International Contribution to Improve Global Issues of Water Environment

To improve the water environment's global issues, we accelerate international projects through public-private partnerships and technical cooperation.

Accelerating international projects in the field of waterworks

Global water environment faces many issues including shortage of water resources and water contamination associated with rapid growth of economy and population. Kawasaki has real potential for promoting international contribution such as technologies and expertise of waterworks/sewerage management, experience in international contribution, many companies with water related technologies/products.
To fulfill our fundamental objective - contributing to the improvement of the water environment's global issues - We are working on international initiatives in the field of waterworks and sewerage mainly in two directions: 1) through public-private partnerships in international development, and 2) through technical cooperation.

Fundamental Objective

Promotion of International Contribution to Improve Global Issues of Water Environment.

Directions

International Contribution through Public-Private Partnership ⟷ (Cooperation) ⟷ International Contribution through Technical Cooperation

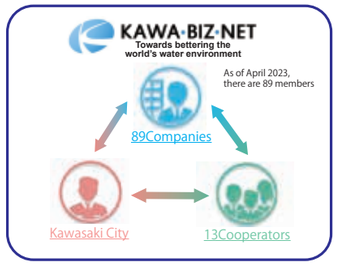
Effect to expect

- Improvement of Global Issues of Water Environment (Contribution to Achievement of SDGs)
- Enhancing the international competitive edge of businesses in Kawasaki City
- Improving organizational strength through the development of human resources
- Improving the presence of the Kawasaki City

1) Kawasaki Water Business Network's International Contribution by Public-Private Partnerships

In order to promote international development through public-private partnerships, the Kawasaki Water Business Network (KAWABIZNET) was established in August 2012 as a platform to promote water business with the participation of private companies in various fields of water business and the City of Kawasaki, and with the cooperation of related ministries and organizations.

General meeting of KaWaBiz NET



›› Major KAWA-BIZ-NET Projects

Vietnam, Bà Rịa-Vũng Tàu Province

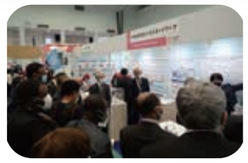
- Ministry of Health, Labor and Welfare "Overseas Water Business Public-Private Partnership Initiative for Identification and Formation of Projects" (2014-2015)
  - Members and Kawasaki City studied and proposed a business model utilizing Japanese water environment technology in Con Dao District, Ba Ria Vung Tau Province.
- Ministry of Land, Infrastructure, Transport and Tourism "Study on Dissemination Strategy of Japanese Sewerage Technology" (2015-2016)
  - Members of the project and Kawasaki City studied a sewerage system development plan suitable for the site and proposed measures to disseminate Japanese sewerage system technology.
- JICA "Business Support Project for Small and Medium Enterprises and SDGs (feasibility study)" (2022-2023)
  - JICA members and Kawasaki City, etc. conducted a feasibility study on the introduction of environmentally friendly prefabricated stainless steel water distribution reservoirs.
- JICA "SME/SDGs Business Support Project (Assessment of Needs)" (2023-)
  - Members and Kawasaki City, etc. conducted a needs assessment survey for the introduction of sewage sludge condensation and dehydration equipment.
- Ministry of the Environment "Asia Water Environment Improvement Model Project" (2023-)
  - Members and Kawasaki City, etc. implemented a project to improve the water environment in public water bodies by introducing organic sludge volume reduction equipment.

Indonesia, Bandung City

- Kawasaki City "Joint Public-Private Needs Assessment" (2017)
  - Members and Kawasaki City conducted field surveys, etc.
- Ministry of Land, Infrastructure, Transport and Tourism "Sewerage Technology Overseas Demonstration Project" (2019-2020)
  - Members and Kawasaki City conduct a demonstration for the development and construction of a sewer pipeline information database using cloud GIS.

›› Other activities

- Providing information to members and disseminating information overseas
  - Organize seminars, matchmaking events, etc.
  - Develop and utilize a dedicated websites, e-mail newsletter, etc.
  - Production of public relations media
  - Exhibit booths at international exhibitions
  - Install exhibition corners in waterworks and sewerage facilities



Having a booth at Kawasaki International Eco-Tech Fair (from 2013)

PR at With a Glimpse of the Future Kawa Biz Net Corner

2) International Contribution through Technical Cooperation under the Coordination of JICA, and others.

Kawasaki City, in accordance with requests from JICA and other organizations, has been providing technical cooperation in the waterworks and sewerage sector, including the deployment of staff members to overseas and the acceptance of trainees from overseas. By establishing a sustainable water cycle through waterworks and sewerage, we are contributing to the development of societies and economies in such places as developing countries.

›› Main achievements from technical cooperation

- JICA Technical Cooperation Projects

Lao PDR **"The Capacity Development Project for Improvement of Management Ability of Water Supply Authorities" (This project is commonly called "MaWaSU") (2012-2017)**

The City of Kawasaki, along with Saitama City, Saitama Prefecture and the City of Yokohama, has been deploying staff, with the aim to establish sustainable water business operations in Laos. While providing technical support in the field of water supply pipe planning, the City of Kawasaki also takes in trainees, and conducts lectures and observation tours.

Lao PDR **"The Project for Improvement of Management Capacity of Water Supply Sector (MaWaSU2)" (2018-2023)**

This is the successor project to MaWaSU, which aims to strengthen the management system of the water sector and the operational capacity of the Waterworks Corporation to achieve the national goals of the Lao PDR, and is the first long-term expert dispatchment by the Waterworks and Sewerage Department.

- JICA Partnership Programs (Special Entry for Local Revitalization)

Indonesia **"The Project for Improvement of Implementation Capacity of Underground Leakage Countermeasure in Makassar City" (2022 -)**

For the utilization of water resources, we provide technical assistance focusing on underground leakage control measures that are effective in reducing non-revenue water in Makassar City, improve the implementation competency of staff, and promote initiatives aimed at establishing a sustainable system.

Indonesia **"Service improvement project to improve wastewater quality in Bandung City"(2023-)**

In order to improve the water environment of public watersheds in Bandung City, we are promoting technical assistance to improve the capacity of staff members related to sewage systems, and to raise awareness among residents of the need to improve wastewater quality as well as the initiatives needed towards such improvement.

›› Other activities

- Acceptance of Overseas Trainees and Visitors

For trainees and observers from overseas (1,336 trainees from 72 countries/regions visited over a period of 12 years since FY2011), we provide study tours for waterworks and sewage facilities and give lectures, etc. according to their needs.

Field training at Nagasawa Purification Plant

Field training at Iriezaki Wastewater Treatment Center

Water Environment Solution Hub (WES Hub) Hub City Certification

The Water Environment Solution Hub (WES Hub) is a network that was established for the provision of sewerage technology and knowledge, as well as the transmission of information to the Asia-Pacific region. Kawasaki City was certified by the Ministry of Land, Infrastructure, Transport and Tourism (March 2013) as a Hub City (AAA) for its progressive efforts in overseas expansion in the sewerage sector. It is currently working on tasks such as implementing training and observation tours.

PR at Wakuwaku Aqua Kawa Biz Net Corner

Consideration to the global environment

We are working to reduce greenhouse gas emissions and promote recycling of resources and energy, aiming to build a decarbonized and sustainable recycling-oriented society where the environment and economy are in harmony.

Establishment of the City of Kawasaki Waterworks Bureau environmental plan

In order to promote environmental measures in a comprehensive and systematic manner, Waterworks and Sewerage Bureau publishes the results of its efforts to reduce greenhouse gas emissions and promote recycling of resources and energy in the Annual Environmental Plan Report every fiscal year.

Realization of a decarbonized society

›› Energy Saving and Reduction of Greenhouse Gas Emissions

- **Adoption of Energy Saving Apparatus**

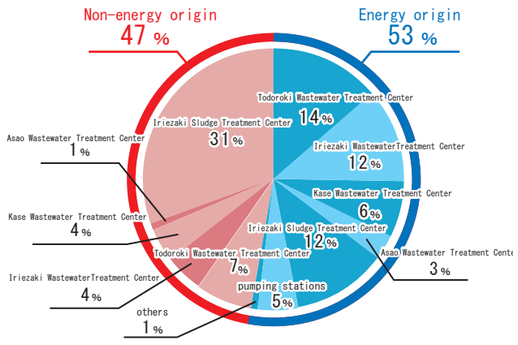
We will promote energy conservation by adopting high-efficiency power receiving and transforming equipment, diffusers, and LED lighting equipment in conjunction with the renewal of facilities and equipment and renovation of business offices.

- **Natural Flow of Water Intake, Water Supply and Distributed Water**

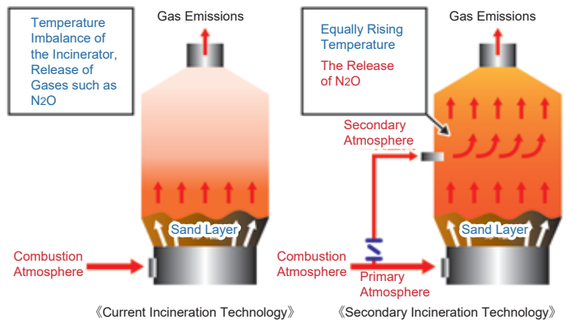
Our effort towards controlling the amount of electricity in use for waterworks projects and for industrial usage is in action and moreover we are adopting a natural flow system to effectively utilize the difference in elevation of points of intake, supply and distribution at the maximum level.

- **High-temperature incineration and two-stage combustion of sewage sludge incinerators**

The incineration process of sewage sludge emits dinitrogen monoxide (N_2O), which has a greenhouse effect about 300 times greater than that of carbon dioxide (CO_2).Since dinitrogen monoxide (N_2O) accounts for a large portion of the greenhouse gas emissions from the entire sewerage business, we are working to introduce a two-stage combustion technology that uniformly raises the temperature evenly inside the incinerator (over 850℃) as a technology to reduce the amount of N_2O emissions.



Ratio of greenhouse Gas Emissions released dy Sewerage Treatments(During FY2021)

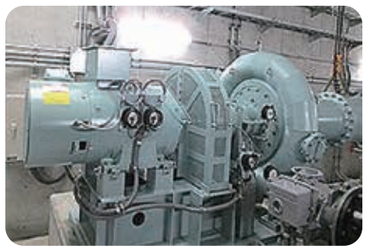


New Sludge Incineration Technology developed to reduce N_2O Emissions during the Secondary Incineration Process

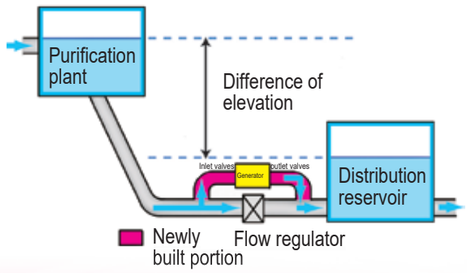
›› Efficient Use of Reusable Energy Sources

- **Small Scale Generation of Hydro-electricity**

In Egasaki Control Room, Saginuma Water Distribution Pond, Hirama Regulating Pond , small scale hydro-electricity is being generated and we are utilizing energy from the natural flow caused by difference of elevation between water facilities.



Hirama Power Plant Facility



The Structure of a Small-scale Power Plant

- **Introduction of solar power generation system and its implementation of electricity generation**

By applying solar power systems at the Nagasawa Purification Plant' s filter basin, reservoir, stormwater reservoir, and at the upper part of the Iriezaki Wastewater Treatment Center, we manage to partially produce our electricity. We have also installed a solar power generation system on top of the Ikuta water distribution pond and sell the renewable electricity to the market, thereby contributing to the reduction of greenhouse gas emissions. In addition, we are considering installing solar power generation systems in the Sueyoshi Water Distribution Pond and the Iriezaki Water Treatment Center West System facilities.

Ikuta Distribution Reservoir Solar Power System

- **Introduction of generation system by waste heat power**

The waste heat generated during the incineration of sewage sludge will be used to generate electricity with a high-efficiency steam turbine to reduce CO_2 emissions.

›› Utilization of Green Infrastructure

- **Planting Conservation and Greening**

By placing trees on the grounds of water supply facilities, industrial water supply facilities, and sewerage facilities, and by appropriately managing tree planting, they will absorb CO_2 and contribute to improving the appearance of the facilities and mitigating the heat island phenomenon.

Recycling Resources and Energy

›› Recycling and Reducing Waste

- **Effective use of soil generated from water purification and sewage sludge**

All the soil generated during the water treatment process at the Nagasawa and Ikuta water purification plants is effectively used as raw material for improved soil.
The Iriezaki Sludge Center incinerates sewage sludge generated at four water treatment centers in the city, and this sludge incinerated ash is regarded as a resource that can be effectively used as a raw material for cement.

Asao Wastewater Treatment Center

Nagasawa Purification Plant

Sludge generated

- **Recycling Byproducts from Construction**

Byproducts from waterworks-related construction including industrial waterworks are to be recycled as industrial materials etc. This policy is implemented for the sustainable development of organizing a recycling society.

›› Effective Use of Resources and Energy

- **Heated swimming pool using heat from sewage sludge incineration**

The heat generated in the incineration process at Iriezaki Sludge Treatment Center is being used to heat the swimming pool situated next to the center as well as to air-condition and boil water in the administration building.

Iriezaki Yonetsu Riyou Pool

- **Effective Use of Highly Treated Water**

To effectively use water resources, highly treated water is efficiently used in the process of producing recycled paper and to wash buses, and is supplied to the Zero Emission Industrial Park to bus service offices. Moreover, the role of the Egawa River was terminated due to the establishment of the sewer service however it is now partly reconstructed as waterway (from the Yagami river merging section to Taiyo Dai-ichi Kindergarten point) in the view of conserving a good water environment.Furthermore, by discharging water cleaned by advanced treatment into the sea and rivers, we contribute to the recycling of precious water resources.

Egawa Waterway

Organization Structure

We are proceeding with administrative and financial reform including reviewing the enforcement system in order to provide waterworks and sewerage services more efficiently.

Efforts towards Administrative and Financial Reform

Ever since FY2002, to cope with the changes in the social-economic environment, Kawasaki City Waterworks has been making efforts in administrative and financial reform to guarantee a sustainable management platform.
In addition to the "Kawasaki City Water Supply and Sewerage Vision" formulated in FY2017, we have been reviewing our organizational structure and the number of employees based on the "Kawasaki City Medium-Term Plan for Water Supply and Sewerage Business (2022-2025)" and the "Kawasaki City Third Phase Program for Administrative and Financial Reform" since FY 2022.
We continue to become an operating organization with better efficiency and effectiveness on the premise of ensuring immediate and responsive services in large-scale disasters, transcending technology and skills, and maintaining and improving our customer service.

Change in the number of staff members

» From 1,534 members in FY2002 (including 41 members dispatched to Sewerage Public Corporations) to 1,033members (less 501) in FY2023

Major efforts to date

FY2010　Establishment of a New Waterworks and Sewerage Bureau

» With the full application of the Local Public Enterprise Law on sewerage projects which were under the control of Kawasaki City' s Construction Bureau, the sewerage projects under the control of the Waterworks Bureau (for waterworks projects and water service for industrial use) were integrated.

Waterworks projects and water service for industrial use

Sewerage projects

●**Basic Philosophy of Integration**
Synergy effects by integrated project operation

●**The Effect of Integration**
◇Enhancement of convenience for people and corporations through unified customer service contacts
◇Promotion of environmental measures centered on water circulation
◇Enhancement of crisis control system as a lifeline business establishment
◇Improvement of the level of project operation

FY2012

Abolition of Shiomidai Purification Plant (Waterworks Projects)

FY2016

Abolition of Ikuta Purification Plant (Waterworks Projects)
Outsourcing of operation, maintenance and management work at Kase Wastewater Treatment Center and an execution system to apply asset management at sewerage system facilities, were developed in multiple phases (completed in FY2019).

FY2019

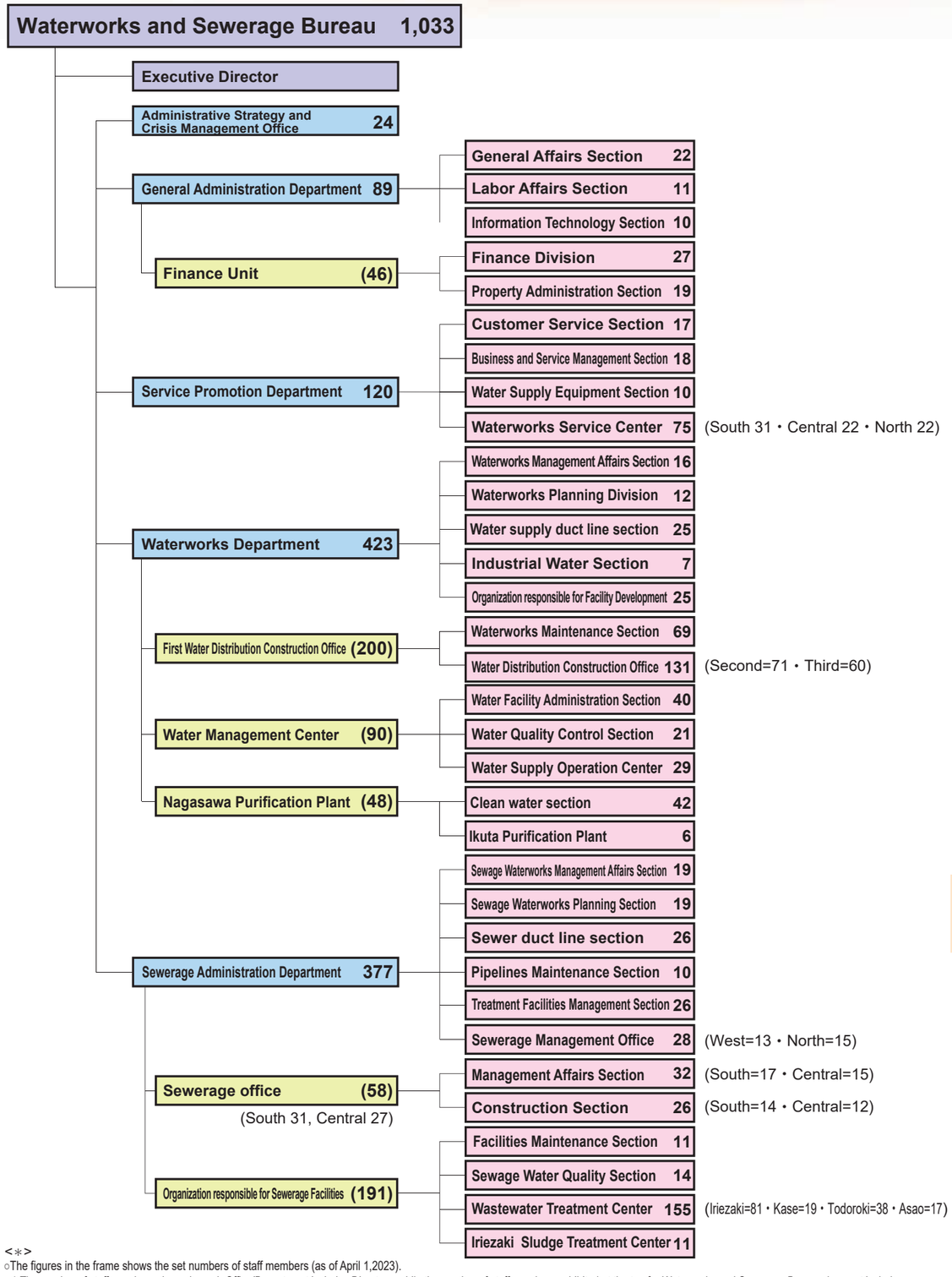
Phased outsourcing of operation, maintenance, and management work at Ikuta Purification Plant (completed in FY2019) (Waterworks for Industrial Use)

FY2021

Establishment of the Administrative Strategy and Crisis Management Office

※In order to accurately respond to important management issues in the waterworks and sewerage business, promote sustainable business management based on long-term strategies, and further strengthen crisis management measures, including responses to various crisis events, an Executive Director position supervising all departments was established along with the Administrative Strategy and Crisis Management Office as an organization that can comprehensively oversee the entire Bureau while assisting the Chief Management Officer.

Organization structure chart (FY2023)

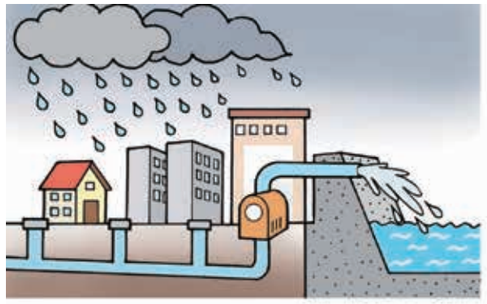


<＊>
○The figures in the frame shows the set numbers of staff members (as of April 1,2023).
＊The number of staff members shown in each Office/Department includes Directors, while the number of staff members exhibited at the top for Waterworks and Sewerage Bureau does not include managers.
○The Executive Director post is not counted since it doubles as Director.
○Finance Unit,First Water Distribution Construction Office, Sewerage management Office, and Organization responsible for Sewerage Facilities are offices or other organizations reporting to their corresponding departments.
＊The descriptions within the parenthesis show the breakdown of the set numbers of staff members in the applicable

Outline of Waterworks and Sewerage Project Management

The waterworks project, sewerage project and water service for industrial use are managed based on an independent accounting system which pays for their costs with the revenues such as water rates and service charges as a local public enterprise

The waterworks project, water service for industrial use and sewerage project in Kawasaki City are managed as a local public enterprise based on the Local Public Enterprise Law.
The expenses required for the business operations of waterworks/industrial water services are covered primarily by the revenue gathered from household/industrial water fees. (Principle of sharing the expenses)
The expenses required for treatment of storm water—a natural phenomenon—are garnered from municipal taxes, as the treatment of this water provides a tangible benefit to all citizens of our city. Meanwhile, the expenses required for the treatment of the wastewater produced in daily living/manufacturing activities are gathered from sewerage service charges. (Principle of public expenses for storm water and private expenses for waste water)



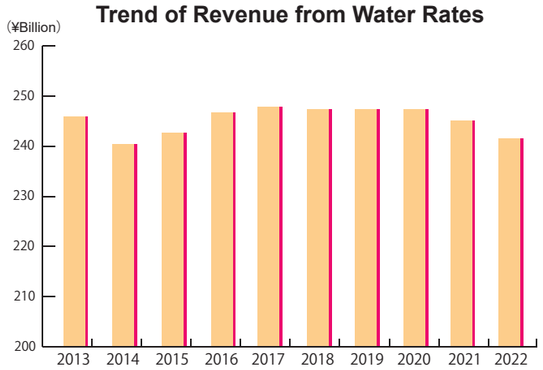
Public Expenses (Taxes) for Storm water

Private Expenses (Sewage Service Charge) for Wastewater

Current situation of water rates, industrial-use water rates, and sewerage service charges

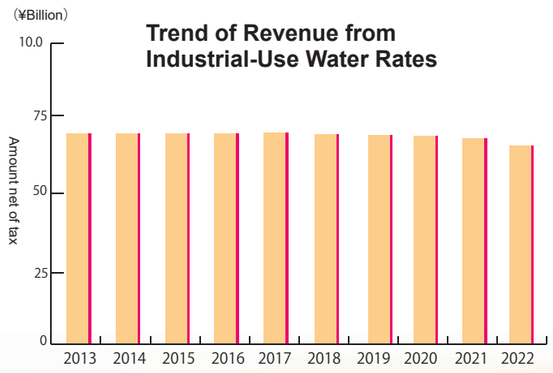
While the population has been increasing, water rates as well as sewer usage rates are expected to decline in the long run. Since Manufacturing industry water rates are based on contract water volume, they are steadily transitioning.
In order to continue providing a stable supply of safe water, and offer reliable sewerage service, using limited revenues, we continue to pursue ever-increasing management efficiency.

Trend of Revenue from Water Rates

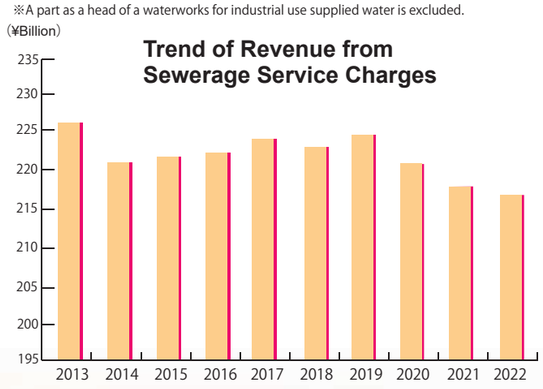


※FY2010~Rate revision(Cut)
FY2010~2015 return on the benefits of administrative and financial reform (￥50 per month)
※A part as a head of a waterworks for industrial use supplied water is excluded.

Trend of Revenue from Industrial-Use Water Rates



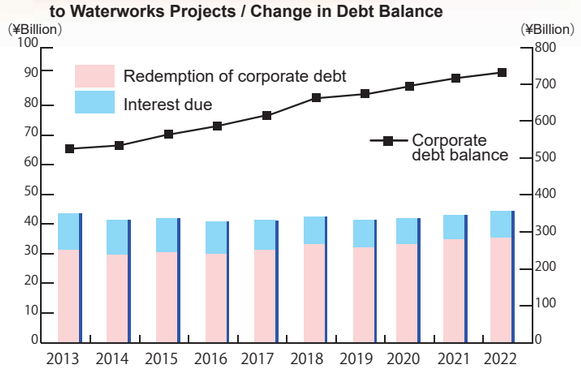
Trend of Revenue from Sewerage Service Charges



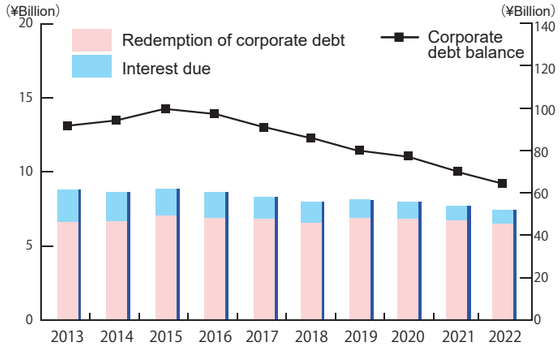
Situation of Corporate Debt Related To Facilities Improvement (Long-Term Loans)

It takes a significant amount of capital to create/upgrade the facilities used for waterworks, industrial waterworks, and sewerage treatment. For faclilities that will be used over a long period of time, taking out long-term loans allows us to pay for them over a long period. So, we will manage our corporate debt balance appropriately. In particular, the corporate debt balance related to sewerage projects is still as high as ever. To lighten the debt burden on the next generation we are trying to reduce the balance by prioritizing projects and leveling out our construction investments.

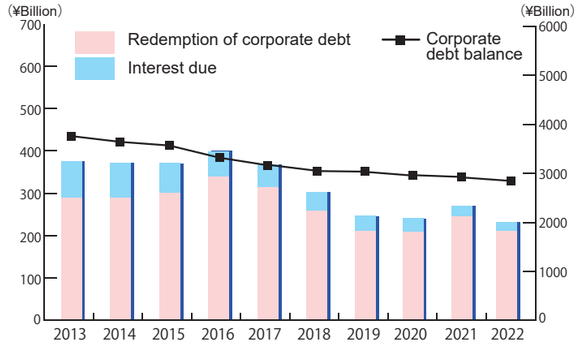
Principal and Interest Repayments on Corporate Debt Related to Waterworks Projects / Change in Debt Balance



Principal and Interest Repayments on Corporate Debt Related to Industrial-Use Waterworks Projects / Change in Debt Balance



Principal and Interest Repayments on Corporate Debt Related to Sewerage Projects / Change in Debt Balance

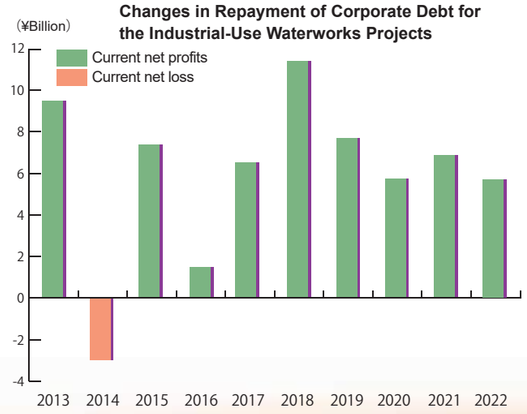


Management Conditions (current net profits etc.)

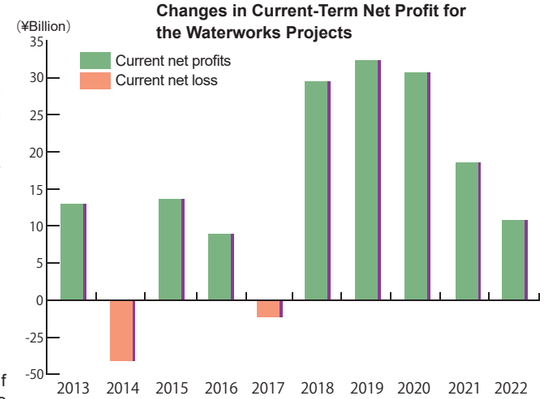
Although the waterworks project delivered a net loss in FY2017 because of the occurrence of reconstruction projects that included the elimination of large scale facilities, through efficient review, streamlining, etc. of performance systems, the waterworks project and industrial waterworks project continue to yield a net profit.
The sewerage projects are making efforts toward financial consolidation due to an improvement for management efficiency, reduction of interest burden by decreasing the outstanding balance of the corporate debt and so on. Consequently we have been recording net income since FY2010.

※In FY2014 we ran a net loss for all projects due to the effects of compulsory posting of reserves for retirement allowance according to application of the New Public Enterprise Accounting Standards.

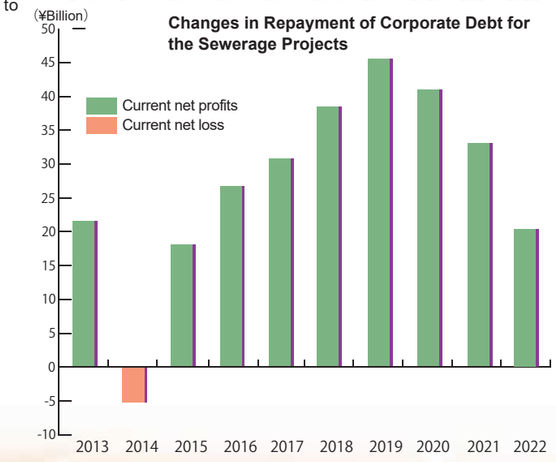
Changes in Repayment of Corporate Debt for the Industrial-Use Waterworks Projects



Changes in Current-Term Net Profit for the Waterworks Projects



Changes in Repayment of Corporate Debt for the Sewerage Projects



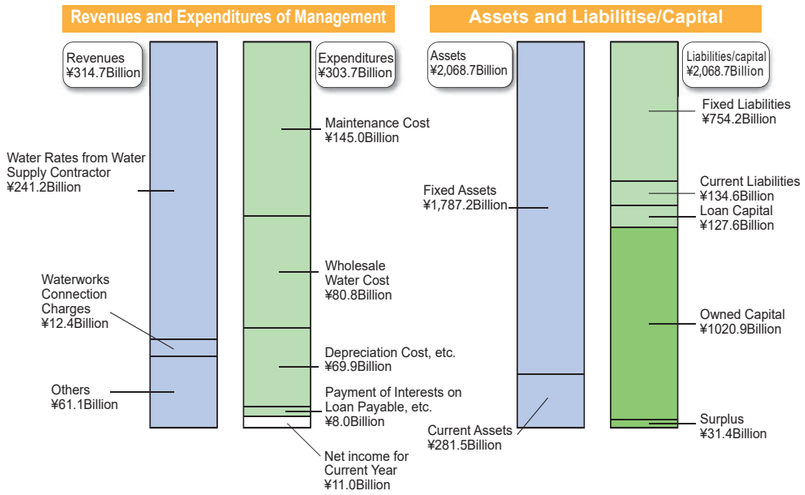
Overview of FY2022 Accounting

The waterworks project, sewerage project and water service for industrial use all use a corporate accounting system.

Unlike general accounting which is an accounting system for the public offices, a corporate accounting system is employed. In order to clarify financial condition every year, we have been preparing and publicizing revenues and expenditures of management(profit-and-loss statement),assets and status quo of liabilities/capital(balance sheet).
The accounting system used in the public offices pays attention to the inflow and outflow of cash, and so has the advantage of preventing shortage of funds. However, it makes it difficult to understand the economic situation of the project in question, and the project tends to become dependent on money from the general accounts. On the other hand, the corporate accounting system, in wide use outside the government offices, helps to clarify the economic situation of an undertaking. It also has the advantage of helping an organization achieve management flexibility.

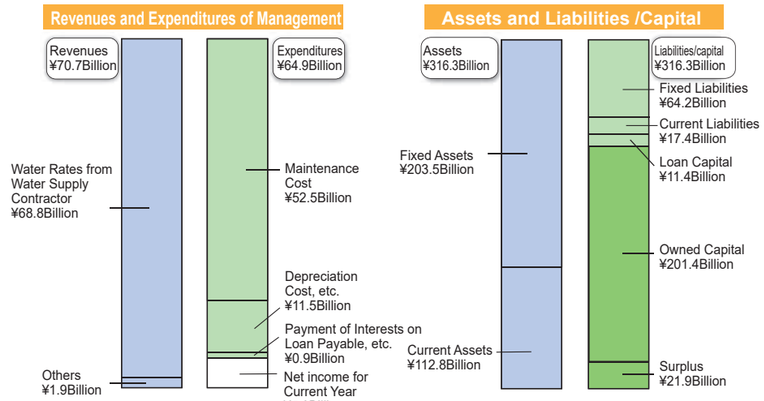
Water works Operation

We have been working to provide a stable supply of safe/quality water in order to guarantee the necessary infrastructure required for our citizens to live comfortable lives and for our industries to continue developing.
Overall water demand decreased compared to FY2021 due to a decrease in domestic use.
On the business front, in accordance with the "Kawasaki City Water Supply and Sewerage Vision" and the "Kawasaki City Medium-Term Plan for Water Supply and Sewerage Business," we have been working to renew core facilities and aging pipelines in view of a major earthquake, promote earthquake resistance, and prepare emergency water supply centers at elementary and junior high schools that do not require actual establishment.
On the other hand, from a financial perspective, although electricity rates increased due to soaring fuel prices and other factors, we were able to record a net profit for the current fiscal year due to more efficient business operations, etc. However, a shortfall in funds was recorded for the single fiscal year due to an increase in pipeline renewal and seismic retrofitting operations.
As further costs will be needed for construction in improvements, such for water systems installations, renewal of pipelines, and aseismic measures, we will apply the accumulated capital to deal with such issues.



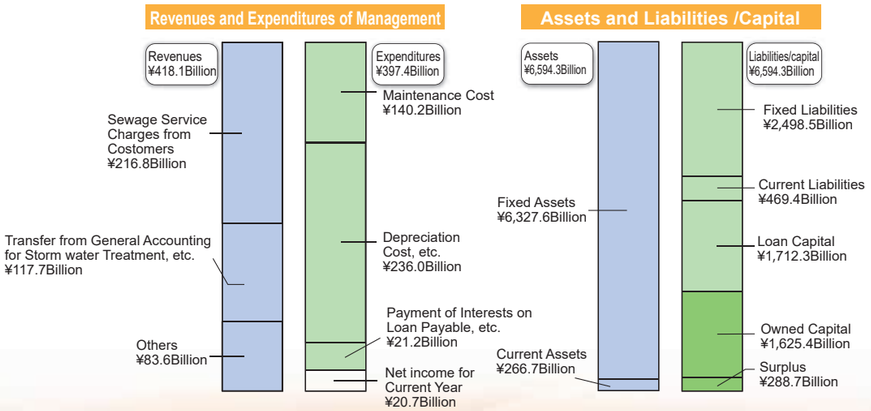
Water service for industrial Use

Our water services for industrial purposes first began back in 1937,at the time, the first public water service for industrial use in Japan,and have been contributing to the development of the city’ s industrial economy (particularly the heavy chemical industry) ever since. We have done our very best to provide a stable supply of water for industrial use in the years since in order help support those industries that help bolster urban development in the process of creating an ever stronger, more vibrant and attractive Kawasaki City.
Regarding water demand, while it once showed a downward trend as a result of industrial structure shifts/the increase in the reuse of water recovered as a result of energy-saving measures, in recent years it has very nearly leveled off.
In line with the “Kawasaki City Waterworks Vision” and “Kawasaki City Waterworks Mid-Term Project," we tackled the renewal of deteriorating pipelines in anticipation of large earthquakes.
On the financial side, although electricity rates increased due to soaring fuel prices and other factors, net income was recorded for the current fiscal year due to improved efficiency in business operations and other factors, and there were funds remaining for the single fiscal year.
We plan to also finance future expenses incurred from construction/renovation work,e.g. replacing and/or renovating conduits for seismic-reinforcement, etc.,through strategic use of our accumulated capital.



Sewerage Operation

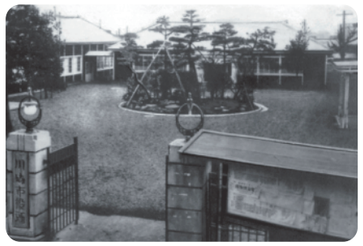
A sustainable sewerage system is not only an essential component of the infrastructure necessary for our citizens to live comfortable lives, but is also crucial for the preservation of the quality of publicly-shared water sources, management of rainwater, etc. In FY 2020, we continued to promote the maintenance of a healthy sewerage system as one of city’ s most important initiatives.
In terms of business, based on the "Kawasaki City Waterworks and Sewerage Vision" and the "Kawasaki City Waterworks and Sewerage Mid-Term Business Plan", we have been steadily implementing various measures to solve problems facing the sewerage system, such as flood prevention measures in light of the East Japan Typhoon in 2019 and earthquake countermeasures to prevent damage to sewerage functions even in the event of a major earthquake and more.
On the other hand, from a financial perspective, although electricity rates increased due to soaring fuel prices and other factors, we were able to record a net profit for the current fiscal year due to continued efforts to improve the efficiency of business operations in order to improve the soundness of sewerage management, etc. However, a shortfall in funds was recorded for the single fiscal year.
The financial situation remains severe, with a high outstanding level of corporate debt due to past construction investment. In the future, construction and improvement expenses will continue to be required for the renewal of sewer facilities, etc., which will be addressed through the use of accumulated funds to date.



The History of Kawasaki Waterworks, Industrial Water and Sewerage

Along with an increasing demand due to an expanding urban district, increasing population and developing economy, the waterworks, industrial water system and sewerage system in Kawasaki City have been improved step by step. Currently, the aged facilities are being renewed on a massive scale based on a mid-and long-term project.

Kawasaki Devastated by Pacific War



Kawasaki City Hall after Kawasaki was designed as a city

Tachibana Country Office

The waterworks project in Kawasaki began with supplying water in 1921, using the surface water of the Tama River as a water source. After that, a demand for water increased due to expansion of an urban district, higher population, development of industrial activities and so on, and expansion work was conducted in several phases to use a Sagami River water system as a water resource in addiction to a Tama River water system. In 1969, we joined in establishment of the Kanagawa Water Supply Authority to secure a Sakawa River water system as a water resource and now have a daily water supply capacity of 989,000㎥ since the Miyagse Dam in completed. (In April 2006)

Due to a changing industrial structure at bulk users, recycling of returned water, diffusion of water-saving devices among households, however, a demand for water has been leveling off these days. Under these circumstances, we formulated the “Kawasaki City Waterworks and Industrial Waterworks Reconstruction Plan” in FY2006, and carried out reconstruction/renovation of a number of facilities, including the elimination/consolidation of multiple purification plants.Shiomidai Purification Plant was shut down in March 2012. With the new Nagasawa Purification Plant and the closure of the Ikuta Plant, we reduced this facility's daily water supply capacity to 758,200 m^3.

Kawasaki City features the largest industrial water system among the government-decreed cities. Along with development of the Keihin Industrial zone in the coastal areas of Kawasaki, an industrial city Kawasaki grew greatly and started water supper service as the first industrial water supply project in Japan in 1937.

After an oil crisis in 1973, however, a demand for water started declining due to an industrial structural change, promotion of recycling of returned water as a resource-saving measure and so on, and has been plateauing for these several years. Paying heed to these trends, the “Restructuring Plan of Water Service for Industrial Use in Kawasaki City” had been formulated and promoted to reduce our daily water supply capacity from 560,000㎥ to 520,000㎥ in April 2010 and renew the aged facilities.

Sewer business planning and investigation started in 1926, and was launched in 1931 in the old city areas surrounding Kawasaki Station as a countermeasure for flooding. In the mid-50’s Japan started to enjoy its high economic growth as well as a rapid expansion of industry boosted by estate development and population growth. As a result, the deterioration to the environment as well as water pollution became serious issues in the cities such as Kawasaki. In order to tackle these issues, a series of laws regarding the works of the sewer system was established in 1958. This is based on two concepts: improving our living environment and avoiding overflow. This was considered to be the turning point and in 1961 Iriezaki Water Treatment Center, the first water treatment center in Kanagawa Prefecture, began operation. The city continued its effort to develop its sewage operations and opened new treatment centers in Kase in 1973, in Todoroki in 1982 and in Asao in 1989 to promote further establishment of the sewerage system. As a result, as of March 2020 the rate of the population who has access the sewerage filtration is at 99.5%.

Currently, based on the Kawasaki City Medium-Term Plan for Water Supply and Sewerage Business (2022-2025), we are promoting initiatives aimed at safety, security, resilience, environment, and sustainability.

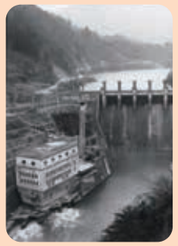
Coastal Area Industrial Zone

“Water Vendor” Selling Water in Water Channel

Painting Featuring Kawasaki Town Office.

Waterworks/Industrial Water System

Tode Purification Plant



Sagami Dam

Saginuma Swimming Pool

Miyagase Dam

Nagasawa Purification Plant

1910	Made a waterworks installation plan.
1921	Started water supply through founding waterworks (Tode Water Purification Plant)
1926	
1931	Started industrial water system installation work.
1935	Stared partial water supply through founding industrial water system (first in Japan)
1936	Started intake from Inada water resource (Inada water resource area, Ikuta Purification Plant)
1937	Completed founding industrial water system (Hirama Purification Plant)
1938	Started ground water in Suge area.
1939	Completed Sagami Dam to create Sagami Lake.
1943	Completed first raw water conveyance tunnel. Started partial intake from Sagami Lake System.
1947	Stared intake from Sagami Lake system from industrial use. Stared operation of Nagasawa Purification Plant.
1948	
1952	Started intake from Tsukui Lake system.
1954	Completed Shiroyama Dam to create Tsukui Lake.
1958	Opened Saginuma Swimming Pool. Completed second raw water conveyance tunnel.
1959	Established Kanagawa Water Supply Authority.
1961	Started operation of Shiomidai Purification Plant.
1964	Started partial reception from Water Supply Authority.
1965	Completed Miho Dam to create Tanzawa Lake.
1968	Started Kawasaki longitudinal expressway facilities development project.
1969	
1970	Completed Miyagase Dam to create Miyagase Lake.
1973	Opened Saginuma Community Square on site of Saginuma Swimming Pool. Completed improvement work of first raw water conveyance tunnel.
1974	Started facilities reconstruction project. (To be completed in 2016)
1978	Inaugurated Waterworks and Sewerage Bureau.
1982	Abolition of purification function of Shiomidai purification plant.
1989	Completion of renovation/reinforcement of the Nagasawa Purification Plant
1991	Ending of waterworks services at Ikuta Purification Plant
1993	Completion of Reconstructed Facilities
1995	Completion of Nagasawa Purification Plant information facility(With a Glimpse of the Future)
1996	Kawasaki Waterworks – A century of service in water supply.
1997	The Ikuta Fureai Plaza and the Ikuta Multi Plaza was opened on the grounds of the Ikuta Water Purification Plant.
2000	
2001	
2002	
2003	
2004	
2006	
2007	
2010	
2011	
2012	
2016	
2017	
2018	
2021	
2022	

Sewerage System

Kawasaki Town in Early Meiji Period

Iriezaki Sewerage Treatment Plant

Kase Sewage Treatment Plant

Iriezaki Yonetsu Riyou Pool

Egawa seseragi Promenade

1910	
1921	
1926	Started investigation for sewerage project.
1931	Started sewer work.
1935	Started operation of Rokugo Stormwater Pumping Station.
1936	
1937	
1938	
1939	Enacted Sewerage Usage Ordinance of Kawasaki city.
1943	
1947	
1948	Started collection of sewerage service change.
1952	
1954	
1958	Enacted Sewage Law.
1959	Enacted ordinance for enforcement of Sewage Law.
1961	Enacted Sewage Ordinance of Kawasaki city.
1964	Iriezaki Sewage Treatment Plant (Iriezaki Wastewater Treatment Center) started operation.
1965	
1968	
1969	
1970	
1973	Kase Sewage Treatment Plant (Kase Wastewater Treatment Center) started operation.
1974	
1978	
1982	Todoroki Environment Center (Todoroki Wastewater Treatment Center) started operation.
1989	Asao Environment Center (Asao Wastewater Treatment Center) started operation.
1991	Started operation of regional radar precipitation information system (Rain Net).
1993	Opened Asao Community Hill.
1995	Started operation of Iriezaki SludgeTreatment Center.
1996	Opened Iriezaki Yonetsu Riyou Pool.
1997	Opened Kase Community Square.
2000	Started advanced treatment operation at Asao Wastewater Treatment Center.
2001	Started operation of Egawa Stormwater Storage Pipe.
2002	Started advanced treatment operation at Iriezaki Wastewater Treatment Center.
2003	Started advanced treatment operation at Todoroki Wastewater Treatment Center. Completed Egawa Seseragi Promenade.
2004	Started operation of Shibukawa stormwater Storage Pipe.
2006	Started operation of Kawasaki Station Square Stromwater Storage Pipe
2007	Started operation of Kawasaki Station West Entrance Stormwater storage Facilities.
2010	Inaugurated Waterworks Bureau.
2011	Started advanced treatment Operation a part of the Western System at Iriezaki Wastewater Treatment Center.
2012	
2016	
2017	
2018	Construction of the West Line Advanced Wastewater Treatment System completes at Iriezaki Wastewater Treatment Center
2021	Completion of Kawasaki Waterworks and Sewerage Information Facility (Wakuwaku Aqua)
2022	Started operation of Daishigawara Storage Pipe

Statistics

Listed below are the statistical data for Kawasaki City Waterworks, Industrial Waterworks, and Sewerage Systems.

	Division	Unit	2022	2021	2020
Water works Project	Total population	Per.	1,541,640	1,538,721	1,539,946
	Current population served	Per.	1,541,612	1,538,691	1,539,915
	Pervasion	%	99.99	99.99	99.99
	No. of water taps	Tap	816,046	811,389	784,679
	The amount of annual water supply	㎥	180,471,300	183,236,900	186,422,200
	Annual revenue earning water	㎥	168,744,740	171,656,064	172,982,051
	Daily water supply capacity	㎥	758,200	758,200	758,200
	Daily average distributed amount	㎥	494,442	502,019	510,746
	Rate of facility utilization	%	65.2	66.2	67.4
	Accounted-for Water as Percent of Total	%	93.50	93.68	92.79
	Extended length of distribution pipe	m	2,422,332	2,418,783	2,410,659
	No. of personnel	Per.	547	546	543
	Revenue from water rates	1,000Yen	24,120,624	24,535,997	24,744,155
Water Service for Industrial Use	Water supply company	Co.	57	58	58
	No. of factories	Fac.	77	78	78
	Water year contract	㎥	188,055,300	188,146,550	188,146,550
	The amount of annual water supply	㎥	141,496,400	145,536,400	141,334,600
	Annual water consumption	㎥	140,021,576	144,338,787	140,743,188
	Daily water supply capacity	㎥	520,000	520,000	520,000
	Daily average distributed amount	㎥	387,661	398,730	387,218
	Rate of facility utilization	%	74.6	76.7	74.5
	Accounted-for Water as Percent of Total	%	99.0	99.2	99.6
	Extended length of distribution pipe	m	43,420	43,411	43,417
	No. of personnel	Per.	76	75	74
	Revenue from water rate for industrial use	1,000Yen	6,876,157	6,907,769	6,952,746
Sewerage Project	Sewered population	Per.	1,534,852	1,531,670	1,532,738
	Sewered population rate	%	99.5	99.5	99.5
	Sewered area	ha	10,721	10,719	10,717
	No. of houses to be sewered	House	764,292	755,260	743,331
	No. of sewered houses	House	763,063	752,987	741,053
	Sewering rate	%	99.7	99.7	99.7
	Treated sewage volume	㎥	199,360,408	203,575,943	206,424,492
	Daily average treated sewage volume	㎥	546,193	557,742	565,546
	Daily treatment capacity	㎥	982,500	982,500	982,500
	Accounted-for Sewerage	㎥	151,637,201	154,145,331	155,690,117
	Extended length of installed pipe	m	3,158,220	3,153,672	3,149,283
	No. of personnel	Per.	412	414	409
	Revenue from sewage service charge	1,000Yen	21,682,839	21,884,054	22,160,443

Contacts

The following lists the contacts for the waterworks and sewerage system.

	Inquiry Item	Charge	Phone
Water works System	-Water rates, procedures when moving in / out -Other general questions	Water Supply and Sewerage Customer Center (Phone calls from customers are received by outsourced service)	044(200)3548
	-Inquiries on leakage, clogged drains, and repair	Water Supply and Sewerage Customer Center (Phone calls from customers are received by outsourced service)	0120(014)734
	-Water service installation	[Kawasaki Ward, Saiwai Ward,Nakahara Ward] South Waterworks Service Center	044(544)5433
		[Takatsu Ward, Miyamae Ward] Central Waterworks Service Center	044(855)3232
		[Tama Ward, Asao Ward] North Waterworks Service Center	044(951)0303
	-Water supply works on the road(public road)	[Kawasaki Ward, Saiwai Ward] Waterworks Maintenance Section	044(544)3642
		[Nakahara Ward, Takatsu Ward, Miyamae Ward] Water Supply Construction Office 2	044(888)3141
		[Tama Ward, Asao Ward] Water Supply Construction Office 3	044(945)8277
Industrial Water System	-Concerning water contracts, or water rate for industrial water	Industrial Water Section	044(200)3153
Sewarage System	-Sewage service charge	Business and Service Management Section [Sewerage Fee Unit]	044(200)2872
	-Subsidy/loan for switching to a flush toilet	Sewerage Management Section	044(200)0351
	-Failure between a connection chamber and a sewer -Response to a private road, arrangement of a private sewer -Notes on sewer work	[Kawasaki Ward, Saiwai Ward] Southern Kawasaki Sewerage Office	044(344)4866
		[Nakahara Ward, Takatsu Ward] Central Kawasaki Sewerage Office	044(751)2966
		[Miyamae Ward] Western Kawasaki Sewerage Management Office	044(852)5131
		[Tama Ward, Asao Ward] Northern Kawasaki Sewerage Management Office	044(954)0208
	-Treated wastewater quality -Notification of plant/factory wastewater, discharge standards to sewerage, etc.	Sewerage Water Quality Section	044(200)2878
	-Clogged gutter and storm water inlet of the road	Kawasaki Ward Office Roads and Parks Management Center Development Section	044(244)3206
		Saiwai Ward Office Roads and Parks Management Center Development Section	044(544)5500
		Nakahara Ward Office Roads and Parks Management Center Development Section	044(788)2311
		Takatsu Ward Office Roads and Parks Management Center Development Section	044(833)1221
		Miyamae Ward Office Roads and Parks Management Center Development Section	044(877)1661
		Tama Ward Office Roads and Parks Management Center Development Section	044(946)0044
		Asao Ward Office Roads and Parks Management Center Development Section	044(954)0505
	-Failure of a flush toilet or drain pipe in housing land	Designated sewer company which installed drainage facilities or Kawasaki pluming Heating and Air-conditioning Constructor's Association	Kawasaki Pluming Heating and Air-conditioning Constructor's Association 0120(320)419

An appeal for citizens to keep a stock of water on hand

A minimum of three liters of water/day per person for at least 3 days (if possible for 7 days or more)

In the event of an emergency, water is needed first of all. Please secure potable water for your family at home in case of an emergency. It is said that adult human beings need about 2 to 2.5 liters of water a day to survive. Please keep a stock of water in plastic bottles—at least three liters/day per person for at least 3 days (if possible for seven days or more)

＜When drawing water for storage, let's be careful of the following points.＞

- Choose a container that can be tightly sealed, and wash it thoroughly before use.
- Fill the container up to the top and put the lid on tightly so that dust/germs cannot enter.
- Please stock tap water without boiling/filtering it so as to ensure a proper level of chlorination in the water.
- Store the water in a cool and dark place.
- You can store tap water in 2-liter plastic bottles in a cool/dark place for about 3 days (or six days in winter) on average.
- Please pour the stocked water into a cup, etc., when drinking.

＊The effects of the chlorine in tap water dwindle as time goes by.
＊Chlorination effects last longer if tap water is not exposed to the air.
＊Once the stock period has passed, please use any unused stock water for other purposes such as cleaning the house, doing laundry, etc.

Keep spare emergency toilet kits on hand

You will need at least 3 days' worth of emergency toilet kits in stock and 7 days' means in stock to be on the safe side.
A day's worth is five times per number of persons.

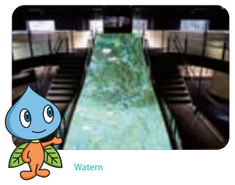
Toilets are likely to become unusable in disasters because of water outages or broken sewage pipes. So for emergencies, always be ready with the stock of spare disaster- preparedness toilet kits.

水とかがやく未来館

With a Glimpse of the Future
(Nagasawa Water Purification Plant Information Facility)

For reservations / contact
044-200-3149

Waterworks and Sewerage Bureau Service Promotion Department
Reservations accepted between: 08:30 to 17:15



Watern

Address : 5-1-1 Mita, Tama Ward, 214-0035
Fax : 044-200-3996
Open hours : 08:45 to 16:15 (not during 12:00 to 13:00)
Closed on : Tuesdays, Saturdays, Sundays and national holidays, and from Dec.29 to January 3
Reservations are required for all persons, both for individuals as well as groups.

Access

Get off at Mukougaoka Yuen Station on the Odakyu Line, and take either of the following buses from the north exit of Mukougaoka Yuen Station

■Bus Stop No.1
System No. 11 heading to Azamino Station.
Get off at Josuijo Iriguchi (Purification Plant Entrance) and walk 10 minutes

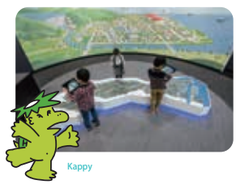
■Bus Stop No. 1
System No. 12 heading to St. Marianna University School of Medicine.
Get off at Josuijo Iriguchi (Purification Plant Entrance) and walk 10 minutes

かわさき下水道広報施設 ワクワクアクア
WAKUWAKU AQUA

Wakuwaku Aqua
(Kawasaki Sewerage Information Facility)

For reservations / contact
044-287-5214

Waterworks and Sewerage Bureau Iriezaki Wastewater Treatment Center
Reservations accepted between: 08:30 to 16:30



Kappy

Address : 3-17-1 Shiohama, Kawasaki Ward, 210-0826
Fax : 044-287-5311
Open hours : 08:45 to 16:15 (not during 12:00 to 13:00)
Closed on : Wednesdays, Saturdays, Sundays and national holidays, and from Dec.29 to January 3
Reservations are required for all persons, both for individuals as well as groups.

Access

Get off at either the JR Kawasaki Station or the Keikyu Kawasaki Station and take either of the following Kawasaki Municipal buses from the east exit of JR Kawasaki Station

■Bus Stop No.14
System No. 10 heading to Shiohama.
Get off at Iriezaki Wastewater Treatment Center and walk 1 minute

■Bus Stop No. 6
System No. 40 heading to in front of Shiohama Sales Office via Kawasaki Nanbu Saien (funeral garden). Get off at Iriezaki Wastewater Treatment Center and walk 1 minute

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
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