

# INTERNATIONAL BUSINESS PLATFORM FUKUOKA

Fukuoka City

## Member Companies Catalogue 2022



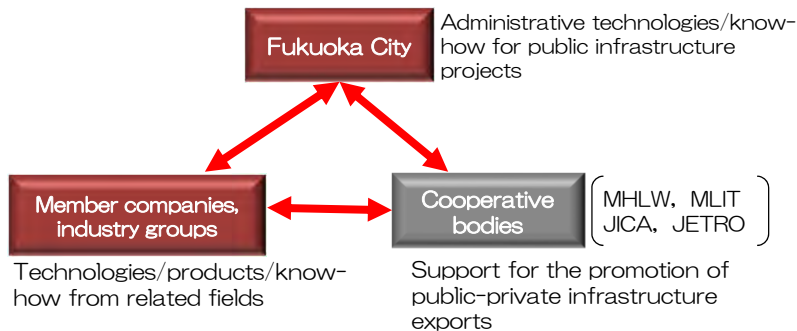
# ~About the International Business Platform Fukuoka~

Fukuoka City has overcome a variety of urban development issues, and in the process improved on technologies and know-how for improved urban livability. Using these technologies and know-how, the City is engaged in efforts to contribute towards and cooperate with international neighbours in the fields of water, sewerage, and the environment, particularly in the Asian region.

International Business Platform Fukuoka was established in October 2014 to take these efforts a step further and promote public-private business development through international cooperation.

## International Business Platform Fukuoka

【Background: The national government promotes public-private “package-type infrastructure development”】



### Solutions for overseas urban development issues

\*Water shortages, water contamination, rubbish, etc.

International cooperation

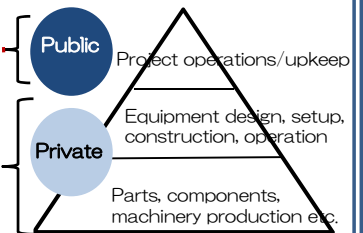
### Stimulation of the regional economy

\*Overseas expansion of local businesses

Globalisation

## 【Main Fields】

Fukuoka City considers public infrastructure improvements in areas in which it has considerable know-how and strengths, including waterworks, sewerage systems and the environment, as the main fields for the International Business Platform.



(Reference) Japan's water infrastructure system

## Fukuoka City's Strengths

### Waterworks

- Water-saving urban development
  - Water distribution adjustment system
- Development of various water resources
  - Desalination centre (largest in Japan: 50,000m<sup>3</sup>/day)
  - Water sourced from outside the Fukuoka City area

World-leading rate of leakage  
2020 : 2.0%



<Water distribution adjustment>



<Desalination centre>

### Sewerage

- Advanced Sewerage treatment Technology
- Anti-flooding measures (improvements to rainwater pipes/drains and pumping stations)
- Recycled water
  - First user in Japan (1979)
  - Supplied at more than 400 locations (first in Japan)
- Hydrogen station (produced from sewage)
  - \*under experimentation



<Reservoir underneath a public park>



<Recycled water processing fac>



<Fukuoka Method landfill site>



<Fukuoka Method landfill site>

Suppresses greenhouse gases

### Environment

- “Fukuoka Method” - Semi-aerobic landfill configuration
  - Standard configuration for Japan's waste landfill processing facilities (1979)
  - Faster stabilisation after completion of landfill, making efficient use of the site possible
  - Low-tech/low-cost construction
  - Certified as a new method of the Clean Development Mechanism as stipulated in the UN Framework Convention on Climate Change (2011)

## 【Activity model】

### 【International cooperation】

**Relationship-building in target country/region  
(conclusion of an MoU )**

### 【Business-development through international cooperation】

**Understanding  
of needs**

**Project scheme construction,  
commercialisation support**

**Reception of project  
proposals, project  
implementation**

#### <Efforts towards project formation>

- Needs survey
- Mission group dispatch
- Invitation to staff from target country/region
- Business environment improvements/support
- Coordination of team organisation
- Acceptance of inspections from businesses, cooperative dialogue for joint research, etc.
- Corporate publicity support in target countries/regions, etc.

#### <Other>

- Cooperation with related organisations (Ministry of Health, Labour and Welfare; Ministry of Land, Infrastructure, Transport and Tourism; JICA, JETRO, etc.)
- Information dissemination through seminars, exchange sessions, email, etc.

## 【Expansion target countries】

Most expansion projects occur in countries with which the City has built a relationship through technological cooperation, etc.

**Top-priority  
country**

Myanmar

**Priority  
country**

Vietnam

**Priority  
country**

Fiji

#### <Other >

The City plans to expand its efforts to countries/regions in which, through future technological cooperation projects, it is able to identify possible public-private business opportunities.

#### Sister cities with Yangon city (2016)

\*First case of Japan-Myanmar sister cities



※Dispatched a technical expert staff to Yangon (2017)

## 【Main achievements】

Orders received for Yangon Metropolitan Area Water Purification Project (Phase 2)

Mission Group to Yangon City

Invitation of YCDC executive officers to Fukuoka City

Party with platform companies and Yangon City members

Joint participation in overseas exhibitions



<Party with Yangon City>



<Exhibition (Yangon)>

## 【List of Member Companies】

### (Local businesses)

AQUA SERVICE CO.,LTD.	4	Oono concrete	
Chiyoda Kosan Co.,Ltd.		SAIBUGAS Co.,Ltd.	
Daiken Co.,Ltd.	6	SAITA CORPORATION	
Daiwa Giken Inc.		Seiko Electric Co., Ltd.	39
DC CORPORATION	11	.SHIN-IDEMITSU	
ECO-STAGE ENGINEERING		Shokaku Construction Co.,Ltd.	41
FUJI P.S CORPORATION	12	SHUDENSHA	
Fukuoka Rein Co.,Ltd.		TAIKI CHEMICAL INDUSTRIES Co.,LTD.	43
FUKUYAMA CONSULTANTS CO.,LTD.	15	TAIKI ENGINEERING Co.,Ltd.	
FUTABA SEKKEI Co.,Ltd.	17	TAISEIKANRI KAIHATSU Co.,Ltd.	
GEOGRAPHIC INFOMATION		TENOX KYUSYU CORPORATION	47
OF KYUSHU INC.		THE BANK OF FUKUOKA , LTD.	
HINODE, Ltd.	21	THE NISHI-NIPPON CITY BANK, LTD.	
IBHD Co.,Ltd.		TOKIWA	
KAMATA BIO ENGINEERING CO., LTD.	24	TOA Corporation	
Kankyo Electronics Co., Ltd.	27	CIVIL Co., Ltd.	
Kankyo kaihatsu co,ltd.		Mikasa Co.,Ltd.	50
KANKYOUSHISETSU Co.,Ltd.		Nishinippon Plant Engineering	
Kindai Plant CO., LTD.		and Constructioon Co.,Ltd.	
KYUDENKO CORPORATION	29	YAMAU Co.,Ltd.	54
Kyusetsu AQUA Co.,Ltd.	32	Yamauchi Co.,Ltd.	
Kyushu food system science & research, Ltd.		YT Techno	
LDT RESEARCH INSTITUTE	35	ZEOLITE Co.,Ltd.	
NEXT ENGINEERING CO.,LTD.	37	1st Solution Corporation	58

### (Non-local businesses)

ABB Bailey Japan Limited	60	MITSUBISHI CHEMICAL AQUA	
Aichi Tokei Denki Co., Ltd		SOLUTIONS Co.,LTD	96
Azbil Kimmon Co., Ltd.	62	Mitsubishi Electric Corporation	98
CTI Engineering Co., Ltd.	64	Mitsubishi Kakoki Kaisha, Ltd.	
DAIWACONSUL CO.,LTD.		Nihon Suido Consultants Co., Ltd.	
Database Corporation		NIPPON KOEI CO., LTD.	100
FUJI TECOM INC.		NIHON SUIKO SEKKEI Co.,Ltd.	
FUSO Corporation		OKAYA & CO., LTD.	
FUYO CONSULTANT CO., LTD.		Oriental Consultans CO.,LTD.	
GEO SEARCH CO.,LTD.	66	Original Engineering Consultants Co., Ltd.	102
HAZAMA ANDO CORPRATION		Satsuki CO., LTD.	
Hitachi, Ltd	68	SEKISUI CHEMICAL CO., LTD.	
Hitachi Zosen Corporation	72	Sumiju Environmental Engineering, Inc.	104
HORIBA,Ltd.		SUNTEC	
HONDA KIKO Co.,Ltd.	74	Swing Corporation	106
INFRATEC CO., LTD.	76	Taisei Kiko Co.,Ltd.	109
ISHIGAKI COMPANY, LTD.	79	TAKUWA Corporation	111
JFE Engineering Corporation	81	TEC International Co., Ltd.	113
JGC CORPRATION		TODA CORPORATION	
KIDOH CONSTRUCTION CO.,LTD.	83	TOKYO ENGINEERING CONSULTANTS CO.,LTD	
Kobelco Eco-Solutions Co.,Ltd.		TOKYO KEIKI INC.	115
KUBOTA Corporation	85	Torishima Pump Mfg. Co., Ltd.	
Kurimoto, Ltd.	87	Toshiba Infrastructure Systems	
KURODITE		& Solutions Corporation	117
KYOWAKIDEN INDUSTRY CO., LTD.	89	TOYOTA TSUSHO CORPORATION	
Kyushuchuutetsukan Corporation		TSUKISHIMA Technology Maintenance Service CO.,LTD.	
Lotus Inc.		Yokogawa Solution Service Corporation	
Maezawa Industries, Inc.	91		
Marubeni Corporation	94		

### (Industry groups)

Civil engineering Constructors society of Fukuoka  
 Fukuoka electrical construction association  
 Fukuoka tube construction cooperative  
 Japan Ductile Iron Pipe Association 120  
 Kyushu Economic Federation

### (Cooperative bodies)

JETRO Fukuoka  
 JICA Kyushu International Center  
 Ministry of Health, Labour and Welfare  
 Ministry of Land, Infrastructure,  
 Transport and Tourism  
 UN-Habitat

Corporate Name	AQUA SERVICE CO.,LTD.		AQUA 水質・栽培 環境の改善
HQ Address	4-7-19 Sumiyoshi, Hakata-ku, Fukuoka-shi, Fukuoka, Japan		
Branch Office Address	6-12, Kanmakiminamiekimae-cho, Takatsuki-shi, Osaka, Japan		
URL	http://www.aqua-s.jp/		
Company Outline	<Representative>	Yoshiharu SAEKI	
	<Established>	October,1986	
	<Capital>	¥20 million	
	<Employees>	16	
	<Overseas Network>	—	
	<Description of Business>	<ul style="list-style-type: none"> <li>• Various water treatment agent, biologics sales</li> <li>• Proposal of water environmental purification plan</li> </ul>	
Department	Sales and Engineering Department		
Title/Name	Takuma TAURA		
Contact	<TEL>	+81-92-475-4131	
	<Mail>	eigyoubu1@aqua-s.jp	

## Description of Product and Technical Expertise

### <Corporate PR>

We are a company to purify and manage the water environment of Haikou Bay, lakes, dams, rivers and Aquaculture pond, ponds. In addition, waste water treatment, improvement of the odor, improve the cultivation environment, soil improvement, recovery of trees.

Our products is what has been developed and manufactured on the basis of the experience of this maintenance work. "Aqualift" series, is an excellent bio-formulation to improve the water quality and soil. Bacteria of Aqualift, has excellent sustainability and dominant of the fixing property and proliferative.

### <Information of Product and Technical Expertise>

■ Biologics Aqualift series

【Water Purification】

#### **Aqualift1600PN・1600LN**

Decompose the sludge with sulfide and toxic substances. Improve the water quality and sediment and odor. Recovery of aquatic organisms. Purification of a wide body of water.

Use location: coastal and sea farms, large-scale closure farms, rivers, lakes, dams, agriculture pond.



Aqualift1600PN



Aqualift1600LN



The powder

## Description of Product and Technical Expertise

### 【Waste water treatment】

#### Aqualift900LN

Use Location: wastewater treatment facilities, septic tank, Dobukawa, drainage ditch, drain outlet  
Effect: improvement of the odor, improvement of processing capacity, decomposition of sludge, improvement of the BOD, the improvement of transparency



Aqualift900LN

### 【Improvement of cultivated soil】

#### Aqualift300LN

Intended use: soil improvement of open field cultivation and greenhouse cultivation, disease prevention of crops, improve quality and yield, Recovery of the lawn, compost making, odor improvement and sanitation management of livestock.



Aqualift300LN

Aqualift series is divided into several types depending on the application. For example, there is such as for aquaculture and trees.

✂ Then and compare photos of the place of use of the Aqualift, so we have posted a number, such as the user's voice, please visit the official website!

### 〈Main Business result〉

#### ■ Overseas experience

Through the United Nations Habitat, is to use experience in Southeast Asia.


#### Laos Lake in the park



March 6, 2013  
Scum and algae floats on the surface of the water, it has a terrible stench. Odor is too badly, nearby residents could not open the windows at night. It had become a problem, which is also featured in newspapers.



June 2013  
Sprayed Aqualift 1600LN in March 2013. Floating scum and algae is no longer, bad smell was completely eliminated. Now to be used as the water of the cleaning sprinkler of the road.

Corporate Name	Daiken Co., Ltd.		
HQ Address	2-9-12 Minamisho, Sawara-ku, Fukuoka-shi, Fukuoka ,Japan		
Brach Office Address	—		
URL	<a href="http://www.d-ken.jp/">http://www.d-ken.jp/</a>		
Company Outline	<Representative>	Norichika MATSUO, President	
	<Established>	March 20,1974	
	<Capital>	¥10 million	
	<Employees>	40	
	<Overseas Network>	—	
	<Description of Business>	Land development, renewable energy, education, compensation related to procurement for public project sites, survey, civil engineering	
Department	Land Management Division		
Title/Name	Reader / kazuhisa OKAMOTO		
Contact	<TEL>	+81-92-851-3900	
	<Mail>	daiken@d-ken.jp	

### Description of Product and Technical Expertise

#### <Corporate PR>

We have knowledge with the technology saved by results in more than 40 years in compensation related to procurement for public project sites, survey, civil engineering. We received 18 times of official commendation from the Ministry of Land, Infrastructure and Transport.

Also as a new business, 'sustainable community' concept, increase asset value the ties among people, eco-friendly, disaster prevention developed the residential district "Oginoura Garden Suburb" in itoshima-Shi, Fukuoka.

This residential area was recognized as "new partnership".

In addition, "the House of kyushu prize at design awards" winner, received much media coverage.

<Information of Product and Technical Expertise>

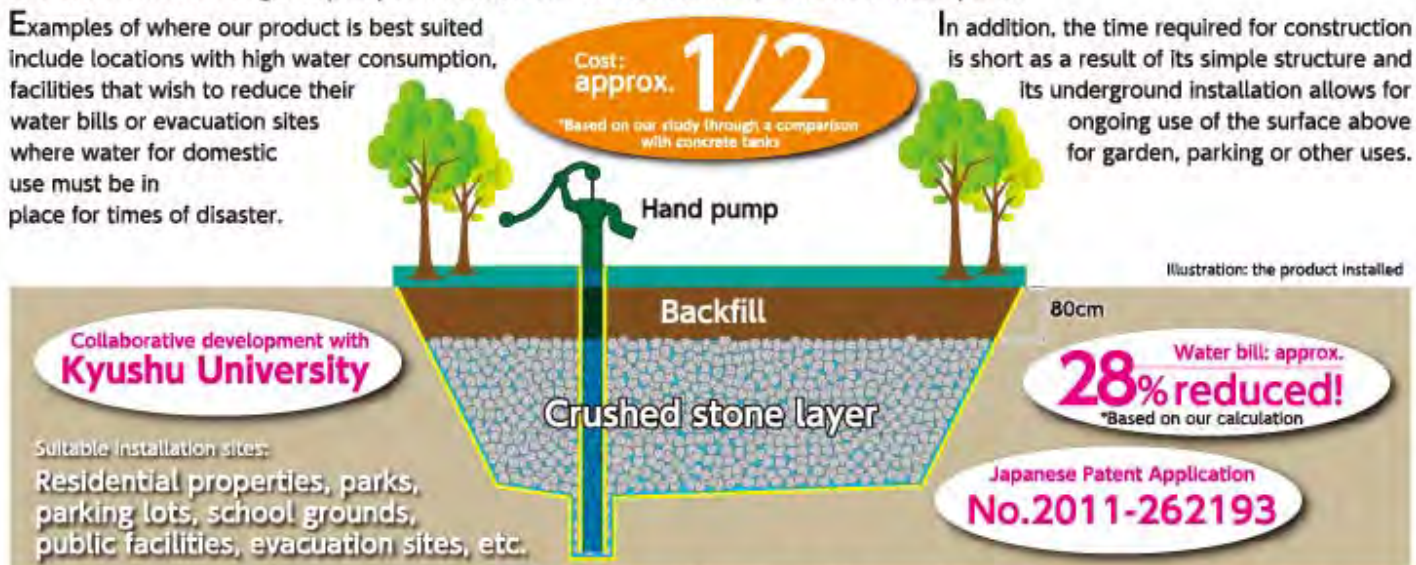
## What is "Tametotto" (An Underground Rainwater Storage Tank)?

It is an underground rainwater harvesting system that was invented in collaboration with Kyushu University.

This system, which was invented in collaboration with Kyushu University, is designed to collect and reuse safe and inexpensive rainwater. Because rainwater is of good quality and stable, it can be collected to flush toilets or water plants.

Examples of where our product is best suited include locations with high water consumption, facilities that wish to reduce their water bills or evacuation sites where water for domestic use must be in place for times of disaster.

In addition, the time required for construction is short as a result of its simple structure and its underground installation allows for ongoing use of the surface above for garden, parking or other uses.



Rainwater fills and is stored in the gaps between crushed stones (about 50% of the space's volume). The use of one-size crushed stones (No.4) creates an interlocking effect which provides resistance against sinkage and external forces.

## Strong point

- (1) A large quantity of rainwater can be stored in an inexpensive manner (cost of 40,000-50,000 yen/t).\*1
- (2) Materials are easy to procure and construction is simple and quick (approx. one month/100t).\*1
- (3) As a result of being stored underground, water temperature will remain constant and water quality is easily maintained. <Table 1 Comparison of Water Quality Test Results>
- (4) Using the hand pump, stored rainwater can be retrieved to use for flushing toilets, watering plants or for use in emergency situations.
- (5) The surface above is left available for ongoing use as a garden, for parking or other uses.
- (6) It can stand as an effective measure against rainwater runoff problems.
- (7) The current water level can be monitored through smartification (optional).

\*1 Design and construction management fees; construction-related fees, plumbing work fees and taxes are not included.



# Construction Work Flow

Designed for Simple and Quick Construction!

① Excavation



⑤ Filling of crushed stones completed



② Installation of the protective base layer and impermeable liner



⑥ Surface compaction



③ Installation of the intake pipes



⑦ Tametotto construction completed



④ Filling with crushed stones



⑧ Tametotto installation location after completion of residential construction



# Reuse of Rainwater Through the Tametotto Underground Rainwater Storage Tank

By collecting, storing and purifying rainwater through the layers of crushed stones, Tametotto makes effective reuse of water not only for toilets and heat exchangers for your house but also for plants and a biotope (a habitat, such as a pond, where a biotic community exists) in your garden.

## Reuse of rainwater

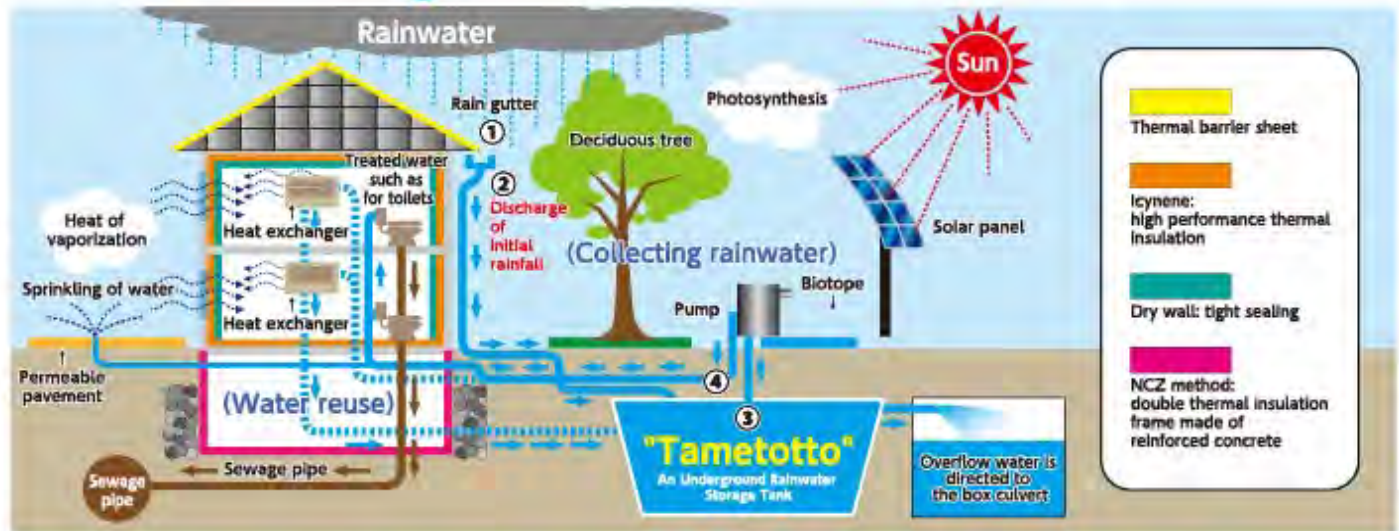
- ① Rainwater from the roof is collected via the gutter.
- ② Initial rainwater collected is discharged from the gutter. (Approximately the first 1mm of rain will be discharged.)
- ③ The water is stored in Tametotto. (Good quality rainwater)
- ④ The water can be pumped out to toilets, plants, grass or biotopes. (It can also be used for laundry.)

## Reuse of rainwater as a heat source

- The annual average temperature of rainwater in Tametotto is about 20°C.
- Rainwater stored in Tametotto can be used as a heat exchange for air conditioning.
- The rainwater is pumped through the heat pump for heat exchange.
- After the heat exchange, the water is sent back to Tametotto.

\*Currently under joint study with Kyushu University

## Conceptual Illustration of Micro Geography and Climate Stabilization Through the Reuse of Rainwater



# Tametotto Water Quality Test Results

## Good Quality Tametotto Water

Rainwater is purified by the layers of crushed stones inside the Tametotto storage tank. As demonstrated in the test result below, the quality of stored rainwater is equivalent to that of drinking water and can be used with peace of mind. This is achieved by micro-organisms that dwell on the crushed stones and is truly one of the miracles that nature can work on its own.

### Comparison of Water Quality Test Results

Inspection date	Common bacteria (count/ml) [100 and under]	E. coli [Not to be detected]	pH value [5.8 ~ 8.6]	Turbidity [2 degrees and under]
At initial installation (June 2012)	Over 1000	Not detected	6.6	Less than 0.1
Over one year after installation (October 2013)	88	Not detected	7.9	0.1
Over two years after installation (October 2014)	56	Not detected	7.9	0.1

### Details of Water Quality Test Results (Conducted on October 28, 2014)

Items	Results	Standard Value	Methods	Lower limit
Common bacteria	56/ml	100/ml and under	Standard agar method, Appendix 1, Public Notice of the Ministry of Health, Labour and Welfare No.261 of 2009	0
E. coli	Not detected	Not to be detected	MWCO-MUG test, Appendix 2, Public Notice of the Ministry of Health, Labour and Welfare No.261 of 2009	
Nitrate nitrogen and nitrite nitrogen	0.26mg/l	10mg/l and under	Ion chromatography method, Appendix 13, Public Notice of the Ministry of Health, Labour and Welfare No.261 of 2009	0.02
Iron and compounds	Less than 0.01mg/l	0.3mg/l and under	Simultaneous ICP-MS, Appendix 6, Public Notice of the Ministry of Health, Labour and Welfare No.261 of 2009	0.01
Chloride ion	7.3mg/l	200mg/l and under	Ion chromatography method, Appendix 13, Public Notice of the Ministry of Health, Labour and Welfare No.261 of 2009	0.2
Calcium/Magnesium (hardness)	78mg/l	300mg/l and under	Titration method, Appendix 22, Public Notice of the Ministry of Health, Labour and Welfare No.261 of 2009	5
Organic substances (TOC)	0.3mg/l	3mg/l and under	TOC measurement method, Appendix 30, Public Notice of the Ministry of Health, Labour and Welfare No.261 of 2009	0.3
pH value	7.9 (22°C)	5.8 ~ 8.6	Glass electrode method, Appendix 31, Public Notice of the Ministry of Health, Labour and Welfare No.261 of 2009	
Taste	Not abnormal	Not abnormal	Sensory evaluation method, Appendix 33, Public Notice of the Ministry of Health, Labour and Welfare No.261 of 2009	
Odor	Not abnormal	Not abnormal	Sensory evaluation method, Appendix 34, Public Notice of the Ministry of Health, Labour and Welfare No.261 of 2009	
Color	Less than 0.5	5 degrees and under	Transmitted light measurement method, Appendix 36, Public Notice of the Ministry of Health, Labour and Welfare No.261 of 2009	0.5
Turbidity	Less than 0.1	2 degrees and under	Integrating sphere photometer method, Appendix 41, Public Notice of the Ministry of Health, Labour and Welfare No.261 of 2009	0.1

\*The water quality test results shown in the above table are based on a Tametotto installation site.

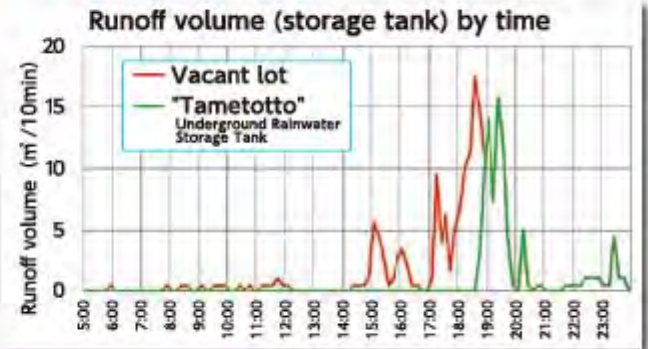
## Why the "Tametotto" Underground Rainwater Storage Tank is Needed

### The Global Environment Needs Tametotto.

Kyushu University conducted rainwater runoff simulations based on data from a single-day heavy rainfall (187mm) in the Chugoku and Kyushu region in July of 2009.

The simulated amount of rainwater runoff from a site where Tametotto (approx. 110t) was installed was 121.5m<sup>3</sup> less than that of a vacant lot and the peak discharge was reduced to 1.71m<sup>3</sup>/10 min (see graph at right).

With the ongoing progress of urbanization and land development, the severity of urban flooding from heavy rains is becoming a major issue. Tametotto works as a very effective measure against the problems caused by rainwater runoff.



### Tametotto's International Contribution

Because Tametotto's forward-thinking approach was recognized by the United Nations Human Settlements Programme (UN-Habitat), we were invited to participate in one of their projects: the Expert Group Meetings of the Knowledge Management Center for Asia and Pacific.

In July 2014, the UN Habitat then requested the installation of two Tametotto tanks in Lao People's Democratic Republic, which we successfully completed. The average life expectancy of Laos is only 50 years, which is believed to be due to high child mortality rates. The major cause of this is poor quality drinking water. As the use of Tametotto expands, we hope that our product will help contribute to solving this issue.

#### Why was Tametotto chosen?

- ① Low installation cost
- ② Short construction time
- ③ Local materials can be used
- ④ Installable by local people as no specialized skills are required
- ⑤ Post-installation maintenance is easy



## Tametotto Saves So Much Expense!

It is said that the amount of water required in flushing toilets is approximately 50 liters a day per person.

For a family of four, storing around 200 liters of rainwater a day is enough for all the water needed for their toilets.

However, because actual rainfall only occurs every four days or so on average, it is essential to store rainwater that is the equivalent of 20 to 30 times of a day's required amount.

Therefore, to save up enough rainwater for the toilet use of a family of four, a 6,000-liter (6m<sup>3</sup> = 6t) tank may be desired.

One hundred tons of rainwater stored in Tametotto can cover a family unit of 16 (100t ÷ 6t = 16 households).

When calculating this quantity,

**50 liters x 4 people x 16 households x 365 days = 1,168,000 liters (1,168t).**

This is how much water is saved in a year.

**Over 20 years, this would save enough water to fill a space half the size of the Tokyo Dome.**

When converting this in water bills,

**1,168,000 liters (annually) x 0.22 yen/liter = 256,960 yen.**

**Over 20 years, 256,960 yen x 20 years = 5,139,200 yen saved.**

\* Tokyo Dome: 46,755 cubic meters \* Water bills (0.22 yen/liter) are calculated based on the water/sewage rate of The Japan Electrical Manufacturers' Association.

Corporate Name	DC CORPORATION	
HQ Address	Tenjin Building 5F, 1-1-3 Maizuru, Chuo-ku, Fukuoka-shi, Fukuoka, Japan	
Branch Office Address	—	
URL	http://www.dc-concrete.co.jp	
Company Outline	<Representative>	Tetsuo HASEGAWA
	<Established>	December 14, 1959
	<Capital>	¥50 million
	<Employees>	42
	<Overseas Network>	—
	<Description of Business>	Concrete secondary product manufacturing and sales (Fume pipes, prefabricated manholes, etc.) Sewer-sell Ancillary works construction
Department	Sales department	
Title/Name	Director sales manager/ Keisuke MOTOMURA	
Contact	<TEL>	+81-92-771-0087
	<Mail>	info@dc-concrete.co.jp

## Description of Product and Technical Expertise

### <Corporate PR>

Hume pipe used in sewer construction is an essential infrastructure necessary to life and Prefabricated manhole (product name: Yunihoru) we are manufacture and sell. Founded 50 years or more

In the accumulated technical capabilities we will deliver high-quality products based on. Demand for sewer infrastructure will provide the know-how such as manufacturing technology to countries that are expected.

### <Information of Product and Technical Expertise>

#### Products

Prefabricated manhole (Yunihoru)

Hume pipe (propulsion pipe, flexible hume pipe, etc.)

Centrifugal box culvert

Box-type manhole

Rainwater storage osmosis system

Antibacterial concrete products

Other sewer Related Products



Centrifugal force pipe



Propulsion pipe



Prefabricated manhole (Yunihoru)

Corporate Name	<b>FUJI P.S CORPORATION</b>
HQ Address	Kyudenfudousan BLG, 1-13-8, Yakuin Chuo-ku, Fukuoka JAPAN.
Branch Office Address	Tokyo, Osaka, Nagoya, Fukuoka, Miyagi, Hiroshima
URL	<a href="http://www.fujiips.co.jp">http://www.fujiips.co.jp</a>
Company Outline	<Representative> Tadahiko Tsutumi
	<Established> 1954/ 3/19
	<Capital> (JP Yen) 2,379 million
	<Employees> 420 (As of March 31, 2019)
	<Overseas Network> Republic of the Union of Myanmar
	<Description of Business> Specific construction industry(Civil engineering work, Architectural work) Contracting of civil engineering and architectural works using prestressed concrete, plan, design and construction control of building work. Manufacture and sales of PC products.
Department	Overseas Department
Title/Name	General Manager / Osamu Ueda
Contact	<TEL> +81-92-721-3473
	<Mail> <a href="mailto:o.ueda@fujiips.co.jp">o.ueda@fujiips.co.jp</a>

## Description of Product and Technical Expertise

### <Corporate PR>

- ① Civil engineering and architectural works using PC are our core business.
- ② We have a local subsidiary in Myanmar with the future business expansion. We are accepting engineers from Myanmar university regularly.
- ③ We have established a supervising organization, FPS Safety Business Cooperative, to accept overseas technical interns.

### <Information of Product and Technical Expertise>

#### ① CIVIL ENGINEERING

- Bridge Core business with state of the art technologies.



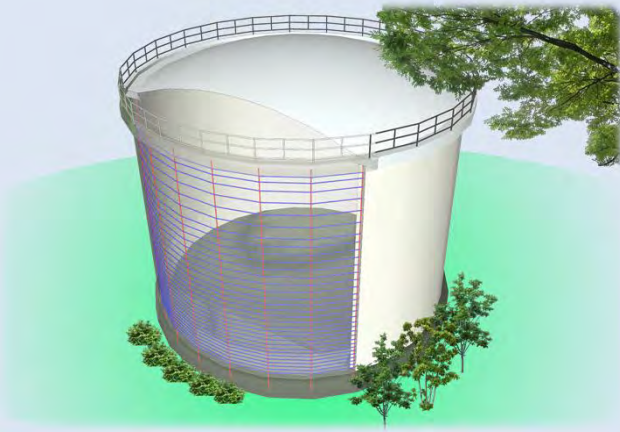
<Cantilever Method>  
Corrugated Steel Sheet Web



Span-by-Span  
Precast Segment Method

# Description of Product and Technical Expertise

## ● Storage structures using PC technology



PC storage tank for drinking water



PC storage tank for drinking water



Retention Basin  
(for when heavy rain falls)

## ● Rehabilitation

We can meet to the various needs of repair and renewal of public infrastructure.



<Reinforcement of external cables>  
<Reinforcement of carbon fiber sheets>



<PC slab Replacement Method>

# Description of Product and Technical Expertise

## ② ARCHITECTURE

### ● FR-SLAB < Products for condos and buildings >

PC panels (FC panels and FR panels) for high-rise condos and buildings.



### ● PCa PC Method

This method is assembled precast concrete panel structural components(PCa structural components) that prefabricated at a factory and crimping PCa structural components by pre-stressing force at site.



## 【Overseas Achievements】

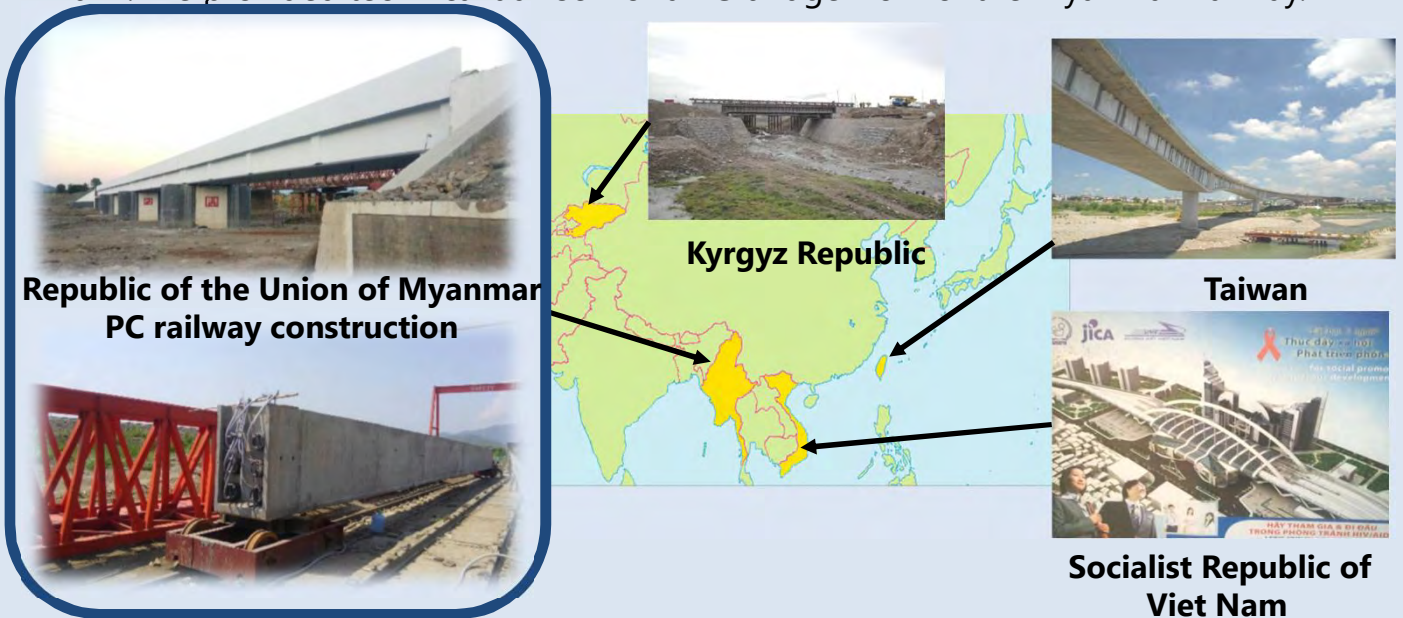
2007: We provided detailed design of viaduct and dispatched technical advisor in Taiwan.

2010: We constructed a replacement bridge in Kyrgyz.

2011: We dispatched structural-design engineers for railway viaduct design in Viet Nam.

2014: Myanmar Fuji P.S CONSTRUCTION CO., LTD., a local subsidiary is established.

2017: We provided technical advisor for a PC bridge work of the Myanmar Railway.



**Republic of the Union of Myanmar**  
PC railway construction

**Kyrgyz Republic**

**Taiwan**

**Socialist Republic of Viet Nam**

<b>Corporate Name</b>	<b>FUKUYAMA CONSULTANS CO., LTD.</b>	
HQ Address	3-6-18, Hakataeki Higashi, Hakata-ku, Fukuoka-shi, Fukuoka, Japan	
Branch Office Address	Kitakyushu-shi, Hiroshima-shi, Tokyo, Sendai-shi	
URL	<a href="http://www.fukuyamaconsul.co.jp/">http://www.fukuyamaconsul.co.jp/</a>	
Company Outline	<Representative>	Koji FUKUSHIMA, CEO
	<Established>	November 6,1963
	<Capital>	¥589 million
	<Employees>	292
	<Overseas Network>	—
	<Description of Business>	Comprehensive construction consulting for social infrastructure
Department	(HQ) Corporate Planning Division (Tokyo) New business Developing Section	
Title/Name	(HQ) Masashi ITO (Tokyo) Hiroshi TAKAI	
Contact	<TEL> (HQ) +81-92-471-0211 (Tokyo) +81-3-5805-8863	
	<Mail>(HQ) masa.ito@fukuyamaconsul.co.jp (Tokyo) takai@fukuyamaconsul.co.jp	

## Description of Product and Technical Expertise

### <Corporate PR>

- We have a special strength in road , transportation planning.
- Comprehensive construction consulting service , planning, designing and supervising construction of infrastructure.
- Development and sales(including oversea expansion) of the product: new research method by ICT , efficient infra-maintenance equipment , and disaster measure equipment.
- Feasibility survey of oversea expansion by small and medium-sized enterprise( SME)

### <Information of Product and Technical Expertise>

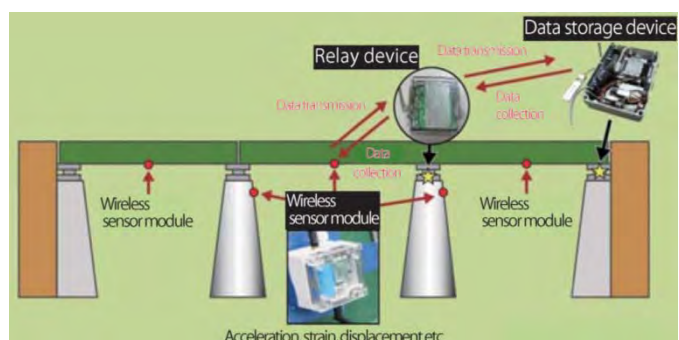
#### ○Wireless sensor system

• This system measures that disaster situation ( earthquakes, inland floods , etc.)by the wireless sensor.

#### ○New research method by ICT

• Automatic discrimination of modal share in person trip survey by smartphone

#### ■ Wireless sensor system



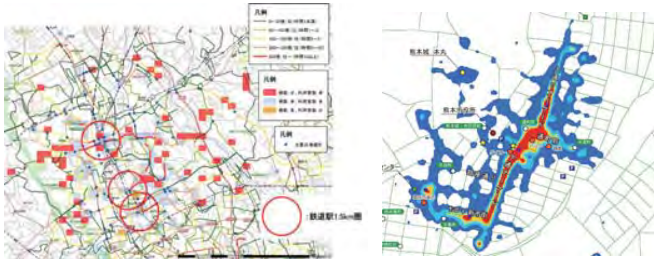


# Description of Product and Technical Expertise

## ○ Consulting Service

### Traffic :

Road and transportation plan, etc..



■ Visualized the movement (person, vehicles)

### Urban / Area :

• City planning, etc..



■ Station on the river

### Road design :

Design of expressway, etc..



■ Design of expressway junction

### Environment :

• EIA( Environmental Impact Assessment), etc.



■ EIA of road project

### Structure :

• Road bridge design and detailed design of railway structure of Linear Shinkansen, etc..



■ Bridge design

### Project management

• Construction management of reconstruction work, etc..



■ Meeting of construction management

## <Main Business result>

(Domestic) Main Customers

- Minister of land, infrastructure, transport and tourism
- local governments
- Highway corporation, etc..

(Foreign)

- Feasibility survey of oversea expansion by small and medium-sized enterprise( SME). ex) Malaysia, Vietnam, Myanmar
- Consulting in ODA projects (Withdrawal in 2001, in preparation of resumption) ex) Masterplan , Transportation planning

Corporate Name	FUTABA SEKKEI Co., Ltd.	
HQ Address	1-6-14,Sanchiku , Hakata-ku,Fukuoka-shi,Fukuoka,Japan	
Branch Office Address	—	
URL	http://www.futaba-eng.net	
Company Outline	<Representative>	Yasuyuki FUTABA, Representative director
	<Established>	October 13,1998
	<Capital>	¥10 million
	<Employees>	32
	<Overseas Network>	—
	<Description of Business> [Category] ◆Survey Company: No,(2)-32548 ◆First-class architect's office: No.1-60505 ◆Construction consultant: Con23No8652 (Road, steel structure concrete, soil foundation, and more) ◆Compensation Consultant: Com.24No.4934 [Business items] • Civil engineering(Erosion control, road, agricultural engineering, etc.) • Surveying • Geological survey • Construction management • Compensation survey • Machinery and equipment design 1 (Pump, dust collector, gate and more) • Architectural design, electrical design and maintenance plan design • Planning for Long Life, earthquake-proof diagnosis, and more	
Department	Sales Department	
Title/Name	Deputy Director-General / Junji FURUKAWA	
Contact	<TEL>	+81-92-591-6903
	<Mail>	furukawa@futaba-eng.net

## Description of Product and Technical Expertise

### <Corporate PR>

Consideration for others and pride in oneself are our motto.

We meet diverse needs and produce original new products with our open and accessible attitudes. We hope to produce facilities items which are operational for 100 years at least. We are able to do design works in various fields such as erosion control, planning for long-life, function preservation, road, seismic resistance verification, functional diagnostic, agricultural civil engineering, park, reclamation, drinking water and sewage systems, and survey (compensation). From now on, we would like to contribute to construction projects of infrastructure facilities overseas in construction consulting field.

# Description of Product and Technical Expertise

## Erosion control

Recently, natural phenomenon occurs frequently and damage by flood and landslide disaster due to long-lasting severe rain fall and so on are growing ruinously. We mainly restore public facilities which were damaged by the disasters and reconstruct them to prevent performance degradation or loss of functionality of them. We help to ensure national security and asset preservation. Specifically, we do the works of river administration facilities . Also we do works of drainage-pump facilities which forcibly eject overflowing rainwater brought by heavy rains to rivers using wastewater pumps.



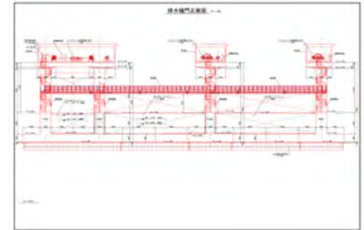
Detailed design of Hakata River bank protection



Detailed design of drainage pumping station



Detailed design of sluice

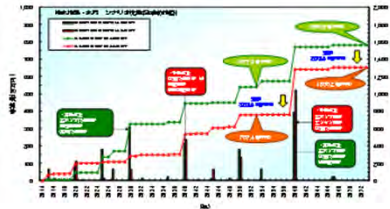


Basic design of sluice gate

## Planning for long-life, function preservation

Several decades have already passed since many of public facilities which were built so far. Actions necessary to respond to aging of such properties continues to increase. So, securing financial resources for public investment is getting difficult. Planning of maintenance and management of them and effective planning are needed.

With focusing management of the trends, we review inspection system and propose new diagnostic method, and review maintenance and update of machine/equipment or electrical equipment and propose plans for cost reduction of life-cycle costs and maintenance of credibility of the facilities.



Planning for long-life of drainage pumping station



Planning for long-life of special agricultural facility of Tagawa City



Detailed design of for reinforcement of pipes of Chikugo Headrace



Investigation for maintenance of installed stairs of Najima Benten Bridge

## Road

Road design works are diverse and include plane design, design for longitudinal and transverse directions, road cross-section design, drainage design, slope design and design for incidental facilities.

We make comprehensive evaluations from the points of views of road users, residents along the roads and constructor of the roads to capture desired roles and functions of roads to maximize development effects, and keep them in mind to reflect them on our plans and designs.

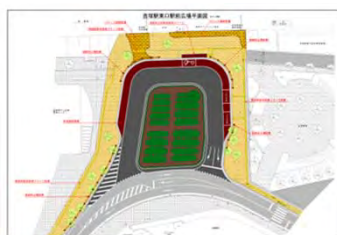
With responding to the needs of road users, residents along the roads and constructor of the roads, we will investigate them in detail to find optimized structures and method of construction.



Basic design of front road of Hakata Station



Surveying and design of Kyushu National Museum



Detailed design of road of park in front of Yoshizuka Station



Detailed design of Chikushino-Koga Line

# Description of Product and Technical Expertise

## seismic resistance verification, functional diagnostic

As a highly earthquake-prone country, Japan has a history of large-scale disasters due to many earthquakes. Based on our experience of such earthquakes, quake-resistant engineering has been researched. Earthquake resistance standards are being updated and revised according to areas and conditions of soils and foundations.

Many existing public facilities were constructed during high-growth period or later. We are not sure that they meet the latest earthquake resistance standards. So, we need to know the importance of the facilities and check them using current earthquake resistance standards, and we need to verify the results of the damages caused by major earthquakes and review the possibility of the functions of such facilities.



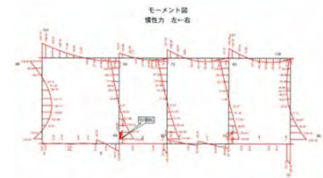
Verification of earthquake resistance of Chikugo Headrace



Seismic diagnostic for Mizukigaoka Distributing Reservoir



Preservation of function of river facilities



Seismic diagnoses for drainage-pump facilities

## Agricultural civil engineering

Through agricultural land improvement projects such as irrigation, drainage and land reclamation, we carry out civil engineering works to improve the values of agricultural lands such as cultivated land.

With our wide knowledge on natures of agricultural civil engineering such as development, improvement and maintenance of water-for-agriculture and cultivated land, we plan and design whole facility so that specific characteristics of electromechanical equipment, building facilities and civil engineering facilities can be utilized, respectively. With consideration to agriculturists, we, specifically, will do facility planning such as for weir, pipeline, drainage pumping stations, irrigation pumping station, agricultural water channel and pond.



Detailed design of drainage pumping station



Inverted design of agricultural water channel



Detailed design of aqueduct bridge

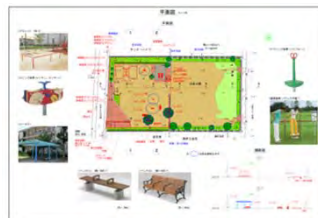


Detailed design of irrigation pumping station

## Park construction and Others

Park construction offers a base of various activities of local residents such as contact with nature and health promotion and also it is inevitable to improve urban environment to prevent green effect and ease heat island phenomenon.

From the points of views of local residents, we are involved in environmental conservation, promoting greening and improvement of parks.



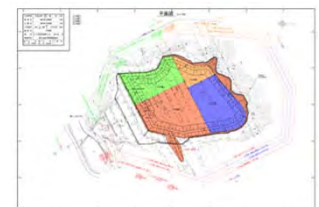
Detailed design of Shirogane Park



Improvement design of Oto-machi Central Park



Design and management of Fukuoka Prefectural University's concert plaza



Expansion construction of Final Landfill Site of Non-Industrial Waste of Kawasaki-machi

# Description of Product and Technical Expertise

## Water supply and sewerage

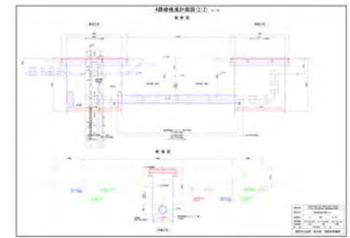
Recently, because of frequent urban disasters, countermeasure to prevent damage to water supply and sewerage facilities are being worked on.

Projects for lengthening the useful lives of facilities using pipe rehabilitation method and so on are needed because of the aging of the facilities.

In various projects related to water supply and sewerage, we have long and abundant experiences and technologies. Those are investigation, planning, design and constructions, including diagnosis of existing facilities, earthquake countermeasures, review of lengthening useful lives of facilities and review for installation method.



Sewer Design and Construction of Island City Area



Layout design of pipes in Hirao 2-chome



Sewer design of Kashii area



Propulsion work of No.2 aqueduct of Bantaku System

## Survey (compensation)

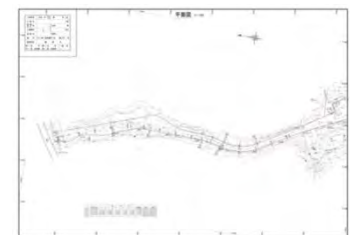
To systematically and steadily carry out public works, smooth securing of the lands to become their bases is essential.

To carry out public works, we need to acquire lands and transfer buildings. We compensate the losses of concerned persons such as owners of them.

We are a registered compensation consultant approved by the Minister of Land, Infrastructure, Transport and Tourism, and we engage in the businesses ordered by the Government of Japan and local governments.



Disaster Prevention Work of Shiratori Housing Complex and Kawasaki Line



Surveying and engineering work for approach to crematorium construction project

## <Main Business result>

In Erosion control, Planning for long-life, function preservation, Road, seismic resistance verification, functional diagnostic, Agricultural civil engineering, Park construction, Water supply and sewerage, Survey (compensation), We have many business result for Fukuoka Prefecture and Fukuoka City.

<b>Corporate Name</b>	<b>HINODE, Ltd.</b>	
<b>HQ Address</b>	Hinode Bldg., 5-8-18 Katakasu, Hakata-ku, Fukuoka, JAPAN	
<b>Branch Office Address</b>		
<b>URL</b>	http://www.hinodesuido.co.jp/	
<b>Company Outline</b>	Representative:	Takeshi Asai, President
	Established:	May 11, 1948
	Capital:	JPY 270 million
	Employees:	958 (as of March 1, 2019)
	Overseas Network:	CHINA (subsidiary of group company)
	Description of Business: Since founded in 1919, we have been manufacturing cast iron products and polymer concrete products. We supply our products to all over Japan with 29 domestic sales offices, 3 plants and 8 logistic centers.	
<b>Department</b>	International Marketing Group	
<b>Title/Name</b>	Group Leader/ Tetsuya Nishiyama	
<b>Contact</b>	TEL: +81-92-476-0663	
	Mail: t-nishiyama@hinodesuido.co.jp	

**Description of Product and Technical Expertise**

**Corporate PR:**

For more than 90 years, we have dedicated to manhole cover manufacturing as a pioneer in Japan. As a result, original material and structure of our manhole cover have become the de fact standard in Japanese market. We are now promoting our product in the countries where the construction of the sewerage facilities are demanded as an infrastructure.

**Information of Product and Technical Expertise:**

***“Multi-functional Manhole Cover”***

Manhole covers are facing the serious issues such as “theft”, “rattling”, “blowout and deviation”. Our product, “multi-functional manhole cover”, is designed as a solution for these issues on manhole cover. And also, an original surface motif on the cover can be used for improving city image, etc.



Multi-functional Manhole Cover



Original motif for City of Fukuoka

## Description of Product and Technical Expertise

### ***Theft prevention***

By means of specially designed lock and hinge functioning, unauthorized persons cannot come inside manhole or steal the cover without a special tool. Using the special tool is not only for the security, but for the high-workability.

### ***Blowout prevention and deviation prevention***

Torrential rains make air/water pressure inside manhole pit higher, that will cause blowout or deviation of manhole cover. Thanks to specially designed lock and hinge, our manhole cover automatically lifts up and internal air/water pressure is released if the pressure builds up at certain levels. Once pressure has lowered, manhole cover returns to its original state without floating away.

Also, we can attach “fall prevention device” to the manhole cover as an option for preparing for the worst.

### ***Rattle prevention***

Contacting faces of manhole cover and frame have steeply angled structure. This structure prevents the cover from rattling, because it makes a close contact between the cover and the frame as though the cover is biting into frame.

Rattle prevention structure has released the workers from the replacement of a rubber cushion set underneath the cover. Low durable rubber cushion which is usually used in conventional manhole covers should be constantly replaced even though it is a general way to prevent the cover from rattling.

### ***Skid prevention***

Surface design of our manhole cover is constituted by individual protrusions. These protrusions cause high enough friction between a tire and the surface of cover to prevent the motorbikes from a skid.

### ***High workability***

The cover can be easily handled (be opened/ closed) by one worker, as the weight is about 40kg (for dia. 600mm). Our improvement of the material, ductile iron for manhole cover manufacturing, made it possible.

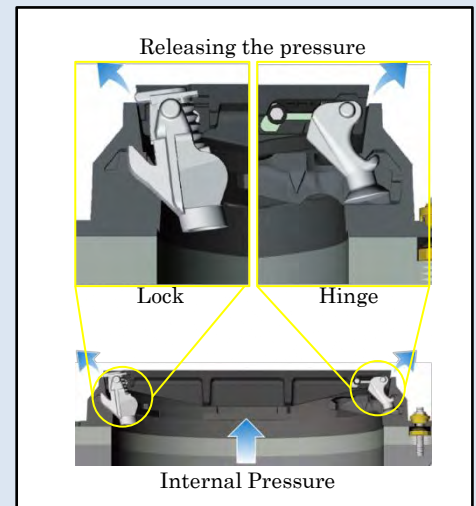
### ***“Hi-juster®” installation***

“Hi-juster®” installation attains a high-strength and completely filled base work, by fastening the frame of manhole cover and the top of manhole body together with anchor bolts, height adjustment devices and fastening nuts, and then filling high strength and non-shrinkage mortar called “hi-juster®”. With “hi-juster®” installation, we prevent the manhole cover from unstable state that would result in asphalt road damage under a lot of vehicle traffic over the manhole cover.

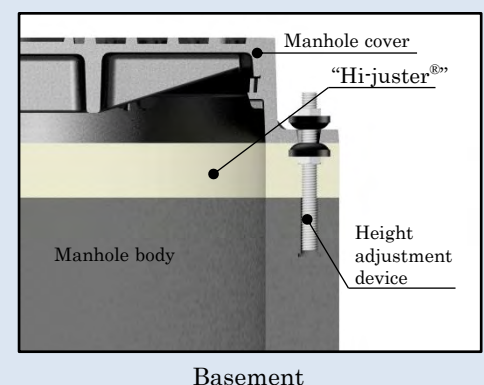
“Hi-juster®” installation is an efficient method when you are planning to replace the manhole cover and to adjust the level of the top of cover with the road. The surface level of manhole cover can be changed with height adjustment device.

### ***Surface designs***

You can put a motif such as a city mark or tourist spot on the cover.



Structure of the multi-functional manhole cover



### *“Circular cutting method for replacement of manhole cover”*

Defected manhole cover should be replaced as quickly as possible. “Circular cutting method” is an easy and quick way, and provides a high quality installation to keep the road condition in safe.

#### *Improving the quality of installation*

Squared cut pavement with a straight-line cutting machine may cause the cracks at the crossings of straight line where is tend to be vulnerable. As the circular cutting does not need the crossings, the pavement condition will last for a long term.

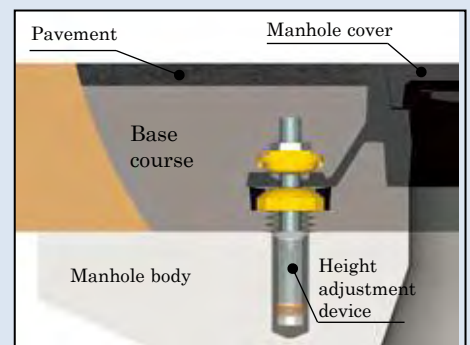
The dips in the surface of pavement may occur in the case when the base course is weak. “Circular cutting method” provides the durable base course with non-shrinkage mortar to solve this issue.



Circular cutting method



Circular cutting machine



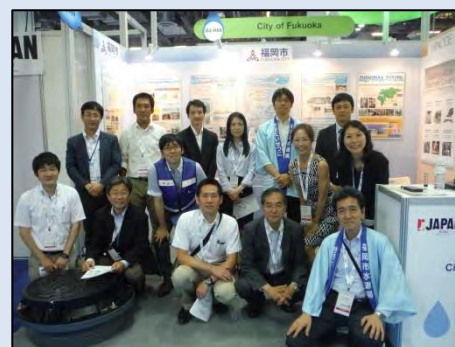
Cross section of circular cutting method

### **Main Business result:**

In 2011, we started overseas business. So far we have supplied our products in China, Taiwan and Thailand.



Installation in Dalian, China



Co-exhibiting with City of Fukuoka at Singapore International Water Week 2014



Corporate Name	KAMATA BIO ENGINEERING CO.,LTD.	
HQ Address	3-25-1, Hakataekiminami , Hakata-ku, Fukuoka-shi,Fukuoka,Japan	
Brach Office Address	—	
URL	http://www.kamata-bio.co.jp	
Company Outline	<Representative>	Hirofumi KAMADA
	<Established>	June 29,1984
	<Capital>	¥63 million
	<Employees>	20
	<Overseas Network>	—
	<Description of Business>	Water and sewage processing plant design construction. Toxic substance removal system plant design construction.
Department	Design Plan	
Title/Name	Hirofumi KAMADA	
Contact	<TEL>	+81-92-471-1600
	<Mail>	info@kamata-bio.co.jp

### Description of Product and Technical Expertise

#### <Corporate PR>

Kamata Bio Engineering is the first Japanese company to launch a leading, practical water treatment system employing a special adsorptive filter media, as well as an advanced magnetic flocculating agent. With this technology, we are now able to provide low-cost water treatment plants to countries in Southeast Asia.

#### <Information of Product and Technical Expertise>

- 1.Product name : High-speed Fiber Filtration system
  - 2.Objectives : To address issues and demerits of the conventional fast sand filtration system.
  - 3.Point to be Afunction and chrsrcte ristic :  
comparative performance between fast sand filtration system and high-speed fiber filtration system .
- (1) Filtration velocity  
The test aims to show that the daily maximum linear filtration velocity of 1,300m/day and hourly maximum of 1,500m/day are possible.
  - (2) Pressure loss  
Its pressure loss while water passes through is 0.1-1.0m, and the system saves energy compared to the conventional fast sand filtration system.
  - (3) Suspended solids capture amount and removal efficiency  
It has the SS capture amount of 8kg-SS/m<sup>2</sup> of filter and SS removal efficiency of 80% or higher.

# Description of Product and Technical Expertise

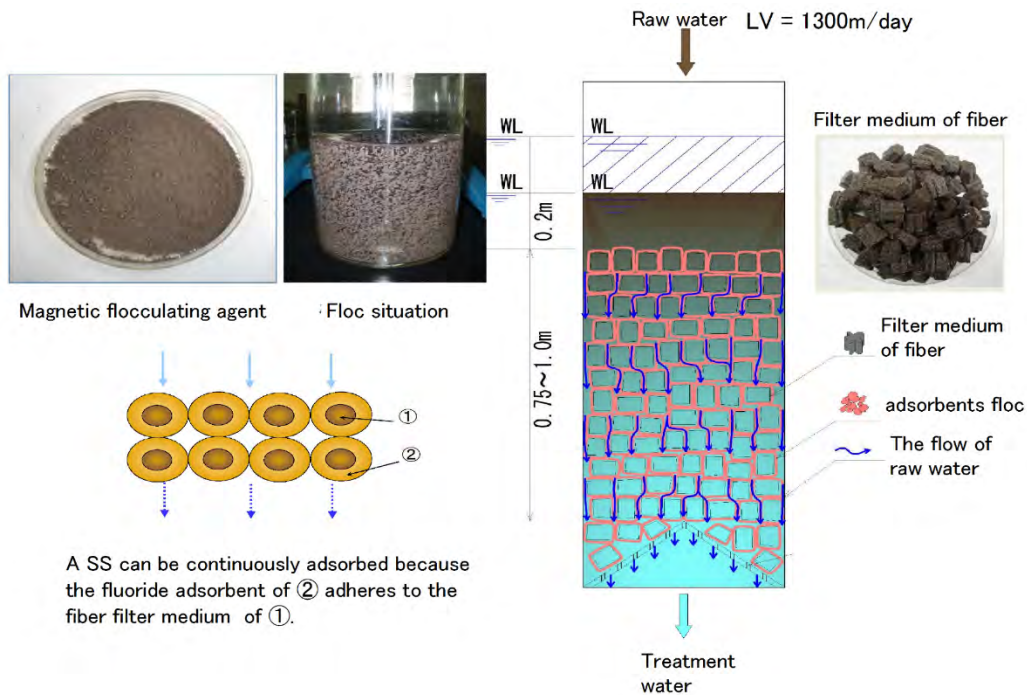
## (4) Amount of water required for backwashing

It uses the batch backwash method where the cleaning water is poured to 0.75m above the fiber medium and the air-agitation wash is repeated a few times. The amount of water needed for backwash is 2% or less of the filtered water amount and the pressure required for backwash is half or less of the conventional system.

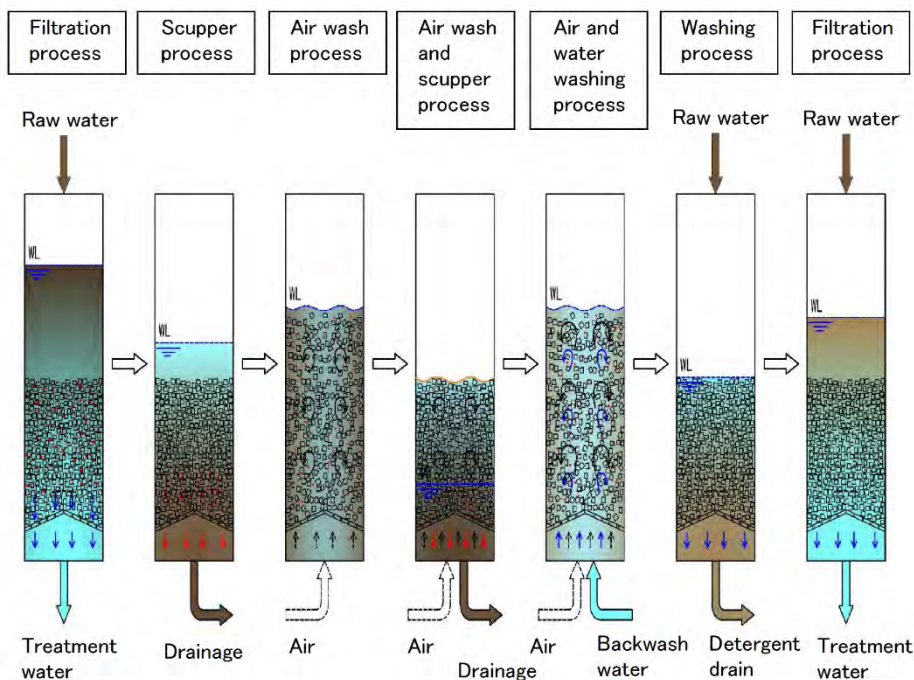
## (5) Filtered water quality

It can reduce the SS concentration to 2mg/L or less and remove chlorophyll from the raw water, and the reuse of the water treated with this system can solve the issues of the conventional system.

## 4. Filtration image



## 5. Filtration tower backwash image



## <Main Business result>

### Water Processing center Proof Plant in eastern Fukuoka-shi

- Linear filtration velocity(LV) : 1200 m/day
- Target Water : The second sewage processing water



### Fukuoka Canal City Hakata

- Possession quantity of water : 1,500m<sup>3</sup>
- System name : Fiber Filtration 2.3φm×1.8m<sup>2</sup>×1
- Target water : Lake circulation water



### Honjo-shi, Akita Park Pond

- Possession quantity of water : 4,000m<sup>3</sup>
- System name : Fiber Filtration 3.0φm×2m<sup>2</sup>×2
- Target water : Lake circulation water



▲ before construction



▲ after construction



▲ before construction



▲ after construction

### Osaka Certain Playland lake

- Possession quantity of water : 55,000m<sup>3</sup>~75,000m<sup>3</sup>
- System name : Fiber Filtration 2.8φm×6m<sup>2</sup>×3
- Target water : Lake circulation water



Corporate Name	Kankyo Electronics Co., Ltd.	
HQ Address	2-17-1,taguma,Sawara-ku , Fukuoka-shi,Fukuoka,Japan	
Brach Office Address	Tokyo/Osaka/Nagoya/sapporo	
URL	http://www.kankyo-densi.com/	
Company Outline	<Representative>	Takahiro YAMAMOTO
	<Established>	March 26, 2004
	<Capital>	¥20 million
	<Employees>	13
	<Overseas Network>	—
	<Description of Business> Production of automatic water quality monitoring system	
Department	Sales department	
Title/Name	YAMAMOTO	
Contact	<TEL>	+81-92-872-5152
	<Mail>	info@kankyo-densi.com

## Description of Product and Technical Expertise

### <Corporate PR>

The share of the Japanese domestic water quality automatic monitoring equipment (bioassay), and has the country's largest delivery record. Many of the delivery destination are many water municipalities like, a private company like are food companies and drinking water company are used in water quality monitoring of the raw water, Others have been used in water quality monitoring of industrial wastewater companies.

For overseas expansion, it is being pry the partner company is promoting and patent income and cataloging.

### <Information of Product and Technical Expertise>

Product name:Automatic water quality monitoring system

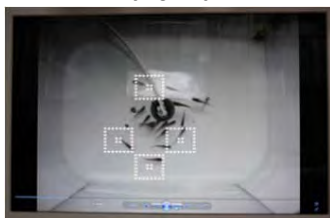
Specification:This device is a small fish Medaka (*Oryzias latipes*)that reactivity against such poison is sensitive Leverage, it is automatically performed device continuously monitoring of water quality 24 hours a day. It is allowed to flow into the raw water of about 1.5 liters per minute, and monitor the water quality, while the behavior of about 20 animals of Medaka and image analysis. Or movement of Medaka is dull, if the abnormality such as death occurs, you automatically in stages alarm.

Normal



Medaka we are swimming freely towards the flow.

Abnormal



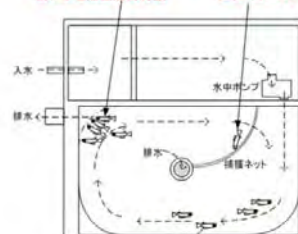
Abnormal behavior no longer move mass killfish by predation defense instinct

監視水槽

カメラ



群による捕食防衛行動 表層・死亡メダカ

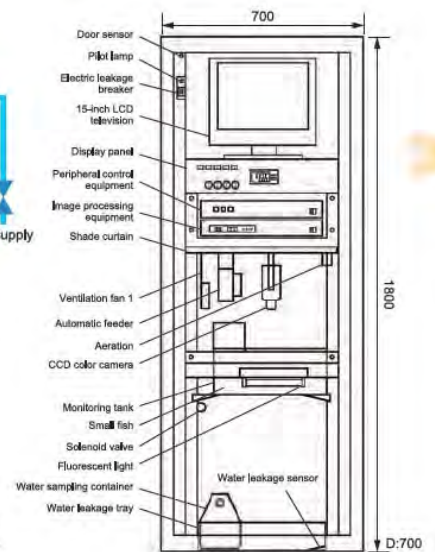
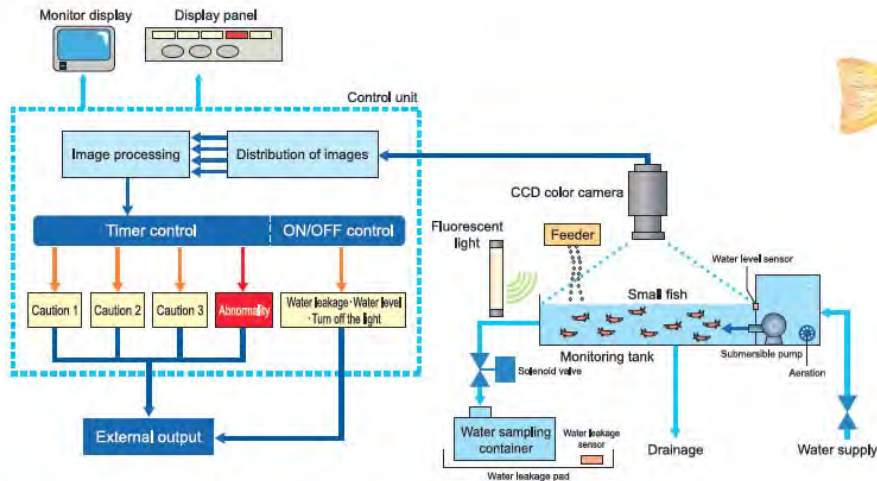


元気に泳ぐメダカ群

# Description of Product and Technical Expertise

## Feature 1 Fish respond to 97% of 970 different types of toxic chemicals that cause acute intoxication in human beings.

This monitor automatically monitors water quality for 24 consecutive hours with small fish that are perceived to be highly sensitive to toxicity. Images of behavior of 10~20 fish are analyzed and if their movements become slow or some abnormalities such as death occur, an alarm is automatically activated.



Fish feces and residual feed are automatically cleaned by flowing water and drained from the center.

Oval shaped tank  
Small fish have a habit of swimming towards the flow of water.  
Window for lighting a fluorescent light



Normal movement

Capturing net  
Raw water jetting port of submersible pump  
Flow of water  
Water depth is 8 cm or less.  
When fish swimming normally are detected by image processing, it is displayed in blocks.

## <Main Business result>



Corporate Name	KYUDENKO CORPORATION	 Make Next. KYUDENKO
HQ Address	1-23-35 Nanokawa, Minami-ku, Fukuoka-City, Japan	
Branch Office Address	Tokyo Head Office+ 10 Branch Office (Fukuoka • Kitakyushu • Oita • Miyazaki • Kagoshima • Kumamoto • Nagasaki • Saga • Kansai • Okinawa)	
URL	<a href="http://www.kyudenko.co.jp/english/index.html">http://www.kyudenko.co.jp/english/index.html</a>	
Company Outline	<Representative> Matsuji Nishimura	
	<Established> 01-Dec-1944	
	<Capital> ¥ 12,561 million (as of April, 2019)	
	<Employees> 6,750 (as of April, 2019)	
	<Overseas Network> Taiwan, Malaysia, Vietnam, Thailand, Singapore, Indonesia	
<Description of Business> Electrical Work, Power Distribution Line Work, HVAC Mechanical Installation Work, Environmental Facility Installation Work, Communications Work		
Department	International Business Dept. / Environmental Technology Group	
Title/Name	Manager : Etsuo Kobayashi / Chief : Takako Fukuda	
Contact	<TEL> +81-92-533-0300 / +81-92-523-1641	
	<Mail> <a href="mailto:e-koba@kyudenko.co.jp">e-koba@kyudenko.co.jp</a> / <a href="mailto:ikai@kyudenko.co.jp">ikai@kyudenko.co.jp</a>	

## Description of Product and Technical Expertise

<Corporate PR> Kyudenko provides “Integrated Utilities Engineering Service.” We aim to be a reliable company for communities by achieving the harmony of themes, “People,” “Environment” and “Engineering Skill.” We develop our businesses by meeting the diversified clients’ needs, providing high-quality works and becoming more community-based company. In overseas, we have expanded business bases in 6 countries such as Malaysia, Singapore, Taiwan, Thailand, Vietnam and Indonesia to take advantage of our accumulated management resources effectively.

### <Information of Product and Technical Expertise>

● **“NADH air flow control system”** ~Denitrification system of energy conservation type~  
(Collaboration Research of Three Groups; Fukuoka City, JIWET and Kyudenko)

Based on the numerical value calculated by NADH, pH and DO sensor, automatic open/ close of the electric valve, the number of blowers and rotation speed are controlled. In the aerobic tank, nitrification reaction and denitrification reaction can occur simultaneously by providing Supplied air flow adjusting to influent loading. Thus, the capacity of anaerobic tank can be lower to one-fourth to one-third and nitrified liquid circulation rate can be lower to one-half compare with A<sub>2</sub>O process. Therefore, it is the technique that utilizes the existed facilities to advanced wastewater treatment and energy saving with the reaction tank’s capacity of conventional activated sludge process. ☆Technical Manual was published (2015)

☆ The 52nd Sewage Research Presentation (2015): Excellence Award

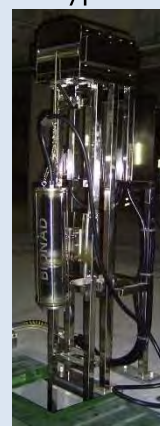
● **“Cocktail Air-conditioning equipment”**

~ Comfortable Air Conditioning Environment with Energy-Saving ~

(Collaboration Research : Engineering Dept. of Kumamoto University and Kyudenko)

The heat exchanger is divided into more than 2 levels. Water-cycle control valve of the heat exchanger of each level can open/close and control flow volume. These techniques leads to dehumidification of air at low-load without re-heating since cooled and dehumidified air and normal air are mixed; therefore, when it is 28°C inside the room, the humidity can be kept less than 60% for the comfortable environment.

☆ The society of Heating, Air-Conditioning and Sanitary Engineers of Japan: The Award of The Promotion of Engineering Technology (2013)

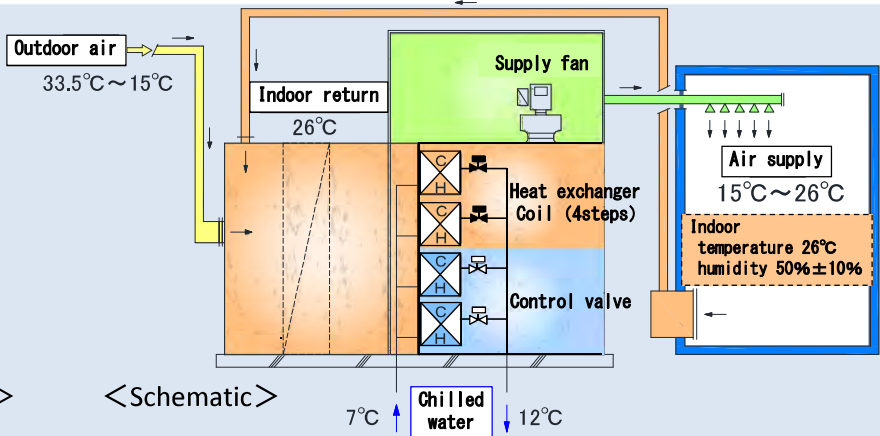


< NADH sensor >

# Description of Product and Technical Expertise



< Cocktail Air-conditioning equipment >  
(Supply air volume 7,800m<sup>3</sup>/hr)



< Schematic >

## ● Skill Olympic

Kyudenko has won 10 gold medals in the Skill Olympic since 1964. Besides winning the honor, our target is passing down technology and skill to our youth engineers. Remarkably, we won two Consecutive Japanese Champion title in 2013 and 2014. In 2015, our engineer joined the World Skills Olympic Sao Paulo Brazil as a Japanese representative and he won bronze medal.



## < Main Business result >

### ● Electrical Work and Air Conditioning Mechanical Installation Work

☆ Functions as "Integrated Utilities Engineering Service" for various scenes



< Roppongi Hills >



< JR HAKATA CITY >



< MIYATA Plant, TOYOTA MOTOR KYUSHU >

### ● Renewable Energy Generations

☆ Encouraging Renewable Energy Resource for a Future



< Nanatsu Island Mega Solar Power Station >  
(Max output of 70MW)

### ● Overseas Work (Singapore)

< Installation and Maintenance work >



# Description of Product and Technical Expertise

## ● Environmental Facility Installation Work

### 【Wastewater treatment plant/Rural sewerage plant】

☆ We have many execution experiences of rural sewerage projects. (About 100 Projects)



### 【Exudation Water Treatment Plant】

☆ We execute from landfill facility to Exudation Water Treatment Plant contributing the community to protect its environment.



< Final landfill site view >

### 【Waterworks plant (Membrane and Filtration Facilities)】

☆ Providing the proposals for water treatments targeting the optimal system for various cases is our mission.



< RO membrane facility >



< Sand filtration facility >



< Deiron Demanganese facility >

### 【Resource Circulation】

☆ We propose the system that composts and carbonizes sewage and sludge to the beneficial utilization such as fertilizers and soil improvers.

☆ For water treatment, depending on clients' needs, we propose systems of greywater.



< Sludge Recycle Treatment Complete view >



< Carbonizing furnace >

### 【Industrial wastewater treatment plant】



☆ We provide for facility proposals for high cost-performance and easy maintenance when it is newly design, remodeled, upgraded and extended. Executed experiences are food /meat/fisheries factories and so on. We serves total engineering services from research, design, execution to its maintenance.



< Exudation water treatment plant >



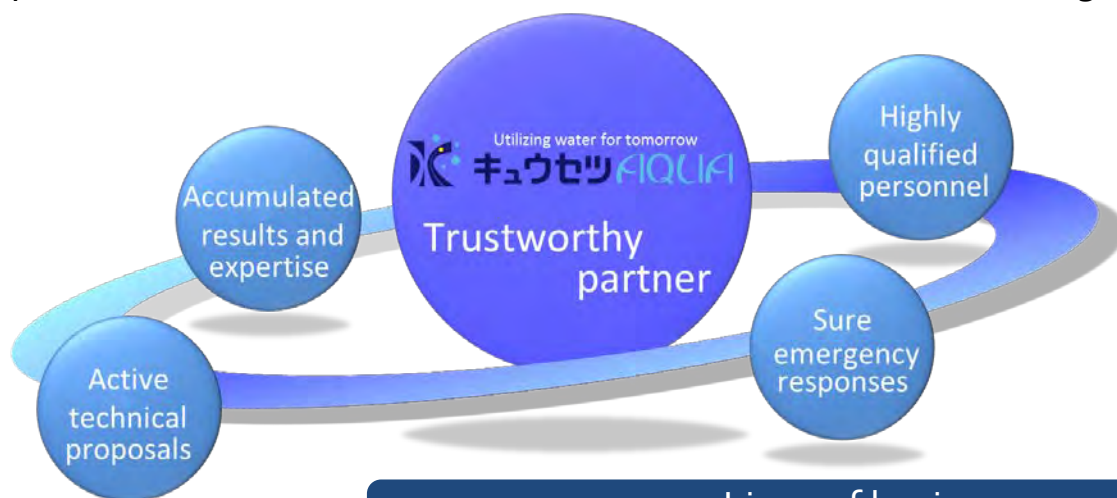
Corporate Name	Kyusetsu AQUA Co.,Ltd.
HQ Address	1-3-10, Hakataeki Higashi, Hakata-ku, Fukuoka-shi
Branch Office Address	-
URL	http://www.kyusetsuaqua.co.jp/
Company Outline	<Representative> Akio MIYAGAWA
	<Established> July 20,1965
	<Capital> 50 million yen
	<Employees> 648 (as of April 1, 2017)
	<Overseas Network> None
	<Description of Business> Maintenance and management of water supply and sewage facilities
Department	Corporate Planning Department, Planning Section
Title/Name	Manager/Takeshi MASUDA
Contact	<TEL> +81-92-451-2821
	<Mail> kikaku@kyusetsuaqua.co.jp

## Description of Product and Technical Expertise

<Corporate PR>

We respond to the requirements of customers to continue to be a **trustworthy partner**.

We respond precisely to the various requirements of customers and work to continue to be a trustworthy partner, through operation management that utilizes the proven results and experience that we have built up over many years and active efforts to make a contribution to the local regions.



### Lines of business

- Operation and maintenance of water supply facilities
- Operation and maintenance of sewage facilities
- Operation and maintenance of wastewater treatment facilities
- Collection and transportation of general and industrial waste

# Description of Product and Technical Expertise

## <Information of Product and Technical Expertise>

### 1. Proven results and expertise accumulated over time

We respond to the requirements of customers with operation and maintenance that utilizes the proven results and expertise that we have accumulated so far. We are not excessively bound by established practice and experience and exhibit a strong ability to respond to new technologies and management methods in order to manage the important facilities.



### 2. Technical proposals from the viewpoint of the customer to realize optimal operation management

We have now progressed from the era of the construction and expansion of water supply and sewage facilities to an era when the focus is on operation and management and there are an increasing variety of management formats. Kyusetsu AQUA supports the business of customers by actively proposing technologies for "improved quality in operation management" and "cost reduction."



### 3. The assignment of highly qualified personnel

Kyusetsu AQUA has many people who are qualified in operation management and maintenance management. We provide various supports for our employees in the acquisition of qualifications and assign many qualified personnel to facilities to realize the optimal management of those facilities.



### 4. Speedy and precise emergency responses

When disasters or other emergency situations arise, we minimize the effects of damage and prevent problems for civic life before they occur. In addition to a rapid initial response and the emergency assignment of personnel, we also ensure preparedness through the production of response manuals and periodic training to strengthen response capabilities.



### 5. A business rooted in local communities

We do not limit ourselves to the operation management of water supply and sewage facilities. We also perform a wide range of activities so that we can progress together with the people of local societies as their partner. This includes cleaning activities and voluntary activities in the areas around the facilities and also events that invite local residents.



Firefly rearing



Local cleaning activities



Support for sewage fairs, etc.

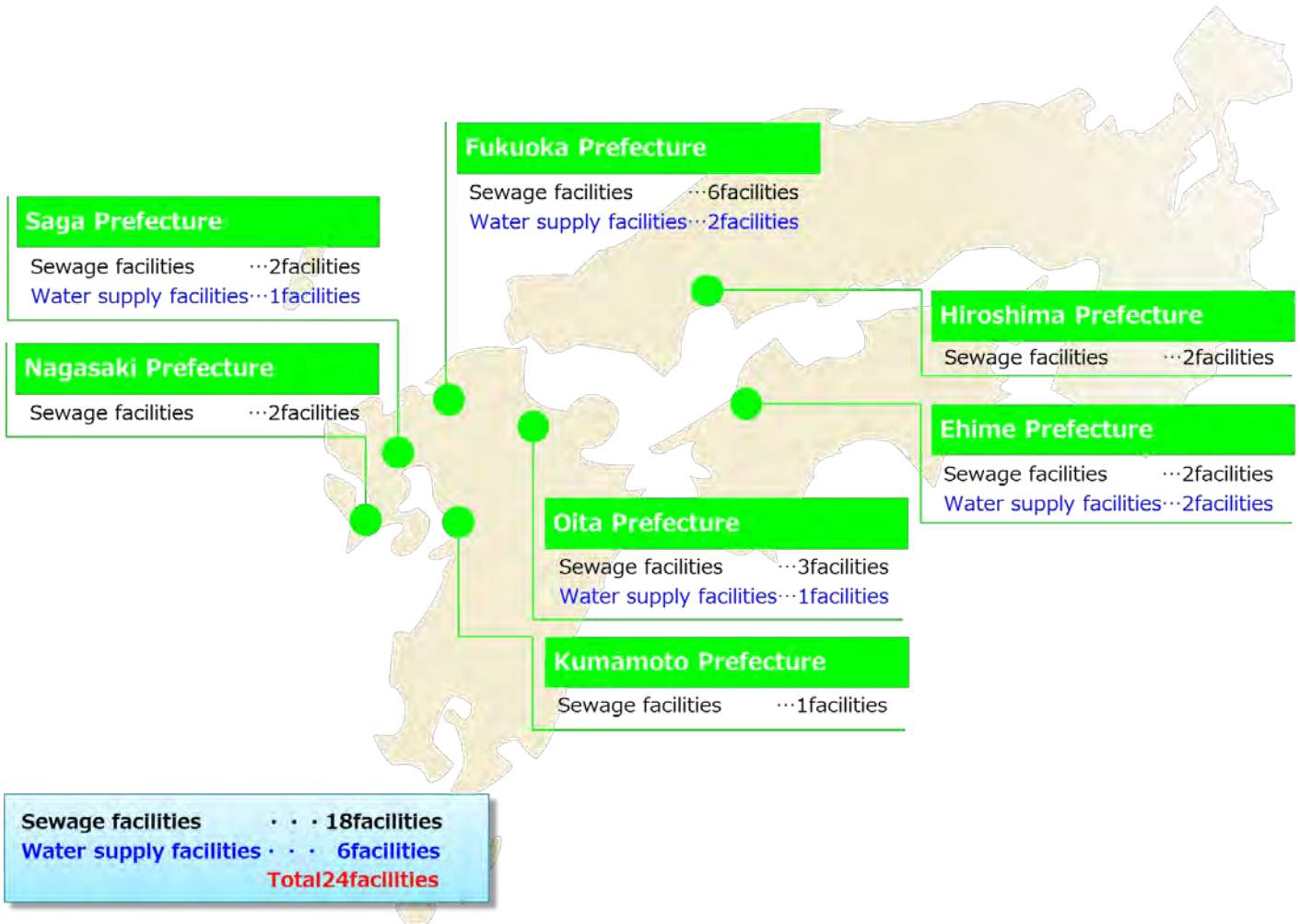


Vegetable harvesting events

## Description of Product and Technical Expertise

### <Main Business result>

Kyusetsu AQUA works mainly in western Japan and has been entrusted with operation management work for water supply and sewage treatment facilities at 24 locations in seven different prefectures.



Corporate Name	LDT RESEARCH INSTITUTE	
HQ Address	3-3-5-203 Minamisyo,Sawara-ku,Fukuoka-shi,Fukuoka,Japan	
Brach Office Address	—	
URL		
Company Outline	<Representative>	kiyoshi KIYAMA, President
	<Established>	May 1, 2014
	<Capital>	¥1 million
	<Employees>	1
	<Overseas Network>	—
	<Description of Business>	<ul style="list-style-type: none"> <li>• CONSULTING SERVICES OF RELATES ON THE PIPE LINE MANAGEMENT</li> <li>• RESEARCH AND HUMAN RESOURCE DEVELOPMENT TRAINING ON THE PIPE LINE MANAGEMENT</li> <li>• COMMISSION BUSINESS OF VARIOUS SURVEYS ON THE PIPE LINE MANAGEMENT</li> </ul>
Department		
Title/Name	Kiyoshi KIYAMA	
Contact	<TEL>	+81-92-845-4868 +81-90-3050-1729
	<Mail>	kiyoshi.kiyama@gmail.com

## Description of Product and Technical Expertise

### <Corporate PR>

KNOWLEDGE AND EXPERIENCE OF 33 YEARS ON A PIPE LINE MANAGEMENT  
ACTIVITIES OF OVERSEAS TECHNICAL COOPERATION PROJECT

### <Information of Product and Technical Expertise>

(TRAINING OF NON-REVENUE WATER REDUCTION)



(LEAKAGE SURVEY)



## Description of Product and Technical Expertise

### <Main Business result>

- PROJECT FOR ENHANCEMENT OF WATER SUPPLY MANAGEMENT OF ZANZIBAR WATER AUTHORITY PHASE2 「LEAKAGE DETECTION」
- LEAKAGE SURVEY FOR WATER SUPPLY IMPROVEMENT PLAN PREPARATORY SURVEY IN PALAU
- THE FEDERAL CAPITAL TERRITORY REDUCTION OF NON-REVENUE WATER PROJECT IN NIGERIA 「LEAKAGE DETECTION TECHNOLOGY」
- INTRODUCTION OF THE PROJECT FOR NON-REVENUE WATER REDUCTION IN YANGON 「NON-REVENUE WATER REDUCTION」



(INDOOR TRAINING AT ZANZIBAR)



(LEAKAGE SURVEY AT PALAU)



( SITE TRAINING AT NIGERIA)



(SITE VISIT AT YANGON)

Corporate Name	NEXT ENGINEERING CO.,LTD.	
HQ Address	6-22-47 Tsukikuma, Hakata-ku, Fukuoka-shi, Fukuoka,Japan	
Brach Office Address	2F, 4-1-18, Tenjin, Chuo-ku, Fukuoka-shi, Fukuoka,Japan	
URL	http://www.eco-valve.net/	
Company Outline	<Representative>	Akio UCHIDA
	<Established>	October 1,1992
	<Capital>	¥20 million
	<Employees>	26
	<Overseas Network>	Korea, Taiwan, Vietnam
	<Description of Business>	Construction. Under Pipeing(Drilling)
Department		
Title/Name	Vice President Masahiko UCHIDA	
Contact	<TEL>	+81-92-583-3205
	<Mail>	nexteng.tenjin@gmail.com

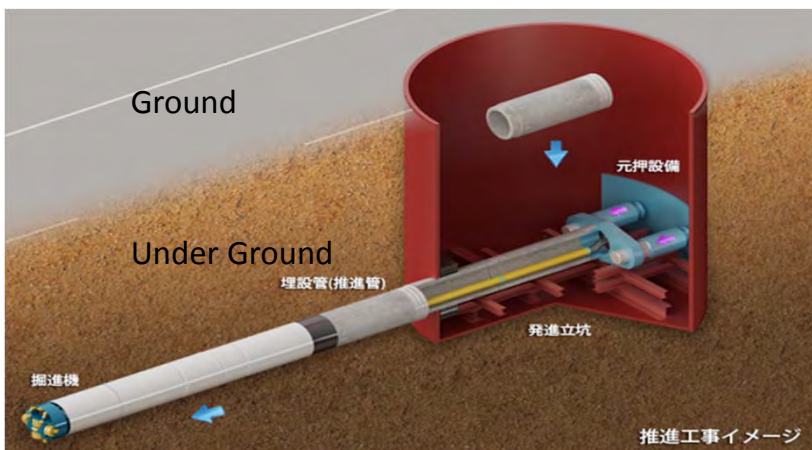
## Description of Product and Technical Expertise

### <Corporate PR>

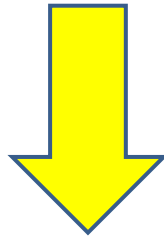
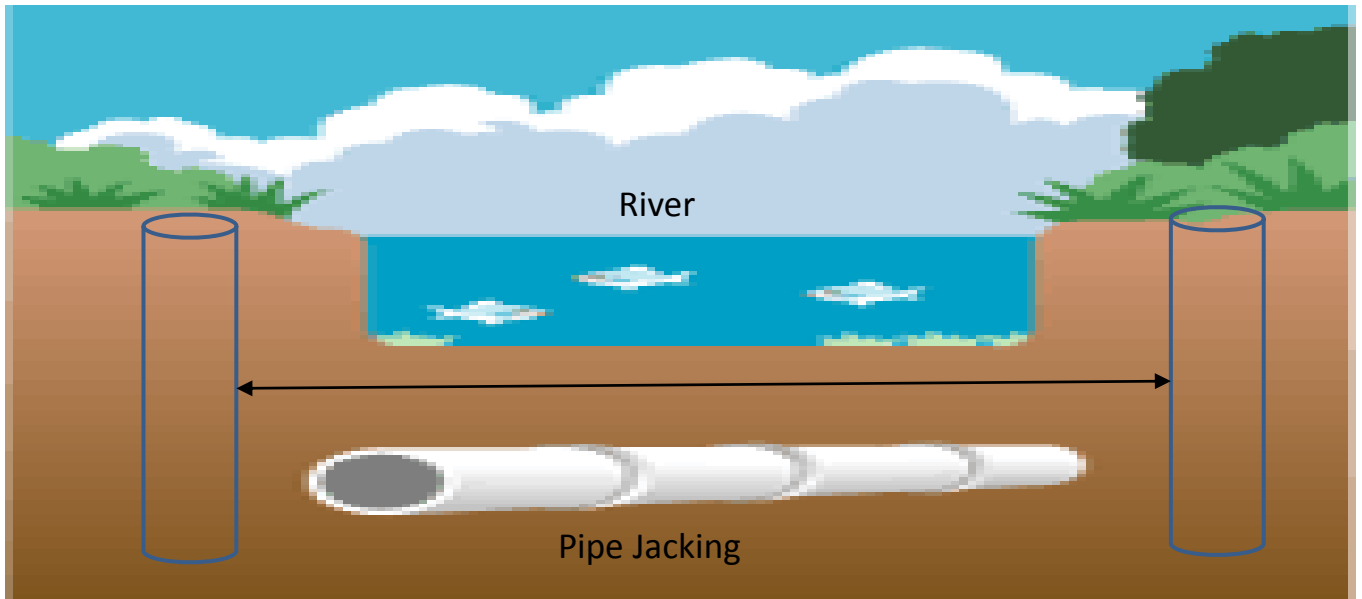
We have done much constructions( especially under pipeing,drilling)for 25years in Japan and the World( Korea, Taiwan).  
 We are sure that we can use this technique and the knowledge all over the world(especially south east Asia, Vietnam or Cambodia, Myanmar).

### <Information of Product and Technical Expertise>

- Pipe jacking method( $\phi 200 \sim \phi 3,000$  enabled)
- Manufacturing of Pipe jacking machine.
- Ground Survey.
- Ground Improvement.



## Description of Product and Technical Expertise



### <Main Business result>

The whole area of Japan(many case in Okinawa)/ Korea/ Taiwan/Vietnam(expect)/ Cambodia(expect)

Corporate Name	Seiko Electric Co., Ltd.	
HQ Address	2-7-25 Toko,Hakata-ku, Fukuoka-shi,Fukuoka,Japan	
Branch Office Address	KOGA FACTORY :3-20-1 Tenjin Koga-shi, Fukuoka, Japan TOKYO BRANCH:2-5-12 Higashikanda ,Chiyoda-ku, Tokyo, Japan	
URL	http://foreign.seiko-denki.co.jp/lang-en/	
Company Outline	<Representative>	Yasuyuki FUKUSHIGE
	<Established>	May ,1921
	<Capital>	¥2,323 million
	<Employees>	Non-Consolidated No. of Employees:609 Consolidated No. of Employees:910
	<Overseas Network>	Dalian Seiko Electric Control Co.,Ltd./Beijing Seiko Electric Group Co.,Ltd./Beijing Presentative Office/Seiko Electric Asia(M) Sdn,Bhd. /Seiko IT Solution Philippines Inc./Singapore Presentative Office
	<Description of Business>	Manufacturer/sale of electrical equipment, control system and the battery system for power grid/local government. Manufacturer/sale of electrical components. Provide SaaS service with the data center. Manufacturer/sale of crystal liquid sheet.
Department	International Business Development Dept.	
Title/Name	Senior Manager/Akira ONIKI	
Contact	<TEL>	+81-92-473-9082
	<Mail>	a-oniki@seiko-denki.co.jp

## Description of Product and Technical Expertise

### <Corporate PR>

Our control technology cultivated in Japan has been developed into China/ Southeast Asia.

[China]Dalian: Manufacturer and Sale of Switchgears and Control Systems.

New service: Electric Equipment Diagnosis

[China]Beijing: Engineering and Sale of Electric, Mechanical and Electric Systems and Control Devices

[Malaysia] Manufacturer and Sale of Control instruments and Formed parts

[Philippines]Development and Sale of System Integrations and Software

[Singapore] Development of new business and local partner for the South East Asia

### <Information of Product and Technical Expertise>

[China]Dalian: Manufacturer of electrical equipment switchgears and junction box



Dalian Seiko Electric Control Co.,Ltd.





## Description of Product and Technical Expertise

[Malaysia] Manufacturer and sale of Switch, Terminal Block and Plastic Molding



Seiko Electric Asia(M) Sdn,Bhd.

Use by power grid company in Singapore/Malaysia

[Philippines] Providing IT service for manufacturing and office and IT system development



**-Implementation for production controls system and desktop management system**



**-IT System development**

Seiko IT Solution Philippines,Inc.

Our services are provided mainly for Japanese manufacturing companies in the Philippines. Support services in Japanese language.

[New business/products]



Electric storage system for factory, building and home. Support solar power system.



Example of the Office Glass Partition  
SILF has been stuck on the existing glass partition in the office.



Utilize functional liquid crystal film for Digital signage and Office partition.



Dehydration processing system with special technology



Software related with port business with the data center

### <Main Business result>

Central and various government offices/Electric and Gas Companies/Environment Plant Companies/ Automobile,Ship Building Plant/Iron,Steel,Nonferrous Metal Companies/Electrical Machinery Plant/ Science,Chemical,Food Products,Paper Manufacturing Companies/Construction Companies/ Power plant,railways,steel manufacturing in China/Panel builder for Singapore / Malaysia power grid/Japanese companies in the Philippines

Corporate Name	Shokaku Construction Co.,Ltd.	
HQ Address	1-5-1 Hakataeki Mae, Hakata-ku, Fukuoka-shi, Fukuoka, Japan	
Brach Office Address	—	
URL	http://shokaku-iso.com/	
Company Outline	<Representative>	Eiji NAKAO
	<Established>	February 16,1995
	<Capital>	¥60 million
	<Employees>	63(as of December 1, 2015)
	<Overseas Network>	—
	<Description of Business>	Construction (execution management)
Department	The sales division	
Title/Name	Manager / Toru FUKUMOTO	
Contact	<TEL>	+81-92-411-1510
	<Mail>	eigyoun@shokaku-iso.com

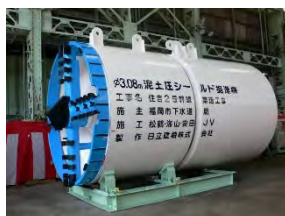
## Description of Product and Technical Expertise

### <Corporate PR>

We have a number of achievements about water supply, sewage, and rainwater (shield method, pipe jacking method, pipeline registration method, facilities for storage of rain water, and so on). Managing to construct them, We will contribute to the strong urban development in disaster.

### <Information of Product and Technical Expertise>

<3,000mm Shield machine>



<Pipeline Registration>



<a facility for storage of rain water>



<Water Pipe >



<Large scale water pipe>



We have experienced many measures of reducing noise ,vibration and dust.

We can construct all about water ,sewage and rainwater (from pipe lines to facilities).

## Description of Product and Technical Expertise

### <Main Business result>

#### ● Sewage and Rainwater

- Sewage pumping stations
- Facilities for storage of rain water
- Sewage treatment plants
- New pipe lines (Shield method, Jacking method, etc.)
- Pipeline Registration

#### ● Water

- New Pipe lines (Jacking method, Open cut method, etc.)
- PAC reservoirs
- Distributing reservoirs

### <Our main customers (Japan)>

Fukuoka City Hall

Tokyo Metropolitan Government

Ministry of Land, Infrastructure and Transport (MLIT)

Fukuoka Prefectural Government

Japan Sewage Works Agency

<Yukuhashi-Shi, Fukuoka, Japan  
Sewage treatment center>



<Tokyo, Sewage Box culvert pipe>



### ※Main Awards

- Excellent Work Commendation  
(MLIT, Fukuoka City Hall, Tokyo Metropolitan Government)
- Construction excellent grades company  
(MLIT, Tokyo Metropolitan Government Bureau of Sewerage)
- Excellent construction administrator  
(MLIT, Tokyo Metropolitan Government)

Corporate Name	TAIKI CHEMICAL INDUSTRIES CO.,LTD.	
HQ Address	1-9-4 Higashihama Higashi-ku Fukuoka-shi,Fukuoka,Japan	
Brach Office Address	—	
URL	http://www.taiki-y.co.jp	
Company Outline	<Representative>	Koichi MIYAKE, President
	<Established>	October 1,1965
	<Capital>	¥170 million
	<Employees>	52
	<Overseas Network>	—
	<Description of Business>	Production and sale of industrial chemicals
Department	Overall planning section	
Title/Name	Chief director/ Tomohiro NISHIGUCHI	
Contact	<TEL>	+81-92-641-5736
	<Mail>	nishiguchi@taiki-y.co.jp

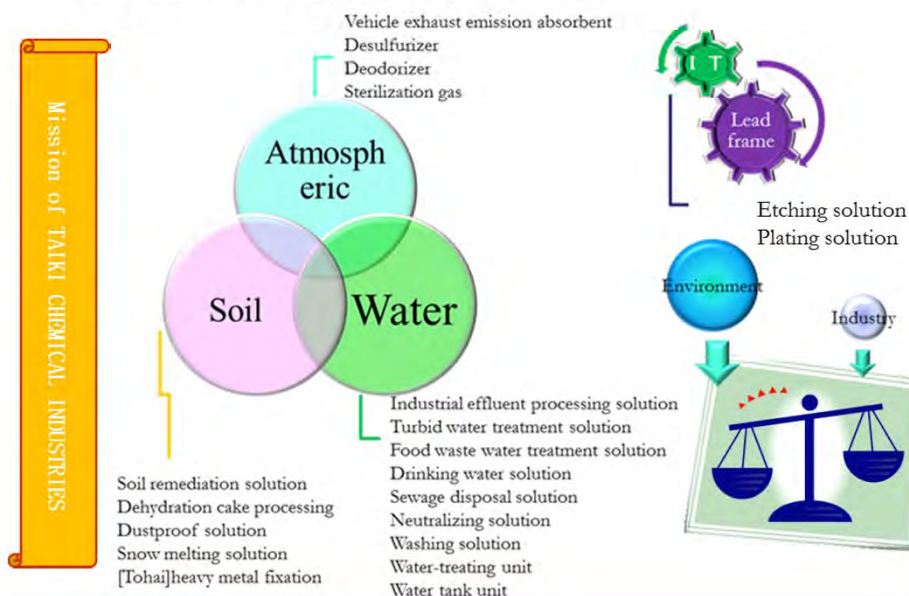
## Description of Product and Technical Expertise

### <Corporate PR >

#### In the Biginning

We assume the contribution to the harmony of the person,the society,and environment through the chemical industrial medicine business to be a mission.

A chemical industrial medicine  
 It is used for the realm of healing etc. that keep to home appliance,  
 the communication electronics,the machine,the car,etc.  
 and the healthy life that offers convenience for the miscellaneous product and  
 the life realated to clothes,food,and the living necessary for our life as an  
 integral material on the raw material or the manufacturing process.  
 It is used to defend the global environment "Earth" , " Atmosphere" that  
 gives not bounds but the blessings we to men " Water" .



# Description of Product and Technical Expertise

<Information of Product and Technical Expertise>

## 2. Business value (1)

It corresponds,,customer need,,fine flexibility → High customer satisfaction

Solution to a problem

- High-quality solution concerning chemicals for water treatment and solve the integrated problem powered by advanced knoehoe.
- System of manufacturing of person and new inorganic system polymer flocculant that can reduce soil environment gently.
- System that customer's "Amount and quality that is necessary" can be supplied to "Time that is necessary"
- Thorough technical service matched to trust and customers' needs from 2500 customers.
- System of supply of high-quality etching solution to leading electronic parts
- Contribution to environmental protection by drain load decrease by recycling business of etching drainage.
- Separation collection technology of copper and nickel at high purity level from etching drainage
- Analysis Data of examination body of more than 700 factories and over the 4,000 or more accumulation and possession

Awareness of customer's needs

Collective strength

The overall problem solving proposal

Manufacturing function

+

Trading company function  
(proposal function)

+

Stock and physical  
distribution function  
(wholesale store function)

Manufacturing sales of water treatment solution

Manufacturing sales of etching solution

Collection of rare metal

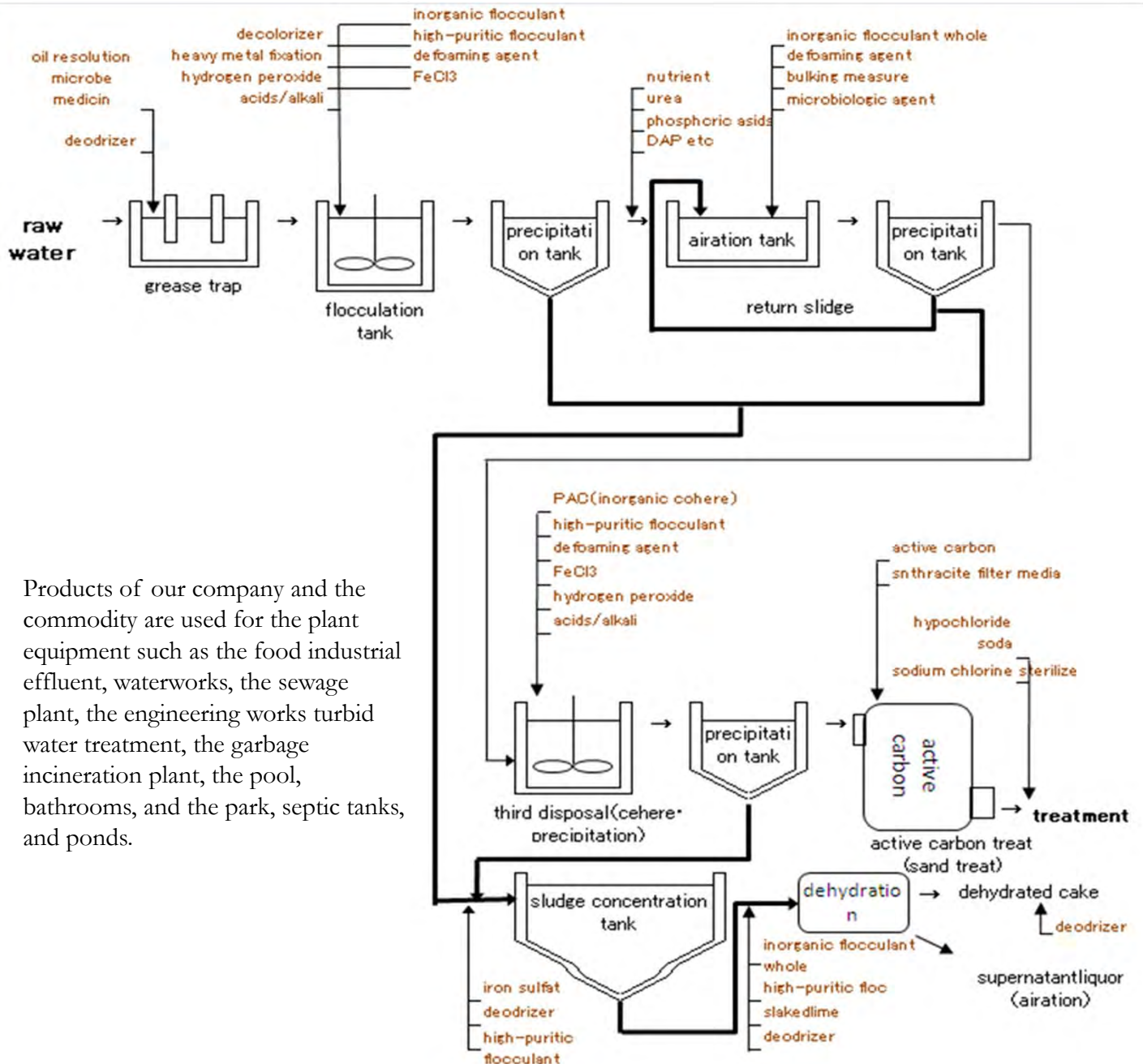


## <Information of Product and Technical Expertise>

### 2. Business value (2)

#### ◇Proposal case with water processing business

—Case of industrial effluent—



Products of our company and the commodity are used for the plant equipment such as the food industrial effluent, waterworks, the sewage plant, the engineering works turbid water treatment, the garbage incineration plant, the pool, bathrooms, and the park, septic tanks, and ponds.

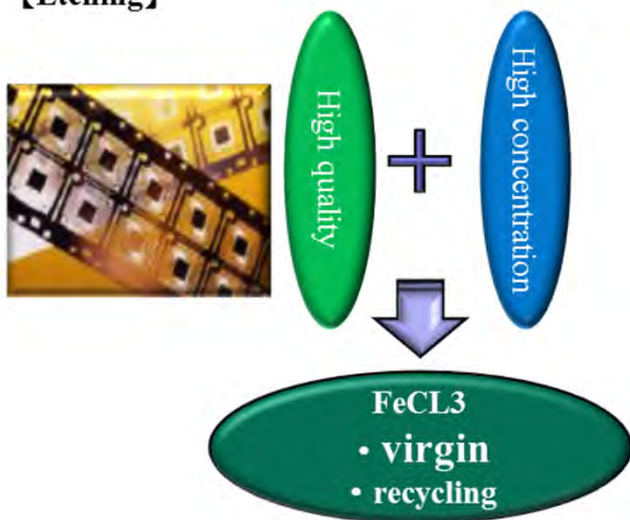
<Information of Product and Technical Expertise>

## 2. Business value (3)

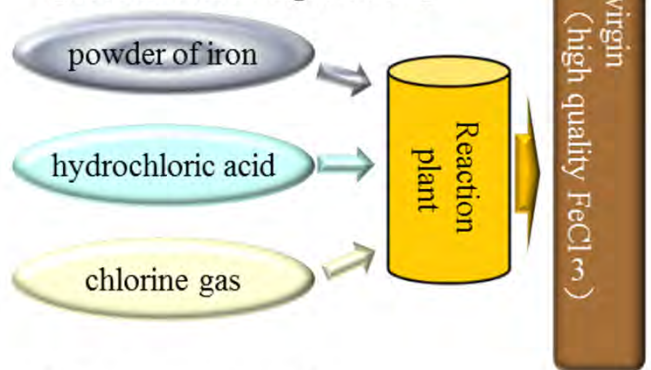
### ◇ Proposal case with printed circuit board and lead frame etching solution.

In the process of manufacture of the lead frame, there are a press working and an etching. The etching lead frame that forming processes shape to a metallic board by the etching by using the chemical is suitable for a complex lead frame of shape with high design degree of freedom and the production of a small amount of many varieties. Moreover, the metal of high-level purity is extracted from the etching drainage.

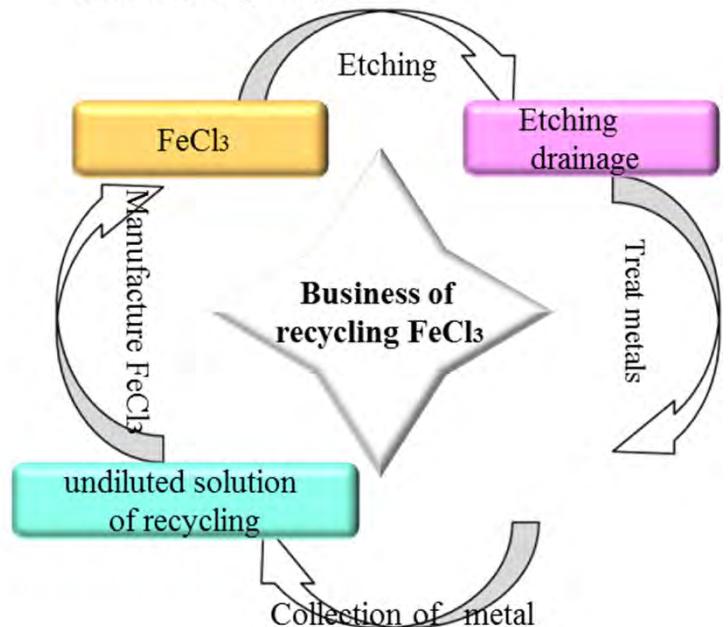
#### 【Etching】



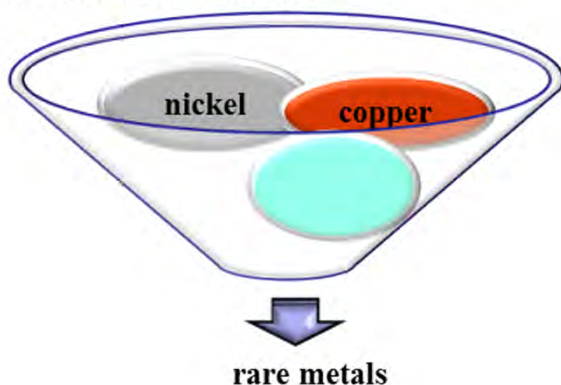
#### 【Manufacture virgin FeCl<sub>3</sub>】



#### 【Flow of recycling】



#### 【Collection of rare metal】



Corporate Name	TENOX KYUSYU CORPORATION 株式会社 テノックス九州 — TENOX KYUSYU CORPORATION —		
HQ Address	4-1-11, Tenjin, Chuo-ku, Fukuoka-shi, Fukuoka, Japan		
Branch Office Address	—		
URL	http://www.tnx.co.jp		
Company Outline	<Representative>	Koji MATSUO , President	
	<Established>	December, 1982	
	<Capital>	¥20 million	
	<Employees>	110	
	<Overseas Network>	Vietnam, Singapore, Myanmar, Cambodia	
	<Description of Business>	<p>-Soil improvement works TENOCOLUMN Method (deep mixing method) Column Approach Method (gap leveling) Chain Conveyor Cutter Method (deep mixing method)</p> <p>-Pile construction TN Method (steel pipe pile installation by inner excavation) GANTETSU PILE Method (soil cement pile method) ATT Column Method (soil cement pile method) EAZET Method (steel pipe pile with blade)</p>	
Department	Overseas Business Division		
Title/Name	General Manager / Hirofumi USUI		
Contact	<TEL>	+81-92-722-1792	
	<Mail>	usui-h@tnx.co.jp	

## Description of Product and Technical Expertise

### <Corporate PR>

Tenox Kyushu Corporation was established in Dec .1987 as a spin-off of Tenox Corporation taking a role of Kyushu Branch. We are specialized in foundation works that support structures in architecture and civil engineering fields based on our ability in technological development.

Our major business line includes an environmentally friendly soil improvement method, TENOCOLUMN Method, a pile installation by inner excavation TN/CMJ method, a steel pipe pile GANTETSU PILE method.

We will constantly address the challenges of 21st century through the continuous development of environmentally friendly construction methods that meet the demands of the modern society, while aiming to solve the issues having future oriented and creative mind based on our solid technology and information of soil and foundation works.



## Description of Product and Technical Expertise

### ◁Information of Product and Technical Expertise▷

#### ◆TENOCOLUMN is a high-quality

TENOCOLUMN is a high-quality soil cement column produced by mixing cement slurry with in-situ ground soil. We have executed over 25,000 projects in Japan and over 100 projects overseas, for which we received high evaluations. Countries of past projects: Vietnam, Singapore, South Korea, Myanmar

#### ◆TENOCOLUMN is well settled into surrounding ground.

TENOCOLUMN is a high-quality soil cement column; cement slurry produced from cementitious material is injected into the ground while mixing it mechanically with in-situ soil.

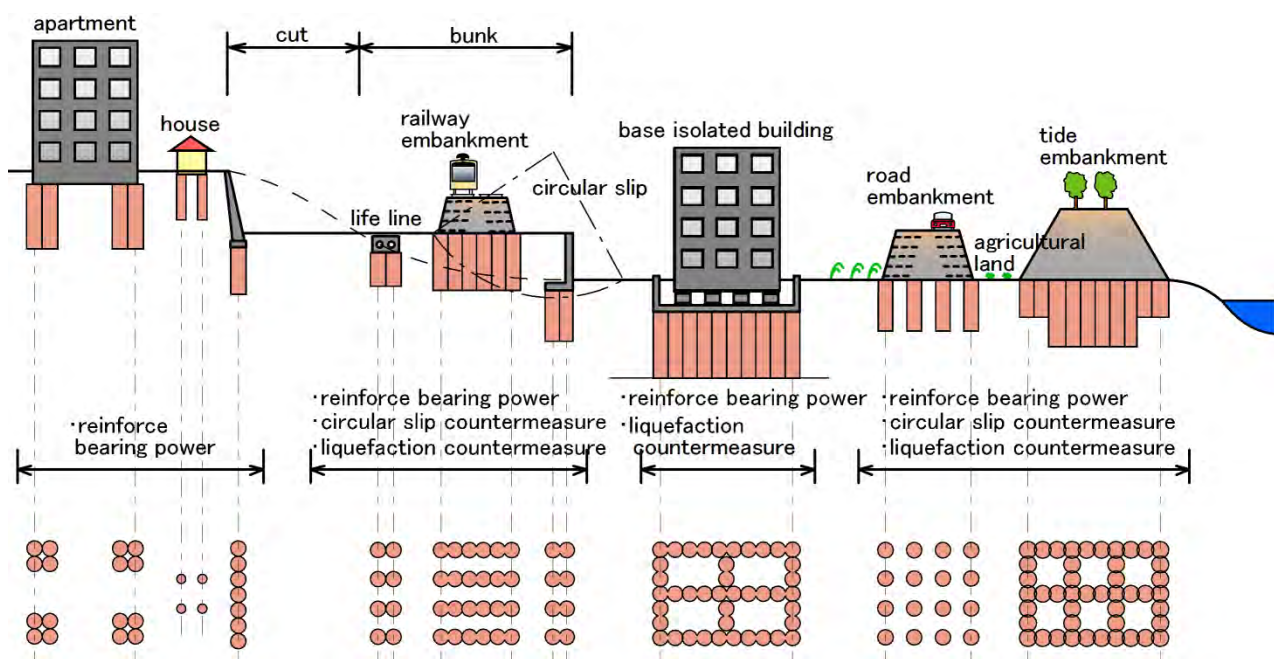
(Deep Soil Mixing Method - DSM or DMM)

Cement slurry is produced by mixing water and cementitious material of proper dosage in a plant, which ensures stable quality. Chemical reaction of solidification material provides strength and durability of a column, which ensures a long-time support for a structure.

Since TENOCOLUMN is constructed by using in-situ soil, it is well settled into surrounding ground.



### ◆Applications of TENOCOLUMN

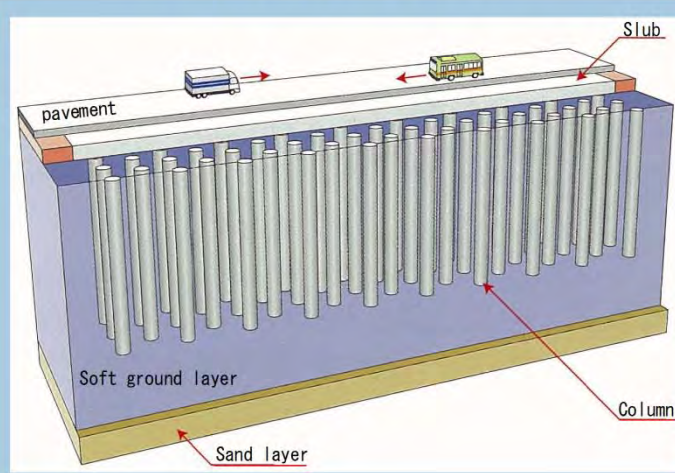


TENOCOLUMN has been adopted as a building foundation by many makers. Recently, it has been increasingly used in various places not only for the purpose of foundation but also for houses and infrastructures. This flexible method can be applied to various purposes including a liquefaction countermeasure, a vibration countermeasure, etc.

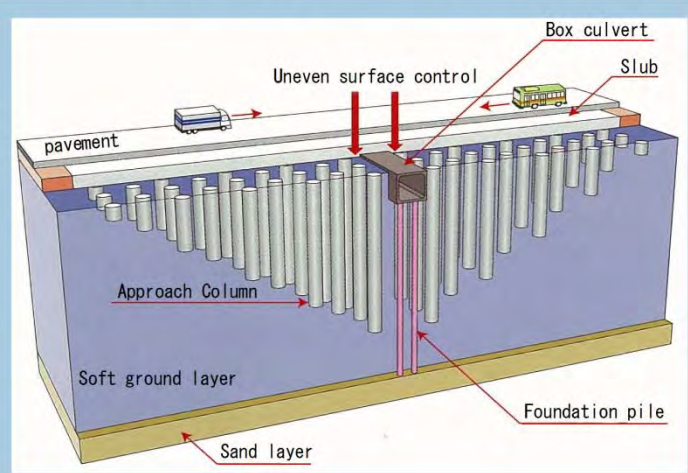
# Description of Product and Technical Expertise

TENOCOLUMN is also applied to Column Slab Method for preventing a bank settlement on the soft ground and to Column Approach Method for restraining uneven surface of a road.

## ◆ Column Slab Method



## ◆ Column Approach Method



## <Main Business result>

### ◆ Japan over 25,000 projects



### ◆ Vietnam preventing a settlement



### ◆ Singapore express highway



### ◆ Myanmar preventing a settlement



Corporate Name	Mikasa Co., Ltd.
HQ Address	1-16-14 Ekihigashi, Hakata-ku, Fukuoka-City
Branch Office Address	-
URL	<a href="https://mikasakk.co.jp">https://mikasakk.co.jp</a>
Company Outline	<Representative> Kazuo KURASHIGE
	<Established> January 17, 1975
	<Capital> ¥ 30 million
	<Employees> 390 people (in current of October 2021)
	<Overseas Network> None
	<Description of Business> Environmental plant management business Building management business Dispatching business CSR promotion business Public management business
Department	Asset management department
Title/Name	Senior Manager Ryoichi YANO
Contact	<TEL> +81-92-431-3829
	<Mail> <a href="mailto:info@mikasakk.co.jp">info@mikasakk.co.jp</a>

<Corporate PR>



# NEW AGE NEW CHALLENGE

IT IS DEPENDING ON THE HUMAN ACTIVITIES WHO CAN EITHER CREATE OR DESTROY THE ENVIRONMENT. WE CONSTANTLY STRIVE TO IMPROVE THE AWARENESS AND TECHNOLOGY, MAKE PRESENTATIONS AND COMMENDATIONS FOR ON-SITE IMPROVEMENT PROPOSALS WITH THE ASPECT OF COMMUNICATION ACTIVITIES. WE ALSO MAKE THE WHOLE COMPANY'S EFFORTS IN FOSTERING THE POSITIVENESS AND ASPIRATIONS FOR EVERY EMPLOYEE.

## **Main Business**

### **Environmental plant management**

- Sewage and water supply facilities management business
- Sewage sludge fuel conversion facilities operation business
- Arrays of machinery and equipment construction and technical assistant dispatching business
- Water treatment operation consulting
- Industrial waste and special waste transportation
- Industrial waste disposal operation consulting

### **Building management business**

- Building facilities(electrical machinery, air conditioning, water and drainage) operation business
- Building Cleaning and disinfecting business
- Building environmental sanitation(measurement of air environment, water analysis, insect pest control)business
- Security, reception counter, telephone operator and temporary employee placement business
- Building maintenance consulting business
- Real estate management and transaction business

### **Public facilities management business**

- Public construction designated operation and management business  
Including : Regional community center management  
Culture community center library  
Volunteer communication center  
Sports construction and training facilities  
Hall, stage facilities
- Public construction operation-service consulting business

### **CSR promotion business**

- Social contribution support business  
Including : Environment recycle promotion  
Regional Culture Development  
Fitness Health Sport and social welfare  
SDGs promotion
- Regional community center support activities
- Joint enterprise business

## <Information of Product and Technical Expertise>

### ● Sewerage facility management and operation

We will make efforts to preserve a healthy and beautiful global environment through water quality conservation.

#### Business content

In order to purify sewage such as domestic wastewater and factory wastewater that is sent through sewer pipes into a treatment facility and lead to stably flow it into rivers as environment-friendly water, We carry out to like equipment operation, equipment maintenance and inspection, and water quality analysis in consistently.

In addition, for the event of a heavy rain disaster caused by abnormal weather, which is often seen in recent years, we are working on crisis management by conducting disaster countermeasure training on a daily basis so that we can respond promptly.

#### Main business

Central monitoring, Equipment operation management, Equipment maintenance and inspection  
Water quality analysis, Carrying out the residue



Central monitoring



Maintenance and inspection



Water quality analysis

### ● Industrial water facilities management and operation and the others

Providing a safe and secure living environment for people's lives

#### Business content

Drinking water and domestic water, which are indispensable for people's lives, can be purified, supplied and treated in various ways. We support a safe and secure living environment for local people through the business that includes maintenance and inspection of water supplies, and industrial water supply facilities. We also support the maintenance and management in a wide range of water treatment facilities such as rainwater drainage and hospital wastewater treatment.

#### Main business

Central monitoring, Equipment operation management, Equipment maintenance and inspection  
Water quality analysis



Industrial water settling tank



Central monitoring office



Industrial water pump

### ● Sewage sludge solid-fuel conversion facilities operation business

Use of sewage resources effectively to reduce the burden for the global environment

#### Business content

Mikasa, Tsukishima Kikai, and J-POWER are joint ventures that can carry out an integrated system together from the design and construction of sewage sludge solid-fuel facilities to the daily maintenance and management of facilities. The co-firing and utilization of fuel products at coal-fired power plant is established by 3 companies which are engaged in sewage sludge recycling business with using the DBO method.

We are playing a role in the maintenance and inspection of equipment. We also have cultivated up the know-how based on the sewage treatment facility maintenance until the current. And we inspect the condition of the equipment on a daily basis so that the facility can operate stably.

#### Main business

Equipment operation monitoring operation · Equipment maintenance and inspection · Ordering and management of chemicals · Subsidies for trading operations · Principal component analysis



Sewage sludge solid-fuel conversion facility



Sewage sludge fuel conversion plant



Sewage sludge fuel material

Corporate Name	YAMAU Co., Ltd.
HQ Address	5-15-7 Higashiirube, Sawara-ku, Fukuoka-shi, Fukuoka, Japan
Branch Office Address	Fukuoka sales office (5-15-7 Higashiirube, Sawara-ku, Fukuoka-shi, Fukuoka, Japan)
URL	<a href="https://www.yamau.co.jp/">https://www.yamau.co.jp/</a>
Company Outline	<Representative>Tetsuya ARITA
	<Established> April, 2021 (February, 1958)
	<Capital> ¥100 Million
	<Employees> 230
	<Overseas Network> -
	<Description of Business> <ul style="list-style-type: none"> <li>• Development and design of concrete products and resin concrete products, manufacturing and sales, as well as construction</li> <li>• Construction and management of general civil engineering and building construction, pavement construction</li> <li>• Research and development concrete product-related technology</li> </ul>
Department	Overseas division
Title/Name	manager / ARADONO
Contact	<TEL> +81-92-872-3307
	<Mail> aradono@yamau.co.jp

## Introduction to the technology and products

### <Corporate PR>

Yamau Co., Ltd is a company of JASDAQ listed that the development in Kyushu for more than half a century to support the infrastructure by the manufacture of concrete products, sales, and the technical services. Not only the manufacture and sale of concrete products, Yamau company has grown into a whole service development joining the civil work-related business and also maintenance business to group companies.

### <Information of Product and Technical Expertise>

#### ◆ Product related to River

##### ● Nekusuton



To allow the green with preventing the flooding of the rivers.  
 For the balance of the construction cost is being emphasized, it has become a reasonable environmental conservation type block.



# Introduction to the technology and products

## ● Power Rock II



## ● Green Rock



Power Rock II is lighter than conventional products, thus transportation and construction can be done smoothly.

Natural stone style can be created by Green Rock and the excellent of bending properties by performing a shackle can cope with some uneven land types.

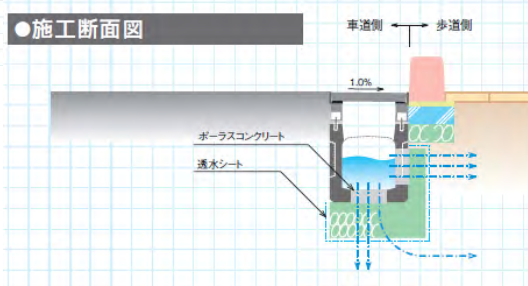
## ◆ Rainwater storage-related products

As a countermeasure to the flooding and localized river flooding due to torrential rain, it offers a product to prevent rainwater by flowing into the river and into sewerage.

### ● Infiltration drain type



It has prevented an increase in precipitation runoff by infiltration function of the ground surface, and the rainfall is allowed to penetrate into the underground, as rainwater runoff suppression.

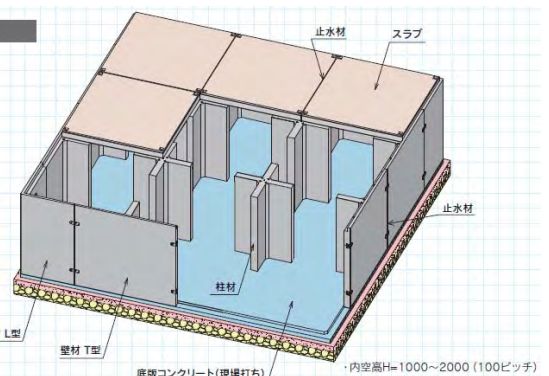


### ● Aquapond

It is to reduce the flood burden on the downstream rivers by reducing the peak discharge flood, and storing the rainwater temporarily.



### ● 敷設構造図

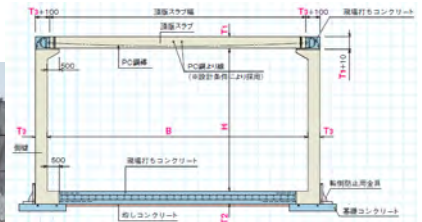




## ◆ Roads and residential land development-related products

### ● FA Box

FA box is a method to build a large cross-section box combined with a three-divided precast members and the cast-in-place concrete, shortening the construction period was made possible the laborsaving. It is used in roads and sewers.



### ● PGF (Precast guard fence)

Installation standards of protection fence has been revised in November 1998. The new standard, from the specification provisions defining the specifications of such as a conventional structure specifications, has been changed to performance provisions to define the required performance as a protective fence such as strength performance and passenger safety performance. It is used, such as in highway median strip.



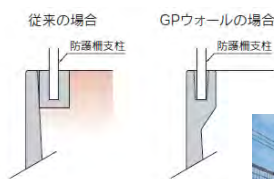
### ● Puregado II

It allowed the construction in correspondence and small machines to curve radius 15m. For guardrail post is not in the road surface, and excellent workability and the like to facilitate the pavement construction. Moreover, and by a coupling structure, we also raise economic efficiency reducing the weight.



### ● GP Wall

GP Wall, by the L-shaped retaining wall and sidewalk for guard pipe (P species) basis to integrated, it can shorten the significant cost savings and construction compared to conventional cast-in-place retaining wall.



### ● NNC (Retaining wall Ministry certified)

It is a retaining wall of residential land for the design in consideration of the landscape and environment. Because precast is possible to reduce the significant cost savings and construction compared to cast-in-place.



# Introduction to the technology and products

## 【Major Projects】

### ◆ Drainage maintenance construction of Saganoseki Baba



Place : Oita prefecture, Oita City  
Construction year : April, 2015  
Box Culvert (3500×1500)

### ◆ Traffic safety work of Saiki City



Place : Oita prefecture, Saiki City  
Construction year : March, 2015  
YT Ditch H-1500

### ◆ River improvement of Takajo town, Nishikubo



Place : Miyazaki pref., Takajo town, Nishikubo  
Construction year : March, 2015  
CV Kizuna type250

### ◆ Road improvement work at Nagahara road line



Place : Kumamoto prefecture, Taraki town  
Construction year : April, 2013  
FA BOX

### ◆ New construction at Chikushino Aeon Mall 【Construction views】



Location :  
Fukuoka Prefecture,  
Chikushino City

Construction year :  
Aug., 2008

Aquapond type S



Corporate Name	1st Solution Corporation	
HQ Address	2-5-13 Matsuyama, Jonan-ku, Fukuoka-shi, Fukuoka, Japan	
Branch Office Address	—	
URL	http://1st-solution.jp/	
Company Outline	<Representative>	Masafumi TAKADA
	<Established>	June 28, 2005
	<Capital>	¥3 million
	<Employees>	3
	<Overseas Network>	—
	<Description of Business> We produce and sell MC Construction method sludge and sewage treating equipment and offer maintenance and management service to above all as well	
Department		
Title/Name	President / Masafumi TAKADA	
Contact	<TEL>	+81-92-981-2631
	<Mail>	toiawase@1st-solution.jp

### Description of Product and Technical Expertise

#### <Corporate PR>

“MC Construction Method” is sludge dehydration technology with low initial costs and running costs, which can be transported and operated easily. By introducing "Eco Pouch" that we developed, this technology achieved significant cost reductions as compared to mechanical dehydration equipment.

#### <Information of Product and Technical Expertise>

“MC Construction Method” is a one-stop, on-site treatment system for sewage and sludge that is specialized for small scale business sites, and is comprised of transportable sedimentation/separation equipment, “Eco Pouch”, which is a flexible container bag that can be dehydrated, and flocculent, all of which has been developed by our company. This technology was also selected as a “New Partnership Program” by METI (the Ministry of Economy, Trade and Industry) in 2009. It is also registered in MLIT (the Ministry of Land, Infrastructure, Transport and Tourism) ‘s NETIS (New Technology Information System), and there are expectations for its use in water quality purification and dredging sites in closed water areas (lakes and ponds), as a measure against muddy waters that arise at construction and civil engineering sites where both budget and space are limited. In addition, there have been an increasing number of inquiries regarding "Eco Pouch" after the nuclear plant accident, from regions that are concerned about treatment of contaminated water.

## Description of Product and Technical Expertise

### “MC (Mesh Cut) Construction Method”

● Uses “Eco Pouch” and the flocculent “Flocman” that we have developed

By using our own flocculent, it is possible to flocculate and precipitate particles inside muddy water in a short period of time. It is also highly safe and has no impact on the natural environment. “Eco Pouch” enables for efficient dehydration based on a fiber with an infinite number of small holes (mesh) and a special donut-like structure. In addition, since this structure is strong, long-term storage as a flexible container bag is also possible.

● Energy-saving and easy movement. Significant reduction of sludge treatment costs

What is necessary on-site is only sludge reaction equipment that makes muddy water react with the flocculent (flocculent is added and agitated) and the “Eco Pouch”, which dehydrates sediment immediately. Utilizing only a small amount of power, transportation is possible by simply using a 2t truck. In addition, since dehydration (volume reduction) is completed on site, it is possible to reduce sludge treatment costs.



↑ “Sludge reaction equipment SR series” is developed by our company



↑ “Eco Pouch” is developed by our company



↑ Conditions of sludge inside Eco Pouch before moving out  
About 24 hours later, the sludge changed into dewatered sludge cake

### <Main Business result>



↑ Picture of MLIT project at the construction site  
Treatment of cutting wastes when dismantle the bridge



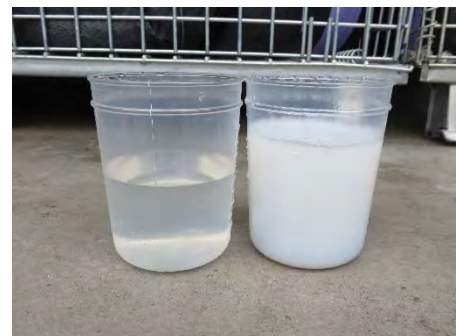
↑ Project picture of Nagano Prefecture’s soil-erosion control office at the construction site. Dredging operations for the Soil-erosion control dam



↑ Management of contaminated water from erasing radioactive contamination in Fukushima Prefecture



↑ Treating sewage from making motor car(Lexus)’s interior components  
Measuring Pot Right : Sewage Left : Treated Sewage(reused in the factory)



Corporate Name	ABB Bailey Japan Limited
HQ Address	511 Baraki, Izunokuni-shi, Shizuoka, JAPAN
Branch Office Address	1-3-8-505 Hakataekiminami, Hakata-ku, Fukuoka-shi, JAPAN
URL	<a href="http://www.bailey.co.jp">http://www.bailey.co.jp</a>
Company Outline	<Representative> Tatsuya Noguchi, President and CEO
	<Established> 1971/March/15
	<Capital> ¥ 192 million
	<Employees> approx. 250(as of 2018/Jan./1)
	<Overseas Network> 100 countries as ABB group
<Description of Business> Design, manufacture and field commissioning of automatic control system and peripheral equipment for thermal power plant, water purification and sewer	
Department	Fukuoka Technical Office
Title/Name	Manager Yoshito Nogiwa
Contact	<TEL> +81-92-292-1740
	<Mail> yoshito.nogiwa@jp.abb.com

## Description of Product and Technical Expertise

### <Corporate PR>

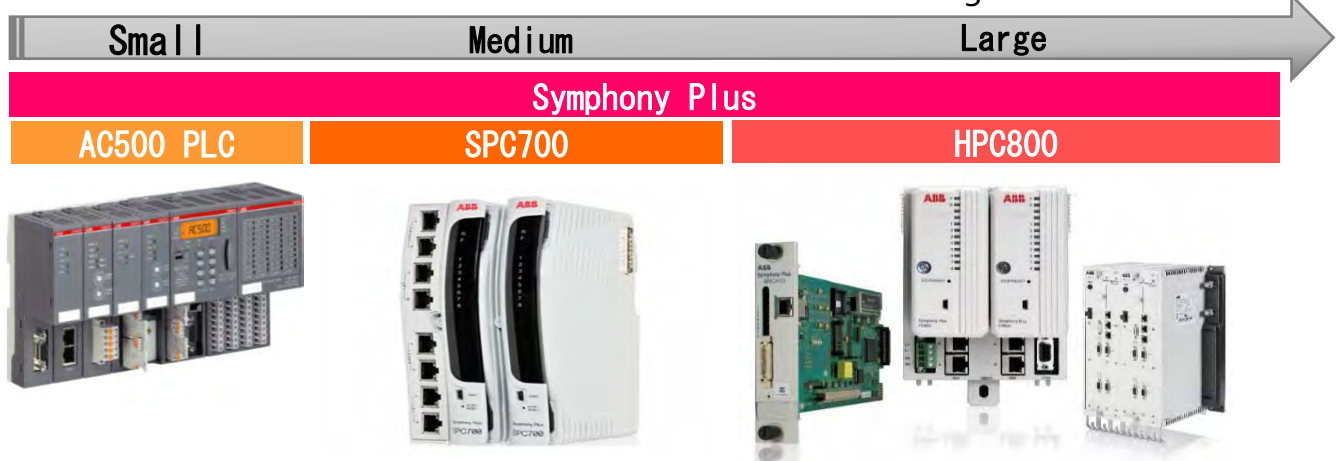
ABB Bailey Japan provides many plant control monitoring systems that are installed in facilities which require continuous operation. ABB Bailey Japan has provided control systems in Japan and abroad for over 60 years

### <Information of Product and Technical Expertise>

#### Symphony™ Plus System

The Symphony™ Plus system is a distributed control system (DCS).

And there are several models that can accommodate small to large facilities.



# Description of Product and Technical Expertise

## S+Operations System

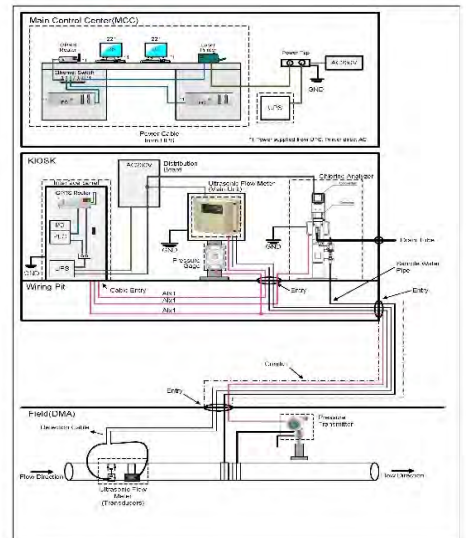
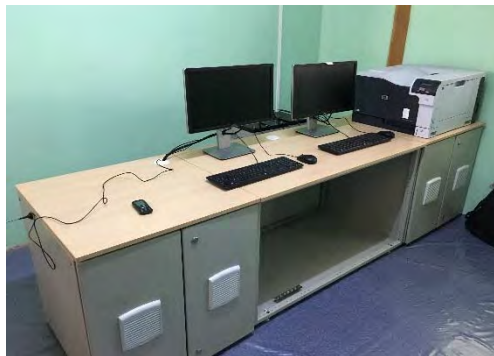
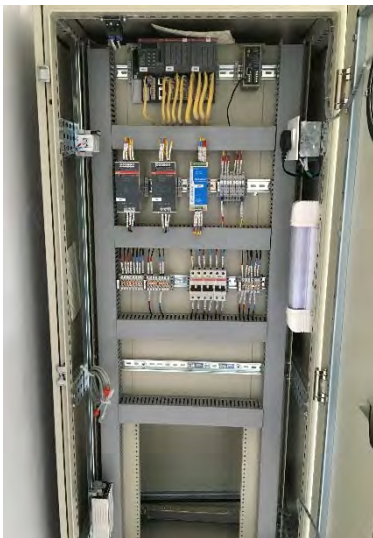
S + Operations is an integrated HMI (Human Machine Interface) device, it is an integrated system with operation / monitoring and computer functions of Symphony™ Plus system.

- Simple** system architecture serves water's diversified plant fleet
- Scalable** control platform to automate all areas within the plant
- Seamless** integration of all plant devices and systems-automation
- Secure** and reliable control environment to prevent unauthorized access



### <Main Business result>

- Yankin Pump station SCADA (Yangon City)



- Kandy City Wastewater Management Project (Sri Lanka)



<b>Corporate Name</b>	Azbil Kimmon Co., Ltd.
<b>HQ Address</b>	1-14-3, Kita-Otsuka, Toshima-ku, Tokyo, 170-0004
<b>Branch Office Address</b>	1-17-1, Chiyo, Hakata-ku, Fukuoka, JAPAN, 812-0044
<b>URL</b>	<a href="http://ak.azbil.com/en/">http://ak.azbil.com/en/</a>
<b>Company Outline</b>	<Representative> Mr. Masahiro Uenishi
	<Established> 1904/7/27
	<Capital> ¥ 3157.5 million
	<Employees> 452
	<Overseas Network> Taiwan
	<Description of Business> Water meter, Battery operated electromagnetic water meter, Hot water meter, Metering system, Gas meter, et al.
<b>Department</b>	Global Sales Department, Sales Headquarters
<b>Title/Name</b>	Ms. Noriko Okada
<b>Contact</b>	<TEL> +81-3-5980-3735
	<Mail> n.okada.5n@azbil.com

## Description of Product and Technical Expertise

### <Corporate PR>

We started to provide the first Japan-made water meters in 1913, and continue today to provide our customers with highly accurate eco-friendly-made meters.

We would like to expand the distribution of our water meters which is compliant with ISO4064 in the world commencing with East Asia.

### <Information of Product and Technical Expertise>

#### ■ Mawarina

Type : KKDA/KKDL

Diameter : 13mm, 20mm, 25mm

Ratio Q3/Q1 : R 100

Features :

- Big and eye-friendly indicator
- Angle of rotation : 330°
- Easy rotation with one hand
- Safety case

Lead-free copper alloy  
"Eco-brass"



## Description of Product and Technical Expertise

### ■ Dry type direct reading water meter (Single and Multi jet type)

Type • Diameter : NKDA 15mm,20mm,30mm,40mm

NKDL 15mm,25mm

NFDW, NFDT 50mm,65mm,75mm,100mm

Ratio Q3/Q1 : R-100

Features :

- Eye-friendly indicator

Ergonomic design

Clear and visible number in a dark place and

Anti-halation in a light place

- Safety case

Lead-free copper alloy “Eco-brass” (13~40mm)

- Simple and cost effective design

※We also have a lineup of pulse out-put type  
and Electronic type.



### ■ Battery Operated Electromagnetic Water meter

Type : MGB™12A

Diameter : 50mm,65mm,75mm,100mm,125mm,150mm,200mm

Ratio Q3/Q1 : R-200

Features :

- Compact and light design

- Easy meter-reading with back light

- Cavity shape design avoids technical failure

- IP68

- Life time of embedded battery : About 9 years



### <Main Business result>

Japan

- Conforming product of the standard for public building construction of Ministry of Land, Infrastructure, Transport and Tourism (2013)

- Waterworks of Japan (Fukuoka city water works)

Overseas

- Asia area (Myanmar, Vietnam, Sri Lanka, et al.)

- Various countries (Germany, Kenya, et al.)

Picture : Water meter which is installed in Yangon city, Myanmar





Corporate Name	CTI Engineering Co., Ltd.
HQ Address	Nihonbashi-hamacho F tower, 3-21-1 Nihonbashi-Hamacho, Chuo-ku, Tokyo
Branch Office Address	CTI Fukuoka Building, 2-4-12, Daimyou, Chuo-ku, Fukuoka
URL	http://www.ctie.co.jp/english/
Company Outline	<Representative> Kazuo Murata
	<Established> 1963/April
	<Capital> ¥ 3,026 million
	<Employees> 1,538 (CTI Group total : 3,500)
	<Overseas Network> Local subsidiaries: Myanmar, China, UK, etc. Branch office and liaison office of CTI Group: 4 countries in Asia
	<Description of Business> Providing professional consulting services related to civil engineering and construction works, including planning, research, design, and project management.
Department	International Business Division
Title/Name	Naoki Fujiwara (Director), Kazuhiro Nakamura, Yukiko Itami
Contact	<TEL> +81-3-5695-1184
	<Mail> fujiwara@ctie.co.jp, kz-nakmr@ctie.co.jp, itami-yukiko@ctie.co.jp

## Description of Product and Technical Expertise

### <Corporate PR>

As a major company in consulting engineering industry in Japan, CTI has been actively providing technical consulting services in the field of water resources, water supply, sewerage, disaster management, roads, transport, bridges and environment, etc. in coordination with group company, CTI International and local subsidiaries located in Myanmar and China.

### Overseas offices of CTI group



### <Advantages of CTI>

#### FIRST

- CTI is the first consulting engineering company to have been established in Japan, back in 1945.

#### TOP

- Awards from the Ministry of Land, Infrastructure, Transport and Tourism have averaged 81 in the last five years and this ranks CTI top among consulting engineering companies.

#### TOP

- 151 technical papers were released from CTI in 2015.
- It is top among consulting engineering companies in Japan.

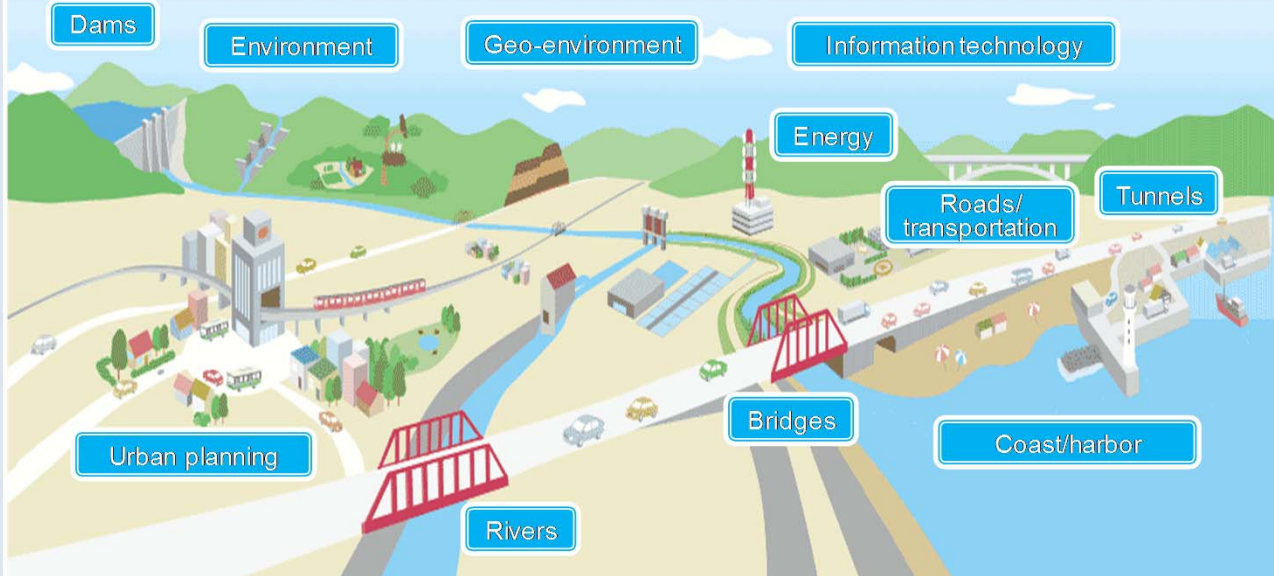
#### TOP

- The total number of certificated professional engineers is 1,169 in 2016 and this ranks CTI top among consulting engineering companies in Japan.

# Description of Product and Technical Expertise

## <Information of Product and Technical Expertise>

CTI has expertise in many areas with its highly qualified engineering staff in most forms of infrastructure projects. We provide professional consulting services related to civil engineering and construction works, including planning, research, design, and project management.



## <Main Business result>

Sector	Country	Project
Water supply	Nicaragua	Non-revenue water improvement project in Managua city (Providing technical assistance for Non-revenue water management)
Water supply	Benin	Water supply project in Glazoue and Dassa-Zoume city (Plan, design and construction supervision of water supply system which utilizes underground water) *Photo No.1
Sewerage	Cambodia	Drainage and sewerage improvement project in Phnom Penh metropolitan area (Plan, design and construction supervision)
Sewerage	Philippines	Pasig Marikina river improvement project (Plan, design and construction supervision of river channel) *Photo No.2
Environment	Palau	Preparatory survey on the project for the construction of Palau new national landfill (Basic design of landfill facility and study on O&M)
Environment	Uganda	National wetlands management project (Study on information management system of wetlands, etc.)
Environment	Myanmar	Improvement of water environment by utilizing septic tank (Study on septic tank O&M system)



Photo. 1



Photo. 2

Corporate Name	GEO SEARCH CO.,LTD.	
HQ Address	7-37-10, Nishi-Kamata, Ota-ku, Tokyo, JAPAN	
Branch Office Address	1-18-25, Hakataeki-Higashi, Hakata-ku, Fukuoka-shi, Fukuoka, JAPAN	
URL	http://www.geosearch.co.jp	
Company Outline	<Representative>	Hiroshi TOMITA
	<Established>	January 1,1989
	<Capital>	¥30 million
	<Employees>	140
	<Overseas Network>	—
	<Description of Business>	Providing information on location of dangerous and problem area of underground.
Department	KYUSYU office	
Title/Name	General manager, KYUSYU office / Jumpei OKAMOTO	
Contact	<TEL>	+81-92-434-4301
	<Mail>	geoinfo@geosearch.co.jp

## Description of Product and Technical Expertise

### <Corporate PR>

*GEO SEARCH provides information of the dangerous underground location by ourselves-developed diagnostic technology named SKELE-KA®. SKELE-KA® is the world first technology and is used largely in Japan today.*

### <Information of Product and Technical Expertise>

## **SKELE-KA® technology provides "3" Services.**

### **Preventive Road cave-in**

Roads / Airports / Harbors / River



Road cave-in



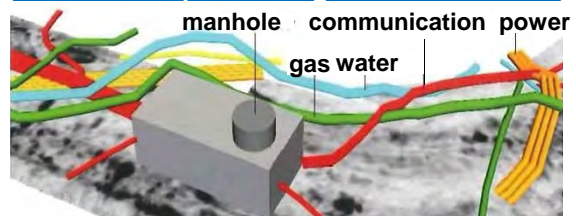
SKELE-Car in operation



Harbor cave-in

### **Underground Utility Mapping**

Roads / Airports / Large Facilities / etc.



Utility mapping 3D output example

### **Bridge Deck Inspection**

Bridges / Concrete Slabs (Harbors, Tunnels, etc.)

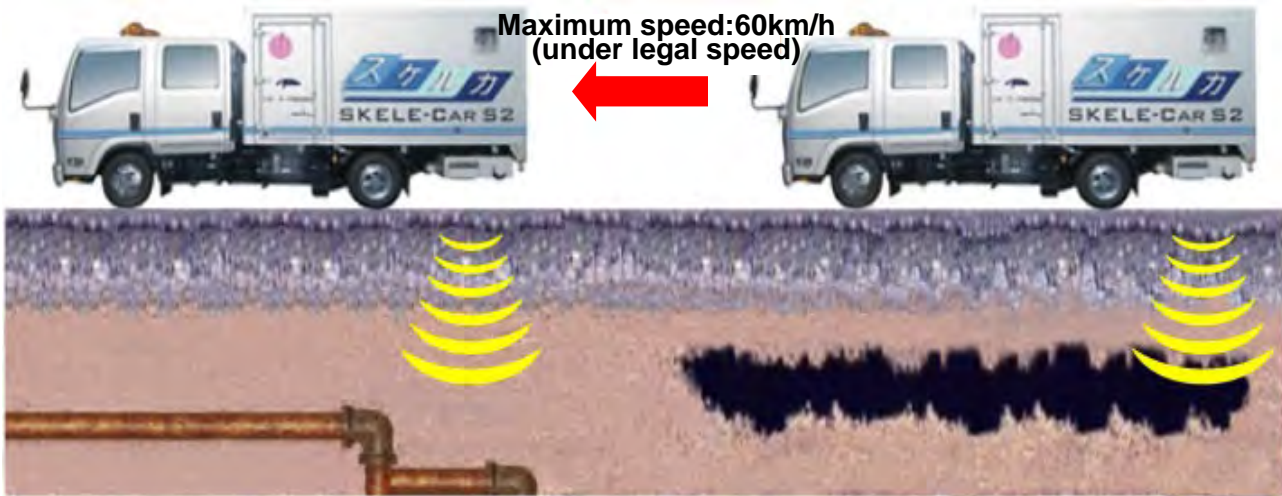


SKELE-Car in operation  
(edited photo)



Bridge deck hole

## What is "SKELE-KA"® Subsurface Cavities Survey by "SKELE-KA"®



- SKELE-KA technology is composed of vehicle called SKELE-Car and diagnostic technology. SKELE-Car runs at the speed of **60 km/h** and acquires corresponding data for diagnostic dangerous underground location which causes cave-in.
- SKELE-KA achieved drastic reduction survey period and cost that led to change of counter accident measures from post-accident treatment to pre-accident preventive treatment.



### <Main Business result>

By June 2015, 142,598 km of road lanes have been surveyed and 32,690 cavities have been found by GEO SEARCH.

- GEO SEARCH continues to make all successful bids of regular Subsurface Cavity Survey by Japan National Government every year from proposal method start at 2010.
- GEO SEARCH has won the all Technology competitions of Subsurface Cavity Survey by great local governments in Japan, Fukuoka-city, Osaka-city, Kobe-city, Fukuoka prefecture and more.
- GEO SEARCH has lots of results at many other local governments in Japan, e.g. Tokyo Metropolitan Government.

### Recent topics;

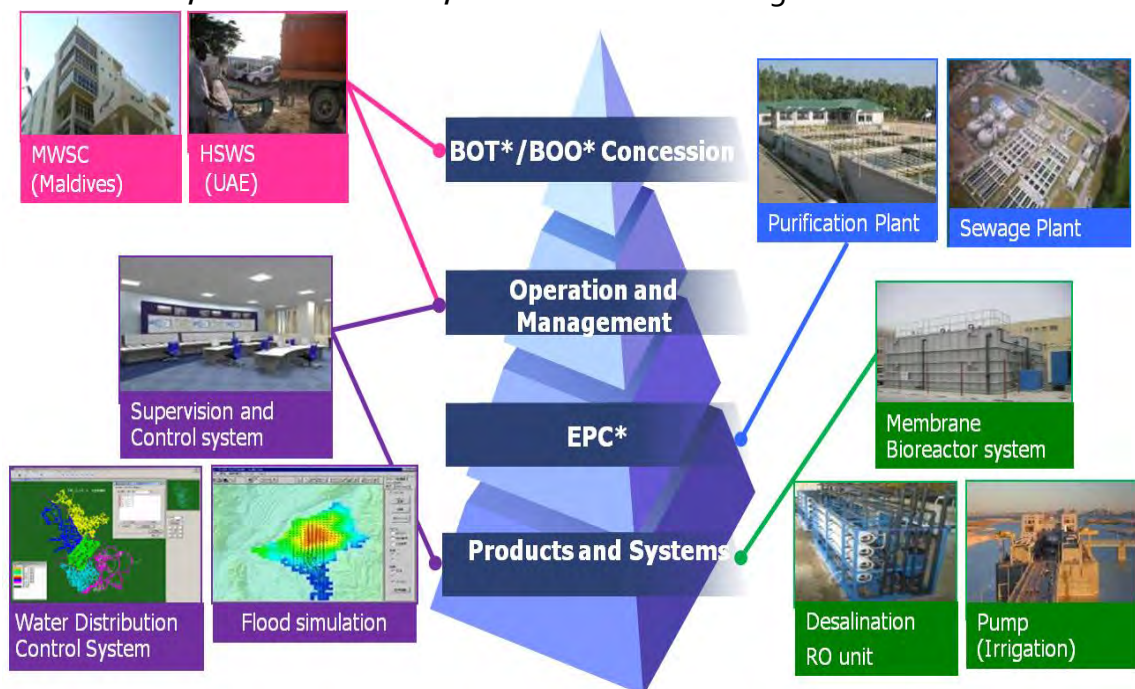
1. GEO SEARCH won a prize as "Special advisor award ; KEIJI FURUYA award" from Japan Resilience Awards 2015 at Third UN World Conference on Disaster Reduction.
2. GEO SEARCH received a letter of thanks from Mayor of SEOUL City by SKELE-KA survey.
3. JICA's Feasibility Survey for "Road Network Resilience with Japanese Road Cave-in Risk Diagnostic Technologies" started at October 2015 in THAI by GEO SEARCH.

Corporate Name	Hitachi, Ltd		
HQ Address	1-6-6, Marunouchi, Chiyoda-ku, Tokyo, Japan		
Branch Office Address	2-1-1, Momochihama, Sawara-ku, Fukuoka-shi, Fukuoka, Japan		
URL	http://www.hitachi.com/		
Company Outline	<Representative>	Toshiaki HIGASHIHARA	
	<Established>	1910	
	<Capital>	¥458,790 million	
	<Employees>	333,150(Consolidated.)	
	<Overseas Network>	Singapore, Vietnam, Dubai, Maldives and others	
	<Description of Business>	<ul style="list-style-type: none"> <li>• Information &amp; Telecommunication Systems</li> <li>• Power Systems</li> <li>• Infrastructure Systems</li> <li>• Healthcare etc</li> </ul>	
Department	Water Business Development Dept.		
Title/Name	Proposal Leader/Yukari HAMASAKI		
Contact	<TEL>	+81-3-5928-8233	
	<Mail>	yukari.hamasaki.pr@hitachi.com	

## Description of Product and Technical Expertise

### ■ 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.



# Description of Product and Technical Expertise

## 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

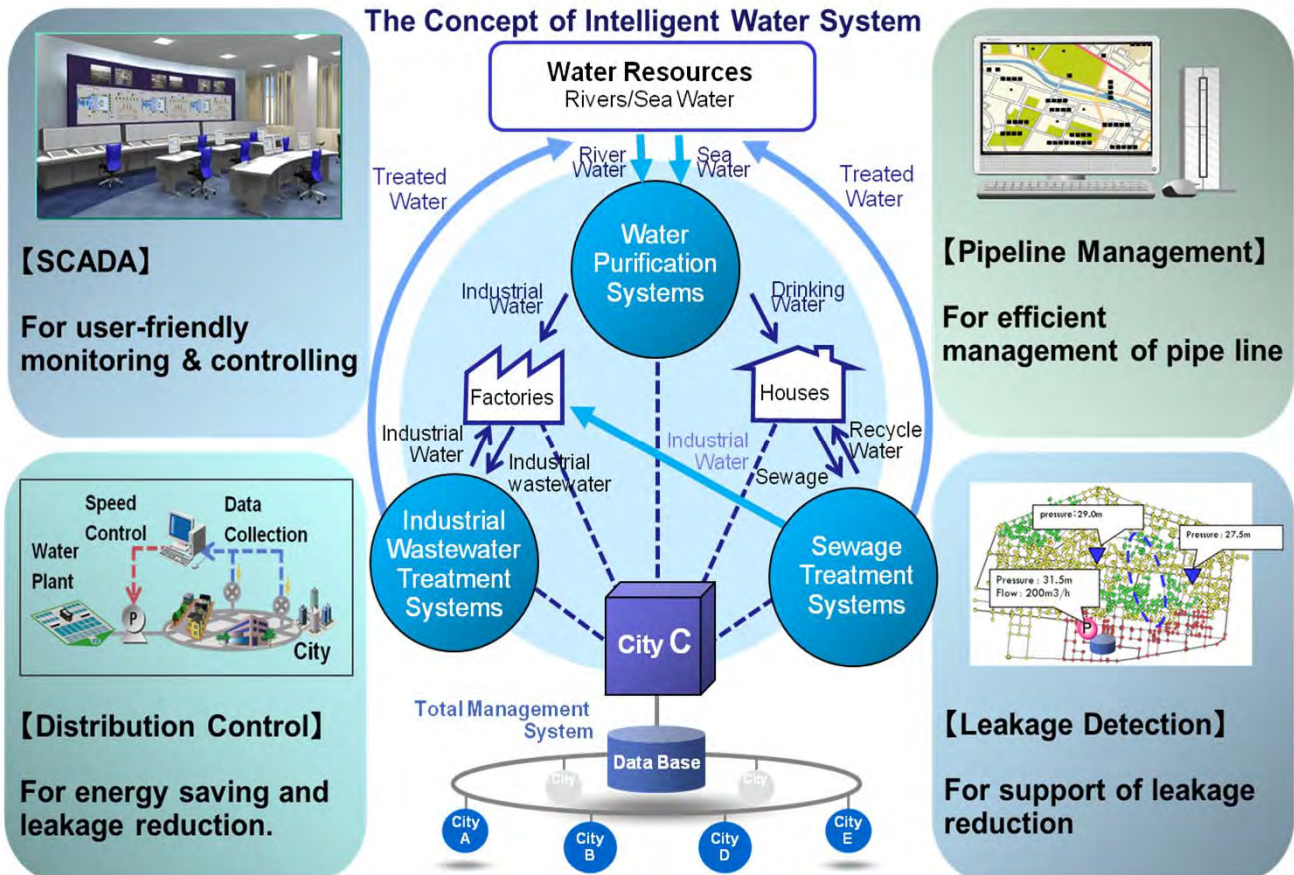
- Water purification Plant : More than **700** projects
- Sewage Treatment Plant : More than **600** projects
- Factory : More than **500** projects



## 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.

### The Concept of Intelligent Water System



# Description of Product and Technical Expertise

## 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°C 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

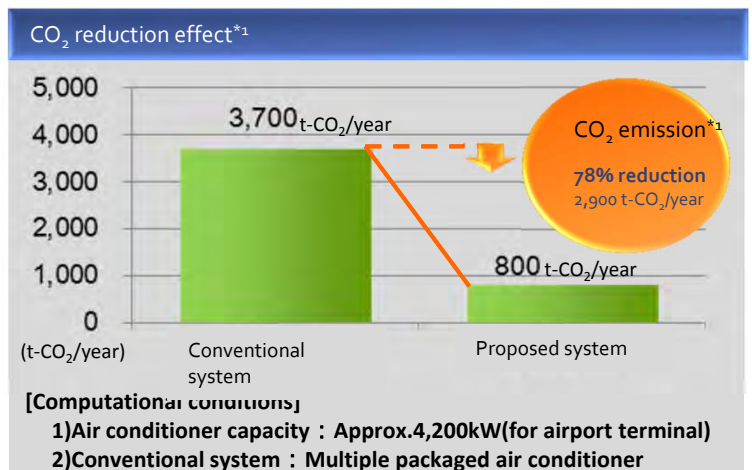
We are planning a deep seawater cooling infrastructure for Male International airport in Maldives. And we have done feasibility studies under METI\*<sup>1</sup> and NEDO's\*<sup>2</sup> study projects.

\*1 METI: Ministry of Economy Trade and Industry

\*2 NEDO: New Energy and Industrial Technologies Development Organization



Male in Maldives



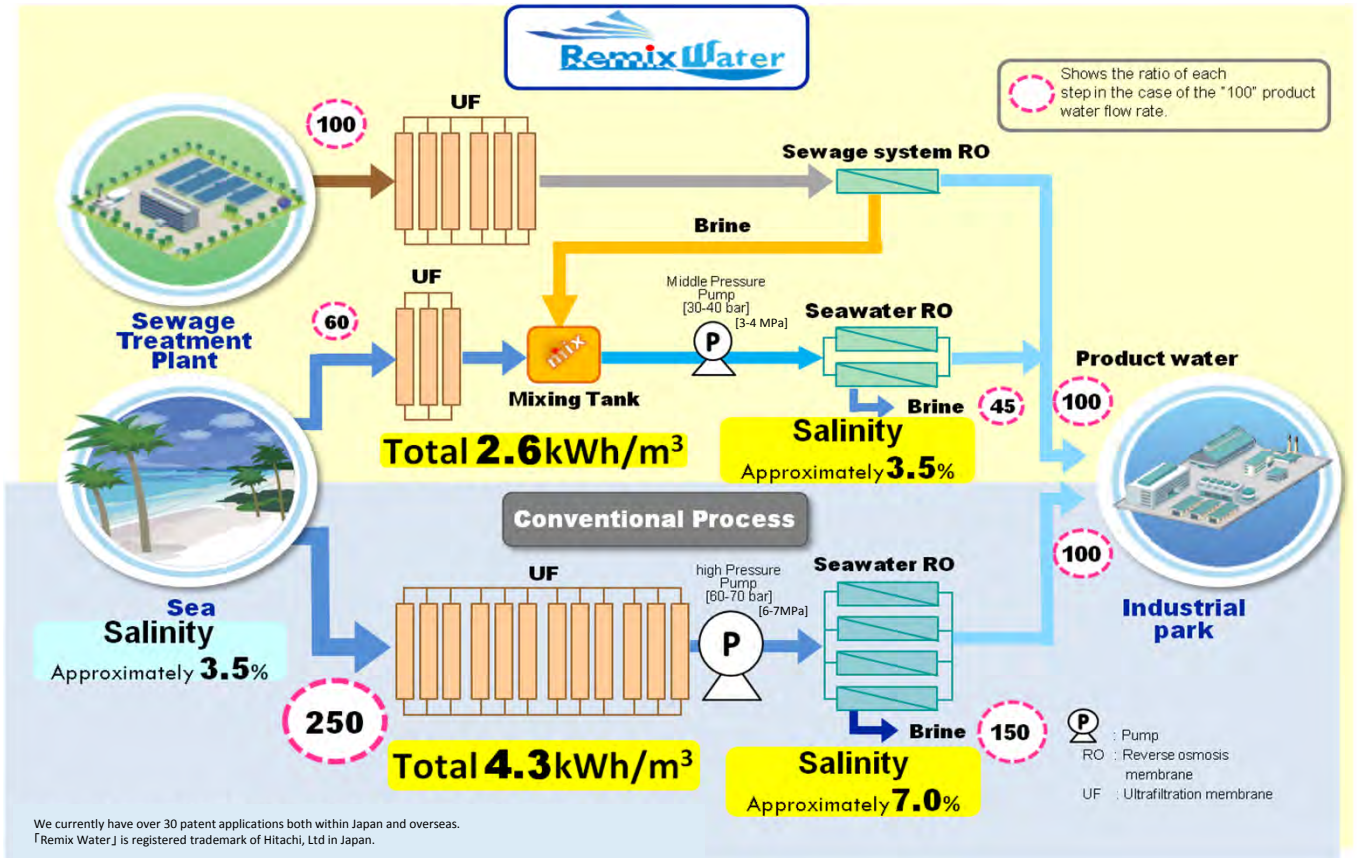
# Description of Product and Technical Expertise

## ■ 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

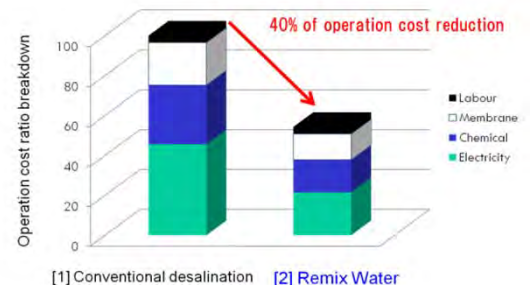
- Reduction of seawater intake can be achieved smaller intake facility.  
⇒ Lower construction cost
- Middle pressure pump can be used.  
⇒ Lower facility cost

#### Eco-friendly

- Brine water salinity from Remix Water is equal to seawater level.
- CO<sub>2</sub> 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)





<b>Corporate Name</b>	Hitachi Zosen Corporation
<b>HQ Address</b>	7-89, Nankokita 1-chome, Suminoe-ku, 559-8558, Japan
<b>Branch Office Address</b>	2-1, Hakataekimae 3-chome, Hakata-ku, Fukuoka 812-0011, Japan
<b>URL</b>	<a href="http://www.hitachizosen.co.jp/english">http://www.hitachizosen.co.jp/english</a>
<b>Company Outline</b>	<Representative> Takashi Tanisho
	<Established> 1934/ 5 /29
	<Capital> ¥ 45,442 millionn (as of 2019/3/31)
	<Employees> 10,580 (as of 2019/3/31)
	<Overseas Network> USA, UK, UAE, India, Myanmar, Singapore, Thailand, Indonesia, Vietnam, China, South Korea, Taiwan
	<Description of Business> Environment Plant Engineering including Waste to Energy and Water treatment plant, industrial machinery, and infrastructure.
<b>Department</b>	Global Business Administration Department
<b>Title/Name</b>	Sales representative / Satoshi Nishino
<b>Contact</b>	<TEL>+81-3-6404-0843
	<Mail>nishino_sa@hitachizosen.co.jp

## Description of Product and Technical Expertise

### <Corporate PR>

Hitachi Zosen is willing to enhance WtE and water treatment business especially in Asian countries. We have our office in Yangon, Myanmar. We create value to society with environment and water technology and sincerity to contribute to a prosperous future in Myanmar.

### <Information of Product and Technical Expertise>

“Marimo.”

This is our original high rate fiber filtration technology for sewage treatment or industrial water treatment.

Filtration rate of this technology is very high, can be over 1,000 meters.

### RO Technology

In 2017, we acquired Osmoflo in Australia which is one of leading companies which expertise in RO desalination & water treatment plant to expand our water business in Asia /Pacific countries.

## MARIMO

Marimo is a high-rate fiber filtration system which applicable for preliminary water treatment and advanced sewage treatment.

<Filtration rate >: over 1,000m/day



## RO Technology

In 2017, we acquired Osmoflo in Australia which is one of leading companies which expertise in RO desalination & water treatment plant to expand our water business in Asia /Pacific countries.



## Project in Myanmar

We constructed an industrial waste water treatment plant in Myanmar in 2017. We hope we will be able to contribute to prosperous future in Myanmar with our technology.



Corporate Name	HONDA KIKO Co.,Ltd.
HQ Address	2055, Yamano, Kama-shi, Fukuoka, 820-0202 Japan
Branch Office Address	1-7-22-401, Hakata-Ekimae, Hakata-ku, Fukuoka-shi, Fukuoka 812-0011, Japan
URL	http://www.hondakiko.co.jp
Company Outline	<Representative> Mr. Kensuke Ryuzoji
	<Established> 1 <sup>st</sup> Sep 1951
	<Capital> ¥ 90 million
	<Employees> 151
	<Overseas Network> Representative in each Asian country
<Description of Business> 1) Manufacturing pump for all kinds industries 2) Manufacturing Micro-Nano-Bubble Pump with high capacity	
Department	International Business Department
Title/Name	Director, Mr. Muneyuki Honda
Contact	<TEL> +81-92-436-2200
	<Mail> m-honda@hondakiko.co.jp

## Description of Product and Technical Expertise

### <Corporate PR>

We have already provided pumps over 60 countries as world wide and also have direct approach to international market. Then we have representative in each Asian countries and approach any customers with them, so we could have some big references for oil and gas project.

Further our foreign staffs do direct sales for international market and expect more developed business.

### <Information of Product and Technical Expertise>

#### 1. Low-NPSH self-priming pump (Tornado Pump)

Tornado pump can do automatic operation for all kinds of factories and plants, a lot of references for oil and gas plant and power plant world wide. Many big customers are considering replacement to Tornado pump from vertical and submergible pump which need too high maintenance costs.



## Description of Product and Technical Expertise

### 2. Micro-Nano-Bubble pump with high capacity (Model : B U S P)

B U S P is world' s largest capacity pump which can generate micro-nano-bubble (around 20micron size).

Main applications are

- 1) Dissolved Air Flootation (DAF)
- 2) Oil-Water Separation
- 3) COD and BOD reduction
- 4) Discoloration and Deodorizing
- 5) Purification of Lakes and Marshes

And still BUSP has some unknown possible applications.



<Main Business result>

Tornado Pump

for biggest oil company  
(Saudi Arabia)



B U S P for Paper factory  
Discoloration



Corporate Name	INFRATEC Co., LTD.
HQ Address	2-7-25, Yojiro, Kagoshima City
Branch Office Address	3-13-10, Higashihiie, Hakata Ward, Fukuoka City
URL	<a href="http://www.infratec.co.jp/">http://www.infratec.co.jp/</a>
Company Outline	<Representative> Hideo Matsuzaki
	<Established> June 15, 1956
	<Capital> ¥73 million
	<Employees> 627 (September, 2017)
	<Overseas Network> SOUTH KOREA
	<Description of Business> · Manufacture, sale, transportation and construction of precast concrete products · Golf business (Kagoshima Garden Golf Club) · Information dissemination service (Gurutto Kagoshima Co., Ltd.)
Department	International Division
Title/Name	Kanako Shima
Contact	<TEL> 050-3085-9434
	<Mail> shima@infratec.co.jp

## Description of Product and Technical Expertise

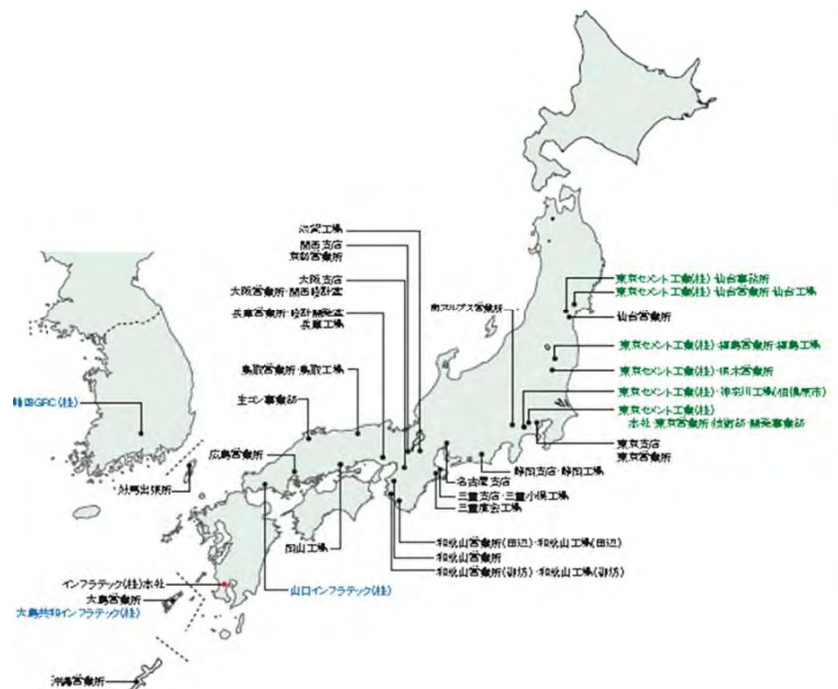
### <Corporate PR>

Since its establishment in June 1956, the Infratec Group has been offering warm and comfortable towns through the provision of superior quality infrastructure parts (civil engineering/precast concrete products and glass fiber reinforced concrete products) for more than half a century. We have been helping to improve the infrastructure of Japan.

We have earned great trust from all by providing stable and superior concrete products having unique design and high technical capabilities through product development.

We have expanded our base from Okinawa to Tohoku Sendai and we have a system capable of supplying our products to various parts of Japan.

We will continue to expand our future business in other countries too, where infrastructure is at the stage of development, with the aim of local autonomous business management, making full use of our expertise in development, manufacturing and sales in the country.

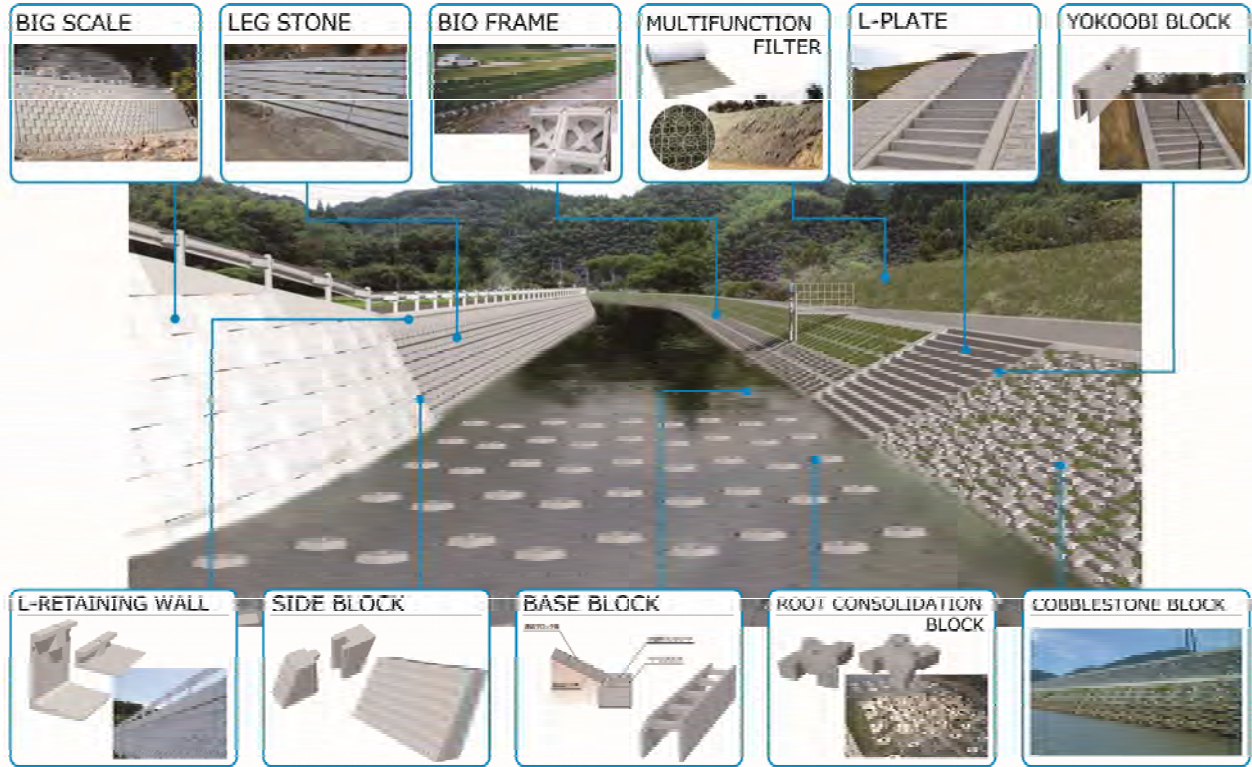


# Description of Product and Technical Expertise

## <Information of Product and Technical Expertise>

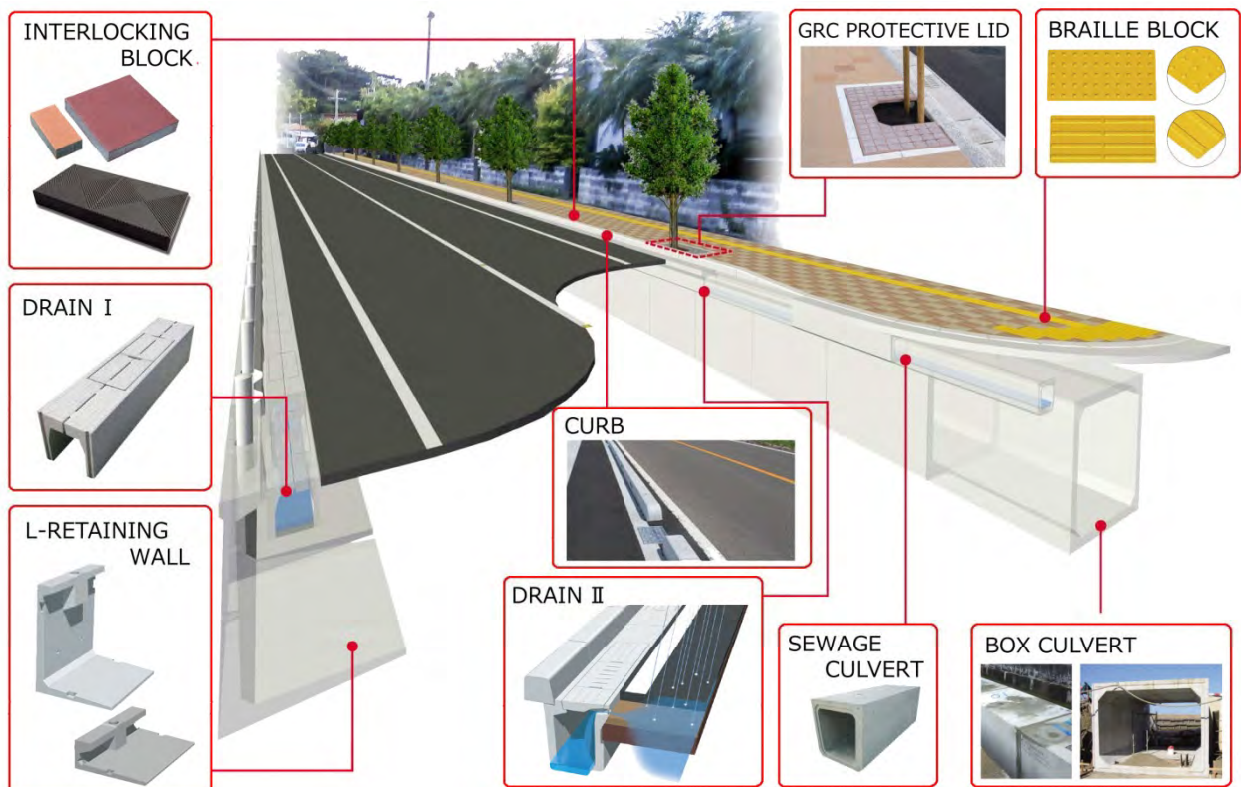
### Products for river systems

The products serve the purpose of protection of rivers from erosion of river banks and river bed. We have a large selection of products that take into consideration not only the flood control and stability of the embankment but also the environment.



### Road related products

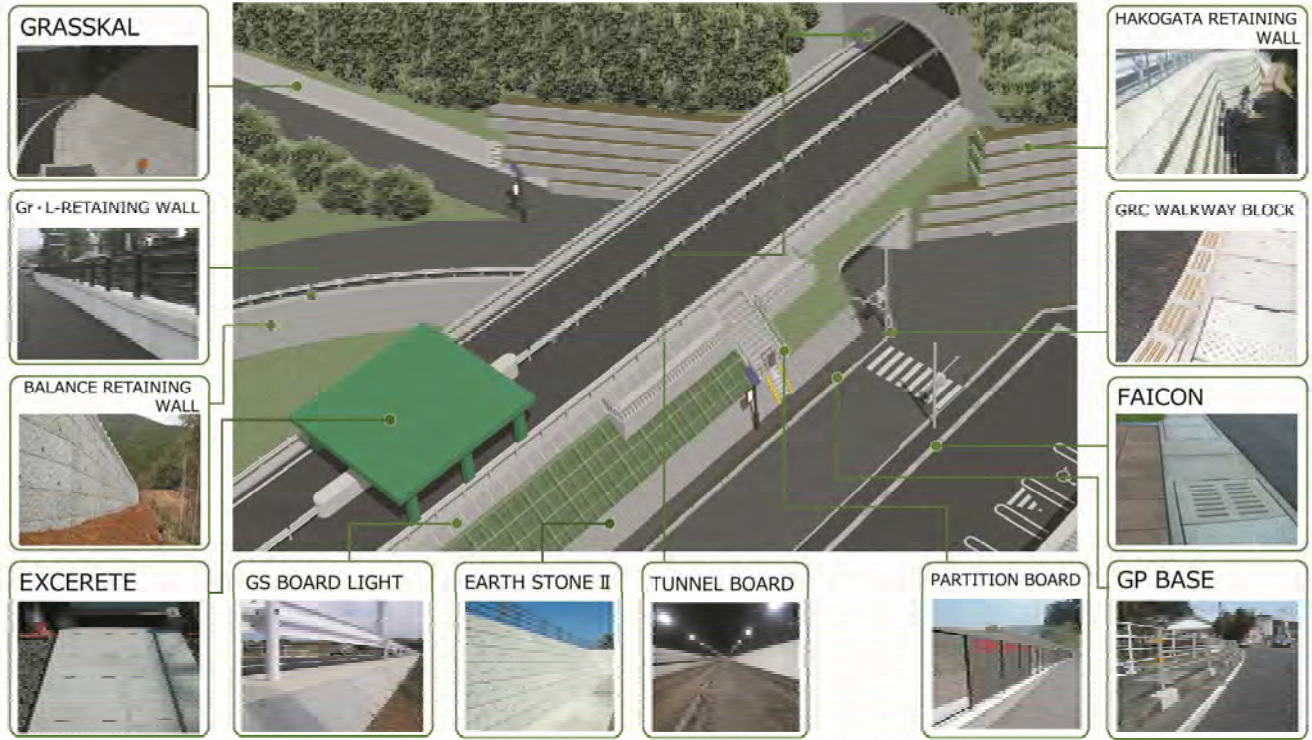
Concrete products such as side grooves, gutters, blocks etc. for the purpose of road maintenance. Variety of road related products such as drainage systems to prevent flooding of roads and water retention due to heavy rain.



# Description of Product and Technical Expertise

## Products for disaster response

It includes products for disaster prevention measures and early restoration after natural disasters like sediment related disaster by heavy rains, earthquakes, river flooding. Our company develops products based on disaster experiences in Kyushu region of Japan and possesses the technical know-how to develop such products.



## <Major Projects>

◇Kagoshima, Sendai station  
Product: Cooltone



◇Kagoshima, Nagashima  
Product: Hakogata Retaining Wall



◇Kagoshima city  
Product: KC Line Drain Wall



◇Kagoshima, Satsumasendai  
Product: Tetrakku PG



◇Kagoshima, satsumasendai  
Product: Box Culvert



◇Chiba, Funabashi  
Product: KC Circle



Corporate Name	<b>ISHIGAKI COMPANY, LTD.</b>	
HQ Address	1-6-5 Marunouchi Chiyoda-ku Tokyo Japan	
Branch Office Address	1-9-3 Hakataekimae Hakata-ku Fukuoka Japan	
URL	<a href="http://www.ishigaki.co.jp">www.ishigaki.co.jp</a>	
Company Outline	<Representative>	Makoto Ishigaki
	<Established>	1960/April
	<Capital>	JPY510,000,000
	<Employees>	464(as of June 2019)
	<Overseas Network>	US, German, China, Australia
	<Description of Business>	Manufacturer : solid-liquid Separators / Pumps
Department	Pump & Jet Division	
Title/Name	Manager / Masaaki Ito	
Contact	<TEL>	+81 3 6848 7831
	<Mail>	masaaki.ito@ishigaki.co.jp

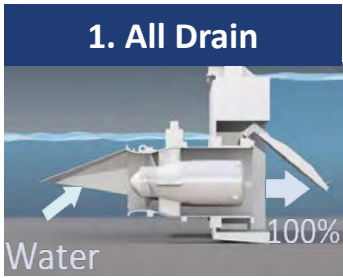
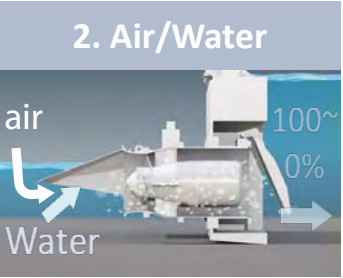
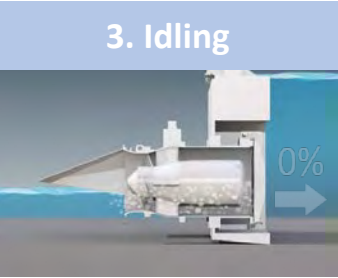
## Description of Product and Technical Expertise

### <Corporate PR>

ISHIGAKI Company was founded in 1958 as a plant engineering manufacturer that supports water infrastructure and industry. Our solutions are deployed globally and used in all water and industrial fields.

### <Information of Product and Technical Expertise>

“Flood Buster” is a next-generation drainage system. It can operate with full speed at any water level. With three operation modes, even if there is no water it can continue to work. It doesn't have to stop, because it doesn't have the stopping water level. Once we start it, we can leave it.

	1. All Drain	2. Air/Water	3. Idling
			
State	Max Discharge	Discharging Mixed Air and Water	Standby
Discharge	100	100~0	0
Rotation Speed	100	100	100
Power Consumption	100	100~30	30



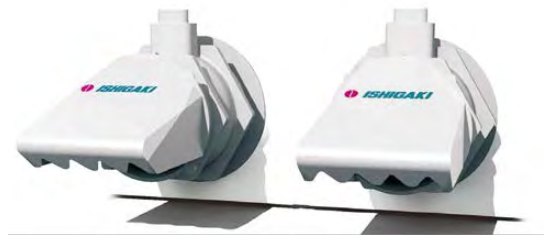
## Description of Product and Technical Expertise

### <Applicable Range>

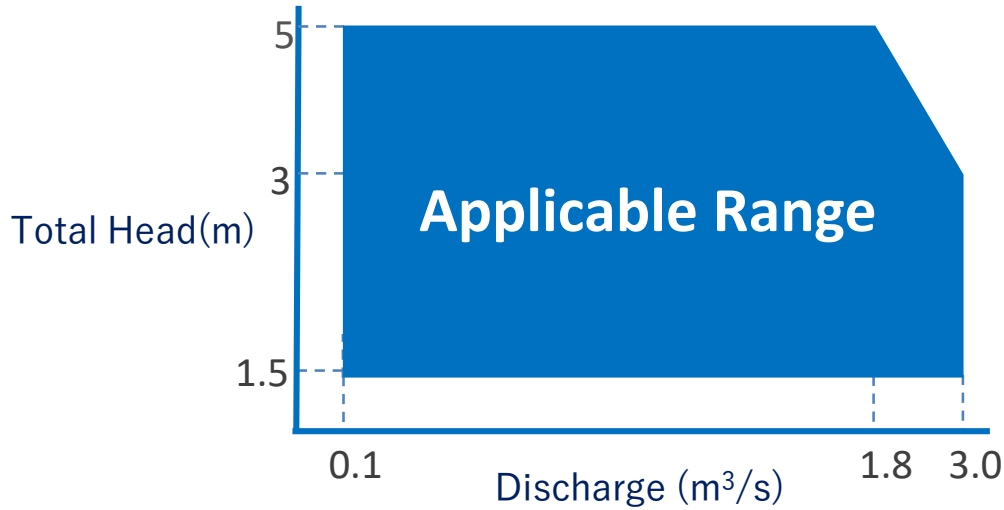
Diameter  $\phi$  300mm~ $\phi$  1200mm

Discharge 3.0m<sup>3</sup>/sec

Total Head 5.0m



**FLOOD BUSTER**



### <Achievement>

**Hyogo Japan (Kyoguchi Pumping Station)**

Before



After



**More than 40 places  
have been installed**

Corporate Name	JFE Engineering Corporation	
HQ Address	Marunouchi Trust Tower North 19 <sup>th</sup> Floor, 1-8-1 Marunouchi, Chiyoda-ku, Tokyo , JAPAN	
Branch Office Address	TERASO-II 8 <sup>th</sup> Floor, 2-7-27, Hakataeki-Higashi, Hakata-ku, Fukuoka-shi, Fukuoka, JAPAN	
URL	<a href="http://www.jfe-eng.co.jp/en/">http://www.jfe-eng.co.jp/en/</a>	
Company Outline	<Representative>	Hisanori KANOUE, President and CEO
	<Established>	April 1, 2003
	<Capital>	¥10 billion
	<Employees>	Group-wide: approx. 8,500
	<Overseas Network>	Offices 5, Subsidiaries 12, Affiliate Companies 2
	<Description of Business>	Environmental Solutions • Energy • Wastewater Treatment / Water Purification
Department	Kyushu Branch Office	
Title/Name	Manager / Yuji TANAKA	
Contact	<TEL>	+81-92-474-1570
	<Mail>	tanaka-e-yuji@jfe-eng.co.jp

## Description of Product and Technical Expertise

### <Corporate PR>

“Development of innovative solutions to reduce GHG emissions and stop Global Warming”

### <Information of Product and Technical Expertise>

As experts in waste treatment and water treatment, JFE Engineering Corporation is contributing to the development of a low-carbon and recycling-oriented society. Our advanced combustion and water treatment technologies are not limited to the construction of facilities, but also encompass operation and maintenance. JFE has an impressive track record in all these areas, extending from Japan to many other countries, and our cutting-edge technologies have attracted attention from around the world.

As masters in controlling fire and water, JFE Engineering will provide various solutions toward creating a safe and environmentally comfortable city.

<Main Business result>




Chubu Electric Power Co.,  
Kawagoe Gas-Fired Thermal Power Plant (Mie, JAPAN)



Nerima Waste incineration plant (Tokyo, JAPAN)



Biomass power generation from kitchen waste (Niigata, Japan)

Corporate Name	 <b>KIDOH CONSTRUCTION CO., LTD.</b>
HQ Address	4-6-31, Fukushima, Fukushima-ku, Osaka-shi, Osaka, Japan
Branch Office Address	2-14-28, Higashinaka, Hakata-ku, Fukuoka-shi, Fukuoka, Japan
URL	<a href="http://www.kidoh.jp/">http://www.kidoh.jp/</a>
Company Outline	<Representative> Masaaki Nakano
	<Established> 29 October 1946
	<Capital> ¥ 83.3035 million
	<Employees> 112 (Engineers and Staff)
	<Overseas Network> Taiwan, Indonesia
	<Description of Business> ① Installation of underground pipeline for water supply, sewerage system, gas, telephone, power cables, etc. ② Installation of tunnels, common ducts, large boxes, shields ③ Construction of pre-stressed concrete bridges ④ Construction of pre-stressed concrete tanks ⑤ General constructions and building work ⑥ Designing of construction and building, consultations
Department	Kyusyu Branch and Overseas Department
Title/Name	Kyusyu Branch Manager / Kunihiro KITAJIMA

## Description of Product and Technical Expertise

### <Corporate PR>

Since our Japan's first pipe-jacking construction in 1948, we have achieved over 2500km in length. Especially in long distance and curved pipe-jacking, KIDOH's technology is world's top rank.

### <Information of Product and Technical Expertise>

#### 超大口径長距離推進

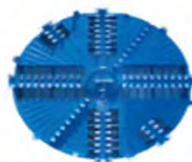
Jacking of ultra-large diameter pipes for a long distance



超大口径管の推進状況(発進立坑)  
The jacking method for the ultra-large diameter pipes is in process (starting shaft)

#### 海底長距離推進

Undersea jacking for a long distance



掘進機 カッターヘッド  
Tunneling machine: Cutter head



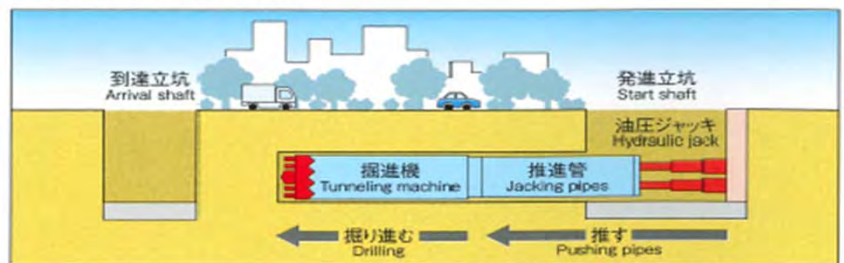
海中からの掘進機の回収  
Collecting a tunneling machine from the ocean



昭和20年代後半 軌道下を横断する工事の様子  
Construction site at railway in 1950s

#### 推進工法 施工概要図

Overview of the jacking method



## アルティミット®工法 ULTIMATE METHOD

### 超長距離・急曲線施工を”低推進力”、”高精度”で実現する究極の工法

Ultimate Method makes it possible to excavate tunnel an extremely long distance and sharp curves with low propulsion power and high accuracy.

都市機能の発達により地下には管渠や構造物が輻輳して埋設されています。このため、推進工法で管路を構築する際にも、立坑を少なくする(長距離化)、道路に沿って推進する(曲線化)、といったことが求められるようになりました。機動建設工業は、掘進機、管材、潤滑材、推進装置、計測機器など推進工法の各システムを究極(Ultimate)の工法「アルティミット®工法」として開発、様々な制約条件の中で、高品質で安全・確実な施工を可能にしました。

Urban functions have developed dramatically, which has produced a number of underground pipes and buildings. Therefore, it has become requirements, when installing underground pipes using the jacking method, in order to reduce the number of vertical shafts (the length of pipelines becomes longer) and to excavate tunnel along the roads (curved pipeline). KIDOH's Ultimate Method has made it possible to achieve high quality, safe and reliable constructions that meet various restrictions, in which each of the existing system, tunneling machines, pipe materials, lubricants, jacking machines, measurement instruments, etc. has been improved to realize the ultimate pipe jacking method.

#### 急曲線推進

Sharp curved line jacking



長距離施工イメージ  
Image of a long distance pipeline construction



曲線施工  
Curved pipeline construction

#### 【Past Projects and Achievements】

##### JAPAN

- Total Length of Pipes Installed Exceeds 2,507 KM (2016)
- Construction of Water Storage Tanks Over 1,000 Base (2016)

##### OVERSEAS

- MYANMAR YANGON 815 m x 1 Span (2018)
- TAIWAN Total Pipe Lengths Over 3,200 m (2015)
- HONGKONG  $\phi$ 1350 226 m x 1 Span (2015)  $\phi$ 1500 200 m x 2 Span
- INDONESIA  $\phi$ 1800 400 m x 2 Span (2015)  $\phi$ 3500 570 m x 2 Span (2015, OUTLET)  
660 m x 2 Span (Tbd., INLET)  
 $\phi$ 1800 260 m x 1 Span (2014)
- VIETNAM  $\phi$ 1500 200 m x 1 Span (2008)
- SINGAPORE  $\phi$ 2350 60 m x 1 Span (1981)
- MALAYSIA  $\phi$ 1500 85 m x 1 Span (1980)

Corporate Name	KUBOTA Corporation
HQ Address	2-47, Shikitsuhigashi 1-chome, Naniwa-ku, Osaka 556-8601 Japan
Kyusyu Brach Office Address	3-2-8, Hakataekimae, Hakata-ku, Fukuoka 812-0011 Japan
URL	http://www.kubota-global.net/
Company Outline	<Representative> Masatoshi Kimata
	<Established> 1890
	<Capital> ¥84.1 billion (as of December 31, 2017)
	<Employees> 39,410 (as of December 31, 2017)
	<Overseas Network> USA, China, Europe(UK), Middle East(UAE), South-Eastern Asia(Thailand, Vietnam, Myanmar)
	<Description of Business> Manufacturing, sales and construction of " Farm & Industrial Machinery" , "Water & Environment Systems" , and "Social Infrastructure"
Department	Water & Environment Business Promotion Dept.
Title/Name	Manager Hiroomi Yoshikawa
Contact	<TEL> +81-3-3245-3933
	<Mail> hiroomi.yoshikawa@kubota.com

## Description of Product and Technical Expertise

### <Corporate PR>

KUBOTA contributes to water environment with our products which can cover all over the water infrastructures from the intake to the discharge.

### <Information of Product and Technical Expertise>

Water & Environment related products of KUBOTA.



# Description of Product and Technical Expertise

## 1 . Products (Pipes / Water Treatment)

### (1) Ductile Iron Pipes

- Wide range of Sizes/Fittings.
- Contribute to NRW reduction with good durability and easy jointing.
- Earthquake-resistant ductile iron pipe can continue to supply water even in disaster such as earthquake or hurricane

#### Ductile Iron Pipes(DIP)



Longest in the world  
Length:9m



#### Earthquake-resistant DIP (GENEX)



Easy jointing & Long Life

### (2) Pumps

- For water, sewage, rainwater drainage, seawater desalination etc..
- KUBOTA pump system also contributes to flood recovery in Japan and abroad.

#### Double Suction Volute Pump



#### Drainage Pump with Vehicle



Contribute to recovery in 2011 Thailand flood

#### Handy Mobile Pump



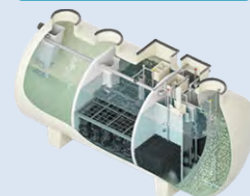
### (3) Johkasou

- Decentralized sewage treatment tank.
- No need to construct large-scale infrastructure.
- $BOD \leq 20\text{mg/L}$  with small-footprint.
- According to discharge regulation or purpose of treatment, we have MBR type which can remove N and P.

#### Small-Size Johkasou



#### Large-Size Johkasou



### (4) Water Treatment equipment

- Energy-saving (i.e. Low LCC ) equipment.
  - ✓ High Efficiently Mixer ( K-wing )
  - ✓ High Oxygen Transfer Diffuser ( K- membrane )

#### K-Wing



#### K-Membrane



## 2. Engineering & Construction (Water Treatment/Environment)

### (1) Water and sewage treatment plant

- EPC of Water purification plant and Sewage treatment plant.
- Centralized water treatment of Industrial park.
- Many achievements at Japan and abroad since our first oversea work in Cambodia in 1959. (Kubota Construction Co.,Ltd. )

#### Water purification plant



#### Sewage Treatment plant



Waterworks of Phnom Penh , Cambodia

### (2) Industrial wastewater Treatment Plant / Exhausted Gas Treatment Plant

- All kind of Organic/Inorganic wastewater treatment.
- Exhausted gas treatment with our unique technology.
- We have offices in Asian countries and have a lot of achievements ( KUBOTA KASUI Corporation ).

#### Organic/Inorganic Wastewater Treatment



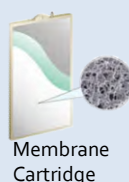
#### Flue Gas Desulfurization



### (3) Membrane Bio-Reactor (MBR)

- We apply "flat sheet" membrane to MBR. So, our MBR have a feature of easy maintenance.
- Effluent from MBR can be reused.
- Footprint of the MBR system is considerably smaller than Conventional Activated Sludge system.
- Greater than 6,000 Installations all over the world.

#### Submerged Membrane



Membrane Cartridge



Membrane Unit

#### Membrane Bio-Reactor



Corporate Name	Kurimoto, Ltd.	
HQ Address	1-12-19, Kitahorie, Nishi-ku, Osaka-shi, Osaka, Japan	
Branch Office Address	1-3-11, Hakataeki-minami, Hakata-ku, Fukuoka-shi, Fukuoka, Japan	
URL	http://www.kurimoto.co.jp	
Company Outline	<Representative>	Hideaki FUKUI, President
	<Established>	May 10, 1934
	<Capital>	¥ 31,186 million
	<Employees>	2,004 (as of March 31, 2015; consolidated)
	<Overseas Network>	Europe Office (Dusseldorf, Germany), Jakarta Office
	<Description of Business>	Ductile iron pipes, Fittings, Accessories, Butterfly valves, Soft seat gate valves, Eccentric valves, Polycon FRP pipes, Polycon FRP plates, and others
Department	KYUSYU OFFICE	
Title/Name	PAIPUSYSTEM DEPARTMENT / Kouji TAKI	
Contact	<TEL>	+81-92-451-6623
	<Mail>	k_taki@kurimoto.co.jp

## Description of Product and Technical Expertise

### <Corporate PR>

Pipes carry critical drinking water, beneficial irrigation water, and gas that serves as an energy source, supporting our everyday lives. The active inclusion of new technologies at Kurimoto allow us to manufacture and provide ductile Iron pipes, and with leading-edge technologies we aim to offer the best pipe networks for each and every field, realizing the optimal environment for both homes and business in the process.

### <Information of Product and Technical Expertise>

#### **Connecting lifelines in Japan and around the world.**

**Since our founding, Kurimoto has built social infrastructure by crafting turnkey solutions for pipelines and plants, from design to installation, on a solid base of water and sewerage technologies.**



#### ■ Ductile iron pipe for water supply

##### Shield Tunnel Pipe / Ductile Iron Pipe Division

Kurimoto's ductile iron pipe features outstanding durability. It is also easy to install and adapts to difficult site conditions. When open cutting is impractical because of long distances to cover, tunnels are dug and piping installed there inside. The photo shows dual pipelines for a 1,200 mm diameter distribution line and 1,000 mm diameter water main with a US joint.



## Description of Product and Technical Expertise



### ■ Ductile iron pipe for sewerage

#### Plant Pipe / Ductile Iron Pipe Division

A variety of wastewater discharged from daily activities is properly treated before release into rivers and seas. This photo shows a flanged shaped pipe of 2,200 mm in diameter for a pumping station. It is used in various pipelines at sewerage plants and in culverts.



### ■ Ductile iron pipe for jacking

#### For Jacking / Ductile Iron Pipe Division

For some time, shield tunneling and jacking have been used as alternative methods to open cut projects when piping cannot be laid across railroad tracks, waterways, roads, etc. Jacking in particular has been recently adopted for many projects to directly insert ductile iron pipe because of the economical advantages.



### ■ Ductile iron pipe for export

#### ISO Pipe / Ductile Iron Pipe Division

Highly rated in Japan for quality and a proven record, this type of pipe is exported overseas in large quantities. It is mainly helping to build lifelines in emerging countries of Asia and elsewhere.

Corporate Name	KYOWAKIDEN INDUSTRY CO.,LTD.		
HQ Address	10-2 Kawaguchi-machi, Nagasaki-shi, Nagasaki,JAPAN		
Branch Office Address	7F, 1-6-16 Hakata ekimae, hakata-ku,Fukuoka-shi,Fukuoka, JAPAN		
URL	http://www.kyowa-kk.co.jp/		
Company Outline	<Representative>	Hideyuki SAKAI	
	<Established>	June 1, 1948	
	<Capital>	¥50 million	
	<Employees>	480	
	<Overseas Network>	Shenzhen (China), Suzhou (China), VinhLong (Vietnam)	
	<Description of Business>	Planning, Design, Manufacturing, Site work, Operation & Maintenance in the field of Water Treatment and Energy.	
Department	Overseas Business Division		
Title/Name	Director / Takatoshi SAKAI		
Contact	<TEL>	+81-92-292-0039	
	<E-mail>	takatoshis@kyowa-kk.co.jp	

## Product and Technical Expertise

### <Corporate PR>

With over 60 years experience in Japan's infrastructure, in particular water treatment plant (WTP) and waste water treatment plant (WWTP), we have developed technology to enhance our offering in this area. In addition to our technology, we have experience and know-how in international markets with our expansion across China (Guangdong Province Shenzhen) over the past 10 years. More recently, in 2015, we established a new sales office in Suzhou, China and opened KYOWAKIDEN VIETNAM, as our Southeast Asian hub. Future expansions managed from Kyushu, will continue in China and Southeast Asia.

### <Information of Product and Technical Expertise>

- We have established for customers various types of water treatment systems (water purification, waste water treatment, waste water recycling) to meet the needs of their factories.

To suit a variety of different needs and conditions in each plant, we are able to recommend and manage your total customised requirements. Our business is not only to purify water, we also provide energy saving and recycling services. This allows us to build a more complete solution to tailor benefits to a customers requirements.

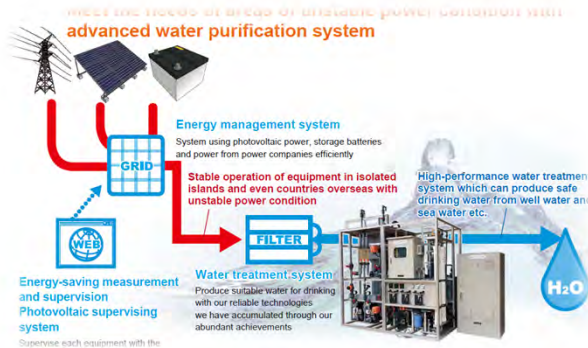
※ We maintain regular after-sales maintenance for each customer site in line with service level agreements, providing within our current service areas.



# Product and Technical Expertise

## • Hybrid Water Purification System

In Southeast Asia there are many islands and rural areas that have problems with electricity, sanitation and health services. Our system can provide water purification enabling clean and safe drinking water to these isolated areas. Daily operation can be managed by the local worker with WEB monitoring system, PV Power and Grid Power to enable cost reduction and stability longer term.



## • Seawater Desalination System

Taking advantage of the construction, operation and management of the largest seawater desalination facility in Japan, we have improved the efficiency and reliability of the Seawater Desalination System. We have products available to suit all requirements, from the small capacity series under 10m<sup>3</sup>/day to the mid-size series of 1000m<sup>3</sup>/day. We can provide bigger product capacity as required.



## <Customer Implementations / Achievements>



Waste Water Treatment system 1600m<sup>3</sup>/day

Customer: Food processing plant (CHINA)  
Treatment Method: Microorganism career and MBR treatment



Recycling System 600m<sup>3</sup>/day

Customer: Food processing plant (CHINA)  
Treatment Method: Active Carbon and UF&RO membrane



Water Purifier for drinking water 5m<sup>3</sup>/day

Customer: INDONESIA  
Treatment Method: UF&RO membrane treatment  
Water Source: Salty ground water  
Technology Used: WEB monitoring function and PV power generation

<b>Corporate Name</b>	<b>Maezawa Industries, Inc.</b>
<b>HQ Address</b>	5-11, Naka-cho, Kawaguchi-shi, Saitama, 332-8556 Japan
<b>Branch Office Address</b>	4F Ayasugi Building 1-15-6 Tenjin Chuo-ku Fukuoka-shi 810-0001 Japan
<b>URL</b>	<a href="http://www.maezawa.co.jp/en/index.html">http://www.maezawa.co.jp/en/index.html</a>
<b>Company Outline</b>	<Representative> Tadashi Matsubara
	<Established> 1947/ 9/26
	<Capital> ¥ 5,233.71 million
	<Employees> 650
	<Overseas Network> Thailand
	<Description of Business> On the basis of the production and selling of the water treatment equipment and water and sewage equipment, We are working on remediation business, social capital development of the environment-related fields.
<b>Department</b>	International Department
<b>Title/Name</b>	Deputy General Manager/ Hiroyuki Tokutake
<b>Contact</b>	<TEL> 048-253-0061
	<Mail> hiroyuki_tokutake@maezawa.co.jp

## Description of Product and Technical Expertise

### «Corporate PR»

#### ■ Valve products

Maezawa has been producing valves and gates with the sophisticated technologies since 1937, and contributed to the improvement of waterworks and sewerage in Japan. Our commitment to quality and performance has been earning customer trust.

#### ■ Water Treatment

Water is necessary for life and indispensable to everyday living. Behind the scenes, Maezawa's technology is maintaining the water cycle from safe drinking water to energy saving wastewater treatment.

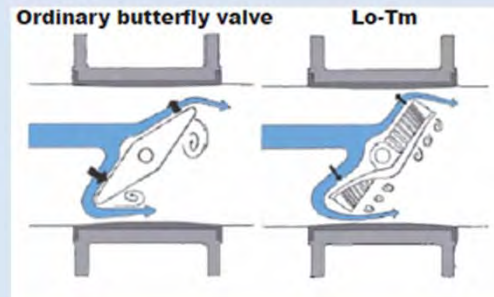
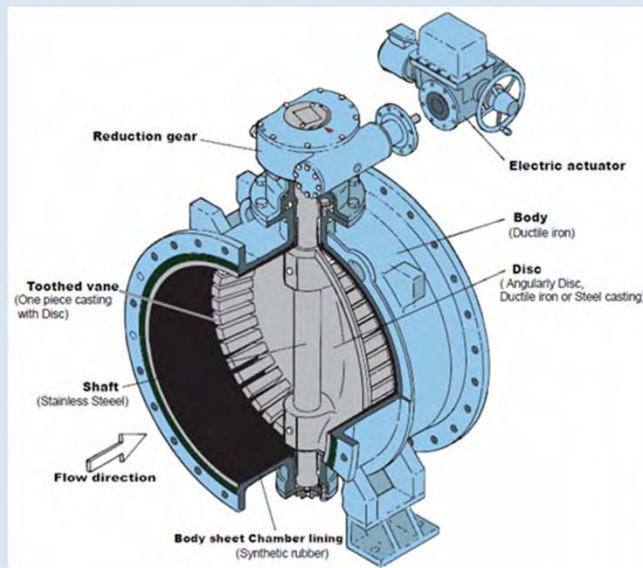
### «Information of Product and Technical Expertise»

#### 1. Lo-Tm

##### 【Outline】

- The butterfly valve with optimized toothed vane disc.
- Suppress cavitation with the toothed vane disc, converting the water flow into multiple Jetstream to disperse energy causing damages.
- Stable throttling valve operation with its special designed disc enabling wide range of flow control characteristics, which was difficult with the conventional disc design.
- Low-dynamic-torque for easy actuation even in the mid-opening angle.

# Description of Product and Technical Expertise



## 【Applications】

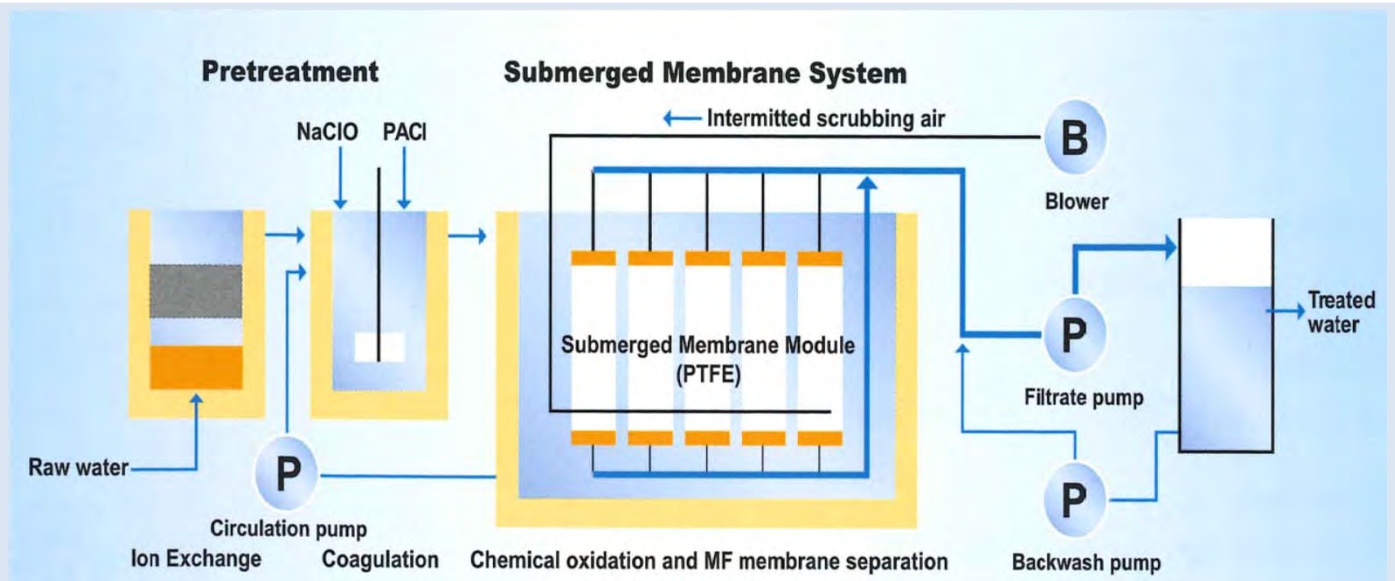
- Suitable for flow control and pressure reduction.
- High reliability with proven technology and operation records in the world.
- Standard Specification
  - Nominal Diameter : 100mm to 1500mm ( available in all size up to around 2500mm)
  - Fluid : Water
  - Maximum operation pressure : 1.0MPa (1.6MPa)

## 2. Hybrid membrane system

### 【Outline】

- The original system of Maezawa Industries combines immersion MF membrane treatment with physicochemical treatment or biological oxidation to realize advanced separation involving dissolved components at low cost.
- When the raw water contains coloring organic matter, addition of powder activated carbon and combination with ion-exchange treatment led to more effective treatment than the procedure of coagulation plus membrane filtration.
- Ammoniacal nitrogen or low-concentration BOD components remaining in raw water can be removed by biological oxidization in the immersion tank.
- It allows advanced separation, including removal of dissolved components at low energy and high recovery rate compared with NF and RO. However, the condition of salts cannot be treated.
- The membrane filtration system adopts PTFE hollow fiber membranes. Since the PTFE hollow fiber membranes are original products in Japan and excellent in chemical resistance, the performance can be recovered by strong alkaline washing that is not applicable to membranes of other materials and operation of long-term stability is realized.

# Description of Product and Technical Expertise



■ Hybrid MF Membrane System

## 【Applications】

- Applicable to drinking water supply facilities and industrial water production facilities.
- It is employed in three water purification plants in Japan, including Takashima city, Shiga prefecture. In addition, the technique is applied to reclamation facilities in a milk plant in Japan and copper concentration of plating drain. The wastewater treatment in key Japanese manufacturers utilizes the system.
- Supported by the NEDO project, a pilot plant was installed in the first water purification plant in Amata City Chonburi Industrial Estate in Thailand for the purpose of producing industrial water (December 2013) and continuous water flow testing is currently conducted.
- Able to obtain quality utility water from severely polluted raw water at relatively low cost with small energy.
- Especially effective for purification treatment of more polluted raw water.



■ Submerged PTFE MF membrane

		Traditional membrane		
		PTFE	PVDF	PP
Chemical-proof characteristics	Acid	◎	◎	○
	Alkali	◎	○	△
	Oxidizing agent	◎	◎	△
	Solvent	◎	△	△
Heat-resistance property(normal temperature °C)		260	150	100~120
Strength rate		10	2	1

■ Chemical-proof characteristics of membrane material & Membrane material strength rate

<b>Corporate Name</b>	<b>Marubeni Corporation</b>
<b>HQ Address</b>	4-2, Ohtemachi 1-chome, Chiyoda-ku, Tokyo, 100-8088, Japan
<b>Branch Office Address</b>	12F, Kyukan Jotenjiodori Bldg., 13-1, Hakataekimae 1-chome, Hakata-ku, Fukuoka, 812-0011, Japan
<b>URL</b>	www.marubeni.com/en/
<b>Company Outline</b>	<Representative> Masumi KAKINOKI
	<Established> 1949/12/1
	<Capital> ¥ 262,686 million
	<Employees> 4,389 (Number of employees of the Group 45,470)
	<Overseas Network> 120 branches, offices and overseas corporate subsidiaries
	<Description of Business> General Trading Company
<b>Department</b>	Environmental Infrastructure Dept.
<b>Title/Name</b>	Senior Associate/SAKAMOTO Masami
<b>Contact</b>	<TEL> 03-3282-3737
	<Mail> Sakamoto-M@marubeni.com

## Description of Product and Technical Expertise

### <Corporate PR>

Marubeni Corporation and its consolidated subsidiaries use their broad business networks, both within Japan and overseas, to conduct importing and exporting (including third country trading), as well as domestic business, encompassing a diverse range of business activities across wide-ranging fields including lifestyle, ICT & real estate business, forest products, food, agri business, chemicals, power business, energy, metals & mineral resources, plant, aerospace & ship, finance & leasing business, construction, auto & industrial machinery, and next generation business development. Additionally, the Marubeni Group offers a variety of services, makes internal and external investments, and is involved in resource development throughout all the above industries.

### <Information of Product and Technical Expertise>

- Equity investment and management of water supply and wastewater relating businesses.
- BOT/O&M/EPC businesses of water supply and wastewater treatment facility, water transmission, desalination plant etc.
- New business with using a new digital technology etc. (Deterioration prediction of the water pipeline etc.).

# Description of Product and Technical Expertise

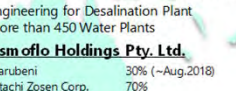
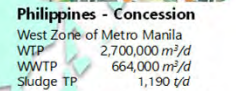
## <Main Business result>

Marubeni conducts various water businesses in Asia, the Americas, Europe, and Middle East, such as investment and management of water concession, BOT, EPC and O&M for water and wastewater treatment facility. Marubeni is a top-class Japanese player in the water business due to its abundant experience and in terms of the size of service population. (Approx. 14.3 million. It is the number of service population of total 4 concessions and 1 BOT which Marubeni holds.) Moving forward, Marubeni aims to further contribute to the improvement of water and wastewater infrastructure through business expansion.

### Project Sites

- BOT/BOO
- Concession
- EPC
- IWPP

**Marubeni**



#### Mexico - BOT

PEMEX Salina Cruz  
Desalination 13,400 m<sup>3</sup>/d  
Recycle Water 8,600 m<sup>3</sup>/d

#### Aguasistema Salina Cruz S.A. de C.V.

Marubeni 50% (~2011)  
Degremont 50%



#### Portugal - Concession

11 Concession-PPP  
WTP 44,000 m<sup>3</sup>/d  
WWTP 483,000 m<sup>3</sup>/d

#### AGS S.A.

Marubeni 100%



#### Peru - BOT

Chillon WTP 216,000 m<sup>3</sup>/d

#### Consorcio Agua Azul S.A.

Marubeni 29.0%  
ACEA 44.0%  
Inversiones Liquidas SAC 27.0%



#### Chile - Concession

Region 1/15, 3, 9, 12  
WTP 676,598 m<sup>3</sup>/d  
WWTP 691,459 m<sup>3</sup>/d

#### Aguas Nuevas S.A.

Marubeni 50%  
Mizuho Marubeni Leasing 50%



#### Chile - Concession

Valdivia  
WTP 70,848 m<sup>3</sup>/d  
WWTP 46,224 m<sup>3</sup>/d

#### Aguas Decima S.A.

Marubeni 100%



#### Brazil - Concession

WTP 66,000 m<sup>3</sup>/d  
WWTP 20,000 m<sup>3</sup>/d

#### AGS S.A.

Marubeni 100%

#### UAE - IWPP

Taweelah B  
727,000 m<sup>3</sup>/d

#### UAE - IWPP

Taweelah A2  
227,000 m<sup>3</sup>/d

#### UAE - IWPP

Fujairah 2  
591,000 m<sup>3</sup>/d

#### UAE - IWPP

Shuweihat S2  
455,000 m<sup>3</sup>/d

#### Saudi Arabia - IWSP

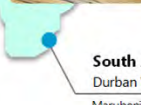
Petro Rabigh  
192,000 m<sup>3</sup>/d

#### Libya

Cathodic Projection  
Great Man-made River Project

#### Saudi Arabia - BOO

Shuqaiq 3  
450,000 m<sup>3</sup>/d



#### South Africa - BOT

Durban WWTP 47,500 m<sup>3</sup>/d

Marubeni 10.0%

Veolia Water Solution & Technologies 51.0%

Umgeni Water Board 18.5%

Khulam 18.5%

Zetachem 2.0%

#### China - BOT

Chengdu, Sichuan  
WTP 400,000 m<sup>3</sup>/d

#### Chengdu General des Eaux-Marubeni Waterworks Co., Ltd.

Marubeni 40% (~2017)  
Veolia 60%

#### China - BOT / O&M/EPC/Manufacturing

Anhui WWTP etc. TTL 2,600,000 m<sup>3</sup>/d

#### Anhui Guozhen Environment Protection Technology Joint Stock Co., Ltd.

Anhui Guozhen Group 37.58%

Anhui Railway Fund 12.90%

Others 49.52%

#### Philippines - Concession

West Zone of Metro Manila  
WTP 2,700,000 m<sup>3</sup>/d

WWTP 664,000 m<sup>3</sup>/d

Sludge TP 1,190 t/d

#### Maynilad Water Services Inc.

Marubeni 20.0%

Metro Pacific Investments 52.8%

DMCI Holdings Inc. 25.2%

Others 2.0%

#### UAE - EPC

Shuweihat Water Transmission  
455,000 m<sup>3</sup>/d

#### Qatar - EPC+O&M

Doha West WWTP  
280,000 m<sup>3</sup>/d

Lusail WWTP  
60,000 m<sup>3</sup>/d

#### Qatar - EPC

Doha North  
Pumping Station/  
Pipeline 439,000 m<sup>3</sup>/d

#### Australia - EPC/O&M/BOT/RENTAL

Engineering for Desalination Plant  
More than 450 Water Plants

#### Osmoflo Holdings Pty. Ltd.

Marubeni 30% (~Aug.2018)

Hitachi Zosen Corp. 70%



Corporate Name	Mitsubishi Chemical Aqua Solutions Co., Ltd.
HQ Address	Mitsubishi Chemical Nihonbashi Building, 2-2, Nihonbashihongoku-cho 1-chome, Chuo-ku, Tokyo
Branch Office Address	CROSS Fukuoka Gintemachi Build. 3F 2-2-28 Gintemachi, Hakata-ku, Fukuoka City, Fukuoka
URL	<a href="https://www.mcas.co.jp/en/">https://www.mcas.co.jp/en/</a>
Company Outline	<Representative> Masakatsu YASUGUCHI (President & CEO)
	<Established> November 1985
	<Capital> ¥ 373.5 million
	<Employees> 473
	<Overseas Network> Philippines, Myanmar
	<Description of Business> Design / manufacturing / construction / maintenance business of “On-site” water treatment system and wastewater treatment system, water quality analysis business, etc.
Department	Overseas Business Support Department
Title/Name	Chief Manager / Takako UEDA
Contact	<TEL> +81-3-6848-1069
	<Mail> <a href="mailto:MCJP-MBX-MCAS_OBD_INFO@mchcgr.com">MCJP-MBX-MCAS_OBD_INFO@mchcgr.com</a>

## Description of Product and Technical Expertise

### <Corporate PR>

From the supply of drinking water to the treatment of wastewater, we meet the needs of customers around the world in a wide range of fields with high value-added solutions using membrane filtration technology and treatment base materials developed by Mitsubishi Chemical Corporation. Utilizing the technology and knowledge cultivated in Japan, we are also promoting business expansion overseas, including developing countries.

### <Information of Product and Technical Expertise>

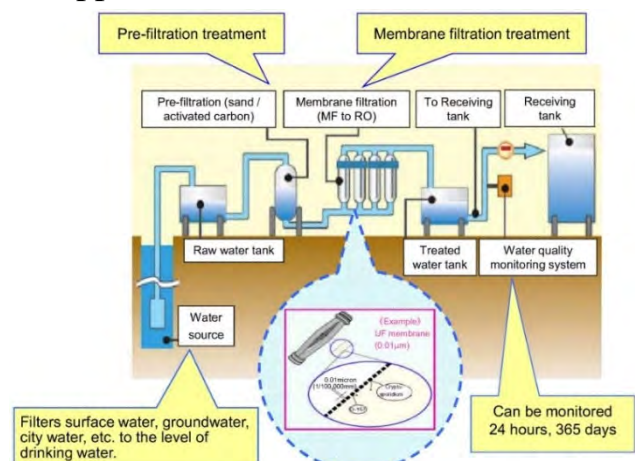
#### (1) “On-site” water treatment system

In this system, water is taken from water sources such as groundwater and surface water (including public water supply systems if overseas) and treated into safe drinking water that meets the client requirements (ex. WHO standards) using membrane filtration and other technologies. Equipped with a cloud-based remote monitoring system, it is possible to constantly monitor the system’s operating status and water quality and also to provide remote technical support.

**Pioneer in “On-site” system & Top market share in Japan \***



(Above) Water treatment system introduced in a hospital  
(Right) Basic treatment flow of water supply system



\* Fuji Keizai Groundwater Utilization System/Service  
Domestic Market Maker Shear (2020, 2021: amount base)

## Description of Product and Technical Expertise

### (2) Wastewater treatment/ recycling

We propose wastewater treatment and recycling systems that suit the needs of our customers, based on the type and quality of the wastewater. Treatment of high BOD and oil-containing wastewater, Membrane Bio-Reactor (MBR) and Zero-Liquid Discharge (ZLD) system are our specialties.

### (3) Remote monitoring system (for drinking water / wastewater treatment system)

The system makes it possible to measure water quality and monitor equipment operation status of treatment plants in real time with instant sharing and access to the information from your smartphones and PCs through cloud servers on the Internet. It can be used for preventive maintenance using equipment monitoring and alert functions in combination with the desired measuring instruments for your existing water treatment plants, water purification plants, sewage treatment plants, etc. It has been introduced for wastewater monitoring in countries where wastewater regulations are becoming strict.

### (4) Water quality analysis

Being registered as an accredited inspection organization by the Japanese government, we conduct inspection of tap water required by law, etc. In 2017, we opened MW Aqua Solutions Co., Ltd. (MWAS), a joint venture company in Yangon, Myanmar that can provide highly accurate water quality analysis services. MWAS Lab acquired ISO9001: 2015 in 2019, and undertakes various water quality analysis and training related to water quality analysis.

### Optimum wastewater treatment system



(Left) Membrane Bio-Reactor (MBR)  
(Right) Zero-Liquid Discharge (ZLD) system

### Globally compatible remote monitoring system



Remote monitoring system "WeLLDAS™"

### Accurate & Precise water quality analysis



Water analysis laboratory of MWAS (Yangon)

### <Main Business result>

#### (1) "On-site" water treatment system

Kenya: 2, Myanmar: 1, Vietnam: 1 (more than 1,300 cases in Japan as of 2021)

#### (2) Wastewater treatment / recycling

MBR (hollow fiber membrane): More than 5,000 world-widely (including MCC delivery record as of 2021)  
Also many achievements of ZLD and oil-containing wastewater treatment.

#### (3) Remote monitoring system

Myanmar: 4, Kenya: 3, Indonesia: 2, Vietnam: 1, Sudan: 1, China: 1  
(more than 400 cases in Japan as of 2021)

#### (4) Water quality analysis

Myanmar: Water quality analysis laboratory in operation in Yangon since 2017 and has performed water quality analysis (drinking water /wastewater/surface water, etc.) for many public and private customers.  
Also provided technical training to Myanmar government laboratory (YCDC, MCDC) in 2018.

<b>Corporate Name</b>	<b>Mitsubishi Electric Corporation</b>
<b>HQ Address</b>	2-7-3,Marunouchi,Chiyoda-ku,Tokyo,Japan
<b>Branch Office Address</b>	Kyushu Branch Office 2-12-1,Tenjin,Chuo-ku,Fukuoka-shi,Fukuoka ,Japan
<b>URL</b>	<a href="https://www.mitsubishielectric.com/">https://www.mitsubishielectric.com/</a>
<b>Company Outline</b>	<Representative> Kei Uruma
	<Established> 1921/01/15
	<Capital> ¥ 175,820 million
	<Employees> about 145 thousand
	<Overseas Network> 109 (R&D, Production, Sales base)
	<Description of Business> We offer a wide range of advanced electrical products and systems for homes, factories, society's infrastructure and even space.
<b>Department</b>	Kyushu branch , Public-use Systems Marketing Department
<b>Title/Name</b>	Assistant Manager/Hidetake Nagai
<b>Contact</b>	<TEL> +81-92-721-2176
	<Mail> Nagai.Hidetake@dw.MitsubishiElectric.co.jp

## Description of Product and Technical Expertise

### <Corporate PR>

We operate water/wastewater business mainly in China and Asia-Pacific countries. In October 2014, we established a marketing and engineering department for public-use systems in Singapore branch and now trying to expand our business into Asian countries.

### <Information of Product and Technical Expertise>

#### I Ozone systems

Mitsubishi Ozone generators Produce high-concentration ozone efficiently with lower life-cycle costs. They continue to be installed at sites involved in potable water treatment, sewage treatment and industrial wastewater treatment. They also can be designed to meet all needs from small to large for plants with either low or high ozone concentration requirements. A complete engineering service is offered, which includes design capability for comprehensive system monitoring and control, to ensure optimal operation of the ozone plant.



## Description of Product and Technical Expertise

### II Supervisory control system

Mitsubishi Electric proposes total systems from enterprise level systems to field devices for use in water treatment facilities such as water treatment plant, waste water treatment plant and pump stations.

Our SCADA system can monitor plant-wide operation and support efficient and easy plant operations. We can provide a highly reliable system to adopt the redundancy control device and the duplicated LAN system.

In addition, we have after-sales service network to support sustainable operations.



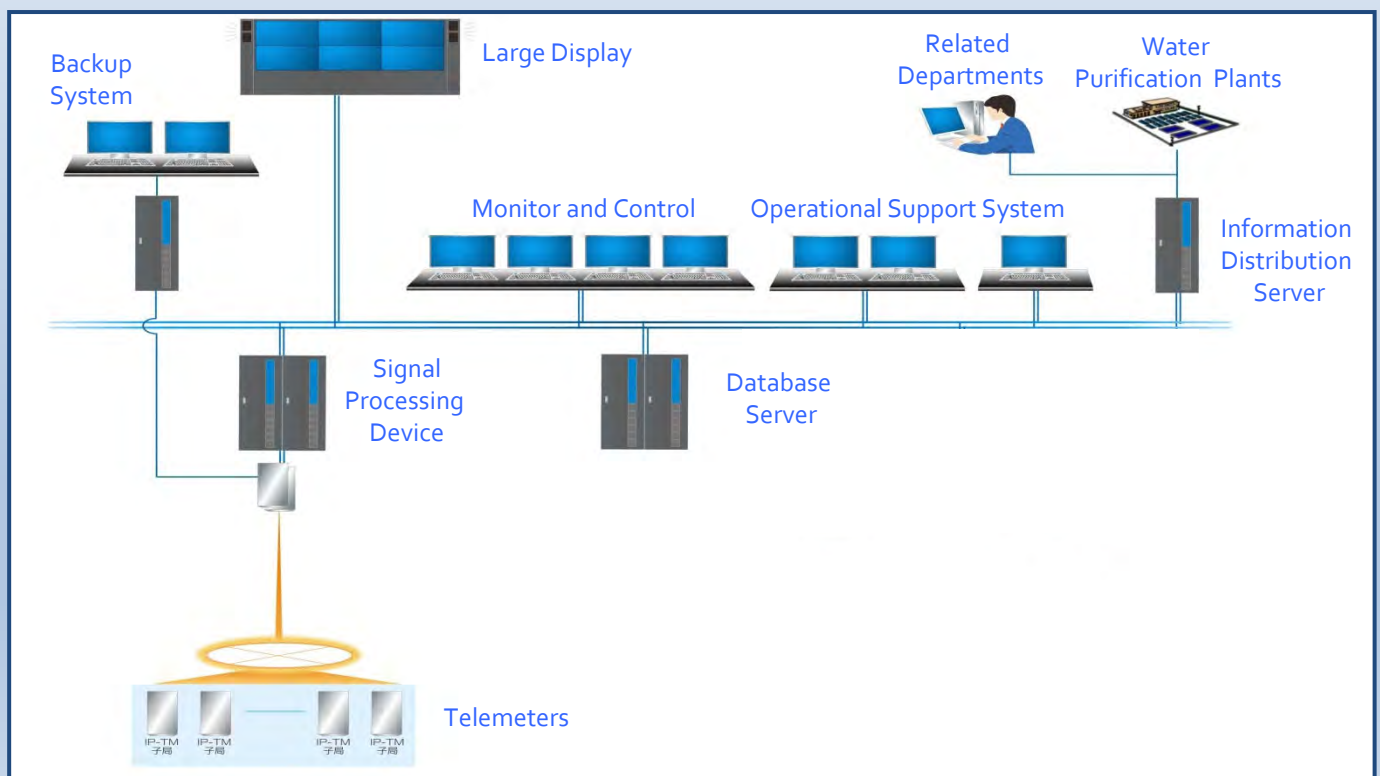
### <Main Business result>

The water distribution control system :

We have delivered this system to Fukuoka city waterworks bureau.

This is the system enables mutual accommodation between each water purification plants and proper control of water pressure in service pipes by monitoring and operating motor valves, water pressure gauges and flow meters on service pipes all over the city.

The system was first introduced in 1981 and its second renewal has finished in March, 2013. The renewal strengthened operation support, efficient water operation more.



Corporate Name	NIPPON KOEI CO., LTD.	
HQ Address	1-14-6 Kudankita ,Chiyoda-ku, Tokyo, Japan	
Branch Office Address	1-2-12 Higashiie,Hakata-ku,Fukuoka-shi,Fukuoka,Japan	
URL	http://www.n-koei.co.jp/	
Company Outline	<Representative>	Ryuichi ARIMOTO, president
	<Established>	June 7, 1946
	<Capital>	¥ 7,393 million
	<Employees>	1,883
	<Overseas Network>	See figure below
	<Description of Business>	<ul style="list-style-type: none"> <li>• Consulting services in infrastructure development projects including master planning, feasibility study, designing, tender assistances, construction supervision, etc. in all sectors.</li> <li>• Manufacturing of electric equipment and devices</li> </ul>
Department	Fukuoka branch	
Title/Name	Manager/Toshihiro YUKI	
Contact	<TEL>	+81-92-475-7569
	<Mail>	a4790@n-koei.co.jp

## Description of Product and Technical Expertise

### <Corporate PR>

Nippon Koei is Japan's No.1 International Engineering Consultants. Nearly 70 years, Nippon Koei has worked on over 5000 multi-disciplinary infrastructure projects in 145 countries all over the world in the fields of energy, transportation, resources, urban and public sector development.



### Overseas NK offices

## Description of Product and Technical Expertise

### Information of Technical Expertise

We provide our clients with strong engineering solutions in planning, designing and construction supervision in infrastructure projects covering all areas in the Water Field.

#### 1. Water Supply Sector

- Number of Project since 2013: 19 projects
- Location of the Projects: 11 countries
- Selected Project Experience



India	Hogenakkal Water Supply & Fluorosis Mitigation Project
Jamaica	The Kingston Metropolitan Area Water Supply Project
Japan	Kohoku Reservoir and Pumping Station Construction Project
Libya	Great Man-made River Project
Peru	Lima Marginal Areas Sanitary Improvement Project (Phases I, II and Huachipa System)
Philippines	Water Supply and Sewerage System Development in West Zone of Metro Manila (PPP Study)
Turkey	Greater Istanbul Water Supply II - Melen System
Vietnam	Nhon Trach Water Supply Project

#### 2. Sewerage and Drainage Sector

- Number of Project since 2013: 27 projects
- Location of the Projects: 11 countries
- Selected Project Experience



Iraq	Baghdad Sewerage Facilities Improvement Project (Engineering Service for Detailed Design)
Japan	Water Quality Simulation and Projection of Tokyo Bay
Morocco	Sewage System Development Project (Phase I & II)
Panama	Panama City and Bay Sanitation Project
Peru	Supervision for the Design, Construction and Commissioning of the Works for the Taboada Wastewater Treatment Plant-PTAR Taboada
Qatar	Doha West Sewage Treatment Works Project
Thailand	Study on Water Recycle Project for Water Supply in Pattaya City (Study on Private-Initiative Infrastructure Projects)
Thailand	Sewage Sludge Treatment/Disposal and Reclaimed Wastewater Reuse
Vietnam	Drainage Project for Environment Improvement in Hanoi (Stage 1&2) Construction Investment of Sewerage and Drainage Components under Haiphong City Environment Improvement Project

#### 3. Seawater Desalination Sector

- Number of Project since 2014: 7 projects
- Location of the Projects: 11 countries
- Selected Project Experience

Cape Verde	Water Supply Development Project in Santiago Island
India	Preparatory survey for seawater desalination project in Chennai
South Africa	Feasibility study on a desalination and water reuse project
Senegal	Preparatory survey for Mamelles seawater desalination plant construction project
Morocco	Water Supply Project for Khemisset and Khoubriga

Corporate Name	Original Engineering Consultants Co.,Ltd.	
HQ Address	30-13, Motoyoyogi, Shibuya-ku, Tokyo, Japan	
Branch Office Address	2-6-12, Hakata-ekimae, Hakata-ku, Fukuoka-shi, Fukuoka, Japan	
URL	http://www.oec-solution.co.jp/e/	
Company Outline	<Representative>	Nobuhiko SUGA, President
	<Established>	January 23,1962
	<Capital>	¥1,093 million
	<Employees>	321
	<Overseas Network>	Hanoi in Viet Nam and Manilla in Philippine
	<Description of Business>	
Department	Overseas Development Department	
Title/Name	Executive Officer / Hiroshi YAMANOUCHI	
Contact	<TEL>	+81-3-6757-8806
	<Mail>	kaigai-site@oec-solution.co.jp

## Description of Product and Technical Expertise

### <Corporate PR>

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.

#### 業務実施国



## Description of Product and Technical Expertise

### <Information of Product and Technical Expertise>

#### **Services**

- Water supply / Sewerage works (Waste water 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 technical supports**

- 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 organic 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 business coordination

### <Main Business result>

No.	Country	Project title	Term	Contractors
1	Viet Nam	Preparatory study on PPP infrastructure project in Ha Nam Province	Nov. 2015 -Jun. 2016	JICA
2	Fiji , Viet Nam	Preliminary study on improvement of sewer situation in Fiji	Oct. 2015 -Mar. 2016	Ministry of Land, Infrastructure, Transport and Tourism
3	Cambodia	Technical advisory services for the industrial waste water treatment project in PP SEZ	Oct. 2015 -Dec. 2015	Local company
4	Solomon Islands	Preparatory study on environmental friendly soil absorption systems in Solomon Islands and other Pacific Ocean Countries	May. 2015 -Mar. 2016	Ministry of the Environment
5	Viet Nam	Feasibility Study on Water Supply project at Kong Dao islands in Ba Ria- Vung Tau province	Oct. 2014 -Mar. 2015	Ministry of Health, Labor and Whelphare
6	Viet Nam	Feasibility Study for Ha Nam Moc Bac Water Treatment Plant	Sep. 2014 -Mar. 2015	Ministry of Economy, Tread and Industry
7	Philippines	Construction Management of Pasay Sewage System Treatment Plant and Combined Interceptor System	Jan.2014 -Dec.2015	MWSI
8	Philippines	Consultant Service ; Paranaque Sewerage System	Feb.2014 -Feb.2017	MWSI



Corporate Name	Sumiju Environmental Engineering, Inc.	
HQ Address	Sumitomo Gotanda Building, 7-1-1 Nishigotanda, Shinagawa-ku, Tokyo, Japan	
Branch Office Address	5-6-20 Nakasu, Hakata-ku, Fukuoka-shi, Fukuoka, Japan	
URL	<a href="http://www.ske.shi.co.jp/">http://www.ske.shi.co.jp/</a>	
Company Outline	<Representative>	Katsusuke YANASE
	<Established>	January 19, 1978
	<Capital>	¥400 million
	<Employees>	Approx. 600
	<Overseas Network>	—
	<Description of Business>	<ul style="list-style-type: none"> <li>▪ Entrustment of test operations for and maintenance and management of environmental health facilities and pollution control facilities</li> <li>▪ Fee collection in relation to environmental health facilities and pollution control facilities</li> <li>▪ Fee accounting agency and consulting services</li> <li>▪ The manufacture, installation, repair, renovation and sale of equipment parts and software of environmental health facilities, pollution control facilities, and related equipment</li> </ul>
Department	Water Treatment Division, Sales Department, Fukuoka Sales Office	
Title/Name	Naoyuki NOGUCHI	
Contact	<TEL>	+81-92-283-1674
		<a href="http://www.ske.shi.co.jp/contact/">http://www.ske.shi.co.jp/contact/</a>

## Description of Product and Technical Expertise



### We aim to be the best partner of water infrastructure through reliable O&M

Sumiju Environmental Engineering (SKE) provides operation and maintenance (O&M) services for environmental facilities such as water purification plants and sewage and wastewater treatment plants with the motto of "taking a hands-on approach to create a comfortable environment". We propose safe, secure and high-quality solutions from facility operations management to repairs, improvements and the provision of chemicals backed by our extensive experience, proven technology and the comprehensive strength of the Sumitomo Heavy Industries Group.



#### Strengths of SKE

##### O&M solutions for water infrastructure

###### Extensive operations record

We operate environmental facilities at over 100 locations nationwide

###### Plant know-how

We provide total support from design, construction, repair and improvement to renewal planning for water and sewerage treatment facilities, environmental facilities and sanitation facilities as a member of the Sumitomo Heavy Industries Group.

###### Business management know-how

We were the first to respond when water and sewage treatment facility management was outsourced to the private sector. These days, we are able to leverage the technology and know-how that we have developed and evolved over more than 30 years in our day-to-day business operations.

##### Regional contribution and symbiosis

###### Harmony with local communities

We are deepening interaction with local communities and supporting regional revitalization through our active participation in local events and encouragement and promotion of volunteer activities, etc.

###### Cooperation with local companies

We aim to cooperate with local companies in a variety of forms such as through the establishment of specific contract joint ventures and special purpose companies, the conclusion of disaster assistance agreements, partial subcontracting and dispatch agreements, the placement of orders for incidental business, etc. and local purchasing.

##### Compliance and enhancement of resident services

###### Energy conservation and natural environmental protection

We contribute to the realization of a recycling-oriented society through joint research on energy-saving and environmental load reduction as well as by promoting total water infrastructure solutions.

# Description of Product and Technical Expertise

## SKE's Main Businesses



**We are at the forefront of water treatment and recycling for "clean water".**

Management of environmental facilities is increasingly being outsourced to the private sector, and we are entrusted with operating and maintaining a number of water and sewage treatment facilities. Water is the barometer of the environment. We aim for reliable business operation through inspection, maintenance and operations management in order to always produce safe, clean water. We also make full use of our total maintenance technology to streamline facility operations, reduce costs and conserve energy.

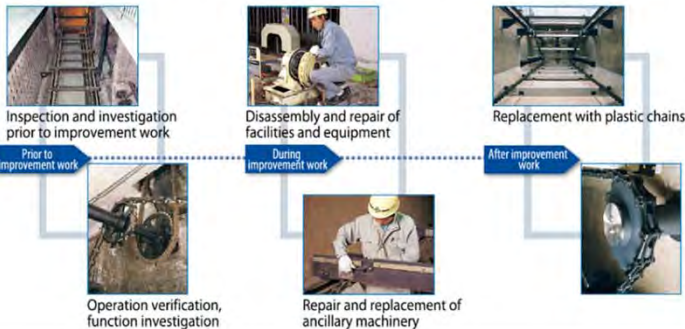


**We make detailed repairs and improvements based on comprehensive diagnosis in order to ensure "reliable operations".**

Regular maintenance of facilities, together with day-to-day management, is essential to the continued production of clean water. Using the latest technology, we perform the optimal repairs and improvements for safe and efficient operations.

### Primary improvement works

We carry out repairs, improvements and renewal works utilizing our latest technology and know-how based on an in-depth investigation report created in advance.



**We select the optimal chemicals for "advanced treatment" and deliver them to each plant.**

The chemicals used differ between facilities such as water purification plants, sewage treatment plants and wastewater treatment plants, etc. We repeatedly analyze various chemicals, select those with a greater treatment effect, and deliver them to plants.

### Example of products we handle



## We are expanding our network of branches and offices around Japan, allowing us to take on more contracted operations and maintenance work

The trend of outsourcing water and sewage treatment facility operations to the private sector has seen us grow to provide operations and maintenance services at facilities in over 100 locations across Japan. Providing comprehensive operations and maintenance (O&M) through our network of branches and offices around the country, we strive to precisely meet customer needs as well as ensure safety and conserve the environment in each region.

### Monitoring



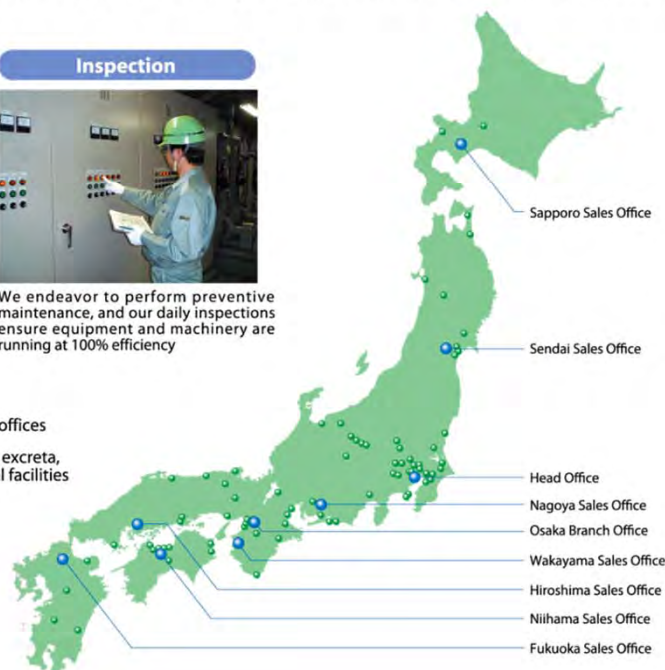
We monitor and ascertain treatment plant operating conditions in real-time at our state-of-the-art facilities.

### Inspection



We endeavor to perform preventive maintenance, and our daily inspections ensure equipment and machinery are running at 100% efficiency


- Head office, branch offices and sales offices
- Water purification, sewage, leachate, excreta, garbage, industrial waste, agricultural facilities



### Repairs and improvements



Incinerators heat exchanger replacement (high efficiency and energy saving)

<b>Corporate Name</b>	Swing Corporation	
<b>HQ Address</b>	7-18, Konan 1-chome, Minato-ku, Tokyo, Japan	
<b>Branch Office Address</b>	(Kyushu Branch) 3-9-25 Tenjin, Chuo-ku, Fukuoka-city, Fukuoka prefecture, Japan	
<b>URL</b>	<a href="http://www.swing-w.com/eng/">http://www.swing-w.com/eng/</a>	
<b>Company Outline</b>	<Representative> Shigeo Mizutani	
	<Established> April 1, 1977	
	<Capital> ¥ 5,500 million	
	<Employees> 3,700 (in 2017)	
	<Overseas Network> China, Vietnam, Indonesia and Malaysia	
<Description of Business> Operation, maintenance, design, execution, sale and facility diagnosis of environmental and sanitary installations, anti-pollution plants, and electricity generating installations/Various construction work/Manufacture and sale of industrial chemicals and various kind of gas for industry		
<b>Department</b>	Sales & Marketing Unit, Global Sales & Marketing Department	
<b>Title/Name</b>	Yujiro TSUTSUI	
<b>Contact</b>	<TEL> +81-50-3482-8163	
	<Mail> <a href="mailto:tsutsui.yujiro@swing-w.com">tsutsui.yujiro@swing-w.com</a>	

## Description of Product and Technical Expertise

### <Corporate PR>

Swing Corporation is a leading water solution provider in Japan, we design, build and operate water and wastewater treatment plants for customers. Swing currently operates over 300 water treatment facilities and is developing an international business to meet local needs, working in cooperation with our business partners.

### <Information of Product and Technical Expertise>

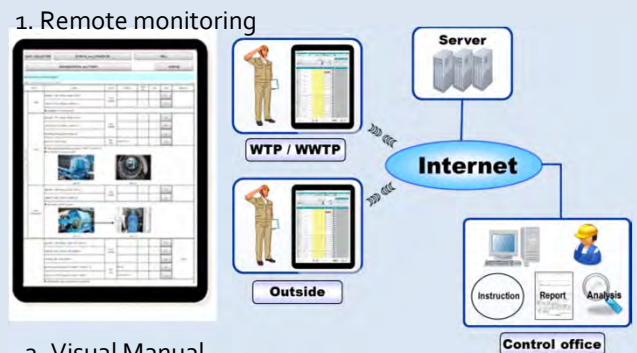
#### Swing Water Net (Remote Monitoring System)

Information communication technology supporting Operation and Maintenance.

1. Data sharing via wireless communication.  
(Ex. Connect Japan and Cambodia, a city in Cambodia and water treatment plant located in other city, and so on.)

Reasonable Operation and Maintenance based on consolidated maintenance information.

2. Effective for O&M technology succession with animation, photo, figure, and note.



#### 2. Visual Manual

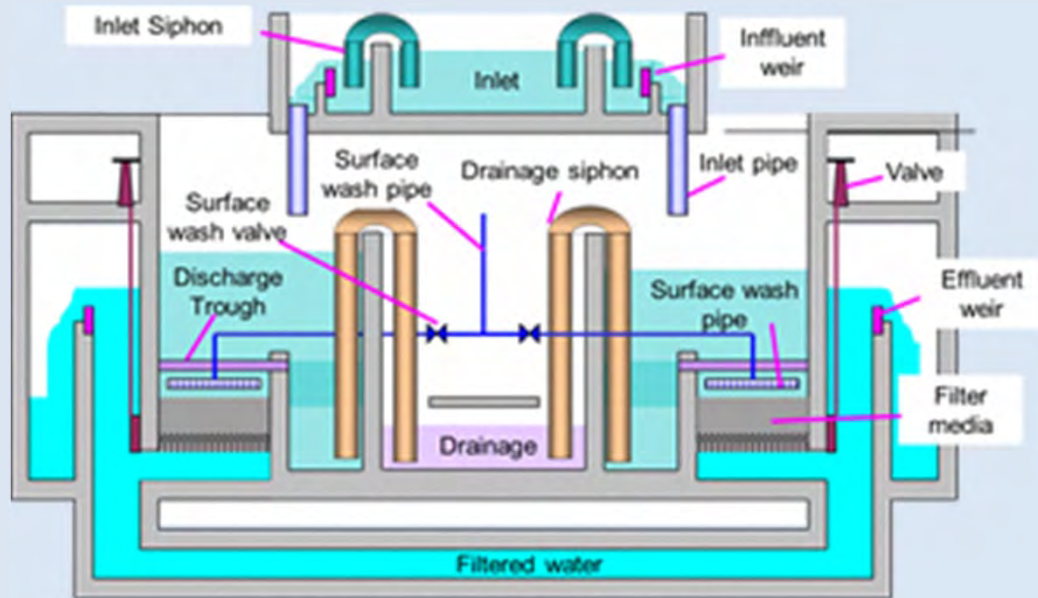


## Description of Product and Technical Expertise

### GREENLEAF® Filter

A full-automatic gravity type high-rate filter.

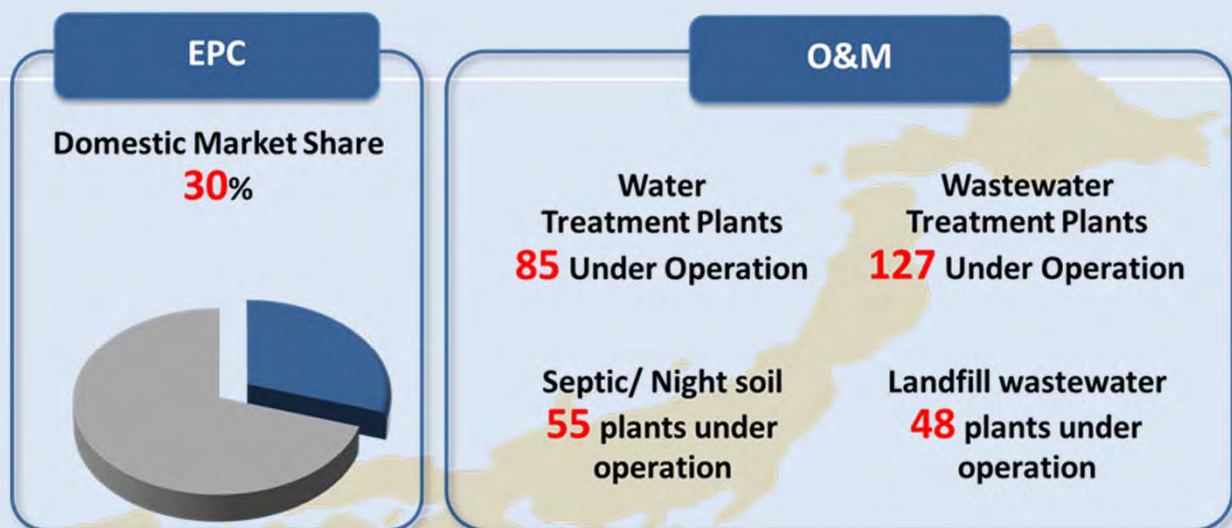
The effective utilization of the dynamic energy of water enables an assured and smooth automatization in filtration facility. Thus, a rapid improvement of the filtering functions is attained dispensing with any large-scale complicated control mechanisms.



Cross Section of Filtration Basin

### <Main Business result>

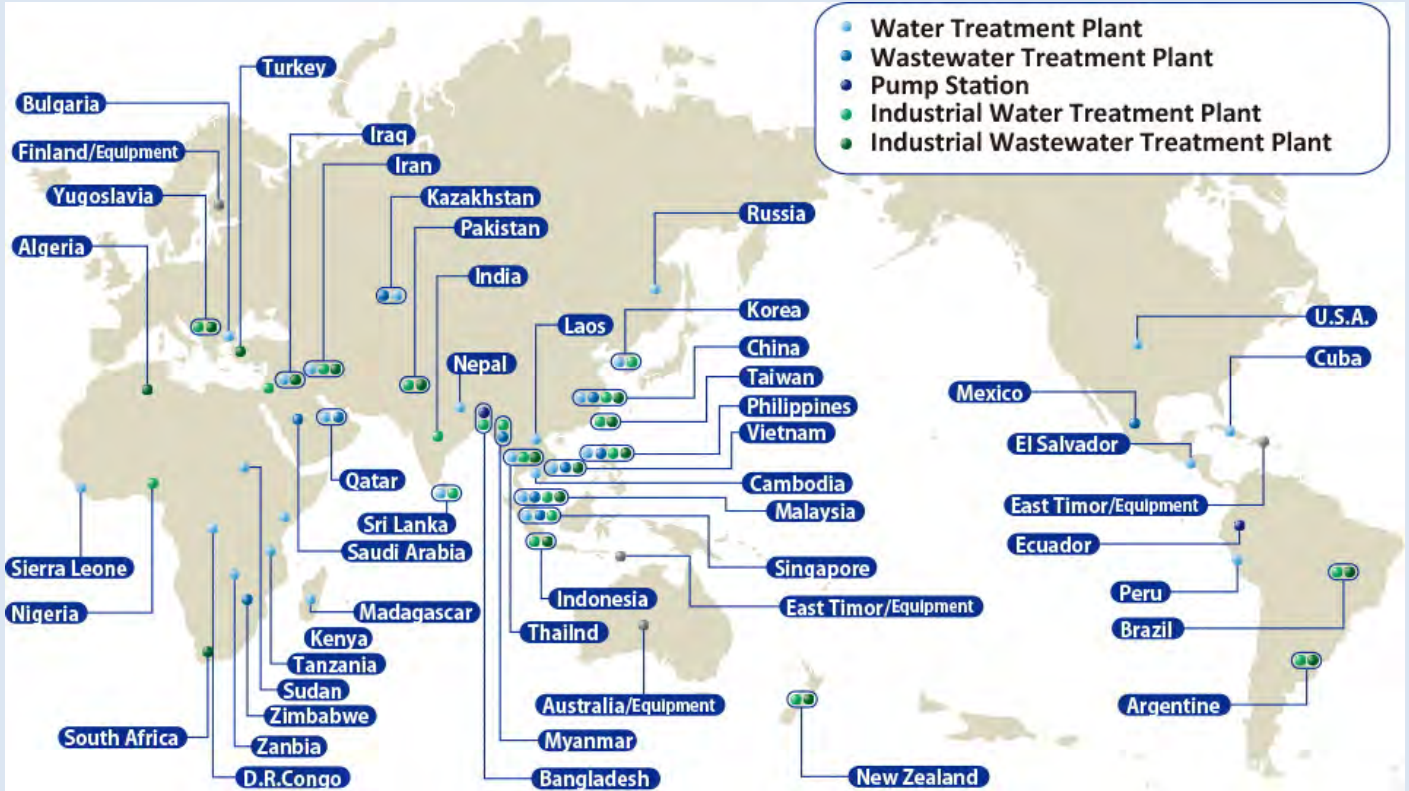
SWING has leading shares for EPC and O&M in Japan and plentiful experience abroad.



(From June 2018, our OM business is transferred to Swing AM Corporation)

# Description of Product and Technical Expertise

Accomplished 750 projects in over 50 countries



Corporate Name	Taisei Kiko Co., Ltd.		
HQ Address	1-1-3-2700, Umeda, Kita-ku, Osaka-shi, Osaka, JAPAN		
Branch Office Address	1-4-4 Hakata Ekimae, Hakata-ku, Fukuoka -shi, Fukuoka, JAPAN		
URL	<a href="https://www.aiseikiko.com/aiseikiko/">https://www.aiseikiko.com/aiseikiko/</a>		
Company Outline	<Representative>	Hitoshi SUZUKI	
	<Founded>	April 15, 1941	
	<Capital>	¥98 million	
	<Employees>	381 (as of April 1, 2016)	
	<Overseas Network>	U.S.A., Hong Kong, Singapore, France, Italy, Austria	
	<Description of Business>	Manufacture and Sales of Fittings and Equipment for Water Works, Sewage and Gas	
Department	Overseas Business Group		
Title/Name	Section Manager / Tadahiro YAMADA		
Contact	<TEL>	+81-6-6344-7784	
	<Mail>	overseas@aiseikiko.com	

## Description of Product and Technical Expertise

### <Corporate PR>

Since its foundation in 1941, we have developed retainer glands and various pipe fittings with concept of water pipeline maintenance. As its unique procedure, under pressure construction method is also highly valued. We possess more than 500 industrial property rights worldwide. In 1999, we acquired ISO9001, which is one of the international quality management systems standards.

### <Information of Product and Technical Expertise>

#### (1) Repair Sleeve for Ductile Cast Iron Pipe

Repair sleeve can be fitted to pipes without suspending the water flow to stop the water leakage. Installation is very easy and requires no special tools to repair damaged pipes. It can be applied to various kinds of pipes and also pipe sizes.



## Description of Product and Technical Expertise

### (2) Flange Reinforcement Fitting

Reinforcement fitting for the flange joints. It can be easily installed by just tightening hexagon headed bolt, and it has earthquake-resistant reinforcement capabilities.

- Compact design
- Flange joint can achieve earthquake resistant performance
- Can be installed even if the outer circumference of the flange is not circular.
- Can be applied to flange joints of auxiliary and air valves.



### (3) Tai-Flex

Ductile iron ball type flexible expansion joint for the purpose of protecting pipeline from pulling out of jointed parts and/or damage which are caused by ground subsidence in reclaimed land and soft ground. It can achieve expansion/contraction, and torsion movements all at the same time.



### <Main Business result>


1. Tai-Flex was installed on the bridge connecting Kansai International Airport and the mainland to cater for vertical movement which occurs from land subsidence. (December 1993)
2. In overseas, Tai-Flex is used to protect pipeline from not only earthquakes, but also from land subsidence (reclaimed land) and landslide.



1. Kansai International Airport



2. Overseas Construction Site

Corporate Name	TAKUWA Corporation 
HQ Address	1-4-15 Uchikanda Chiyoda-ku Tokyo
Branch Office Address	10-28 Hiemachi hakata-ku Fukuoka-shi, Fukuoka pref.
URL	<a href="https://www.takuwa.co.jp/en/index.html">https://www.takuwa.co.jp/en/index.html</a>
Company Outline	<Representative> Makiko Okuda
	<Established> 1965 March 26
	<Capital> ¥ 100 million
	<Employees> 180
	<Overseas Network>
	<Description of Business> Manufacturing and sales of sensors for water resource management, Flood/Sediment disaster mitigation.
Department	International Marketing Office
Title/Name	Subsection Chief: Junko Wakatsuki
Contact	<TEL> +81 3 3291 5380
	<Mail> <a href="mailto:e-info@takuwa.co.jp">e-info@takuwa.co.jp</a>

**Description of Product and Technical Expertise**

<Corporate PR>  
Takuwa Corporation has been manufacturing and providing monitoring sensors for disaster-prevention measures such as water level gauge and sediment disaster detecting sensor. We have been developing a strong background of manufacturing, sales, installation works, and maintenance works in our 50 years history at home and overseas.

<Information of Product and Technical Expertise>



Quartz-type Water Level Gauge



Pressure-type Water Level Gauge



Microwave-type Water Level Gauge



Laser type Water Level Gauge



Staff Gauge

- Application System:**
- ◆ Dam Control System
  - ◆ River Monitoring System
  - ◆ Sediment detection System
  - ◆ Irrigation Water Management System



Wire sensor



Ground Aeration Sound Listening Device



Buoy type Water Level Gauge



<Main Business result>



◆ Myanmar  
Irrigation Water management  
(Quartz-type water level gauge)



◆ Myanmar  
Irrigation Water management  
(Quartz-type water level gauge)



◆ Laos  
Hydropower Water management  
(Quartz-type water level gauge)



◆ Malaysia  
Debris flow warning system



◆ Indonesia/Ambon Island  
Land slide dam water observation  
(Buoy-type water level gauge )



◆ Vietnam  
Dam gate operation  
(Gate opening Indicator, Quartz-type water level gauge)

<b>Corporate Name</b>	<b>TEC International Co., Ltd.(TECI)</b>	
HQ Address	3-7-1 Kasumigaseki Chiyoda-ku, Tokyo, Japan	
Branch Office Address	3-3-3 Hakataeki-higashi, Hakata-ku, Fukuoka-shi, Fukuoka, Japan	
URL	http://www.teci.jp	
Company Outline	<Representative>	Akira TAKECHI
	<Established>	October 1, 2012
	<Capital>	¥60 million
	<Employees>	54
	<Overseas Network>	India/New Delhi, Azerbaijan/Baku
	<Description of Business>	Water Supply and Sewerage of Planning, Design, Construction Supervision, Operation & Maintenance, Technical Assistance and Water Environmental Management
Department	Administration Department	
Title/Name	Director, Group Manager / Kazuyoshi IWAHASHI	
Contact	<TEL>	+81-3-3580-2418
	<Mail>	iwahashi-k@teci.jp

### Description of Product and Technical Expertise

#### <Corporate PR>

TEC International Co., Ltd. ("TECI") continues carrying out Projects as a successor of the overseas department of Tokyo Engineering Consultants Co., Ltd. ("TEC") and in October 2012 started operation as a fully owned subsidiary of "TEC". Since its establishment in 1959, "TEC" has been mainly committed to development of infrastructure in water sector through providing consulting engineering services in the fields of water and sanitation for more than five decades. In addition to domestic projects within Japan, the Firm has been actively involved in overseas project starting water related project in Laos. The Firm has successfully implemented water related Japanese Official Development Assistance (ODA) Projects in more than 40 countries in Asia, Middle East, Eastern Europe, Africa, and South America. Among the Projects undertaken by the Firm, many projects have historical significance in terms of the Japanese ODA, such as water supply improvement project in Phnom Penh City (Cambodia), water supply improvement project in East Timor (implemented after independence), and ongoing capacity development project for improvement of water supply services in South Sudan. Presently "TECI" is carrying out water supply improvement projects in Myanmar, the country that has drawn attention from entire World, in the cities of Yangon and Mandalay.

With the strength that "TECI" has accumulated through its overseas project experiences, the Firm aims at business development in developing countries around Asia, Middle East, Eastern Europe, Africa, and South America. In addition, "TECI" is also planning to widen its project areas in capacity development projects through human resource development and enhancing awareness of society towards management of global water environment. Amid growing water demand for increasing population worldwide, "TECI" policy is to aggressively increase water business through providing advanced services and participating in initiatives such as PPP.

## Description of Product and Technical Expertise

### <Main Business result>

#### **Asia**

Myanmar: Yangon water supply improvement and extension project  
Mandalay water supply system Improvement project  
Yangon City Development Committee capacity development project  
India: Delhi water supply facilities improvement project  
Thailand: Bangkok sewage rehabilitation and improvement project

#### **The Near and Middle East**

Iraqi: Baghdad sewer improvement project  
Jordan: Amman water supply treatment plant expansion project  
Balqa water supply rehabilitation and extension project  
Urgent water supply improvement Project for Syria refugees

#### **Africa**

Congo : Kinshasa water supply treatment plant expansion project  
South Sudan: Juba City water supply improvement project  
Uganda: Kyoga lake basin district rural water supply project  
Ethiopia: water and sanitation project in rural areas

#### **Central and South America**

Honduras: Comayagua water supply facilities rehabilitation and expansion project

#### **Eastern Europe others**

Albania : Tirana City sewer maintenance project  
Macedonian: Lake ohrit sewerage treatment facilities rehabilitation project  
Azerbaijan: local city water and sewage rehabilitation and extension project  
Ukraine: Bolt niche sewerage treatment plant rehabilitation and expansion project

Corporate Name	TOKYO KEIKI INC.
HQ Address	2-16-46, Minami-Kamata, Ohta-ku, Tokyo
Branch Office Address	Sapporo, Sendai, Kita-Kanto, Nagoya, Osaka, Hiroshima, Fukuoka
URL	<a href="https://www.tokyokeiki.jp/e/products/measurement/">https://www.tokyokeiki.jp/e/products/measurement/</a>
Company Outline	<Representative> Tsuyoshi Ando
	<Established> 1896 / 5 / 1
	<Capital> ¥ 7,218 million
	<Employees> 1,700 (Group approx.)
	<Overseas Network> Representative office of TOKYO KEIKI INC in Ho Chi Minh city
<Description of Business> Developing and Selling Ultrasonic Flowmeter and Radar Level Gauge	
Department	Measurement Systems Company
Title/Name	Overseas Sales Sect. Sales Dept. Measurement Systems Company
Contact	<TEL> +81-3-3737-8664
	<Mail> s-sakai@Tokyo-keiki.co.jp

### Description of Product and Technical Expertise

#### <Corporate PR>

Bolstering river disaster prevention and water resource management with accurate flow and level measurement technology.

Accurate measurement and management of water flows and level are essential not only for the effective utilization of limited water resources but are critical in the prevention of disasters such as river flooding caused by localized heavy rains and other emergencies. This technology is also a critical component in process control of aqueous chemical storage tanks and other application that are vital to maintaining an optimal social infrastructure. TOKYO KEIKI provides a wide range of proven reliable and accurate flow and fluid level measurement products which meet the needs of society's infrastructure.



## Description of Product and Technical Expertise

### <Information of Product and Technical Expertise>

#### Clamp-on Ultrasonic Flowmeter

Our flowmeter can achieve a flow measurement with installing sensors onto pipe surface only. No cutting pipes, No plumbing work, can keep water supplying. For water purification plant, dam, power plant, vessel etc. Total over 2,000 units record for all over the world.



#### Radar Level Gauge

Radiate radars to liquid surface and get the reflection then output liquid level. This can achieve a stable measurement because radar is not affected by a atmosphere change like temperature, humidity.

For water purification plant, dam, river or sea observatory, food and chemical tank etc. Total over 10,000 units record with our level gauge series.



### <Main Business result>

As we mentioned above, we have the records of over 2,000 units flowmeter and 10,000 units Radar Level Gage in series.

We have installation records in all over the world.

Thailand, Vietnam, Malaysia, Indonesia, Singapore, Philippine, Laos, Myanmar, Korea, China, India, Sri-Lanka, Pakistan, United Arab emirates, Saudi-Arabia, Egypt, Portugal, Russia, USA, Russia, Netherlands, South-Africa, kenya, Nigeria .

**TOKYO**  
**KEIKI**

<b>Corporate Name</b>	<b>Toshiba Infrastructure Systems &amp; Solutions Corporation</b>
<b>HQ Address</b>	72-34, Horikawa-cho, Saiwai-ku, Kawasaki, Japan
<b>Branch Office Address</b>	2-4-1, Nagahama, Chuo-ku, Fukuoka, Japan
<b>URL</b>	<a href="https://www.toshiba.co.jp/sis/en/environment/index.htm">https://www.toshiba.co.jp/sis/en/environment/index.htm</a>
<b>Company Outline</b>	<Representative> Takayuki KONNO
	<Established> 2017/7/1
	<Capital> ¥ 10,000 million
	<Employees> 19,000(Approx.)
	<Overseas Network> India, Indonesia, China, Philippines, USA, Trinidad & Tobago, Oman, Georgia
	<Description of Business> Manufacturing Electric equipment and Systems for Water & Environmental, Building, Airport, Transportation, Communication and Broadcast Infrastructure. In oversea water sector, particularly conducting business as EPC and O&M contractor.
<b>Department</b>	Water & Environmental Oversea Sales Dept.
<b>Title/Name</b>	Senior Manager / Eiichi YOKOYAMA
<b>Contact</b>	<TEL> +81 44-331-0811
	<Mail> <a href="mailto:eiichi.yokoyama@toshiba.co.jp">eiichi.yokoyama@toshiba.co.jp</a>

## Description of Product and Technical Expertise

### <Corporate PR>

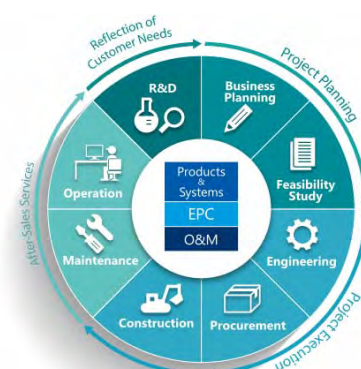
Toshiba has addressed various issues of water and environment for more than 40 years by supplying systems and know-how of planning, construction and operation.

Based on our abundant experience and expertise, Toshiba keeps contributing to the creation of sustainable water cycle system and environmentally-friendly community by supplying optimum solutions with our best understanding of each culture and environment.

### <Information of Product and Technical Expertise>

Toshiba Offers

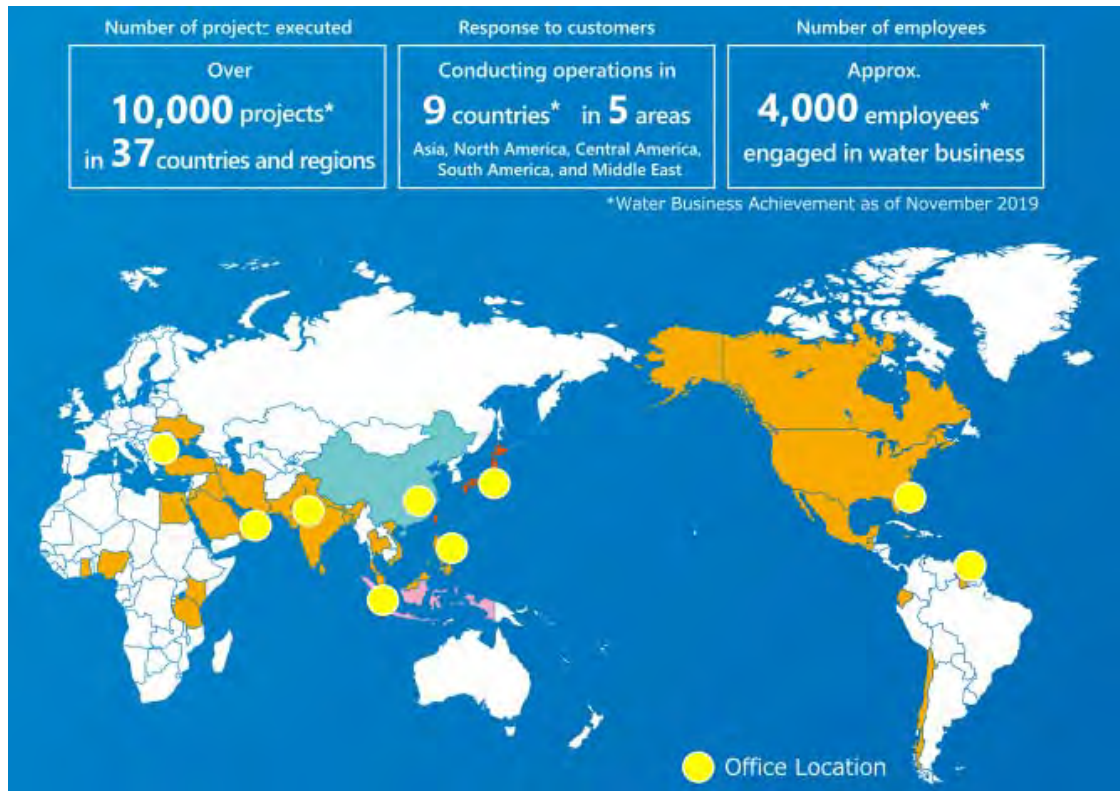
1. Optimum water treatment system based on abundant experience and expertise
2. One-stop solution from planning, construction to operation and maintenance services
3. Best suited engineering which fits local circumstances through global network



## Description of Product and Technical Expertise

### Water Treatment System

Toshiba has been providing water and wastewater treatment system for overseas market since 1995. We have rich track record of EPC services, especially in sewerage water treatment, by supplying various treatment technologies like CAS, SBR, MBR and BNR which well-tailored to the requirement. Toshiba supplies advanced water treatment system with our specific technologies like ozone generator.



### Overseas Track Record

In municipal field, Toshiba participates

- ODA projects funded by international agencies such as JICA, U. S. Exim
- International development financial institution funded projects such as WB, ADB
- WTP/STP/ETP projects for Large Industrial park

Location	Plant Type	Capacity (m3)	System	Scope
India	WTP-Municipal	200,000		O&M
	STP-Municipal	182,000	ASP	EPC
	STP-Municipal	4,546	MBR+BNR	EPC
	STP-Municipal	72,000	SBR+BNR	EPC+O&M
	STP-Municipal	240,000		O&M
Philippines	STP-Municipal	88,000	ASP+BNR	EPC+O&M
Malaysia	STP-Municipal	83,000	ASP	EPC
Indonesia	WTP-Municipal	17,000	Rapid Sand Filtration	EPC
	STP-Industrial	30,000	Rapid Sand Filtration	EPC
	Desalination	9,600	SWRO, BWRO	EPC
Oman	STP-Municipal	10,000	MBR	EPC
	ETP/STP-Industrial	40,000	ASP+Recycle	EPC+O&M
Ghana	WTP-Municipal	8,000	Rapid Sand Filtration	EPC
Trinidad & Tobago	WTP-Municipal	87,000	Rapid Sand Filtration	EPC

# Description of Product and Technical Expertise

## Ozone Generators - TGOGS™

Toshiba launched an Ozone Generator in 1970' s and we have introduced especially for WTPs in Japanese metropolitan cities.

### 高信頼性 High reliability

放電管はガラスの内部に耐食性ステンレス皮膜を採用し、軽量化と長寿命化を実現しています。(10年間破損率が3%以下)  
TGOGS™ electrodes are made of stainless steel film on the surface of glass tubes. These discharge tubes offer long life and lightweight ozone generator (Breakdown rate of 3% or less in 10 years).

### 高効率 & 高濃度 High efficiency and ozone concentrations

小口径放電管の採用により、効率よく高濃度のオゾンが発生させることができます。  
The small diameter discharge tubes make it possible to generate ozone high efficiency and ozone concentrations.

### ラインナップ Product line-up

ご希望に応じて、カスタムメイドが可能です。  
We can customize the design according to customers' request.

	酸素源 Oxygen Fed	空気源 Air Fed
オゾン発生量 Ozone production	~120 kg O <sub>3</sub> /h	~50 kg O <sub>3</sub> /h
オゾン濃度 Ozone concentration	~16wt%	~4.5wt%
収率 Specific energy	7~8 <sup>(*)1</sup> kWh/kg O <sub>3</sub>	14 <sup>(*)2</sup> kWh/kg O <sub>3</sub>

[\*1] 冷却水温度 15℃の条件下  
[\*2] With cooling water inlet temperature of 15℃



東芝オゾン発生装置 TGOGS™<sup>(\*)2</sup>  
Toshiba's ozone generators

[\*2] TGOGS™ は東芝インフラシステムズ(株)の登録商標です  
[\*2] TGOGS™ is a registered trademark of Toshiba Infrastructure Systems & Solutions Corporation.

## Operation & Maintenance

Toshiba has rich experience of Operations and Maintenance service both in Japan and Overseas. In recent years, overseas projects have an abundant track record since EPC contracts have been accompanied by O & M contracts of 1 to 15 years.

We will further improve the efficiency of O&M operation by utilizing Toshiba's IoT technology.

### Utilization of IoT in O&M





Corporate Name	JAPAN DUCTILE IRON PIPE ASSOCIATION	
HQ Address	4-8-9 Kudanminami, Chiyoda-ku, Tokyo, Japan	
Branch Office Address	2-14-2 Tenjin, Chuo-ku, Fukuoka-shi, Fukuoka, Japan	
URL	http://www.jdpa.gr.jp	
Company Outline	<Representative>	Tomoyoshi MOTOYAMA, Chief Director
	<Established>	October, 1947
	<Capital>	—
	<Employees>	32
	<Overseas Network>	—
	<Description of Business>	Business subject is the technical activity of research, study, standardization and etc. for quality and workability improvement of ductile iron pipe, and the public relations for popularization and promotion.
Department	Kyusyu Branch	
Title/Name	Director, Kyusyu Branch / Yasuhiro FUJINO	
Contact	<TEL>	+81-92-771-8928
	<Mail>	kyu-b@jdpa.gr.jp


## Description of Product and Technical Expertise

### <Corporate PR>


Japan Ductile Iron Pipe Association is organized group by ductile iron pipe manufacture party in Japan. This association has the cabinet of many literates and various committees, and broad movement have been doing in the nationwide. Cast iron pipe has several million years history, during the time, has made many improvements. It is as ductile iron pipe has strong property currently that is used widely waterworks, small water system, sewerage, industrial water, agricultural water, gas, communication, electricity and etc.

Moreover, Homepage was established in July 2000 that have released the activities and the technical information, and two way communication have been done in Q&A corner.


### <Information of Product and Technical Expertise>



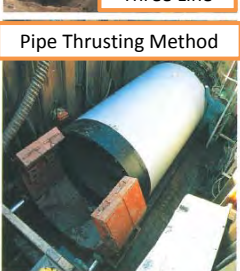
Shield Jacking Pipe




Open Cut Method




Emergency Reservoir




Three Line




Exposure Piping



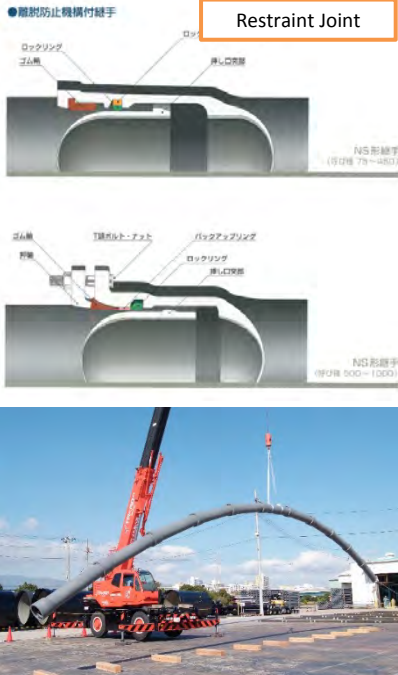
Pipe Thrusting Method



Pipe in Pipe Method



Water Pipe Bridge



Restraint Joint

# Description of Product and Technical Expertise

Business subject is technical activity of research, study, standardization and etc., for quality and workability improvement of ductile iron pipe, and public relations for popularization and promotion.

Specifically, as follows:

1. Study of material and joint for ductile iron pipe
2. Establishment of standard for ductile iron pipe
3. Publication of various technical materials
4. Survey of pipe line
5. Technical conference and practical joint training course
6. Participation in exhibition and etc.
7. Contact with relevant government organizations

Ductile Cast Iron

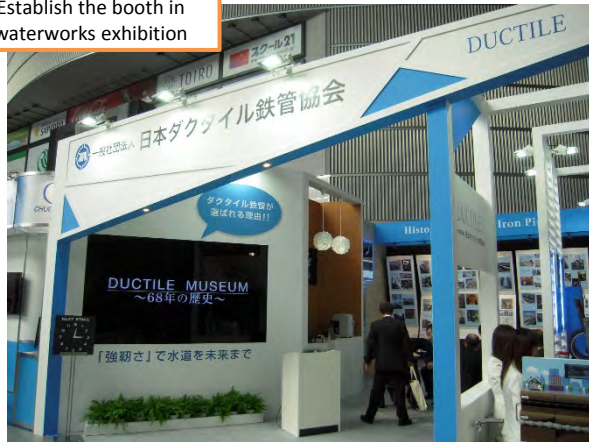


High Quality Cast Iron



■一体化長さの埋設試験

Establish the booth in waterworks exhibition



Standard of Ductile Iron Pipe

これらの主なダクタイル鉄管の規格を以下に示します。

国際規格	ISO規格	ISO 2531 Ductile iron pipes, fittings, accessories and their joints for water pipelines-Requirements and test methods
国際規格	EN規格	EN 545 Ductile iron pipes, fittings, accessories and their joints for water pipelines-Requirements and test methods
	ANSI規格	ANSI/AWWA C151/A21.51 Ductile-iron pipe, centrifugally cast for water
国際規格	BS規格	BS EN 545 Ductile iron pipes, fittings, accessories and their joints for water pipelines-Requirements and test methods
国際規格	JIS規格	JIS G 5526 ダクタイル鑄鉄管
		JIS G 5527 ダクタイル鑄鉄異形管
JWWA規格	JWWA規格	JWWA G 113 水道用ダクタイル鑄鉄管
		JWWA G 114 水道用ダクタイル鑄鉄異形管
JSWAS規格	JSWAS G-1	下水道用ダクタイル鑄鉄管
	JSWAS G-2	下水道推進工用ダクタイル鑄鉄管
JDPA規格	JDPA G 1027	農業用水用ダクタイル鑄鉄管
	JDPA G 1029	陸上工用ダクタイル鑄鉄管
	JDPA G 1030	ダクタイル鑄鉄管
	JDPA G 1031	ダクタイル鑄鉄異形管
	JDPA G 1033	PH形ダクタイル鑄鉄管
JDPA規格	JDPA G 1041	ダクタイル鑄鉄貯水槽（貯蓄用・緊急用）
	JDPA G 1042	NS形ダクタイル鑄鉄管
	JDPA G 1043	ダクタイル鑄鉄射形水嘴
	JDPA G 1046	PN形ダクタイル鑄鉄管
	JDPA G 1048	US形ダクタイル鑄鉄管（US方式）
	JDPA G 1049	GX形ダクタイル鑄鉄管
	JDPA G 1051	PN形ダクタイル鑄鉄管（CP方式）

Practical Joint Training Course



Technical Conference



Technical Materials



Exhibits Lending to events for citizens



## ~Business expansion through international cooperation~



## International Business Platform Fukuoka Member Companies Catalogue 2022

Published : January, 2022

Office : International Affairs Department, Fukuoka City

TEL : 092-711-4051

FAX : 092-733-5597

E-MAIL : [koukenbiz@city.fukuoka.lg.jp](mailto:koukenbiz@city.fukuoka.lg.jp)

WEB : <http://www.city.fukuoka.lg.jp/soki/kyoryoku/shisei/kokusaikoukenbijinesutenkaipurattofo-mu.html>

Get "QR-code reader" APP!

E-mail



Web

