TOKYO METROPOLITAN
SEWERAGE SERVICE CORPORATION

東京都下水道サービス株式会社

tokyo

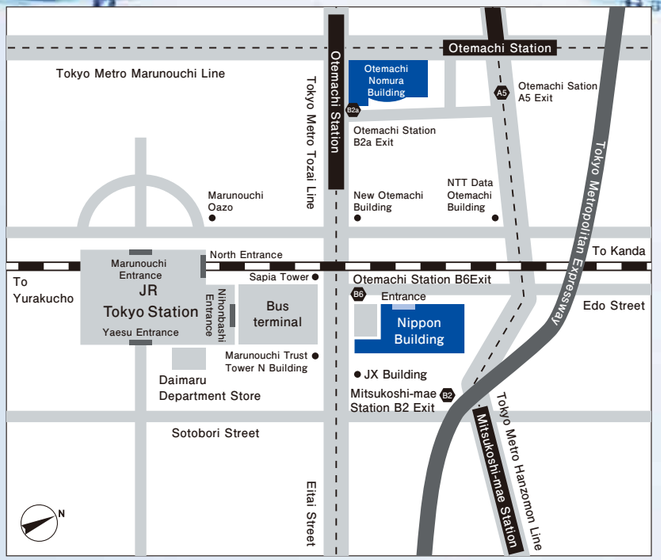
metropolitan

sewerage

service

corporation

profile



Tokyo Metropolitan Sewerage Service Corporation

Nippon Building,6-2 Otemachi 2-chome, Chiyoda-ku, Tokyo 100-0004

Otemachi Nomura Building 11F, 1-1 Otemachi 2-chome, Chiyoda-ku, Tokyo 100-0004

Phone +81-3-3241-0711 (Main number)

URL http://www.tgs-sw.co.jp/

VEGETABLE OIL INK

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30-002

ISO 9001

JQA-QM3589

TGS Builds Services in Harmony and Develops Them with Skills.

Message from the President

Tokyo Metropolitan Sewerage Service Corporation (TGS: Tokyo Gesuidou※ Service) was established in 1984 by applying the funds and technologies of the Tokyo Metropolitan Government and private companies to practical use. The aims of our corporate philosophy are to fully utilize the economic efficiencies of TGS and to serve the public welfare.

Since TGS was established, we have been a group of professional sewerage engineers in fields such as civil engineering, electricity, machinery, and water quality. As a member of the Tokyo Metropolitan Government group, we are working to improve sewerage service, for example, by reliably performing O&M of sewerage facilities, in order to complement/act for the Bureau of Sewerage in sewerage projects of the Tokyo Metropolitan Government.

In addition, together with training for engineers and the development of new technologies against the backdrop of our advanced technological capabilities, we are also actively working in concert with the Tokyo Metropolitan Government to improve the world's water environment.

We fulfill the expectations of residents and businesses by creating and maintaining a pleasant urban environment.

Shizuo Watanabe
President

Corporate Philosophy

☐ Complementing and Acting as an Agency

Complementing and acting as an agency for the Tokyo Metropolitan Government, TGS performs its sewerage services to maintain and improve their performances, aiming at achieving a better global environment.

☐ The Best Mix

Ensuring safety and reliability, TGS utilizes administrative experience and brings together the vitality of the private sector to perform sewerage services efficiently.

☐ Ingenuity, and Technical Research and Development

Based on a wealth of on-site practical experience, TGS encourages ingenuity, and technical research and development to improve overall technology.

☐ Pride and Faith

With the pride and faith of contributing to society, TGS acts with sincerity.

Business Policy

As a member of a group related to sewerage in Tokyo, TGS carries out integrated business operations with the Bureau of Sewerage, Tokyo Metropolitan Government and strives to ensure the public nature of those operations. While further strengthening collaboration and continuing to secure safety and reliability, TGS committed to realizing efficient business development, and to maintaining and improving sewerage service.

※"Gesuidou" means sewerage in Japanese.

Corporate Outline

Corporate name	Tokyo Metropolitan Sewerage Service Corporation
Headquarters	Nippon Building, 6-2, Otemachi 2-chome, Chiyoda-ku, Tokyo 100-0004 (Plant Division, Technical Development Dept. of Engineering Division, Planning Dept. of Sewage Training Center) Otemachi Nomura Building 11F, 1-1 Otemachi 2-chome, Chiyoda-ku, Tokyo 100-0004
Phone	+81-3-3241-0711 (Main number)
Fax	+81-3-3241-0766 (General Affairs Division) +81-3-3241-0909 (Engineering Division) +81-3-3241-0783 (Plant Division) +81-3-3241-0710 (Sewer Management Division)
URL	http://www.tgs-sw.co.jp/
Capital	100 million yen
Sales amount	24,949 million yen (actual amount in FY 2017)
Stockholders	Tokyo Metropolitan Government Tokyo Sewerage Facility Association Sompo Japan Nipponkoa Insurance Inc. Meiji Yasuda Life Insurance Company Mizuho Bank, Ltd. Mizuho Trust & Banking Co., Ltd. MUFG Bank,Ltd. Asahi Mutual Life Insurance Co. Tokio Marine & Nichido Fire Insurance Co., Ltd
Established on	August 1, 1984

Organization Chart

- President
- Vice President
- Senior Managing Director
- Director
- Auditor

- General Affairs Division
- Senior Director, Corporate Planning
- Sewerage Training Center
- Engineering Division
- Senior Director, Project Management
- Senior Director, Technical Development
- International Business Support Office
- Plant Division
- Senior Director, Maintenance and New Technology
- Sewer Management Division

History

August 1984	TGS established
October 1984	Sludge treatment plant management service started Sludge Light Office service started Water Recycling Center service started Check service of drainage systems started
April 1985	Sewerage Call Center service started (nighttime and holidays) Parking lot management service started
June 1986	Cooperative development of SPR Method (Sewage Pipe Renewal Method) started
January 1988	Bookselling service started
July 1988	Construction Surplus Soil Improvement Plant Office service started (Currently called Construction-derived Soil Improvement Plant Office service)
November 1994	Non-life insurance agent service started (Ended in October 2010)
May 1998	Public inlet construction management service started
April 1999	Standards revision service for new estimation system (SEES) started
July 1999	Acquisition of ISO 9001 certification
September 1999	Maintenance and inspection of sewer facilities service started
February 2001	Sewerage Mapping and Information System (SEMIS) maintenance service started
May 2001	Manhole number character cap sales service started
March 2003	Granularity controlled ash plant operation service started
April 2003	Surplus soil temporary storage facility management service started
April 2004	Sewer maintenance and operation service started
April 2007	Water quality testing service started
April 2008	Sewerage treatment facility maintenance service started Construction supervision support service started
January 2009	Awarded from the Ministry of Land, Infrastructure, Transport, and Tourism in commemoration of 50th anniversary of the establishment of the Sewerage Law
April 2009	Sewerage Training Center service started
April 2010	Service for visitors to sewerage facilities started
April 2013	Service for guiding visitors to Pumping Station in the old Mikawashima Sewage Treatment Facilities started
October 2013	Management and operation services of Sewerage Technology Training Center started
April 2014	International Business Support Office service started
May 2014	Establishment of symbol logotype
October 2014	Letter of acceptance, for the Langat sewerage Project has been issued from Malaysia Government

Acquisition of ISO 9001 Certification

JQA-QM3589

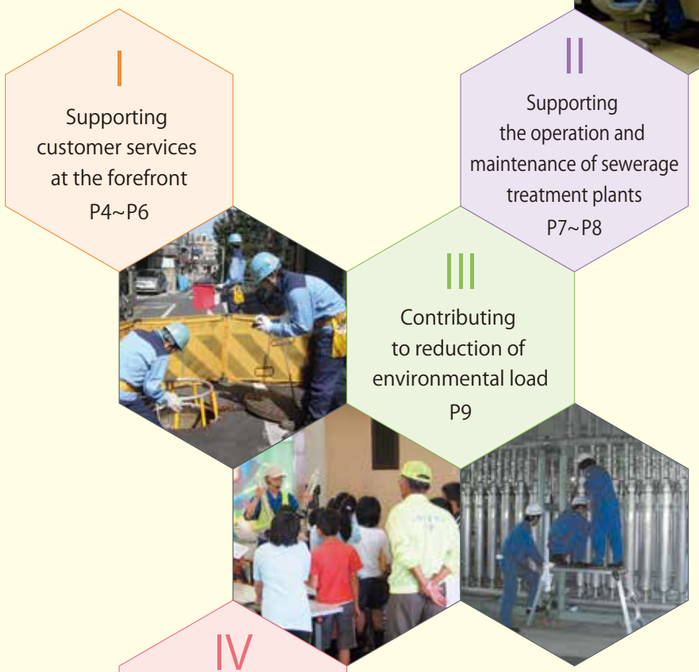
Scope of Registration:

- Operation and maintenance of sewage sludge treatment facilities (condensation, digestion, dewatering, and incineration process)
- Operation and maintenance of water recycling plants
- Operation and maintenance of construction surplus soil improvement plants

Applicable Offices:

Eastern Region Sludge Office, Kasai Sludge Office, Miyagi Sludge Office, Shingashi Sludge Office, Morigasaki Sludge Office, Southern Region Sludge Office, Shibaura Water Recycling Office, Shinjuku Water Recycling Office, Ariake Office, Nakagawa Construction Surplus Soil Improvement Plant Office, and related Departments in Headquarters

Utilizing technological expertise gained from abundant experiences, TGS contributes to society by complementing and acting as the agency for a wide range of sewerage services of the Tokyo Metropolitan Government with its high technology and broad vision.



http://www.tgs-sw.co.jp/ Search

I Supporting customer services at the forefront

Utilizing a wealth of experience and expertise, TGS supports customer service at the forefront.

Sewer maintenance service

The branches that perform the maintenance of sewer facilities at the forefront have a key role as regional customer service bases. Entrusted with all branch services by Bureau of Sewerage, Tokyo Metropolitan Government, TGS acts as its agency utilizing a wealth of past experience. In 2004, TGS was entrusted with the services of Toshima Branch for the first time. TGS is entrusted with the services of 22 branches (as of 2018), out of 23 branches in the special ward area of Tokyo.
To prevent damage to sewer facilities, TGS also inspects the construction work of other companies during nighttime as a maintenance service. Through the appropriate maintenance of these sewer facilities, TGS provides customers with safe, secure, and comfortable sewerage service.

Major services

Understanding the current condition of sewer facilities
- Patrol and inspection, survey in pipelines, survey of flooded areas, odor survey, basic survey for the maintenance and diagnosis of sewer facilities, organization of sewerage ledger data

Functional maintenance of sewer facilities
- Failure repair, cleaning, inspection, etc.

Repair of sewer facilities
- Design data preparation of repair works, supervision support of each work

Emergency measures
- Measures at the time of accidents, localized torrential rain, typhoons, etc.

Checking sewerage facilities

Response to customers

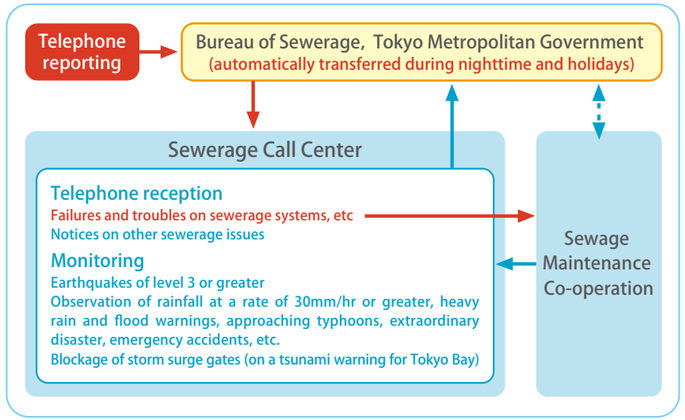
Checking pipes

Sewerage call center service

The Center receives all telephone calls about the failures, troubles, etc., on sewerage systems during the closing time (nighttime and holidays) of Bureau of Sewerage, Tokyo Metropolitan Government (about 14,000 cases per year).
Utilizing a wealth of experience on sewerage services, TGS rapidly and appropriately deals with reports and messages to improve our service responding to the customers' needs.

Major services

- Reception service of inquiries about sewerage systems (during nighttime and holidays)
- Service to collect, understand, and send information such as abnormal weather information (during nighttime and holidays).
- Blockage of storm surge gates on issuance of tsunami warnings



Private sewer-related service

To train engineers responsible for private sewer works and improve their technical capabilities, TGS holds qualification tests and renewal courses for engineers responsible for private sewer works in cooperation with prefectural level sewage works associations.
In Tokyo 23 Wards, TGS performs inspection and confirmation service to check if systems such as private sewer in residential land, and disposer drainage treatment systems are properly constructed and their performance is satisfactory.

Major services

Qualification examinations and renewal courses for engineers responsible for private sewer works
- Services related to the above examinations and courses in Tokyo Metropolis, Kanagawa, Saitama and Ehime Prefectures, etc.
- Service to dispatch lecturers to Tokyo and 19 prefectures.
- Opening of a preparatory course (e-learning) for taking "Examination for Engineers in Charge of Private Sewer Works"

Inspection of private sewer
Private sewer/disposer drainage treatment systems in 23 Wards (Number of systems constructed by Tokyo Metropolitan Government designated contractors: about 5,400 cases per year)
- Verification and confirmation of actual work with submitted plan documents

Check of disposer maintenance
Disposer drainage treatment systems (Number of systems in 23 Wards after one or more years of service: about 400 cases per year)
- Confirmation of maintenance conditions
- Analysis of treated water quality and confirmation of cleaning conditions


Inspection of private sewer


Check of a disposer drainage treatment system


Training course for engineers responsible for private sewer works

Sewerage system visitor support service

TGS is in charge of receiving and guiding visitors to 13 water reclamation centers* and Kuramae Water House (Kuramae mizu no yakata) in the ward area of Tokyo.


Visitors' Room, Kasai Water Reclamation Center


Reaction tank at Shibaura Water Reclamation Center


Secondary sedimentation tank at Mikawashima Water Reclamation Center

Other services

In addition to various services supporting the sewerage of Tokyo Metropolis, TGS is engaged in the sales of sewerage-related goods and books, parking lot management service, etc.

Major services

- Sales of books such as guidebooks for the design of sewerage facilities edited by Bureau of Sewerage, Tokyo Metropolitan Government
- Manufacturing and sales of "manhole number character caps" attached to manhole covers
- Provision of monthly parking lots using the planned service sites of Bureau of Sewerage, Tokyo Metropolitan Government
  10 sites [Higashisakashita, Shingashi, Ochiai (2), Ikejiri, Kuramae, Seijo, Nakagawa, Fuchu Oshitate, Shibaura]
- Manufacturing and sales of Ido Mill Meters® (time meters) for measuring the operating time of power well pumps.
- Development and sales of the spot deodorization system "Aqua Ozone Master" using ozone water


Sales of books


Sales of manhole number character caps


Parking lot management service

Sales of Ido Mill Meters®

* "Water reclamation center" means sewerage treatment plant.

Disaster recovery support service (Support period: March 2011 to March 2015)

At the request of Urayasu City and Katori City in Chiba Prefecture, damaged by liquefaction during the Great East Japan Earthquake, TGS provided disaster recovery support such as sewer cleaning, sewer inspection, and manhole damage investigation, utilizing a wealth of expertise in sewerage facilities, in cooperation with the Bureau of Sewerage of the Tokyo Metropolitan Government and Sewage Maintenance Co-operation. Establishing a support office in Urayasu City, TGS checked the execution design of disaster recovery work and supervised the construction.
TGS thus greatly contributed to disaster recovery support and recovery work for other municipalities in addition to Tokyo Metropolitan area.


Damage situation


Damage recovery support activity (sewer cleaning)


Damage recovery work activity (visit of Senior Vice-Minister Tani)

II Supporting the operation and maintenance of sew erage treatment plants

Using advanced technology cultivated for a long time, TGS contributes to the stable and efficient operation and maintenance of sewerage treatment plants.

Sewerage treatment service

In sewerage treatment, maintenance/inspection of sewerage treatment facilities and water quality testing must be performed regularly. Among the 13 water reclamation centers in the ward area of Tokyo, TGS performs maintenance at 12 and water quality testing at all 13 centers.

Facilities managed by TGS

- Sewerage treatment maintenance service
  Shibaura, Mikawashima, Ariake, Nakagawa, Kosuge, Kasai, Ochiai, Nakano, Miyagi, Shingashi, Ukima, Morigasaki
- Pumping station maintenance service
  Central Region Pumping Station, Northern Region Pumping Station, First Eastern Region Pumping Station, Second Eastern Region Pumping Station, Southern Region Pumping Station
- Water quality testing service
  Shibaura, Mikawashima, Sunamachi, Ariake, Nakagawa, Kosuge, Kasai, Ochiai, Nakano, Miyagi, Shingashi, Ukima, Morigasaki

Major services

- Sewerage treatment facility maintenance service
- Pumping station facility maintenance service
- Water quality testing service

Inspection of high-voltage motors

Water quality testing service

Sludge treatment service

In 1984, TGS was entrusted with the operation service of a sludge treatment facility in Shibaura Water Reclamation Center, and has gained 30 years and more of experience since then.
At present it comprehensively manages all 6 sludge treatment plants in the ward area of Tokyo, treating about 970 thousand tons of sludge per year (actual amount in FY 2017).

Facilities comprehensively managed by TGS

- Water Reclamation Center: Kasai, Miyagi, Shingashi, Morigasaki
- Sludge Treament Plant: Eastern Region, Southern Region

Major services

- Operation service for sludge treatment plants
- Maintenance service for sludge treatment plants
- Procurement and management of chemicals such as coagulants

Comprehensive management of sludge treatment plants

In addition to the operation and maintenance of sludge treatment plants, TGS comprehensively manages the procurement of chemicals as well as repair service.
As a trustee, it secures the quality of Sludge treatment service and performs maintenance with ingenuity.

Operation monitoring of sludge treatment plants

Inspection of dewatering facilities

Inspection of incineration facilities

Optical fiber network facilities management service

The optical fiber network facilities of the Bureau of Sewerage, Tokyo Metropolitan Government, laid inside of sewers, are used for data communication for OA systems, remote monitoring control, rainfall information systems, etc., playing a part in the efficiency improvement of sewerage services.
TGS carries out the 24-hour monitoring and maintenance management of these optical fiber network facilities.
TGS is also entrusted by the Bureau of Sewerage, Tokyo Metropolitan Government, with the survey of the Bureau's optical fiber network facilities, and is entrusted by private communication companies with the survey and design services on the use of sewerage optical fibers.

Major services

- Twenty-four-hour monitoring and maintenance management of optical fiber network facilities
- Maintenance management of optical fiber cable facilities
- Survey on optical fiber network facilities

Inspection of communication systems

Inspection of optical fiber cables

III Contributing to reduction of environmental load

Utilizing the expertise gained from a long time experience, TGS is contributing to the formation of recycling-oriented society in cities.

Water recycling service

In the ward area of Tokyo, treated wastewater is further treated using advanced method. It is then effectively used for toilet water, sprinkling water, water for restoring clear streams, etc. as a new water resource (recycled water).
TGS is entrusted by Bureau of Sewerage, Tokyo Metropolitan Government with the management service of three water recycling plants, contributing to creating recycling-oriented society.

Major services

Shinjuku Water Recycling Plant
Daily treatment amount: about 3,700 ㎥/day
・Distributed as toilet water to high buildings in Nishi-shinjuku/Nakano-sakaue District

Project for restoring clear stream in three rivers in Jonan area
Daily treatment amount: about 81,000 ㎥/day
・Providing water for restoring clear stream to Shibuyagawa River/Furukawa River, Megurogawa River, and Nomigawa River

Ariake Water Recycling Plant
Daily treatment amount: about 2,800 ㎥/day
・Distributed as toilet water to Tokyo Waterfront City

Shibaura Water Recycling Plant
Daily treatment amount: about 5,800 ㎥/day
・Distributed as toilet water to buildings in Shinagawa Station East Exit District, etc.
・Distributed as road sprinkling water for mitigating the urban heat island and water for other purposes.
(Actual amount in FY2017)

Inspection of water recycling plants

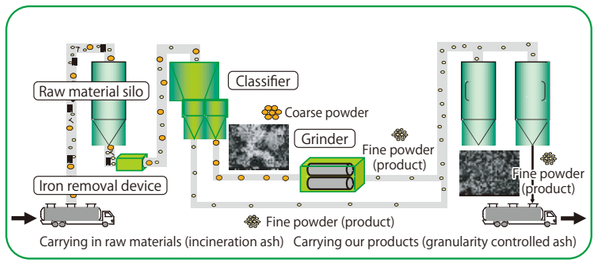
Restoration of clear streams

Sludge recycling service

Together with the sludge treatment service, TGS efficiently performs the operation, management, etc. of sludge recycling plants. It also makes a study of expanding the use of recycled goods, contributing to creating recycling-oriented society.

Major services

・Operation and maintenance management services of granularity controlled ash
・Sales of granularity controlled ash
・Sludge carbonization service



Process chart of manufacturing granularity controlled ash

Granularity controlled ash plants

Construction surplus soil improvement service (Soil improvement center called "Tsuchizukuri no sato")

To utilize surplus soil generated from sewerage construction as a resource, TGS improves the soil to soil with superior compacting characteristics and earthquake resistance (measures against liquefaction). This service contributes to the realization of a city with low environmental impacts, including preservation of the natural environment by reducing extraction of pit sand, prolongation of the life of landfill disposal sites, and reduction of CO_2 by shortening transport distances.
The amount of improved soil reused from FY 1988 (service started) to FY 2017 is about 3.43 million ㎥.

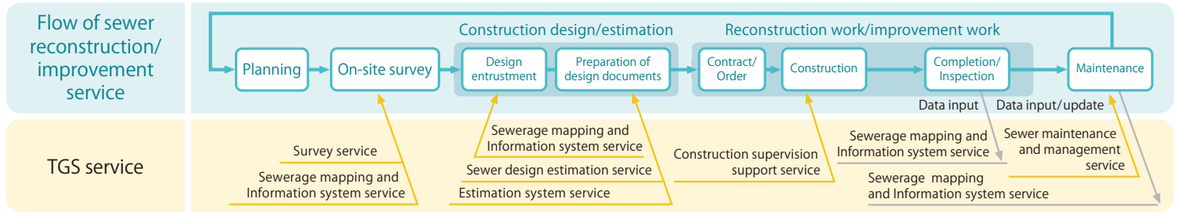
Major services

・Operation service
Treatment capacity: 150 tons/hr.
Annual production of improved soil: 198,000 tons (120 thousand ㎥)/year
・Management service such as reception of construction surplus soil and delivery of improved soil
・Quality control service (Carrying out soil tests such as CBR)

Nakagawa Construction Surplus Soil Improvement Plant ("Tsuchizukuri no sato")

IV Supporting reconstruction and improvement services

Utilizing a wealth of experience and technical expertise, TGS contributes to smoothly carry on reconstruction and improvement services in Tokyo Metropolitan Government's Sewerage Services.



Survey service

TGS is entrusted by Bureau of Sewerage, Tokyo Metropolitan Government with various surveys and design, contributing to implementing effective reconstruction/improvement service.

Major services

・Basic survey of mechanical/electrical systems related to reconstruction service
・Various surveys and design of pipeline facilities related to reconstruction service
・Survey on reconstruction of main line by the free cross section SPR construction method
・Survey related to optical fiber networks

Sewerage mapping and information system service

Through the functional improvement/maintenance and data update of Sewerage Mapping and Information System (SEMIS) of Tokyo Metropolitan Government, TGS is contributing to promoting efficient and appropriate maintenance service and reconstruction/improvement service.

Major services

・Maintenance of Sewerage Mapping and Information System
(Data management of the pipelines with a total length of 16 thousand km and about 480 thousand manholes in 23 Wards)
・Input/update of data such as information on sewerage facilities
・Input of pipeline diagnosis information data and expansion image data of pipeline internal surfaces
・Design support functions (maintenance of design sewer CAD systems)

Sewerage Mapping and Information System

Part of ledger information is shown in the Internet Website of Bureau of Sewerage, Tokyo Metropolitan Government

Facility plane figure

Pipeline diagnosis information

Sewer design estimation service/Estimation system service

TGS performs sewer design estimation service for the Bureau of Sewerage, Tokyo Metropolitan Government, and also is responsible for development and maintenance and management of the estimation system, contributing to appropriate and efficient sewer facility reconstruction, improvement, seismic retrofitting, and optical fiber services.

Major services

・Sewer design estimation service (reconstruction work, improvement work, earthquake-resistance reinforcement work, etc.)
・Development and maintenance of "System for New Sewerage Construction Work Compendium"
・Revision of"Estimation Standards of the Bureau of Sewerage, Tokyo Metropolitan Government" (Civil Works Common Standard, Sewer/Open cut Method Standard, Sewer/Tunnel Standard, Civil Facilities Standard, Construction Facilities Standard, Survey/Entrustment Standard, and Sewer Maintenance/Management Standard)
・Revision of design unit prices
・New work item development, functional improvement, maintenance of Quantity Calculation System

Construction supervision support

Using its abundant experience and expertise in the supervision of sewers, and complementing and covering part of the services of the Bureau of Sewerage, Tokyo Metropolitan Government, TGS facilitates the efficient and secure execution of reconstruction and improvement projects, contributing to build comfortable and safe wards.

Major service

・Construction supervision support service

Status of construction supervision support services

V Building a future sewerage system

Positively utilizing on-site wisdom gained from practice, TGS addresses the technical research and development of new sewerage and the fostering of future sewerage engineers.

Technical research and development projects

- Setting technical research and development themes directly related to sewerage services, TGS is conducting joint research with Bureau of Sewerage, Tokyo Metropolitan Government and private companies.
- Cooperating with Bureau of Sewerage, Tokyo Metropolitan Government, TGS tackles technical research and development in practical fields.
- With the participation of development-oriented companies, TGS grapples with technical research and development.
- Displaying “mobility” and “flexibility,” TGS aims at creating business in a short period.
- TGS secures income from industrial property rights such as patents obtained by research and development.

Industrial Property Rights

Number of industrial patent rights: 229

TGS has been placing emphasis on technical research and development since its establishment. As of the end of March 2018, TGS has applied 502 industrial property rights such as patents, 229 cases of which including patents, utility model patents, etc., have been obtained. International patents have also been obtained for some technologies.

Examples of development themes and results

Development themes		Examples of development results
Improvement of safety	Promotion of measures for aging facilities	SPR Method®*, Non-open cut construction method for dealing with obstacles in the ground* (DO-Jet Method®), Mechanical T-junction shield Tunneling method* (T-BOSS Method), Omega Liner Method, Compact Shield Tunneling Method*, Footstep metal automatic replacement equipment, Manhole frame removal and renewal method* (MR^2 Method), Coating type corrosion prevention method (Ecologuard using incineration ash for corrosion prevention material), Inner drop pipes (Smart Catch).
	Promotion of flood countermeasure	Optical fiber water level gauge*, Optical level switch*, Backflow prevention valve device for house inlet (Kantan-kun®).
	Promotion of earthquake countermeasures	SPR Method®*, Non-open cut method to prevent manhole floating* (floatless method®), Earthquake resistance reinforcement method for existing manholes*, Omega Liner Method, Earthquake resistance reinforcement method for liner pipe-manhole junction*, Earthquake resistance reinforcement method for liner pipe-manhole junction (Taishin Ippatsu-kun®), Earthquake resistance reinforcement method for existing large diameter pipes, Sheet lining method for preventing joint gap of manhole side block during earthquake. (Bondo-kun)
Improvement of comfort	Improvement of combined sewer system	Water surface control device, Grease interceptor (Kyuchaku-Ou), Automatic flushing device for sewers (Flush Gate).
	Ambient environmental countermeasure	Deodorant lid/deodorant cap (Boushuu-Ou), Photocatalytic air cleaner, Ozone deodorization equipment (Aqua Ozone Master), Rust prevention and deodorization type pressure relief device, Pipeline pressure release device, Simultaneous nitrification and denitrification technology.
Conservation of the global environment	Effective use of resources	Granularity controlled ash.
Improvement of service efficiency	Encouragement of soft plan*2	Optical fiber cable installation robot*, Optical fiber water level gauge system*, Optical level switch*.
	Improvement of maintenance	Closing method of unoccluded connection, House connection void inspection device*, Sewer image processing and database system using mirror type television camera-equipped survey device, Bladeless air blower (Hole air streamer®/HAST®), Multifunctional manhole lid, Phosphorus fixing agent (Hosuamitto®), Laser beam type sludge density meter, Honeycomb sludge concentrator, Comprehensive sewerage information control system, Sewerage system maintenance and management system (S-Cube Plus®).

In cooperation with relevant Associations, TGS provides introduction and education about the developed technologies so that they are widely used at home and abroad.
＊2 Soft Plan means "Sewer Optical Fiber Teleway Network PLAN" ®: Registered trademark in Japan.

Actual examples of technical research and development

Improvement of safety (reconstruction of aging facilities)

Development of SPR Method®

This method enables reconstruction in sewage-flowing sewers. It is a pipe reconstruction method available for various cross section shapes such as circular, horseshoe-shaped, rectangular -ones.

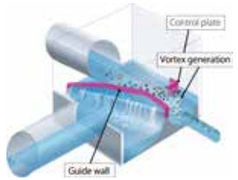
Received 59th Okochi Memorial Award

Rehabilitation of large diameter pipes (under construction)

Improvement of comfort (improvement of combined sewerage systems)

Development of a water surface control device

This device is developed to reduce the outflow of debris from the storm overflow chambers of sewerage facilities. It is easily installed. It reduces the outflow of debris into public water body with no power , and has an economic benefit due to low initial investment and low maintenance costs.



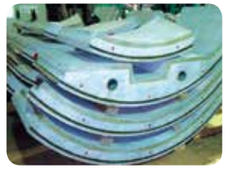
After installing a water surface control device

Conservation of the global environment (effective use of resources)

Application development of granularity controlled ash

The granularity controlled ash is made by classifying and grinding sewage sludge incineration ash and controlling its grain sizes. It is effectively used as high quality raw materials for civil engineering works such as concrete secondary products.

Granularity controlled ash



Concrete segments for shield tunneling method (using granularity controlled ash)

Effective use of services (Enhancement of maintenance management)

Development of a bladeless air blower (hole air streamer®/HAST®)

This is a new ventilation system developed for improving work safety in sewer facilities. It can be easily installed without blocking the manhole and can continuously send a large volume of air. It enables easy movement of workers and carrying of materials in and out of the facility while air is being sent.

Bladeless blower (Workers moving in and out of the facility)

Human resource development/Technology succession

Training service

To stably provide sewerage services in the future, the three parties supporting Tokyo’s sewerage works - the Bureau of Sewerage, TGS, and private companies - need to cooperate in acquiring enough manpower and ensuring the inheritance of the technology and know-how acquired up to date.
In April 2009, TGS was entrusted by the Bureau of Sewerage, Tokyo Metropolitan Government, with projects on human resource development and technical inheritance. TGS is now carrying out training and other activities.
In October 2013, TGS was also entrusted with the management and operation of Sewage Technology Training Center, and hence TGS instructors are providing training to private companies that use Sewage Technology Training Center.

A lecture scene

A training scene

Archives service

TGS collects, sorts out, stores, and utilizes valuable materials such as historical facilities, old books, pictures related to Tokyo’s sewerage facilities. TGS is studying ideas for utilizing historical assets located around the former main pump house at the Mikawashima Treatment plant, which was designated as an important cultural property first as a sewage facility in 2007, and also comprehensively conducting the management and guided tour operation of the Facilities.

Former main pump house
at the Mikawashima Treatment plant

VI Contributing to the improvement of the global wa ter environment

Twenty five hundred million people in the world do not seem to be able to access appropriate sanitary facilities, and the need for the sewerage that plays an important role in securing safe and sanitary water environment is increasing especially in Asian countries.
Responding to these demands, the Tokyo Metropolitan Government actively pursues international contribution, using various sewerage-related technologies, expertise, management methods, human resources, etc. accumulated in its history of more than 100 years, according to the needs of countries and regions.
As the management organization complementing and acting as an agency for the sewerage services of Tokyo Metropolitan Government, TGS is pursuing international development in cooperation and integrated with Bureau of Sewerage, Tokyo Metropolitan Government, sharing responsibilities with each other depending on cases.

Project Content

Promotion of overseas infrastructure improvement projects
- Feasibility study / planning
- Instruction of operation and maintenance

Overseas promotion of development technologies
- SPR Method
- Water surface control device
- Floatless Method

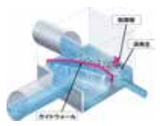
Strengthening of information dissemination
Promotion of personnel exchange and training

Major activities / action areas

EU (Germany)
- June 16, 2010: Water surface control device License agreement with Steinhardt GmbH
- May 7, 2014: TGS concluded an Letter of Intent with Steinhardt GmbH to demonstrate the performance evaluation of water surface control.
- On May 17, 2018: TGS concluded a Memorandum of Understanding on joint development of a water surface control device with Steinhardt GmbH.


Myanmar
- September 2016 – February 2017: Part of work in Study on improvement of sewerage infrastructure of Yangon City in the Republic of the Union of Myanmar (Study on Economic Partnership Projects in developing countries in FY 2016) (Order from Ministry of Economy, Trade and Industry)


Republic of Korea
- July 5, 2010: Water surface control device License agreement with N4TEC DS Co., Ltd.

United States of America
- Expansion of SPR Method Los Angeles and others
- September 7, 2011: Water surface control device License agreement with PW Tech Inc.


Europe countries
- Expansion of SPR Method Nine countries including Germany and Poland

Asian countries
- Expansion of SPR Method Six countries including Singapore and the Republic of Korea

Brazil
- July 2016: Field study on sewerage services in Brazil


Malaysia
- August 2010 - March 2011: Preparation of National Water Service Masterplan (Order from Ministry of Economy, Trade and Industry)
- September 2011 - June 2012: Preparatory study on PPP project of Water Sector in Malaysian metropolitan areas (Order from JICA)
- February 2012 - March 2012: Water treatment process improvement project for Pantai sewage treatment plant (Order from JICA, TGS is the sole contractor)
- July 19, 2012: Malaysia-Japan Workshop on Sewerage
- November 19, 2013: Malaysian SPAN visited the facilities of the Bureau of Sewerage, Tokyo Metropolitan Government.
- October 10, 2014: Letter of acceptance, for the Langat sewerage Project has been issued from Malaysia Government.
- March 4, 2015: Technical support for the Langat Sewerage Project by TGS has been commenced.
- July 30, 2015: Invitation of high Malaysian government officials to Sewage Works Exhibition (Ministry of Land, Infrastructure, Transport and Tourism, Bureau of Sewerage, Tokyo Metropolitan Government)
- January 14, 2016: Start of construction
- February 2017: Start of the Project for capacity building for operation and maintenance of sewage treatment plants under JICA Partnership Program (Order from JICA)



New Zealand
- December 10, 2012: Floatless method Technical Assistance Agreement with HYNDS
- November 20, 2013: Greater Wellington Municipality and other municipalities visited the facilities of the Bureau of Sewerage, Tokyo Metropolitan Government.
- August 2014: Test construction in Porirua City, Wellington Region

Legend
- Promotion of overseas infrastructure improvement projects
- Overseas promotion of development technologies