaki City include river water of the Tama River and Sagami River originally from Sagami Lake and Tsukui Lake, treated into quality industrial water at Nagasawa Purification Plant and Ikuta Purification Plant, and delivered to plants and factories in Keihin Industry Belt, taking advantage of altitude differences.

Since Kawasaki City's industrial water system started its operation in 1937, as the Japan's first publicly owned industrial water service, the industrial water system, as a fundamental facility for the industrial economy, has undergone several expansion projects to cope with the increasing demand for water due to the development of industrial activities.In March 1966, when the fourth expansion project was completed, the system had a daily water supply capacity of 626,000㎥.Subsequently, with the background issues such as large-scale renewal of aging industrial water supply facilities, improvement of earthquake resistance, and discrepancies between water supply capacity and distribution volume, we have been promoting restructuring of the industrial water supply business since 2006, the water supply capacity was reduced to 520,000㎥ per day, and major facilities were upgraded and renewed in April 2010.

On the other hand, socioeconomic conditions are changing dramatically.So we need to keep a close eye on future water demand trends and respond to changes in the business environment, such as increasingly severe natural disasters and moves toward the realization of a decarbonized society.Currently, we have started to study ways to update the scale of our facilities to meet future demand trends. These efforts include renewal and earthquake resistance of facilities and pipelines, reinforcement of major backbone pipelines, countermeasures against power outages and flooding, global warming countermeasures, and many others.

Industrial Water Resource

The industrial water resources in Kawasaki City includes river water of the Sagami River and Tama River water systems, ground water in tama Ward and bulk water.

Water Resource Facilities

The Sagami River water system takes it water from the Sagami Lake and Tsukui Lake consisting of the Sagami Dam and Shiroyama Dam managed by Kanagawa Prefecture, These water resources are used not only for tap water and water resources for industrial use, but power generation. The Tama River water system takes surface water at the Inada Intake Station, which flows into the Nikaryo Reservoir from Kamigawara Dam, Ground Water is pumped up from 7 bored wells located in Tama Ward, making use of them as industrial water resources.

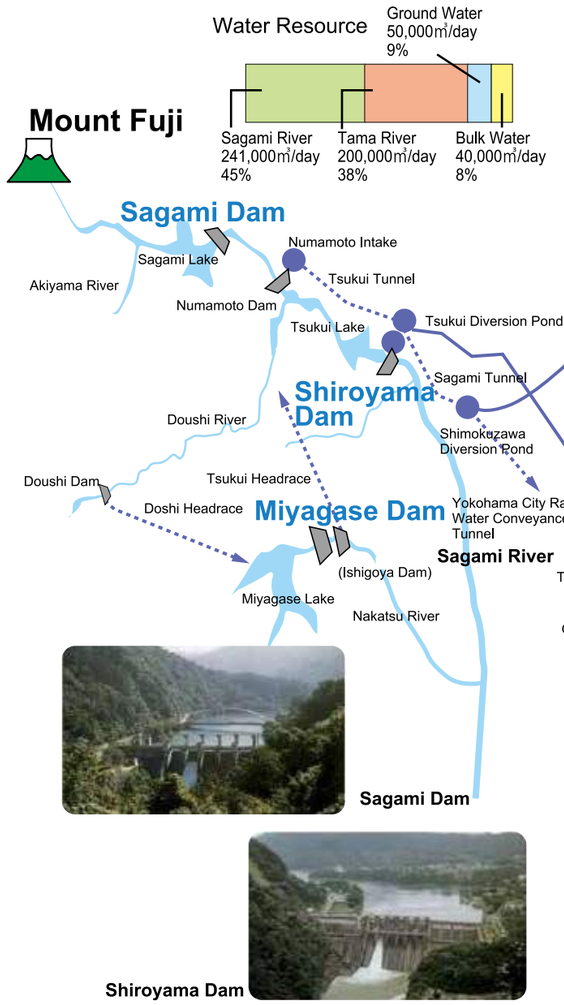
Purification Plants

Water taken from rivers is treated for industrial use at water purification plants.Two purification plants located in Kawasaki City have a daily treatment capacity of 480,000 ㎥ worth of the water resources for industrial use. Ground water does not need to be treated as the water resource for industrial use.

Transmission/Distribution Facilities

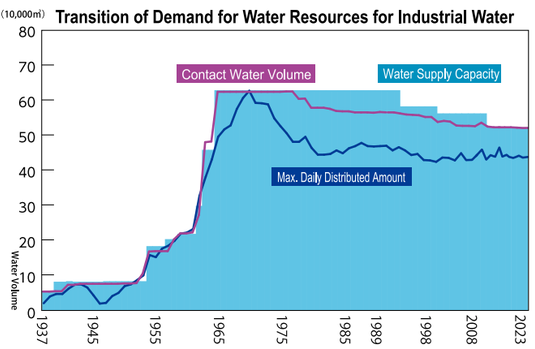
The purification plants and the Hirama Distribution Station have regulating reservoirs which store part of the water resources for industrial use to regulate a distributed amount and a water distribution pressure. The Hirama Distribution Station receives bulk water and controls water distribution.

The water resources for industrial use are fed through 3 transmission pipes from the purification plants; the extended length of the transmission pipes is about 53 km. The distribution pipes have been laid down about 43km in total length, centering around the coastal areas having many factories which consume the water resources for industrial water.



Sagami Dam

Shiroyama Dam



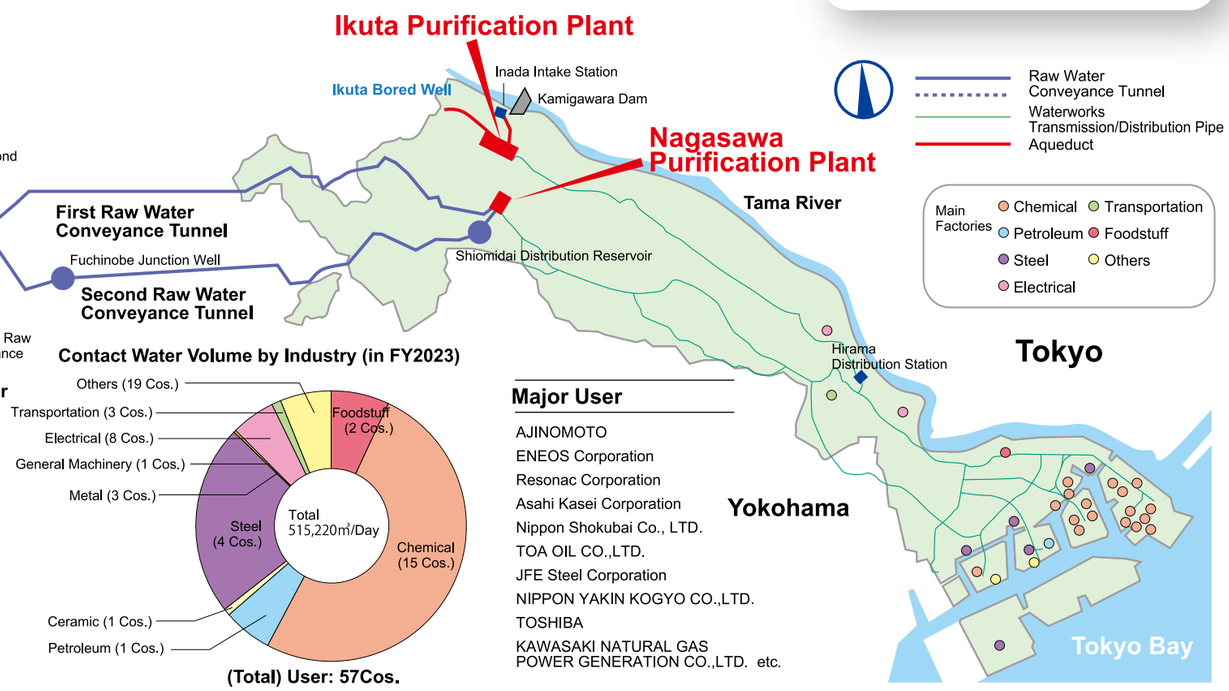
Inada Intake Station

River water of the Tama River diverted to the Nikaryo Reservoir by the Kamigawara Dam is taken at the Inada Station.

Ikuta Bored Well

Ground water is pumped up from 6 bored wells (shallow wells) in Tama Ward.

The water resources for industrial use are more economical than tap water and used for cooling, cleaning, etc. at the petrochemical factories, ironworks, etc. in the Keihin Industrial Zone in the coastal areas. (Photo: Coastal area, adjacent to Higashiohgishima)



(Total) User: 57Cos.
No. of factories : 77Fac.

Major User

AJINOMOTO
ENEOS Corporation
Resonac Corporation
Asahi Kasei Corporation
Nippon Shokubai Co., LTD.
TOA OIL CO.,LTD.
JFE Steel Corporation
NIPPON YAKIN KOGYO CO.,LTD.
TOSHIBA
KAWASAKI NATURAL GAS POWER GENERATION CO.,LTD. etc.

Nagasawa Purification Plant

Started passing water in June 1954. The original water is river water from the Sagami River, the treatment method is coagulation sedimentation process, and the water supply capacity is 235,000 m³/day. A regulating reservoir and other facilities were constructed under the Restructuring Plan.

Ikuta Purification Plant

Started passing water in 1962. The water source is river water and groundwater from the Tama River.The river water is treated by ultra-fast coagulation sedimentation process (groundwater is not processed), and the water supply capacity is 245,000m³/day.A regulating reservoir and other facilities were constructed under the Restructuring Plan.

Nagasawa Purification Plant Regulating Reservoir

Constructed under the Restructuring Plan and put into full operation starting from FY2013. Reservoir and other facilities were constructed under the Restructuring Plan.

Ikuta Purification plant Regulating Reservoir

Constructed under the Restructuring Plan and put into full operation starting from FY2013. Reservoir and other facilities were constructed under the Restructuring Plan.

Hirama Distribution Station

Regulates a distributed amount and a distributed pressure to the coastal areas having many factories which consume the water resources for industrial use. In accordance with our restructuring plans we renovated the regulating reservoirs and other facilities, and they were put into full operation from FY2016.

Approach to a Safe and Stable Water Supply by the Waterworks and Industrial Water System

In order to provide a constant supply of water for both industrial usage as well as tap water necessary for the daily use of Kawasaki citizens and places of work, we are continuing to develop the thoroughness of our water quality management, as well as establishing secure earthquake-proof measures.

In order to maintain and develop our waterworks and industrial water system for the future generations, we established “Kawasaki City Waterworks Vision” in March 2017. It is a vision to be shared for the next ten years, overviewing our future for the next 30 to 50 years.Its implementation plan,“Kawasaki City Waterworks Mid-term Project Plan” for FY2017–FY2021, The project was formulated in March 2017 and has been steadily implemented.
In March 2022, after properly evaluating the results of the implementation of the five-year medium-term plan, we formulated the "Kawasaki City Water Supply and Sewerage Business Medium-term Plan (2022-2025)" based on the current status and challenges of the business while accurately grasping changes in the business environment.The main policy organization of the mid-term plan of the waterworks and water resources for industrial usage is shown underneath.

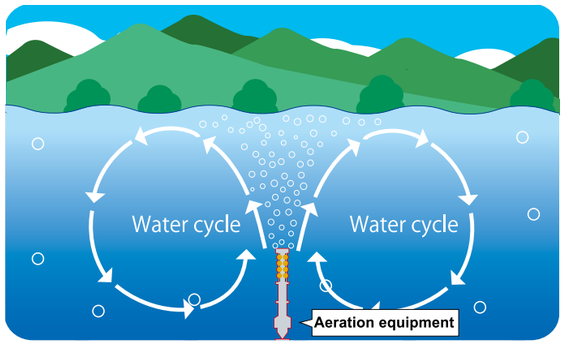
The Main Policy Organization of the Mid-term Plan of the Waterworks and Water Resources for Industrial Usage

≪The 10 Year Plan≫	≪Policy≫
1 Stable Supply of Good-quality, Safe Water 【Safety and Trust】	Thorough Management of Water Quality of our Waterworks and Industrial Water System
	Wide-scale Prefectural Cooperation between Waterworks and Kanagawa Water Supply Authority
2 Maintenance of Facility Operation during Disaste Situations 【Strong Disaster Resistance】	Reinforcement of water supply and industrial water supply functions in the event of a disaster
	Danger Management Policy of Waterworks and Waterworks for Industrial Use
3 Adequate Management and Renewal of Waterworks, Waterworks for Industrial Use and Water pipes 【Sustainability】	Facilities of Waterworks and Water Resources for Industrial Use, and Deterioration of Water Pipes Policy
	Facilities of Waterworks, Water Resources for Industrial Use, Water Pipe Maintenance Management
4 Consideration and Care of Water Environment and Global Environment 【Environment】	Global Warming Policies of Waterworks and Water Resources for Industrial Use
	Effective use of water supply and industrial water resources, and facilities

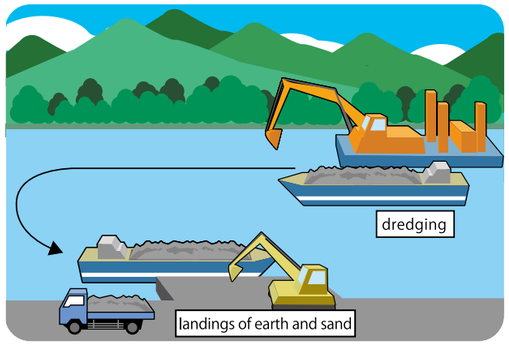
Thorough Management of Water Quality of our Waterworks and Industrial Water System

›› Preserving Water Quality at their Reources〔waterworks and industrial water system〕

At Sagami Lake and Tsukui Lake, which are the main natural resources of water in Kawasaki City, an excessive eutrophication can cause uncommon occurrence of Blue-Green Algae growth and consequently pollutes the water quality. In order to prevent this occurrence, we are working with other prefectural waterworks in order to control the growth of Blue-Green Algae, as well as asking support from agencies around this area to prevent water pollution. Implement dredging operations to prevent a disaster in the upper stream of Sagami Lake and maintain water storage capacity.



Aeration equipment



Dredging a water storage reservoir

›› Our Efforts in securing Safe, Palatable Water〔waterworks〕

Water quality inspections of water sources and response to water quality incidents are conducted by the Regional Water Quality Control Center established at the Kanagawa Regional Waterworks Corporation, while water quality inspections of water taps from water purification plants are conducted by Kawasaki City, with a coordinated inspection system based on information sharing.
As part of our efforts to provide safe and delicious water, we operate a "Water Safety Plan," a method of risk management at all stages from the water source to the tap, to enhance the certainty of water quality management, and have formulated a "Water Quality Inspection Plan" to indicate the items, location, and frequency of water quality inspections to ensure the appropriateness and transparency of water quality inspections.
We have also acquired certification under the "Waterworks GLP" standard to ensure the accuracy of water quality inspections, and are working to improve the reliability of inspection results. Furthermore, we are working to reduce the residual chlorine concentration in order to produce good-tasting water with less chlorine odor.

Towards a safe and palatable water supply

Water Safety Plan	Water Quality Inspection	Waterworks GLP
Increases certainty of water quality control	Increases transparency of water quality testing	Increases the reliability of test results


Water sampling operations for periodic water quality inspections


Water-quality test operation

Water Service System Without Receiving Tank to Public Elementary and Junior High Schools 〔waterworks〕

In regard to the service for public elementary schools and junior high schools, in cooperation with the board of education we are currently working on establishing a direct connection with water pipes instead of using water tanks. This system provides constant, safe and palatable water and allows us to pass on the potable tap water to the next generation. It is also effective with regards to energy consumption as pumping facilities need less electricity to create pressure in the water pipes.

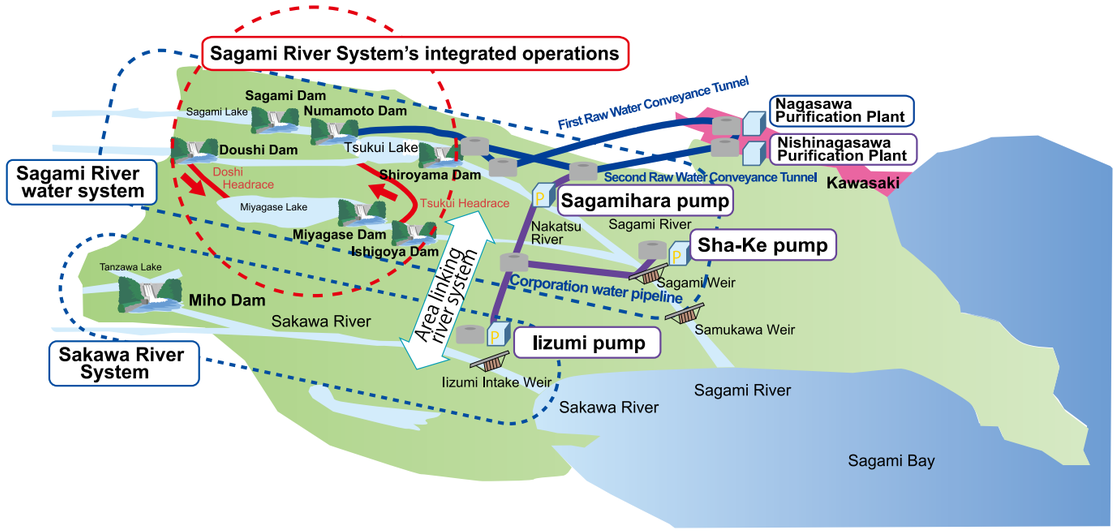
Water Service System Without Receiving Tank Sticker

Water Service System Without Receiving Tank PR poster

Wide-scale Prefectural Cooperation between Waterworks and Kanagawa Water Supply Authority

Use of Water Transportation due to Mutual Cooperation of Dam Usage 〔waterworks and industrial water system〕

We will continue to provide a stable water supply by connecting Sagami, Shiroyama and Miyagase dams by waterway for effective use. Moreover, in cooperation with other facilities of prefectural waterworks alongside both Sagami and Sakawa rivers, this stabilized water supply will continue to grow.



Water operations image outlining the interconnected dams, etc.

Reinforcement of water supply and industrial water supply functions in the event of a disaster

Earthquake-proofing Facilities 〔waterworks and industrial water system〕

Earthquake-proofing of water purification facilities is now 100% effective due to the reconstruction plan of facilities and the completion of earthquake proof renovations at Nagasawa Purification Plant. We will continue to improve the earthquake resistance of water distribution reservoirs and distribution towers. Moreover, earthquake-proofing of industrial water facilities is 100% completed, as regulation reservoirs in Nagasawa and Ikuta PurificationPlants and Hirama Distribution facility have been already renovated to be earthquake-proof. Seismic upgrades for the water purification facilities were also completed in the fiscal year of FY2017.

Earthquake-proofing Facilities (Sueyoshi Distribution Reservoirs)

Earthquake-proofing Water pipes. 〔waterworks〕

With a target of replacing 40 km of pipelines a year, water pipes that are due for replacements will be retrofitted and reinforced for earthquake resistance. Since we have completed the seismic retrofitting of supply routes of important infrastructures (municipal elementary, junior high, senior high schools and other structures that act as evacuation centers, and crucial medical institutions), we will continue to efficiently and effectively upgrade the earthquake resistance of pipelines buried along emergency transportation roads and supply routes to facilities such as fire stations and police stations that need to continue water supply even in case of disaster according to disaster prevention plans.

Earthquake-proofing Water pipes

Establishment of Emergency Water Supply Bases〔waterworks〕

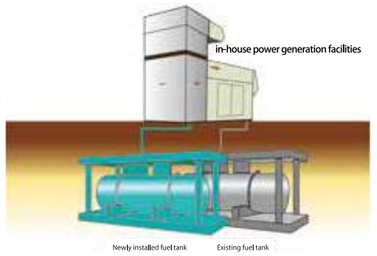
Please refer to Page 23 “Ensuring drinking water supply” .

Maintenance of Drinking Water during Natural Disasters〔waterworks〕

Please refer to “Emergency water supply locations” on Page 23.

Power outage countermeasures for facilities 〔waterworks and industrial water system〕

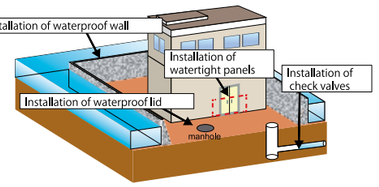
To prepare for power outages in the event of earthquakes and other disasters, we have been installing double commercial power sources and emergency private power generation equipment, etc. In the event of power outages caused by the Great East Japan Earthquake and other recent disasters, which took a long time to restore power, we will further increase the number of fuel tanks for emergency in-house power generation facilities installed at important facilities and other facilities, and will further increase the number of fuel tanks in conjunction with the replacement of in-house power generation facilities.



Expansion of fuel tanks

Flooding countermeasures for facilities 〔waterworks and industrial water system〕

Of the facilities that are included in the expected flooding area in the event of a flooding disaster such as a river flooding, we will avoid or reduce damage based on the results of damage assessment for facilities with a high priority for implementation of inundation countermeasures (flood proofing). Countermeasure methods are classified into "flood prevention measures" to prevent flooding and avoid damage and "flood reduction measures" to mitigate damage and enable early restoration, and flood countermeasures (flood proofing) are implemented using methods appropriate for each facility.



Flooding measures for facilities (example)

Facilities of Waterworks and Water Resources for Industrial Use, and Deterioration of Water Pipes Policy

Reinforcement of Disaster Response Capability and Cooperation in Times of Disaster〔waterworks and industrial water system〕

Please refer to “ "Strengthening Disaster Response Capabilities and Cooperation in Times of Disaster" on Page 23.

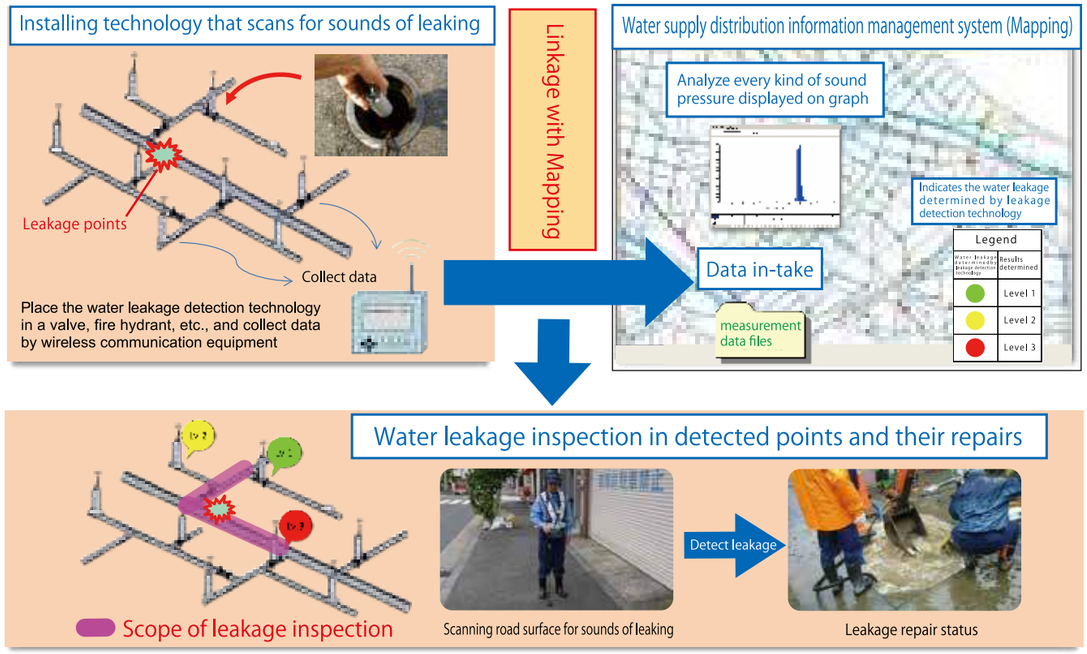
Facilities of Waterworks and Water Resources for Industrial Use, and Deterioration of Water Pipes Policy

» Water Pipe Plan Renewal and Renovation 〔waterworks and industrial water system〕

The renewal of the waterworks and industrial water system water pipes is currently in progress. For small-diameter pipelines with a bore size of 350 mm or less, we will continue to promote the renewal of aging water distribution pipes (pipelines with functional maintenance and earthquake resistance issues due to their materials and joint types).Regarding core conduits with a diameter over 400mm, we will systematically renew them while ensuring their full and long-lasting use and considering their degree of importance, earthquake-proofing etc., material quality, and coupling types.The total length of water pipelines is 2,500 km, and we will promote the renewal of pipelines that are due for renewal, with an annual target of renewing approximately 40 km.

» Maintenance and Management of Water Pipes〔waterworks and industrial water system〕

Regarding items included in the water distribution pipeline, to guarantee pristine functionality, we are continually conducting systematic inspections, investigations, exchanges, etc. Furthermore, we also run leakage prevention counter measures by means of underground leakage investigations, etc. that use ICT (Information-Communication Technology).



Efficient inspections of underground leakage using ICT (Information-Communication Technology)

» Maintenance of water supply pipes〔waterworks〕

Since aging water pipes may affect water quality and cause secondary disasters such as road cave-ins due to leakage, we are renewing aging water pipes on public roads and parts of private property (from the road boundary to a horizontal extension of 2 m for water pipes). In addition, new distribution pipes will be installed along public roads where water pipes are not buried and where water pipes are congested, in order to eliminate the congestion of old water pipes.

Global Warming Policies of Waterworks and Industrial water system

» Effective Use of Reusable Energy〔waterworks and industrial water system〕

Please refer to “Small Scale Generation of Hydro-Electricity” on Page 39, and “Installation of solar power generation systems and generation of electricity” on Page 40.

» Energy Saving Measures〔waterworks and industrial water system〕

Please refer to “Adoption of Energy-Saving Apparatus” and “Natural Flow of Water Intake, Water Supply and Distributed Water” on Page 39.

Effective Usage of resources and facilities for Waterworks and Industrial water system

» Effective Utilization of Generated Sludge〔waterworks and industrial water system〕

Please refer to “Effective use of soil generated from water purification and sewage sludge” on Page 40.

Overview of portable water resource facilities

Name	Effective storage capacity(million ㎥)	Type	Commissioning Entity
Sagami Dam	48.2	Concrete gravity dam	Kanagawa Prefectural Public Enterprises Agency
Numamoto Dam	1.534	Concrete gravity dam	Kanagawa Prefectural Public Enterprises Agency
Shiroyama Dam	51.2	Concrete gravity dam	Kanagawa Prefectural Public Enterprises Agency
Miyagase Dam	183	Concrete gravity dam	Kanto Regional Development Bureau of the Ministry of Land, Infrastructure, Transport and Tourism
Miho Dam	54.5	Soil impervious wall type rockfill dam	Kanagawa Prefectural Public Enterprises Agency

Overview of waterworks facilities

Purification facilities

Name of Purification Plants	Installed capacity(㎥ /day)	Treatment method
Nagasawa purification plant	280,000	Rapid sand filtration method

Distribution facilities (distribution reservoir)

Name of distribution reservoirs	Effective storage capacity(㎥)
Nagasawa Distribution Reservoirs	40,622
Shiomidai Distribution Reservoirs	27,262
Ikuta Distribution Reservoirs	47,698
Saginuma Distribution Reservoirs	109,608
Sueyoshi Distribution Reservoirs	72,082
Kurokawa Distribution Reservoirs	14,784
Kurokawa High-Zone Service Area Distribution Reservoirs	1,998

Distribution facilities (elevated distribution reservoir)

Name of elevated distribution reservoir	Effective storage capacity(㎥)
Takaishi Elevated Distribution Reservoirs	6,280
Yurigaoka Elevated Distribution Reservoirs	514
Hosoyama Elevated Distribution Reservoir	1,899
Chiyogaoka Elevated Distribution Reservoirs	3,504
Miyazaki Elevated Distribution Reservoirs	2,926

Takaishi Elevated Distribution Reservoir

Chiyogaoka Elevated Distribution Reservoir

Overview of Industrial water facilities

Water resource facilities

Name of facilities	Amount of water intake (㎥ /day)	Water system
Suge wells sinking for Industrial water	50,000	Groundwater
Inada Water Intake Station	200,000	Tama River surface water

Purification facilities

Name of purification plants	Installed capacity (㎥ /day)	Treatment method
Nagasawa Purification Plant	275,000	Coagulation-sedimentation process
Ikuta Purification Plant	200,000	Ultra-high rate coagulates sedimentation process

※Groundwater is not purified.

Distribution facilities (regulation reservoir)

Name of regulating reservoir	Effective storage capacity(㎥)
Nagasawa Regulating Reservoir	6,920
Hirama Regulating Reservoir	6,197
Ikuta Regulating Reservoir	6,626

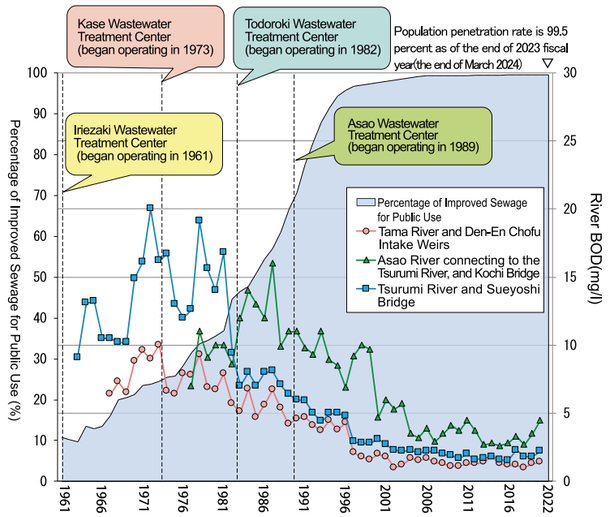
Overview of the Sewerage Systems of Kawasaki

Kawasaki City's Sewerage Administration Department provides quality sewerage services, protecting citizens' safe and comfortable life, as well as considering the environment.

Kawasaki sewage works was developed in 1931 to avoid flooding in the old town surrounding Kawasaki Station. From 1963, based on the 5-year-plan in cooperation with national government, a policy of establishing sewerage for 100% of the population to improve the quality of public water was established. The 5-year plan took place 8 times, and as a result, in March 1995 sewage works reached 90% of the population. Currently, it has reached 99.5%.

Due to these actions, the water quality of the sea and rivers has been improved, and the bubbles of neutral detergent completely covered the surface Tama River during the 1960s and 1970s but in recent years the "Ayu" known as sweet fish have been swimming upstream and this water environment has been greatly beneficial to them.

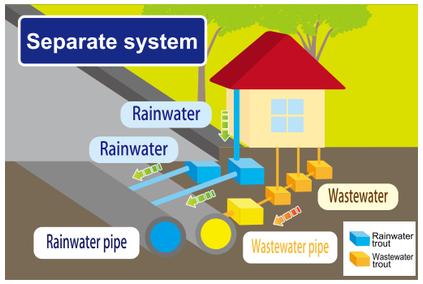
In addition to sewage treatment and rainwater elimination, the roles required of sewage systems have become increasingly diverse and sophisticated over time. The city is taking various measures against wind and flood damage, which are becoming more severe and frequent due to climate change, as well as earthquake countermeasures, aging countermeasures, advanced treatment, and global warming countermeasures.



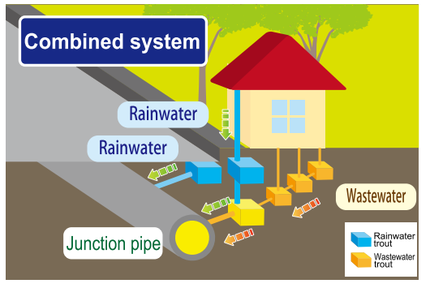
※The BOD is an indicator that tells how polluted water is. Generally speaking, the higher the number, the more polluted the water, and vice versa.

» Drainage method of sewerage systems

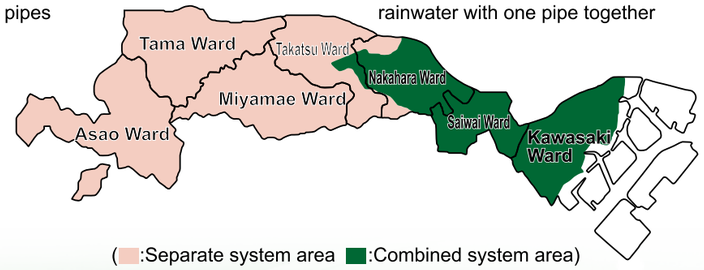
sewerage systems include combined systems, which flush down rainwater and household wastewater(wastewater from the toilet and laundry)through single sewer pipes, and separate systems that flush them down through separate sewer pipes .In Kawasaki City , Iriezaki Treatment District and a part of the Kase Treatment District use the combined system, while the other section of the Kase Treatment District, the Todoroki Treatment District,and the Asao Treatment District use the separate system.



●Method to drain wastewater and rainwater with separate pipes



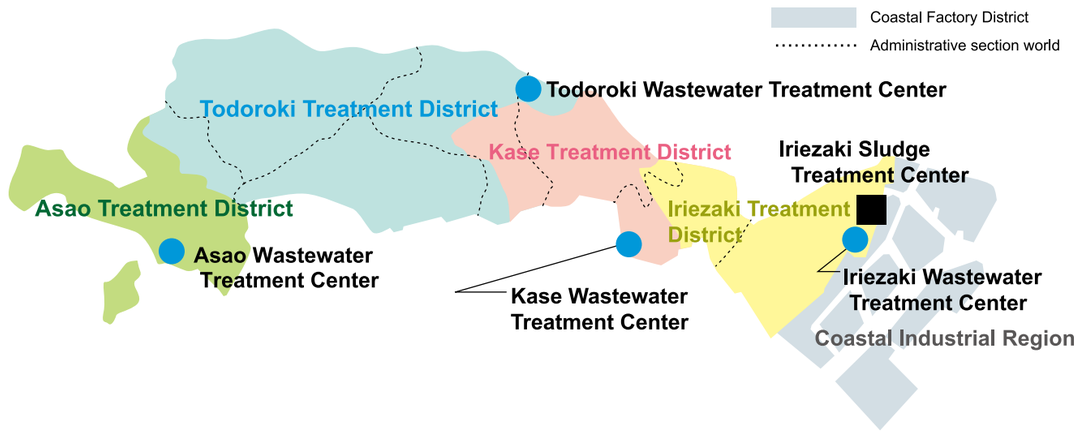
●Method to drain Wastewater and rainwater with one pipe together



(:Separate system area :Combined system area)

»Sewage facilities

The sewage water collected by sewer pipes(3,162km) go through pumping stations to Wastewater Treatment Centers (wastewater treatment plants), where the wastewater is cleaned and discharged to public water bodies. Rainwater is directly discharged to public water bodies, and in case of combined sewerage systems it is temporarily stored in stormwater tanks and storage pipes for the purpose of preserving the quality of public water bodies, and then it is discharged after treated at wastewater treatment centers. Meanwhile, the sludge generated in the process of sewage treatment is collected in sludge treatment center(incineration facilities) and burned.



Iriezaki Wastewater Treatment Center

It began operation in September 1961. The treatment district is composed of the entire Kawasaki Ward and parts of Saiwai and Nakahara Wards, all covered by combined systems. As a full scale sewage treatment center, the center in Kanagawa prefecture is the one of the oldest sewage plants in Japan.Upon the completion of part of the Eastern System in FY2002 and the West Line Advanced Wastewater Treatment System Facilities in FY2018, treated water has been efficiently used in the Zero-Emission Industrial Complex of the Coastal Area and adjacent bus service offices.

Kase Wastewater Treatment Center

It began operation in in November 1973. It covers the area composed of Saiwai, Nakahara, Takatsu Wards and a part of Miyamae Ward which are located among Tama River, Yagami River and Tsurumi River and use combined systems and separate systems. The upper part of the facility is used as a multipurpose space in normal times and as an emergency evacuation site in times of disaster.

Todoroki Wastewater Treatment Center

Beginning operation in November 1982. It covers the area over the right bank of Tama River including Nakahara, Miyamae, Takatsu, Tama and Asao Wards and uses separate systems. It is an entirely underground wastewater treatment facility constructed in the Todoroki Ryokuchi Park. A part of the advanced wastewater treatment facility was completed in FY2003, the treated water is effectively used as headwater for Egawa Seseragi Promenade.

Asao Wastewater Treatment Center

Beginning operation in March 1989, it covers a greater part of Asao Ward and uses separate systems. An advanced wastewater treatment facility was partly completed in December 2000 and started service. Pedestrain malls are arranged around the facility, and the upper part is also opened as a multipurpose space.

Iriezaki Sludge Treatment Center

It began operation in November 1995. In order to effectively maintain sludge treatment, sludge is collected in 4 treatment centers within the city and is transported through a conveying pipe and then incinerated. The waste heat generated from this process is utilized for heated swimming pools. All amounts of the burnt ashes are effectively used as a cement raw material.

Our Strategy to form a Good Circulatory Function of our Sewerage Systems

We provide fine sewerage services by designing medium to long term plan to project public's secure and comfortable life with care for the environment.

In the future, in order for the waterworks and industrial water system in our city to all-round develop and to expand alongside future generations, it has become necessary for us to take a hard look at the current situation (2017) within the next 30 to 50 years and over the next 10 years implement the "Kawasaki City Waterworks Vision", and "Kawasaki City Waterworks Mid-term Project Plan" (from FY2017-FY2021) which is set to begin in March 2017. The project was formulated in March 2017 and has been steadily implemented. In March 2022, after properly evaluating the results of the implementation of the five-year medium-term plan, we formulated the "Kawasaki City Water Supply and Sewerage Business Medium-term Plan (2022-2025)" based on the current status and challenges of the business while accurately grasping changes in the business environment.The main policy organization of the mid-term plan of the waterworks and water resources for industrial usage is shown underneath.

The Main Policy Organization of the Mid-term Plan of the Sewerage System

≪The 10 Year Plan≫	≪Policy≫
1 Preparations for Heavy Rain and Flooding 【Safety and Trust】	Flooding Countermeasures
2 Maintenance and management during disasters 【Strong Disaster Resistance】	Earthquake Disaster Measures concerning Underground Water Pipelines and Facilities
	Crisis Management Measures of the Sewerage System
3 Renewal and Managment of Pipelines and Facilities 【Sustainability】	Waterpipe and Facility Deterioration Measures
	Maintenance of Water Pipes and Facilities
4 Creating a Clean Water Environment 【Environment】	Highly Filtered Sewage
	Improvement of Combined Sewerage Systems
	Providing a Sewerage System to 100% of the Population
	Sewerage works guidance and water quality control
5 Global Environment 【Environment】	Global Warming Countermeasures
	Natural Resources of Sewage, Effective Usage of Facilities

Flooding Countermeasures

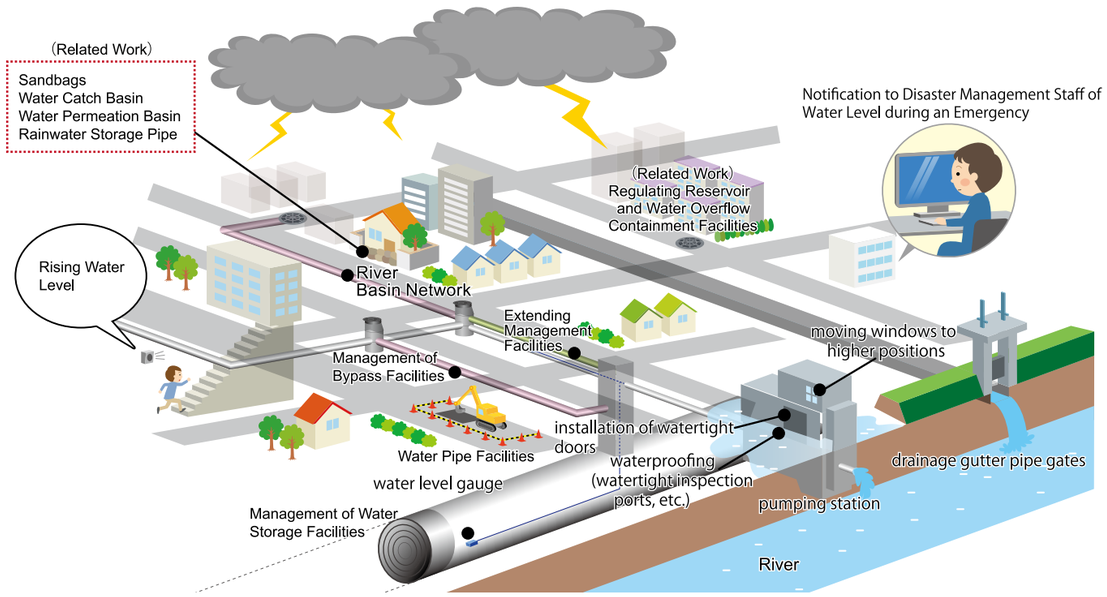
Due to cities progression in recent years, heavy rainfall happening over a short time period and isolated showers etc. correspond to the increase of the flow of rain water and climate change. Due to the change as to how the rain falls, the risk of flooding is increasing. We are therefore continuing to place much effort into creating a stronger, more stable waterworks system to avoid overflow.

» Flood control measures in priority areas and limited area to a certain region

In response to the increasingly severe and frequent flooding caused byclimate change, based on flooding records and flooding simulations,
we have designated areas with high risk of flooding as priority areas and are steadily implementing floodingcountermeasures, including the mainte nance of rain water drain pipelines.In addition, effective flood counter measures based on regional characteristics will be promoted for locally inundation areas, such as areas around drainage pipes that were inudaed by the East Japan Typhoon in 2019, and other areas that are inundated due to geographical factors or partial capacity shortage of drainage facilities. As a short-term measure, we have so far installed motorized gates and observation equipment, and intro duced a drainage pump truck.We will continue to promote medium and long-term measures by upgraing pump gate facilities and pum ing stations.

Daishigawara Storage Pipe
(Operations started in March 2019)

Electrification of drainage gutter pipe gates
(started operation in July 2020)



Flood Policy Course of Action

» Waterproofing of Water treatment center and pumping station

At water treatment centers and pumping stations, we will promote waterproofing in stages according to the magnitude of risk in the event of a disaster and the importance of the facilities, thereby ensuring the necessary sewerage functions in the event of a disaster.

Waterproofing of facilities (watertight panels)

Earthquake Disaster Measures concerning Underground Water Pipelines and Facilities

In Kawasaki City, too, there is concern that the city may be hit by a large scale earthquake in the near future. To prevent the loss of sewer functions even in the event of a large-scale earthquake, the city will systematically and efficiently promote earthquake countermeasures for sewer pipes and facilities, including the reinforcement of pipelines and the promotion of earthquake resistance in conjunction with seismic reinforcement and reconstruction of facilities.

» Water Pipe Earthquake Countermeasures

Among the important pipe lines that are not earthquake-resistant, priority is given to earthquake-resistant pipe lines connecting water treatment centers with wide-area evacuation centers, regional disaster prevention centers/evacuation centers, and medical institutions positioned in the regional disaster prevention plan.

Earthquake-proofing important Water Pipes throughReorganization Measures

» Earthquake Countermeasures of the Water Treatment Center and Pumping Stations

To prevent sewage water from remaining in pipelines and overflowing into urban areas even in the event of a large-scale earthquake, we will promote the earthquake proofing of water treatment centers and pumping stations in phases. The earthquake proofing of the functions that operate and control the facility (management functions) was completed in 2019, and efforts are underway to upgrade the earthquake proofing to ensure the sewage pumping and disinfection functions.

Earthquake proofing Buildings under Construction(by using braces etc.)

» Secure fuel storage capacity

Efforts are underway to increase existing fuel storage capacity, as it will be necessary to secure the necessary fuel to maintain sewer functions for the first 72 hours after the disaster. See "Strengthening Disaster Response Capabilities and Cooperation in Times of Disaster" (page 23) and "Conducting Drills" (page 29).

Crisis Management Measures of the Sewerage System

» Improving our Ability to continue functioning as normal in Disaster Situations

See "Strengthening Disaster Response Capabilities and Cooperation in Times of Disaster" (page 23) and "Conducting Drills" (page 29).

» Strengthen coordination and promoting disaster risk information during disasters

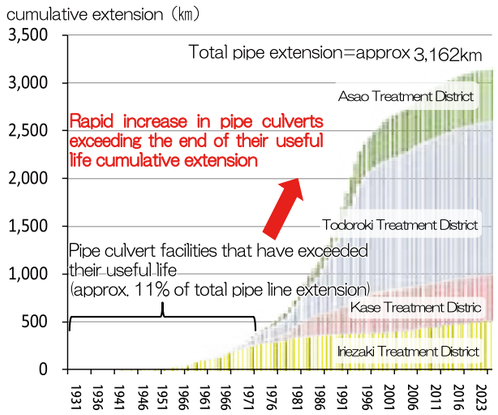
See "Strengthening Disaster Response Capabilities and Cooperation in Times of Disaster" (page 23) and "Promotion of Transmission for Disaster Risk Information" (page 30).

Deterioration Measures and Maintenance of Water Pipes and Facilities

In the sewage system, which has a huge stock, aging of facilities is expected to further accelerate in the future. Therefore, we will promote aging countermeasures that balance medium- and long-term risks and costs.

» Reconstruction of Waterwork Pipes

The length of the water pipes in Kawasaki City reached 3,162km (as of FY2023) and during this, over the past 50 years 358km of these pipes have been deteriorating – 11.0% in total. In the near future, we expect a large increase in the deterioration of pipes, and we will reconstruct these pipes alongside their appropriate risk management as well as average workload in order to offer a stable waterworks service.



Management of extension for sewer pipeline (as of the end of Fiscal year 2023)

» Reconstruction of Wastewater Treatment Center and Pump Facilities

We are currently working on the renewal of the aging sewage facilities that are reaching their replacement date in our city. In addition, as the facility is reconstructed, we will upgrade its functions (energy saving, water resistance, earthquake resistance, improved treatment capacity, etc.).

Reconstruction project of Watada Pumping Station (Left: Reconstruction status, Right: Completion image)

Reconstruction project of Iriezaki General Sludge Center (left: before reconstruction, right: completed image)

» Renewal and life extension of facilities at water treatment centers and pumping stations

For the countermeasures against aging mechanical and electrical equipments, we prioritize the renewal and life extension of equipment based on the condition of the equipment and the risk of functional deterioration of the water treatment center and pump stations in the event of equipment failure, and then proceed efficiently and effectively with a combination of renewal and life extension to minimize the equipment life cycle costs.

» Management and Maintenance of Wastewater Treatment Center Sewerage Water Pipes and Pumps

In order to keep sewage pipelines, water treatment centers, and pump station facilities in sound condition, we conduct maintenance management that combines preventive maintenance with planned inspections, investigations, and repairs. In addition, the asset management information system allows us to manage maintenance and facility information in an integrated manner, thereby implementing appropriate asset management through the effective use of information.

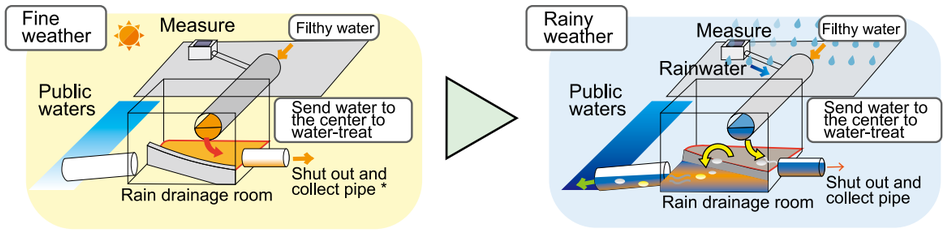
Inspection status of equipment using tablets

Highly Filtered Sewage

All of the processed sewage from our city all eventually runs into Tokyo bay and this includes remains such as nitrogen and phosphorus etc. which continue the eutrophication process. As this causes problems such as red tide damage etc., further water quality improvement is necessary.
Tokyo and 3 prefectures surrounding Tokyo Bay have formulated the “Comprehensive Basin-wide Planning of Sewerage Systems in Tokyo Bay Plan”, and the local government relations which include our city are working on improving facilities’ function of purification in order to clear the target stated in the planning. In our city, a higher level of water purification is being conducted in certain facilities and we will continue to tackle the removal of nitrogen and phosphorous, as they cause the eutrophication process.

Improvement of Combined Sewerage Systems

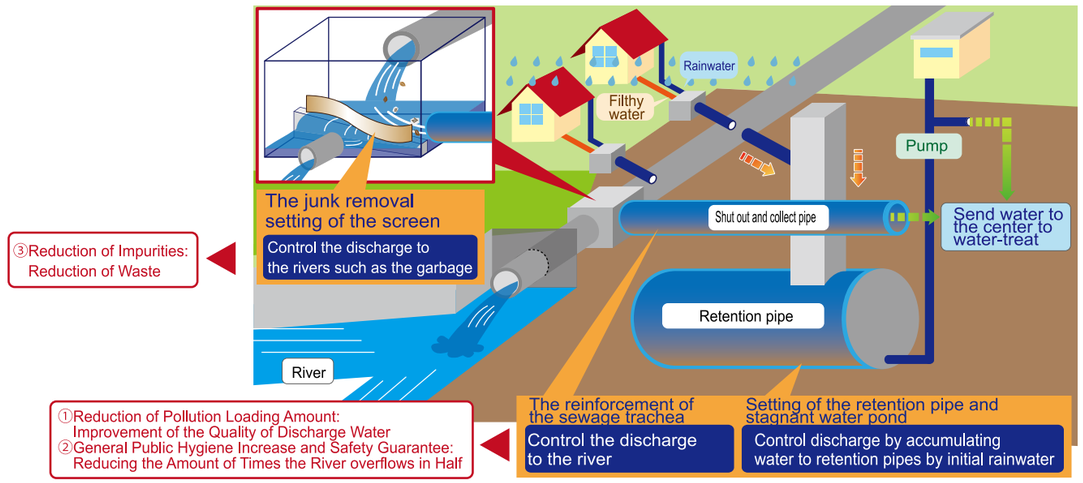
In the combined sewer system the water contamination and hygienic safety is a serious problem as dirty water sometimes mixes with rain water in rainy weather and partially runs into public waters without being treated. Therefore, the amount of untreated water must be kept to as little as possible. Since it takes a considerable amount of time ensure these measures completely, our law fixed a standard to be cleared by FY2023. In our city, we have pointed out several technical issues to be fixed in order to achieve this standard and we are currently working for further improvement.



All wastewater is sent to one of the city's wastewater treatment centers.

When the sewage level rises too high as a result of excess rainfall, a portion of sewage containing both rainwater and wastewater discharges directly into public bodies of water.

Construction of Merging Sewerage Systems



Improvement example of combined sewerage systems

Providing a Sewerage System to 100% of the Population

The rate of the population who access the sewerage filtration is at 99.5% and is very nearly used by the whole city. Also, due to the sewerage facilities, the river water quality is improving. We are now aiming at 100% to dissolve the regions spread.

Workplace guidance and water quality control of sewerage systems

In order to prevent wastewater from interfering with the function of thesewerage facilities, the Water Treatment Center monitors wastewater from business sites and provides guidance to business operators to prevent wastewater that may interfere with the treatment of the water treatment center.
In addition, to ensure that appropriate water treatment can be implemented in response to the daily changes in incoming sewage,necessary water quality inspections are conducted periodically at each stage of the water treatment process, and good, clean water is continuously returned to the river and ocean.

Wastewater sampling at business sites

Global Warming Countermeasures

Please refer to “Energy Saving and Reduction of Greenhouse Gas Emissions” and “Efficient Use of Reusable Energy Sources” on Page 39.

Natural Resources of Sewage, Effective Usage of Facilities

Please refer to “Effective Use of Resources and Energy” on Page 40.

Overview of facilities

Wastewater treatment centers

Name of wastewater treatment centers	Iriezaki	Kase	Todoroki	Asao
Time of starting operation	September 1961	November 1973	November 1982	March 1989
Planned treatment area(ha)	2,009	1,871	5,490	1,920
Planned treatment population(people)	322,700	318,900	681,500	143,200
Planned treatment capacity(㎥/day)	318,600	168,900	313,900	62,800
Treatment method	○Conventional activated sludge process ○Carrier-use anaerobic-anoxic-oxic process	○(Pseudo) Anaerobic aerobic activated sludge method	○Anaerobic-oxic Oxygen aeration activated sludge process, Biological aerated filter + ozonation	○(Pseudo) Anaerobic aerobic activated sludge method ○Carrier-use anaerobic-anoxic-oxic process
Effluent water area	Tokyo Bay	Tributaries of Tsurumi River/Yagami River	Tributaries of Tama and Tsurumi River/Yagami River	Tributaries of Tsurumi River/Asao River

Sludge treatment center facilities

Division	Iriezaki Sludge Treatment Center
Time of starting operation	November 1995
Planned treatment capacity(t-DS/day)	120
Treatment method	Concentration-dehydration-incineration (fluidized bed incinerator)

Pumping station facilities

Treatment district	Name of pumping station	Time of starting operation	Pump type	Treatment district	Name of pumping station	Time of starting operation	Pump type
Iriezaki	Rokugo	March 1935	Rainwater/wastewater	Kase	Maruko	June 1962	Rainwater/wastewater
	Oshima	December 1938	Rainwater/wastewater		Kase	October 1961	Rainwater
	Watarida	November 1943	Rainwater/wastewater		Shibukawa	September 1975	Rainwater
	Kyomachi	June 1952	Rainwater/wastewater		Tennomori	August 1973	Rainwater
	Furuichiba	January 1953	Rainwater/wastewater		Egawa	February 1988	Rainwater
	Kannongawa	July 1953	Rainwater/wastewater		Kanigaya	August 1991	Rainwater
	Daishigawara	July 1955	Rainwater/wastewater		Hisasue	August 1991	Rainwater
	Tode	September 1967	Rainwater/wastewater	Todoroki	Noborito	June1964	Rainwater
	Komukai	March 1956	Rainwater/wastewater		Todoroki	June 1973	Rainwater
	—	—	—	Asao	Odoriba	August 1991	Wastewater

Storm water tank facilities

Name	Oshima storm water tank	Kyomachi storm water tank	Watarida storm water tank	Kannongawa storm water tank
Time of starting operation	April 1988	May 1992	June 1992	May 1997
Covered area	393ha	178 ha	241ha	252ha
Retarding basin method	Storage sedimentation discharge method (improvement of combined system)	Storage method (improvement of combined systems, anti-inundation measures)	Storage method (improvement of combined systems, anti-inundation measures)	Storage method (improvement of combined systems, anti-inundation measures)
Capacity of retarding basin	21,280 ㎥	18,000 ㎥	24,000 ㎥	26,000 ㎥

Overview of Storm Water Storage Pipes and Storage Reservoirs

Name	Location	Type,Pipe Diameter	Extension(m)	Storage Capacity(㎥)	Activated in
Daishigawara	Daishigawara area, Kawasaki Ward	Storm water storage pipe(φ5,000mm)	2,050	35,600	Mar.2019
Daishigawara No.1	Nakase area, Kawasaki Ward	Storm water storage pipe(φ2,600mm)	512	2,600	Apr.1994
Daishigawara No.2	Minatocho area, Kawasaki Ward	Storm water storage pipe(φ3,000mm)	278	1,700	Apr.1994
Tode No.2	Miyakocho area, Saiwai Ward, and others	Storm water storage pipe(φ4,250mm)	740	10,300	Mar.1995
Tode No.3	Todehonmachi area, Saiwai Ward	Storm water storage pipe(φ3,000mm), storage reservoir	106	4,100	Mar.1995
Hirama	Kamihirama area, Nakahara Ward	Storm water storage pipe(φ2,400mm)	1,167	5,300	Apr.1995
Egawa	Ida area, Nakahara Ward	Storm water storage pipe(φ8,500mm)	1,490	81,000	Jun.2001
Shibukawa	Yagami area, Saiwai Ward	Storm water storage pipe(φ10,400mm)	1,760	144,000	Aug.2004
Kawasaki Station Square	Nisshincho area, Kawasaki Ward	Storm water storage pipe(φ2,200mm)	1,123	4,470	Sep.2006
Shimohirama	Simohirama area, Saiwai Ward	Storage reservoir	——	2,640	Apr.1990
Chitose	Chitose area, Takatsu Ward	Storage reservoir	——	3,500	Jun.1994
Nogawa	Nogawa area, Takatsu Ward	Storage reservoir	——	4,200	Apr.1997
Kawasaki Station West Entrance	Horikawacho area, Saiwai Ward	Storm water storage pipe(φ1,000mm),storage reservoir	653	4,000	Jan.2007

Measures for Earthquakes, Downpours and Flooding

Waterworks and sewerage systems are vital infrastructures used to protect citizen' s lives and properties. We are implementing our strategies to minimize the impact on the everyday lives of citizens from the occurrence of disasters such as earthquakes, downpours and flooding.

Crisis Management Measures at Waterworks and Sewerage Bureau

Strengthening coordination of disaster response and responding capabilities during disaster

In light of large-scale earthquakes and increasingly severe and frequent wind and flood disasters, we will continue to conduct drills, review, and make improvements by the PDCA cycle.Verify and review the Waterworks and Sewerage Bureau Disaster Prevention Plan and Business Continuity Plan, etc., to improve their effectiveness and strengthen disaster response capabilities.
In addition, we will promote the strengthening of cooperation in the event of a disaster by continuously conducting drills with major cities, etc., which will lead to the establishment of a wide-area support system.
By certifying our staff with considerably high skills as waterworks specialist, expecting an emergency would motivate individuals as well as the whole bureau to improve our strategies and capability to cope with disasters.
Moreover, in case of emergency regarding water resources such as natural disasters and drought, we will take flexible actions to cope with the situation at hand and with mutual support from other water works and related organizations in the prefecture.

Qualifying Ability of Waterworks Specialists

Drills Based On our Mutual Assistance Agreement with Shizuoka City

Countermeasures meeting based on the Waterworks and Sewerage Bureau's Disaster Prevention Plan

Preparations for Earthquake

We promote the earthquake resistance of water supply facilities and water for industrial use way facilities and sewer facilities to prepare for a large-scale earthquake.(Please refer to page 12 for an overview of the seismic-reinforcement initiatives taking place at waterworks/industrial waterworks facilities and to page 18 for the sewerage system overview)

Ensuring drinking water supply

In order to secure drinking water necessary for the daily lives of citizens in the event of a disaster, water supply facilities that can store tap water have been established.
These facilities are called water distribution reservoirs and distribution towers or disaster countermeasure water storage tanks.
Emergency shutoff valves that automatically activate when strong tremors are detected are installed in the water inflow and outflow portions of the facilities, and all or part of the stored water in the facilities are shut off to be used during a disaster.
As a result, a total of 160,000 m³ of drinking water can be secured for use in times of disaster.

Emergency water supply locations

Emergency water supply locations are facilities that provide emergency water supply in the event that water supply facilities are damaged and water is cut off. In order to increase the convenience of emergency water supply locations and to provide emergency water supply more quickly, we are currently developing emergency water supply locations that do not require the installation of water supply equipment and can be used at all municipal elementary and junior high schools designated as evacuation centers and at some of the water distribution reservoirs and towers (171 emergency water supply locations were established as of the end of FY2023). As of April 1, 2024, 310 emergency water supply centers, including those that do not need to be set up, have been established in the city.
In addition, necessary equipment and materials are provided for temporary emergency water supply using fire hydrants, etc., so that emergency water supply can be carried out outside of the emergency water supply centers depending on the disaster situation.
To ensure smooth implementation of emergency water supply, emergency water supply drills are held in conjunction with local disaster drills.

Emergency water supply locations where opening procedure is not necessary

The water supply faucets

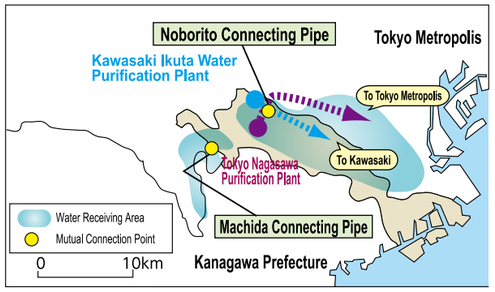
The utilization of existing water faucets such as outdoor water fountains in elementary and junior high school playgrounds, etc. as an emergency water supply locations.
The water pipes connected, and distribution pipes that branch out from these water fountains use highly earthquake-resistant pipes. In addition, the water fountains are separated from the water supply system of the school buildings, etc., so they will not be affected at the same time even if the school buildings are damaged.
Since the elementary and junior high schools with the water fountains installed are designated as evacuation centers, residents in the surrounding areas will be able to supply their own water in the event of a disaster.

The dual function emergency water supply location

The combined disaster water supply point is an emergency water supply locations that has a water fountain that does not need to be set up, and through a connected water distribution reservoir and distribution tower, is capable of securing drinking water and dispensing water to water tanker trucks in the event of a disaster.
The water distribution reservoir and tower connected to the water fountain are earthquake-resistant.
The entrance to the water fountain is locked during normal times, so in the event of a disaster, the staff or members of the local volunteer disaster prevention organizations can unlock and provide water to the residents of the surrounding community on their own.

Mutual Tap Water Accommodation with Tokyo Metropolis

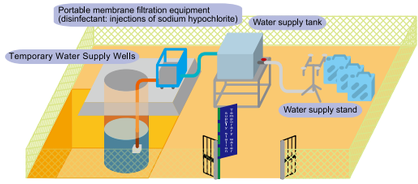
In order to ensure a stable water supply in the event of an emergency such as an earthquake or a large-scale water quality accident, we have established a system to mutually supply water by establishing a connecting pipe in cooperation with the Tokyo Metropolitan Government. The Noborito and Machida connecting pipes were installed in FY2006 to enable mutual water supply of 115,000m³/day.



Mutual Tap Water Accommodation with Tokyo Metropolis

Development of wells for disaster

The Waterworks and Sewerage Bureau has been investigating the effective usage of a well in Tama Ward. As a source of water for the waterworks, of the wells both permanently and temporarily out of use, wells with high water quality are being developed for use in the event of a disaster.
※Wells for disasters will be used to supplement emergency water supply locations.



Arranging Image of Temporary Water Supply Wells

Comprehensive Toilet Measures in Times of Disaster

When toilets are unavailable during a disaster, various problems such as poor physical condition become apparent.For this reason, we are promoting measures such as raising awareness of the stockpiling of portable toilets that can be used immediately in the event of a disaster at sewage facilities.
In addition, we are promoting an all-departments study on how toilet measures, including manhole toilets, should be implemented in the event of a disaster, and are promoting efforts to enhance comprehensive toilet measures in the event of a disaster.

Leaflet “Toilet problems during disasters (published on website)”