FOR THE ENHANCEMENT OF INTERNATIONAL WATER ENVIRONMENT

# KAWASAKI WATER BUSINESS NETWORK 2016

ENGLISH VERSION

## BUSINESS INTRODUCTION CATALOG

“Kawasaki Water Business Network” (KaWaBiz NET) is a platform which consists of water-related companies and organizations, and City of Kawasaki. Under the cooperation between the companies and City of Kawasaki, KaWaBiz NET supports the overseas water-related business to enhance international water environment.

The “Business Introduction Catalog of Kawasaki Water Business Network” was produced in cooperation with interested members to introduce excellent and cutting-edge technologies, products and projects which is related to the business to domestic and foreign people.

It would be grateful if the brochure could serve in some small way to enhance the international water environment.

Kawasaki Water Business Network Management Office

KAWA·BIZ·NET
for better water and environment in the world

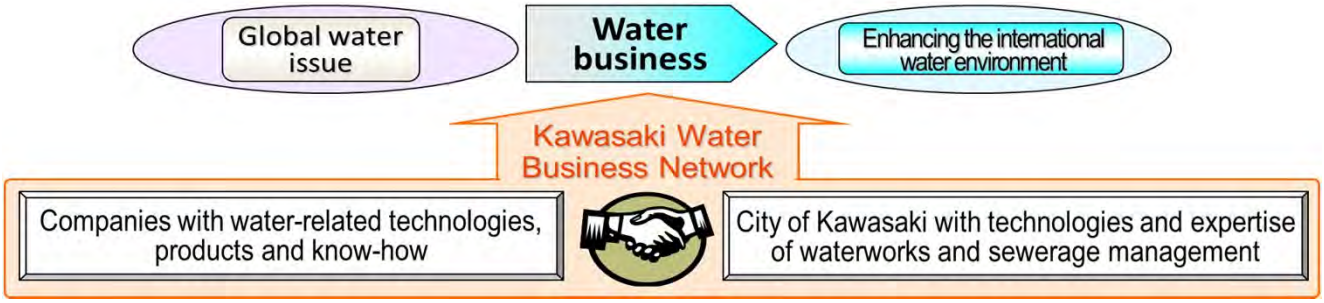
# Contents

# Kawasaki Water Business Network's Outline

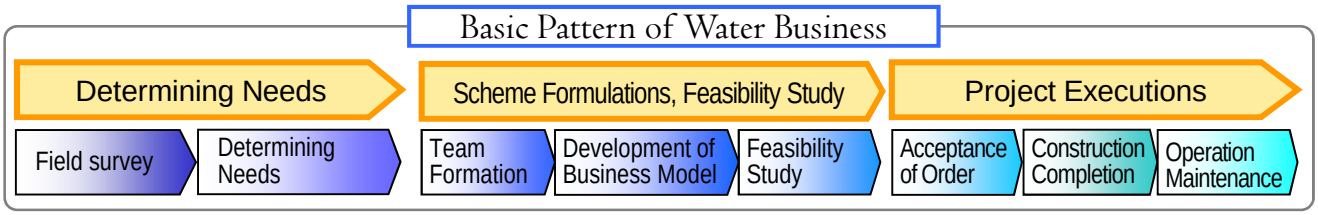
KAWA·BIZ·NET
for better water and environment in the world

A platform "Kawasaki Water Business Network" (KaWaBiz NET) was established in Aug. 2012 between companies with water-related technologies/products and City of Kawasaki with technologies and expertise of water/sewerage management.

The purpose of the establishment is to enhance the international water environment through water business cooperating with relevant ministries/organizations.




## Activity models of KaWaBiz NET




### Determining Needs in Target Regions

- Survey of needs
- Support for the survey of needs based on a G-to-G relationship
- Dispatch of mission

### Support for Scheme Formulation, Feasibility Study and Project Execution

- Coordination to form team
- Provision of a project support environment based on a G-to-G relationship
- Provision of technologies and expertise of waterworks / sewerage management
- Coordination of policies and systems in cooperation with the relevant ministries and organizations

### Information Service to Members

### Supported by Relevant Ministries and Agencies, Affiliates

Ministry of Health, Labour and Welfare/ Ministry of Economy, Trade and Industry
Ministry of Land, Infrastructure, Transport and Tourism/ Japan International Cooperation Agency and others



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# Kawasaki Water Business Network List

Chairman : Akira Koizumi, Dr. Eng. (Professor Emeritus, Graduate School of Urban Environmental Sciences, Tokyo Metropolitan University)

Special Adviser : Mayor of Kawasaki City / Chairman of the Kawasaki Chamber of Commerce & Industry

## Members List (56 members)

| | | | |
|---|---|---|---|
| AQUA ZEST | AQUA ZEST Corporation | | DAI-ICHI HIGH FREQUENCY CO.,LTD. |
| azbil | Azbil Corporation | | TABUCHI CORP. |
| ITOCHU Corporation | ITOCHU Corporation | TSK TSUKISHIMA KIKAI | TSUKISHIMA KIKAI CO.,LTD. |
| NJS 日本上下水道設計株式会社 | NJS CONSULTANTS CO., LTD | | TEC International Co., Ltd. |
| NTT AT | NTT Advanced Technology Corporation | TAKANO | DG TAKANO,Inc. |
| | ELIIY Power Co.,Ltd. | TEIJIN | TEIJIN LIMITED |
| OSUMI 株式会社オオスミ | Osumi Co.,Ltd | | TESCO CO., LTD. |
| 株式会社オスモ | OSMO Co.,Ltd. | H2O TREATMENT | Tohzai Chemical Industry Co.,LTD |
| OEC ORIGINAL ENGINEERING CONSULTANTS Co.,LTD | Original Engineering Consultants Co.,Ltd. | TOSHIBA Leading Innovation | TOSHIBA CORPORATION |
| KAJIMA CORPORATION | KAJIMA CORPORATION | | Nihon Suido Consultants Co.,Ltd. |
| 社団法人 川崎建設業協会 | Kawasaki Constructors' Association | NEC | NEC Corporation |
| | Kawasaki Plumbing Constructor's Association | nihon genryo | NIHON GENRYO Co.,Ltd. |
| | The Kawasaki Chamber of Commerce & Industry | 日本ベーシック株式会社 | Nippon Basic Co.,Ltd. |
| Aqua Street | Kankyo Kougaku Inc. | 浜銀総合研究所 | Hamagin Research Institute,Ltd |
| | KIMURA TECHNICAL CO, LTD | | Hitachi,Ltd. |
| KURIMOTO, LTD. | KURIMOTO,LTD. | Hitz Hitachi Zosen | Hitachi Zosen Corporation |
| CTI | CTI Engineering International Co.,Ltd. | FUJITSU | FUJITSU LIMITED |
| COSMO | COSMO KOKI Co. Ltd. | Fuji Electric Innovating Energy Technology | Fuji Electric Co., Ltd. |
| | SANSHIN CORPORATION | Maezawa Industries, Inc. | Maezawa Industries,Inc. |
| SANYU REC CO.,LTD. | SANYU REC CO.,LTD. | MIZUHO | Mizuho Bank,Ltd. |
| JFE | JFE Engineering Corporation | SMBC | Sumitomo Mitsui Banking Corporation |
| geoplan | Geoplan Co.,Ltd. | MITSUBISHI KAKOKI KAISHA, LTD. | MITSUBISHI KAKOKI KAISHA,LTD. |
| SHOEI | Shoei Co.,Ltd | | The Bank of Tokyo-Mitsubishi UFJ,Ltd. |
| SHOWA DENKO | SHOWA DENKO K.K. | YASKAWA 安川電機 | YASKAWA ELECTRIC CORPORATION |
| 水ing | Swing Corporation | yec | YACHIYO ENGINEERING CO.,LTD. |
| SUDO | SUDOH KOGYO Co.,Ltd. | YOKOGAWA | Yokogawa Solution Service Corporation |
| Sumitomo Corporation | Sumitomo Corporation | | The Bank of Yokohama,Ltd |
| SEKISUI | SEKISUI CHEMICAL CO.,LTD. | KAWASAKI CITY | City of Kawasaki |

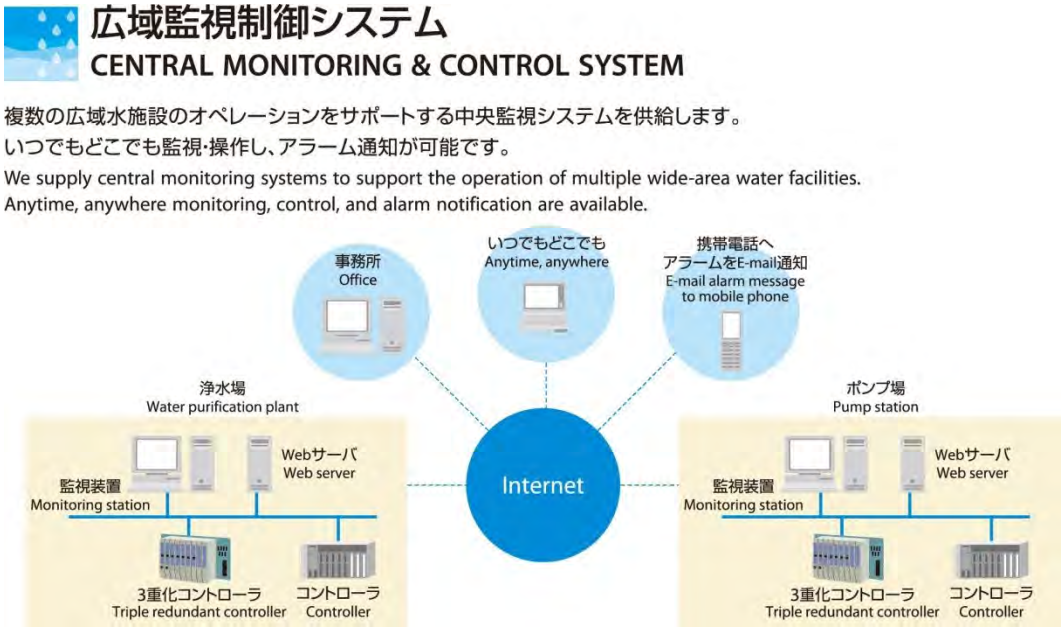
＊ As of Jan. 4. 2016

## Cooperators List (11 organizations)

| | |
|---|---|
| Ministries and Agencies | Ministry of Health, Labour and Welfare / Ministry of Economy, Trade and Industry / Ministry of Land, Infrastructure, Transport and Tourism |
| Affiliates | Japan International Cooperation Agency / JAPAN BANK FOR INTERNATIONAL COOPERATION / JAPAN WATER WORKS ASSOCIATION / JAPAN EXTERNAL TRADE ORGANIZATION JETRO YOKOHAMA / JAPAN SEWAGE WORKS ASSOCIATION / Kawasaki City Industrial Promotion Foundation |
| Overseas Governments | Danang Representative Office in Japan / Queensland Government Trade and Investment Office- Japan |

| Member Name | azbil Azbil Corporation |
|---|---|
| Address | Fujisawa Techno Center<br>1-12-2 Kawana, Fujisawa-shi, Kanagawa -ken, 251-8522 JAPAN |
| (Address in Kawasaki City) | Keihin Office<br>1-1 Minamimachi Kawasaki-ku Kawasaki-shi Kanagawa-ken |
| Website URL | http://www.azbil.com/ |
| Sector and Name | PA Business Development 1st Department,<br>Global Business Headquarters, AAC<br>Hideyuki Suzuki |
| Contact information | Tel 81-466-52-7049 / email h.suzuki.fn@azbil.com |
| Company outline | Established : 1906<br>Paid-in Capital : ¥10,522 million<br>Business :<br>As the core of the azbil Group, this company is developing its Building Automation business in the building market, Advanced Automation business in the plant and factory markets, and Life Automation business in lifelines, health care, and other markets connected closely with everyday life. |

## Water-related technologies, products and know-how / Projects in foreign countries



# 水最適運用
# WATER OPTIMIZATION

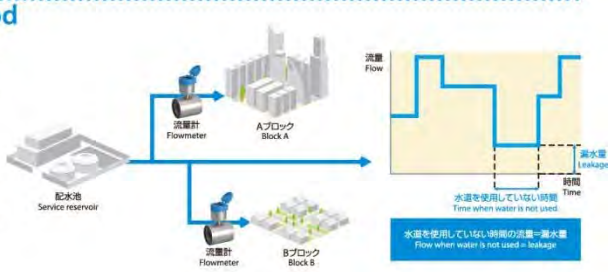
水の安定供給に貢献するとともに最適オペレーション、環境負荷低減、省エネを実現します。
Optimal operation contributes to a stable water supply, reduces environmental impact, and saves energy.

| | |
|---|---|
| 需要予測機能<br>WATER DEMAND FORECASTING | 将来の24時間分の水需要を予測<br>Forecasting for the following 24 hours |
| 水運用最適計画策定機能<br>OPTIMAL PLANNING | 配水池容量・浄水池容量を有効活用し、取水量・配水量の変動による運転の負荷変動を抑制し、同時にポンプ動力による運用コストを削減<br>By effective utilization of the storage capacity of service reservoirs and water purification basins, fluctuation in the operational load due to changes in intake and distribution amounts can be controlled, at the same time reducing the pumping costs. |
| 配水コントロール機能<br>DISTRIBUTION CONTROL | 最適な配水圧制御を行う配水コントロール機能<br>Optimal water pressure control for better distribution |


## 夜間最小流量測定法
## Nighttime Minimum Flow Measurement Method

計量ブロックの入口に電磁流量計を設置して、夜間最小流量を測定します。水道を使用していない夜間の流量を測定し、漏水量を把握します。

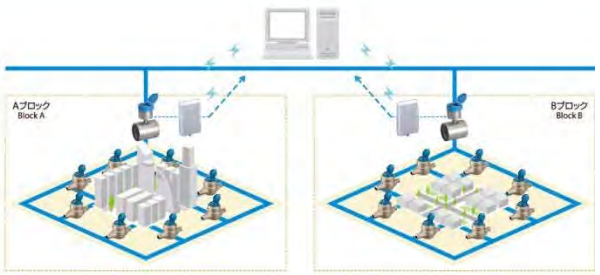
In the nighttime minimal flow measurement method, an electromagnetic flowmeter is installed at the intake of a metering block. Water leakage is determined by the amount of flow at night when water is not used.




## ブロック流量モニター
## Block Flow Monitor

配水管と配水管から枝分かれする枝管に流量を監視するためのメーターを設置し、モニターします。配水管のメーター値より枝管のメーターの合計値が少ない場合、漏水の可能性があります。個別メーターには流量データをメモリする機能があり、そのデータから漏水箇所の推定ができます。メーターに通信機能を設置すれば、常時監視も可能となります。

Flowmeters are installed and monitored in both the main and branch pipes used for water distribution. If the total flow measured by the branch meters is smaller than the value on the upstream main pipe meter, there is a possibility of leakage. Each meter is equipped with a data memory, and the location of the leak can be estimated by reviewing the memorized flow data of the meters. If meters with a communication function are used, constant monitoring is possible.



## Flowmeters

**MagneW™3000 PLUS+**
**Smart Electromagnetic Flowmeter**

**MagneW3000 PLUS**
**Smart Electromagnetic Flowmeter**
**Open channel Flowmeter Detector**

**MagneW Two-wire PLUS+**
**Smart Two-wire Electromagnetic Flowmeter**

| | | MGG/MGS | MGG/NNK | MTG |
|---|---|---|---|---|
| Standard specifications | Model number | | | |
| | Diameter | 2.5, 5, 10, 15, 25, 40, 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900, 1000, 1100 mm | 50, 100, 200, 400, 600 mm | 2.5, 5, 10, 15, 25, 40, 50, 65, 80, 100, 150, 200 mm |
| | Setting range | 0 to 0.1 m/s (minimum), 0 to 10 m/s (maximum) | 0 to 0.3 m/s (minimum), 0 to 10 m/s (maximum) | 0 to 0.3 m/s (minimum), 0 to 10 m/s (maximum) |
| | Power supply | 90 to 130 VAC, 47 to 63 Hz,<br>110 ADC ±10%, 24 VDC ±10% | 90 to 130 VAC, 47 to 63 Hz,<br>110 ADC ±10%, 24 VDC ±10% | 24 VDC ±10% |
| | Enclosure | Detector:Watertight(IEC IP67), submersible(IEC IP68)<br>Converter:Waterproof (NEMA4X, IEC IP66) | Detector:Submersible(IEC IP68)<br>Converter:Waterproof (NEMA4X, IEC IP66) | Detector:Watertight(IEC IP67)<br>Converter:Watertight(NEMA4X, IEC IP67) |
| | Explosion-proof structure | TIIS/FM/CSA explosion-proof,<br>FM/CSA nonincendive | N.A. | TIIS/FM/CSA explosion-proof,<br>FM/CSA/NEPSI/ATEX nonincendive |
| | Case material | Detector:SUS304, aluminum alloy, carbon steel<br>Converter:Aluminum alloy | Detector:PVC<br>Converter:Aluminum alloy | Detector:SUS304, aluminum alloy<br>Converter:Aluminum alloy |
| | Lining material | PFA, polyurethane rubber, chloroprene rubber, ceramic, ETFE | PVC | PFA |
| | Output | 4 to 20 mADC.<br>Pulse output : open collector<br>Contact output : open collector | 4 to 20 mADC.<br>Pulse output : open collector<br>Contact output : open collector | 4 to 20 mADC.<br>Pulse output : open collector<br>Contact output : open collector |
| | Accuracy | ±0.5 % of reading (flow rate of more than 20 % of setting range), ±0.35 % of reading (flow rate of more than 20 % of setting range) | ±1.0 % F.S. (Detector only), ±2.0 % F.S. (Combined with dummy) | ±0.5 % of reading (flow rate of more than 30 % or 40% of setting range) |
| | EMC conformity | CE | N.A. | CE |

MagneW 3000 PLUS+ electromagnetic flowmeter is a high-performance and highly reliable flowmeter based on Azbil Corporation's proven MagneW 3000 PLUS+ flow measurement technologies. The MagneW 3000 PLUS+ offers expanded flow rate measurement capabilities in the various processes.

The MagneW3000 PLUS model NNK Electromagnetic Flowmeter is submersible type of flowmeter mainly used for flow rate measurement in open or closed channels. This flowmeter is simple in operating principle and easy to install but provides high measuring accuracy. These features are unattainable with other traditional electromagnetic flowmeters.

The MagneW Two-wire PLUS+ is a high performance electromagnetic flowmeter based on field proven Azbil Corporation two-wire loop powered technology. The MagneW Two-wire PLUS+ offers the stable and accurate measurement of a traditional magflow meter with low power consumption. The result is a lower overall cost of ownership.

## Differential pressure transmitters and pressure transmitters

**AT9000 Advanced Transmitter.**
**Impulse-line model**

**AT9000 Advanced Transmitter.**
**Frange-Type**

**AT9000 Advanced Transmitter.**
**Remote-seal type**

| | | GTX | | |
|---|---|---|---|---|
| Standard specifications | Model number | | | |
| | Measuring span | 0.1 to 42 MPa<br>(0.4 to 40 inH20) | 2.5 to 3.500 kPa<br>(10 to 2000 inH20) | 0.7 to 42 MPa<br>(100 to 6000 psi) |
| | Accuracy | ±0.04% | ±0.15% | ±0.2% |
| | Degrees of protection | IP67, NEMA 4X, and JIS C0920 immersion proof | | |
| | Certificates | TIIS, FM, ATEX, IECEx, NEPSI, KOSHA, Non-incendive/Explosion-proof/Intrinsically-safe<br>Safety integrity level2 (SIL2) certification in accordance with IEC61508 | | |
| | Output | 4 to 20 mA DC or DE digital communication | | |
| | Supply voltage | 12.5 to 42 V DC | | |

AT9000 Advanced Transmitter is a microprocessor-based smart transmitter that features high performance and excellent stability. Capable of measuring gas, liquid, vapor, and liquid levels, it transmits 4 to 20 mA DC analog and digital signals according to the measured differential pressure. It can also execute two-way communications between the communicator, thus facilitating self-diagnosis, range resetting, and automatic zero adjustment.

## Water Meters

### Eco-type Electronic Display Water Meter
**(Model EKDA/EKDL/EKDS)**

| | | |
|---|---|---|
| | Models | EKDA13/EKDL13,25/EKDA20,25,30,40/EKDS40,50 |
| Standard specifications | Diameter | 13, 20, 25, 30, 40, 50 mm |
| | Size | Water supply standard sizes |
| | Output | Pulse, without units or with units (without verification)<br>8-bit message |
| | Accuracy | ±4 % of reading (complies with Japan's Measurement Act) |
| | Power supply | Built-in lithium battery (approx. 10-year life, not rechargeable) |

The Eco-type Electronic Display Water Meter is a safe and dependable water meter whose case material is lead-free copper alloy (CAC804).

### MagneW Water meter

| | | |
|---|---|---|
| | Model number | MGB12A |
| Standard specifications | Diameter | 50, 65, 75, 100, 125, 150, 200 mm |
| | Power supply | Built-in Lithium Battery |
| | Enclosure | IEC IP68 Submersible |
| | Explosion-proof structure | N.A. |
| | Case material | SUS316 |
| | Lining material | Epoxy-acrylic Resin |
| | Output | Pulse / bit Telegraphic Letter |
| | Accuracy | ±2 % |

The Azbil Kimmon battery-operated electromagnetic flowmeter for general water use incorporates accurate and reliable measurement technology and was developed for low power consumption and long service life.

| Member Name | ITOCHU Corporation |
|---|---|
| Address | 5-1, Kita-Aoyama 2-chome, Minato-ku, Tokyo 107-8077, Japan |
| (Address in Kawasaki City) | |
| Website URL | http://www.itochu.co.jp/en/ |
| Sector and Name | Water & Environment Project Section<br>Kohei Kimura |
| Contact information | Tel :03-3497-2511<br>Mail: kimura-ko@itochu.co.jp |
| Company outline | Established: 1949<br>Common Stock: 253,448M Yen<br>Number of Employees: 4,364<br>ITOCHU Corporation has been actively conducting water-related businesses all over the world, including a large desalination BOT project in Australia, management and investment in regional water utility companies in UK and Spain, and RO manufacturing business in Saudi Arabia. |

## Water-related technologies, products and know-how / Projects in foreign countries

**Bristol, UK**

Bristol Water plc., a regulated water company serving 1.2 million customers

**Dalian, China**

O&M service contract for wastewater treatment plants

**Canary Islands, Spain**

Canaragua Concesiones S.A., a water company serving 1.3 million customers

**Saudi Arabia**

Multiple desalination plants, including newly built EPC & rehabilitations

**Victoria, Australia**

Desalination plant to provide 440,000m$^3$/day of water to Melbourne and surrounding communities.

# Examples of ITOCHU's water-related business

## Victoria Desalination Project

The Victorian Desalination Project in Australia is one of the largest desalination projects, entailing the construction and operation of a 440,000 $m^3$/d .ITOCHU took an important role in arranging AUD3.5 B of non-recourse project finance, the world's largest project finance in 2009. The project received a number of awards for its successful financing.

| | |
|---|---|
| Structure | PPP (BOT) |
| Capacity | 440,000 $m^3$/d |
| Project Cost | AUD 3.5 B |
| Client | Victoria Government |
| Contract Term | 30 years |
| Site | Wonthaggi |
| Financial Close | Sep. 2009 |
| EPC Contractor | JV of Degrémont and Thiess |
| Equity Contribution | AUD 100 M (13.01%) |

## Water supply business

Bristol Water plc. is one of 21 UK (England & Wales) private water companies and has been in operation and supplying water for more than 165 years. ITOCHU is a shareholder of Bristol Water and provides various kinds of shareholder support. Through this project, ITOCHU accumulates know-hows of water supply business in UK which is referred to as a successful model of waterworks privatization.

| | |
|---|---|
| Established | 1846 |
| Service Area | Bristol City and surroundings (2,400 $km^2$) |
| Population Served | 1.2 million |
| Treatment Capacity | c. 300,000 $m^3$/d |
| Network Length | 6,688 km |
| Equity contribution | 20.0% |

| Member Name | *Original Engineering Consultants Co., Ltd* OEC |
|---|---|
| Address | 30-13 Motoyoyogi-cho, Shibuya-ku,Tokyo 151-0062, Japan |
| (Address in Kawasaki City) | |
| Website URL | http://www.oec-solution.co.jp/e/ |
| Sector and Name | International Business Department ／ Naoko KUBOTA (Ms.) |
| Contact information | Tel: +81-3-6757-8806 Fax: +81-3-6757-8807<br>E-mail: oec-kgjigyo_a-ML@oec-solution.co.jp |
| Company outline | Stock listing: Tokyo Stock Exchange, Second Section Code Number 4642<br>Established Jan 23,1962<br>6 division and 20 branches throughout Japan with 321 staff<br>Net sales (forcast) 5,133 Million yen (equal to 43.6 million US dollars) for FY2014<br><br>・corporate philosophy<br>"contributes to improve and preserve urban and rural water environment providing elaborated consulting services"<br>・Our basic policy<br>" the client always comes first" |

## Water-related technologies, products and know-how / Projects in foreign countries

**Services**

- water supply ／sewerage works (Wastewater collection systems)
- Urban runoff control planning
- sanitation and solid waste treatment
- industrial wastewater treatment
- Waste management ( Reduce, Reuse, Recycle)
- Septic tank planning
- Feasibility studies, master planning
- Project management, Construction Supervision

**Applicable Advanced Technologies**

- PPP support of industrial residents wastewater treatment
- Environmental assessment, survey, analysis
- Customization of Software of asset management services
- Design of digestion gas power plant by mixing activated
- sludge and food waste
- Consulting for using of hydro, wind solar and biomass
- Non-destructive investigation of elastic radar
- Plant design (civil, mechanic, electrical) and specifications and tender evaluation, diagnosis on the existing facilities
- Water related BOP business coordinating

Kiribati
Aeration Tank & 400 ton Reservoir

**Water-related technologies, products and know-how /
Projects in foreign countries**

## Profile

OEC was established in 1962. And since established to now, OEC has been taking charge of numerous projects such as the study, master plan, design and construction supervision of sewerage system, water treatment plant, sewage treatment plant, solid waste disposal, flood prevention facility, etc. Based on consultant experience for 50 years, OEC is developing a lot of business assistance tools, those which are due to create a design work and optimal operation and maintenance, and also to establish asset management plan including counter measure of concerning a long life to sewerage and water supply facilities.
OEC's activity and project outcome has been appraising highly by the client.

## OEC's Areas of Business

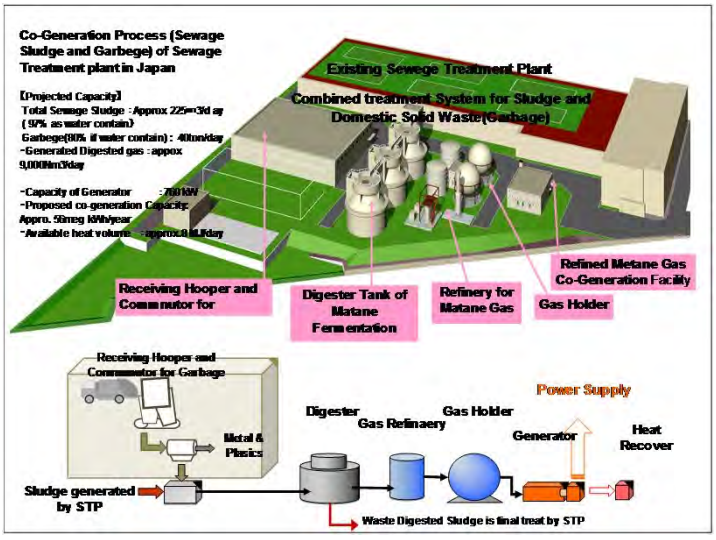
## Investigation, Diagnosis, Simulation and Analysis Technology by OEC

Since we cannot stop advance in our consultant services of sanitation and environment engineering, we developed of technology for solution to be able to resolve an environmental matters of diversity and to create a fine situation of the living for habitant continuously.
In accordance with above concept the software which is in developed stage is;
Bio-solution system and Final Settling Tank simulator is optimal operation for Activated Sludge Process, Diagnosis system for strength degradation of structure for civil, architectural by nondestructive testing, Diagnosis system for degradation of mechanical and electrical equipment's, and we will compile of above software of i), ii) and iii) as for the comprehensive operation and maintenance system.

## Study, Planning and Design, Maintenance management and Business Management

Master plan, Feasibility study, Preliminary & Detailed design for Sewerage/ Water supply
Simulation for realization of flooded area in the sewerage district, etc
Environmental management study as IEE, EIA & EIS Study of control index for activated sludge process regarding reduction of consumption energy. (Bio-solution)
Supporting establishment of account and management system for public-works corporation.

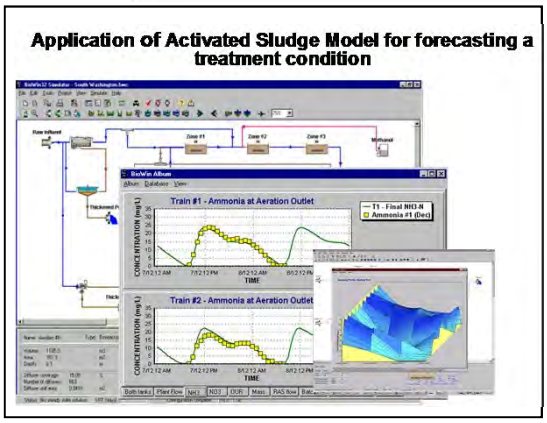
We would like to contribute to support the protection of environment and the reduction of green house gas using digester gas (methane gas: Bio-mass) instead of fossil fuel. (OEC has designed the biggest co-generation plant use for bio gas in Japan, 2010).

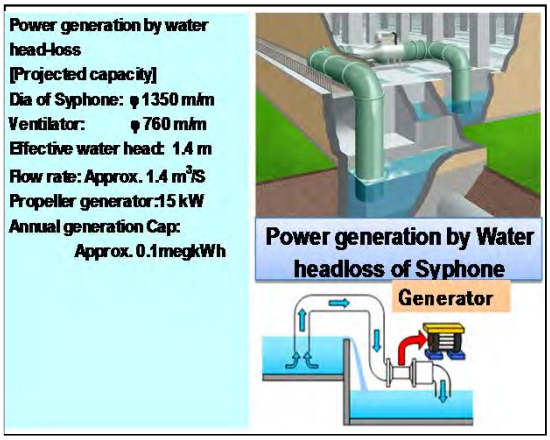


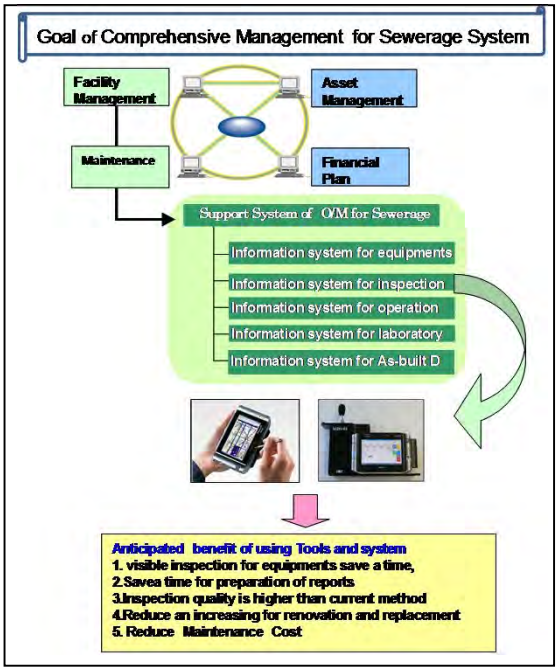
## Our attitude toward overseas project

OEC launched into overseas in 1977 mainly in Korea, and then to Philippine, Singapore, Brazil, Kiribati and so on. The countries have characteristics on culture, history, nature their own. OEC has been attaching a great importance to characteristics as design criteria. Our concept is that; the final results of design work must allow really for client requirement and future plan sufficiently. We would like to have a chance to be able to apply our concept and ideas anywhere.

## We show as follows that our developed tools for design aid and a result of design.


KAWA·BIZ·NET
for better water and environment in the world

| Member Name | KAJIMA CORPORATION |
|---|---|
| Address | 3-1, Motoakasaka 1-chome, Minato-ku, Tokyo 107-8388, JAPAN |
| (Address in Kawasaki City) | |
| Website URL | http://www.kajima.co.jp/welcome-j.html |
| Sector and Name | Land Revitalization Group,<br>Environmental Engineering Division |
| Contact information | TEL :+81-(0)3-5544-0818<br>E-mail :ayo@kajima.com |
| Company outline | Established 1840<br>Incorporated 1930<br>Paid-in Capital Over ¥81,400 million<br>Number of Employees 7,546 (As of March 31, 2015)<br>Business Domain<br>Construction (Civil Engineering and Building Construction), Real Estate Development, Architectural Design, Civil Engineering Design, Engineering, and Other President,<br>Representative Director Yoshikazu Oshimi |

## Water-related technologies, products and know-how / Projects in foreign countries

○ Sewage sludge volume reduction plant. **METHASAURUS**

20% of the national industrial waste is sewage sludge and this number increases every year, making the costs for sewage sludge disposal an increasingly heavy burden on the local governments' finances. Kajima and Mitsubishi Nagasaki Machinery have solved this problem and have achieved "zero emission" by developing "Methasaurus". Compared to conventional sewage sludge disposal, this technology reduces the amount of sewage sludge with a maximum of 80%. After this reduction the dehydrated sludge can directly be used as fuel or fertilizer.

**METHASAURUS solves the sewage sludge problem!**

## Water-related technologies, products and know-how / Projects in foreign countries

○Construction of three Sewage Treatment Plants and one Sludge Treatment Facility In Malaysia

This is a national project of Malaysian Government partly supported by the JBIC Loan. The Damansara,The Sunggala,　The Kuala Sawah Sewage Treatment Plants and Sg.Udang Sludge Treatment Facility were constructed by Kajima.

**Damansara STP**
**Daily Average(Q): 25,000 m³/d**

**Sunggala STP**
**Daily Average(Q): 15,000 m³/d**


**Kuala Sawah STP**
**Daily Average(Q): 59,000 m³/d**

**Sg.Udang CSTF**
**Daily Average(Q): 250 m³/d**

KAWA·BIZ·NET
for better water and environment in the world

| Member Name | KURIMOTO, LTD. |
|---|---|
| Address | 2-16-2, Konan, Minato-ku, Tokyo 108-0075, Japan |
| (Address in Kawasaki City) | |
| Website URL | http://www.kurimoto.co.jp/ |
| Sector and Name | |
| Contact information | |
| Company outline | I n 1909 Kurimoto, Ltd. began operations as a manufacturer of cast iron pipes for water and gas mains.<br>The major divisions of Kurimoto now provide ductile iron pipes, plant equipment and engineering services, valves, plastic products, and construction materials. |

## Water-related technologies, products and know-how / Projects in foreign countries

**The development of water infrastructure required for water supply, sewage, agricultural water, etc., is an important and urgent issue for all countries to improve people's living conditions and enhance economic strength. Ductile iron pipe, which boasts excellent basic performance as a pipe, is particularly attracting the attention of Asian countries, which are striving to enhance their national power. Meanwhile, as well as ductile iron pipe, fiberglass reinforced plastic mortar pipe (FRPM pipe) is also attracting attention in terms of its earthquake resistance and durability.**

### KURIMOTO Ductile Iron Pipe

A large amount of our company's piping is exported overseas, and is highly regarded for its high quality and reliability as well as for the rich experience of our company in Japan. Our past business achievements include the development of water infrastructure and piping of various plants.




## Water-related technologies, products and know-how / Projects in foreign countries

### KURIMOTO FRPM Pipe

In Japan, our piping is used for public sewers and drainage pipes for landfill areas and airports, which need to be acid-resistant, as well as pipes for agricultural water and wells. In other countries, our product is used for official development assistance (ODA) related businesses.

### KURIMOTO VALVES

KURIMOTO's VALVES have enjoyed wide acceptance in almost all of the fields such as water,sewerage,power plants,steel mills,gas,shipbuildings,chemical plants,construction,architecture,etc. because of their wide variety and a good reputation.
Especially,KURIMOTO is a leading manufacturer of large sized valves.
The products are exported to many overseas countries and have the reputation of excellent performance and high quality.
KURIMOTO's VALVES will contribute to your progress.

Butterfly valves BT series

Valve size 150 - 4000mm (6" - 160")

For many purposes,standard type,eccentric type,steady flow type,disc removal type,emergency shut-off type and so on.

"DISC POLYFLOW VALVE" Model BT-DD

Valve size 400 - 1500mm (16" - 60")

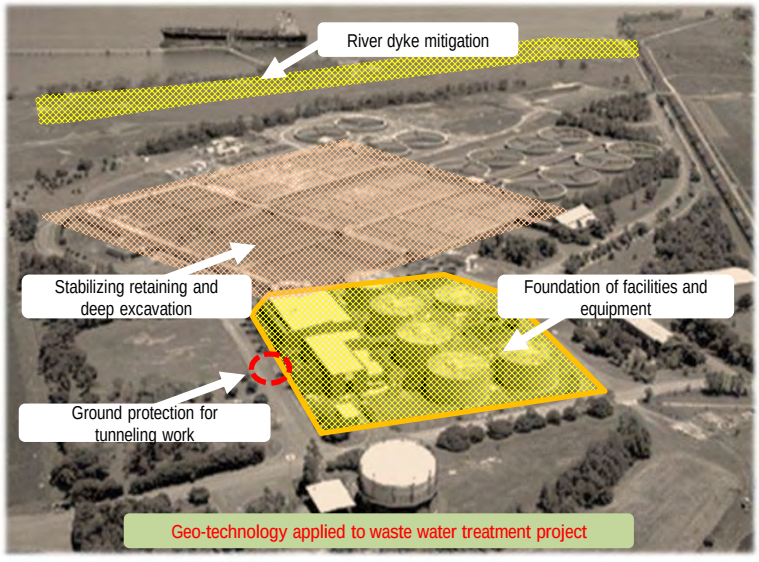
The disc polyflow valve is a valve developed with the intention of ensuring wider flow control range by alleviating noise and vibration by way of suppressing and dispersing the development of cavitation with a tunnel orifice provided on the outside surface of the valve disc.

| Member Name | SANSHIN COPRORATION |
|---|---|
| Address | 19-6, Yanagibashi 2, Taito-City, Tokyo, Japan 111-0052 |
| (Address in Kawasaki City) | |
| Website URL | http://www.sanshin-corp.co.jp/ |
| Sector and Name | Sales Department, Mr Kozo Takeda, General Manager |
| Contact information | Tel: +81-35825-3704 Fax: +81-35825-3756 |
| Company outline | SANSHIN CORPORATION provides special and unique geo-techniques to reinforce, stabilize and ,mitigate ground for safe, reliable and hazard-resilient society.<br>Our motto is based on Three SHIN (信); 1)keeping faith, 2)providing trust 3)gaining confidence<br>Basic information<br>• Established: November 16, 1956<br>• Capital: m 500 yen (m 5.5 USD)<br>• Stock: listed on JASDAQ |

## Water-related technologies, products and know-how / Projects in foreign countries

Application of our Technology for

- Stabilizing earth retaining and deep excavation
- Mitigating river-dyke, revetment and wharf
- Foundation for facilities and equipment
- Ground protection for tunneling work



# Water-related technologies, products and know-how / Projects in foreign countries

## Stabilizing earth retaining and deep excavation

### Application of SOIL NAILING

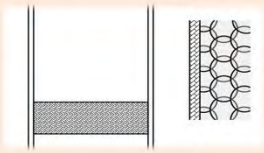
Retaining Wall by reinforcing ground by nailing
Reducing piling work and supporting system

Retaining wall by Soil Nailing combined with shot-crete (overseas project)

## Stabilizing earth retaining and deep excavation

### Application of innovative JET GROUT

Installation of large diameter soil-cement column
Stabilizing deep excavation by slab structure



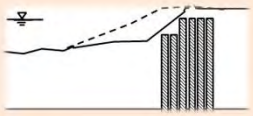
Jet Grout Column aligned to slab treatment for deep excavation

Innovative JET GROUT Column

## Mitigating river-dyke, revetment and wharf

### Application of Mechanical Mixing: DEEP SOIL MIXING

Mitigation of river-dyke during and after dredging work
Stabilization of revetment and wharf



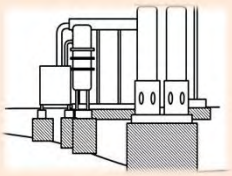
Installation of Deep Soil Mixing Column along revetment

Deep soil mixing work along canal (overseas project)

## Foundation for facilities and equipment

### Application of Mechanical Mixing: MASS-STABILISATION

Soil-cement mix foundation for facilities and structures
Reducing settlement



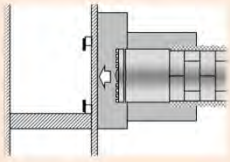
Installation of Deep Soil Mixing Column along revetment

Mass-stabilization work for facilities of factory

## Ground protection for tunneling work

### Application of JET GROUT / CHEMICAL GROUT

Reinforcing ground and protecting failures during tunneling work
Ground treatment for launching and receiving of tunneling machine
Water-tight mitigation relating to deep excavation



Outline of ground treatment relating to vertical shaft and receiving of tunnel boring machine

Chemical Grout as ground protection for tunneling work (overseas project)

Stabilized ground by Jet Grout just before launching of tunnel boring machine

| Member Name | JFE ENGINEERING CORPORATION |
|---|---|
| Address | Tokyo Head Office :<br>Marunouchi Trust Tower North,<br>1-8-1 Marunouchi, Chiyoda-ku, Tokyo 100-0005, Japan<br>Yokohama Head Office :<br>2-1,Suehiro-cho,Tsurumi-ku,Yokohama 230-8611,Japan |
| (Address in Kawasaki City) | |
| Website URL | http://www.jfe-eng.co.jp/en/ |
| Sector and Name | Gen TAKAHASHI, Deputy Gnneral Manager, Business Development Group, Sales and Marketing Dept., Asia Pacific Division, Overseas Business Sector |
| Contact information | +81 45 505 7845 |
| Company outline | JFE Engineering is the comprehensive engineering firm of JFE Group. We are one of the world's leading engineering companies, addressing ever-changing needs with state-of-the-art technology. |

**Water-related technologies, products and know-how / Projects in foreign countries**

As an experienced EPC contractor and operator in water treatment and waste treatment, JFE Engineering is contributing to the creation of a recycling-oriented and low-carbon society. Our "Advanced Sewage Treatment" technologies have been attracting much attention from all over the world.

## Water Treatment Plant

| | |
|---|---|
| **Name** | **Kawazuma Water Treatment Plant** |
| **Type** | **O&M from water intake to water distribution** |
| **Capacity** | **5,000m3/day** |

## Sewage Water Treatment Plant

| | |
|---|---|
| Name | Iriezaki waste water treatment center |
| Type | Anaerobic-Anoxic-Oxic process using carrier |
| Capacity | 64,500m$^3$/day |
| Completion | 2010 |

## Sludge Incincerator

| | |
|---|---|
| Name | Yanagishima sludge incineration system |
| Type | Fluidized bed sludge incinerator |
| Capacity | 180t/d (dewatered sludge) |
| Completion | 2011 |

## Biogas Power Generation System

| | |
|---|---|
| Name | Yokohama North Sludge Center Biogas Generation System |
| Type | Biogas from Sewage Sludge |
| Capacity | 4.5MW (0.9MW x 5) |
| Completion | 2010 |

| 会員名<br>Member Name | 株式会社　東芝<br>TOSHIBA CORPORATION |
|---|---|
| 住所<br>Address | 〒105-8001　東京都港区芝浦1丁目1－1<br>1-1, Shibaura 1-chome, Minato-ku, Tokyo 105-8001, Japan |
| （川崎市内拠点）<br>(Address in Kawasaki city) | 〒212-8585　川崎市幸区堀川町72-34<br>72-34, Horikawa-cho, Saiwai-ku, Kawasaki 212-8585, Japan |
| ウェブサイト<br>Website URL | http://www.toshiba.co.jp |
| 担当部署<br>Sector and Name | 水・環境システム事業部　グローバル戦略担当<br>Water & Environmental Systems Division　Global Strategic Group |
| 連絡先<br>Contact information | TEL : +81-44-311-0811 ,　FAX : +81-44-548-9565 |
| 会社紹介<br>Company outline | 東芝は、40年以上にわたり水・環境インフラの計画から建設、運営のノウハウやシステムを提供することで、水・環境にかかわる様々な課題解決に取り組んできました。<br>これからも東芝は、地域・文化・環境といった多様性に応じて、様々な技術を組み合わせたトータルソリューションを提供することで、持続可能な水循環システムの確立と環境先進コミュニティの創出に貢献していきます。<br><br>Toshiba has addressed the issues of water and environment for more than 40 years by supplying the systems and know-how of planning, construction and operation for the development of water infrastructure.<br>From now on also, Toshiba will promise to contribute to the creation of sustainable water cycle system and environmentally-friendly community by supplying our know-how and understanding diversity of problems, culture, and environment. |

## Overseas Network

### UEM India PVT. Limited

Established : 1973

Capital Participation : 2015 (80%)

Address : 2nd & 3rd Floor, Tower-B, A-1 Windsor IT Park, Sector-125, Noida, UP - 201 301, INDIA

Tel : +91-120-3817000

Fax : +91-120-3817005

Main Business
- EPC and O&M Service for Municipal and Industrial Water Treatment System

### PT. Envitech Perkasa

Established : October 1983

Capital Participation : 2011(67%)

Address : Wisma Pondok Indah 1 Suite 306-307 (3rd floor), Jl. Sultan Iskandar Muda Kav. V-TA Jakarta Selatan, 12310, Indonesia

Tel : +62-21-758-19050

Fax : +62-21-758-19040

Main Business
- EPC Service for Municipal and Industrial Water Treatment System

### Guangzhou Toshiba Baiyun Control System Engineering Co., Ltd


Established : March 2004

Capital Participation : March 2004 (50%)

Address : 18, Daling Nan Lu, Industrial District Shenshan Town, Baiyun District, Guangzhou, P.R. China

Tel : +86-20-2626-1282

Fax : +86-20-2626-1161

Main Business
- Manufacturing and Distribution of Electrical and Instrumental Equipment, and Supervisory Control System for Water Treatment System and Facility System
- EPC Service for Municipal and Industrial Water Treatment System

TOSHIBA
Leading Innovation

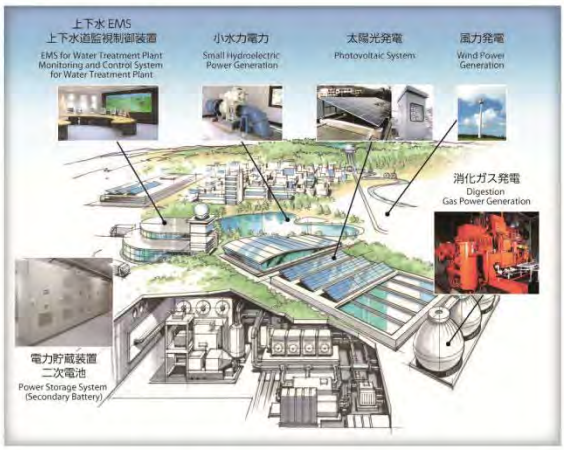
# 上下水道スマートエネルギーソリューション

## Smart Energy Solutions for Water and Wastewater Treatment

平常時にも災害時にも賢くエネルギーを活用し、省コスト、省資源、及びリスク低減を実現します。

Cost reduction, resource saving and risk reduction are actualized through the smart utilization of energy both in normal time and in emergency.

### 機器構成例
**Configuration Example of Our Products**

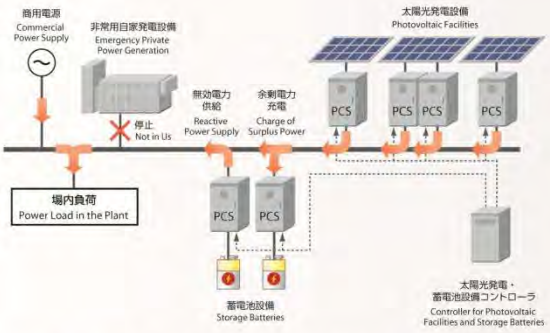



### 基本コンセプト
**Basic Concept**


## システム構成例 System Configuration Example

### 系統連系運転
**Plant Operation by Combination of Utility Power and Photovoltaic Power**

昼間（発電時）

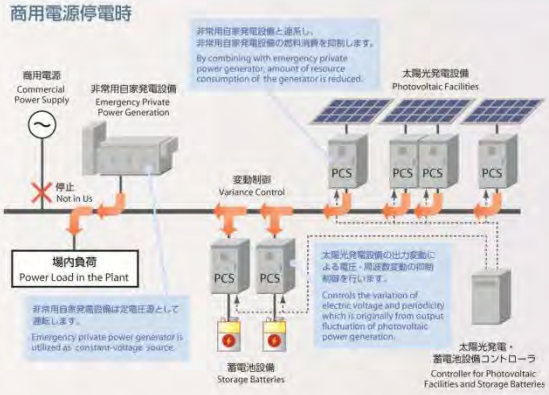



系統連系時は配電系統に悪影響を与えないように、蓄電池設備の充放電制御を行います。

When the plant is operated by the combination of utility power and photovoltaic power, the variance control system is utilized so it does not negatively affect the power distribution system.

### 場内自立運転
**Plant Operation by Photovoltaic Power Only**

商用電源停電時




場内に設置されている分散型電源を組合せ、場内負荷に安定した電源供給を行えるように、蓄電池設備の充放電制御を行います。

We control the charge and discharge power from storage batteries through combination with dispersive power supply to enable a balanced power supply to the plant.

TOSHIBA
Leading Innovation

# オゾン発生装置
## Ozone Generator System
## TGOGS™

東芝は、オゾン発生装置を中心とした電気設備、機械設備、配管工事等、各種施工の実績が多数あります。
また、活性炭吸着池等の高度浄水処理に必要な設備に対する豊富なノウハウがあります。

Toshiba has a great deal of experience regarding the construction of electrical equipment, machinery, and plumbing for ozone generators. Toshiba has accumulated extensive know-how regarding activated carbon adsorption ponds for treatment of drinking water.

## 特長 Features

**定格オゾン濃度**
**Rated ozone concentration**

150g/m³(酸素原料、Oxygen Source)
50g/m³(空気原料、Air Source)

**維持管理**
**Low-maintenance**

ステンレスをスパッタした放電管を高圧電極に採用。
高い耐食性により、メンテナンスの軽減を実現。

long-life electrodes with stainless steel film

**充実したラインアップ**
**High-flexibility**

発生量1～30kg$O_3$/hの間で各種ニーズに対応します。
(発生量30kg$O_3$/h 以上にも対応可能です。)

Custom construction with capacity of 1–30 kg$O_3$/h
(Products with capacity greater than 30 kg$O_3$/h are available.)


**高効率**
**High performance**

8kW/kg$O_3$ (at 15℃、酸素原料、Oxygen Source)
16kW/kg$O_3$ (at 15℃、空気原料、Air Source)

**最適なオゾン制御**
**Optimum ozone control**

溶存オゾン濃度・排オゾン濃度などを指標とした最適なオゾン発生量制御を実現。

adjust the ozone production based on dissolved and emitted ozone.

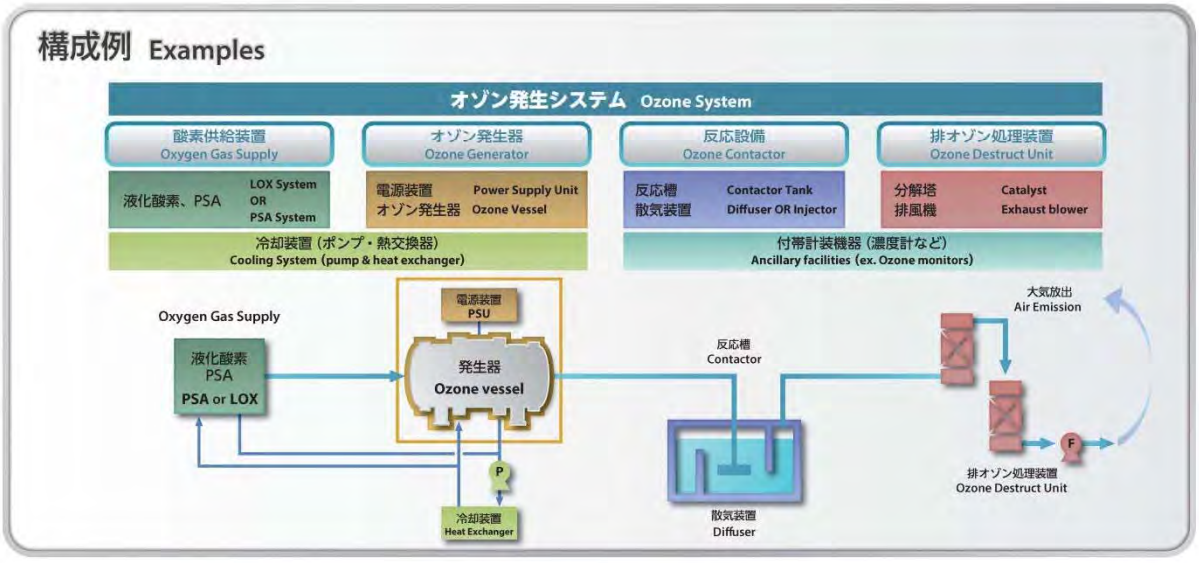
**水処理におけるオゾンの作用**
**Effectiveness of ozone for water treatment**

消毒・殺菌、脱色・脱臭、有機物の酸化分解等
for sterilizing, decolorizing, deodorizing and oxidation of organic compounds, etc.

## 主な用途 Applications of ozone

| 高度浄水処理 for drinking water treatment | | | 下水高度処理 for wastewater treatment | | | 産業向け用途 for industrial plants | | |
|---|---|---|---|---|---|---|---|---|
| 異臭味・色の改善<br>Improvement of odor, taste, color | 消毒<br>Disinfection | THM(トリハロメタン)の低減<br>Reduction of THMs (trihalomethanes) precursor | 殺菌<br>Disinfection | 有機物の酸化<br>Oxidation of organic compounds | 脱臭・脱色<br>Improvement of odor, color | COD の低減<br>Reduction of COD (chemical oxygen demand) | 製紙脱色<br>Bleaching pulp | 色度の低減<br>Removal of color |

## 構成例 Examples



TOSHIBA
Leading Innovation

# 監視制御システム
## Monitoring Control System
# TOSWACS™ -V

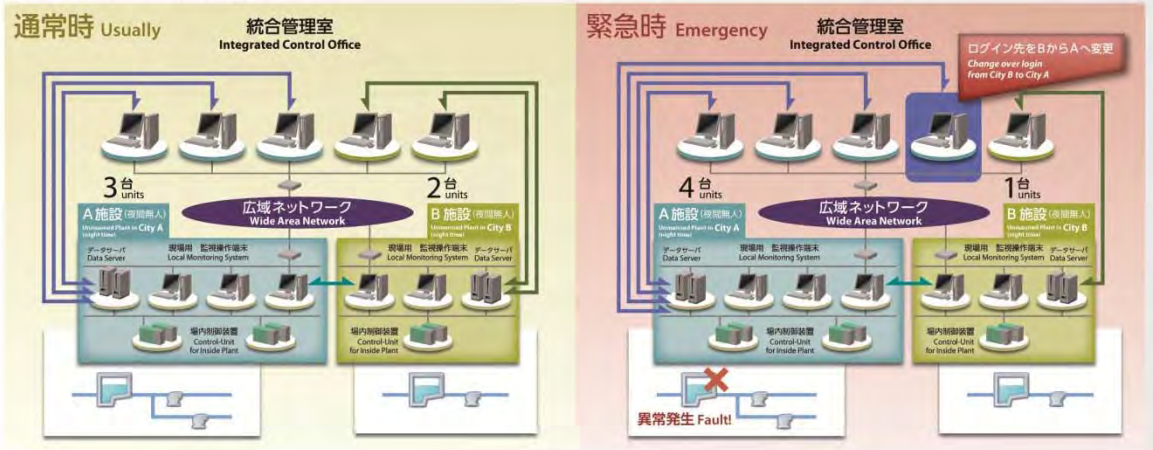
プラントの広域管理、無人化対応など、監視制御システムの使用形態は多様化しつつあります。
使われる方の専門性、使われる場所、情報の多寡にかかわらず多様なニーズに対応できる監視制御システムです。

SCADA has been used in a diverse range of applications, such as wide-area management, unmanned operation, etc. TOSWACS™-V can meet a wide range of needs regardless of the user's skill, point of use, and information volume.

## 特長 Features

- 広域ネットワークを利用して機場間相互監視を実現。
  Inter-plant monitoring and operation is implemented via WAN.
- Web サーバを増設することなく遠隔監視を実現。
  Remote monitoring can be realized without deploying more Web servers.
- 遠方監視操作端末の接続先サーバを切替えることで異常発生現場の監視体制強化を実現。
  Plant fault monitoring at multiple sites is improved by connecting each remote monitoring terminal with interchangeable server.

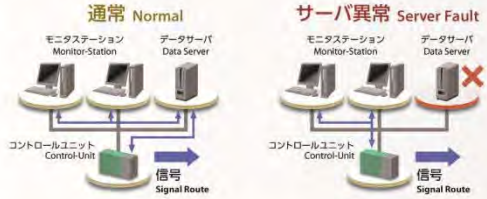
## 導入事例 Examples




### 高信頼性システム
### High-reliability system

データサーバが故障した場合、コントローラと監視装置間で直接信号の受け渡しを行うことで、プラントの監視制御を継続します。

If the data server goes down, plants can still be monitored and operated continuously by transmitting signals between the control unit and the monitor station directly.




### 異常発生状況を遡って再生
### Plant fault is identified by a replay function.

サーバに蓄積された過去のデータから、異常発生時のプラント状況をグラフィック画面上にて再現できます。発生当時の状況が視覚的に確認できるため、無人機場においても原因究明が容易になります。

Any operation failure that occurs in the plant is reproduced on a screen using past data accumulated in the server. Fault diagnosis can be carried out easily even in an unmanned plant by visualizing the error occurrence at the respective site.

| Member Name | Nihon Genryo Co., Ltd. |
|---|---|
| Address | NKF Kawasaki Bldg. 1-2 Higashida-cho, Kawasaki-ku, |
| (Address in Kawasaki City) | Kawasaki-shi, Kanagawa 210-0005, Japan |
| Website URL | http://www.genryo.co.jp |
| Sector and Name | Overseas Management Division |
| Contact information | 044-222-5555 |
| Company outline | Nihon Genryo, founded in 1939 as the manufacturer specialized in filter sand media, we have been expanding “Water Treatment Services” in Japan. More than 80% of water purification plants all over Japan use our products of filter sand media. With our know-how and technology we became a pioneer of the rehabilitation of washing the dirty filter media, for recycling, and have been developing the water treatment unit which does not need change filter media using “Siphon Washing System”, our original washing technology. “Siphon Washing System”, which we invented by ourselves, is the revolutionary technology of washing filter media, which can contribute to environmental conservation and cost savings such as the reduction efforts of water and electric power consumption. The water treatment unit adopted this technology is suitable for small villages and even remote corners of the world because it is maintenance-free. Specially the mobile one is used in spite of domestic or foreign country for the disaster relief activities of such as Japanese earthquake, heavy rain, Typhoon Yolanda in the Republic of the Philippines and so on because it can supply water for the just short installation time. We would like to resolve the problem of Social Disparities in Drinking Water Quality in the World with our unique technology in order to make the CHILDREN, who cannot get safe drinking water in the countries, SMILE. |

## The rehabilitation, Japanese characteristic construction work, for the recycling of “Filter Media”, which purifies drinking water

At Japanese purification plants, the rehabilitation of washing filter sand media for recycling is operated regularly. Before, the dirty filter media had been treated as industrial waste and replaced new one. On the other hand, around 1960, we advocated the necessity of filter media rehabilitation because of the difficulty of getting the sand as natural resource for filter media, the point of view of environmental conservation and so on. However, from around 1990 it got more difficult to recycle filter media with the conventional rehabilitation because a load for the filter media got higher for various reasons, such as water pollution, which is the rapid deterioration of the quality of the raw water. At the time Nihon Genryo, the pioneer of filter media rehabilitation, we developed “Siphon Washing System”, with various experiences and researches. “Siphon Tank”, the epoch-making washing device of filter sand, which is adopted “Siphon Washing System”, can remove the adhered dirt without any damage to filter media.

**The effort of Siphon Washing System**
**(Siphon Washing System can adjust the level of cleanliness)**


Siphon Tank, washing filter media machine

* Received International Patent.
* Received the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology (MEXT).
* Received the National Commendation for Invention.

The series of Siphon Tanks, which were authorized Low CO2 Kawasaki Brand, the eco-friendly filtration devices.

# The introduction of water treatment units adopted “Siphon Washing System”

## ●Mobile Siphon Tank (mobile water treatment unit of sand filtration)

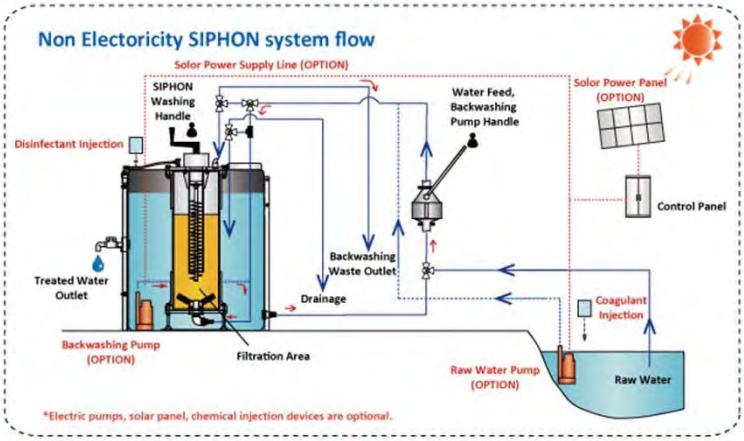
Eco-friendly water treatment unit to supply the drinking water, whose turbidity is the drinkable level; also, it is available for the high turbidity raw water.

【Specification】* The separate type for overseas model is also available for MST-1600 and 1800.

| Type | Tank Dia.(mm) | Length (mm) | Width (mm) | Height (mm) | Speed Reducer(kW) | Qty of water (LV=10) | Weight (Kg) |
|---|---|---|---|---|---|---|---|
| MST450 | φ450 | 1000 | 1000 | 2060 | 0.75 | 1.6m³/h | 900 |
| MST700 | φ700 | 2125 | 1375 | 2230 | 3.7 | 3.8m³/h | 1900 |
| MST1000 | φ1000 | 2800 | 1700 | 2280 | 5.5 | 7.8m³/h | 2500 |
| MST1200 | φ1200 | 3000 | 1900 | 2475 | 5.5 | 11.3m³/h | 2900 |
| MST1600 | φ1600 | 3550 | 2100 | 2650 | 7.5 | 20.0m³/h | 3500 |
| MST1800 | φ1800 | 3550 | 2100 | 2670 | 7.5 | 25.4m³/h | 4200 |


## ●New Product in Siphon Series! “Non-Electric Siphon Tank”

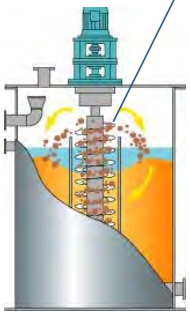
Sand Filtration Device with Non-Electric Source. Any function can be operated by hands, including in-taking water, feeding water and Siphon washing.



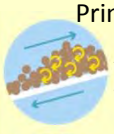

## No need to replace filter media! Siphon Washing System is adopted which all kinds of Siphon Tank series stabilized.

**Features of "Siphon Washing System“**

- ●The effort of Siphon Washing System, combined backwashing can keep filter media always clean.
- ●Because Siphon Washing System can make filter media wash each other without any damage, even stubborn dirt, which Backwashing cannot exfoliate, can be taken away and it causes the replacement of filter media to be eliminated.
- ●Reduction of Backwashing water consumption, maintenance cost and CO2 emissions.
- ●Reduction of Backwashing time with the effective effort of Siphon Washing System.

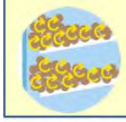


### Principle of washing filter media



A vortex flow is generated by the gravity of particles and the lift force created by the screw.

•The filtration bed area is secured by the ribbon screw.



Particles running outward due to the centrifugal force generate a vortex flow.

## Delivered 6 truck mounted water treatment units to Lao People's Democratic Republic for "The program for the improvement of capabilities to cope with Natural Disaster Caused by Climate Change" by Japan's Grand Aid Program of ODA.

Nihon Genryo delivered 6 units of truck mounted water treatment unit, whose filter media is not necessary to be replaced, to Lao People's Democratic Republic for "The program for the improvement of capabilities to cope with Natural Disaster Caused by Climate Change" by Japan's Grand Aid program of ODA. We made a trial run and hold a training to the local engineers in Vientiane, LAOS in January, 2013. This is the truck mounted water treatment unit, using river and creek water as raw water. The purification capacity is $3m^3$ per hour, also the unit stabilizes a filtration device with a function of self-washing filter media, compact piping system, chemical injection pumps and control board. The truck has gull wings which can open the both side of the container. It is designed the unit for an emergency and disaster area by truck; therefore, providing drinking water is possible in the early stage of these circumstances.






## Delivered 3 mobile water treatment units to Vietnam Maritime University in Haiphong, the Socialist Republic of Vietnam for "Non-project Grant Aid" by Japan's Grand Aid Program of ODA.

Nihon Genryo delivered 3 mobile water treatment units, whose filter media is not necessary to be replaced, to Vietnam Maritime University which is located in the north of the Socialist Republic of Vietnam in August, 2013. The units, which were installed on the campus of the university, are composed of a filtration device, row water tank (Capacity:$5m^3$), treated water tank (Capacity:$8m^3$), feed pump and back-washing pump. The public water supply in the university is used as row water of the device to supply with satisfying the water criteria in Vietnam.






## Implemented "Project Formulation Survey" Under the Governmental Commission on the Projects for ODA Overseas Economic Cooperation in FY2013.

## ～Investigation for supplying drinking water business in the Republic of Mozambique in Africa～

From the beginning October, 2013, Nihon Genryo had implemented a project formulation survey for supplying sustainable drinking water business by the filter device, whose filter media is not necessary to be replaced. We had carried out the project for 2 months to explore the possibility of realization of the business in Mozambique using Non-Electric Source Siphon Tank.






## Installed mobile sand filtration device in the disaster area by Typhoon Yolanda in the Republic of the Philippines.～Dispatched the emergency assistant team for supplying drinking water, "NIHON GENRYO WATER RESCUE"～


Nihon Genryo dispatched the emergency assistant team for supplying drinking water to the serious disaster area by Typhoon Yolanda in the Republic of the Philippines to install "Mobile Siphon Tank", which is the mobile sand filtration device, through "Pilot Survey for Disseminating Small and Medium Enterprises Technologies", collaborating with JICA (Japan International Cooperation Agency). Our emergency assistant team installed and provided the high quality drinking water for just 3 days after we arrived at Daanbantayan, which is located in the north of Cebu Island in the Philippines, in December. 20th, 2013. Also, the filtered water was supplied by water trucks to deliver the "safe water" to the neighboring districts. The row water got muddy, whose turbidity was from 20NTU to 30NTU, because the water source was used for bathing area for cows and washing area for the local people; however, our team realized 0.07NTU, which is the drinkable level, as the filtered water's turbidity through "Mobile Siphon Tank".






| Member Name | Nippon Basic Co.Ltd |
|---|---|
| Address | 2nd floor Ujihashi Building, 2-767 Shin-Maruko-machi,<br>Nakahara-ku, Kawasaki-City, Japan 211-0005 |
| (Address in Kawasaki City) | |
| Website URL | www.nipponbasic.ecnet.jp |
| Sector and Name | Yuichi Katsuura, managing director |
| Contact information | 044-738-2215 |
| Company outline | Established date May 17, 2005<br>Paid-up capital 35million yen<br>manufacturing and marketing of four types of water-purifying equipment: Cycloclean bicycle, a Portable series, and Desaliclean2501,9000 |

**Water-related technologies, products and know-how / Projects in foreign countries**

We are aiming at establishing to expand as a supplier of drinking water system in developing countries. One of such challenges in the past is our execution of JICA financed BOP business project in Dhaka City, Bangladesh using our Cycloclean bicycles. We are now planning to launch a similar business project in remote areas of Bangladesh, where our products and knowhow are eagerly-awaited. As illustrated at the bottom of the next page, our compact water purification system named Kawasaki Model is neatly packed in a 20 feet container. This will fit right in the areas where the local governments have not met yet people's need or where there is no access to power. In Bangladesh, where there are about

60 million people without potable water, it is our wish to fill the gap where the government cannot afford.
Meanwhile where there is power available, our strategy is to sell our electric-powered decentralized portable water purification plants in next 10 years supplying potable water to more than 1 million people. We hope our strategy will encourage the Bangladesh government to take more initiative to improve potable water situation.

**This is the water purification factory in Dhaka City using our locally assembled Cycloclean water purification bicycles. Three ex-ricksha drivers are pedaling Cycloclean bicycles to purify water at our factory.**

**Water-related technologies, products and know-how / Projects in foreign countries**


**This is our water purifying plant for people where there is no power available.**

**This 1 plant can produce potable water enough for 1500 people per day.**
**Bangladesh is blessed with abundant water, but very often well water there is arsenic-contaminated. However, we can supply potable water to villagers using our purifying technology.**

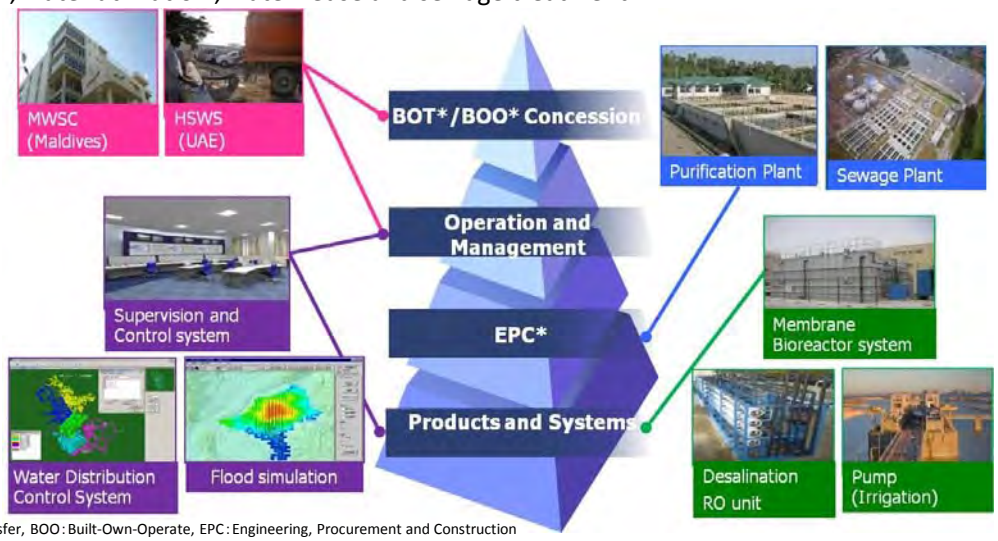
KAWA·BIZ·NET
for better water and environment in the world

| Member Name | Hitachi, Ltd. |
|---|---|
| Address | 1-1-2, Takashima, Nishi-ku, Yokohama-shi, Kanagawa-ken, 220-0011, JAPAN |
| (Address in Kawasaki City) | |
| Website URL | http://www.hitachi.co.jp/ |
| Sector and Name | Yokohama branch, Infrastructure system sales department TAIKI KIMURA |
| Contact information | TEL +81 45-650-8511 |
| Company outline | Company name : Hitachi, Ltd.<br>President : Toshiaki Higashihara<br>Capital : 458,790 million yen<br>Consolidated net sales : 9,761,970 million yen<br>Founded : 1910<br>Number of employees : 333,150<br>Headquarters : 6-6, Marunouchi 1-chome, Chiyoda-ku, Tokyo, 100-8280 Japan |

## Water-related technologies, products and know-how / Projects in foreign countries

### ■Hitachi's water business

Hitachi Group has broadly supplied customers inside and outside of Japan with water related products , systems and services for a century. They have covered water conservation, water supply and sewage , flood control , water utilization , water reuse and sewage treatment.




*BOT : Built-Own-Transfer, BOO : Built-Own-Operate, EPC : Engineering, Procurement and Construction

# Water-related technologies, products and know-how / Projects in foreign countries

## ■Hitachi's Water Business Records

**Record in Global**

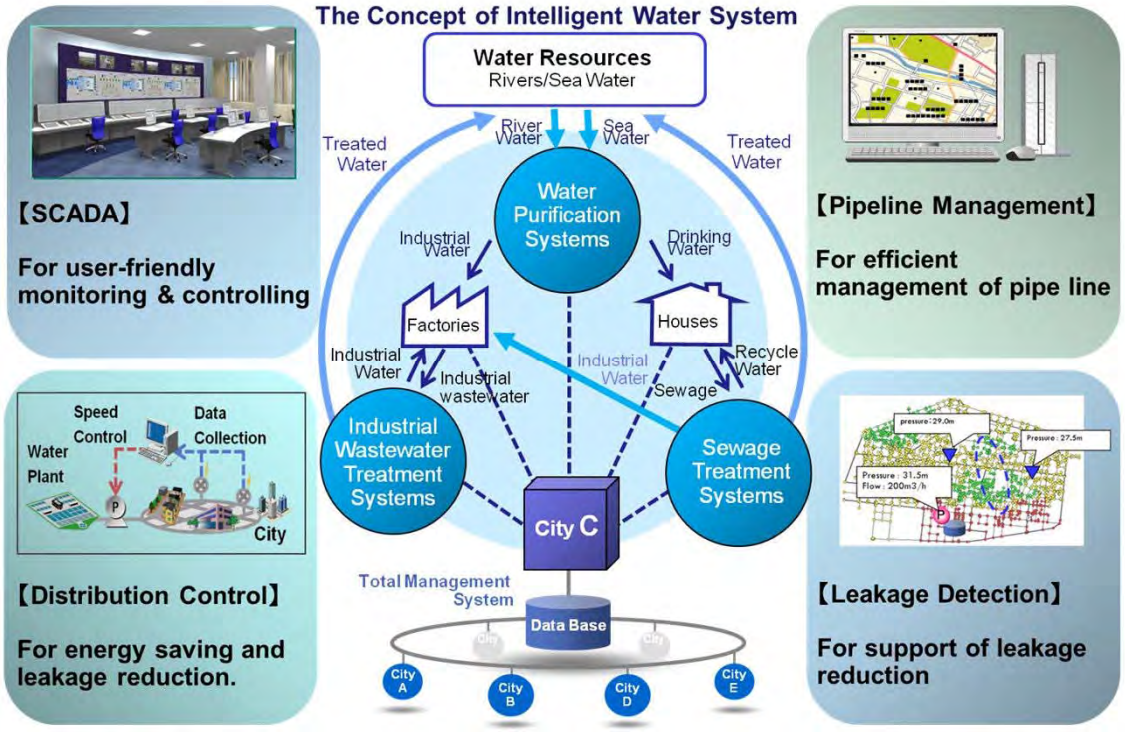
- Potable and Sewage : Approx. **50** projects
- Membrane Bio R & RO : Approx. **130** projects
- Industrial Water : Approx. **60** projects

**Record in Japan**

- Water purification Plant : More than **700** projects
- Sewage Treatment Plant : More than **600** projects
- Factory : More than **500** projects


## ■Intelligent water system (IWS*)

Hitachi proposes the intelligent water system, which fuses advanced water treatment systems and information & control systems, to deliver the optimum water environment for cities, making efficient use of limited water resources by optimizing operational efficiency and maximizing the reduction of the environmental load.




*「IWS」is registered trademark of Hitachi, Ltd in Japan

## Water-related technologies, products and know-how / Projects in foreign countries

### ■Multi-stage Deep Seawater Utilization


### (1)Deep Seawater

Deep seawater is defined as the seawater deeper than the compensation depth where respiration and photosynthesis of life are balanced. (Generally, deeper than approx. 200m)

### (2)Features of Deep Seawater

**・Stable coldness**

Approx. 5℃ at 1,000 depth and deeper even around equator

**・Cleanliness**

Microorganisms can not grow because of no sunbeam, and organic compound supplied from rivers are resolved during sedimentation

**・Rich nutrients**

Rich in inorganic compounds which contributes growth of seaweeds and plankton.

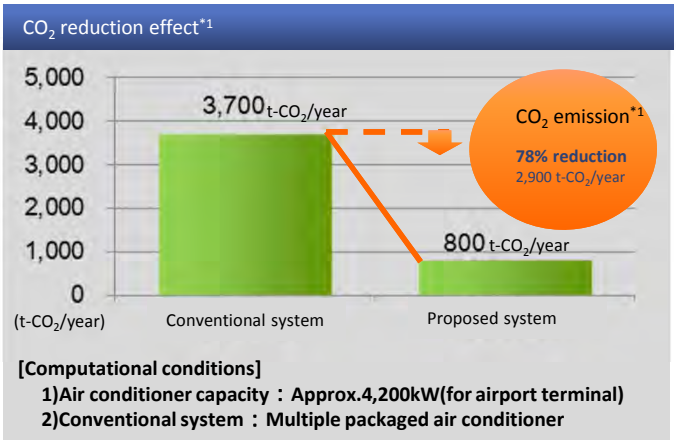
**・Sustainability**

Supplied from the polar oceans continuously

### (3)Feasibility study

We are planning a deep seawater cooling infrastructure for Male International airport in Maldives. And we have done feasibility studies under METI*1 and NEDO's*2 study projects.

*1 METI：Ministry of Economy Trade and Industry
*2 NEDO：New Energy and Industrial Technologies Development Organization


**[Computational conditions]**
**1)Air conditioner capacity ： Approx.4,200kW(for airport terminal)**
**2)Conventional system ： Multiple packaged air conditioner**

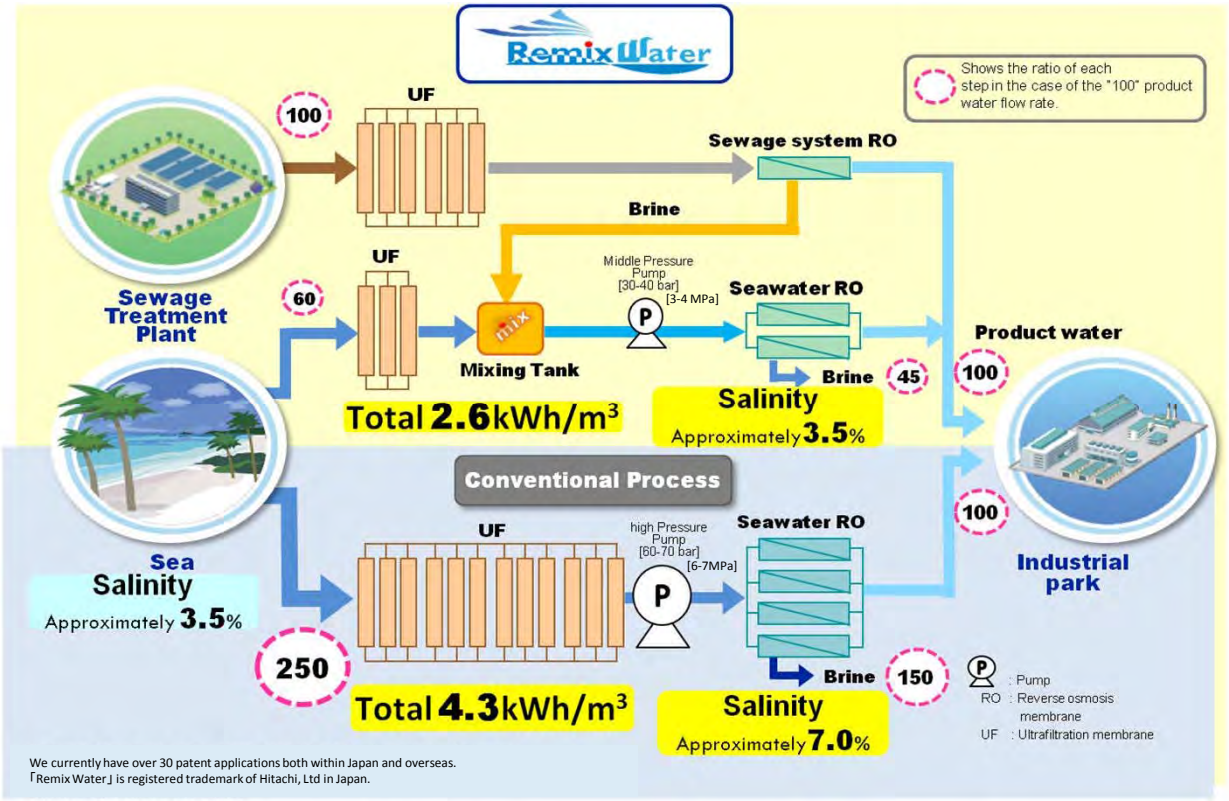
## Water-related technologies, products and know-how / Projects in foreign countries

### ■Remix Water System

### (1) Remix Water System

Remix Water system is the integrated system of seawater desalination and sewage-reuse.

### (2) System configurations : comparison between Remix Water and conventional process



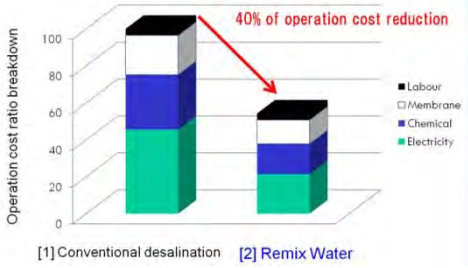

### (3) Features of Remix Water system

**Energy saving**

・Using mixture of seawater and sewage treated water for SWRO feed water, electricity consumption of pressure pump to gain desalinated water can be reduced.

**Lower cost**

・Reduction of seawater intake can be achieved smaller intake facility.
⇒Lower construction cost
・Middle pressure pump can be used.
⇒Lower facility cost




**Eco-friendly**

・Brine water salinity from Remix Water is equal to seawater level.
・$CO_2$ reduction can be achieved because of energy saving.

**Higher reliability**

・Two years operation experience at Kitakyushu, Japan.
(No other company has experience in the world)

<table>
<tr><th>Member Name</th><td>City of Kawasaki</td></tr>
<tr><td>Address</td><td>1 Miyamoto-cho, Kawasaki-ku, Kawasaki City, Kanagawa pref., JAPAN</td></tr>
<tr><td>(Address in Kawasaki City)</td><td></td></tr>
<tr><td>Website URL</td><td>【City of Kawasaki】http://www.city.kawasaki.jp/index.html<br>【Waterworks Bureau, City of Kawasaki】<br>http://www.city.kawasaki.jp/800/cmsfiles/contents/0000035/35839/</td></tr>
<tr><td>Sector and Name</td><td>Daisuke MASUGATA, Administrative Planning Section, Administrative Management Department, Waterworks Bureau, City of Kawasaki</td></tr>
<tr><td>Contact information</td><td>+81-44-200-3739 80keikan@city.kawasaki.jp</td></tr>
<tr><td>Company outline</td><td>
Kawasaki City have experienced severe pollution in Japanese high economic growth. However, in cooperation with citizens, companies and government, we have overcome the pollution. As a result, many environmental technologies have been accumulated in the City. Utilizing such features, we try to make international contribution through environmental technologies.

1972

present
Waterworks Bureau, City of Kawasaki manages 3 water-related system; Waterworks, Industrial Water, and sewerage system.
<br>➢ Outline of Waterworks (FY2014)
<table>
<tr><td>Population served</td><td>1,466,395</td><td>Water supply capacity</td><td>815,600 m³/D</td></tr>
<tr><td>Coverage ratio</td><td>99.99%</td><td>Operation start</td><td>In 1921</td></tr>
</table>
➢ Outline of Industrial Water System (FY2014)
<table>
<tr><td>Water supply companies</td><td>58</td><td>Water supply capacity</td><td>520,000 m³/D</td></tr>
<tr><td>The number of factories</td><td>80</td><td>Operation start</td><td>In 1937</td></tr>
</table>
➢ Outline of Sewerage System (FY2014)
<table>
<tr><td>Sewered population</td><td>1,457,961</td><td>Treatment capacity</td><td>918,000 m³/D</td></tr>
<tr><td>Coverage ratio</td><td>99.4%</td><td>Operation start</td><td>In 1935</td></tr>
</table>
</td></tr>
</table>

## Water-related technologies, products and know-how / Projects in foreign countries

### ■ Implementation Policy for International Contribution in the Field of Waterworks

In May 2012, Kawasaki City established “Implementation Policy for International Contribution in the Field of Waterworks” to contribute to enhancing international water environment through “public-private partnership” and “technical cooperation”

*Conceptual Diagram of Implementation Policy*

**Fundamental Objective**

Promotion of International Contribution to Improve Global Issues of Water Environment

Expected Effects
- Improvement of Global Issues of Water Environment
- International Expansion of Water Business
- Sustainable Management of Waterworks Service

**Directions**

Direction 1
Public-Private Partnership

Direction 2
Technical Cooperation

### ■ International Contribution through Public-Private Partnership

City of Kawasaki have started to make international contributions through public-private partnership since 2009 when “Project on Water-saving Recycling System” started by NEDO. In Aug. 2012, to make the stronger and wider partnership, City of Kawasaki established a platform “Kawasaki Water Business Network” and is engaged in support for water-related business. Please see the page 1 to 2 if you’d like to know more detail.

### ■ International Contribution through Technical Cooperation

City of Kawasaki has been providing technical cooperation to local waterworks / sewerage utilities in developing countries utilizing waterworks / sewerage technologies and expertise which City of Kawasaki have cultivated through many years. Through such cooperation, we try to establish a sound water cycle and contribute to developing the societies and economies.

#### ➢ Dispatch of our officials as expert

City of Kawasaki have dispatched our officials to developing countries through JICA since 1991 and have provided technical cooperation. Recent project in which we have participated is as follows;

✓ The Capacity Development Project for Improvement of Management Ability of Water Supply Authorities in Lao PDR （JICA：2012- ）

We have dispatched officials as short-term expert cooperating with Saitama City, Saitama Pref., and Yokohama City, and have given trainings for Laotian trainees in Kawasaki to develop the management capacity in a medium- and long-term perspective for Water Supply Authorities in Lao P.D.R.

Technical Support for Field Survey

## Water-related technologies, products and know-how / Projects in foreign countries

Lecture regarding Water Quality Management in Lao

Laotian Trainees at Kawasaki

Site Visit by Trainees (Nagasawa WTP)

- A Project for Capacity Development on Sewerage Management in Ho Chi Minh City, Vietnam (JICA: 2009-2010)

  Our official was dispatched as short-term expert and Vietnamese trainees were accepted to strengthen the management system of sewerage in Ho Chi Minh City.

Technical support in the WTP in Ho Chi Ming City, Vietnam

- A project for Capacity Development on Non-revenue Water Control for Sanitation Company of the State of Sao Paulo, Brazil (JICA: 2008-2010)

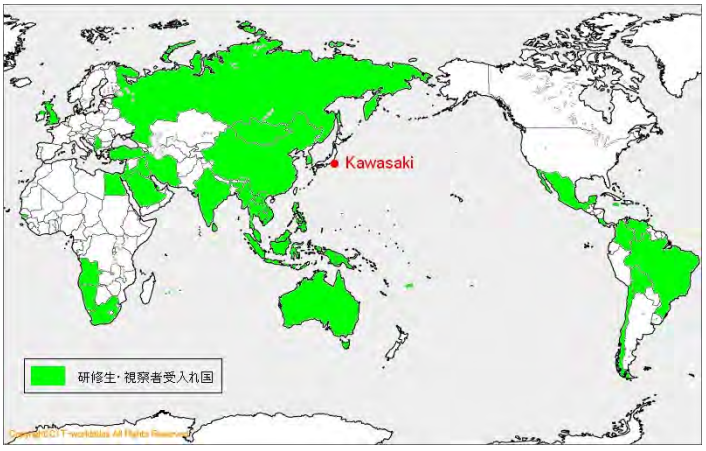
  Cooperating with Saitama City, our officials were dispatched as short-term expert for reduction of non-revenue water for effective use of water resources.

### ➢ Acceptance of Overseas Trainees and Visitors

Since 2011, over 500 people from 41 countries/regions have visited our site of waterworks /sewerage system through JICA, other organizations and KaWaBiz NET members. We have given the lecture and site visit program to them using brochures, DVD and voice guidance for foreign languages to make their understanding deeper.

Site visit by trainees from Myanmar in Nagasawa WTP

Lecture regarding water quality management to trainees




Project outline and facilities brochure for foreign languages (Mainly English and Chinese)



KAWA·BIZ·NET for better water and environment in the world

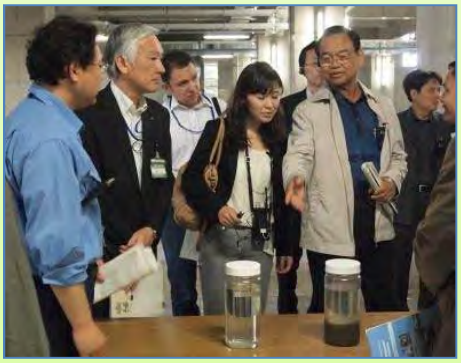
## Water-related technologies, products and know-how / Projects in foreign countries

### Hub City for Overseas Expansion in the Field of Sewerage System

Water and Environment Solution Hub (WES Hub) consists of “Alliance Advanced Agency” which actively provide policy and technique regarding Japanese sewerage and environmental infrastructure to overseas, under the cooperation with MLIT (Ministry of Land, Infrastructure, Transport and Tourism).

City of Kawasaki was certified by MLIT in March 2013 as Hub City. Utilizing Iriezaki WTP as “A Showcase of Water and Environmental Technologies”, we try to disseminate the sewerage technical information to overseas and promote water business.


Site visit by Vice-President of Iran



Site visit by Minister of Environment in Cambodia

### Exchange with Shenyang Water Group Co. Ltd, China

In May 2012, based on the sister cities long relationship between Kawasaki and Shenyang (China), Waterworks Bureau, City of Kawasaki and Shenyang Water Group Co. Ltd agreed on Friendship and Cooperation Agreement in Kawasaki City. The agreement aims to build close relationship and reciprocal cooperation in waterworks and sewerage system.

We exchange the staff on a regular basis for the purpose of technical exchange and cooperation in the field of waterworks and sewerage through provision of information and opinion exchange.

Site visit to micro hydroelectric power plant in Kawasaki

Opinion exchange in the field of water quality in Shenyang City

FOR THE ENHANCEMENT OF INTERNATIONAL WATER ENVIRONMENT

# KAWASAKI WATER BUSINESS NETWORK 2016

**BUSINESS INTRODUCTION CATALOG**

*Published by*

Kawasaki Water Business Network
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(Administrative Planning Section,
Administrative Management,
Waterworks Bureau, City of Kawasaki)
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E-mail: 80keikan@city.kawasaki.jp
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