Environmental Report 2023

Digest Version

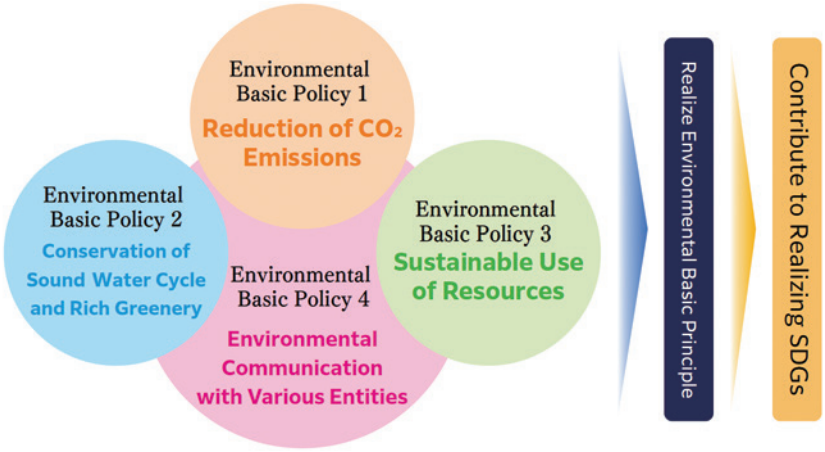
Bureau of Waterworks
Tokyo Metropolitan Government

Bureau of Waterworks, Tokyo Metropolitan Government Environmental Basic Principle

Water is essential for our lives. Protecting the global environment which nurtures water is a common issue to all humankind.
Through business activities that supply safe and high quality tap water stably, Bureau of Waterworks, Tokyo Metropolitan Government, will strive to pass on our rich global environment to the next generation.

Bureau of Waterworks, Tokyo Metropolitan Government Environmental Five-Year Plan 2020-2024

Bureau of Waterworks, Tokyo Metropolitan Government, formulated a “Environmental Five - Year Plan 2020-2024” in March 2020. In the plan, we established the following 4 basic environmental policies, to reduce negative impacts on the environment. Based on these policies, we have stated 37 specific initiatives and targets. To achieve this, we will realize the Environmental Basic Principle and contribute to the realization of the SDGs.



Policies	Initiatives
Reduction of CO_2 Emissions	Bureau of Waterworks consumes a large amount of energy. To reduce CO_2 emissions, we are reducing our energy consumption and introducing renewable energy. ■ Promote of Energy Saving ■ Expand Introduction of Renewable Energy ■ Promote development of a Carbon Free Society
Conservation of Sound Water Cycle and Rich Greenery	Tap water is made from precious and limited water. We are making approaches to conserve water and greenery by effectively using water resources, and protecting and nurturing the Water Conservation Forests. ■ Preserve and improve Water Conservation Forests ■ Contribute to forming of urban* water and greenery networks ■ Effective use of water resources *Refers to the Tokyo Metrpolitan area excluding Water Conservation Forests area
Sustainable Use of Resources	We are carrying out approaches toward sustainable use of resources by controlling waste that is discharged due to water supply projects and promoting recycling. ■ Reduce waste and promote recyling ■ Promoting paperless ■ Promote conversion to plastic-free
Environmental Communication with Various Entities	We are carrying out approaches to improve effectiveness of environmental measures through environmental education at elementary schools, raising awareness among relevant persons, communicating environmental information, etc., and by communicating with various parties such as customers and corporations. ■ Collaborate with customers ■ Collaborate with various entities including corporations

Reduction of CO_2 Emissions

Bureau of Waterworks consumes approximately 800 GWh of electricity per year to purify and provide water. We are making innovations to send water using less power by replacing equipment with energy saving models because most of power use results from operation of purification plants and water supply stations.

Using energy saving pump equipment

Pump equipment that sends water from purification plants and water supply stations consume a lot of electricity. We have introduced low energy loss inverters when updating pump equipment to reduce electricity consumption. During FY 2022, 6 energy-saving pumps were installed.

Energy saving pump equipment
(Misumi Booster Pumping Station)

Updating to high-efficiency equipment

We can anticipate power saving effects by replacing air conditioning equipment and lighting, etc. in our offices with high-efficient equipment. Also, we aim to use energy more efficiently by replacing equipment with high-efficiency equipment at the time of their replacement. During FY 2022, we replaced 9 lights, 16 air conditioners, and 7 transformers with high-efficient equipment.

LED lighting (Misato Water Purification Plant)

Solar Power Generation

Bureau of Waterworks effectively uses spaces such as the top of distribution reservoir at purification plants and the roofs of buildings for solar power generation systems. During FY 2022, we generated a total of 6.22 GWh across our 23 solar generation systems. Also, we have been constructing solar generation systems at Kiyoseumezono Water Supply Station and Jindaiji Water Supply Station.

Small Hydraulic Power Generation

Bureau of Waterworks is performing power generation in a system uniquely applying to waterworks, such as a system of utilization of elevation difference between a reservoir and a purification plant or of utilization of water pressure at the gate of distribution reservoirs of water supply stations. During FY 2022, total amount of power generation was 5.97GWh.

Solar Panels

Small Hydraulic
Power Generators

Introduction of zero-emissions vehicles* (ZEV)

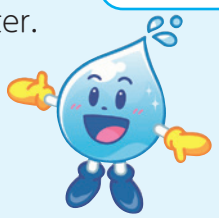
As of the end of FY2022, Bureau of Waterworks owns 592 four-wheeled vehicles and 123 motorbikes. By actively utilizing ZEVs and electric motorbikes that do not discharge CO_2 or air pollutants, we are contributing to reduce CO_2 emissions of the whole society. In FY2022, we procured 2 electric motorbikes.

Electric vehicle (EV)

* Refers to electric vehicles (EV), plug-in hybrid vehicles (PHV), and fuel cell vehicles (FCV).

Protecting and Maintaining Water Conservation Forests

Water that falls on forests flows through reservoirs, rivers, and water purification plants before arriving at taps as drinking water. Water Conservation Forests in the upper reaches of the Tama River store and clean water. Bureau of Waterworks has conducted management of Water Conservation Forests for about 120 years to preserve rich forests that nurture water.



Approaches to protect Water Conservation Forests

Forests have several functions—to purify the water by storing it in the soil, to prevent sediment run-off and landslides through branches, leaves and tree roots, and to absorb CO_2 through photosynthesis. Bureau of Waterworks raises sound forests, in order to fully demonstrate the functionality of these forests.

Forest preservation operations

In order to make full use of the various functions of forests, we cultivate them to be composed of trees of various ages, heights, and species, by repeatedly thinning and pruning vegetation to let light in. We did 611 ha of thinning and pruning in FY 2022.


Forest preservation operation

Purchasing privately owned forests

To manage the devastated privately-owned forests in the upriver reaches of the Tama River, we are promoting a purchasing project. We will be actively purchasing areas where there is concern that soil will erode into the Ogouchi Reservoir, for about 10 years starting in 2017. We have purchased approximately 3,553 ha of private forests by FY 2022.


Developed forest

Forest development activities in collaboration with Tokyo residents

The Tama River Water Resources Forest Team was established, to preserve privately-owned forests that have become devastated due to lack of maintenance, in cooperation with Tokyo residents. In FY 2022, we worked with 1,681 volunteers to carry out preservation activities. To make people understand the importance of protecting Water Conservation Forests, we are distributing e-mail newsletters and holding Water Conservation Forests tours (video tours in FY 2022).


Volunteer activity

Consideration towards biodiversity

Management of Water Conservation Forests also helps protect the organisms that live in the forest. In recent years, there has been damage to trees due to Sika deer eating bark, etc., and there is the risk of a large impact on biodiversity. As such, we have installed fences to prevent invasion by the Sika deer, and are carrying out management and capture of deer to an appropriate population, in coordination with the local government and relevant organizations such as hunters associations.


Fence to prevent invasion by Sika deer

Recycling Resources

Water purification and construction works produces a lot of surplus soil and garbage. In addition, in maintaining and managing the Water Conservation Forest, much wood is generated from cutting down trees. Rather than simply disposing of this wood, it is used effectively without any waste.

Recycling granular activated carbon

Since granular activated carbon required for advanced water treatment may reduce its function to absorb such elements as source of smell, periodical replacement of it is required. In FY2022, about 8,300 tons of granular activated carbon was generated annually. Currently, such carbons are utilized perfectly as horticultural soil and fuel adjuvant auxiliary agent.

Granular activated carbon used for advanced water purification

Utilizing granular activated carbon for gardening soil

Recycling of wood generated from the WaterConservation Forest

To ensure that the forest is made up of a variety of types and generations of trees, in forest management operations, we create space to plant new trees, carry out final cutting while leaving certain trees that have grown sufficiently, and carry out thinning so that light enters the forest.

Wood that is generated from final cutting is used for civil engineering/construction materials, biomass power generation, etc. Wood that is generated from thinning is used for earth retaining in forests, footpath landings and wooden fences for forest management. Therefore, 100% of this wood is used effectively.

Wood collecting

Reducing usage of resources

Waste is generated such as through using large amounts of paper and plastic at work. Incineration and landfilling of waste puts large burdens on the environment, such as discharge of harmful substances and soil pollution. When plastic is used, marine pollution and CO_2 emissions increase. By reducing usage of such items, environmental burdens can be reduced.

Promoting paperless

Bureau of Waterworks is actively working to promote paperless system. By introducing portable tabletsand conference monitors, paperless meetings are being promoted.

In addition, initiatives are also being taken towards paperless meter reading slips and invoices for water bills. We are encouraging people to switch from paper to paperless accounts through Tokyo Water App.

Icon and screen of Tokyo Water App

Reducing Use of Plastics

In meetings hosted by Bureau of Waterworks, we are thoroughly ensuring that we do not use any plastics. We stopped selling “Tokyo water” , which used to be sold in plastic bottles, and have installed environment-friendly Tokyowater Drinking Stations (please see next page for details) and are recommending people to bring their own bottles.

Bureau of Waterworks employees are also encouraged to bring and use their own water bottles and reusable shopping bags. We are making approaches to raise awareness towards reducing plastics through e-mail newsletters and trainings.

Switching from plastic shopping bags to your own bags

Environmental Communication with Customers

To advance our environmental approaches, it is necessary to gain understanding and cooperation from our customers and many other people. By actively communicating with customers, we are conducting approaches to deepen their understanding of our environmental projects.

Waterworks Caravan

To promote deep understanding of waterworks of local customers and elementary school students who represent the next generation, we are implementing 'Waterworks Caravan' (visiting lecture) at elementary schools, children's centers, seminars for the general public, etc. Waterworks Caravan consists of skits, movies, experiments, etc. to enable kids to understand easily how to produce and supply tap water.

In FY2022, we visited 1,210 elementary schools and held 134 lectures at children's centers etc., adopting measures against COVID-19.

Waterworks Caravan at children's center

Tokyowater Drinking Station Promotion

We are promoting Tokyowater Drinking Station ('DS') at public spaces and event sites. We will assist customers to take eco-action through promoting DS maps etc.

Outdoor location type DS

Outdoor location type DS

Environmental Communication with Various Entities including Corporations

We are promoting environmental approaches through communicating with various entities, such as corporations, universities and overseas entities. We are also taking the initiative to raise awareness of environmental issues among our employees.

Tokyo Waterworks - Corporation Forests- (Naming Rights)

We have established naming rights for parts of our water conservation forest. Companies can name the part of forest using their company name, and the companies and Tokyo Waterworks are working together to take care of the forests.

We promote understanding of water conservation forest by providing companies participating in the Tokyo Waterworks -Corporation Forests- (naming rights) program with opportunities to visit Water Conservation Forests and experience forest conservation work in the agreed areas. In FY 2022, 10 corporations experienced the activities.

Forest conservation experience (Forest thinning)

Collaboration with business operators

We award business operators, such as construction contractors who have implemented approaches which helps to enhance the image of water supply works by the active environmental measures with taking the local region into consideration,

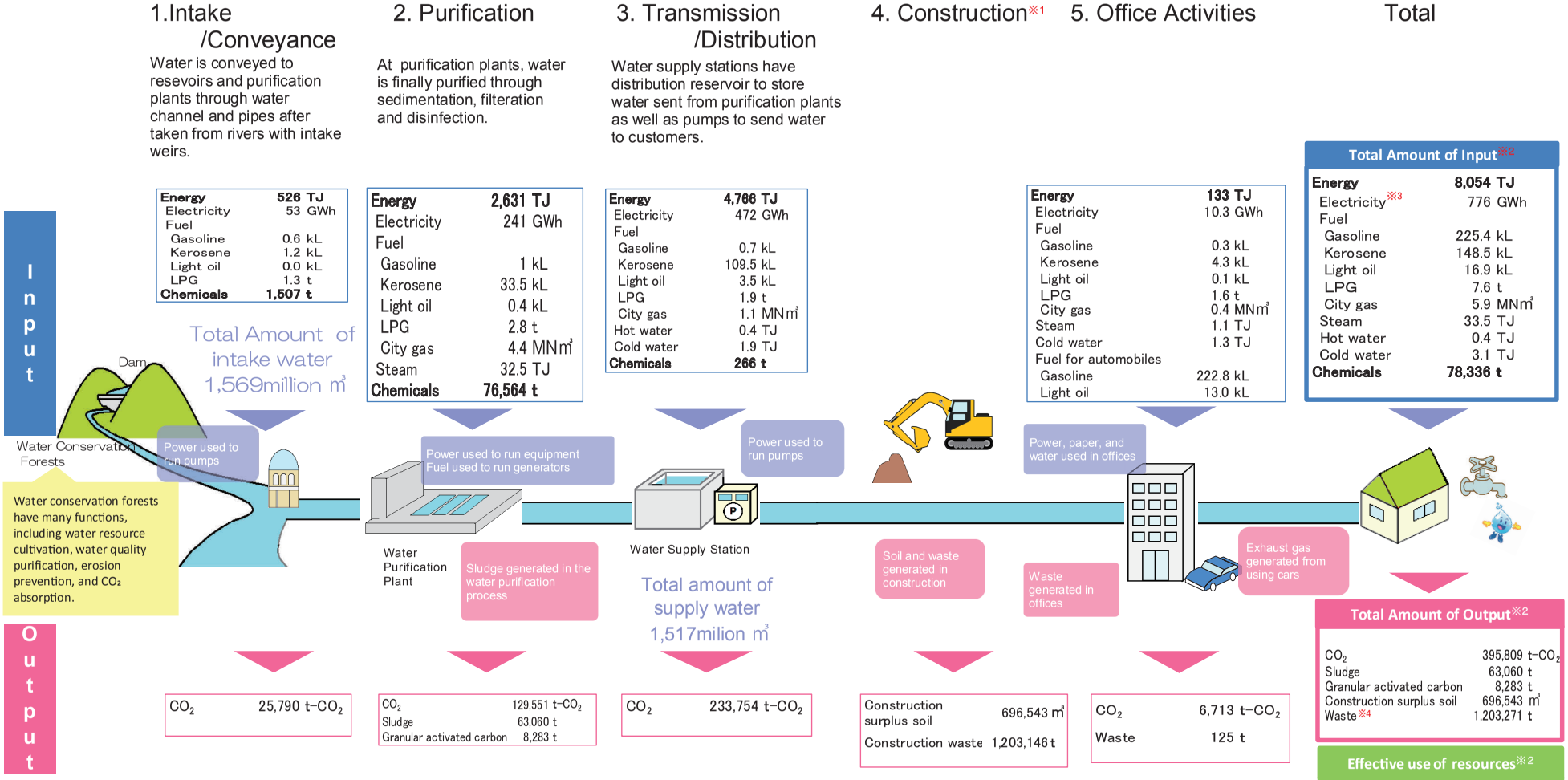
In addition, to carry out environment-friendly construction works, we strive to reduce environmental burdens in construction by collaborating with business operators. For example, we are requiring the use of low-emission construction machinery, and we are adopting a construction method that reduces excavation (non-open cut tunneling method) to curtail road construction.

Taking environmentally friendly action by using a solar-charged electronic tube to light up. (Example of commendation)

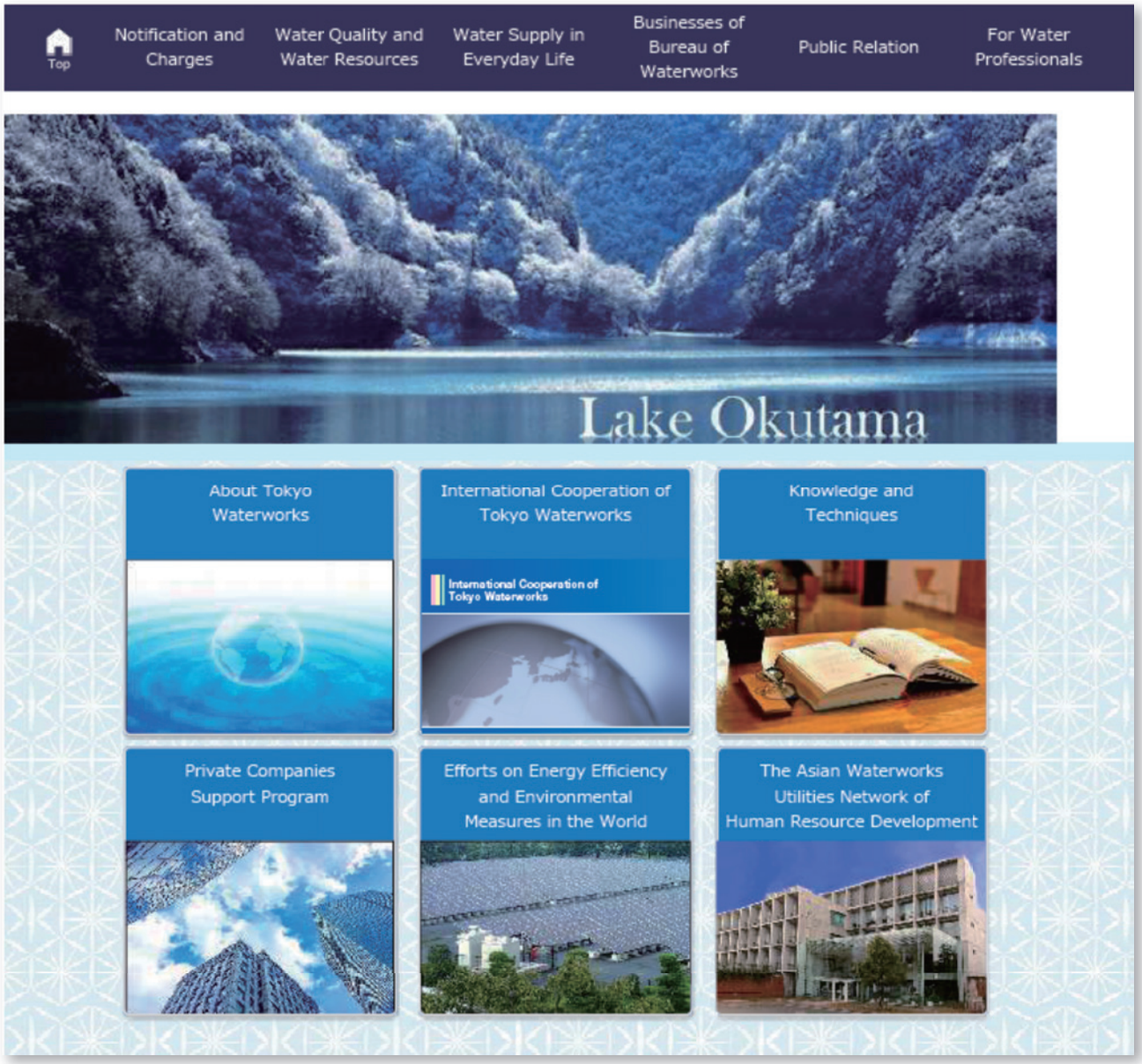
Impact on the environment from the waterworks business

The waterworks business makes and delivers tap water in a state that is safe to drink, so it is deeply connected to the global environment. However, a great burden is placed on the environment in order to make tap water and deliver it to customers, such as using a large amount of electricity and other energy, and emitting CO_2.

The diagram below shows the positive impacts and negative impacts on the environment, as well as the matter used (input) and matter emitted (output) by Bureau of Waterworks in each step from intaking water to delivering it to the customers.



※1. Excludes CO_2 emissions from electricity and fuel used in construction.
※2. Items may not add up to totals due to rounding off.
※3. Excludes 17 GWh from the thermal power generator at Higashimurayama Purification Plant and renewable energy.
※4. Waste includes construction waste, as well as waste generated by office activities.
※5. Numbers to the right of the decimal point are rounded off.



☆☆ We look forward to your visit to our website ☆☆
https://www.waterworks.metro.tokyo.lg.jp/eng/waterprofessionals/

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Planning and Coordination Section,
General Affairs Division,
Bureau of Waterworks,
Tokyo Metropolitan Government
Nishishinjuku 2-8-1. Shinjuku, Tokyo 163-8001, Japan
Tel: 03-5320-6333